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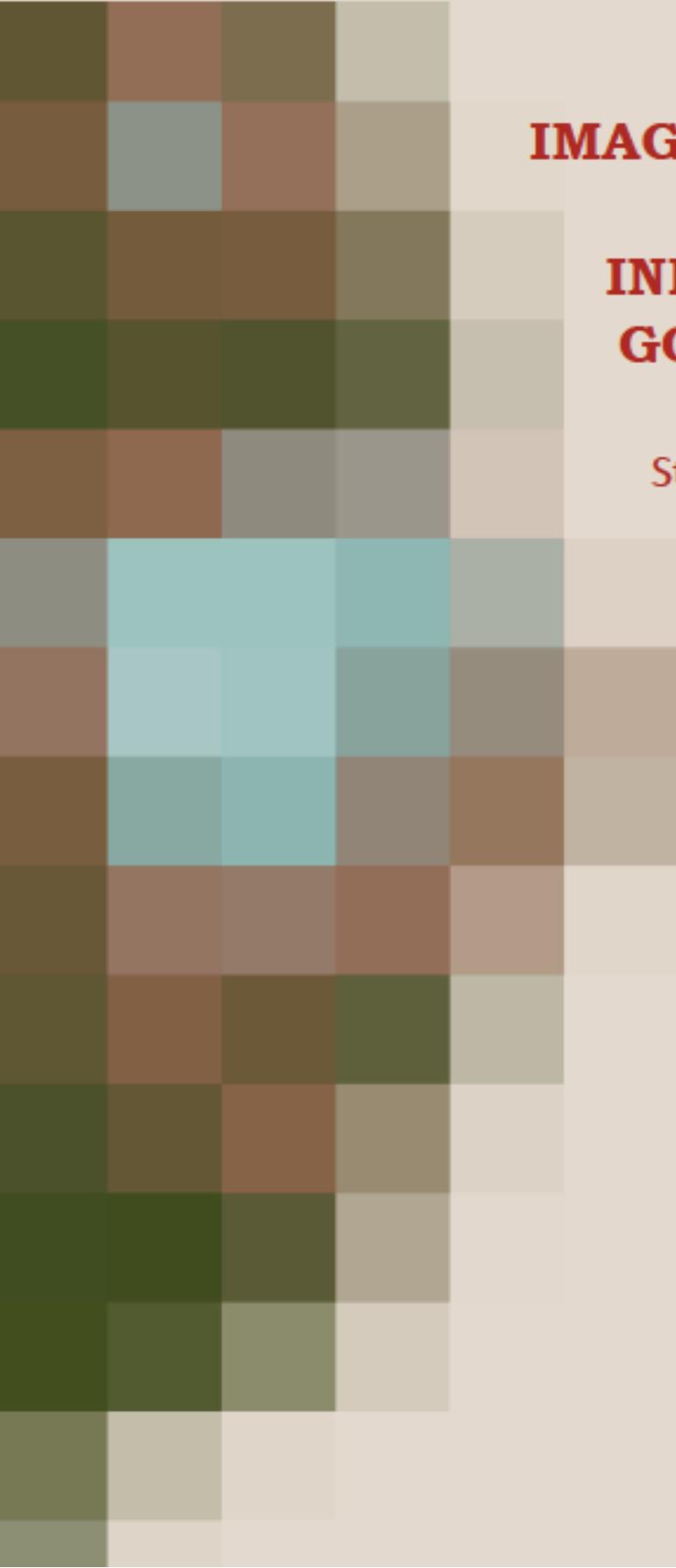
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**IMAGE BUILDING
IN THE
INFORMATION
GOVERNANCE
DISCOURSE**

Steps to Economies
of Meaning

Peter Beijer

IMAGE BUILDING IN THE INFORMATION GOVERNANCE DISCOURSE STEPS TO ECONOMIES OF MEANING

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'The time has come for us to shift from the "T" in IT to the "I." It's time to learn the balance if there's to be information focus. Don't get me wrong. I'm interested in the technology. I consider myself knowledgeable about it, but compared to my 16-year-old grandson, I am a moron. You know, his generation is very different from the CEOs you have now because they didn't grow up with making the machinery work.'

Peter Drucker (1997, September 15)

'As soon as one "proposes" - one proposes a vocabulary, an ideology, which can only have effects of domination. What we have to present are instruments and tools that people might find useful. By forming groups specifically to make these analyses, to wage these struggles, by using these instruments or others: this is how, in the end, possibilities open up. But if the intellectual starts playing once again the role that he has played for a hundred and fifty years - that of prophet in relation to what "must be", to what "must take place" - these effects of domination will return and we shall have other ideologies, functioning in the same way.'

Michel Foucault (1988, p. 197)

Preface

It was my vast intention to start this preface with some interesting philosophical quote; after all, with the many databases available nowadays on the Internet it is rather easy to find one. Then again, I would hide myself behind the thoughts and sayings of others. Of course, the findings and theories of others were the cornerstones for me doing research, but writing this Ph.D. dissertation became gradually very personal. The project provided me reflections, learnings, confrontations, as well as insights, and along the way it became a piece of myself, my baby so to speak.

In fact, such an endeavor starts long before the actual project. Looking back and thinking over it, I recognize that there are certain situational factors in the light of this research that greatly influenced my curiosity about why things work the way they do. One of these factors is the engagements I had with my clients through my employer. I always had a passion in opening the dialogue how technology concepts can add value to, for example, businesses and operations. It is also the people that I have met over the years, who influenced me with new ideas, theories, propositions, but above all, with questions. Eventually, these factors led to the work presented here, so it is worth to mention them.

On the Executive Masters for Information Management (EMIM) program, I got inspired by Rik Maes on the notion of meaningfulness. Back then, I certainly did not realize that I would start writing a dissertation on it, but it was Rik who initiated the curiosity for the concept of meaning making in me. The EMIM Fellows initiative, which ran for seven consecutive years, was another great source of inspiration. Through this program, I met a wealth of interesting speakers and thinkers who introduced me to, sometimes very different, views on concepts. Also, the fellows themselves: a great community that helped me to shape my thinking with the many dialogues and discussions we had. Erik de Vries was also one of those influential factors. Our discussion on the reflective practitioner in Durbuy, I think it was back in 2000, stimulated me to look at my own engagements with clients and how I can learn from that. I started realizing that my work with clients was a great source for inspiration and research. That automatically leads me to mention that my employer, Hewlett-Packard, also had a great influence on this endeavor because it is for me by far the largest provider of work experiences and customer contacts.

All the foregoing converged for me into the prominent question: how can one explain in non-technical language to senior management and policy makers or governors what the products from the information society can do for their organizations? A question that I have tried to answer in this work through the concept of meaning making in the context of innovation. My work with clients often involved workshops and collaborative working sessions; therefore, I aimed the research at a result that potentially could be used in the field.

Every preface on a dissertation contains words of gratitude. Therefore, I like mentioning a number of people whom I want to thank for their contribution in one

form another to my research project. So here go. Of course, I start with Rik Maes, my promotor, who guided me along the way, had the patience reading my drafts and challenging me on the approach and the propositions developed. Time constraints sometimes resulted in meetings with Rik at his home, often combined with a dinner. Therefore, I especially want to thank Simone Maes for her hospitality and the joyful dinners; I love the beautiful conversations we had!

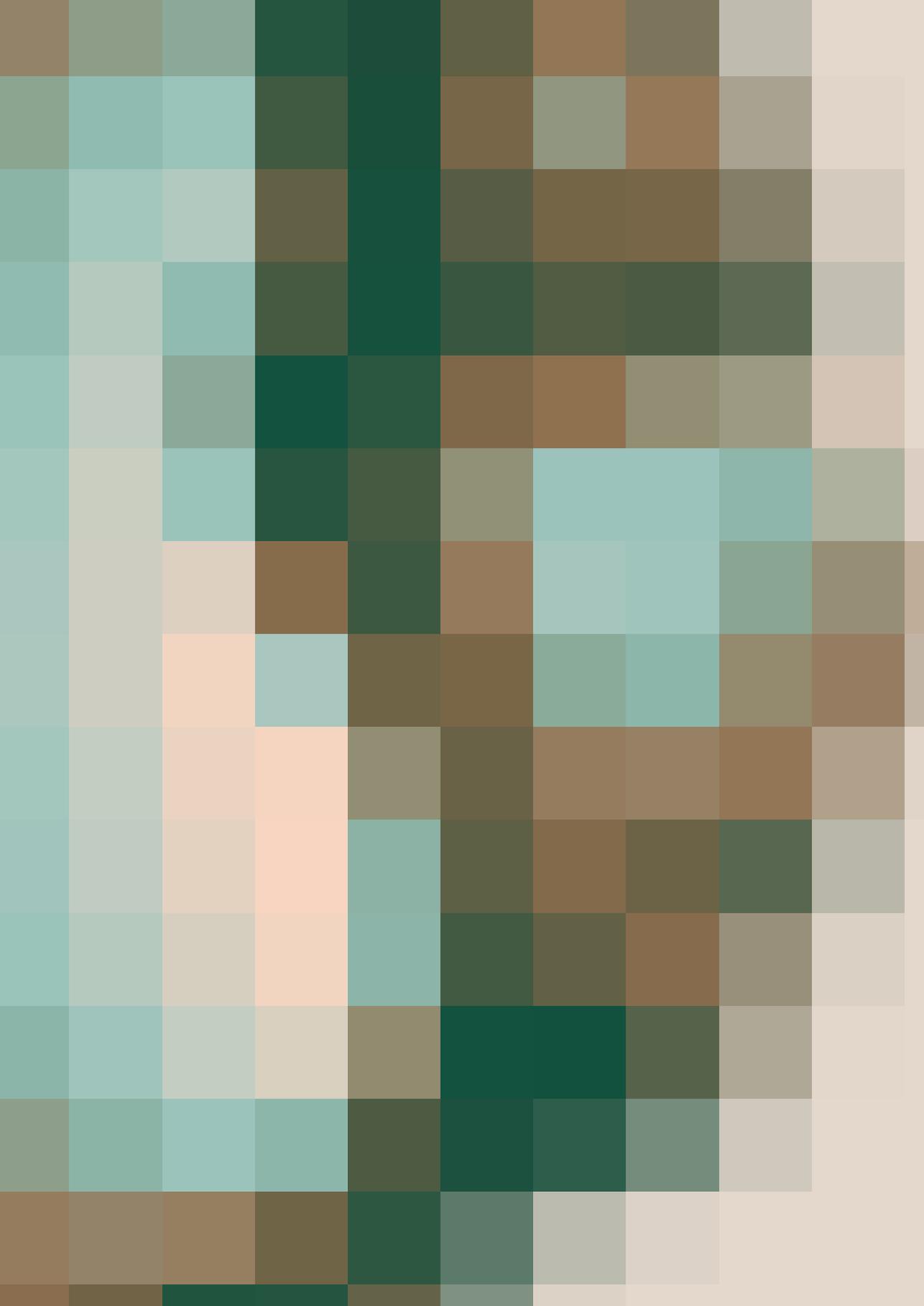
I want to thank Erik de Vries for the subsequent meetings on research approaches, reviewing some early drafts, and confronting me with different viewpoints. The Academy for Information and Management organized a special event on Ph.D. research; an excellent experience. I want to thank the crew for giving me the opportunity to present some parts of my work.

I also want to thank all those who participated in the workshops I organized as part of this research in order to obtain field data. The innovation team from the municipality of Haarlemmermeer, especially Paul Prooij, Christine Groothuis, and Inge Helsloot for thinking about the cases. Gerard Tunteler for supporting this; what a great location for a workshop! The people from Hewlett-Packard for participating in the workshop on the global retailer. Joost van de Vlies and Rene Kok in particular for bringing in the great cases. The board of directors from the Bernardinuscollege for taking the challenge, particularly Jan Vrijland, who was so kind organizing this and bringing in the cases. I also want to thank Erik-Jan van der Linden here for getting me in contact with Jan Vrijland; a truly unique experience this workshop was. The participants for the workshop at I3 groep, where Lucien Callaars and Alex Haage gave me the opportunity to use the workshop for discussing a topic that had a lot of attention in their organization. Finally, the participants of the session in the Big Data Value Centre from Almere Datacapital, where they set the first steps toward a joint venture; particularly Alwin Sixma and Oscar van Dijk, who gave me the opportunity running this workshop. All the participants mentioned here were important to me in completing my research project.

I am grateful to the management of Hewlett-Packard for giving me the opportunity starting this endeavor. A special word of gratitude goes to my colleague Stan Bosch. He had the patience in listening to the final concepts developed during my research, and coming up with prospects for workshops because he recognized its potential value. He seems to have an infinite source of ideas for doing workshops on this subject!

Finally, but most importantly, doing research and writing a dissertation is only possible when one has a safe haven, a place to concentrate, to read and think over all the puzzles one encounters during the journey. Therefore, I am indebted to my loving wife Neel, who created such an environment for me at home and stimulated me in so doing.

Peter Beijer, Vaassen 2014



1

GOVERNANCE IN THE GLOBAL INFORMATION ORDER

'Information growth is a major contemporary development whose far-reaching organizational, social and economic implications are just beginning to be felt. It exhibits strong self-propelling qualities that are associated with the production of information out of available information, a process that is inherently unstable and unpredictable. Growing this way, information is no longer a resource but a pervading element of socioeconomic life involved in the redefinition of a variety of practices and modes of involvement (Kallinikos, 2006, pp. 5-6)'

Introduction

Allegedly, the rapid and sometimes exponential growth of information is accelerating since the advance of the Internet. 'Information growth is a major contemporary development, whose far-reaching organizational, social, and economic implications are just beginning to be felt (Kallinikos, 2006, p. 5).' We can rightly speak of, what Castells (2000) has called, the information age, in his eponymous trilogy *The Information Age: Economy, Society and Culture*.

The idea of the information society has been widely accepted in sociology and other disciplines to reflect the post-industrial era. The information society is a major frame of reference to study informational developments and its associated technological innovations in the social context. Social sciences use it to elucidate the occupational evolution from traditional *workshop* labor to *informational* labor in creating surplus-value. More specifically, the people that presently work in the service economy, where the major feature of service work is information in jobs such as teaching, counseling, finance, and management. 'In the past, work was a matter of engaging with the elements and/or working with machinery of one sort or another, but today it is a matter of relating to other people in terms of information (Webster, 2005, p. 442).' Besides this occupational perspective, the idea of the information society also serves as an anchor for inquiry how informational developments affect our physical world in relation to the social. For example, Sassen (2001) questioned whether information-intensive enterprises have a need for other state-of-the-art, non-technical resources, such as infrastructure and real estate, in order to maximize business benefits.

From a more economical and business perspective, the information society is a society where firms use information technology (IT) and software for competitive businesses to include geographical range and reach, in order to become truly transnational enterprises (Keen, 1991). It is a society about the Marxian capitalization, in which the form of accumulated means of production becomes the technology and software, instead of industrial machinery (Lash, 2002). Lash (2002) refers to this as the global information order. In this order intellectual capital is becoming a merchandize and the type of business is producing and reproducing information and knowledge.

Dominant in the earlier narratives is that the becoming of the information society is the result of the shift in modes of communication and societal interaction. A different view came from Kallinikos (2006), who has argued in *The Consequences of Information* that information is more of a natural environment or habitat for organizations, with its own self-referential logic of growth. Kallinikos depicted the informational developments in the information society as 'dynamic, self-propelling, "runaway information processes" that cause far-reaching dissolutions of structures and realities that once were solid, tangible, hierarchical, and bounded (Wade, 2009, p. 121.)' He recognized information as the fabric that penetrates organizations and institutions, the immanent plane that deeply alters their existential being. There are

two major developments, Kallinikos (ibid.) argued, that relate to the technological and institutional change as we see it in the information society.

First, there is the exponential growth of information. Information has self-propelling and dynamic qualities because all available information enables the production of new information, which is a process that is uncontrollable and unpredictable by nature (Kallinikos, 2006). 'Growing this way, information is no longer a resource, but a permeating element of socioeconomic life involved in the redefinition of a variety of practices and modes of involvement (Kallinikos, 2006, p. 6).'

For example, Sassen (2001) contradicted the widespread believe that in the information age physical space and physical social interaction are no longer of interest. In Sassen's account of global cities, even though industry sectors are highly digitized, the concept of the city remains important in the information age, 'because the digital [...] is never only technological (Kraus & Petro, 2003, p. 3).'

As an example, Sassen (2001) showed how electronic financial markets have a topography that intertwines physical space and digital space. Despite their dematerialized and globalized activities, financial markets require an enormous amount of material and people; 'what takes place in finance is deeply inflected by culture, material practices, and imaginaries that exist alongside cyberspace (ibid., p. 3).'

Although the global city is a melting pot of informatized people and activities, at the same time it also brings a potential discrimination for those who are disadvantaged and have no access to this space. Lash (2002) described this phenomenon as a *disembeddedness* from the traditional: new elites are emerging that connect with their global networks. The information society is a society of exclusion that leads to different classes in society. 'To self-include and self-identify in the context of the *global* information and communication flows is to self-exclude and dis-identify from the *national* flows [emphasis in original] (ibid., p. 5).'

The foregoing shows that that the exponential growth of information has a broad and fundamental impact on society.

Second, there is, what Kallinikos (2006) called, *the computational rendition of reality*. With computer-generated information, to which Kallinikos referred as *technological* information, we are able to project new realities onto the real world we live in. On this subject, Kallinikos leaned much on the philosophy of Flusser, regarding his portray of a synthesized world by means of calculation, and a descriptive (real) world by means of writing. However, according to Flusser (1999), because the actual world too is computed – synthesized – by means of the human nervous system, both the projected world and the actual world are as much as actual or fictional; 'we are going from being the subject of a single world to becoming the projections of many worlds (Flusser, 1999, p. 65).'

Technological information meticulously reconstructs reality as huge amounts of automated operations. '[I]t exposes (or projects) a new, non-observable realm of reality that can be reconstructed, manipulated and acted upon through software-based representations (Kallinikos, 2006, p. 6).'

Kallinikos argued that the 'explosive information growth by necessity leads to the informatized rendition of reality on a massive scale,' with significant consequences. It will re-order our existing frames and a great deal of institutional processes will depend on it. 'Information becomes the generalized currency, as it were, of most institutional and social life (Kallinikos, 2006, p. 19).' As a result, we potentially end up with new images of reality when using technological information to view and control our real world; it will put our image of truth under pressure (ibid., p. 60).

These two aforementioned major developments, the unstable processes of information growth and the computational rendition of reality, might give the impression of a futuristic reality of some sort. We cannot deny, however, that the aspects of the information society deeply enter the veins of recognizable functions, institutions, and organizational structures. Lash (2002) illustrated through the concept of disorganizations, that the information society gives rise of certain forms of sociation that are non-organizational and often non-institutional; hence more individual. Traditionally, norms are the driving forces for organizations to shape themselves, dominantly resulting in hierarchical structures with appropriate channels of command and the division of labor. Disorganizations, Lash explained, 'are not the absent of organizations, but the decline of organizations. They entail a rise in particular forms of sociation, not the absence of sociation. They are not chaos, not chaotic organizations, they are neither formal nor informal; they are something else (Lash, 2002, p. 40).' Lash illustrated the difference between an organization and disorganization by comparing a church with a sect: the hierarchy, the set of norms, and legitimized power in a church versus the shared beliefs, convictions, or visions exemplified by a charismatic leader in a sect. Compared to informal organizations, disorganizations are more global than local, less fixed, and constantly changing. Disorganizations presume a singular mode of individualization while at the same time being collective. Organizations and institutions tend to make rational choices that have unintended side effects; 'disorganizations operate from a different logic. They often *are* the side effects, are the unintended consequences of the rational choices of organizations [emphasis in original] (ibid., p. 40).' A contemporary example is the development of free software such as the Linux operating system. It happens in a widely distributed and non-institutional manner in a global community existing of volunteers that cooperate mainly through the Internet realizing the vision of a leader.

The non-organizational and non-institutional forms of sociation that Lash has referred to, is entering the business realm of organizations today. The information society is 'out-there,' and becomes the natural environment in which organizations operate. The new forms of sociation use large-scale infrastructures as well as small, personalized and networked devices to make use of information abundantly available from numerous uncontrollable sources. Instead of anxiously wanting to control this according to established management paradigms, organizations must learn to live with the abundantly available information; they should show hospitality

toward it as well as toward its associated technology (Ciborra, 1999, 2002). Knowledge workers will use these uncontrollable information sources and information-based relationships no matter what. This information revolution has profound managerial consequences: the traditional management model, rooted in the industrialization of the late 19th century, no longer corresponds to an era where information and knowledge make the difference (Hamel, 2009). The essence of management is no longer the optimization of scarce resources, but making responsible choices in response to the information society.

Discourse in governance

This dissertation concerns the new essence of management: making responsible choices among the abundant informational opportunities offered by new technologies that the information society brings along. The information society 'out-there' communicates and plays with technology; meanwhile organizations are still struggling to adapt to technological developments as a natural forthcoming from the proliferation of information. Chief Information Officers (CIOs) are facing new challenges to turn these developments into beneficial instruments for the organization. Just two examples:

- The information society is increasingly engaging in a networked manner judged by the considerable amount of online communities built around blogs, forums, or social networking services such as LinkedIn and Twitter.
- The 'infrastructuration' of technology platforms into services, as shown by the technology developments such as Cloud, Software as a Service (SaaS), and Infrastructure as a Service (IaaS).

In their pursuit of control with the old ICT, organizations caught themselves in complex technology issues that focus on traditional standardization, local interconnectivity, or large-scale information system deployments such as Enterprise Resource Planning (ERP) or Customer Relationship Management (CRM). Meanwhile there is an increasing level of complexity of a different order when organizations become, sometimes unwittingly, involved with alien information infrastructures. It affects the technical, social, as well as the organizational domain and 'challenge[s] some of the basic premises of traditional forms of technological control and by extension, the *organizational practices* by which these last have been accommodated is rarely known [emphasis added] (Kallinikos, 2005, p. 188).'

IT governance is the discipline that provides a structure for boards, management, and other stakeholders to determine objectives that concern information technology and more specifically, its performance and risks (van Grembergen & de Haes, 2007; Weill & Ross, 2004). The expanding interest in IT governance is due to the rising awareness that IT projects easily get out of control and severely affect the performance of an organization, and, more specifically and timely, to adopt compliance initiatives such as Sarbanes-Oxley (in the USA) and Basel

II & III (in Europe). Because organizations increasingly interconnect information systems for financial and accounting purposes with operational systems, ‘whatever impacts the operational systems and processes is likely to cause an exposure to financial transactions as well (Raval, 2004, p. 15),’ which makes the totality of the installed business information systems and the underlying IT infrastructure, from a compliance perspective, subject to IT governance. IT Governance, in its current form, is the instrument par excellence for the ‘old’ world in trying to survive the issues imposed by the risk and performance paradigms. The more economics and business become uncertain, the more the term *governance* becomes synonymous with *good management*, and becomes caught in its search for increasingly detailed operational frameworks such as COBIT and ITIL (Simonsson & Johnson, 2006; Kooper, Maes & Roos Lindgreen, 2009). Moreover, it fundamentally fails to include the informational developments that the emerging information society brings with it.

Provided, that the discourse – the frames of thought and vocabulary – in governance opens up to include the contemporary informational developments such that responsible choices can be made, governance can become an important concept for organizations to beneficially explore the possibilities of the information society. Discourse is something that happens when we search for language to distinct lived events in reality; it is the intangible area between the words and the things. For example, with the arrival of Twitter, it was hard to imagine, let alone having a dialogue on, what the effects are of this social medium on political developments; we simply lacked the *discourse*.¹

Information governance is the emerging discipline that aims to provide structure for organizations to support the contemporary informational developments that they face in the information society. Information governance arose from the idea that:

- information is of paramount importance to the business and must be governed separately from the underlying technology;
- governing information should be set free from the constraints imposed by compliance and control;
- *information*, or *interpreted data*, as a concept implies that its governance must consider, besides a technology perspective, also intangibles such as interpretation and meaning.

¹ During the 2010 elections of the Dutch House of Representatives a great deal of socio-political interaction was done by party leaders on the social network site Twitter (www.twitter.com), emphasizing the highlights of their party program, answering questions of civilians, or even spreading their opinions on statements from competing parties. Information was leaking from politicians using mobile devices in traditionally ‘closed’ meetings where negotiations took place for a coalition agreement. All these so-called ‘Tweets’ entered the public domain and were highlighted and discussed by the media, making the overall discussion of the elections partly self-propelling.

The primary focus of information governance is to provide an answer on the questions: 'What information is needed in the organization and its users?', 'How do organizations make effective use of (existing) information?', and, 'Who has the responsibilities to realize that?' A logical, but slightly contorted reaction of most organizations is to focus on the risks that come with the information society, rather than exploring its opportunities. To name a few examples: information leaks, insider trading, industrial espionage, identity theft, credit card information, and spoliation charges if information is destroyed prematurely (Sundt, 2006; Hörnqvist, 2006; Phua, 2009).

The conventional notion of information governance is concentrating on a resource-based view on information. That is, organizations treat information as a strategic asset and discard the subjective wealth of its meaning to users. In tough times, information can even become a liability; therefore, organizations equalize the concept of information governance with risk management and regulatory compliance. If organizations, at all, explore opportunities, the dominant paradigm is of an economical nature. The very nature of information implies that its governance should also include immaterial elements and concepts, such as interpreting and sense making, and the often-overlooked phases of the information processing cycle such as sensing the environment (Bryant, 2007; Huizing, 2007b; Introna, 1997; Choo, 1996). The emerging discipline of information governance simply lacks the discourse that includes the informational developments of the information society, as pictured by the narratives from Lash (2002), Kallinikos (2005, 2006), and Webster (2005).

This is a dissertation that addresses the issue of discourse in information governance. It describes the research I have conducted to find a way for organizations to conceptualize and dialogue on informational developments in the dynamic, self-propelling information society. With this research I have looked at how an organization and its users can write, speak, or think about the informational experience that informatized forms of sociation have, and their effects on the basic premises of organizational practices. Put otherwise, the discourse that addresses the void in information governance needed to enable the new essence of management: making responsible choices in the abundant informational opportunities that rise with the information society.

The remainder of this chapter first discusses the theoretical context constitutional to the conducted research, followed by narrowed-down objectives of the research, resulting in research questions and associated steps.

Theoretical context

In the foregoing, I proverbially used the adjective *informational* in order to refer to the contemporary information society that raises the issue of a new essence of management and affects the discourse in information governance. Three things constitutionalize my understanding in this. They are 1) the notion that the concept

of information has fundamentally changed over time – an emancipation of information, 2) the concept of governance is more than the limited views on governance currently maintained in the IT industry and 3) the concept of discourse as a fundamental notion in frames of thought and vocabulary in governing. This section will discuss these concepts sequentially.²

Emancipation of information

The characteristic of the information society is not that we frequently use and apply information; this has always been the case since humanity, for example, when raising children. The characteristic of the information society is about the notion that information systemically weaves into most, if not all, aspects of people's lives. Technological developments have made information so abundantly available that it – information – has become the fabric of society; we assume it is always at hand. This happens to such extent that the paradoxical phenomenon occurs that the more information we have access to, or reaches us, the less meaning we assign to information (Dupuy, 1980). The overwhelming amount of information available through the Internet makes us less care to store and remember information. We trust that the Internet has the information we need, and we simply search for it with systems such as Google-search; it affects our cognition (Sparrow, Liu & Wegner, 2011). The foregoing shows that the notion of the concept of information has changed; it has emancipated and democratized.

The use of information technology (IT) in general is a source of confusion in the discourses on the concept of information. We tend to see information as a product of technology while information in essence contains subjective interpretations of objective facts; put differently, interpretation of data (Introna, 1997). This has not always been the case. In the late 17th and 18th century information only made sense when it was put into the proper context such as a form and a structure, or gave authority to a political, social, or scientific idea, which in itself had to match a clear worldview (Postman, 1999). For example, Galileo's observation that earth was orbiting the sun escalated to such an extent that he had to renounce this model and got a lifelong house arrest. At the end of the 20th century, the status and meaning of information changed. Information as true knowledge of reality disappeared and an interpretive view on information developed instead (Vreeken, 2005; Capurro, 2009).³ No longer did we see information as something factual but as constructs of meaning and systems that produce meaning such as language.

² I have published parts of this section earlier in a working paper and a conference proceeding; see Beijer (2009) and Beijer and Kooper (2010).

³ 'The philosophical controversy about the concept of information in the 20st century had its origin in cybernetics, because the concepts of communication and information were conceived at a higher level of abstraction and not reduced to the communication of human knowledge as expressed by Norbert Wiener's (1961, p. 132) famous dictum: "Information is information, not matter or energy" (Capurro & Hjørland, 2003, p. 361).'

Today we use information in the context of the human world where multiple meanings abound. Information is part of our continuous process of constructing meaning (Vreeken, 2005). Increasingly people's lives occur around objects where they use information to construct their identities. The growing number of Internet technologies for social networking overly shows that information increasingly becomes a medium around which people organize and socialize. Information has become the center of gravity, and we see *information-centered* socialities emerge;⁴ platforms such as eBay, MySpace, and Twitter and online games have become an integral part of our society.

People organize around the information these platforms provide. Moreover, we see that information gets an identity and starts a life on its own. For example, phenomena such as the 'the sales-figures of the month' stimulate practices to emerge in commercial organizations. The shift toward information-centric thinking much more reflects to the individual, because information is the source for more personal value when people affiliate with it. A subjectivist notion regarding the concept of information would provide a better understanding how information plays a role in the contemporary information society.

According to Debons and Horne (1997), the conventional wisdom is that any attempt for (ontological) definitions of the concept of information is useless because the many discussions on the subject did not reveal any sign of concurrence. Definition or not, the discourses on the concept of information, and its management, dominantly address the objectivist aspects of information. This is remarkable because information always has been a key concept in people's daily life; a life in which the subjectivist aspects equally matter. We seem to avoid, following Huizing (2007a, 2007b), the dualistic nature of information and its management.

According to Huizing (2007a, 2007b), the approaches to information management follow either the objectivist or the subjectivist view. These are two opposing philosophical traditions – a dualism. For example, managing information as objectified resources such as in economics, technology and accounting versus managing the human relation with information, where interpretation and interaction are the (subjective) foundation for knowledge. Comprehensive information management requires that the two traditions reinforce one and other – duality – instead of rivaling each other in their independence – dualism (Huizing, 2007b).

In general, development of IT has an increased focus on the 'material' character of information. The emancipation and democratization of the concept of information evolved into a codify-able and tradable commodity that culminated in the dotcom era. Considering how neoclassical economics influences information exchange, transfer and usage, and that the model of the perfect market dominates

⁴ Social sciences refer to this phenomenon as object-centered sociality; objects have a broad interpretation in this discipline (e.g. Knorr-Cetina, 1997). I prefer to use the term '*information-centered sociality*' for those cases where information is the center of gravity.

in order to realize value (Huizing, 2007a), I conclude that the subjectivist view on information has lost attention.

Following the foregoing, one can speak of an emancipation of the concept information. Starting at the late 17th and 18th century, various notions concerning the concept of information changed. Table 1 illustrates this.

Table 1: Emancipation of the concept of information

Late 17 th /18 th centuries	Yesterday	Tomorrow
Scarcity	Objectification	Abundance
Given / truth	Constructs	Choices
Certainties	Concepts & models	Personalized values
Norms	Measure & control	Independent
Unilateral meaning	Economics of data	Economics of meaning

Governance

The term governance is ubiquitous in business. Corporate governance is the discipline that focuses on the proper functioning of management, a process that essentially interests the board of directors, shareholders and management. The IT industry uses governance to impose structures in order to create predictable behavior in IT organizations.

Literature shows many definitions on the concept of governance. For example, Forte, Larco, and Bruckman (2009) stated that governance in general refers to a system for organizing the rules that regulate people’s behavior in a particular place. Alternatively, Burris, Drahos, and Shearing (2005) defined governance as the management of the course of events in a social system. In discussing IT governance, Weill and Ross (2004) made a distinct difference between governance and management. Governance refers to the decision-structure required to ensure effective management and use of IT while management involves making, implementing and maintaining these decisions (ibid.).⁵ Based on literature study of sixty different definitions, Simonsson and Johnson (2009) defined IT governance as IT-decision-making: ‘The preparation for, making of and implementation of decisions regarding goals, processes, people and technology on a tactical and strategic level (ibid.).’

In general these concepts of governance are too limited for the purpose of this thesis, because they do not include the interactions and dynamics of actors involved

⁵ Chapter 3 elaborates on the differences between governance and management because its fundamental difference underpins why we need governance concepts in order to enable the new essence of management: making responsible choices in the abundant informational opportunities that rise with the information society.

in the information society. I have argued earlier that organizations dominantly interpret the concept of information governance from a risk-mitigating perspective while a broader perspective is necessary in order to have a governance discourse that meaningfully reflects the contemporary information society.⁶ That limited interpretation typically covers dimensions such as compliance, performance and control. Table 2 lists some examples.

Table 2: Examples of information governance risk-mitigating dimensions

Dimension	Example
Compliance	The focus on information not violating regulation Retaining information for future legal references
Performance	The information-driven enterprise that extensively uses information for its core business processes. Information used for management reporting systems
Control	Defining policies how employees may provide information to the outside world such as putting company information on social websites.

Kooiman (2003) described a comprehensive concept of governance. Noteworthy is his distinction between *governing* and *governance*, which is a direct consequence of including interactions and dynamics in the concept of governance in general. Kooiman (2003) defined the concept of governance as:

'Governing can be considered as the totality of interactions, in which public as well as private actors participate, aimed at solving societal problems or creating societal opportunities; attending to the institutions as contexts for these governing interactions; and establishing a normative foundation for all those activities.

Governance can be seen as the totality of theoretical conceptions on governing [emphasis in original](Kooiman, 2003, p. 4).'

Kooiman (2003) emphasized that governance processes take place in a dynamic world of great diversity and complexity. Against the background of these societal features, creativity and intuition are equally important as goal directedness in governance. In order to govern effectively, governing actors must make use of the richness of societal diversity by exploring its boundaries (ibid., p. 196), and reduce social complexity by developing decomposition strategies (ibid., p. 199). Societal dynamics are a critical aspect for governance because its patterns form the basis for governing – object – while the dynamical forces are the purpose of governing – subject (ibid., p. 203). With the aforementioned societal features, Kooiman (2003) concluded that interpretation of governance heavily depends on such contexts and organizational cultures.

Theory on governance recognizes three modes of governance: 1) hierarchical governance that focuses on top-down directions and controls in order to enforce

⁶ See page 6 on information governance as an emerging discipline.

regulations; 2) co-governance, in which networks of various parties pursue common values for the benefit of all members; and 3) self-governance, where the search for identity through values and codes of conduct is the center of gravity (ibid.). All of these modes of governance use various governing *elements* that can specially relate to subjects such as regulations, finances, knowledge, motivation, power sharing, learning and implicit truths. Kooiman (2003) recognized three governing elements: 1) instrumentation, which can be, for example, legal, financial or knowledge-based; 2) the (inter)actions, which concerns things such as motivation and power; and 3) imaging, which concerns the images that we build up during governing activities.

With imaging, Kooiman (ibid.) refers to the formation of images – governing images. It is an unavoidable concept in governance; it does not matter what role or authority we have when we are governing, we will always form images about what we are governing. ‘Such images can be extensive in scope and based on thorough analysis, but they can also be limited, and informed by personal experiences. Images can be clear and made explicit, or they can hover implicitly in the background (ibid., p. 29).’

Governing images are the result of assumptions, knowledge, and learning; without the formation of governing images, we cannot properly initiate governing actions and apply governing instruments. Kooiman (ibid.) provided a broad definition of governing images. They can contain a large variety of internal and external data such as ‘visions, knowledge, facts, judgments, presuppositions, wishes, goals, hypotheses, theories, convictions, and even metaphors or parables (ibid., p. 29).’

According to Kooiman (2003), governing images play a key role in governing activities because, one can only change existing knowledge systems and value systems by repeatedly challenging them with new images. Allegedly, the concept of governing images is the essence of governing, because it is impossible to govern properly without them. An analysis of how societal features play a role in governing elements subscribes the foregoing. Compared to the other governing elements, governing images seems a difficult to grasp concept in governance; images are interpretative with open meanings while diversity can take unlimited forms (ibid., pp. 204-206). Table 3 shows to what extent governing elements represent societal features.

Table 3: Governing elements and societal features (Kooiman, 2003)

Governing elements	Societal features		
	Diversity	Complexity	Dynamics
Images	High		Low
Instruments	Low	High	
Action		Low	High

To conclude the foregoing, governance is a concept that IT uses to impose structures for good performance and mitigating risks. In general, the definitions in literature dominantly address dimensions such as compliance, performance, and control. Kooiman (2003) addressed a comprehensive concept of governance that takes notion of the dynamics, diversity, and complexity that governing actors face, it requires good image building in order to govern appropriately.

Discourse

In general, one uses the term discourse when referring to the way we construct meaning using language in long and thoughtful discussions. Discourse then is about how texts interrelate and connect to each other in written or spoken language; it denotes the process of reasoning and the forming of meaningful sentences (Discourse, 2012). Discourse, in the context of my interpretation of information governance, is not simply in the sense of speech or argument, but the overall Foucauldian position of truth and power, as ‘a function of what can be said, written or thought (McHoul & Grace, 1993, p. 33).’ Discourse, is where reality as a lived event becomes language, the intangible area between the words and the things, where we have to search for a language that makes their distinction. This was a reason for Foucault to link discourse inextricably to power, not subject-related power, as in a powerful individual or group, but all of the effects of power among the members of a society, often designated by Foucault as a discipline.

Foucault’s rethinking of the term discourse made it one of the most influential concepts of his vocabulary; it is about the conditions, or the set of rules that enable us to conceptualize something, dialoging about it, and building up a body of knowledge of it. Foucault’s notion on these rules is that ‘systems of thought and knowledge (epistemes or discursive formations, in Foucault’s terminology) are governed by rules, beyond those of grammar and logic that operate beneath the consciousness of individual subjects and define a system of conceptual possibilities that determines the boundaries of thought in a given domain and period (Gutting, 2012).’

Following Foucault, historical perspectives limit the way we can write, speak, or think about social objects or practices (McHoul & Grace, 1993, p. 31). For example, the discourses in disciplines such as medicine or astronomy vary distinctively in their historical perspectives. The same applies to the discourse and the frames of thought in information governance. For example, the emergence of social networks such as Twitter and LinkedIn changed it considerably; today we use different premises to dialogue and reason in information governance. In the light of Foucault’s discourse, one can speak of regimes of truth and meaning that find their justification constrained by their worldview and moment in history.

To summarize, Foucault’s interpretation of discourse essentially concerns how we *can speak* of things because of their historical context, without making any claims on their meanings or truths. With his interpretation, discourse emphasizes on the discursive meaning of an expression or statement, not about whether they are

semantically or syntactically right; an expression can be grammatically correct but lack any discursive meaning, and vice versa, expressions that are incorrect from a grammar perspective can be full of discursive meaning.

Synthesis

The foregoing introduction and theoretical context contributes to the notion that information governance goes beyond the elegant word the IT industry uses to impose structures on IT organizations for predictable behavior. The previous notions on the contemporary information society, such as the unstable information processes and computational rendition of reality (Kallinikos, 2006), the irrational side effects of disorganizations (Lash, 2002), and the uncontrollable informational resources (Ciborra, 2002), substantiate that information governance should comprehend a governance concept that goes beyond applying rules and standards for appropriate use of information. The theoretical context on information, governance, and discourse give a notion on enhancing the information governance concept in order to address governing issues in the contemporary information society.

Information governance relies on all three modes of governance: hierarchical governance, co-governance, and self-governance, because the contemporary information society is complex while meaning, interpretation, and sense-making are key concepts in this (Maes & de Vries, 2008; Weick, 1995). The concept of governing images raises particular attention in a comprehensive approach to information governance. In image formation, governing actors are subject to the same informational experiences that they need to govern. According to Kooiman (2003), the communities and interaction are constitutional for governing actors to form, discuss, and test the images on governing issues. If the images they govern are informational by themselves, what then is the governability of information in the concept of information governance? This recursive aspect of information governance emphasizes that the formation of governing images is a phenomenological concept, because it is subject to the governing actor's own informational experience. This makes it a concept that is difficult to grasp.

The theoretical context on information contributes to the notion that information in the contemporary information society is as the fabric, immanently everywhere, and biasing or hampering the images that we build up in discussing and testing of governing issues. The notion of Foucauldian discourse contributes to this in a sense that building up governing images is subject to the constraints of our frames of thought, the way we can write, speak, or think about the products of the contemporary information society, which also involves the image-building process in information governance.

The key idea developed here is that comprehensive information governance relies on appropriate governing images; we cannot govern properly without them.

This motivates to elucidate how governing actors can obtain governing images. The following three notions solidify this idea. 1) Reverting to Table 3 how governing elements represent societal features, we see that social diversity dominates governing images.⁷ 2) Social diversity can take unlimited forms with the governance elements, specifically with governing images. 3) According to Kooiman (2003), there is existing knowledge on the other two elements, instruments and actions.

Research objectives and steps

This research has the overall objective to contribute to enhancing the current concepts of information governance such that it that can address governance issues of the contemporary information society. The issues I raised in the first part of this chapter encourage looking fundamentally different to information governance in the global information order. I have argued earlier that organizations need to find ways to conceptualize and dialogue on the informational developments represented in the dynamic, self-propelling information society while the current interpretations of information governance lack the discourse to address issues other than risk mitigation and appropriate use of information. The need for this discourse is a direct implication of enabling the new essence of management: making responsible choices in the abundant informational opportunities that rise with the information society.

Consequently, the specific objective of this research is 1) to develop an understanding on the concept of governance that confirms my overarching assumption that comprehensive information governance is required for governing in the global information order and 2) enhancing image building to include meaningfulness in the governance discourse in order to make a comprehensive concept of information governance possible.

This involves exploring the essence of how information governance conceptually relates to aspects of the global information order, and how governing actors can enhance their vocabulary and frames of thought in order to address issues that concern these aspects in the governance discourse. Therefore, I formulate the following set of research questions:

1. What key characteristics emerge from the global information order and how do they relate to the concept of governance?
2. How does the current concept of image building in information governance have to be enhanced in order to govern with these characteristics?
3. Is it possible to develop an instrument that operationalizes these enhancements of image building in information governance?

⁷ See page 12.

These research questions refer to four main steps of a constructivist journey I will take in order to gain the knowledge required in fulfilling the research objective specifically. First, I will search for a deeper understanding of the global information order, the concept of governance, and their relation to each other. That serves two purposes: 1) it should substantiate my assumption on the need for comprehensive information governance; 2) it will provide the context of what is required to enhance the concept of image building. Second, I will elaborate on the notion(s) that have emerged from the first step in order to find the necessary concepts for enhancing image building in the current discourse in governance. Third, I will explore steps that are necessary to operationalize the former. The latter involves a design process – instrument development – using requirements elicited from the insights developed in the previous two steps. Fourth, I will evaluate the instrument and analyze the results of this evaluation. A discussion will conclude these four main steps of the research. Figure 1 illustrates the foregoing.

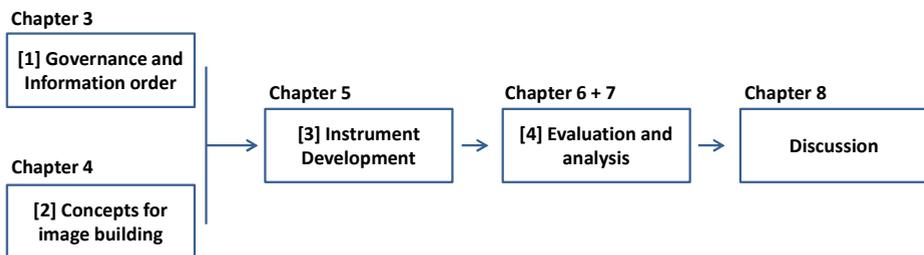
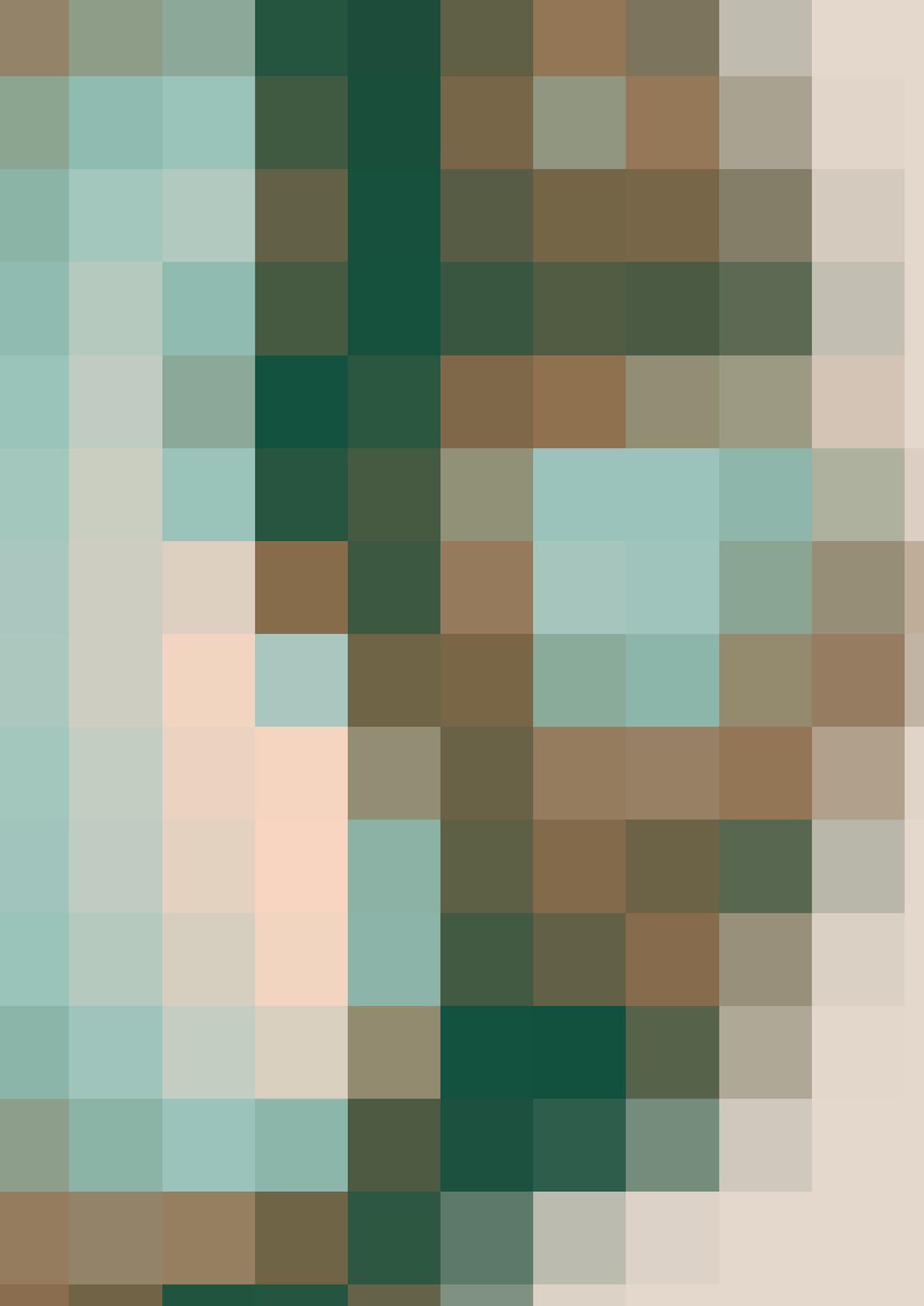


Figure 1: Research steps

Before executing the aforementioned research steps, I will first elaborate on the research paradigm and motivate the approach adopted for this research. That is the purpose of the next chapter.



2

RESEARCH APPROACH

*'Designing a future is fundamentally different from describing and explaining the present
(van Aken & Romme, 2010, p. 2).'*

'[C]ase study has its own rigor, different to be sure, but no less strict than the rigor of quantitative models. The advantage of the case study is that it can "close in" on real-life situations and test views directly in relation to phenomena as they unfold in practice (Flyvbjerg, 2006, p. 235).'

Introduction

To develop an instrument that operationalizes an enhanced concept of image-building for information governance, I have conducted a design-oriented study. In this chapter, I will discuss the philosophical foundation of the design-oriented approach and develop the arguments why this approach fits the research objectives. To do this I will first discuss aspects of qualitative research that result in applying design-science research complemented with the case-study concept in order to develop and evaluate the instrument. Second, I will discuss design-science research and the case-study concept in the details necessary to underpin the choice for this approach. Finally, I will present the research process that I have followed in applying the concepts mentioned.

There are two key ideas this chapter presents. First, why design-science research is an approach that develops legitimate research results by appropriately addressing the classical rigor-relevance dilemma, and why design-science research better fits this inquiry than action research. Second, how the case-study method is appropriate for evaluation of a design. The actual setup of the case studies, used in this research, is beyond the scope of this chapter; the introduction to the actual evaluative case studies in chapter 6 will discuss this.

This chapter builds up as follows: First, I will discuss qualitative research, followed by a discussion on design-science research. Then, I will visit the case-study concept, after which I present the research process. A summary closes this chapter.

Qualitative research

In order to obtain scientifically valid research results, the approach and methods for the inquiry and data analysis must be in line with the assumptions determined by the philosophical foundation of the research. The interpretive research paradigm is the underlying assumption for the epistemology that guides the research. In general, interpretive studies ‘attempt to understand phenomena through the meanings that people assign to them (Myers, 1997, p. 4).’ Since I am trying to understand whether it is possible to enhance the concept of image building to practice information governance in the contemporary information society, the interpretive research paradigm seems most appropriate.

‘A research method is a strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection (ibid.).’ The strategy used for this research is design-science research (DSR) to design the instrument, complemented with the case-study method to evaluate the usefulness of the instrument (e.g. van Aken, 2004; van Aken & Romme, 2010; Baskerville, 2008; Hevner & Chatterjee, 2010; Peffers, Tuunanen, Rothenberger & Chatterjee, 2007;

Winter, 2008).⁸ Conducting a case study is relevant when ‘a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control (Yin, 2003, p. 9).’ The case-study criteria certainly apply to the nature of this inquiry as the central research question investigates *how* we can enhance image building in the discourse of information governance.

A core element of the research is the *development* of an instrument that operationalizes image-building enhancements in the information governance discourse. This calls for a research approach that creates valid knowledge from actual design and evaluation activities. At first thought, action research (AR) seemed promising, but a closer look at DSR shows that it better accommodates the objective of designing and evaluating an artifact – the instrument.⁹ Although some see a great deal of overlap and similarity between AR and DSR (e.g. Järvinen, 2007; Lindgren, Henfridsson & Schultze, 2004), there are distinct differences (Livari & Venable, 2009; Cole, Puraio, Rossi & Sein, 2005; Baskerville, 2008; Peffers et al., 2007). First, the AR paradigm does not explicitly aim at developing valid knowledge that is transferrable to other contexts, because it is situational focused. Second, AR emphasizes on change, assuming that observing the effects of intervening in complex processes produces knowledge; a two-step process that starts with a collaborative analysis followed by collaborative change (Baskerville & Myers, 2004; Baskerville, 2001). DSR, on the other hand, aims at creating valid knowledge more from the development process itself than from interventions as with AR. Peffers et al. (2007) have argued that AR and DSR have different conceptual origins. DSR ‘comes from a history of design as a component of engineering and computer science research, while AR originates from the concept of the researcher as an “active participant” in solving practical problems in the course of studying them in organizational contexts (ibid., p. 72)’. With the DSR paradigm, the development activities of my pursued instrument, become an intrinsic part of the research and should produce valuable knowledge.

Following van Aken (2004), the research classifies as social-system research, because it develops an instrument to understand and influence the discourse in information governance – write, speak, or think about informational issues in the semiotic order. From the DSR perspective, the instrument is the design proposition, and I will use this instrument in a series of small case studies to evaluate the proposition. The evaluation of the proposition concerns *how* – not what – governing actors discuss their governing images, which build up in the contemporary

⁸ ‘Design science research is a research paradigm in which a designer answers questions relevant to human problems via the creation of innovative artifacts, thereby contributing new knowledge to the body of scientific evidence. The designed artifacts are both useful and fundamental in understanding the problem (Hevner & Chatterjee, 2010).’ Writers on design-science research have used different terms such as design research, design science, or design-science research (Cole et al, 2005). I will reflect on this in more detail in the discussion of design-science research, the next section of this chapter.

⁹ With the term artifact, I mean something that is artificial, not found in nature, constructed by humans (Simon, 1996).

information society. Analyzing and synthesizing results should lead to more generalized knowledge for practical information governance fieldwork and further theory building.

Before I will discuss the research process in more details, it is necessary to elaborate on the two concepts that are constituent in executing the research: design-research and the case-study method. In what follows, I will first explain how the ideas of the design-oriented approach fit the research objectives.

Design-oriented research

The design-science research paradigm builds on the premise that '[d]esigning a future is fundamentally different from describing and explaining the present (van Aken & Romme, 2010, p. 2).' There is consensus in DSR literature that it goes back to Nobel laureate Herbert Simon (1996) with *The Sciences of the Artificial* in which he has shown the profound differences in the activities involved in describing and explaining a situation as is, and activities that develop – designing and evaluating – a possible future state. 'As design plays a central role in the creation of preferred futures, one may call disciplines where design is central *design sciences*, as opposed to *explanatory sciences* [emphasis in original] (van Aken & Romme, 2010, p. 2).' The search for potential solutions that fit real-world problems is driving design sciences. This makes research according to design science inherently a problem-solving approach (Hevner, March, Park, & Ram, 2004; Livari & Venable, 2009).

Design-science research addresses the dichotomy where a research setting involves the design process as well as the design product. It does not assume away either one of them, and it allows the researcher to continuously changing perspectives between product and process. The development process typically involves building and evaluation activities in a number of iterations, a creative process in which the researcher evolves the design process as well as the design product. 'Building is the process of constructing an artifact for a specific purpose; evaluation is the process of determining how well the artifact performs (March & Smith, 1995, p. 254).' In contrast to research in behavioral sciences, which tries to explain and predict phenomena by developing and justifying theories, DSR tries to meet an identified business need – solve an identified problem – through the building and evaluation of artifacts; research in behavioral science searches for truth, the objective of DSR is utility (Hevner et al., 2004).¹⁰

Before discussing more details on how DSR fits my research, a clear delineation of my usage of design-science research is necessary. As said, research according to the DSR paradigm tries to solve an identified problem *through the building and*

¹⁰ 'Theories posed in behavioral science are principled explanations of phenomena. [...] [S]uch theories are approximations and are subject to numerous assumptions and conditions. However, they are evaluated against the norms of truth or explanatory power and are valued only as the claims they make are borne out in reality (Hevner et al, 2004).'

evaluation of artifacts. The conventional literature on DSR is not very clear concerning the object of inquiry. Is it the process involved in designing and evaluating the artifact? Is it the artifact itself? Some exceptions on this to my knowledge are Gericke and Winter (2008), Winter (2008), and Cole et al. (2005). Cole et al. (2005.) commented on the different terminology that one is using, however, they have not given any clear definitions themselves. Gericke and Winter (2008) proposed an analysis framework for IS design-science research that clearly delineates the research areas and artifacts involved. With the framework, Gericke and Winter (ibid.) '[separated] design science (i.e., reflection and guidance of artefact construction and evaluation processes) from IS design research (i.e., construction and evaluation of specific artefacts) (Winter, 2008).' My research focuses on the *design-research* part. Put it another way, through designing and evaluating an artifact, I pursue knowledge.

The idea of separating design science from design research raises two important questions. How does design research address the classical rigor-relevance dilemma, and how can design research differentiate itself from routine design (Hevner et al., 2004)?

As mentioned earlier, design-oriented research is inherently a problem-solving process (Hevner et al., 2004; Livari & Venable, 2009). This justifies the relevance part of the rigor-relevance dilemma, but rigor seems a challenge. Design research executes rigorously when it appropriately uses existing foundations and methodologies. This often involves 'computational and mathematical methods [...] to evaluate the quality of and effectiveness of artifacts, however, *empirical techniques* can also be employed [emphasis added] (Hevner et al., 2004, p. 81).' I will revisit the rigor issue in more detail later.

Hevner et al. (2004) discussed the issue how to differentiate design-oriented research from routine design, the application of existing knowledge to organizational problems. Their argument was that the premises of design-oriented research are its innovative problem-solving approach with its simultaneously clear contribution to the existing knowledge base as the key differentiator. Design is a creative, heuristic process where design-oriented research in particular often uses nonexistent knowledge; 'reliance on creativity and trial-and-error search are characteristic of such research efforts (ibid., p. 81).' Since design-oriented research uses existing knowledge without constraining itself to discover new knowledge in a rigorous build-evaluate approach, makes it a problem-solving instrument par excellence (Hevner et al., 2004).

Design-oriented research 'creates and evaluates IT artifacts intended to solve identified organizational problems (Hevner et al., 2004, p. 77).' Within the interpretation from Hevner et al. (2004), IT artifacts can include more than just instances of the representations of ideas. 'Constructs (vocabulary and symbols), models (abstractions and representations), methods (algorithms and practices), and instantiations (implemented and prototype systems) (ibid., p. 77),' they all fall into

their interpretation of IT artifacts. Constructs and models are an essential aid in understanding and solving problems. They provide the vocabulary that is necessary in creating a common understanding for those involved in solving a problem. If we have useful constructs and models, we can write, speak, or think about problems and solutions; they can change our perception of problems and significantly affects the way to deal with them (Schön, 2000). Purposeful constructs enable us to create models that are able to represent the problem and its solutions space. Developing constructs leans toward constructing ‘vocabulary and symbols used to define problems and solutions (Hevner et al., 2004, p. 83).’

Since my research effort is the design and evaluation of an instrument, a logical question at this point is, and thereby revisiting the rigor-relevance dilemma, whether the research can produce rigorous results. To be more specific, can we produce useful and legitimate results when developing an instrument.

First, much research on IT artifacts is about organizational effects; research, that aims to find theories that help to understand phenomena in relation to the artifacts usefulness, its usage (or misuse) and how it affects individuals. Although Hevner et al. (2004) acknowledged the necessary organizational fit when designing IT artifacts, in their interpretation of artifacts, they have deliberately excluded people and elements of the organization perspective. Their argument was that ‘the capabilities of the constructs, models, methods, and instantiations are *equally crucial* and that design-science research efforts are necessary for their creation [emphasis added] (Hevner et al., 2004, p. 83).’ In addition, although the artifacts – constructs, models, methods – developed, are rarely full-grown solutions that are readily implementable in practice, the activities that constitute design-oriented research efforts do advance on ideas, practices, and technical capabilities, which makes it a meaningful endeavor that can produce knowledge (ibid.).

Second, there is the issue whether the focus on developing artifacts can produce results that span a wider context. Put differently, can it produce other knowledge that helps us to understand phenomena in a wider context? From a governance perspective, do we gain an understanding of the governance issues, as described in the previous chapter, when we ‘just’ develop an instrument? The average researcher would prefer to do field studies to understand phenomena-in-context, because they do not much appreciate developmental research (ibid.). Nevertheless, the construction and evaluation exercise involved will make use of a firm knowledge base that relates to the governance issues discussed, while the case studies in evaluating the instrument can bring in additional knowledge about phenomena. Developing the instrument should give an understanding of problems that the instrument tries to address and should give insight in its usefulness, in fieldwork (Nunamaker, Chen & Purdin, 1991).

I conclude that the design-oriented research approach seems appropriate in developing an instrument in the research context presented here. However, I cannot ignore that this approach does have its challenge. Research in designing useful

artifacts introduces 'the need for creative advances in domain areas in which existing theory is often insufficient (Hevner et al., 2004, p. 76).' This leads to an important question that concerns the research process. How to realize the design and evaluation of the instrument in the context described here? Before I will elaborate on the research process, it is necessary to discuss some aspects of the concept of case study, the second constitutive part of the research.

Case study

The case study is a common research method in social sciences to create intimate knowledge of phenomena that concern individuals, groups, or events. Typically, case studies involve in-depth investigation of a single instance or event, as well as, multiple instances. Case studies can have a descriptive, interpretive, and evaluative purpose and may involve longitudinal examination of a single event or a series of shorter case studies that involve multiple events (Merriam, 1997; Yin, 2003). Descriptive case studies collect data and restrict to describing the events. Interpretive case studies try to categorize and conceptualize with the data from the events. Evaluative case studies use the latter to judge the phenomena represented by the data.

According to Flyvbjerg (2006), the conventional wisdom on case-study research has questioned its validity and has sometimes labeled it as 'nothing more than a method of producing anecdotes (Flyvbjerg, *ibid.*).' Flyvbjerg (*ibid.*) has identified a number of common misunderstandings on case-study research regarding theory development, validity, and reliability. The misunderstandings concern that 1) practical knowledge is not valuable; 2) generalization seems not possible, making case-study research of no value to scientific development; 3) one cannot use case studies to test hypotheses; 4) the case study has an increased bias of the researcher; 5) specific case studies are difficult for summarizing and developing general propositions and theories. Flyvbjerg (*ibid.*) concluded that 'by large the conventional wisdom is wrong or misleading (*ibid.*, p. 241).' He has developed countering arguments, to correct these misunderstandings, which positively influenced the conventional wisdom on case-study research (e.g. Runeson & Höst, 2009; Ruddin, 2006; Stake, 2010).

The role of the case study in this research is to evaluate whether the instrument is useful for the discourse on informational issues that characterize the semiotic order. The evaluation concerns *how* governing actors discuss the governing images they build up in the contemporary information society. The case study seems an appropriate way to evaluate artifacts on utility, because it generates context-dependent knowledge. Following my arguments in the previous section on design-oriented research, the design phase of the research generates theoretical knowledge, since it visits theories that are relevant to the research question. In order to develop an intimate knowledge, besides theoretical knowledge, context-

dependent knowledge through experiences with the instrument is necessary. 'Context-dependent knowledge and experience are at the very heart of expert activity. Such knowledge and expertise also lie at the center of the case study as a research [...] method (Flyvbjerg, 2006, p. 222).'

The process of forming governing images, as I have argued in chapter 1, is of a phenomenological nature. This requires the evaluation of the instrument to be in accordance with phenomenological research paradigms. Lester (1999) explained that pure phenomenological research rather describes than explains, and that, following Husserl such a research should be free from preconceptions or hypotheses. However, Lester has also noted that there is a general acknowledgement that this is difficult in practice, if not impossible. 'Interpretations and meanings [are] placed on findings, [and] the researcher [is] visible in the "frame" of research as an interested and subjective actor rather than a detached and impartial observer (Lester, 1999, p. 1).'

Flyvbjerg (2006) has referred to this as a subjective bias toward verification, which he saw as a general issue, that is even subjective to quantitative research.¹¹ He has argued that although one sees case-study research often as less rigorous, it has its own rigor and 'can "close in" on real-life situations and test view directly in relation to phenomena as they unfold in practice (Flyvbjerg, 2006, p. 235).'

Not verification, but falsification is what characterizes the case-study research (ibid.).

Using a case-study method to complement the design activities in evaluating the instrument can certainly be of value in scientific innovation. 'In IS research, no one research methodology should be regarded as the preeminent research paradigm, because no one research methodology is sufficient by itself. In general where multiple methodologies are applicable, they appear to be complementary, providing valuable feedback to one another (Nunamaker et al., 1991, p. 95).'

Research process

The research process following the design-oriented approach divides into two main phases: the design and evaluation of the instrument. However, a more detailed division in process steps is possible (e.g. Peffers et al., 2007; McNaughton, Ray & Lewis, 2010; Barclay & Osei-Bryson, 2010). Table 4 shows the steps involved in the research process, which I will explain in what follows.

¹¹ Allegedly, quantitative research has the name of a rigorous research paradigm that inherently is non-subjective because it applies sound mathematical models and theories that seemingly eliminate the influence of the researcher on the results.

Table 4: Steps in the research process

Phase	Process steps	Output
Design	1. Problem awareness	Design proposal
	2. Existing theory	Design criteria
	3. Design	Artifact
Evaluation	4. Evaluation	Evaluative case study
	5. Synthesis and conclusion	Research results

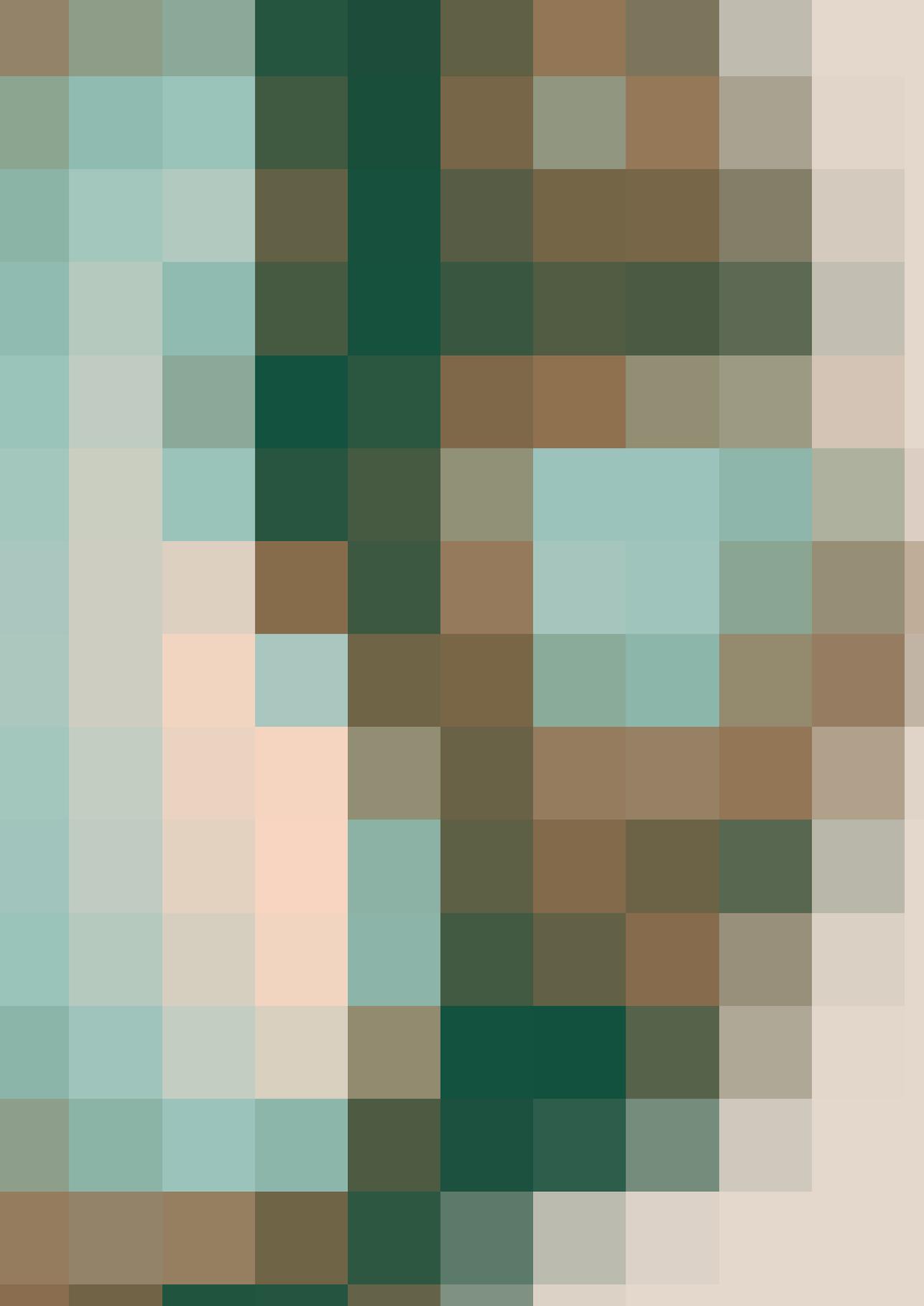
In the first chapter of this research, I have described the problem awareness with its necessary theoretical underpinning. The next steps are necessary to get deeper understandings of the concepts involved and delineating the instrument I want to develop. That will provide input to the design criteria for the instrument, in order to make it purposeful and useful for information governance practices. The third step involves the actual design of the instrument. This step is creative in a sense that it involves brainstorming within the boundaries of the design criteria in order to develop taxonomy that captures meaning.

The evaluation phase is where the case-study method dominates. I will evaluate the instrument by means of a number of small workshops, what typifies as a special form of case study: the evaluative case study (e.g. Kabakci Yurdakul, 2011; Shen, Shen & Shun, 2011; Kicken, Brand-Gruwel, van Merriënboer & Slot, 2009). The actual design of the evaluative case study – the workshops – involves the techniques required to evaluate the quality and effectiveness of the instrument. That is beyond the scope of this chapter. The first part of the chapter on the actual evaluative case studies (chapter 6) will cover that at large. To ensure rigor in the evaluative case studies, I will systematically capture the results of the workshops. The evaluation phase finishes with a synthesis of the output from the case studies into a practical approach to use the instrument in information governance fieldwork.

Summary

In this chapter, I have discussed the research approach that this research uses to develop an instrument. It has started with aspects on qualitative research, explaining that an interpretative research paradigm is most appropriate because the research attempts to understand how governing actors assign meaning to informational developments. Because the inquiry attempts to solve a problem through the design and evaluation of an instrument, a design-oriented approach is preferred. In contrast to action research, which emphasizes on creating knowledge from interventions, design-science research makes it possible to generate valid knowledge from the design process as well as the evaluation of the instrument. The research uses the complementary evaluative case-study method to evaluate the instrument on its usefulness. The design of the instrument will generate theoretical

knowledge; the evaluation will generate context-dependent knowledge. The chapter ends by explaining how the research process breaks down into five sequential steps that concern 1) problem awareness, 2) existing theory, 3) design, 4) evaluation, and 5) synthesis and conclusion.



3

RE-CONCEPTUALIZING GOVERNANCE AND THE ROLE OF MEANING

'The hegemonic principle of the manufacturing society is accumulation: that of the information society, circulation. In national accumulation, things tend to stay largely "under control". In global circulation, things tend to fly out of control. This is at the heart of the contraction of the information society (Lash, 2002, p. 144)'

'Anyone involved in governing, in whatever capacity or authority, forms images about what he or she is governing. Such images can be extensive in scope and based upon thorough analysis, but they can also be limited, and informed by personal experiences. Images can be clear and made explicit, or hover implicitly in the background (Kooiman, 2003, p. 29)'

Introduction

The first step in this research is to search for a deeper understanding of the global information order, the concept of governance, and their relation to each other. In this chapter I first present theoretical arguments about the evolution of economic elements in the transformation toward the information order. For this, I rely much on Scott Lash's *Critique of Information* (2002). '[It] is one of the most ambitious and provocative works on the theory of the global information revolution to have appeared in recent years (Sandywell, 2003, p.109).' I accompany the evolution of economic elements with a cybernetic argumentation on the deficiency of management concerning the information society.

Before proceeding, I must note that, although, this chapter makes frequent use of certain economic theories to develop my case, it does not intend to analyze theories such as accumulation of capital and value exchange. This also applies to the cybernetic theories I use on the concept of management. My sole and only purpose of exploring the economic and cybernetic domain in this context is to develop a grip on the idea why organizations must look beyond the established management models to make their way into the contemporary information society. Nevertheless, insight in the way economics changed in the information order – or better semiotic order as will become clear later – and how the concept of management works is required here to some extent.

To underpin the claim that management models no longer match the contemporary informational developments, another set of arguments follows on theories concerning the role of *sign*. This leads to the need for a concept that is complementary to established management models: governance. I then synthesize the preceding arguments for re-conceptualizing information governance and claiming the necessity of the concept of meaning in governance; hence the case for what I will denote as meaning-driven governance.

This chapter starts with the rise of new values that are inherent in the information order. This is specifically about the concept of sign-value. The chapter continues with a section that discusses the impossibility of managing sign-value and proposes the concept of information governance as a complementary discipline. It then embroiders on this theme by a section on conceptualizing the role of meaning as a core component of meaning-driven governance. The chapter closes with a conclusion of the concepts discussed and their implications in the research.

The rise of new values

Hamel (2009) has explained that the traditional management models no longer correspond to an era where information and knowledge make the difference. These models are rooted in the industrialization of the late 19th century and intended to solve two problems that were so typical for that era: the efficiency problem and the

scale problem. To be more specific, the problem of ‘getting semiskilled employees to perform repetitive activities competently, diligently and efficiently (ibid., p. 92),’ and ‘coordinating those efforts in ways that enabled complex goods and services to be produced in large quantities (ibid., p. 92).’ In the industrial era, the central theme in the management discipline was the optimization of scarce resources through well-defined structures and processes that permeate the entire organization. It is a legacy from capitalistic businesses, where transaction costs between contracted market parties dominate decision-making (Williamson, 1981; Ciborra, 2000). In the information era, however, the essence of management is no longer the optimization of scarce resources, but making responsible choices in the abundant informational opportunities offered by new technologies. Making responsible choices has different philosophical roots; it is associated with abundance, collaboration, durability, and is non-systematic. In this paragraph, I will investigate this idea from a socioeconomic perspective.

The focus on resource optimization is rooted in the ‘productionist paradigm associated with the great classics of political economy – the Scottish moral philosophers and Marxian economic theorists of history (Janos, 1997, p. 122).’ In brief summary, productionism is a three-tier construct on the premise, that when the means of production change, there is a change of social segregation as well as a change in the structure and exercise of the public authority (ibid.). Productionism addresses the relationship dynamics of humanity with its environment, such as nature and other human beings. The overarching idea is that ‘humanity is guided, first and foremost, by its material needs; that the prevalence of material scarcities requires a Promethean effort to control the forces of our object environment (ibid., p. 121).’ The essence of the productionist view boils down to the question of how productivity can be raised and made better, to a level still acceptable for the individual workers to have time left for their own well-being or leisure, all based on the assumption that man’s needs are increasing and its desire for wealth is endless. This involves a constant search for efficiency and effectiveness of resources used for production.

In the information order, the ‘mediation’ of society puts another perspective on the productionist view because it affects the traditional value systems. This is a central theme in Lash’s *Critique of Information* – following media theory, every practice, every activity, becomes ‘media-ted’ once a society comes under the sign of the information order. Lash explored McLuhan’s dictum ‘the medium is the message’ at depth, using Peirce’s semiotic triangle to answer questions such as ‘What happens if the medium replaces the manufacturing and industrial commodity?’ ‘What happens if information becomes dominant in accumulating value following the means-end scheme of Karl Marx’s labor theory of value (Lash, 2009, p. 84)?’ This theme is the point of departure for the remainder of the discussion on the rise of new values.

For the sake of my argumentation, I indicate the evolution of orders as the traditional order, the industrial order, and the semiotic order. If we examine the

means and the ends during the evolution of these orders, we see that they – means and ends – are changing over time. Traditionally ‘the good life was the end and manufacturing, i.e. the transformation of nature, was the means (ibid., p. 83).’ With the industrial revolution, a different set of means developed. Instead of using manual labor, the industrial means were ‘on the one hand, the informational and symbolic labour of clerks, bankers, professional engineers and the like, on the other, ideology. Ideology – as a superstructure – functioned as means to the end of the accumulation of industrial capital (ibid., p. 83).’ Lash (2009) has pointed out that our systems of belief with its symbolic power were at the basis to accumulate industrial capital. With the contemporary informational developments, information and ideology no longer are the means; they have become ends, the accumulated informational capital. Moreover, in this semiotic order, the ends of the industrial order, the instruments, the industrial capital, have become the means to reproduce information. Lash (ibid.) called this a second order instrumental rationality; indeed a great part of the industrial manufacturing sectors currently produces goods that enable the information society. For example, computers, communication networks and devices are all fueling those sectors that make up the information economy, an economy, where ideology and information have become the new capital and merchandize.

The changes we see in the means and ends, with the semiotic order succeeding the industrial order, is not simply a shift in means and ends that compares to the industrial order following up on the traditional order. With the rise, of the semiotic order, we are witnessing a fundamental change: means are becoming ends and simultaneously the economic value system as a whole is changing with it. It is typical for the industrial order that, from an economical perspective, value transfers from forms of life (labor) to goods as empty substances. Value becomes exchange-value, in a sense that it no longer represents the real value of labor, goods, and more specific, resources, but the subjectivity of rational choice and selection criteria that the market presents. Productionism of capital has its focus on resource optimization in order to increase value concepts such as exchange-value, capital value – constant capital as in machine and variable capital as in labor power – and money capital. According to Lash (2009), the dominant productionism of capital ‘destroys and negates value as inscribed in forms of life, in activities, in practices (ibid., p. 84).’ Lash argued that this becomes even worse, when the *sign* of the semiotic order infuses the accumulation of value. Although this still is capitalism, the idea of capital, value, has become fundamentally different in the semiotic order. Lash leaned on Baudrillard (1998) to use the idea of *sign-value* in order to emphasize the abstracted value that relocates from the commodity to the sign itself. Sign-value, similar to exchange-value and surplus-value, has more to do with the absence of value in the sense of Marxian labor theory of value (Lash, 2009). Sign-value was the argument from the early Baudrillard to supplement the Marxian economic theories with semiological theories to conceptualize the phenomena that arise with the increasing

awareness for *demand management* in the postmodern consumer society (Kellner, 2007).

Until now, I assumed productionism as the philosophical basis in my line of thought. At this point, I introduce its counterpart, consumptionism, in order to get a better understanding of sign-value in relation to the consumer society. Consumptionism, a term coined by the economist Reisman (1964), is a countering economic theory that puts consumption at the center of gravity and leaves the means of production for what it is. Reisman (ibid.) spoke slightly about this opposing economic position as the *anti-economics*. He argued, '[T]he problem of economic life is now often believed to be how to expand the need and desire to consume so that consumption may be adequate to production [...] it proceeds [...] as though the problem of economic life were not the production of wealth, but the production of consumption (ibid., p. 544).' The continuing attention to optimize production eventually leads to a saturation point where optimization is no longer possible. This drives capitalist corporations to reinforce the need for production by focusing their strategies on managing and augmenting demand. Put differently, corporations are following a regime that Baudrillard (1998) explained as sign-value. On Baudrillard's account, 'commodities are not merely to be characterized by use-value and exchange-value, as in Marx's theory of the commodity, but sign-value – the expression of mark and style, prestige, luxury, power, and so on – becomes an increasingly important part of the commodity and consumption (Kellner, 2007, para. 1).' Depending on, for example, the type, brand, or size of commodities, consumers gain prestige and standing in the realm of sign-value. For example, while both being a car representing a means for transportation, a Rolls Royce gives a different standing than the average family car. According to Baudrillard (1998), the proliferation of commodities together with how we market them, package them, display them, and the use of mass media, significantly increases the amount of signs and thereby creating proliferated sign-value. In his view, the rising mediated consumer society follows a different economic logic than Reisman's, because use-value as well as sign-value are of importance to consumers. This is where Lash (2002) has advanced on, by designating the processes of signification, so common in the information society, to sign-value.

From the perspective of the evolution of orders – traditional, industrial, and semiotic – the preceding treatise shows that new values emerge with significant consequences. Developments in the contemporary information society violate the means-ends distinction. For example, disorganizations, in contrast to communities, are both means and ends in the semiotic order (Lash, 2002).¹² Lash (ibid.) denoted the shift from traditional to industrial order as a change from a system of needs to a system of interests. As this chapter develops, we will see that sign-value is a significant part of many meaning-making concepts, making it appropriate to denote

¹² See also the discussion on disorganizations on page 4.

the shift toward the semiotic order as a shift toward a system of meaning. Table 5 summarizes some of the characteristics discussed here with the evolution of orders.

Table 5: Characteristics of the evolving orders

Aspect	Traditional order (Labor)	Industrial order (Production)	Semiotic order (Consumption)
Means	Manufacturing (transformation of nature) Goods are the means to the ends of the good life	Informational and symbolic labor of clerks, bankers, professional engineers, etc. (Marx's economic base) Ideology (Marx's superstructure)	Reproduction of information Production of information Exponential growth Computational reality
Ends	The good life	Manufacturing and goods Instruments (industrial capital) Efficiently large quantities	Informational developments Production of information Ideology
Value	Labor-value	Exchange-value, use-value	Sign-value
Ontology	Staying alive	Producing	Interpreting
Episteme	System of needs	System of interests	System of meaning

From managing resources to governing the sign

In the light of the consumptionist view, how does sign-value relates to the semiotic order? The extensive digitalization of our society has made the reproduction of information much easier than its production – create once, copy anywhere. Information becomes abundantly available, making it more difficult to find our way in it, than producing it (Shapiro & Varian, 1999). Like Kallinikos (2006) has pointed out, information has its own self-referential logic to grow. Therefore, from a productionist perspective, producing information seems not much of a problem; it is always there, always available, and we take its availability for granted. The point I want to make here is that ‘management’ of superfluous always-available information, is from a different order than the management of resources. Managing resources pursues, among others, to keep processes efficient, handle scarcity of resources, with the objective of fulfilling contracted transactions. It assumes information as mere objectified resources, the optimization of information that is codified into systems as data. This enables us to practice the exchanging and trading of data; the dominant mode of operation that uses the laws of the perfect market to realize value (Huizing, 2007a). For example, organizations make frequent use of systems for enterprise resource planning, order management, or customer relationship management, which exemplifies the dominance of productionism from an information perspective. In the contemporary information society, however, we

do more than solely informing ourselves with data that is, for example, created by statistical analysis or database extracts; data that resides in systems as technological information (Kallinikos, 2006). Today, we are facing a mediated society that makes extensive use of information and technology immanently and abundantly available (Kallinikos, 2006; Lash, 2002).

From the notion that consumptionism corresponds to a society where information is always and abundantly available (Lash, 2002; Baudrillard, 1998), we must 'manage' the sign-value to control the informational processes in the semiotic order. The debate on 'managing' sign-value is exactly the argument I want to make in this chapter: sign-value is not manageable as in the traditional sense of management, as resources, as in productionism, as in the way we did in the previous orders – traditional and industrial. Put differently, how can we escape the dominant productionist view (paradigm) in the information society? I propose that governance models will better correspond to deal with sign-value.¹³ In what follows, I will explain that management concepts, in several ways, fundamentally differ from governance, using, among others, the theoretical insights from Introna (1997) that approaches the concept of management from a cybernetic perspective.

A first-order cybernetic perspective

It is quite common to see the term *governance* interchangeably used with *good management*, so the obvious question to start with is, 'what exactly is management?' Weill and Ross (2004) have made an explicit difference between management and governance: '*Governance* refers to what decisions must be made to ensure effective management and use of IT (decision domains) and who makes the decisions (locus of accountability for decision-making). *Management* involves making and implementing decisions [emphasis added] (Khatri & Brown, 2010, pp. 148).' Drucker has defined management from a knowledge perspective: 'Supplying knowledge to find out how existing knowledge can best be applied to produce results is, in effect, what we mean by management (Drucker, 1993, p. 42).' Introna (1997) listed some examples from other writers: 'Management may be defined as getting things done through others (Holt, 1987).' 'Management is the process undertaken by one or more individuals to coordinate the activities of others to achieve results not achievable by one individual alone (Donnelly & Gibson, 1990).' Common in most definitions is that there is a wish to get something effectively done, through others in an efficient way (Introna, 1997). These sorts of definitions are for my purpose too obvious because they do not reflect on why we need management in the first place, and what the 'mechanics' are that makes management distinctively different than governance.

Introna's exploration of the concept of management through cybernetic descriptions gives more insight in these issues (ibid.).¹⁴ He has pictured a first-order

¹³ Henceforth I will refrain from using the term management if it relates to sign-value.

¹⁴ It concerns here the new cybernetics, the cybernetics led forward by the thinkers Maturana and

cybernetic description of management as a system in its environment, controlled by a management control system. The controlling system, the manager, decides what action to take, based on its inscribed logic and the signals from the controlled system in its environment. The latter is subjected to many varieties, due to its environment, therefore, according to the law of requisite variety (Ashby, 1957),¹⁵ the manager is focusing on handling resources in order to create a stable situation of the system (Introna, 1997). In organizational terms: managers are continuously aligning their capabilities, resources, to match the changing needs of enterprises business processes. To manage successfully, one needs to maintain equilibrium at all levels of the first-order description of management: the controlling system, the controlled system, and the environment. This needs an ongoing effort from the manager and reveals the flaw in this concept: explosion of varieties in the situation to be controlled, overloads the manager to maintain a stable situation. On the one hand, we need more variety to control, while on the other hand we try to reduce variety aiming for stability. Introna (ibid.) called this the *management paradox* and argued that many management models try to answer this dilemma. In first-order cybernetic management the underlying principle, the 'mechanics', of management is the control of resources, through negative feedback, in order to keep a stable system in its environment to ensure long-term survival. To achieve this, a system must match the variety of the environment and the management system must equally match the resulting systems variety. Organizations must continuously scan the environment, which makes strategic management from a first-order cybernetic management perspective a mere resource alignment exercise to fulfill supply to demand, fulfill contracted transactions. To put this in the perspective of the contemporary information society: resource alignment without the notion of sign-value in the processes that constitute the semiotic order.

A second-order cybernetic perspective

The underlying principle of the first-order cybernetic description of management is the separation of thinking and doing; to manage, is to control a system's resources based on representations from its environment. In contrast to first-order thinking, the second-order theory approach is non-deterministic in a sense that it is rooted in, what is called, operational closure. When a system is operationally closed, it behaves according to its internal structure, aiming for internal coherence and perfection. The external environment only triggers system activities, but does not determine them.¹⁶ Operational closure does not mean that

Varela (1980) to develop the concept of autopoiesis, first introduced in their work *Autopoiesis And Cognition The Realization Of The Living*.

¹⁵ According to Ashby's law of requisite variety, a system is controllable, if and only if the controlling system is able to handle all varieties that influence the system; if the control system 'can generate the requisite variety to equal the variety generated by the system it wishes to control (Introna, 1997).'

¹⁶ Maturana and Varela (1980) explained the concept of operational closure with the analogy of an imaginary submarine with people who have never been outside the submarine. The people inside the

a system is isolated from its environment; the system can adapt to changes in the environment but has enough logic to maintain itself as a whole without determination by its environment. Input from the environment becomes a perturbation. To be more specific in the practice of management, '[t]he most primordial understanding that people have of their work is what is required to *get the job done*; be it answering phone calls, writing letters or having a chat in the corridor [emphasis added] (Introna, 1997, p. 103).' This is a canonical example of what Maturana and Varela (1980) called an autopoietic system, a system consisting of a network of production processes that, through their interactions and transformations, continuously regenerates itself, in co-evolution with its environment. In what follows, I will show that a second-order management concept looks more promising to deal with sign-value, but still is insufficient for organizations to make responsible choices in the contemporary information society.

With a second-order perspective on management of organizations, two fundamental questions rise: 1) how do these (social) systems maintain internal coherence and 2) how do these systems evolve. In management terms, how do organizations keep up to get the job done, and how do they embrace change from the environment? First, organizations, like social systems, pursue identity, using organizational language as a mechanism to maintain internal coherence. This organizational language is a *cultural web* of symbols, stories, myths, and rituals that permeate power structures, organizational structures, and control systems (Ward & Peppard, 1996). Language is a semiotic system in which signification is a cardinal function, making sign-value inseparable connected with language. Therefore, sign-value is important because the interconnectedness through language makes a second-order cybernetics management internally coherent. This is promising, but, in order to make the second-order cybernetics management concept useful in making responsible choices in the contemporary information society, it needs more than merely focusing on getting the job done. In order to be successful, systems must maintain internal coherence – identity, as well as adapting to changes in their environment (Introna, 1997, p. 109). This concerns the second question: how do social systems evolve? More precisely, how do organizations develop against the background of the contemporary information society?

Maturana and Varela (1980) argued with their theory of autopoiesis that living systems – organizations – structurally couple with their environment through repeated interactions. This induces structural change in the system, be it though not determined by the environment because the system still defines by itself what

submarine operate levers and knobs based on the reading of instruments. People outside the submarine see the submarine navigating carefully around dangerous cliffs. The people inside the submarine would have been most surprised and not even know what they were talking about, if the people outside the submarine would explain what they saw – they never heard of this thing called submarine.

changes it wants to make (Maturana & Varela, 1980).¹⁷ This shows that organizations make choices to what extent they implement changes in order to adapt the environment. If they go too far – applying radical change – change can jeopardize their internal coherence, their identity, and possibly destroy the organization as a whole. ‘If structural coupling is maintained, then radical change need not happen. It should only be necessary in situations of structural dislocation, violent intervention. A strategy of pre-empting structural drift may be very dangerous, yet sometimes the only option for survival, for structural drift takes time (Introna, 1997, p. 110).’ Many organizations cannot sustain in the contemporary information society by adapting small changes – structural drift – through structured coupling with the environment.¹⁸ They come to suddenly realize things must radically change or they will collapse. The question rises how they became aware that they need that radical change. Does cognition, following Varela and Maturana (1980), help organizations to advance on the changing environment, or are they, metaphorically speaking, the fish swimming in water without knowing what this water is? Cyberneticians would ask, ‘What, or who, observes the observer of the observed system?’

From the second-order management concept, we may gain the following insights with regard to management and sign-value. First, the language – and thus sign-value – that organizations develop is internal focused, on operational efficiency – getting the job done. It would take a long time to include the fundamental changes the contemporary information society brings along with it, as its evolution is more the result of perturbations from the environment instead of well-thought decisions. Second, the interaction with the environment is more an exchange of ‘energy’, as in the theories from Varela and Maturana (*ibid.*), than an informational exchange that could underpin responsible choices in a world of superfluous always-available information. Co-evolution assumes that system and environment evolve at equal speeds, neglecting structural dislocation or violent intervention concerning the environment. As soon as we start observing the relationship between the organization and environment, we ‘fall back’ into first-order thinking (Boxer & Kenny, 1990; Kenny, 2009). Put differently, we end up doing deterministic resource management.

¹⁷ This is what Maturana and Varela (1980) have described as a theory of cognition, also known as the Santiago-theory, which directly connects to the theory of autopoiesis. Organisms decide by themselves to which external influences they react. This is the key to the Santiago-theory of cognition. Organisms store structural change over time. Because every structural change influences future behavior, the structure dictates the behavior of living organisms. According to Maturana and Varela (*ibid.*), the structure of a living system therefore determines its behavior (Capra, 2002).

¹⁸ To name a few examples: When Microsoft realized that the effect of the Internet on personal computing was exponentially increasing, it made a radical change to include internet technologies in their strategy. Nokia was the undisputed market leader in mobile telephony for years. The rise of the smart-phones put them behind the market substantially. They quickly changed their strategy and replaced the senior management team in no time without mercy.

The problem with a second-order cybernetic management concept is the constant dilemma organizations face: driving for internal efficiency or adapting to the changing environment – the logical consequence of operational closure. A second-order cybernetic management concept is insufficient for organizations to make responsible choices in the contemporary information society. Table 6 summarizes the differences between first and second-order management concepts.

Table 6: First-order versus second-order cybernetic management concept

Aspect	Cybernetic management concept	
	First-order	Second-order
Assumption	Input-type thinking	Closure-type thinking
Objective	Transformation of input through representations from the environment to control system resources (maximal fitting the environment)	Getting the job done with minimal environmental disturbances
Environmental coupling	Hierarchical (a system in its environment)	Structural (co-evolving self-producing systems)
Behavior	Deterministic	Autopoietic
Coherence	Determined structure controlled by inscribed logic of the controlling system	Interconnectedness through language

The changing environment

The notion of the environment is a recurring theme when studying system theories – how should a system ‘behave’ regarding its environment? In the first-order cybernetic management concept, the objective of a system is to create a maximum fit with its environment through representations of this environment. Its characteristics will define the point where the system will exhaust – the system is no longer capable in following the environment. The second-order cybernetic management concept merely treats the environment as a perturbation because its focus is to get the job done – the concept of operational closure. Organizations working according to the second-order management concept are caught in between their quest for internal efficiency and their desire to adapt to the changing environment – the consequence of operational closure.

This reverts to Ashby’s law of requisite variety: ‘only variety can destroy variety (Ashby, 1957, p. 207).’¹⁹ According to Schwaninger (2009) the law of requisite variety is greatly misunderstood because organizations often introduce

¹⁹ Although Ashby’s original publication in *An Introduction to Cybernetics* of his theorem on the law of Requisite Variety states ‘only variety can destroy variety’, many state it as ‘only variety can absorb variety’. In his work on the ‘viable system model,’ Stafford Beer added the word ‘absorb’ to this (Schwaninger, 2009).

unmanageable structural complexities to manage environmental change. Organizations should rather look for their own variety, *eigen-variety* as Schwaninger (2009) called it, and attenuate foreign variety 'as well as to select or create a milieu the organization can cope with (Schwaninger, *ibid.*, p. 14).' The challenge is to balance the *eigen-variety* and foreign variety. Probably the most comprehensive model able to handle the environmental dilemma is Beer's viable system model (Beer, 1984). One of the core characteristics of the viable system model is that it separates operational tasks from strategic responses to the environment using a supervisory subsystem that balances the operational tasks and the strategic tasks. According to Schwaninger (2009) a complicated strategy does not work well to handle variety because it relies on too many elements such as agents or people. Adaptive strategies seem more effective because they 'are based on enhancing the repertory of behavior of the agents or on strengthening their network of relationships (*ibid.*, p. 15).'

This corresponds with the point I want to make: organizations must develop a range of skills – a repertory, a discourse – that allow them to make responsible choices because traditional management models do not match the contemporary information society. With the skills for developing responsible choices, I refer to the balancing act that organizations need to adapt to the contemporary information society – the environment. Following Beer (1984) and Schwaninger (2009), they need to include these skills in their strategic tasks while avoiding complicated management systems to do so.

At this point, we can pay more attention to the idea of *making responsible choices*, which is a logical implication of the contemporary information society for organizations. What do we exactly mean with 'responsible choices'? To be more specific, what do we mean with *responsible* in this context?

Making responsible choices

If someone makes a responsible choice, it implies that this *someone* has knowledge about the context, the environment, in which *something* and an *other-one* reside. Being responsible for a choice in this, means that this *someone* has well thought about the choice; thinking about the implications for him, the *other-one*, the *something*, and the environment. It means this *someone* considers the condition of the *other-one*, the *something*, and the environment. It means this *someone* is making a choice holistically, weighs up the pros and cons, possibly thinks of alternatives, using a language – it involves thought – based on a philosophical belief and experiences. To do this, this *someone* assumes specific outcomes of the choice. These outcomes are the results of language that enables this *someone* to conceptualize them. This view is very different from making choices rationally, as we have seen in the first-order cybernetic management concept. In fact, from that perspective, we cannot make any choices with first-order management; it is input-type thinking, meaning the output is linearly depending on the input. The output follows the input mechanically based on the rules embedded in the control system,

and if we look back to the sequences of changes, they build up on each other, meaning, it is historical. In an organizational context, it would mean it follows the rules of capitalistic businesses, where transaction costs between contracted market parties dominate decision making (Ciborra, 2000). Making responsible choices for organizations in the contemporary information society means they consider the impact of new values – sign-value – against the background of the environment they operate in, do business in. They consider the social constructions, the new forming institutions that violate the means-end differentiation, which the semiotic order brings (Lash, 2002). Table 7 lists some aspects of rationally managing resources – making rational choices – together with aspects of making responsible choices.

Table 7: Rational management compared to responsible choices

Rationally managing resources	Making responsible choices
Mechanistic through feedback	Consider implications
Linear	Assume a certain outcome
Historical	Consider alternatives
Transaction costs	Holistic
Rule-based	Include the other-one
Mathematical	Durable, long-living
Logical	Based on philosophical belief
Systematic	Through language

In the previous section, it became clear that a second-order management concept has some of the ingredients needed to make responsible choices, but it is stuck in the middle of the paradoxical problem of internal efficiency versus adapting to the changing environment. A third-order management concept includes the social aspects; as a matter of speaking – the way cyberneticians do – it considers the observer of the observer of the observed system.

A third-order cybernetic perspective

First-order cybernetics does not include the observer in the total description of the system; it focuses merely on the mechanics of the system. ‘The observer, whenever he did appear, was made to appear as if he was unilaterally and objectively set apart from the system he was describing (Boxer & Kenny, 1990, p. 2).’ The shift to the second-order cybernetics therefore included the observer as part of the system. Where the first-order cybernetics was clear about the purpose of the system, the second-order cybernetics did not clearly focused on the purpose of the observer. In the second-order cybernetics ‘we enter a domain of puzzlement and confusion insofar as the issues cannot be resolved in “right” or “wrong” or “true” or “false”. This is a domain of self-referential paradoxes, where the requirement is to be reflexive – to include oneself-as-observer in one’s explanations of observers observing observed systems (Boxer & Kenny, 1990, p. 2).’

The development of cybernetic concepts did not always result in crisp and clear definitions of the various cybernetic orders. This is due to the involvement of various disciplinary backgrounds and different opinions on philosophical points of view (Corona & Thomas, 2010). Sometimes order, cybernetic direction, and phenomena partly even overlap each other (Melnychenko, 2002). The work of Umpleby on cybernetics is noteworthy, because he has put the various points of view in perspective and developed it toward third-order cybernetics, a *social cybernetics* as he called it (Umpleby 2005a, 2005b, 2007a, 2007b). Where the second-order cybernetics tries to answer how the observer constructs a reality describing the system, the third-order cybernetics tries to explain how people deal with social systems through language and concepts (Umpleby, 2007a).

Umpleby (2007a) advanced on Von Foerster’s epistemological triangle – cognition, description, and world – by associating the three sides of the triangle with the three orders of cybernetics (see Figure 2) (Von Foerster, 1971). He has labeled the relation between world and cognition as pragmatics, as in ‘trial on error, learning by doing, and the development and use of methods rather than theories (Umpleby, 2007a, p. 5).’

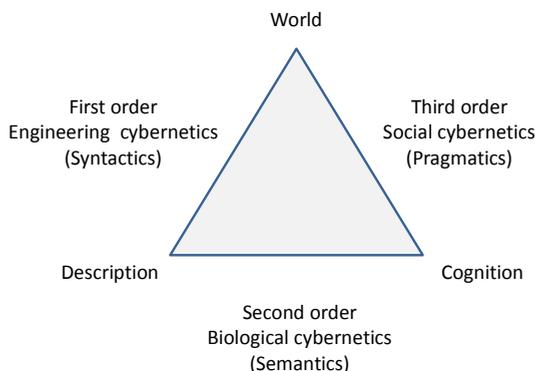


Figure 2: Unifying epistemologies according to Umpleby (2007a)

Umpleby proposed with the model, as shown in Figure 2, that the underlying epistemologies are part of a bigger whole (Umpleby, 2007a).²⁰ Taking a stance on one of them depends on one’s purpose; the others can support as secondary perspectives. Although the triangle is simply a graphical representation of ideas, it

²⁰ Umpleby has referred to the philosophical positions from Popper, von Foerster, and Kuhn, to indicate the epistemological views for the first, second, and third-order cybernetics successively: ‘realist view – knowledge is a “picture” of reality, a biological view – how the brain functions, and a pragmatic view – knowledge is constructed to achieve human purpose; [it tries to explain] how the world works, how an individual constructs a “reality,” [and] how people create, maintain, and change social systems through language and ideas (from the table that lists the three versions of cybernetics in Umpleby, 2007a).’ Umpleby’s model resembles the semiotic triangle according to Peirce; I will elaborate on semiotic concepts in chapter 4.

shows that the three cybernetics-orders are related. It is not a matter of choosing one order above the other, but using all three. It is important here to note that the cybernetic concepts are inclusive in a sense that the second order includes the first order, and the third order includes the second-order (Umpleby, 2005).

Third-order cybernetics arose from the need to study the subjectivity of the observer involved in the second-order cybernetics.²¹ It is about the use of language and the cause of ideas in the interaction among people in social systems (Umpleby, 2007a). It tries to go beyond the dilemmas introduced by the second-order cybernetics – internal consistence versus adapting to the environment. The premises of the third-order perspective is the intended dialogue with the environment in which it weighs the evolutionary progress from the system – organization – with the paradigms that develop in and through the environment.

A third-order cybernetic management concept – I question whether we can still call this management – considers the changing world, the changing environment where new Kuhnian paradigms develop (Kuhn, 1970). It addresses how we can find the need to follow strategies of preempting structural drift, which Introna has referred to, when a structured coupling with the environment is insufficient (Introna, 1997, p. 110). A third-order perspective allows us to deal with social systems through language and concepts, taking in account the identities, the humans, which are part of the observing processes (Umpleby, 2007a; Boxer & Kenny, 1990). It allows us to write, speak, or think about the informational experience that the contemporary information society gives us, and its effects on the basic premises of organizational practices. A third-order cybernetic concept carries with it the ingredients to consider the *someone*, the *something*, the *other-one*, and the environment, which we need in making responsible choices. To be more specific, it allows us to deal with sign-value.

Governing sign-value

I started this paragraph with the idea that management of superfluous always-available information is from a different order than the management of resources. The premise that sign-value in the semiotic order is a different concept than the value concepts of exchange-value and use-value in the industrial order, together with the consumptionist perspective, was the motivation to look at the concept of management through a cybernetic lens (Baudrillard, 1998; Lash, 2002, Introna 1997, Umpleby 2007a). I reasoned that more than simple mechanistic management, as in first-order cybernetic management concept, or *getting the job done*, as in the second-order cybernetic management concept, is necessary for organizations to sustain in the contemporary information society. I argued that sign-value is not manageable as in the traditional sense of management, as resources, as in

²¹ First-order cybernetics assumed objectivity, the observer and the observed are not connected; the second-order cybernetics assumed an identity – subjectivity – as part of the observing process (Boxer & Kenny, 1990).

productionism, as in the way we did in the previous orders – traditional and industrial.

The concept of governance, as discussed in chapter 1, can fill in the deficiencies for management practices in organizations to deal with contemporary information developments. It has the necessary perspectives that are complementary to traditional management activities – making responsible choices in a world where information is superfluous and abundantly available. As I have shown earlier, to make responsible choices, we must be able to write, speak, or think about the informational experience that the contemporary information society gives us; put differently, we need a discourse that includes sign-value. This is specific to the (emerging) discipline of information governance. The latter lacks, however, the ‘language’ to have this necessary discourse, a discourse that needs to center on the concept of meaning in order to address sign-value. In the next paragraph, I will explore the role of meaning in governance in order to conceptualize meaning-driven governance, which is able to include sign-value in the information governance discourse.

Meaning-driven governance

In line with Hamel (2009), I conclude that the traditional management practices for organizations do not correspond to an era where information is abundantly available, the information era. In the previous paragraph, I argued that traditional management practices focus on resource management and getting the job done. These practices cannot consider the concept of sign-value, because they restrict themselves to first-order and second-order cybernetic concepts. The concept of governance goes beyond the perspectives of first-order and second-order cybernetics because it includes the social dimension (Kooiman, 2003). A dimension, that corresponds with the third-order cybernetic concept, which uses language and ideas to develop and adapt social systems (Umpleby, 2007a). As such, governance, and in particular information governance, seems more appropriate to consider the phenomena with sign-value that develop in the contemporary information society.

Innovation

The third-order cybernetic concept considers the environment – adapting social systems. In management terms, this is about innovation, adapting strategies to change the course of an enterprise – the system. Innovation activities in organizations concern the effectiveness of their products and its efficiency in its production process, but they also concern strategic business questions such as competitive positioning and market share.²² Innovation requires organizations to

²² I assume here innovation not limited to business. Innovation is a broad term derived from Latin *innovatus*, the noun form of *innovare*, which means to *renew* or *change*. It stems from *in* (into) + *novus* (new). In business contexts, innovation is concerned about new products and services to gain market

observe the world 'out-there' to find their competency gaps and, when necessary, restructure 'the cognitive and organizational contexts that endow the practices, routines, and skills at hand with meaning (Ciborra, 2002, p. 46).' Against the background of the contemporary information society, this could mean radical innovation, in which organizations face the need to develop new competencies that can effectively apply the aspects of the semiotic order, such as technological information and sign-value, to increase their market – create new meaning to their market instead of pushing new products (Verganti, 2009).

Innovation processes are not easy because preexisting cognitive frames and institutional contexts prevent organizations from recognizing and exploiting the potentials. The prologue to any innovation in organizations is a process that involves creativity, the production of novel and useful ideas in any domain by individuals and teams. However, successfully introducing creative ideas with local knowledge is not a sufficient condition for innovation. Successful innovation also comes from ideas that originate elsewhere – as in technology transfer (Amabile et al., 1996).²³ In our context, exponential growth of information, computational rendition of reality, as well as sign-value, are aspects of the contemporary information society that influence innovation activities in organizations. The processes that are involved in innovation, from a governance perspective, rely on how governing actors ascribe meaning to things, situations, or opportunities, which involve sign-value (Lash, 2002; Kallinikos, 2005, 2006; Ciborra, 2000, 2002).

Governing images

Following the third-order cybernetic perspective, governance and innovation require a dialogue with the environment. The concept of governing images is a key concept to understand this dialogue (Kooiman, 2003), because it enables governing actors to consider sign-value and ascribe meaning to it.

As discussed earlier, the formation of images – governing images – is an unavoidable concept in governance; it does not matter what role or authority we have when we are governing, we will always form images about what we are governing.²⁴ 'Such images can be extensive in scope and based on thorough analysis, but they can also be limited, and informed by personal experiences. Images can be clear and made explicit, or they *hover implicitly in the background* [Emphasis added] (ibid., p. 29).'

share, but innovation is also concerned about successfully implementing creative ideas in organizations (Amabile, Conti, Coon, Lazenby & Herron, 1996). According to Schumpeter (2003), innovation is about the fundamental changes in value systems. My interpretation of innovation is a process of substantial change, initiated by new ideas that can serve either or any of things such as new businesses, business models, and way of working.

²³ Technology transfer is the process where one gains access to scientific and technological developments and turn them into practical and commercially relevant applications and products.

²⁴ See the introduction of the concept of governing images in Chapter 1 on page 12.

Besides that experience and knowledge processes contribute to the formation of governing images, they also build up through 'implicit ideas of man and society (ibid., p. 29).' Governing actors have (un)conscious, explicit, and implicit assumptions about what they need to govern and about the environment in which they govern. The formation of governing images is a socially, culturally, and institutionally conditioned process that is rich of communication. Communication here is, on the one hand, interpretative, as a combination of language, meaning, interpretation, sharing, and ambiguity. On the other hand it is deterministic, any combination of channels, networks, flows, measurement, or cognition (Kooiman, 2003, p. 38). Organizations, communities, institutes, they all have their own 'language' and interpret information in their own unique way (Fish, 1980; Ward & Peppard, 1996). They are the context and place, where we form, discuss, and test governing images on governance issues at hand.

Image formation in the semiotic order

The previous paragraph evidently shows that knowledge processes, the 'language' of organizations, and implicit assumptions constitute the process of image building. In the context of the semiotic order, image formation exhibits complex and multidimensional processes.

First, the processes involved in forming governing images take place in large ecosystems of practices and information infrastructures, supported by the new media technologies that make up the 'media-ted' society (Lash, 2002; Kallinikos, 2005, 2006). Second, following Kallinikos (2005, 2006), information in these ecosystems is as a fabric, an immanent plane that deeply penetrates organizations and institutions – we do not realize it is there, always entangled in people's thinking and doing; as Kooiman stated 'images [...] implicitly hover in the background (2003, p. 29).' Third, following Lash's idea of a mediated information society fed by self-propelling information processes that are out of control (Lash 2002; Kallinikos, 2005, 2006), the knowledge processes involved in forming images are anything but simple linear, straight-forward, or predictable.

According to Lash (2003), knowledge processes obey the non-linear notion of reflexivity theory in social sciences.²⁵ The major assumption in non-linear reflexivity is the concept of non-linear social systems. Linear systems have a single point of equilibrium and 'only external forces can disturb this equilibrium and lead to system

²⁵ Reflexivity theory in social sciences concerns the case where cause and effect affect one another. The individual agent becomes aware of the forces that influence socialization and adjust his/her position in the social structure accordingly. Lash's interpretation of reflexivity theory radically differs from Beck, who has enquired politics, and Giddens, who has theorized the social processes in a post-traditional society (Beck et al., 1994). In his theory, Lash replaced social structures by information and communication structures, and included both the aesthetic dimension and the phenomenon of communities with it. This resulted in a new idea of reflexive structure, aesthetics, and community (Han, 2010).

change (Lash, 2003, p. 50).’ Non-linear reflexivity presumes non-linear systems, which behave differently; Lash (2003) has described this as follows:

‘Here system dis-equilibrium and change are produced internally to the system through feedback loops. These are open systems. Reflexivity now is at the same time system *de*-stabilization. Complex systems do not simply reproduce. They change. It is the “chaos” or noise of the unintended consequences that leads to system dis-equilibrium [emphasis in original] (Lash, 2003, p. 50).’

Reflexivity-based knowledge contrasts reflection-based knowledge. The latter ‘presumes apodictic knowledge and certainty. It presumes a dualism, a scientific attitude in which the subject is in one realm, the object of knowledge in another (Lash, 2003, p. 51).’ We need reflexive knowledge to make the choices that Beck, Giddens, and Lash (1994) argued about: we presently face the type of choices that previous generations did not need to make.²⁶ Lash (2003) has stated, that in the semiotic order these choices must also be made fast, as in a reflex. Reflexes are indeterminate and immediate; they allow us to make quick decisions, sometimes based on intuition. The way we handle and integrate in our lives, the flows of signs, the abundance of information, media, and technology implies that we build up knowledge in a non-linear reflexive manner. In the semiotic order, we do not have ‘sufficient reflective distance on ourselves to construct linear and narrative biographies (Lash, 2003, p. 51).’ In contrast, of what we might wish for, in the semiotic order we have neither the time nor the space available to be reflective and build up knowledge in that way. Instead, we quickly make use of the flow of opportunities that rise through the various information sources we have instantly available. They allow us to network, to construct alliances, and making deals fast. Reflexivity-based knowledge is typical for the semiotic order (Lash, 2002; 2003).

In the semiotic order, the flows of signs, information, media, and technology are more determining the social order than the hard nature of structure. Organizations and institutes involved in the processes of image building, increasingly see these processes mediated through technologies, making them transcendental to structures in the traditional sense. Technologies have become an integral part of our life, and we experience the world by using technological systems (Lash, 2002, p.15). Lash (2002) submitted the idea of a *technological form of life*, not as a cyborg-like life form,²⁷ but as a way of living in which we interface with all sorts of technology – a coupling, a joining of organic and technological systems. It is a life dominated by connectedness that, for example, uses the Internet in fulfilling our profession, socialize, and relaxing. ‘We do not merge with these systems, but we face our environment in our interface with technological systems (Lash, 2002, p. 15).’ In our

²⁶ Questions of the previous generations that Beck et al. (1994) refers to are reflective questions; they belong to the philosophy of consciousness. ‘To reflect is to somehow subsume the object under the subject of knowledge (Lash, 2003, p. 51).’

²⁷ A cyborg is an organism that has a physical fusion between man and machine. Theoretically, we can call a person with a pacemaker a cyborg.

daily practice, it means that we cannot function properly without technology such as our smartphone, our laptop, and Google.com.

Lash (2002) has treated us with a form of life that is intrinsically phenomenological.²⁸ This contrasts the organic model, which asserts the positivist tradition.²⁹ In the organic model, we neutrally build up knowledge as an objective observer; we build up our images through abstraction, through judgment and reasoning, transcendental from the world we live in. In the phenomenological philosophy of the life form, that Lash portrayed (*ibid.*), we experience the world directly with our senses, without the mediation of objective observers. The process of image building in the semiotic order is, therefore, more of a phenomenological nature; we build up images through experience, not from abstraction and judgment – reflexively, not reflectively. According to Lash (2002), the continuous flow of consciousness or unconsciousness affects the knowing individual who is already ‘in-the-world’ with his objects of knowledge.³⁰

If the process of forming governing images becomes phenomenological, and no longer takes place through abstractive judgment and reasoning, the governance of information becomes intrinsically self-referential; the images we face in the governance process, is information in itself that we try to govern; information mediated through the technological form of life. Kooiman (2003) has studied the concepts of governance from a structure perspective as well an actor perspective. While Kooiman (2003) did not set out to create an *information* governance theory, his analysis of governing images is valuable. According to Kooiman the continuously growing knowledge systems hinders the formation of governing images because they reinforce their structures and characteristics through circular patterns of knowledge reproduction. Kooiman (*ibid.*) refers to Boulding (1956) to explain that we can only break this resistance by interrupting the circularity; repeatedly imposing new images onto the observing system is the only way to do this.

Kooiman (2003) concludes that ‘the image formation process itself must be governed (*ibid.*, p. 37),’ because of the inherent danger of complexity reduction in

²⁸ I refer here to the idea of a technological phenomenology submitted by Lash (2002). Lash has advanced on an empiricist phenomenology of communications submitted by Garfinkel who has radically broken with the traditional humanistic and ontological assumptions in phenomenology. Instead of a transcendental phenomenology such as from Heidegger and Husserl, and a deconstructed phenomenology such as from Derrida and Levinas, Garfinkel presented an immanentist phenomenology in which an intuition of appearance replaces Husserl’s intuition of essence. ‘There is no essence in Garfinkel: there is no thing-in-itself to know or not to know. There are only things, as they appear to interested actors. The result of such intuition is no longer universal statements of apodictic knowledge, but *communications* [emphasis in original] (Lash, 2002, p. 174).’

²⁹ The organic model is a metaphor for life in which we see things such as life, society, and organizations as living organisms.

³⁰ With ‘in-the-world,’ I refer to Heidegger’s concept of ‘dasein.’ He has referred to a being-in-the-world, where the hyphens emphasize that we cannot see a being separately from the world (Heidegger, 1962).

the image formation process.³¹ People's latent mechanisms and pre-occupations tend to simplify things. When building images, governing actors bring presumptions, hidden values, and false knowledge; firmly rooted principles of fact and value systems deeply affect their thinking and acting. The technological forms of life we face in the semiotic order will even amplify this because the devices in the man-machine interface are laden with affect (Lash, 2002). With the permeability of technological information, image building becomes a process where the 'routines, habits and established structural mechanisms or interaction patterns frame the practical concerns of social agents and ultimately provide the horizon of meaning against which the combinatorial possibilities of information as a means of disclosing novel conditions are explored (Kallinikos, 2006, p. 64).'

Altogether, the complexity-reduction issue, the implicit images of governing actors, the technological form of life, and the computational rendition of reality – technological information – result in very complex processes of image building (Kooiman, 2003; Lash, 2002; Kallinikos, 2006). These issues decidedly raise the need to govern the image-building process itself in the semiotic order. Especially with the concept of information governance, one must pay attention on *how* to govern this process, a process that is phenomenological and where meaning through direct experiences dominates. The question then rises, what is the role of meaning in information governance, to be more specific, in the process of image building?

The role of meaning

One of the core concepts in Kooiman's study on governance was interaction (Kooiman, 2003). Governing actors – the governor and the governed – must interact in order to test the implicit qualities of governing images and 'liberate' themselves from inherit frames of reference. Governing actors interact through communities, places where implicit images become explicit and where they can test for relevancy against the governance issues at hand. These are the places among where actors ascribe meaning to things, situations and ideas. From the perspective of meaning, forming governing images is a multidimensional problem constituted by the structure in which governing actors operate and the way they consume information.

First, the communities, institutions, places, where governing actors operate, all have their effect on image-building processes. Structures and scenes have unspoken rules that affect how governing actors ascribe meanings to things such as products or situations. Kooiman (2003) has summarized this as a combination of societal diversity, complexity, and dynamics. Structure, here, also involves the technological interfaces, the tools, through which governing actors experience their world, through which they conduct their technological life.³² These tools, artifacts, used and produced in the contemporary information society are packed with affect;

³¹ Images by definition are a simplistic presentation of reality.

³² Place in the contemporary information society, can very well be a virtual place such as a forum, electronic collaboration tools, electronic meeting equipment, blogs and Twitter.

sometimes with almost religious fascination. In the logic of their production, existential meaning rules over rational usage (Lash, 2002). Governing actors experience structures in their own unique way and apply meaning to it. For example, team collaboration and devices used, color the way they interpret information in forming their images. Following the foregoing, the interaction of governing actors with structures is a complex of many variables abounded with meaning that affects, if not dictates, understanding in the image-building processes.

Second, information is the commodity for governing actors in forming their images. With its self-propelling growth processes and computational rendition of reality, the contemporary information society is superfluous in that respect (Kallinikos, 2006). Governing actors face tough choices to make on what the information means to them. Aside from the sheer volume of information available, following the notion of technological information (*ibid.*), having the *right* information then becomes increasingly problematic considering the large amount of info-glut around. In an informational world, where platforms such as blogs, forums, and news sites overwhelm us with information, it is increasingly difficult to find the information that really matters. To what extent is the information relevant for the governing issues at hand?³³ It is up to the governing actors own subjectivity and capability how they (can) interpret the pool of information and ascribe meaning to it in forming their images. The implicit images that governing actors have affect information they encounter. Therefore, it is necessary to consider what it is, that influences governing actors in working with information, in order to form governing images.

Looking at the interactions that governing actors have, the multidimensional problem of forming images then unfolds as follows (see also Figure 3). Governing actors face governing issues, which can be problems as well as opportunities [a]. In the semiotic order, proper engagement with communities and institutions is through the technology that is part of the technological life forms of governing actors [b]. Governing actors consume (technological) information through that same technology [c], both superfluously available and laden with affect. The communities and institutions they engage with operate by means of similar technologies and access the same pool of (technological) information [d]. The governing issues at hand present themselves using similar sources of (technological) information and technology [e], and can concern communities and institutions as well [f]. The foregoing process reveals that in forming their images, governing actors face continuously aspects where meaning making is abound such as the governing issues, the communities and institutions, and the abundance of information. Figure 3 illustrates the foregoing process.

³³ Research in social psychology showed that individuals could respond differently in simple or complex information environments; Streufert (1973) introduced a new concept of 'information relevance' to eliminate the theoretical shortcoming in information load.

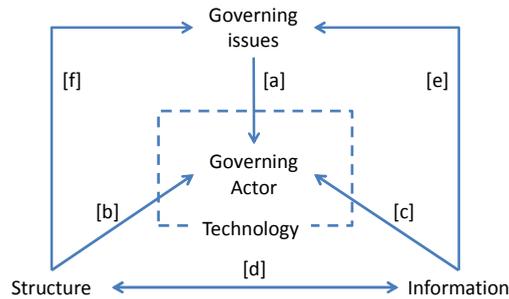


Figure 3: Governing actors and meaning-making interactions

Governing actors base their entire life-world on the habits, beliefs, and experiences they have through technology in the semiotic order. The aspects that represent the semiotic order such as sign-value, technological information, and technological forms of life, significantly influence the sense-making processes that involve forming of governing images. Sensemaking as a concept is a process that is full of ambiguity (Weick, 1995). Forming governing images in the semiotic order makes it even worse because, as I explained earlier, the image-building process is intrinsically phenomenological. The question then arises, how governing actors make sense of all those aspects that play a role in forming governing images.

With my interpretation of governing images in the semiotic order, the concept of meaning is implicitly present in its formation processes. Because we engage in the semiotic order in a phenomenological manner, ascribing meaning appropriately is by engaging with the products of the contemporary information society; only then, we can fully understand them, comprehend them. According to Lash (2002), ascribing meaning in the semiotic order is less through epistemology than through ontology. Lash explained this as follows:

‘We experience or interrogate things and people less in regard to their logical meaning than their *existential* meaning. We are looking for ontological meaning. The neutral and detached space of the scientific observer can yield epistemological knowledge, as Kant noted, of the *appearances* of things – that is, cause and effect, explanation. But experiencing things, through being in the life-world with them, can open up knowledge of *things-in-them-selves*. To know things-in-themselves is to know them not epistemologically, but in their ontological structures [emphasis in original] (Lash, 2002, p. 15).’

The tools, the artifacts characteristic for the semiotic order are part of the life-world of governing actors; they experience them as things-in-them-selves, as Lash (ibid.) noted. This shows that, in the semiotic order, governance and particularly information governance deserves an increased focuses on how governing actors form their images; how image formation involves meaning making.

From the perspective of meaning, the process of forming governing images reveals a complexity in which it is difficult to discern the things that are logical – as in classification – from those that are laden with affect. For example, the choice between two applications; one application has a long-standing history of being rigid, secure, and good support, but is difficult to use while the other is popular and available on many devices, but maintained by an unknown programmer. How do governing actors differentiate in their meaning-making process between the likes or dislikes of technological interfaces and the information that concerns the governing issues at hand? A better understanding of the meaning-making processes and how to facilitate them, also reveals what the pool of information from the contemporary information society brings to governing actors, as well as how to apply the concepts of the semiotic order in, for example, processes of innovation.

In general, the role of meaning in information governance is to help organizations to make better choices, responsible choices – the essence of governance. To be more specific, meaning has a role in information governance that is twofold. First, with meaning, governing actors are able to consider their biases, their experiences, in image-building processes, which are ambiguous and full of sign-value. Second, meaning allows governing actors carefully making their choices in governing sign-value.

Conclusion

I have started this chapter to conceptualize a perspective on governance to correspond with the contemporary information society. Present management disciplines focus on optimizing scarce resources and are unable to address the fundamental changes in the economic value-system this society exhibits. This fully mediated society shows a semiotic order in which abstracted value relocates from commodities to a value concept called *sign-value*; it violates the means-ends distinction of the traditional order and industrial order.

Once operating from a productionist paradigm, in the semiotic order organizations are facing new operating models that ask for responsible choices, which associate with abundance, collaboration, and durability. Information has its own self-referential logic of growth, making it abundantly available. I conclude that managing information is distinctively different from managing resources. From the idea of sign-value, we cannot use traditional management concepts that treat information as mere objectified resources.

I claim that the concept of governance better corresponds to deal with sign-value. Through theories of cybernetic management concepts, I have substantiated this claim. First-order management concepts underpin the idea of mechanistic resource management, simply to fulfill supply to demand for contracted transactions. In so doing, they discard the notion of sign-value in the processes that constitute the semiotic order. Second-order management concepts exhibit sign-

value, but only focused on internal 'languages,' in order to get the job done. They lack the intentional dialog with the environment that considers the processes constituting the semiotic order. Organizational evolution is more a result of perturbations from the environment than well-thought decisions. Therefore, organizations cannot make responsible choices in the semiotic order; they are stuck in deterministic resource management.

The changing environment is a recurring theme in cybernetic management concepts. Second-order management concepts confront organizations with the paradoxical choice of operational efficiency versus adapting to the changing environment. It seems that organizations introduce way too complex structures, relying on too many elements, in order to find their way in this dilemma. Effective strategies develop a range of skills and networks of relationships, a capability, that makes responsible choices possible and operates in a domain of communication and sense making. A domain, were people deal with new social systems and institutes that violate the means-end distinction, through language and concepts.

Third-order management concepts, or better governance concepts, include the required social dimension. It allows organizations to consider the changing environment – an environment that, in the semiotic order, is full of sign-value. The concept of governance, a third-order concept par excellence, can fill-in the deficiencies for management practices to consider sign-value.

In order to govern sign-value governing actors must be able to write, speak, or think about the informational experiences, which are typical for the contemporary information society. Information governance is the preferred concept for this, but it lacks the 'language' to have the necessary discourse. Because it is a discourse centered on the concept of meaning in order to address sign-value, I have proposed a concept of meaning-driven governance, which I have conceptualized in the second part of this chapter.

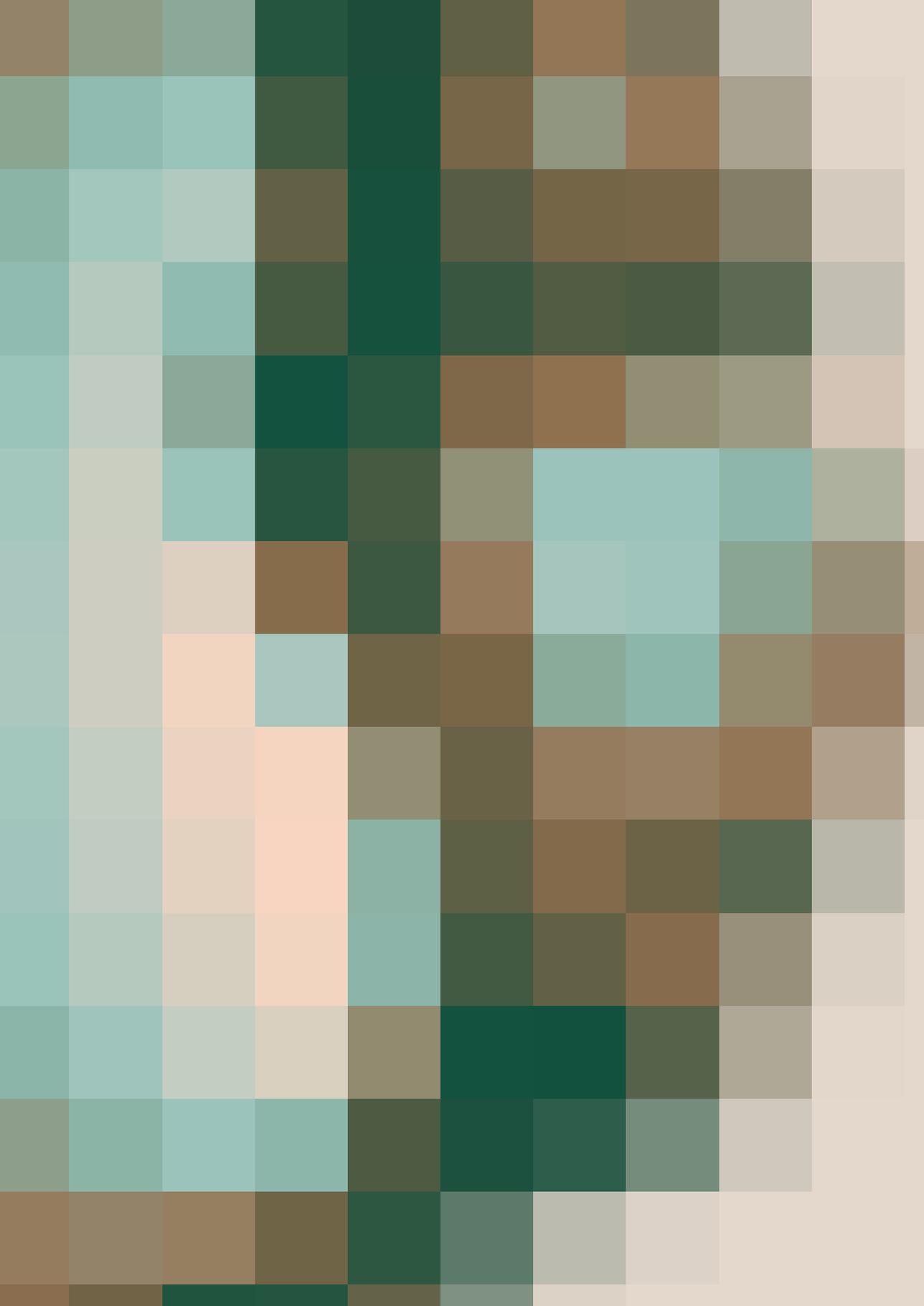
The theoretical approach to the idea of the changing environment is about strategies that change the course of an enterprise, in short, innovation. From my interpretation of information governance, its concern is how the semiotic order affects the cognitive and organizational contexts in terms of sign-value, of meaning. To exploit the opportunities of the semiotic order effectively, this could involve radical innovations. It requires understanding how governing actors ascribe meaning to things, situations, or opportunities, which involve sign-value in innovation processes. This governance process of image building is in the semiotic order anything but simple linear, straightforward, or predictable. It makes information governance complex because governing actors bring implicit images, reduce the complexity of the self-referential information society, and live in a technological life-world that overwhelms them with sign-value.

The form of life of governing actors is intrinsically phenomenological, because governing actors reflexively build up their knowledge, mediated through technologies. Forming governing images phenomenologically makes the governance

of information self-referential, requiring to govern the image-building process itself. To understand image formation, which is full of sign-value, we must leave the positivist tradition and find ways to engage with governing actors on how they experience their semiotic life-world.

If the image-building process in information governance is phenomenological, how can governing actors understand the semiotic order in order to make responsible choices? A perspective of meaning is promising in this; it raises an important multidimensional question regarding the process of image building. If the tools, the devices, which make up the technological life-world, dictate the meaning-making processes, how do governing actors find their way in ascribing meaning? If the concept of information governance is self-referential, with the intention to govern information in a self-referential information society, how can governing actors ascribe meaning to abundantly available information?

For organizations to make their way in the contemporary information society, information governance is a necessary concept to practice. However, in order to make responsible choices in a semiotic order, it is mandatory to include a concept of meaning in information governance. This makes the case for meaning-driven governance, for which I will develop a framework later in this dissertation.



4

CRITIQUE OF MEANING

'Some have concluded that, if meaning is negotiable, then it is no longer of any use in explaining the way we understand one another (Eco, 1999, p. 271)'

'Meaning comes from the self-reproducing organic system that is language. But what happens when speaking disengages from the organic being of language, and re-engages in a logic of flow? What happens when speaking becomes 'parole' without 'language' becomes performance in the absence of competence? What happens when a new hegemony of flow, of flows of utterances? We then ask less what words mean but instead what they do. How they perform (Lash, 2003, p.216).'

Introduction

Previously it became clear that a concept of meaning in the discourse of information governance is essential to make responsible choices in a semiotic order. In general, meaning is an elusive concept and provides no explicit solution to allow that discourse. It makes sense then to explore various concepts of meaning that are relevant to this discussion. To do that, I will explore and elaborate on various concepts of meaning and develop a theoretical perspective on a concept of meaning that is necessary for the discourses in information governance. It is the second step in the research: elaborating on the notion that emerged from the first step. Its purpose is to find the necessary concepts for enhancing image building in the current discourse in governance.

I must note that it is not my intention to deep-dive into the theory of linguistics, the natural connotation with the concept of meaning. Although there are many concepts related to meaning in the linguistics domain, the sole purpose of elaborating on meaning is to constrain the research and move it into the direction of a mental framework of meaning, the purpose of the remainder of this research.

The chapter starts with a short introduction of the philosophical origin of the concept of meaning in general, followed by introducing the concept of communication to create a foundation for elaborating on the concept of meaning in relation to communication and information. It then dives into various aspects of meaning in the interplay with communication and information. It visits the technical interpretation of the transformation of meaningful signals and the socio-technical interpretation of how subjects meaningfully respond to information. Next, the chapter supplements this view on meaning by developing a more comprehensive concept of meaning that adds how subjects meaningfully react to information, symbols, and their environment. In a synthesis, the chapter consolidates all notions of meaning and develops some specific conclusions. They serve as the foundation for an overall proposition of a concept of meaning for the discourse in information governance. The chapter closes with an overall conclusion and a summary of how different theories contributed to the developed notion of meaning.

Introducing meaning

At first, the notion of meaning was the interest of philosophers. Schleiermacher (1768-1834) and Dilthey (1833-1911) introduced the novel idea of what we now call hermeneutics in philosophy. With *Hermeneutics and Criticism* (1838), Schleiermacher laid the foundation to the art of understanding, the meaning of discourse; interpretation of language and thought affects understanding and needs both linguistic and subjective interpretation in order to truly understand the spoken or written discourse (Scott, 2003). With *The Rise of Hermeneutics* (1900), Dilthey advanced on ideas from Schleiermacher by generalizing it into a systematic program in order to reconstruct meanings in human sciences. Today one calls this the

hermeneutic circle, which suggests the iteration between the implicit and the explicit, the particular and the whole in discourse (Ramberg & Gjesdal, 2009).

Later, Saussure (1857-1913) and Peirce (1839-1914) introduced the semiotic approach to the notion of meaning. Saussure introduced the term *semiology* as the study of the role of signs in social life – their meaning in life. Peirce introduced the term *semiotic* to consider the formal doctrine of signs. Today one uses the term *semiotics* as an umbrella term for the whole field (Chandler, 2002). Morris, a behaviorist who studied the communication of animals and other organisms, further refined semiotic studies as a triad of 1) Syntactics, the relations among signs and formal structures, 2) Semantics, the relation between signs and the objects they refer to, and 3) Pragmatics, how signs affect the people (or animals) that use them (*ibid.*, p. 231). Various disciplines have accepted this semiotic scheme to study processes involved in communication.

Communication

Communication processes include various aspects such as signal, signs, message, and information. Using the semiotic triad, we can distinguish these aspects to determine their role and analyze the transmission of information at three levels: syntactic, semantic, and pragmatic level. The syntactic level merely concerns the relation between signs and transmission signals. They act according prescribed rules, and if technical interference alters these rules, such as a sequence error, it will disturb the communication. The syntactic level does not involve meaning because it merely relates to the transmission of signals. At the semantic level, the sender and receiver of the signal apply a meaning to the signs. If the sender and receiver have a semantic agreement – both apply the same meaning to the signs – the sender can transmit an actual message to the receiver. If the receiver assigns the wrong meaning to a sign, the message does not come across. The pragmatic level concerns how the intention of the sender affects the receiver. Put differently, a sign's meaning affects the receiver, turning the message into information.³⁴ If the receiver considered an important message as non-relevant, the communication failed because the receiver did not act according to the intention of the sender. (Shannon & Weaver, 1949; Wigand, Picot & Reichwald, 1997). Table 8 summarizes how we can analyze communication processes using the semiotic triad.

³⁴ According to this scheme we can interpret information as purpose-oriented knowledge – information triggers action (Wigand, Picot & Reichwald, 1997).

Table 8: Levels of information transmission (after Wigand et al., 1997)

Semiotic Level	Description	Communication disturbances example
Pragmatic	The sum of the transmission of signs, their meaning, and intention of the sender	The receiver considers an important message as non-relevant
Semantic	The sum of the transmission of signs and their meaning	Receiver assigns a wrong meaning to a word
Syntactic	Transmission of (physical) signs	Sequence of signs distorted by technical interference

Viewing the semiotic scheme from a meaning interpretation, we see that semantics concerns the meaning of the formal structures, while pragmatics addresses its usage. The contribution of the semiotic scheme to the introduction of the concept of meaning is the notion that, especially on the semantic and pragmatic level, communication and information are key concepts to understand aspects of meaning. Allegedly, communication, information, and meaning are all elusive concepts because we interpret them differently in various contexts and disciplines. An illustrative example outside the information management discipline is how biological research on the human immune system uses these concepts. It applies Shannon's (Shannon & Weaver, 1949) probabilistic theory of information in order to study the 'communication' between the environment and bodily tissue in analyzing how the autoimmune system of the human body reacts to the environment (e.g. Atlan & Cohen, 1998). Other examples outside the information management discipline are the 'communication' and meaning of art, the environment, 'communication' in neurosciences, and 'communication' within social constructions (e.g. Blok, 2003; Eastman, 1954; Tylén, Wallentin & Roepstor, 2009; Giddens, 1984; Fish, 1980).

Meaning and communication

Information theoretical approaches are part of the earlier discussed concepts of meaning and communication. A closer examination of information in connection with system and communication theories will show that their concepts of meaning are 'materialistic' by nature. They do not have much in common with a concept of meaning required to cover the informational experience in the information governance discourse, because information has no value or intrinsic meaning (Sveiby, 1998; Miller, 2002).

First, when we consider the meaning of information in the cybernetic sense – systems theory – we can only refer to meaning in a system of systems relation, hence, only in the case of communication in third-order cybernetics. As discussed in chapter 3, second-order systems are operationally closed systems, because information from the environment does not directly determine system behavior. Their structure, cognition, defines their behavior (Maturana & Varela, 1980).

Meaning in second-order systems concerns the communication from self-generated signals. Through the feedback loop, they determine how the system reacts. This 'information' means something for the purpose of the system, but its meaning has no meaning outside the system. Its sole purpose is to maintain the system. Systems at a higher level determine goals or objectives for a system. The observer – another system or individual, but at the end always a human being – determines the goal of the system and, therefore, ascribed meaning to the system. Because the meaning of the observer interrelates with the meaning of the system (Sveiby, 1998), it is necessary to distinguish between the meaning of information internally in a system and externally to its environment. Operationally closed systems cannot exchange information with their environment; there is no communication.

Second, meaning in communications theory concerns the intentions of the sender. Similar to the levels in semiotics, as defined by Morris (Chandler, 2002), communication theories distinguish three levels of communication, a syntactic, semantic, and pragmatic level of communication (e.g. Wigand et al., 1997). Some have written about three levels of information such as syntactic, semantic, and pragmatic information (e.g. beim Graben, 2006). Alternatively, as Weaver explained in a most influential work *The Mathematical Theory of Communication* (Shannon & Weaver, 1949),³⁵ the ways that individuals affect one and other are a technical problem, a semantic problem, as well as an effectiveness problem. In this model, meaning concerns the meaning of the signs used to transmit information, required to bring across the intention of the sender. Meaning in this context is a convention. Language psychology describes this as *denotative* meaning, which concerns how we express the relation between a sign and object in reality (Wigand et al., 1997).

Transmission signals carry the information from the sender, and the receiver must interpret the meaning from the sender outside the transmission itself. The sender and receiver must share a common language; otherwise, expressions – messages – are meaningless and can have a large, if not infinite, number of interpretations. Shannon's (Shannon & Weaver, 1949) probabilistic communication theory shows that meaning and information are not the same concept and that the signals that transmit the information operate on another level. Signals can represent an infinite amount of information, and information can represent an infinite number of possible meanings, explaining the adjective probabilistic of his theory. It is as with a physical object; it is meaningless in itself, but contains an infinite number of

³⁵ Most discussions on communication theories revert to the probabilistic communication model from Shannon and Weaver. However, the model originated from Shannon who worked on the technical problem of transmitting information. Weaver gave a more panoramic view on communication that included all human behavior such as speech, music, pictorial arts, and theatre. Shannon's publication *A Mathematical Theory of Communication* and Weaver's publication *Recent contributions to the mathematical theory of communication* were combined by the University of Illinois in 1949 as *The Mathematical Theory of Communication* by Shannon and Weaver. Noteworthy is the subtle difference in these titles.

potential meanings if we consider its characteristics such as size, weight, and atomic structure.

Schoderbek, Schoderbek and Kefalas (1985, p. 152) characterized data as unevaluated 'objects,' and information as evaluated data for a problem or situation. Following the aforementioned notion that data is meaningless in itself, it is tempting to explain meaning by contrasting information with data in Shannon's communication theory. Data would then be equivalent to Shannon's signals and information the meaning of these signals. According to Sveiby (1998), this is a wrong approach in explain meaning because in the Shannon sense one can only transmit data, not information.

Successors of Shannon have suggested mathematical additions to include meaning in his theory. Jumarie (1990) referred to Brillouin who suggested denoting information as the difference in the ratio of possible answers before and after the transmitted signals.³⁶ Jumarie (1990) proposed a quantitative model to include the subjectivity of the observer in Shannon's information theory. 'The suggested mathematical additions to Shannon's theory have found little practical usage, however. Is it perhaps because they try to relate two categories which are not possible to combine (Sveiby, 1998, section: Meaning in Shannon's Sense)?'

Meaning and pragmatic information

Central in the discussion of meaning using the semantic application of information is the concept of information as a potentiality – the potential impact of symbols. The intrinsic issue this discussion raises is whether the receiver of the message has also understood the meaning of a message. After all, 'information is only what is understood (Weizsäcker & Weizsäcker, 1998, p. 503).'³⁷

A possible way to solve this problem is the concept of *pragmatic information*, first proposed by E.U. and C. von Weizsäcker in the early 1970s (beim Graben & Atmanspacher, 2006; Gernert, 2006). The premise of pragmatic information is that a message distinctively influences the receiving system or recipient when they understand the information. 'A *receiving system* or *recipient* may be an individual, a social system (team, group, organization), an animal, a part of a living organism, a technical information-processing system, or even a component of a physical process [emphasis in original] (Gernert, 2006, p. 142).' Pragmatic information does not rely on direct access to meaning, but we can see it as a measure of meaning.

The concept of pragmatic information shows that previous experiences affect the level of pragmatic information. Information will only have effects when it neither is entirely new nor entirely confirms past experiences. In the case of novelty, information is too new to make any sense of it, because one simply does not know

³⁶ Sveiby (1998) marks this as a potential source for Bateson's famous statement 'Information is a difference that makes a difference.'

³⁷ cf. Bateson's 'information is a difference that makes a difference.'

what to do with it. For example, to convince someone of the business benefits of social media is difficult when one has no previous experience with social media. In the case of confirmation, information only confirms what we already know. Information then is merely a message, because it has no pragmatic content. For example, it will be highly unlikely that a chess master visiting a beginner's class will gain any new knowledge on chess.

The two notions of novelty and confirmation are fundamental in the concept of pragmatic information. Novelty and confirmation are complementary variables that independently can range from zero to hundred percent (see Figure 4).³⁸

This non-commutative aspect of novelty and confirmation is noteworthy because the concept of pragmatic information holds that 'any valuation [of information] can alter the basis for a subsequent one (Gernert, 2006, p. 152).' Some thinkers developed mathematical models to measure pragmatic information, such as beim Graben (2006) who proposed the concept of dynamic semantics to describe meaning as the transitions of cognitive states.

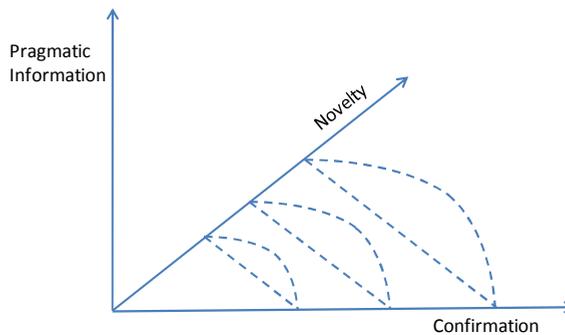


Figure 4: Pragmatic information according to E. and C. von Weizsäcker (1998)

More pragmatic approaches to meaning

Watzlawick, Beavin and Jackson (1967) took another pragmatic approach toward meaning and developed a sociopsychological oriented theory, which concentrates on the behavioral effects in human communication. The theory defines five basic axioms that consider aspects of content as well as relation in the

³⁸ Some graphical representations of the concept of pragmatic information show novelty and confirmation on the same abscissa, assuming that novelty and confirmation always add up to hundred percent (e.g. Wigand et al., 1997). According to Gernert (2006) such a diagram is misleading because novelty and confirmation not always maintain a constant sum. He mentioned the rather artificial example of asking an individual first to evaluate the degree of novelty in a text and secondly asking for the degree of original understanding of the remainder of the text. It is very unlikely that reversing the two questions will lead to the same result (ibid., p. 152).

communication between two individuals; if one of them is disturbed, the communication between the two might fail.

- The first axiom stated that 'One cannot not communicate (ibid., p. 51).' – From the premise that behavior is a kind of communication and there is no anti-behavior, communication always happens; non-communication is impossible. Behavior has a meaning, even if, for example, a manager walks by a co-worker without saying a word a communication takes place.
- The second axiom stated that 'Every communication has a content and a relationship aspect such that the latter classifies the former and is therefore a metacommunication (ibid., p. 54).' – In communication the information (content) is always accompanied with the behavior from the communication parties and thereby defines a relationship.
- The third axiom stated that 'The nature of a relationship is contingent upon the punctuation of communicational sequences between the communicants (ibid., p. 59).' – When two parties communicate, they have different perspectives on the interaction resulting in different interpretations that punctuate the sequence of the communication.
- The fourth axiom stated 'Human beings communicate both digitally and analogically (ibid., p. 66).' – Digital communication relates to the content. It has the advantage of being precise and formal such as words and numbers. Analog communication concerns the frame information. For example, when we are sarcastic, we communicate the right (digital) content but we mean something different.
- The fifth axiom stated 'All communicational interchanges are either symmetrical or complementary, depending on whether they are based on equality or difference (ibid., p. 67).' – We communicate symmetrically when a communication partner is at the same relation level such as two managers; complementary communication takes places between, for example, a co-worker and a manager.

The five axioms from Watzlawick et al. (1967) show that the construction of meaning by communicating actors involves not only the (pragmatic) information in the message, but also the supplemental information. This will become apparent in the other pragmatic approach that follows.

Another sociopsychological-oriented communication model comes from Schulz von Thun (1981), who postulated that a message has four different aspects in terms of communication behavior of individuals. Apart from the content and relation aspects addressed by Watzlawick et al. (1967), the approach from Schulz von Thun (1981) also included aspects of appeal and self-disclosure. Moreover, Schulz von Thun (ibid.) even included body language in the aspects of meaning. For example, a mother states to her visiting daughter: 'it is nice to see you again.' When we consider the content, relation, appeal, and self-disclosure aspects from Schulz von Thun

(ibid.), the conjugated meaning of that message is a complex of various meanings, as shown in Table 9.

Table 9: Meanings after Schulz von Thun (1981)

Aspect	Meaning	Explanation
Content	It is nice you are here	It is good that my daughter is here
Self-disclosure	I am lonely	The mother is glad to see her again because she missed her
Relation	You are not visiting me enough	An undertone implies the close relationship that mother and daughter have
Appeal	You should visit me more often	The mother (mis)uses the message to express her wish

The communication model according to Schulz von Thun (1981) shows that during communication many meanings wonder around, created by the supplemental information that arise in the communication processes. Even though the model from Schulz von Thun (ibid.) addresses supplemental information such as body language and voice tone, it is a linear one-way model that only considers the flow from the sender to the receiver of the message. In practice, human communication is a two-way meaning-constructing process where actors interact with each other through feedback. For example, a possible feedback from the daughter in the previous example could be that she kept silence and averted her eyes because she was ashamed, which in turn could be interpreted by the mother as: 'she does not care.' This everyday example shows that the concept of meaning in communication processes is ambiguous because of the supplemental information involved.

Schulz von Thun's (1981) contribution to the understanding of meaning is that meaning not solely concerns the factual message that actors communicate. Various communication-intensive disciplines, such as physician and conflict management, have applied the communication model from Schulz von Thun (1981) as a guide to prevent or solve communication problems (e.g. Geisler, 1991; Brinkmann, 2006).

From the previous discussion on the various aspects of meaning, we can conclude two things. First, meaning in relation to communication concerns a deliberate act of communication between a sender and a receiving system or recipient – communicative intent. Second, from the concept of communication, we can discern three modes of communication: a linear, interactional, and transactional mode; meaning relates to all modes of communication, be it though with varying aspects of meaning. Table 10 lists the various modes of communication with aspects of meaning.

Table 10: Modes of communication

Mode	Description	Meaning	Example
Linear	One-way communication omitting feedback Uses one channel to accommodate straightforward transmission from sender to receiver	Meaning is singularly constructed by actors	Reading books, blogs, forums, etc. Television, blogs
Interactional	Two-way communication with messages received one at a time but direct serialized response is possible Uses two channels to accommodate transmissions from each communicating party	Meaning is negotiated Meaning is mutually constructed as a result of a series of communication events	Instant messaging A series of emails Participating in a forum discussion
Transactional	Two-way communication where messages can be received and sent simultaneously Uses the same channel both ways	Meaning is negotiated Meaning is instantly and mutually constructed by actors	Face-to-face dialogue Telephone conversation Video conferencing

This distinction in modes of communication contributes to the understanding of meaning in two ways. First, except for the special case of the linear mode of communication, as we will see in a moment, meaning is a subjective construct that communicating parties mutually construct. Even in the interactional mode of communication where there can be a considerable delay in the communication steps while using different channels, the construction of meaning is the result of a series of interactions between communicating parties. In its essence, both interactional and transactional is a negotiation of meaning by the meaning-making communicating actors. Second, it shows that the fundamental assumption in the concept of meaning in all three modes of communication is that meaning occurs as an objective act of reference. I refer to this as *objective meaning*: in constructing meaning, we *refer* to something when describing the properties of objects, artifacts, or state of affairs.

I see the linear mode of communication as a pure hypothetical case as in practice eventually there is always a feedback loop opposed by one or more overarching systems. For example, take the one-way communication of blogs, if no one is reading it, the chance is high the blog will decrease to be maintained by its creator.

Summary

The foregoing illuminated that even though there are rich models of communication that surpass the language of words (e.g. Watzlawick et al., 1967;

Schulz von Thun, 1981), they still confine to communicative intent. They concern validity, conditions, and the newness of information in the context of the receiving system or recipient. Meaning in the aforementioned views and models limits to objective meaning. With the pragmatic approaches according to E.U. and C. von Weizsäcker (1998), Watzlawick et al. (1967), and Schulz von Thun (1981), and the way that models, such as from Gernert (2006) and beim Graben (2006), can operationalize them, it is possible to verify whether a recipient has understood the meaning of the message. The premise is that it triggers action or changes the receiver's structure or behavior. However, it is not possible to judge the response of the recipient when the response is different in language, nonverbal or nontransparent (Atmanspacher & Weidenmann, 1999). In the next section of this chapter, I will discuss other interpretations of meaning that go beyond the limits of the reference approach of meaning.

A more inclusive concept of meaning

The notions of meaning described in the previous section are not enough to develop meaning-driven governance, because making responsible choices by governing actors involves more than objective meaning. In the creation of governing images, governing actors must develop an understanding of the products that come forth from the contemporary information society. The issue for them is to understand what it means to know something about the concepts in informational developments, how it can help them to make responsible choices, and what they mean to the constituting elements that make up the enterprise.

Part of the issues raised here is analogous to the issues that research for mathematical education has discussed. Students in mathematics classrooms question the use of the difficult concepts they need to learn. It requires looking more closely at the discourse in the mathematics classroom and creating a condition for meaning making that goes beyond the rationalistic orientation of mathematical concepts (e.g. Kilpatrick, Hoyles, Skovsmose, & Valero, 2005; Radford, 2006; Seeger, 2011).

This is similar to the information governance situation. In order to help enterprises understanding how and why to make responsible choices with regard to the contemporary information society, developing a concept that allows for meaning-driven governance, requires a more inclusive concept of meaning. A concept of meaning that provides the conditions for meaningfulness in the discourse of information governance.

First, from a meaning perspective, the clear distinction made by the semiotic scheme – syntactic, semantic, pragmatic – only justifies itself at an abstract level. In the previous section, it became clear that the concept of meaning is present at various levels of the semiotic scheme, involves supplemental information, and has various context-dependent interpretations to represent something. However, as

soon as mental phenomena and human behavior enters the context, the clear demarcation of the semiotic scheme dissolves because there is more involved than solely objective meaning. Indeed, a message may invoke an action with a recipient, but this action does not necessarily depend on the content of the message. Factors such as situation, context, and memories may also affect the recipient. Therefore, it is not sufficient to judge the receiver's behavior by a pure pragmatic view of meaning – judgment is eminently important in order to make responsible choices in a society where information is superfluously available.

Second, when people consider things such as products, artifacts, and even information that transcend their *physical* need, they enter the world of the symbolic (e.g. Grubb & Grathwohl, 1967; Elliott, 1997; Lash, 2002). Symbols play a significant role in people's life because they contribute to human aspects such as identity and self-esteem. This is a very different concept of meaning compared to objective meaning. Because the information society is full of symbols, it is necessary for governing actors to judge products, events, or situations where symbolic phenomena emerge such as the information-centered socialities that develop through blogs and forums.³⁹

Third, the processes involved in forming governing images heavily depend on the interactions governing actors have with the information world. I have argued in chapter 3, that these processes are of a phenomenological nature. Therefore, concepts of meaning must also consider a phenomenological orientation.

In what follows I will advance on the pragmatic view of meaning, visit the symbolic aspects of meaning and explore meaning in the phenomenological context.

Advancing pragmatics: inherent meaning

Advancing on the pragmatics of meaning involves going beyond the limits of objective meaning and include mental phenomena and human behavior. The *pragmatic* view of meaning in general first appeared in Wittgenstein's (1958) *Philosophical Investigations* in which the philosopher suggested that the meaning of concepts and statements could be understood in terms of their use (Kilpatrick et al., 2005, pp. 1–8).

In the first chapter of *Philosophical Investigations* Wittgenstein referred to Augustine's *Confessions* as a showcase for interpreting meaning as a reference – because a word refers to an entity, it has meaning (Skovsmose, 2005, p. 84). Wittgenstein developed a notion of meaning that considers the meaning of linguistic acts, instead of the meaning of words. It refers to the whole situation and its complexity in which one uses a sentence. 'The meaning of a sentence has to be understood in "the stream of life" (ibid.)' With this notion of the meaning of a sentence, Wittgenstein makes *use* and context of *use* equal to semantic concepts. 'To look for the meaning of (the use of) a sentence is no longer the pre-eminent

³⁹ For the notion of information-centered socialities see page 9.

choice. One might as well look for the meaning of (the use of) a formulation, a gesture, a text, an attitude, or any other action (ibid.).'

According to Wittgenstein's broader notion of the concept of meaning, communication becomes a pragmatic concept where with we should be able to answer questions such as 'What might a concept do with the recipient?' 'How would its meaning affect its behavior?' From a constructivist interpretation, we could say, what does this concept allow a person to do, instead of, what is the reference of this concept?

In *The Theory of Communicative Action*, Habermas (1984) developed an even broader approach to the pragmatic notion of meaning. He presented meaning as a performative complex of the practice, the context, and the commitment of the actors involved in a concept he called *communicative action*. This notion of meaning allows supplementing meaning as a statement or concept expressed by a person with the whole situation and context in which the communicative action happens. According to Habermas (ibid.), the result of communication – pragmatic actions – depends on the way actors engage in communication. He defined a number of concepts that constitute his theory of communicative action: 1) *Instrumental action* in which communicating actors implement means according to technical rules, from either empirical knowledge or theoretical models, to instrumentalize their opponent(s) in order to succeed. The actor is ego-centrally, non-social, success oriented. 2) *Strategic action* in which both actors also orient to their success but assume a rational opponent and adapt their strategic act to each other. While still being egocentric, it is a social orientation toward success. 3) *Communicative action* where actors, instead of egocentric profit objectives, engage in a way that the act of communication – the use of language as a medium – is used to reach a shared understanding on the situation at hand. After reaching consensus on the situation, communicating actors execute their individual consensus-based plans; they are social and agreement oriented (Janson, Cecez-Kecmanovic, & Brown, 2001). According to Habermas (1984) communicating actors take either the (egocentric) *success* or the *agreement* position, because both attitudes are mutually exclusive. Habermas (ibid.) has confronted the attitudes of the communicating actors with social and non-social circumstances; social, the situations where the rules of community apply, and non-social, where the situations that strictly refer to an objective world apply (Janson et al., 2001; Wigand et al., 1997, pp. 67-70). Table 11 summarizes the concept of communicative action.

Table 11: Action concepts according to Habermas (1984)

Circumstance	Attitude orientation of communicating actors	
	Success	Agreement
Non-social	Instrumental action: apply empirical knowledge and models to steer opponent	Not applicable
Social	Strategic action: adapt action to opponent	Communicative action: seek consensus through language and consensually act

According to Habermas’ (ibid.) theory of communicative action, the concept of *the living world* is significant because it represents the entire background knowledge that is tacitly present in people’s language and lives; it determines people’s thinking and speaking. Everything one says, thinks, writes, or does, always results from prior experiences and beliefs; this so-called connotative meaning is specific for each individual. Therefore, in the various action types that Habermas (ibid.) defined, the living world always hovers in the background.

From a meaning perspective, Habermas’ (ibid.) theory of communicative actions contributes to the understanding of the concept of meaning that meaning, as the result of communication, includes the complete human context together with its prior experiences and background such as social sphere and objectives. They all play a role in the construction of meaning of the individual communicating actor. For example, back in the 1970s those who grew up in the age of mainframe computing could not understand the meaning of mini computers, let alone personal computing.

The structuration theory, developed by Giddens (1984), takes the social theory of communicative action one-step further. Developing a notion of meaning that draws upon the concepts from Wittgenstein and Habermas reveals that human action plays a fundamental role in sociology. However, in contrast to action as a series of separated individual acts – the analytical philosophy of action – Giddens (ibid.) has treated action as a continuous flow of acting. ‘Human action occurs as a *durée*, a continuous flow of conduct, as does cognition [emphasis in original] (ibid., p3).’ This continuous flow of conduct is a significant element in developing an inclusive concept of meaning, because meaning builds up in the *durée* of the lived experience.

The concepts proposed by Wittgenstein, Habermas, and Giddens show that an advanced pragmatic orientation of meaning concentrates on much broader notions of human action, because it includes prior experiences and life-worlds. Giddens’ notion of action is important in this, as we will see later when discussing the concept of meaning from a phenomenological stance.

Henceforth I will refer to the advanced pragmatic orientation of meaning as *inherent* meaning. It emphasizes that in the stream of life prior experiences, life-worlds, and believes are inseparable – inherent – from everything one can say, think, write, or do.

Transcending physical needs: symbolic meaning

When people encounter something that is compelling, interesting, or in any other way worthy, they experience it as meaningful. When that transcends the mere physical needs of products, one enters the realm of symbolic meaning. People find symbolic meaning in many places. Music and art, for example, are rich of symbolic meanings (e.g. Palmer, 2007; Galbraith, 2011; Bundgaard, 2011).⁴⁰ One can also find symbolic meanings in stories and movies such as the phenomenal success story Harry Potter (Black, 2003), and the Matrix trilogy movie, as discussed by de Mul (2003).⁴¹ People try to find meaning in the way they experience music and art, or through the unfolding of stories in movies and literature.

Architecture is another domain where we find symbolic meaning, because we can sometimes ‘read’ from a building its purpose. For example, buildings with a religious function often show a lot of symbolism (Sorkin, 2005). To be more specific, how ornaments play a communicative role in architecture (Bordeleau, 2009). One can even see the transport of political and cultural statements in architecture, as shown in studies on architecture involved in Olympic Games (Modrey, 2008).

We find symbolic meaning also in consumption. Some utility products from certain brands or with strong community affiliation mean a lot to people because of their symbolic meaning. We also find consumption of symbolic meaning when people collect things, which can even be utility products without using them such as limited series fountain pens and classic cars. There has been an increasing awareness that studying consumptive behavior should incorporate the issue of affection when buying products (Derbaix & Pham, 1991). Symbolic meaning is one of the affective parameters discussed in behavioral studies on consumption. They have shown that symbolic meaning, besides how certain products look or feel, also relates to how it can increase consumer self-respect and self-esteem (e.g. Desmet, Overbeeke & Tax, 2001; Westbrook, 1987). Put differently, the characteristics of products elicit emotions and determine consumer preferences, but the intangible characteristics of a product are responsible for the symbolic meaning consumers attach to them (Desmet, Hekkert & Jacobs, 2000).

⁴⁰ A typical example is *The Ambassadors (1533)* painting by Holbein (1497-1543) that includes a lute with a broken string next to a hymnbook of Martin Luther, a commonly excepted symbol of discord emphasizing the bitter conflicts between the scholars and clergy.

⁴¹ de Mul (2003) discussed, in an essay series, the Philosophy of The Matrix movie trilogy by the Wachowski brothers who, according to de Mul, where mesmerized by the three core philosophical questions from Kant: What can I know? What can I do? What may I hope?

Consuming symbolic meaning is a central proposition from the postmodern theories of consumption (Elliott, 1997), and following Baudrillard (1998), we can speak of a commodity of signs when people consume products for their symbolic meaning instead of their material utilities. '[T]he consumption of symbolic meaning [...] provides the individual with the opportunity to construct, maintain and communicate identity and social meanings (Elliott, 1997, p. 285).'

Allegedly, symbolic meaning is important in people's life because the meaning of their existence is by large determined by symbolic meaning (Elliott, 1997). However, the interpretation of symbolic meaning in, for example, music, art, stories, architecture and consumption is fuzzy and complex because the symbolic is intangible and represents a world that is not there. Do we consider the symbols used by, for example, the composer, writer, artist, or architect to express something? Alternatively, do we consider the meaning applied by, for example, the consumer, reader, or listener? Clearly the two highly relate to each other, but at the same time also decidedly differ. For example, a painting that contains symbols intentionally used by a painter to express something, such as a religious message, can mean a lot when it reminds to a difficult situation in one's life. The former is the case where we talk about symbolism – the use of symbols to express abstract or mystical ideas – the latter is about someone's personal construction of identity and social meanings.

My notion of symbolic meaning refers to a subjective interpretation of a state of being and involves people's personal feelings, belief, and it constructs their identity. Symbolic meaning is about the interaction between symbolism and constructivism. It follows Kaiser (2008), who differentiated between personal meaning and objective meaning.⁴² Symbolic meaning then is subjective and individual; the person constructs his own meaning with respect to certain objects and evaluates its relevance in personal significance – what is in it for me? This contrasts Kaiser's (ibid.) objective notion of meaning, which represents the common meaning of a community, the general norm about an object, a symbol, which in its turn we can use to construct a personal meaning.

In studying symbolic meaning, it is tempting to deconstruct symbolic meaning according to the semiotic scheme. However, from the relation of symbolic meaning with symbolism we can conclude that the process of applying symbolic meaning intertwines the personal and objective perspectives. Moreover, things and events have no implicit meaning (Kaiser, 2008), but people construct their own personal meaning of them. It is the result of people's interpretations of the patterns, they

⁴² There is a large debate on the various kinds of meaning involved in mathematics education. According to Kaiser (2008), the difference between personal meaning and objective meaning finds its roots in the contrast of philosophical and non-philosophical interpretations of meaning. 'Personal meaning is subjective and individual. This means that every person has to construct her or his own meaning with respect to a certain object. There is no given objective meaning which just has to be applied; meaning cannot just be endowed. Also, as the construction of meaning is not collective but individual, different students sitting in the same lesson can also construct different meanings (Kaiser, 2008, section: Personal meaning vs. objective meaning).'

recognize in their life-world as results of coherent understanding of phenomena. Applying meaning then is also context dependent because situations and life-worlds change all the time. With a semiological analysis of symbolic meaning, we would 'fall back' to the semantic level, as in the meaning of a symbol. Similarly, Holbrook and Hirschman (1993), who discussed the interpretation of symbolic consumer behavior in popular culture and works of art, have concluded that a semiological analysis is not sufficient to study consumption behavior (as cited in Østergaard, 1996). I suggest that a good understanding of symbolic meaning involves both the personal perspective and the objective perspective.

Symbolic meaning contributes to the understanding of the concept of meaning in general that it is a substantial factor to consider in studying meaning, because it relates to one's identity, and therefore, one's behavior. Deconstruction of symbolic meaning using symbolism or semantic concepts for the analysis of the continuous flow of conduct is difficult because of its interrelationship and context dependency.

Referring back to the contemporary information society, we see informational phenomena that are symbolic to organizations and their information users. We can find examples such as, the concept of disorganizations (Lash, 2002), the idea of information-centered socialities, both discussed in chapter 1, and the use of devices that connect people to the information society. These constructs and devices have all become relevant and significant for users in the information society; they involve their personal feelings, their belief, and construct their identity. In the contemporary information society, meaning in the symbolic context becomes a more transparent concept, especially with the rise of social media; social media make social interaction much more explicit.

Meaning in general, in the context of information governance, refers to what one considers organizationally, socially, culturally, or personally significant, to informational developments. The process of forming governing images is a process that interacts, communicates, with the information world. I have argued in chapter 3 that it is a process of a phenomenological nature, therefore, it makes sense also considering meaning in the phenomenological context.

Phenomenological orientation: contextual meaning

Christopher Alexander (1979) wrote in *The Timeless Way of Building* about how people experience buildings, towns, etc. and how their characteristics can make or break that experience. The way Alexander formulated 'that what cannot be named,' in the journey to a timeless architecture, is a typical example of what one can consider as meaning in the phenomenological context:

'There is a central quality which is the root criterion of life and spirit in man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named. The search which we make for this quality, in our lives, is the central search of any person, and the crux of any individual person's story. It is the search for those moments and situations when we are most alive (ibid., p. ix).'

Alexander searched for the criteria needed to design buildings that satisfy that what cannot be named, in order to make us *feel at home*. Similarly, Vogler and Jørgensen (2005) looked at how space habitats need to be build and argued that the integration of functionality with mental representation and symbolic meaning is essential to feel at home.

The space habitat example illustrates that a symbolic meaning and phenomenological orientation of meaning certainly can intertwine with each other. At first sight, they look remarkably similar because they also share the first-person point of view, which is so typical for phenomenology (Smith, 2008). Consider the following two examples. Phenomenological: “I enjoy sitting in this room because . . .” and symbolic: “I like this painting very much because . . .” A closer look will show that the difference between the symbolic orientation of meaning and the phenomenological orientation of meaning is far from subtle. The phenomenological example expresses an experience of being in a physical location; with the symbolic example, however, one does not necessarily need to be at the location of the painting. In what follows, I will show that the philosophical roots of phenomenologically oriented meaning and symbolic meaning distinctively differ.

Symbolic meaning is rooted in a two-world thinking paradigm where individualized subjects have created meaning by externalizing the properties of their experience – their *erfahrung*.⁴³ Subjects will most likely judge that meaning differently because their judgment depends on factors such as bias, contexts, and location. For example, a piece of text, badly written, or with unusual typesetting, or electronic appearance such as a Tablet PC, can trigger mental blockages by those sensitive for this (e.g. O'Hara & Sellen, 1997; Slattery & Rayner, 2009).⁴⁴ The essence of a two-world model is that one observes and judges ‘from a distance,’ that one derives knowledge from explaining the causalities of phenomena (Lash, 2002, p. 165). Conventional wisdom tries to understand the world through epistemology, creating valid scientific knowledge through explaining the relationship between things and their representations (Lash, 2002, p. 15). Referring back to the example of the first-person view regarding symbolic meaning, people try to explain what a painting means to them – as a symbol.

The phenomenological stance is different because it is rooted in a one-world thinking model. It is a model that assumes engagement; it includes the in-the-world context.⁴⁵ It assumes no objective observer that judges from a distance, but an in-the-world subject that has an interest in the objects, events, and social processes it encounters. The subject is no longer transcendental to these things, but embodied with the same things it encounters; subject and object become one. The subject

⁴³ For example, when designing a house or making a painting, the final artifact will represent the properties – externalization – of the experience of the one who created it.

⁴⁴ To read a long report many still prefer a piece of paper instead of an ‘electronic’ version that is readable on a device.

⁴⁵ See also footnote 28.

becomes an actor in a life-world with similar actors, and builds up knowledge through direct experiences – in-the-world context – rather than through abstraction of analysis and judgment. The actor contextually *engages* with its life-world. For the actor, from a meaning perspective, things ‘open up;’ it is able to experience the existential meaning of objects, events, and processes, based on the deeper knowledge of their ontological structures. They express their meaning, less through explanation than through explication (Lash, 2002, pp. 14-17, pp. 164-166). Table 12 summarizes the two models.

Table 12: One-world model versus two-world model according to Lash (2002)

Two-world model	One-world model
The observing and judging subject	The experiencing and describing subject
Knowledge through causal reasoning	Knowledge through experience as a result of interest (intentional attitude)
Explanation	Explication

Lash (2002) has called for a technological phenomenology because, in contrast to ‘the older era of representation [where] there is a clear distance between the cultural representation,⁴⁶ the object it represents, and the subject [...] setting up a particular set of relations, the information order is characterized by immanence where the subjects become interfaces *within* the network of communications. [emphasis in original] (Wood, 2009, p. 200).’ A technological phenomenology concerns the user’s experiences in the flow of its technological form of life in terms of connectivity and relationships rather than its judgment of objects from a relatively fixed position (Lash, 2002).

The immanent character of the information order surfaces a specific type of reflexivity,⁴⁷ which is characteristic for the global information society (Lash, 2002, p. 169). According to Lash (*ibid.*), practices in the information order characterize themselves by a special type of reflexivity in a sense that they ‘incarnate.’ What Lash means is that the new ways of connectivity through the flood of devices places users at the center of the networks of communications, which results that users adapt to their life-world and renew their practices that are so typical for the information society – they incarnate. Although the things that users do, are still rationally tied to the rational attributes that make up today’s enterprises and businesses, the way users do their things – incarnate – makes it reflexive and, therefore, a truly special type of reflexivity (Lash, 2002, pp. 169-170).

⁴⁶ This notion of presentation – *vorstellung* – refers to a representing subject that externalizes his or her subjectivity as representations.

⁴⁷ See also the discussion on reflexivity in the section of chapter 3 on Meaning-driven governance that covers Image formation in the semiotic order on page 48.

Assuming the technological context, phenomenologically oriented meaning, then is about *how* users adapt to their connectedness with the environment building up relationships, contexts. Since they are phenomenologically engaged actors, they make up that connectedness themselves – subject and object are one, are the same context. Therefore, the essence of phenomenologically oriented meaning is that users *become* their life-world due to the flow of experiences that emerge through that connectedness. Of course, rationality from-a-distance – two-world thinking – is and remains also a part of user activities in the information society. It is the technological life-world, however, that biases what users do and how they do it. The technological life-world comprises two aspects that bias informational activities in the information society. 1) The immanent legacy users have built up with respect to the form and nature of the communication of information and 2) their engagement toward objects.

According to Lash (2002), the way users engage objects in a technological culture is synonym with the paradigm of *play*, which is central in this culture. There are two sorts of play: agon (the contest) and child-play. The difference in logic that both sorts of play follow, highlights the difference between the traditional representation-based culture – agon – and the technological culture – child-play. Play does not follow the logic of exchange-value, but the logic of fate and luck; it is not about prices but about prizes. As a player one is so involved in play, that play suspends judgment. Because the technological culture with its connectedness entirely involves users, the actors incarnate and act as in play.⁴⁸ Because playing suspends judgment, technology and everything involved in the technological culture becomes a finality in itself, and not a means to an end (Lash, 2002, p. 160). Therefore, meaning is about the extent that actors are involved in the ‘game’ they ‘play;’ that is, to what extent are they involved with the attributes of their life-world?

The gaming world recognizes a message-based model of meaning and an immersion-based model of meaning – predefined plots versus player-generated stories (Gaynor, 2009). In the immersion-based model of meaning, one ‘visits’ places that are outside prior experiences and since the player itself is the author of the plot, playing immersive games can deeply affect the player’s experience.⁴⁹ Studies on collaborative game-based learning have confirmed this and showed that immersion indeed affects learning results, but only if there is flow and little or no distraction

⁴⁸ Lash (2002) frequently used the term ‘incarnate,’ to emphasize the absence of representation, the symbolic, and that the user in the information society becomes one with its life-world instead, as in play. ‘Play’s magical language is metonymic, not metaphoric. There is no symbolic correspondence between the man and the kangaroo. Instead the man becomes the kangaroo [...] (ibid., p. 158).’

⁴⁹ Message-based games rely on Hollywood style plots to convey a message, morals, philosophy, etc. Immersive games abdicate authorship and try to invoke personal revelations and experiences of the player. ‘[They] take the act of travel as its primary touchstone, instead of relying on traditional media such as film, the novel, or even sculpture, music or painting to inform the author’s role. (Gaynor, 2009).’

such as technical difficulties (e.g. Admiraal, Huizenga, Akkerman, & ten Dam, 2011).⁵⁰

The paradigm of play shows that the phenomenological actor creates meaning in the flux of its actions. It reflexively creates meaning in-the-moment, in contrast to the representation-based culture that creates meaning reflectively out-the-moment – from a distance. From a play perspective, one could say that meaning is about the extent that users in the information society adapt to the ‘game.’ Table 13 summarizes how the traditional representation-based culture compares to a technological culture.

What phenomenologically oriented meaning contributes to the understanding of the concept of meaning is the notion of intangibility; actors cannot explain how meaningful their involvement is in the information society because they are part of the whole context. They *are* the context because object and subject become one. In contrast to symbolic meaning where one can *explain* why something is meaningful, actors can only *explicate* how that affects the way they work and experience it.

In its essence, the phenomenological stance regarding meaning, is about the question: how does the appearance of the information society affects its users? From the two-world thinking model, the essence of meaning is rationality. For people’s daily technological life the fringes of meaning, of intangible things, are equally important (Lash, 2002, p. 171).

From the perspective of the actor, the phenomenological orientation of meaning involves the context of its environment. Moreover, the actor is in its technological life-world – in-the-world. In fact, the actor becomes the context because object and subject become one. Therefore, I refer to the phenomenological orientation of meaning as *contextual meaning*.

⁵⁰ Flow theory describes that the experience of flow occurs when skills needed to overcome challenges are balanced; it is a state of complete concentration and absorption of human activities in situations (Csikszentmihalyi, 1997).

Table 13: Representation-based versus technological culture after Lash (2002)

Representational culture	Technological culture	
Aspects	Aspects	Remarks
Presumes the dualism of a distance between subject and object	Subject is in-the-world with objects	Working, living, without, for example, a smartphone is impossible.
Transcendence and dualism	Immanence and monism	Information is always anywhere (in real-time in-hand).
Subject, cultural object, and real object are distantiated because of two dualisms: 1) Subject vs. cultural entity and 2) Cultural entity vs. the reality it represents.	All three of them are in the same immanent world. Subject, culture, and reality are one.	The subject becomes an interface itself in a connected world through the networks of communications. It becomes a constituting element of the flow of business, the flow of its technological life.
Reflexivity is distant organizing and distant decision-making.	Reflexivity is knowledge tied to action	The way technology and all its enabling structures presents information make us instantaneously act upon it, at the spur of a moment.
Metaphorical (represents)	Metonymic (substitutes)	There is no symbolic representation; instead, users in the information society become their life-world. They use their own languages.
There is time and distance to reflect upon meaning.	Reflexivity produces instability of traditional meaning-making structures. Systematic relationship between the signifier and the signified will be dissolved.	The instantaneous actions and phenomena of disorganizations transcend traditional, often hierarchical, structures of meaning. For example Twitter, communities, blogs, etc.

Summary

The treatise on a more inclusive concept of meaning was motivated by the presumption that objective meaning, as described in the previous section, is not enough for the concept of meaning-driven governance. First, the pragmatic view on meaning following the semiological interpretation is not sufficient to judge the receiver’s behavior. Second, meaning also transcends the *physical* needs of objects – artifacts, processes, information – as denoted by the notions on symbolic meaning. The concepts discussed from Wittgenstein (1958), Habermas (1984), and Giddens (1984) show that inherent meaning concentrates on human action. The notions on symbolic meaning from Baudrillard (1998), Elliot (1997), and Kaiser (2008) show that

symbolic meaning is detached from material utility and intertwines the personal and objective perspectives. Contextual meaning, the phenomenological stance on meaning, heavily based on Lash's (2002) presentation of a technological phenomenology, shows that an overarching concept of meaning in the information order also includes the direct experiences of users in their technological life-world. Common in the pragmatic, symbolic, and phenomenological orientation of meaning is that, in the information order, subjects construct meaning in the flow of the experience. The phenomenological orientation also shows that subjects incarnate the objects they encounter resulting in a strong interaction between actors and their environment; meaning is an elusive concept because object and subject become one. This section showed interpretations of meaning that I collectively categorize as *connective meaning*. In contrast to objective meaning, which follows the semiological interpretation of meaning, connective meaning concerns engagement; 'connects' the actor.

Synthesis

The discourse on notions of meaning so far recognizes four main orientations: communicative meaning, symbolic meaning, inherent meaning, and meaning in the phenomenological context – contextual meaning. Each of them reveals different aspects.

- Communicative meaning – concerns the validity, conditions, and newness of information in communicative intent. Communicating parties mutually construct meaning and it is negotiable, except for the linear mode of communication. A judgment problem arises though when communicative events take place outside the agreed protocol such as communicating non-verbally, non-transparently, and in (slightly) different languages.
- Inherent meaning – actually includes a communicative aspect because it concerns what actors do because of communication, albeit, that it is not necessarily communicative intent. The term inherent in this context emphasizes that communication takes place in the stream of life – *durée* as Giddens (1984) called it. It includes the implicit assumptions of communicating parties as an immanent plane that hovers in the background. Therefore, meaning includes the entire background knowledge that is present in the language and lives of communicating actors. Everything they have experienced in the past entangles their thinking and doing and may be of a content that is more than written or spoken language.

- Symbolic meaning – is intangible in a sense that it transcends the physical objectives of objects, events, and processes. It are their intangible characteristics that shows that symbolic meaning is created in a world that is not physically there; a world subjectively constructed by humans. Although humans can explain symbolic meanings, they do not necessarily need to coincide with the purpose of objects, events, and processes or in the case of symbolism, the purpose of symbols.
- Contextual meaning – is also intangible, but in contrast to symbolic meaning, assumes engagement of the subject with objects, events, and processes, from a one-world paradigm. Where actors explain what objects, events, processes symbolically mean to them, with contextual meaning they are in-the-world experiencing the deeper meaning of ontological structures. The experiencing actor can only explicate this type of meaning. This contrasts the conventional epistemological approach where one explains meaning through the relationships of things and their representations. With the one-world notion of meaning, the actor ‘becomes’ its life-world. Meaning then is about the extent to which actors adapt their behavior – renew their legacy – based on the experiences ‘as’ their life-world.

These notions of meaning, lead to a number of conclusions. First, communicative meaning fundamentally differs from the remaining three in a sense that it assumes communicative intent of actors. In this case, meaning occurs as an objective act of reference. In fact, one could deconstruct the other interpretations of meaning also with a communication perspective, but they lack the notion of communicative intent. Indeed the ideas from Wittgenstein and Habermas do contain communicative aspects, but the essence of their notions of meaning has focused on a much broader concept of meaning – how communication and context affects subjects. Similarly with contextual meaning, one could say that the life-world ‘communicates’ with the actor, however, it would frame it into a two-world thinking model in which we would ‘fall back’ in a semiotic discussion; hence, miss the phenomenological essence. To demarcate these fundamental differences, I have referred to objective meaning and connective meaning (see also Table 14).

Table 14: Objective meaning versus connective meaning

Objective meaning	Connective meaning
Semiological	Empirical
Communicative intent	Occurrence
Objective act of reference	Subjective experience
Negotiation (two-worlds)	Explication (one-world)

Second, the idea of a life-world plays a dominant role in all notions of meaning that involves human experience. The notion of inherent meaning concerns how life-world and actor influence each other, or opposes onto the actor. The discussion on the symbolic notion of meaning does not address the idea of life-world directly. However, because symbolic meaning is subjectively constructed, it is by definition subject to the actor’s life-world. In the notion of contextual meaning actor and life-world become one – the actor incarnate, adapts, its life-world.

Third, in terms of inclusiveness, the extent of increasingly subjective and deeper ontological meaning, the four concepts of meaning seem to be hierarchical. Not in a way that communicative meaning cannot stand on its own, but contextual meaning, for example, includes symbolic meaning, inherent meaning, and communicative meaning. Figure 5 illustrates how each concept of meaning may include another concept meaning.

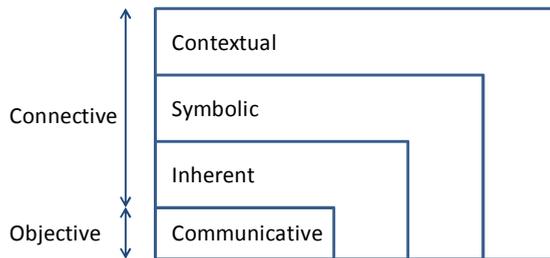


Figure 5: Hierarchical inclusiveness of concepts of meanings

At this point, I want to refer to the overall theme developed in this thesis: in order to make responsible choices in a semiotic order, it is necessary to include a comprehensive concept of meaning in information governance – the case for meaning-driven governance as developed in chapter 3. The review of meaning in this chapter shows that prior research and publications has been rich about ideas on the subjective interpretation of information. However, none of them provides models or constructs for governing actors to ascribe meaning on how they experience things, situations, or opportunities in the contemporary information society, such that they can make responsible choices.

For governing actors to make responsible choices they need to consider the impact of new values – the proliferation of sign-value – against the background of the environment they operate in, do business in. Therefore, from a meaning perspective, the question then rises, what concepts of meaning do they need in order to fulfill this?

In the contemporary information society, where information is abundantly available and a technological form of life prevails, informational objects, events, and processes are opposed on the actor through technology and the actor ‘becomes’ its life-world. It was for Lash (2002) a reason to call for a technological phenomenology,

which has its roots in a one-world paradigm. However, it is impossible from a meaning perspective to avoid two-world aspects. Indeed, with a technological life form, actors do incarnate their life-world, but they also communicate, act upon information, and use objects that are appealing to them symbolically. The simple fact that if someone prefers a device from a certain brand to communicate and act in preferred communities, shows that semiological as well as experiential aspects of meaning matter. I submit that the discourse in information governance is in need of all the orientations of meaning that I have discussed here, in order for governing actors to make responsible choices. Information governance needs an inclusive concept of meaning that, besides objective meaning, also addresses connective meaning.

With this postulate, the key question rises, how to operationalize objective meaning as well as connective meaning in the discourse of information governance? The next chapter will develop a meaning-making framework that will address this issue.

Conclusion

This chapter started with a generic introduction of meaning in which it became clear that the first notions of meaning developed into a formal interaction model of how signals relate to formal structures, how signals relate to objects they refer to, and how signs affects subjects that use them. To be specific: the syntactic, the semantic, and the pragmatic interpretation of meaning – the semiotic scheme. This notion assumes communication and is more of a technical nature than the first notions of meaning of what one calls today the hermeneutic circle.

A notion of meaning based on a communication perspective shows that, in essence, all aspects of meaning relate back to the probabilistic theory of information as defined by Shannon (Shannon & Weaver, 1949). Theories of meaning in this perspective concentrate on the informational content in communicative intent, and to what extent this communication succeeds in sending across a message between the sending and the receiving system or actor. Less of a technical nature is the notion of meaning that relates to the pragmatic perspective of the semiotic scheme. Theorists in this domain considered meaning in terms of how information affects a receiving system and positioned mathematical theories of meaning that considered the newness of information, and sociopsychological theories that considered the supplemental information in the communication between two human actors.

All these theories on meaning relate to different modes of communicative intent – linear, interactional, and transactional – and concern the validity, conditions, and newness of information, based on a protocol between sender and receiver. I have denoted this as objective meaning.

Although each of the levels in the semiotic triad has its concept of meaning, the semiotic scheme only justifies itself abstractive. As soon as mental phenomena and

human behavior enters the semiotic realm of meaning, the clear demarcation of the semiotic scheme dissolves; there is more involved than solely objective meaning.

A more inclusive concept of meaning adds more aspects: human action, the symbols humans encounter in their life, and the direct experiences in the flow of the day-to-day business. From a more advanced view on the pragmatic interpretation of meaning, it became clear that meaning in the context of human action is a broad concept. This notion of inherent meaning includes everything humans have done and experienced in the past and how they construct meaning in the flow of the lived-experience – the life-world. Symbolic meaning plays a prominent role in this because humans make up their identity with symbols, and that influences their behavior. Contextual meaning shows that humans directly – reflexively – experience their environment. However, they cannot explain its meaning because events and processes in this environment happen at the spur of the moment through the technological interfaces they use. They become ‘one’ with their environment and meaning is about the direct experience of their technological life-world. I have denoted all concepts of meaning that involves human behavior and experience as connective meaning, in order to delimit it clearly from semiological orientations of meaning, which is fundamentally different.

The synthesis of all notions of meaning showed that there are four main orientations of meaning to recognize: communicative meaning, symbolic meaning, inherent meaning, and contextual meaning. A close look at them revealed three main conclusions. First, communicative meaning fundamentally differs from the remaining three in a sense that it assumes communicative intent of actors. Second, the idea of a life-world plays a dominant role in all notions of meaning that involves connective meaning. Third, in terms of inclusiveness, the extent of increasingly subjective and deeper ontological meaning, the four concepts of meaning shows a hierarchical inclusiveness.

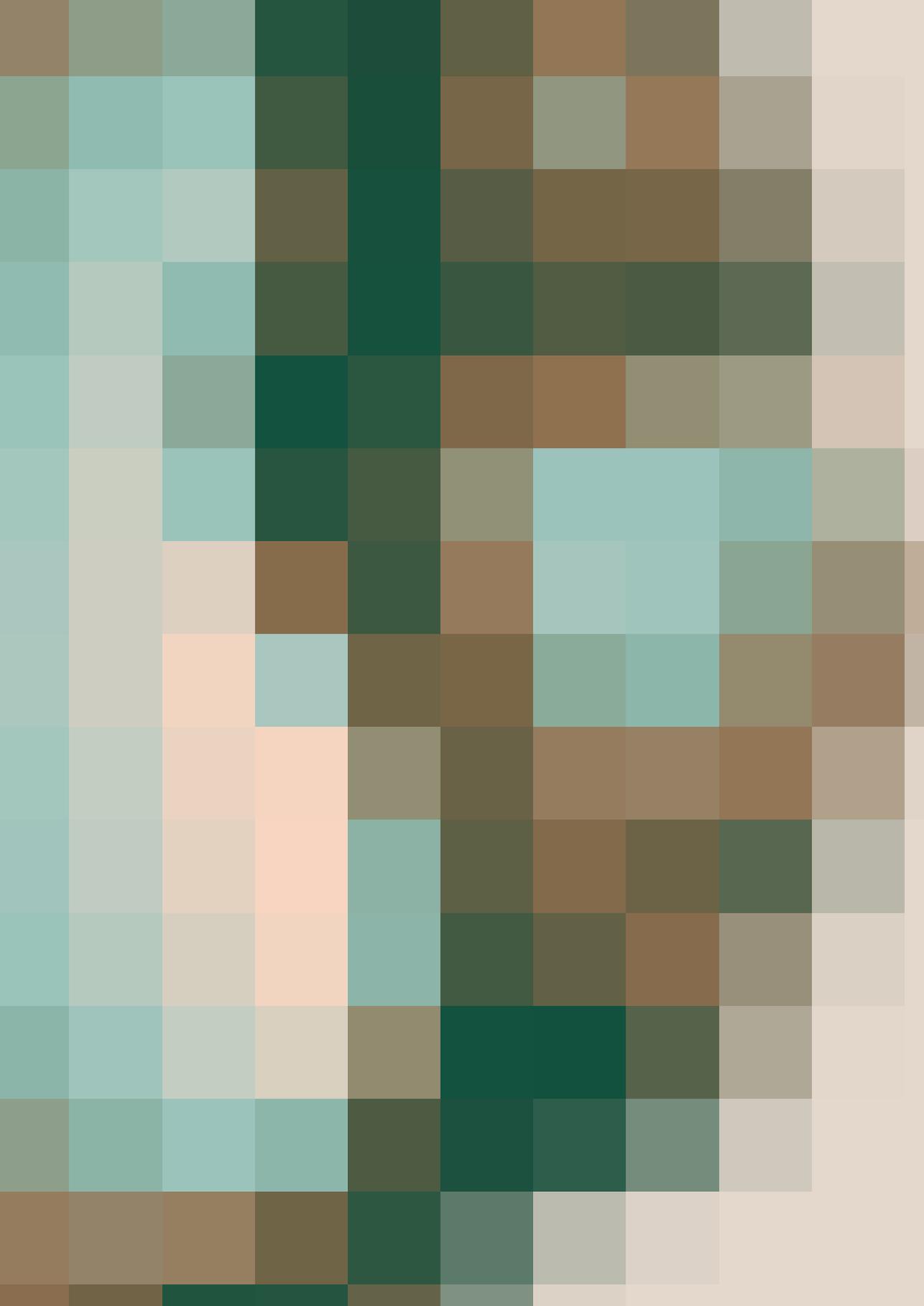
Putting the critique of meaning in the context of making responsible choices in a semiotic order it seems essential, that information governance needs a comprehensive concept of meaning. A concept of meaning that addresses objective meaning as well as connective meaning.

Overall, I claim that the ramification of the concept of meaning is difficult, because a systemic orientation in the jungle of concepts of meaning seems impossible. There are several reasons for that. First, there is no reasonable classification of concepts. Second, one refers to meaning from fundamentally different concepts such as communicative intent and symbols. Third, meaning is subjective and depends on the philosophical stance of subjective transcendental or immanent. Fourth, meaning tightly interconnects with other ambiguous concepts such as communication, information and language. It is common knowledge that all these three concepts are more inclusive.

Table 15 summarizes the concepts and propositions of the authors that contributed to the notion of meaning I developed in this chapter.

Table 15: Overview of authors contributing to concepts of meaning

Authors	Key concept or proposition
Maturana and Varela	Meaning in the cybernetic context is a linear concept in order to maintain the purpose of the system. A higher order defines the meaning of the overall system.
Schoderbek, Brillouin and Jumarrie	Meaning can be elicited from the difference between data and information.
Shannon and Weaver	Meaning and information are distinctly different concepts.
Weizsäcker	Meaning can be stated as pragmatic information, the level of novelty and confirmation. Prior experiences affect the construction of meaning.
Watzlawick	Meaning is constructed as a fusion of factual information and supplemental information according to five axioms.
Schulz von Tun	The conjugated meaning of a message is a complex of meanings by content, self-disclosure, relation and appeal. Note: A linear one-way concept, which considers only the flow from sender to the receiver.
Wittgenstein	Besides a sentence, meaning can also include formulations, gestures, texts, attitudes, and actions.
Habermas	Meaning is the performative complex of, the practice, the context, and the commitment of the actors involved. It includes the whole human context and its background (prior experiences).
Giddens	Meaning builds up in the <i>durée</i> of the lived experience.
Baudrillard, Eliot and Kaiser	Symbolic meaning is detached from material utility and intertwines the personal and objective perspectives.
Lash	The deep meaning of ontological structures of objects, events, and processes (phenomenologically) can only be constructed through engagement. Note: Actors have to 'become' their life-world to fully grasp the meaning of it.



5

TOWARD A FRAMEWORK OF MEANING

It is the framework, which changes with each new technology and not just the picture within the framework ~Marshall McLuhan.

'Design is the order and sense that we impart on otherwise chaotic existence. Design is the structure that we as humans impose over what is . . . it's the meaning we give to experience that in and of itself that might not have any meaning. Design is structure and purpose where maybe none exists naturally (Salem-Baskin, 2010).'

Introduction

I have argued that information governance is the appropriate concept for organizations in order to consider the phenomena of the semiotic order in their innovation processes, because traditional management models are no longer appropriate. It requires governing actors to develop skills for making responsible choices in order to cope with aspects of the semiotic order, such as the exponential growth of information, the computational rendition of reality, and sign-value.

It became clear that, in the information governance discourse, the concept of meaning is essential for governing actors in making responsible choices, because fostering innovation processes must consider aspects of the semiotic order. The preceding chapter on the critique of meaning elaborated on various concepts of meaning that culminated in a comprehensive notion of meaning, which considers aspects of the semiotic order.

The purpose of this chapter is to synthesize the preceding notion of comprehensive meaning and the notion of governance into one unifying meaning-making framework, a construct. I have pointed out in chapter 2, that the next logical step in the design-oriented research process is the design of the artifact. That is the key subject of this chapter.

The practice of robust design involves justifying design decisions; therefore, the design process starts with determining requirements. They are the first step in tracing design decisions. Requirements serve three purposes in developing solutions: 1) they confirm the nature and scope of the problem, 2) they create understanding of the problem-solving capabilities of a solution, and 3) they are the basis for criteria to evaluate a solution. Put differently, in the design-oriented research approach exhibited in this dissertation, the design requirements are the means to provide rigor in the research setting.

Before proceeding, I must note that this chapter has not the intention to delve into the theory of design. The sole purpose of elaborating on design aspects is to constrain the research and move it into the right direction: the design of a meaning-making framework. While this chapter needs to maintain the practice of robust design, solving the overarching problem – marrying the comprehensive notion of meaning with the information governance context – is of primary concern and, therefore, the main focus in this chapter.

When designing artifacts, it is common to reiterate the problem at hand by studying problem-relevant theories, because it gains more insight in solving the problem (Offerman, Levina, Schönherr & Bub, 2009). Therefore, this chapter will reiterate some problem aspects; in fact, this reinforces how a design-oriented research approach creates knowledge, as discussed in chapter 2.

Figure 6 illustrates that the design process, which covers requirements elicitation and framework design, is a follow-on activity on the theorizing discussions on information governance in chapter 3 and the concepts of meaning in chapter 4.

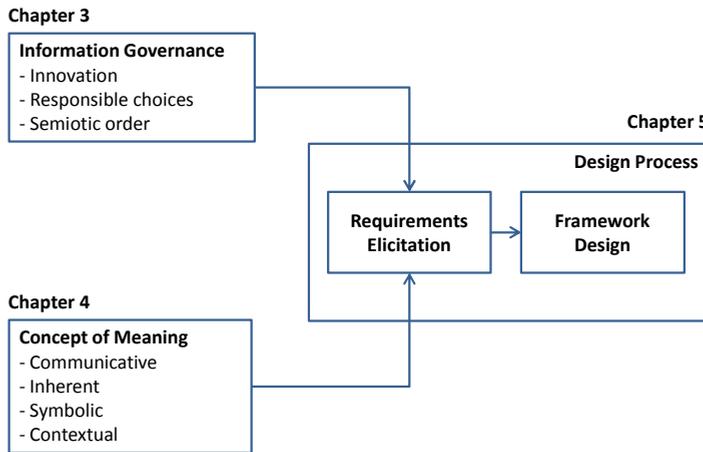


Figure 6: Constituting concepts of the design process

The chapter starts with a general introduction on design aspects regarding the relation between problem definition, solution definition, and the elicitation of design requirements as a necessary activity in order to create a rigorous design process. It then develops requirements that address the conceptualizations on governance and meaning, as well as objects present in the technological life-world, the key themes of chapter 3 and chapter 4. After eliciting requirements, the chapter continues with designing a meaning-making framework. The development of hypotheses is a key activity in this. I do that through philosophical foundations, applying theories as well as applying common sense. The chapter then synthesizes the notions and results developed earlier into the actual construction of the framework. Some guidance on how to operate the framework as well as a short assessment on appropriate design characteristic is part of this synthesis. The final part of the chapter introduces a mapping of all requirements and hypothesis as a precursor to the next chapter on evaluative case studies. The chapter closes with a summary and conclusion of the results of the design process.

Framework requirements

What is design? What is *a* design? A design of *something* means it has an order, a structure, that makes it purposeful. Except for some common approaches and definitions, such as Simon's (1996) *The Sciences of the Artificial*, scientific literature does not provide much guidance on systematically structuring the process of designing an artifact (Offerman et al., 2009; Gehlert, Schermann, Pohl & Krcmar, 2009). A possible reason is that designing an artifact is predominantly a heuristic and creative process. It involves imagination on how a solution will look like, and if present theories are insufficient to find a solution to a problem, the design process

draws on practical experiences and common sense (Hevner et al., 2004). Doing design in a research setting introduces an extra complexity because design decisions must be justified through theory or experience.

Every design process starts with defining requirements. To define an accurate and complete set of requirements is one of the greatest problems designers face (Marakas & Elam, 1998). Literature is rich in approaches on structuring the requirements determination process, but tends to stay more on a macro level without discussing the detailed steps needed to assure completeness and accuracy of the requirements for the to-be-designed artifact. The vast majority of approaches in requirement determination use verbal communication techniques in applying semantic structures in order to gather the required information from stakeholders, such as users of the artifact and business sponsors (ibid.). Since theory and experience drive the design process in this research, it lacks verbal communication in requirements gathering. Two issues emerge here that ask for an alternative approach in determining requirements: using theory instead of stakeholders, and securing completeness of requirements.

First, I apply the approach suggested by Gehlert et al. (2009), because it provides methodological guidance to integrate the concluding concepts and theories discussed in this thesis systematically and justifiably into the design process. This approach unfolds the design activities as follows:

- Problem definition – reason with existing theories to decompose the overall design goal into requirements. The approach assigns one or more companion indicator-value pairs to a requirement in order to enable their verification. If no suitable theory is available, experience is the basis of reasoning to formulate requirements and indicators.
- Solution definition – link the characteristics of the designing artifact to existing theories (or experience).
- Rational management – map the requirements to suitable hypotheses that make up the artifact; the underlying theoretical constructs in requirement and hypothesis share similar indicators to make this possible. If the design process cannot find theoretical support, it documents the implicit hypothesis. Implicit hypotheses explicate experience-based assumptions and are a by-product of the design.

There is one caveat in this approach. Theory-based design research requires similar levels of granularity for the indicators used in requirement determination as well as defining the solution, in order to verify the solution against its requirements in empirical research. When there is a lack of suitable theories this is not always possible. It is, however, possible to explicate hypotheses and make them subject of empirical research. Table 16 summarizes the aforementioned approach.

Table 16: Theory integration into design following Gehlert et al. (2009)

Problem definition	Rational management	Solution definition
Goal definition		Artifact construction
Requirements	Mapping	Hypotheses
Constructs		Constructs
Indicators	Share	Indicators

Second, although many consider it indispensable to specify requirements completely and accurately, over three decades of literature on requirement determination provides little empirical evidence regarding the effectiveness of particular methods in requirement determination processes (Marakas & Elam, 1998). At best, one can semantically structure the information gathering process (ibid.), but as this is a subjective communication process, the completeness issue remains. A general misconception is that the more requirements one uses in defining solutions, the better solves a problem. The principle to follow here is to maintain essentiality: In defining a solution for solving a problem, what requirements are truly essential? Essential here means if one characteristic is absent, the whole 'system' collapses (Beijer & Klerk de, 2010, pp. 109-117). There is a plethora of definitions of what requirements are; they commonly divide into two categories, functional and non-functional requirements. Functional requirements define what the artifact *must do* in order to solve the problem; non-functional requirements define what characteristics the artifact *must have* in order to solve the problem such as quality, performance, and user friendliness.

The design goal in this research is constructing a meaning-making framework for governing actors. One can decompose the design goal of the meaning-making framework into three functional requirements and two non-functional requirements.⁵¹ The three functional requirements address the conceptualizations on governance and meaning, as well as the objects that are present in a technological life-world; they were the key notions developed in chapter 3 and chapter 4. The two non-functional requirements concern the aspects for the user of the framework, the governing actor. They cover the mental model that is necessary

⁵¹ I have argued earlier, that there is no exact science to determine how many requirements one needs in order to define a solution accurately, and that design processes are largely heuristic in defining a solution. I have argued elsewhere that one must avoid an overload of requirements that overlap and possibly conflict each other (Beijer & Klerk de, 2010). Therefore, I focus on what the meaning-making framework needs *essentially* in order to solve the problem. At this point, it is already possible to note that an appropriate definition of the meaning-making framework needs functional requirements on 1) innovation, because that is a natural part of the governance discourse; 2) meaning, because that is the key concept in this research; 3) objects, because part of meaning has phenomenological orientation. Non-functional requirements must address 1) that users adopt the framework as a mental model, its usefulness, and 2) comprehension to make the framework easy to use. I will underpin in more details these three functional requirements and two non-functional requirements later in this chapter.

for image-building processes in information governance along with the overall comprehension of the framework. Table 17 summarizes these requirements; the next sub-sections further elaborate on them and underpin their necessity.

Table 17: Requirements addressing essential design concerns

Requirements	Issues to address and resolve
Functional	
Comprehensive meaning	Information governance requires objective and connective meaning for image building
Innovation	The essence of governance: making responsible choices
Life-world objects	The one-world paradigm of the technological phenomenology
Non-functional	
Mental model	Governing actors need a mediating device for image building
Comprehension	Inexperienced users must understand the framework

Comprehensive meaning

Image building is one of the constituting concepts in governance (Kooiman, 2003). In information governance, meaning-making processes are required in order to make responsible choices in a semiotic order. In the critique of meaning, in chapter 4, it became clear that information governance in a semiotic order needs a comprehensive concept of meaning. A concept of meaning that addresses objective meaning as well as connective meaning because the latter adds aspects of human action, the symbols humans encounter in their life, and the direct experiences in the flow of everyday business.

An obvious requirement for the framework then follows; the comprehensive notion of meaning must be included in the framework. Evaluating this requirement is to measure whether users of the framework consider one or more categories of objective and connective meaning – communicative, symbolic, inherent, and contextual meaning. The following requirement statement summarizes this.

- Requirement 1:** **The framework must address objective meaning as well as connective meaning.**
- Indicator:** **Users discuss one or more of the meaning categories communicative, symbolic, inherent, or contextual.**

Innovation

The main tenet on the re-conceptualization of governance in chapter 3 was that present management disciplines are unable to address the issues that are typical for the contemporary information society. They focus on optimizing scarce resources

instead of addressing the fundamental changes in the economic value-system this society exhibits (e.g. Hamel, 2009; Williamson, 1981; Ciborra, 2000). Because the new management paradigm should include the capability of making responsible choices, I have proposed a new interpretation of governance to fill this gap. Making responsible choices in general is about change, fundamental change. In the contemporary information society, the semiotic order causes this by introducing sign-value in the economic value-system (Lash, 2002; Baudrillard, 1998). I have argued that making responsible choices is a holistic search that involves the enterprises' environment and considers implications and alternatives.⁵²

The interpretation of information governance in this inquiry is an inevitable consequence of innovation in the contemporary information society. Innovation is the sheer reason of the holistic search process because it helps enterprises to observe the world 'out-there,' find their competency gaps, and when necessary, restructure their practices (Ciborra, 2002). In fact, the holistic search process *is* innovation. Processes involved in innovation from a governance perspective, depend on how governing actors ascribe meaning to things, situations, or opportunities that involve sign-value (Lash, 2002; Kallinikos, 2005, 2006; Ciborra, 2000, 2002).

Innovation, therefore, is part and parcel of the information governance discourse.⁵³ This leads to the requirement that the meaning-making framework must include perspectives of innovation in order to support making responsible choices. Innovation theory provides the underpinning for indicators to measure this whether the framework addresses innovation. According to Sundbo (1998), innovation sums up into four categories: new product or service, new production process, new structure in the organization or management, and a new type of market. When users of the framework discuss issues that involve these types of innovation, should indicate whether the framework addresses innovation perspectives. The following requirement statement summarizes the requirement and its indicator.

Requirement 2:	The framework must include an innovation perspective.
Indicator:	Users discuss innovation issues from one or more of the categories product or service, production process, organization or management structure, or market type.

Life-world objects

Contextual meaning, a constituting element of the notion of meaning developed in chapter 4, follows the technological phenomenology as called for by Lash (2002).

⁵² See also the discussion on making responsible choices in chapter 3 on page 42.

⁵³ See also the discussion on innovation in chapter 3 on page 46.

It is a phenomenology that is radical empirical – not transcendental – in a sense that it rejects the reflection, epistemology, and ontology of the objective observer.⁵⁴ These positivist doctrines concern *why* things and events are what they are; inquirers use them in explaining things and events from a two-world paradigm. The phenomenologist doctrine concerns about *what* things and events are and *how* to obtain knowledge from things and events.

According to Lash (2002, pp. 167-173), following Garfinkel's ethnomethodology, the implication from an empiricist phenomenological approach is that the 'what' and the 'how' are inseparable.⁵⁵ ⁵⁶ Put differently, the content and the method are inseparable. This is a direct consequence of the ruled-out objective observer and, as I will show in a moment, affects the design of the framework.⁵⁷ In a one-world paradigm, object and subject become one; rather than through observations, one gains knowledge through operations. Where the positivist creates knowledge through reduction of objects, concepts, and theories into the smallest explainable lower level entities, the phenomenologist creates knowledge by reduction and bracketing through various operations.

Following Lash's notion that the 'what' and the 'how' are inseparable, there are two pivotal concepts here to consider. First, the 'what' concerns the content, the phenomenological descriptions; the explications of what things and events are. The phenomenologist does this through bracketing in a given attitude, in a given relationship toward objects (Lash, 2002). For example, a mobile field worker in a technological life-world who gains knowledge by using his beloved technology to access and analyze information that is relevant for his day-to-day job, will assign a different meaning to it than a board member at a distance because their attitude toward the object is different. More specifically, the same technology creates different information for them.

Second, the 'how' concerns the method, the way users achieve knowledge in organized settings.⁵⁸ The phenomenologist does this by analyzing the operational

⁵⁴ In fact, with his technological phenomenology Lash (2002) rejected positivism, because these are two-world positivist doctrines.

⁵⁵ Ethnomethodology concerns the study of 'the methods in and through which members concertedly produce and assemble the features of everyday life in any actual, concrete, and not hypothetical or theoretically depicted setting. Ethnomethodology's proposal – one that is incommensurate with respect to other sociological theory (Garfinkel, 1988) – is that there is a self-generating order in concrete activities, an order whose scientific appreciation depends upon neither prior description, nor empirical generalization, nor formal specification of variable elements and their analytic relations (Maynard & Kardash, 2010, p. 1483).'

⁵⁶ See also footnote 28.

⁵⁷ This also affects the approach on evaluating the framework. I will come back to that in chapter 6, which covers the evaluative case study.

⁵⁸ The 'how' was of particular interest to Garfinkel. The 'ethnomethod' in his ethnomethodology concerns methods about gaining knowledge on how operational structures work in organized settings. For example, what makes people to continue practicing in a certain structure – what maintains the

structures of the organized settings, the forms of life. ‘It is not consciousness, but organized settings that have an “attitude,” an attitude whose operation yields practical knowledge (Lash, 2002, p. 168).’ Referring to the aforementioned example of the mobile field worker, the operational structure results in, what Lash (ibid.) called, *empirical reduction*.

In summary, a life-world incarnated by users that take the technology for granted – the technological life-world – provides the bracketing, while the organized setting provides the empirical reduction. Table 18 highlights where the positivist and the phenomenologist doctrines distinctively differ in this context.

Table 18: Positivist versus phenomenologist doctrines

Positivist	Phenomenologist (empiricist)
Epistemology of the objective observer	Knowledge through operation with an attitude toward an object
Concerns the ‘why’ – <i>erklären</i>	Concerns the inseparable ‘what’ and ‘how’ – <i>auslegen</i>
Why, concerns why things and events are what they are.	What, concerns explication, the phenomenological description of things and events derived from bracketing in a specific attitude.
	How concerns the operation, the way knowledge is achieved.
Knowledge through reduction by smaller lower level entities	Knowledge through reduction by operational structures (empirical reduction)

The inseparability of content and method, argued by Lash (2002), raises an important issue for the framework. Since the framework’s purpose is to support governing actors in speaking, writing, and thinking about informational experiences for the discourse of information governance, its interest is the content, the ‘what,’ the phenomenological descriptions. To operate the framework, use the framework, it needs an organized setting with an attitude. This puts constraints on the usage of the framework and therefore requires the design to include one or more characteristics that make that possible; after all, content and method are inseparable. In order to make an attitude possible, and because the phenomenological approach is not just a ‘simple’ constructivist approach that allows the user of the framework to construct meanings using reflection-based interpretations, an object must be present in the organized setting. Instead of a two-world paradigm, in which the user in a scientific attitude is an observer (atomized and isolated), the user must experience the object; put differently incarnate the life-world.⁵⁹

structure over time (Lash, 2002, pp. 167, 171)?

⁵⁹ This affects the approach on evaluating the framework. I will come back to that in chapter 6, which covers the evaluative case study.

The above emphasis, that one cannot simply design a framework without considering its usage – its operationalization; it is one side of the rigor-relevance equation in research. This leads to the requirement that the framework must support an object perspective in order to make an attitude possible that operationalizes the framework for its users.

The use of *object* in natural language is diverse. Among many explanations of the term in philosophy, it ranges from ‘something that may be perceived by the senses, especially by sight or touch [to] anything that may be presented to the mind: objects of thought (Laycock 2011, para 1).’ The object in the context of the technological life-world can range from tangible, physical objects, but also anything, that these physical objects represent, such as information and constructs. According to bundle theory,⁶⁰ it is best to describe objects by means of their properties when including the notion of an object in the framework. For bundle theory, an object is nothing but a collection of universals – properties – that can be instantiated (Laycock, 2011).⁶¹ The evaluation of the requirement that the framework must support objects can be, measurement whether users can use the framework to describe the properties of life-world objects. The aforementioned requirement and its indicator for evaluation summarize then as follows:

Requirement 3:	The framework must support one or more objects.
Indicator:	Users list properties of objects in the framework.

Mental model

The central notion that underpins the purpose of enabling governing actors to write, speak, or think about informational experiences for the discourse of information governance, is the formation of governing images; governing images is an unavoidable concept in governance (Kooiman, 2003). Therefore, the first and foremost objective of the framework is to support governing actors in their image-building processes present in information governance.⁶² Questions that rise then are what exactly are images? How do people build images?

According to Byrne (2005), there are many concepts involved when people build images. Images can be the result of counterfactual thoughts, such as in reasoning what would have happened if a certain event happened or not happened. Images can also be the result of fantasy such as in child play when talking to imaginary friends. Very different from these imaginative thoughts are creative thoughts, the

⁶⁰ Bundle theory goes back to David Hume, a Scottish philosopher. The common wisdom on bundle theory is that one can describe concrete objects as a bundle – collection – of properties (Laycock, 2011).

⁶¹ ‘Although different versions of the bundle theory diverge on the issue of how particular objects are constituted out of properties, all versions of theory would seem to agree that the fundamental ingredients of concrete objects are indeed properties (Laycock, 2011, para 2.6).’

⁶² See also the discussion on governing images in chapter 3 on page 47.

case when people create a work of art such as poetry, music, and drama. Imaginative thoughts, as well as creative thoughts, can create images in peoples' minds (Byrne, 2005).⁶³ Byrne (ibid.) has claimed that imaginative thoughts rely on the same principles that guide rational thought. This seems to confirm the importance of image-building processes in governance concepts in order to make responsible choices.⁶⁴

People cannot directly link phenomena in the real world to mental processes. They need mediating cognitive devices to represent relevant structures of the real world in their minds (van Dijk, 2009). Mental models can serve as such a device. Johnson-Laird and Byrne (2000) commented on mental models as follows:

'Mental models can be constructed from perception, imagination, or the comprehension of discourse. They underlie visual images, but they can also be abstract, representing situations that cannot be visualized. [...] Mental models are akin to architects' models or to physicists' diagrams in that their structure is analogous to the structure of the situation that they represent, unlike, say, the structure of logical forms used in formal rule theories (Johnson-Laird & Byrne, 2000).'

This leads to another requirement of the framework: it should be able to serve as a mental model for governing actors in order to imagine the relevant aspects of the semiotic order in their image-building governing processes.

Literature related to the measurements of mental models mostly concern shared understanding of teams. These measurements take the notion of eliciting individual mental models and find a level of sharedness by applying techniques such as concept maps and consensus analysis (e.g. Kruger & Wenel, 1997; Johnson & O'Connor, 2008; Stone-Jovicich, Lynam, Leitch & Jones, 2011). These measurement approaches are not usable for this inquiry, since they assess peoples' conceptualizations; they look for what the mental models are that people have 'inside their head.' A leading question in this inquiry, however, is whether users adopt the framework as a mental model instead; a reversed question. Put differently, do subjects adopt the presented mental model in looking at world phenomena they encounter in image formation?

To measure whether users adopt the framework as a mental model, I attach an indicator concerning applicability to the requirement. When users apply the majority of the framework in describing governance innovation issues during image building it would satisfy this requirement. It is my assumption that a minimum of 75% should provide enough good evidence. The following requirement statement summarizes this.

⁶³ In discussions on cognitive processes and thinking, one often uses the term imagination. To denote the phenomena that people create pictures in their mind in response to visual perceptions, the term imagery is frequently used (Byrne, 2005).

⁶⁴ See also the discussion on making responsible choices in chapter 3 on page 42 that argues that responsible choices are careful weighted choices that consider the environment.

Requirement 4:	The framework must serve as a mental model for its users.
Indicator:	Proportion of framework elements applied in describing governance innovation issues during image building > 75%

Comprehension

The concept of governance is omnipresent at the senior management level and board level of enterprises (van Grembergen & de Haes, 2007; Weill & Ross, 2004). It includes an increasing awareness for information governance because it enables the innovation dialogue for enterprises in the contemporary information society (Beijer & Kooper, 2010).

It is conventional knowledge that board members and directors in enterprises have multidisciplinary backgrounds. Senior managers in the information domain, such as Chief Information Officers, are increasingly having non-IT backgrounds (Maes & de Vries, 2008). Developing (yet again) a *lingua franca* among all stakeholders in the information governance discourse would make it unattractive for senior management and directors to adopt the framework in making responsible choices in the semiotic order.

First, enterprises fail to address the informational developments from the contemporary information society because they see themselves caught in the formalism of detailed operational frameworks such as COBIT and ITIL (Simonsson & Johnson, 2006; Kooper et al., 2009). This happens against the background of the romantic search for strategic business-IT alignment where two distinctively different worlds try to unify by developing a common language (Maes & de Vries, 2008). Technocratic concepts such as IT architecture and Service Oriented Architecture dominate this search and demand formal notations such as UML,⁶⁵ BPMN,⁶⁶ and ArchiMate.⁶⁷ The technocratic and formal paradigm of IT leads to informational illiteracy. Facilitating a meaningful dialogue that includes informational and organizational aspects, as well as non-system issues, requires more than formal box-arrow-based languages and diagrams (Maes, 2007).

Second, developing a *difficult* framework raises concerns on the necessary skills and capacity on logical reasoning, in order to operate the framework. If the constituting elements of the framework show no easy to understand logical coherence, it will be difficult to use for inexperienced users.

⁶⁵ UML (Unified Modeling Language) originates from the object-oriented software engineering discipline and is a standardized modeling language to model software intensive systems. Its general purpose leads to an adoption in the enterprise architecture domain for UML-based modeling of enterprises.

⁶⁶ BPMN (Business Process Model and Notation) is used for graphical representations in specifying business processes using flowchart techniques.

⁶⁷ ArchiMate is an open enterprise architecture modeling language that has a broader scope than UML and BPMN. It is used to analyze, describe, and visualize pan-enterprise architecture concepts.

Easiness in understanding the framework captures the idea of refraining from formal languages and an 'easy-going' logical structure such that inexperienced users can easily work with it. Whether users can discuss their issues in natural language together with the proportion of constituting framework elements recalled correctly, should give an indication to what extent the framework meets this requirement. It is my assumption that a lower limit of 75% should give proper evidence for both indicators. The following requirement statement summarizes this.

Requirement 5: **The framework must be easy to comprehend.**
Indicators: **Proportion of informal language used > 75%**
 Proportion of framework elements recalled correctly > 75%

Summary

This section has argued that it is possible to decompose the overall design goal of constructing a meaning-making framework for governing actors into five essential requirements. The requirements typically emphasize the conceptualizations on governance and meaning, the objects that are present in a technological life-world, as well as the usability of the framework for governing actors. Table 19 summarizes the design requirements along with their justifications. The next section covers the actual design of the framework.

Table 19: Meaning-making framework design requirements

No.	Description	Justification	Indicator
Functional requirements			
1	Address objective meaning as well as connective meaning	Image building in a semiotic order includes more than mere semiotic related meaning	Users discuss one or more of the meaning categories communicative, symbolic, inherent, or contextual
2	Includes an innovation perspective	Innovation is part of governance and involves making responsible choices	Users discuss innovation issues from one or more of the categories product or service, production process, organization or management structure, or market type
3	Support one or more objects	The user needs an object to have an attitude toward it, otherwise it cannot incarnate a life-world	Users list properties of objects in the framework
Non-functional requirements			
4	Serve as a mental model for its users	A mediating cognitive device is needed to link real world phenomena to mental processes	Proportion of framework elements applied in describing governance innovation issues during image building > 75%
5	Easy to comprehend	No exclusion of usage by non-technical people, senior management, and directors	Proportion of informal language used > 75% Proportion of framework element recalled correctly > 75%

Framework design

In the sections that follow, I will develop the properties of the framework and discuss how they lead to hypotheses necessary to evaluate the framework against the requirements from the previous section on framework requirements. Following the earlier segmentation in functional requirements, the first part of hypotheses development divides into three main parts concerning: 1) innovation, 2) meaning, and 3) the unavoidable object. Next, I will develop hypotheses that concern the non-functional requirements. The framework design closes by synthesizing requirements and hypotheses into the actual construction of the meaning-making framework.

Framework design: Meaning

The marriage of objective meaning and connective meaning in the discourse of information governance, postulated in chapter 4, raises the pivotal issue of how to synthesize or reconcile these notions of meaning into a single unifying concept that enables governing actors to write, speak, or think about informational experiences. The following discussions seek to common grounds in meaning and meaning-related concepts and develop arguments that communication-based concepts and sense-making-based concepts of meaning cannot synthesize the four orientations of meaning; it proposes a pragmatist approach of meaning instead.

Beyond communication: action, affection, incarnation

When synthesizing or reconciling the four notions of meaning into a single unifying concept, it is tempting to use a communication perspective, but there are some concerns related to the concepts involved in the orientations of connective meaning that make it difficult, if not impossible.⁶⁸

First, the premise of the notion of an inherent orientation of meaning was that the concepts proposed by Wittgenstein (1958), Habermas (1984), and Giddens (1984) used the broad understanding of human action such as prior experiences and the complete human life-world. From a communication perspective, the inherent orientation of meaning includes much more than communicative intent, the transfer of a message from sender to receiver.

Second, symbolic meaning, in contrast to semiotic related meaning – objective meaning – deals with symbols. Symbols differ from communicative signs in a sense that they are loaded with affect. Although they represent a world that is ‘not there,’ they are constituents of (technological) forms of life. Communicative signs, on the other hand, refer to things and are separate from forms of life. Symbolic practices involve symbolic meaning, and distinctively differ from communicative actions (Lash, 2002, p. 32).

Third, the one-world paradigm subscribes to contextual meaning. Using a communication perspective – transferring messages from sender to receiver – would push the interpretation of the contextual meaning into a two-world paradigm and thus back into a semantic discussion. A two-world framing of this orientation of meaning would conflict its one-world premises. Table 20 summarizes the issues of a communicative interpretation of meaning with the various orientations of meaning.

⁶⁸ See also the argumentation against deconstructing connective meaning into a communication perspective on page 82.

Table 20: Issues with a communicative interpretation of meaning

Orientation	Comments
Communication	--
Inherent	Its communicative aspects do not address the inclusion of prior experiences and life-worlds in communication and how that affects actors
Symbolic	Assumes a world that is 'not there,' a world subjectively constructed by humans vastly differs from communicative action
Contextual	One cannot frame a one-world paradigm into a two-world paradigm because it would 'fallback' into a semantic deconstruction

With his structuration theory, Giddens (1984), has proposed to consider communication 'as a general element of interaction, [...] a more inclusive concept than communicative intent (i.e. what an actor 'means' to say or do) (ibid., p. 29).' Structuration theory regards non-intent interaction with structure as of equal importance as communicative intent from actors (ibid., p. 30). To some degree, Giddens' concept of communication would solve the issue of communicative intent in the orientations of connective meaning, but it limits itself to the communication paradigm, that is, transferring messages from the sender to the receiver, without due thought of any intent. Put differently, Giddens' structuration theory does not include concepts such as affection and incarnation. Structuration theory concerns non-intentional communication and always refers to an object – the structure – that 'communicates' to the agent.

The foregoing illuminated that the concept of communication does not help weaving the whole fabric of meanings – objective meaning and connective meaning – into a single comprehensive concept. Its constituting concepts are simply too fundamentally different and too subjective to do so. For the communicative orientation of meaning, *reference* is the philosophical foundation because semiological reference is the basis for communication. For the inherent orientation of meaning, *action* is the philosophical basis because prior experiences and life-worlds bias the way people act. The symbolic orientation of meaning has *affection* as its philosophical foundation because affection toward objects varies with people's likes or dislikes. For contextual meaning, *incarnation* is the philosophical basis because people become one with the objects, events, life-worlds. Table 21 lists the key differences of the four orientations of meaning in terms of their philosophical foundations, reference, action, affection, and incarnation respectively.

Table 21: Philosophical foundations for the orientations of meaning

Meaning	Orientation	Philosophical foundation	Comments
Objective	Communicative	Reference	Refers to objects semiologically.
Connective	Inherent	Action	Includes prior experiences and life-world.
Connective	Symbolic	Affection	Affection when confronted with objects.
Connective	Contextual	Incarnation	Provides a life-world; object and subject become one.

The communication paradigm concerns the transfer of messages from the sender to the receiver without due thought of any intent and is the philosophical point of departure for adding other philosophies with regard to the concept of meaning.⁶⁹ The previous discussion further explored the communication paradigm in order to find a common base that can unify the four orientations of meaning – communicative, symbolic, inherent and contextual. Adding action, affection, or incarnation to the communicative orientation of meaning provides inherent, symbolic, and contextual orientations of meaning respectively. Figure 7 illustrates this.

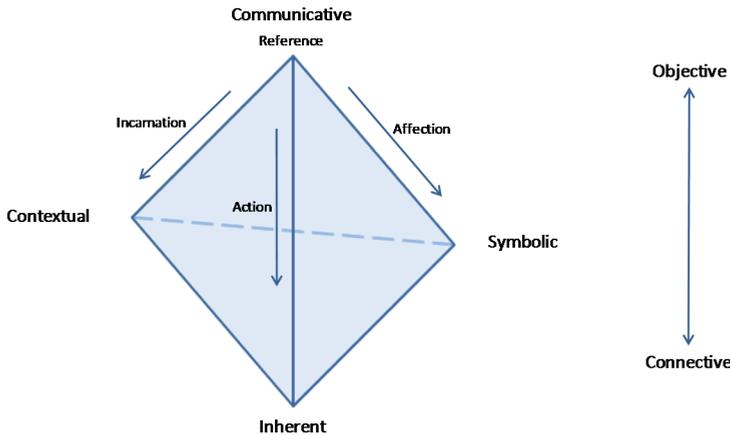


Figure 7: Philosophical foundations for the orientations of meaning

Because these various concepts of meaning reveal such fundamental differences, it will be highly unlikely, that there are any commonalities among them that can be used to conceptualize a framework that addresses a comprehensive concept of meaning in an absolute manner. It makes sense to conclude that an

⁶⁹ See the discussion on communication starting at page 61 as part of the critique of meaning in chapter 4.

understanding of what meaning *is* does not provide the ingredients to design the meaning-making framework. Therefore, in what follows, I am going to seek beyond what meaning *is*: how does meaning emerge.

Sense making

Instead of looking at commonalities among the various concepts of meaning, a view at the meaning-making process – how meaning emerges – might offer aspects that can help to reconcile the notions of meaning into a single concept. It is tempting to consider sense making here, because it is a comprehensive concept that involves meaning in various ways. Moreover, organizational sense making concerns how organizations make decisions, seemingly similar to the central problem in this thesis: making responsible choices (e.g. Weick 1995; Choo, 1996; Weick, Sutcliffe & Obstfeld, 2005).⁷⁰ However, there are a number of conceptual issues with sense making that prevent to use it as an appropriate concept to reconcile the various orientations of meanings.

First, sense making is a cognitive process that contrasts the affection and incarnation present in connective meaning. According to Weick (1995), ‘sensemaking is about such things as placement of items into frameworks, comprehending, redressing surprise, constructing meaning, interacting in pursuit of mutual understanding, and patterning (ibid., p. 6).’ Sense making happens when one confronts an unknown ambiguous situation and wants to find out what is happening. As Weick et al. (2005) have put it, ‘[t]o focus on sensemaking is to portray organizing as the experience of being thrown into an ongoing, unknowable, unpredictable streaming of experience in search of answers to the question, “what’s the story?” (ibid., p. 410).’ To find out the *story* one uses existing frames of references to direct interpretations and ‘talk’ the event, experience, situation, into existence (ibid., p. 409). Weick et al. (ibid.) explained ‘talk’ into existence as one reasons, using language, in order to understand and comprehend the situation at hand. Therefore, the sense-making process is dominantly a cognitive process in which one creates understanding by interpreting events and comparing them to existing frames of reference.

Second, sense making is predominantly retrospective. Weick (1995) and Weick et al. (2005) portray a number of cases in which the protagonist is making sense out of a series of events that have taken place over a longer or shorter period of time. Out of these events, the protagonist builds up a chain of connecting facts that serve as rationales when the ‘sense has been made’ and follow-on action is possible. Therefore, sense making creates a meta-view that overarches unconnected past events. This contrasts the radical empiricist phenomenological perspective that this

⁷⁰ Various disciplines have studied the concept of sense making, such as research on human-computer interaction, information sciences, and organizational studies, each with their own slant. The sense making I refer to is the organizational sense making, unless noted otherwise.

thesis developed in the contextual orientation of meaning, which puts reflexivity at the spur of the moment at the center of its line of thought.

Third, sense making is inherently two-world thinking because it involves labeling and presumptions. Weick et al. (2005) explained that sense making is about imposing labels on interdependent events in order to connect categories of events systematically to types of actors; it is part of the whole reasoning in order to find out what is going on. Conceptually, action is a part of sense making. 'If the first question of sensemaking is "what's going on here?" the second, equally important question is "what do I do next?" (Weick et al., 2005, p. 412)' In the step toward action, the protagonist presumes a lot, based on a hunch, as if things were true or there already. Sense making, therefore, is a continuous verification of the differences in notification, compared to existing references and can involve immediate action to verify this notion. Both labeling and presumption inherently follow a two-world paradigm. Labeling is from a communicative orientation of meaning because it is an objective act of reference; it is a semiological action *referring* to something. Presumptions rise through inferences of facts in the past; also acts of reference.

Weick (1995) separated sense making distinctively from interpretation. Sense making is about *how* one creates a plausible understanding of *what* one interprets (ibid., pp. 13-15). Interpretation cannot go without something being there, such as a text that one will read. Sense making, on the other hand, fills in the gaps; it is about constructing, framing, rendering the observations into a plausible, coherent whole – an invention. Therefore, by nature the act of sense making differs from the act of interpretation. A form of meaning making does happen during the act of sense making, but its dominant nature is from an objective act of reference, which resembles my communicative orientation of meaning. Indeed, sense making does include biases from the past, one's life-world, but manifests itself in a different way: labeling the past.

The foregoing discussion on sense making in this section tries to pursue useable concepts in order to design the meaning-making framework. Seemingly, sense making distinctively differs from my interpretation on meaning making. '[Sense making] is about the continued redrafting of an emerging story so it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism (Weick et al., 2005, p. 415).' This contrasts my interpretation on meaning making because meaning making in the context of sense making is about how organizations reduce uncertainty and ambiguity in interpretation processes. As Weick (1995) has put it, 'in the case of ambiguity, people [...] are confused by too many interpretations, whereas in the case of uncertainty [...] they are ignorant of any interpretations (Weick, 1995, p. 91).' My interpretation of meaning making in the image-building processes of the information governance discourse is a concept that unifies the various orientations of meanings that organization and their users find in contemporary information society.

According to Weick (1995), interpretation is the precursor to sense making. It is attractive to position sense making as the precursor to my interpretation of meaning making. However, even though there are some signs of commonalities on the emergence of meaning making, such as the communicative orientation of meaning, sense making lacks the integration of the four orientations of meaning and aspects of the symbolic and contextual orientations of meaning in particular. As said earlier, sense making dominantly resembles the communicative orientation of meaning.

From the foregoing, I conclude that the concept of sense making does not provide the appropriate basis to conceptualize the meaning-making framework. The concept of sense making fundamentally differs from my interpretation of the concept of meaning. Table 22 summarizes the fundamental differences between sense making and comprehensive meaning making.

Table 22: Sense making versus comprehensive meaning making

Sense making	Comprehensive meaning making
Create understanding about what is going on – ‘What is the story here?’	Creates interest through integrative objective and connective meaning
Retrospective – labeling the past to existing frameworks of reference for resilience of criticism	Prospective – exploring the present to consider future use
Limited to two-world thinking	Includes one-world thinking

Changing habits of action

Considering the aforementioned concepts of communication and sense making, I submit that looking at the *effects* of these concepts might provide a better solution to address a comprehensive notion of meaning in designing the framework. Put differently, refrain from using absolute definitions of various concepts of meaning, and instead, illuminate the phenomena that affect the governance discourse. What follows is a proposition on how to clarify phenomena.

The premise for a comprehensive notion of meaning is that a meaningful event, process, or object has a notable effect on actors – organizations and their users. This will be one of the dimensions of the framework, the effect of phenomena, practice, experiences in the information society. It heavily leans on classical pragmatism (e.g. Peirce, James, Dewey) as a maxim or principle that centers on the rule of clarifying ideas by tracing their *practical consequences*. In what follows, I will present in bold strokes the classical pragmatist thought that underpins this dimension of the framework.⁷¹

⁷¹ In the development of pragmatism as a philosophical tradition, the endeavor of pragmatists was to return from abstract philosophical reasoning to common sense and factual experiences. The overall objective was to form intelligent practices by extracting theory from practice and linking it to each

Literature shows consensus that the inauguration of the pragmatist approach is from Charles Sanders Peirce (e.g. Dewey, 1916; Hookway, 2008; Emirbayer & Maynard, 2010; Gava, 2011). Peirce (1877, 1878), has laid the groundwork for his *pragmatic maxim* in the first two articles, *The Fixation of Belief* and *How to Make Our Ideas Clear*, of the series *Illustrations of the Logic of Science*, both published in *The Popular Science Monthly (1877-1878)*. Peirce asserted the primacy that the conception of an object's effect provides the whole conception of the object. Put differently, in order to understand an object, one must understand its practical consequences. Peirce was preoccupied with the meaning of a thought and the meaning of a concept. Allegedly, his ideas were not easy to comprehend, considering his various attempts to clarify the original pragmatic maxim by showing different versions. The original version reads as follows. 'Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of those effects is the whole of our conception of the object (Peirce, 1878, para. 2).' In order to emphasize the idea of practical consequences as the spirit of his maxim, Peirce later explained in easier terms: 'we must look to the upshot of our concepts in order rightly to apprehend them (Baldwin, 1972, p. 301).'

James, later, reaffirmed this pragmatic maxim, making it a pivotal concept in meaning making and truth in human thinking and doing. 'In his view, practice – experience – supplies the impetus for all inquiry; it also reveals the meaning of ideas and provides the ultimate test of their truth (Emirbayer & Maynard, 2010, pp. 225).' Later, James supplemented his insights with radical empiricism.⁷²

Following the idea of *practices*, Dewey emphasized on the inseparable subject and object, in a sense that thing and thought are a product of reflection – two-world thinking – on pure experiences. In Dewey's view, object and subject, stimulus and response, are two sides of the same coin in a lived experience; one cannot see them as entities in themselves, but they are always a joined part of the same whole. With this, Dewey addressed a central theme in the pragmatist thought: the habitual and take-for-granted nature of human practices (Emirbayer & Maynard, 2010). In what follows, I will show that this theme in particular is the central thought in the philosophical underpinning of the meaning-making framework.

Clearly, the shared philosophical belief of the classical pragmatists is the primacy of action interrelated with thought and the significance of their practical consequences; they are the cornerstones of the pragmatist thought. The subtlety

other. Considering the differences among classical as well as contemporary pragmatist thinkers such as Mead, Addams, Putnam, Bernstein, Rorty, and Brandom, this development did not result in a unifying interpretation of the pragmatist view. For the purpose of this section, it is less important to examine the differences of the various thinkers, because with the design of the framework I will revert to the foundational ideas from the first classical pragmatists (Peirce, James, and Dewey).

⁷² This resembles the technological phenomenology as called for by Lash (2002), which is radically empirical – not transcendental – in a sense that it rejects the reflection, epistemology, and ontology of the objective observer.

and deeper meaning of this are present in a more detailed formulation by Peirce on thought and concept.

‘[T]he whole function of thought is to produce habits of action; and that whatever there is connected with a thought, but irrelevant to its purpose, is an accretion to it, but no part of it. If there be a unity among our sensations which has no reference to how we shall act on a given occasion, as when we listen to a piece of music, why we do not call that thinking. To develop its meaning, we have, therefore, simply to determine what habits it produces, for what a thing means is simply what habits it involves. Now, the identity of a habit depends on how it might lead us to act, not merely under such circumstances as are likely to arise, but under such as might possibly occur, no matter how improbable they may be. What the habit is depends on when and how it causes us to act. As for the when, every stimulus to action is derived from perception; as for the how, every purpose of action is to produce some sensible result. Thus, we come down to what is tangible and conceivably practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice (Peirce, 1878, pp. 292-293).’

What Peirce has asserted was a habitual foundation of meaning. To determine what something means, simply find what habits it involves. Reverting to Dewey, the habitual and take-for-granted nature of practices gives evidence of deep-rooted meaning. ‘When practices proceed uninterruptedly and without resistance, their meaningfulness resides deep within them as part of an unbroken coordinated system of activity, and the validity of objects forming part of those systems goes unquestioned as well (Emirbayer & Maynard, 2010, pp. 226).’ There are deep-rooted day-to-day practices constituting lived experiences that one only becomes fully aware of after changing them. Therefore, objects, events, or processes are meaningful if they result in *changing* existing habits or *producing* new habits.

Until this point, the exposition of the pragmatist view mainly concerned the notion of a habitual foundation of meaning. The recent debate in sociological sciences, regarding the features of pragmatism and its lack of empirical developments, positions ethnomethodology as a possible solution that can further develop the pragmatist view (e.g. Emirbayer & Maynard, 2010; Quéré & Terzi, 2010; Rawls, 2010). This is a fortunate development and seems like a natural fit from an operational perspective,⁷³ because the line of thought toward a comprehensive concept of meaning embraced the phenomenological mindset, one-world thinking, and the radical empirical technological phenomenology as called for by Lash (2002). Clearly, these philosophical foundations, the pragmatist view, and ethnomethodology are in the same realm of thought and plea for using pragmatism for one part of the framework.

In contrast to the concepts of communication and sense making, as discussed in the previous section, the pragmatist approach, equating meaning with habits of

⁷³ With operational I mean here, putting the framework to practice, using the framework in the field to support the information discourse.

action, seems an adequate concept to address the four orientations of meaning: communicative, inherent, symbolic, and contextual meaning. My argumentation on the pragmatist line of thought leads to the first hypothesis that is typical for the meaning-making framework. Later, a synthesis of all hypotheses will lead to the construction of the framework.

Hypothesis 1:	Comprehensive meaning manifests as habits of action.
Indicator:	Users explicate any of the four orientations of meaning (communicative, symbolic, inherent, contextual), or any combination thereof, as habits of action.

Framework design: Innovation

There is an overabundance of literature on innovation and several definitions of its concepts including the various sub-disciplines such as innovation management and innovation dissemination. Briefly, innovation is a forward-looking activity looking for game-changing opportunities. Because it is predominantly anticipating future needs, innovation processes are difficult to control effectively. Therefore, most innovation theories concentrate on how organizations systematically look for innovation opportunities, conceptualize new value propositions, and solve the problems based on the needs identified for the environment in which the organization operates.

From an organizational perspective, innovation is the result of organizational interaction processes that are systemic and insist a variety of actors from different types of organizations (Coriat & Weinstein, 2002). As such, theories on innovation systems typically address the institutionalized processes involved in problem analysis, solution creation, value proposition development, and commercialization.

Innovation taps into ideas and inventions in order to realize successful products, services, and solutions. It is, therefore, necessary to separate innovation from the creative activities that precede it. Creativity and innovation are not the same thing. Creativity concerns the process of producing novel and useful ideas, while innovation concerns the formalized process of successful realization of those ideas (Amabile et al., 1999).

From an information governance perspective, innovation-related processes rely on the meaning making of governing actors – ascribing meaning to things, situations, or opportunities that involve sign-value. Therefore, with the design of the meaning-making framework, I opt to concentrate on the creativity phase, and dismiss the complexity and dynamics in the follow-on phase concerning innovation processes.

Prior research in meaning making in the creative phase of innovation focused on the social-environmental aspects that influence creative behavior in organizations (e.g. Amabile et al., 1999; Woodman, Sawyer & Griffin, 1993). It concerned the

meaning that actors assign to the environment and circumstances that influence creativity, such as management stimulation, autonomy in work, organizational pressure, intra-organizational aspects, and intra-individual aspects. In short, all the aspects that relate to the fostering of meaning making. In contrast to the fostering aspects, the meaning-making framework designed in this research, pursues to enable governing actors in assigning meaning to the aspects of the semiotic orders, such that they can build up their governing images.

The creativity phase is pivotal in innovation, because it is the phase where organizations need to answer the question of what to innovate, or what can lead to innovation. It is the moment, when ideas emerge before they ‘materialize’ in the follow-on innovation processes. The essence of the creativity phase is twofold. First, to generate ideas; an activity influenced by the environment and circumstances (e.g. Amabile et al., 1999; Woodman et al., 1993). Second, to judge, whether these ideas are meaningful. The point I want to make here is, that, apart from fostering a creative climate that results in the generation of novel and useful ideas, a distinguishable process concerns how one assigns meaning to an idea. Put differently, how can governing actors assign meaning to ideas that use concepts, experiences, or artifacts that relate to the semiotic order?

Three issues seem relevant in assigning meaning to ideas in the creative phases of innovation. First, the cognitive style involved in solving problems determines how one assigns meaning to an idea. According to Kirton’s (1976) adaptive-innovation theory, each person is creative and solves problems. The theory differentiates individuals that want to *do things better*, the adaptors, and individuals that want to *do things differently*, the innovators.⁷⁴ Therefore, the ideas, events, and experiences in the information society are ‘seen’ differently by organizations and their individuals with different cognitive styles – their meaning making is different.

Second, the habits in innovation processes focus on problem solving. Various methods and processes used in innovation such as TRIZ,⁷⁵ lateral thinking,⁷⁶ and CPS,⁷⁷ combine creativity with problem solving. Problem solving seems the point of departure to start the creative process (c.f. Simon, 1996). However, what if, there is no problem? What, if one does not see the problem? What if the concepts, experiences, and artifacts that are typical for the semiotic order do not solve problems in the first place, but introduce new opportunities, induce paradigm

⁷⁴ In contrast to innovation as the formal process in enterprises, in this context, ‘innovation’ means doing things differently. Kirton (1976) has stated, ‘The contention [. . .] is that everyone can be located on a continuum ranging from an ability to “do things better” to an ability to “do things differently,” and the ends of this continuum are labeled adaptive and innovative, respectively (ibid., p. 622).’

⁷⁵ TRIZ is the Russian acronym for a theory of inventive problem solving that is developed by Altshuller (Shuljak, 1977).

⁷⁶ Lateral thinking is a technique that combines creative problem solving with creative thinking developed by de Bono (1999).

⁷⁷ CPS is a creative problem solving technique developed by Osborn (1953).

shifts? Of course, in retrospect, one can always link-back a novel idea to a problem that it solves, but creativity can certainly introduce newness of a kind that one could never have imagined. For example, it was not obvious that the introduction of social media would shift the consumer-buying paradigm, urging marketing organizations to adjust their strategies accordingly.⁷⁸ Because old skills do not scale into today's networked world, it is indispensable for organizations to look around continuously and see if there are new skills to augment in order to look beyond existing paradigms (Brown, 2012).

Third, the notion that, in the contemporary information society, with the abundance of information and technologies, organizations increasingly show signs of being caught in their pursuit for control of ICT,⁷⁹ asks more for an innovation climate based on hospitality (Ciborra, 1999), and less a climate based on problem solving. 'Hospitality describes the phenomenon of dealing with new technology as an ambiguous stranger. Hospitality is a human institution, which is about being receptive, adopting, managing boundaries between what or whom is known, and what or whom is unknown (Ciborra, 1999, p. 8).' Ciborra (1999) argued for hospitality in the context of project development and thereby turning the classical design paradigm upside down into a 'we have to live with it' perspective – what can the organization do to 'serve' new information-related developments without jeopardizing the current state of the firm. From an economical perspective, hospitality concerns about the 'equivalents in transactions and fairness in exchange (ibid., p. 12).' In the context of information governance, what is the decision basis for governing actors to 'open the house' for a stranger – what does it mean to them? In the semiotic order, the notion of semiotic means and material replaces the traditional perspective on product-related innovation; it elevates the role of meaning to the outcome of a process of interaction with the environment.

These issues: the cognitive styles, the problem-solving bias, and the notion of a hospitality-based innovation climate, urge for a different mindset on creativity in innovation. While playing with technology and communications, the information society 'out-there' confronts organizations with new meanings and the direct experiences of the technological life-world (Lash, 2002). Creativity then becomes more a journey of imagination, a journey in which governing actors need to imagine how the products of the contemporary information society are useful for their organization. Useful, not only in the sense of how it can solve current problems or resolve deficiencies, but even more how organizations can take advantage of the opportunities that the contemporary information society provides. The latter may

⁷⁸ Social media, such as online communities, influence consumer purchase behavior and replace the traditional funnel metaphor on purchase decision making. It becomes an online-driven purchase journey, in which the consumer enters into an open-ended relation with the brand, sharing experiences after purchase (e.g. Pentina, Prybutok & Zhang, 2008).

⁷⁹ See also the discussion on the pursuit for control in the section, discourse in governance on page 4.

sound opportunistic,⁸⁰ but it reflects exactly the point that I want to make in chapter 3: governing actors need to make responsible choices.⁸¹

The foregoing leads to differentiation between problem-driven innovation, which are the improvements or radical changes needed to solve deficiencies in the firm, and opportunity-driven innovation, which concerns how firms can take advantage of the products of the contemporary information society. Figure 8 illustrates this distinction; it emphasizes a different take on creativity.

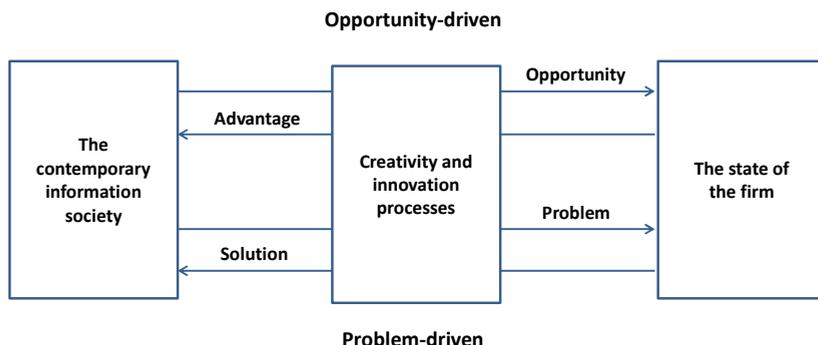


Figure 8: Problem-driven versus opportunity-driven innovation

Biran (2011) dismissed the banal opportunities that happen by coincidence, those available only to the happy few in contrast to creative opportunities that require human genius or brilliance. Following this philosophy of opportunity, the creative phase in innovation then essentially concerns the ability to assign meaning to the set of products available to organizations from the contemporary information society – what products, or combinations thereof, can introduce beneficial change without jeopardizing the firm. Put differently, what do governing actors need to know in order to make responsible choices regarding the innovation potential of the technological life-world and its ‘intrusive’ technologies?

Against the background of the aforementioned cognitive styles and hospitality-based innovation (Kirton, 1976; Ciborra 1999), governing actors need to know what is *fundamental* in the products of the contemporary information society providing a

⁸⁰ In general, opportunism has a bad connotation, because it refers to making advantage of fortuitous situations, without considering the effects to others. For example, the opportunistic behavior of management and other stakeholders in firms, that results in concessions in the interest of shareholders (Werder, 2011). Biran (2011) in his manifest for positive opportunism, however, has positioned opportunism as the raw material for change. ‘The purpose of opportunism is to present the exploitation of opportunities as a positive and novel idea [as] opposed to the amoral concept of dishonest, egocentric, and exploitative opportunism (ibid., p 55).’

⁸¹ See also the discussion on making responsible choices starting at page 42.

technological life-world that can lead to innovation potential – what are their underlying principles that allow to do things *differently*.

The work of Lemke (2002, 2010) is noteworthy because it covers a long and broad search to fundamental issues concerning meaning making in the relation of discursive technologies and contemporary societal change. Although Lemke's (ibid.) work is in the linguistic realm, it revealed three fundamental concepts that apply to the innovation perspective of my research. These concepts concern 1) the convergence of time, 2) the disruption of existing constructions, and 3) the connection of radical distinguished concepts. They provide the basis to the design of the innovation perspective of the meaning-making framework. Before elaborating on these three concepts, I will briefly introduce the work of Lemke and put it in the context of the technological life to which Lash (2011) has referred.

According to Lemke (2002), post-modern technologies, such as hypertext, emphasize the notion that discursive technologies 'afford us the possibility of creating new kinds of syntagmatic meanings by linking across the re-contextualized elements of traditional genres and forms (Lemke, 2002, p. 80).' Text in this context is more than written language or visual representations. Lemke (2002, 2010) considered all the things people make, such as tools, buildings, changes to the natural environment, and even the human-body itself, as material-semiotic artifacts. Meaning-making habits in crossing boundaries of genres and forms all use these artifacts; they are foundational in Lemke's conceptualization of a new class of theoretical object called *traversals*:

'Traversals are temporal-experiential linkings, sequences, and catenations of meaningful elements that deliberately or accidentally, but radically, cross genre boundaries. A traversal is a traversal *across* standardized genres, themes, types, practices, or activities that nevertheless creates at least an ephemeral or idiosyncratic meaning for its human participants, and represents at least a temporarily functional connection or relationship among all its constituent processes and their (human or nonhuman) participants (i.e. *actants*) [emphasis in original] (Lemke, 2002, pp. 86-87).'

What Lemke (2002) pointed to with the theory on traversals, is that people build meaning by combining the things they encounter, products they use, or events they ran into, while 'surfing' and 'cruising' their life-world, which is especially the case in the contemporary information society. By including phenomena such as web surfing, channel surfing, and mall cruising, into the theory of traversals, Lemke (ibid.) emphasized that people create *coherent* meaning through unpredictable – *incoherent* – sequences of short-lived encounters in different spheres.⁸² This phenomenon is analogue to the way people tell their life stories: 'we tell our lives as narratives, but we experience them as hypertexts (Lemke, 2002, p. 91).'

Meaning making against the background of the technological life-world that Lash (2011) referred to, is about creating contexts from the contents of the short-

⁸² Web surfing refers to surfing the Worldwide Web. An example of channel surfing is glancing at a variety of television channels. Mall cruising refers to wandering through a shopping mall.

lived encounters in that life-world. What Lemke's theory of traversals contributes to the understanding of meaning making in the innovation context, is that governing actors need to augment context creation onto the daily practices of organizations and their users, in order to put themselves in the position to initiate innovation processes. Put differently, governing actors need to create a shared imagination of how context creation provides the opportunity to innovate, and how that enhances the firm without jeopardizing its continuity. Looking with a meaning perspective at Lemke's (2001, 2010) elucidation of the theory of traversals, reveals three concepts to embed into the framework in order to address the innovation context in meaning making. In what follows I will elaborate on the earlier mentioned perspectives of the framework, based on the principles 1) time convergence, 2) disruptive construction, and 3) radical connections.

Time convergence

The main tenet in Lemke's theory on traversals is the notion that time is a key principle in organizing complex dynamical systems, such as living systems in general, ecosystems, and human systems. Natural systems show a strong linear relation among the many scales available, such as weight, time, size, and energy that characterize them. However, 'in more complex systems, especially those in which *signs* and *meaning* play a role in behavior and system dynamics, these simple correlations break down [emphasis in original] (Lemke, 2000, p. 273).' Complex dynamical systems exhibit a hierarchical structure of processes with different time scales. The (faster) processes in lower levels integrate into a higher-level process that executes on a different (longer) time scale (Lemke, 2000, 2002, 2010). To emphasize the radical differences in timescales, Lemke provides examples such as the meaning in a conversation versus the change of the system of language, and the building of cathedrals that spanned many lifetimes. In the context of information governance, an example is the dynamics involved by board members deciding about information technology concepts is far less than the dynamics of those involved in detailing these concepts during realization projects.

The insulation of timescales is something that Lemke (ibid.) denoted as *adiabatic separation*: processes that occur at radically different rates do not exchange energy and thus no information. This results in the phenomenon, that intermediate levels in the hierarchy reorganize information between higher and lower levels – informational alternation in both directions; a well-recognized effect in today's organizations.

There are exceptions to the principle of adiabatic separation, when short timescale events have long-term consequences. For example events that dramatically affect people's life. The opposite is also an exception; long timescale processes affect short timescale activities. For example, the way traditions that color cultures inscribe daily activities and behavior of people. Lemke refers to the latter exception as a form of *heterochrony*, a concept used in developmental biology.

The notion of adiabatic separation and its exceptions, such as heterochrony, reveals that the process-centered view in inquiry to complex dynamical systems only maintains a static notion of things and institutions; not about what they do, but what they are (Lemke, 2000). In order for institutions and things to affect dynamical systems, they require a medium – a person that interacts with it. Put differently, in complex dynamical systems, artifacts – semiotic artifacts – maintain the relation among processes with radical different timescales. Lemke (ibid.), claimed that time seems a more reliable concept to understand the differences in the processes that are involved in adiabatic separation.

According to the foregoing, the notion of time seems appropriate to meaningfully addressing time-insulated processes in the creative realm of innovation. Apart from the discussion regarding time as the fundamental unit of inquiry in adiabatic separation and heterochrony, time seems a general accepted concept in many discussions to address new values that relate to the contemporary information society (e.g. Davis, 1987; Stalk Jr. & Hout, 1990; Lash, 2002).

I submit that when a semiotic artifact in one timescale affects the processes of another timescale it is a meaningful artifact. Put differently, meaningful semiotic artifacts enable governing actors to converge timescales. For example, a mobile application on a smartphone operated by fieldworkers who enter orders in situ, replacing a traditional manually operated order-management process in the back-office is an innovation that converges the two timescales – the slow back-office process that was there for years versus the fast mobile process. Implementing such a technology can deeply affect the existing processes, culture and organization. The convergence of timescales as a unit of inquiry allows governing actors to consider responsible choices.

Disruptive construction

Simply by its definition, standardization is a necessary condition for Lemke's (2010) concept of traversals; when absent, traversals are not possible.⁸³ Allegedly, standards are meaningful because they make or break the 'chain' of traversals. However, standards also provide a perspective to address meaning making in the creative realm of innovation.

According to Lemke (2010), standardization is everywhere, and although people probably dislike the idea of standardization in their lives, the progress of the modern world was by virtue of standardization. Moreover, standards are a prerequisite for large ecosystems to develop, because they depend of the identical character of its members (Lemke, 2010). Likewise, it is also a founding principle that characterizes the concept of infrastructures and contributes to the notion that standardization is an expression of meaningfulness.⁸⁴ Infrastructures are 'open' in a sense that they

⁸³ See the definition of traversals on page 115.

⁸⁴ The term infrastructure in this context refers to the generic concept of infrastructure, which can have many appearances such as human infrastructure, knowledge infrastructure, technical computer

consist of interdependent parts that eventually always connect to external structures. As such, ecologies of infrastructures can emerge (Hanseth & Monteiro, 1997). If new standards develop, they can, when *meaningful*, develop across infrastructures and introduce large-scale changes.

According to Lemke (2002) it are not the small changes that operate within the normal limits of existing standards that will cause large-scale changes or new phenomena. One could speak of the resilience, or absorption capacity of ecosystems handling external events. However, some events can be surprisingly meaningful and introduce change. Lemke (ibid.) has put this in the light of complex system theory, where strong couplings can be unpredictable because of the ‘multiple feedback loops and nonlinear reinforcement of small effects toward the larger scale by the collective and cooperative phenomena of whole systems (Lemke ibid., p. 86).’

In the information governance context, the foregoing reveals the notion that semiotic artifacts and semiological events affect the behavior of organizations and their users. It is similar to how standardization of the meaning of semiotic artifacts deeply affects activities in today’s society. ‘[I]t is the material embodiment of meaning in physical texts, documents, tools, artifacts, architecture, designed land- and cityscapes, and in our own human bodies that enables us to coordinate activities over long periods of time and so over global societies and virtual communities of millions of people and billions of artifacts (Lemke 2010, p.84).’ Standardization happens in communicative meaning at all three semiotic levels – syntactic, semantic, and pragmatic level – otherwise communication is simply not possible. However, standardization also happens in situations that concern connective meaning – symbolic, inherent, and contextual meaning. Table 23 lists some examples.

Table 23: Standardization examples in the realm of connective meaning

Connective meaning	Standardization
Symbolic	Iconic devices such as the iPhone have become such a symbolic meaning to many that one can consider it a standard.
Inherent	Languages implicitly contain the entire background knowledge of its evolution. One can consider language a standard.
Contextual	Connectedness with the Internet makes people adapt their behavior. One can consider writing on Twitter a standard behavior for people to express their opinion.

The point I want to make with the notion of standardization, is that, on the one hand, the extent of standardization is a measure of meaningfulness, because it takes time and meaning to let structures and ecosystems emerge by virtue of standards.

network infrastructure, and road infrastructure. In the IS research discipline, infrastructures are social-technical networks.

On the other hand, meaningful events, products, and activities can degrade existing standards and eventually replace them with new standards.

I submit that *meaningful* events are both disruptive and constructive in a sense that they make existing structures disappear while new ones arise; they diminish existing standards while introducing new ones (Lemke 2002; Schumpeter 2010). The extent, by which new standards can disruptively displace existing standards, is a measure that allows governing actors to make responsible choices because new standards can deeply affect the organization and its users.

Radical connections

One of the key characteristics of Lemke's interpretation of traversals is that a traversal crosses genre boundaries in a radical manner (Lemke 2002, 2010).⁸⁵ Considering that people 'surf' their world,⁸⁶ their information experience in the contemporary information society is ad-hoc and unpredictable. They cross boundaries of information, of radical different information contexts, and make use of unlimited potentials (Lemke, *ibid.*).

Putting the foregoing against the background of the semiotic order, where the contemporary information society violates the means-end distinction and consumerism juxtaposes productionism,⁸⁷ it becomes clear that the theory of traversals can weave producers and consumers into a single larger network making ad-hoc connections possible (Lemke, *ibid.*; cf. Lash 2002). While surfing their world – living their technological life-world – people are consuming and producing almost simultaneously when crossing radical boundaries of information contexts. As Lemke has put it,

[traversals] can create local and ephemeral possibilities of meaningful connection or catenation among otherwise radically distinguished and separated genres and domains of activity. And not just one to another, but whole *sets* of genres, domains, topics, themes, categories of person, categories of experience, of action/activity that are united by the thread of even a single traversal that passes through all of them [emphasis in original] (Lemke, 2002, p. 93).'

What Lemke (*ibid.*) pointed at is a post-modernistic hybridization of separated elements from their usual context. For example, a running shoe that connects to a smartphone with the capability to provide all sorts of information and instructions to the runner opens up a whole range of new possibilities; it creates a new life-world. The contribution to the notion of meaning making in the innovation context is that connecting objects, events, or processes that are radical different and from normally isolated domains can be meaningful opportunities for the firm. Moreover, even if, the possibilities are ephemeral of nature, it can be meaningful.

⁸⁵ See also the definition of traversal on page 115.

⁸⁶ Surfing is a concept and behavior that goes back to 'channel surfing' on radio or television but nowadays associated to the Worldwide Web.

⁸⁷ See also the discussion on the rise of new values on page 32-36 and Table 5 on page 36 in particular.

I submit that the extent to which it is possible to connect objects, events, or processes that are radical different is a measure of meaning that allows governing actors to make responsible choices because it increases the possibilities for the firm.

Synthesis

The argumentation on the aspects of innovation leads to the second hypothesis that characterizes the meaning-making framework. This hypothesis combines all three aspects in order to measure the extent of innovation potential. Later, a synthesis of all hypotheses will lead to the construction of the framework.

Hypothesis 2:	Time convergence, disruptive construction, or radical connections are meaning-making perspectives to consider innovation potential.
Indicator:	Users explicate innovation potential of product or service, production process, organizational or market structure as time convergence, disruptive construction, or radical connections.

Framework design: Objects

Earlier I argued that the concept of object must be part of the meaning-making framework in order to make an attitude possible with the framework for its users.⁸⁸ Conceptualizing an object for this notion raises two key aspects. First, there is the phenomenological context introducing the problem how to handle the two-world concept of object in the one-world paradigm of the phenomenological context. Second, there is the definition of the term object, which introduces the discussion whether we mean, for example, object, thing, or device. The first issue relates to how one engages with objects. The foundation for that, however, lies in the notion how we look at objects in general, so I will start with a philosophical underpinning of the concept of object.

Object terminology and description

Various disciplines, such as linguistics, philosophy, mathematics, and computer science, use the term object with a great variety in meanings; sometimes within a discipline itself, the term object has different meanings. I limit myself to the philosophical discipline, because it is the one closest to the phenomenological perspective elaborated in developing the meaning-making framework.

The philosophical discipline uses object in many occasions to point to something that is not a subject – the classical Cartesian object-subject separation or dualism. With ‘being objective’ one often means that one must stick to facts. That is, avoid any subjectivity and describe the issue at hand according to its properties, its real

⁸⁸ See the requirement discussion on life-world objects starting at page 95.

existence. This is where the philosophical problem starts: 1) Is it an existing object or an abstract object? 2) To what extent can one describe an object according to its properties? 3) Can one, following the fifth framework requirement on comprehension, be precise in describing object properties without formalistic languages? 4) Can one describe objects isolated from their environment? The latter also concerns the ambiguous use of the term object blurring it with related terms such as thing, tool, device, and artifact. In what follows, I will elaborate on these questions.

First, there is the general notion in philosophy that one can distinguish between abstract and concrete objects – *abstracta* and *concreta*. Abstract objects do not physically exist in time and space. For philosophers, it is essential to separate abstract objects from concrete objects, because, in contrast to concrete objects, which are sensible because they are tangible and factual, abstract objects involve abstract thinking, a mental process. It involves the object-subject paradigm. It is necessary to consider abstract objects in the meaning-making framework because the semiotic order, as well as the innovation dimension of the framework, implies that governing actors frequently encounter ideas, abstractions.

Second, in describing an object, it requires more than just its properties to make it fully comprehensible. According to modern philosophy, the properties of an object are its attributes, the form of the object in its own right. For example, the way an object presents itself to the world such as the redness of an apple. The properties of an object, however, do not tell anything about the parts that make up an object, or what material makes up an object, or what functionality an object has, such as what it can do by itself, what one can do with it, and what is necessary to operate it.

Part of these blanks can be filled-in with the white-box and black-box approach. These conceptual models provide insight in describing objects from a constructional and functional perspective respectively (Dietz, 2006). According to the white-box model, one can abstract the construction and operation of an object. Complementary to this is the black-box model, which can describe the function and external behavior of an object in relation to its input parameters. Dietz (*ibid.*, pp. 65-69) provides the example of an automobile to distinguish the two models. From a mechanics perspective, one can decompose an automobile into interacting components such as chassis, wheels, motor, and lamps – white-box model. From a driver perspective, one can decompose an automobile into functional systems that collectively provide the transfer between input and output variables such as lightning system, power system, steering system, and brake system – black-box model. However, this conceptual model approach does not give room for the material aspects of the object.

Third, in order to describe objects precisely and accurately one can use object description languages. These are formal and standardized data representations of objects. Their purpose is to share commonly exchanged object information among various systems such as libraries, public registers, and software systems. Their

schemas are standardized and formal. For example, NASA uses ODL for the planetary data system, the Dublin Core metadata terms can describe web resources (e.g. video, images, and web pages) and physical resources (e.g. books and works of art), and the US Library of Congress uses MODS for describing bibliographic element sets. Table 24 provides a typical schema for an object description language.

Table 24: Typical schema for an object description language

Aspect	Object
Parts	What are the parts that constitute the object?
Material	What material makes up the object?
Properties	What are the important attributes of the object? (e.g. its external presentation: interface attributes)
Functions	What can the object do by itself? What can one do with the object? What does the object need for its functions?

Fourth, from a technological philosophical perspective, it is common wisdom one cannot consider objects apart from their context. According to Verbeek (2005) one cannot consider technology simply as means to an end, because it always reshapes the ends as well as the context of its application. For example, with the introduction of the automobile humankind was able to span greater distances in a shorter time. It changed the ends, because it made people living further away from their work and thereby separating labor from leisure. It also changed the context, because automobile drivers have a different relation to their environment than, for example, bicyclists do, socially as well as spatially (ibid.).

With respect to context and isolation, colloquial usages of the term object, such as the terms thing or artifact and device, emphasize the issues involved. They are fundamentally different concepts; a thing is a generic term, identifying an object made by human beings such as a work of art or a fireplace. According to Verbeek (2005), isolating a thing from its context loses its meaning, because it requires engagement and an environment in order to have meaning. Verbeek (2005) illustrates this with the example of the fireplace from the philosopher of technology Albert Borgmann.⁸⁹ A fireplace limits itself to a single room and requires people to chop wood and supply it slowly but continuously to the fire in order to make it warm. However, a central heating system, which is a device, makes warmth instantaneous available when turning on a radiator, ubiquitous in all rooms of a building. Devices deliver availability of commodities, resources; they are pure means and do not lose

⁸⁹ Borgmann (1984) argued in his book *Technology and character of contemporary life* that technology is taking away important aspects of our lives, because it increasingly replaces human activities making them losing social contexts. The fireplace is a well-known example from Borgmann to illustrate this.

their meaning separated from their goal, because they do not require engagement to maintain their meaning (ibid.).

The foregoing on the general concept of objects regarding its terminology and description possibilities – abstraction, properties, formalism, and isolation – concludes the following. 1) It concerns notions of objects that are concrete as well as abstract. 2) It is certainly possible to describe an object, but it needs more than just properties in so doing. 3) It is possible to describe objects precisely and accurately, but it requires extensive formalism. 4) Context and engagement are two critical aspects to consider. Except for the last one, these conclusions dominantly reflect the two-world paradigm and are of little use for the phenomenological perspective. Phenomenologically speaking there is always an intending subject related to an object, and therefore must be included in describing an object. The question remains how to handle objects in a one-world context.

Engagement: the device paradigm

Verbeek (2005) developed a post-phenomenological vocabulary in which involvement of artifacts and how they co-shape human existence is a central theme. I briefly touched Verbeek's interpretation of the device paradigm in the foregoing. Verbeek's interpretation is of particular interest because it corresponds to the technological phenomenology from Lash (2002). It can help to explicate objects from a phenomenological stance. In what follows, I will further investigate the device paradigm.

Verbeek's point of departure is Borgmann, who introduced the term *device paradigm* in order to study how technological artifacts shape the patterns of human life. Verbeek (2005) explained that this pattern of human life is a technological pattern, where devices continuously replace things to deliver a commodity. The machinery in devices breaks the inseparable bond between things and their context, such that one can consume commodities without being involved in their production.⁹⁰ Hence, Borgmann's device paradigm is about breaking up things into a commodity and machinery, without considering engagement. Moreover, according to Verbeek, Borgmann saw the emergence of technological devices as an impoverishment because people stopped engaging when using devices (ibid., pp. 174-199).

Verbeek (ibid.) argued against the Borgmannian disengaging device view of mere commodity-delivering entities because devices can *promote* engagement too. For example, in Borgmann's view a television discourages people to go to theaters. Verbeek (ibid.) has contrasted this with the example of people watching a life reporting of a disaster on television; it can engage them.⁹¹

⁹⁰ See also the fireplace example in the section starting at page 120.

⁹¹ Verbeek (2000) has listed many counter examples for a new interpretation of the device paradigm.

Verbeek's (ibid.) post-phenomenological stance that devices can engage people resembles the technological phenomenology from Lash (2002). I have explained earlier that the technological phenomenology from Lash is about the new ways of connectivity through the flood of devices that place users at the center of the networks of communications, they adapt to their life-world and renew their practices that are so typical for the information society – they incarnate.⁹² Verbeek's (2005) post-phenomenological vocabulary puts more emphasis on the involvement that people can have with devices and distinguished three variants of involvement. First, there is involvement regarding the artifact itself such as the effort in playing the piano. Second, the context or environment of the artifact invites involvement such as chopping wood in the fireplace example from Borgmann. Third, involvement with the product that becomes available through the device such as enjoying music from a CD player (Verbeek, 2005, pp. 192-193).

The overall argument that Verbeek (2005) developed was, that although technical devices in general diminish the involvement with the environment, they can introduce new forms of involvement that are *engaging*. The distinction is not always easy to make, but involvement can include effort-based (meaning-making) engagement. For example, for many riding a bike serves as a form of exercise as well as a mode of transportation.

Common in all three variants of involvement is the notion that devices *give* something to the user of the device; they invite engagement. I explained earlier that the phenomenological stance finds its roots in the one-world thinking model that assumes engagement.⁹³ Because the device paradigm concerns engagement, it is appropriate to use Verbeek's modified device paradigm in the phenomenological context for objects. The point I am trying to make here is that with this device paradigm users can describe what the object – device – gives them without going into formal details about object properties and the like.

Conclusion

I have searched in this section how to make the concept of object a part of the meaning-making framework. The phenomenological stance for the framework prevents the use of two-world – positivist – ideas to describe objects. Although there are several concepts available, such as formal languages and schemas, to describe objects, they are not suitable for the one-world notion. Verbeek's (2005) interpretation of the device paradigm seems appropriate for governing actors to describe objects. First, this device paradigm considers engagement, which is a fundamental character of the one-world notion. Second, it allows governing actors informally describing objects simply by explicating what objects – devices – give them. The foregoing argumentation on objects leads to the third hypothesis to

⁹² See the discussion on the phenomenological orientation of meaning starting at page 75.

⁹³ See the discussion on the phenomenological orientation of meaning starting at page 75.

characterize the meaning-making framework. Later, a synthesis of all hypotheses will lead to the construction of the framework.

Hypothesis 3:	The device paradigm allows for a phenomenological explication of objects.
Indicator:	Users explicate what an object makes available to them such as, for example, information, insights, and knowledge

Framework design: Non-functional aspects

The preceding sections on the framework design regarding meaning, innovation, and objects focused on the functional requirements of the meaning-making framework. They concern what the framework must *do*, in order to facilitate governance image building, enabling governing actors to make responsible choices. The non-functional requirements concern which characteristics the framework must *have* in order for governing actors to adopt the framework in their image-building processes. What follows is a development of hypotheses for the non-functional requirements regarding mental model and comprehension.

Mental model

The central question on the requirement for a mental model is: will users adopt the framework in looking at world phenomena they encounter in image formation? Practitioners in the field of human computer interfacing face a similar problem. In order to design effective user interfaces, they must tap into the user's belief – mental model – on how the system supposes to work. They use the concept of mental models to see to what extent users adopt a user interface in expressing their issues (Davidson, Dove & Weltz, 1999). In an exploratory study, Davidson et al. (1999) approached the concept of mental models from a usability perspective. They determined whether subjects used components of one mental model of a user interface to describe the functionality of another. Their perspective on usability of a product focused on learn-ability and retain-ability after Costantine and Lockwood (1999). For the meaning-making framework, this comes down to whether the framework plays a significant role in the user's reasoning and explaining things – its learning process – and whether the user retains the elements of the framework along with their interrelationship in doing that. The ultimate in the former is when the user adopts the framework to express functionality or outcome of other models and notions used in image formation. This leads to the fourth hypothesis in characterizing the meaning-making framework.

Hypothesis 4:	The framework provides opportunity for expressing the functionality and/or outcome of other models or notions during image formation activities.
Indicator:	Users retain framework elements and their interrelations in expressing issues in image formation.

Comprehension

The requirement on comprehension addresses how easy users can work with the framework in terms of language and structure. Put differently, can the user of the framework explicate governance issues using informal language, in a structure that does not require extensive analysis to understand? Research on verbal language learning has resulted in information-processing theory. It shows that when there is a structure in the thing to remember, the learning performance increases; structures make things easier to understand. For example, various quantitative learning experiments have shown decreased performance with the learning of nonsense syllables (Simon & Feigenbaum, 1964). Another, more every day, example is the chessboard experiment that shows how chess players remember the position of chess pieces on the board easier than non-chess players (Simon, 1996). Allegedly, the framework's structure and the relationships among the framework's constituting elements influence how users work with it and adapt it as a mental model. This leads to the fifth hypothesis on the meaning-making framework.

Hypothesis 5:	The framework structure has an orderly, logical, and aesthetically consistent relation of elements, which can contain informal language.
Indicator:	Users can reproduce the framework and populate it using informal language.

Synthesis: Framework construction

At this point, I will synthesize the requirements and hypotheses, which I developed in the preceding sections, into the actual meaning-making framework. I will first construct the actual framework, after which I will elaborate on the details necessary to use the framework. I will close this synthesis by assessing the design quality of the framework and the completeness of hypotheses.

Constructing the framework

For the actual construction of the meaning-making framework, the point of departure is the requirements and accompanying hypotheses that I have developed in the foregoing sections of this chapter. I have explained earlier that this is a process

that is predominantly heuristic and creative, meaning, that there is no formal way of doing this and draws on imagination and practical insight.⁹⁴

The foregoing sections on requirements and design hypotheses clearly show that the framework structure distinguishes three main elements that relate to one and other. They concern objects, habits of action, and innovation. The latter, innovation, subdivides into time-converged, disruptive construction, and radical connections.

The object and habits of action elements are interrelated. First, there is a clear notion that the subject is central in habits of action. Following the one-world paradigm, the object and the subject become one; they have an implicit relation. Second, following the device paradigm, there is always interaction between the device and the subject. The latter interacts with the device in order to operate it. For example, people tune a television to watch a certain channel; people program a smartphone to read things such as emails, agenda, and action items; people command a web browser to visit the World Wide Web on the Internet. The devices on their turn make people do things – habits of action. The interrelation between objects and habits of action follows the technological phenomenology from Lash (2002) and the post-phenomenological stance from Verbeek (2005). Because of its interrelationship, object and habits of action become a unity in relation to the innovation perspectives.

The relation of the unity object and habits of action with the innovation perspective, in fact, concerns the main thesis of this research, how to verify whether products and artifacts of the contemporary information society are of any innovative value to organizations and their users. I consider the interplay between object and habits of action as the meaning-making precondition toward the innovation perspective. It is the first step; the first thing governing actors need to know in order to make responsible choices by evaluating its innovation potential. Put differently, the knowledge to make a choice for the technological life-world and its intrusive technologies.

According to the foregoing, Figure 9 illustrates the first approximation of a possible structure for the meaning-making framework.

⁹⁴ See also the discussion on how design science research differs from routine design on page 23.

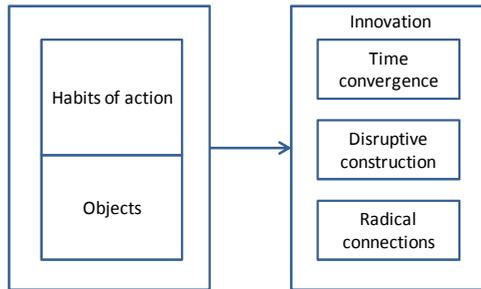


Figure 9: The meaning-making framework (first approximation)

Figure 9 clearly covers all the functional requirements. One of the non-functional requirements considers the aspect of comprehension, therefore, it makes sense reducing the number of connections among the various framework perspectives; the less people have to remember the better they will comprehend the framework. Because of the intrinsic relation between object and habits of action, I choose to bond these two perspectives – objects and habits of action – together, albeit though that they remain separate framework perspectives. The consequences of the aim for comprehension are twofold. First, using the framework requires a clear explanation of the objects and habits of action perspectives because they become less self-explanatory. Second, appropriate usage of the framework requires methodological guidance because the interrelationship between objects and habits of action is not obvious. Figure 10 illustrates the second approximation of the meaning-making framework.

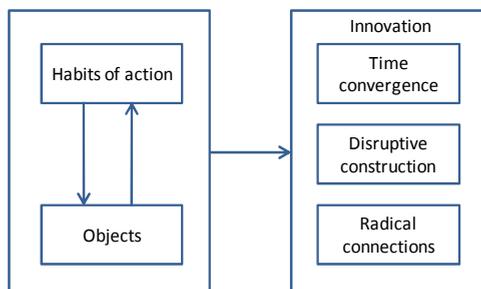


Figure 10: The meaning-making framework (second approximation)

Following the notion on comprehension, more simplification of the framework is possible. First, there is no strict need for a border around the objects and habits of action perspectives because the previous step in simplifying the framework bonded the two perspectives together. Second, although the three innovation perspectives – time convergence, disruptive construction, and radical connections

– are labeled *Innovation*, it is fair to assume that the methodological guidance revealed by the previous step in simplifying the framework goes along with an explanation of all perspectives; therefore making it not strictly needed to include this innovation label.

In general, we can conclude that steps toward simplification of the framework in order to fulfill the non-functional requirement on comprehension puts some constraints on using the framework; it requires clear explanation and guidance when using the meaning-making framework for the first time. Figure 11 shows the final structure of the meaning-making framework. It also includes a ninety-degree turn in order to make it more practical for users to populate it with notes and remarks.

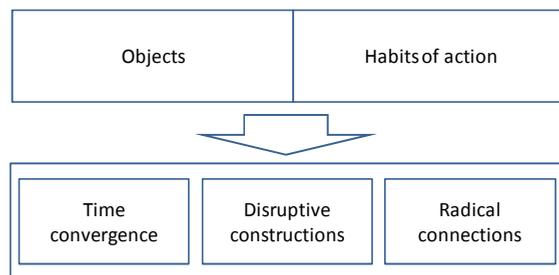


Figure 11: The meaning-making framework

Operating the framework

In designing the structure of the framework, while considering the aim for comprehension, I raised the issue that the framework requires an explanation of the various perspectives and some methodological guidance in order for governing actors to operate it.⁹⁵ Although the setup and discussion of evaluative case studies in chapter 6 will elaborate on the methodological approach required to operate the framework, it is possible at this point to give a brief overview of the steps needed for its operation. The method operating the framework divides into three bold steps that are naturally following the philosophical groundwork of the framework.

First, one needs to describe the properties of the object in terms of what it makes available to its user. This typically concerns what the products from the contemporary information society provide such as insight, support, knowledge, and utility. The second step involves examining how the meanings that users ascribe to the object affects their current habits, or introduce new ones. The third step involves an assessment of the object-habits-of-action pair against the three innovation dimensions in order to find the innovation potential. A workshop setting is a typical

⁹⁵ See the discussion on the consequences of the aim for comprehension on page 128.

way to introduce the framework to governing actors, after which they should adapt the framework as a mental model in their information governance discourse. Table 25 summarizes some of the possible guiding questions of the various framework perspectives.

Table 25: The meaning-making framework: guiding questions

Object	Habits of action	
Properties of the object <ul style="list-style-type: none"> • What does the product or concept from the modern information society provide their users such as insight, support, utility, and knowledge? 	Changes in behavior and activities <ul style="list-style-type: none"> • What new habits, or activities, do the meanings (communicative, inherent, symbolic, or contextual) of the object properties develop with the user? 	
Time-converged activities	Disruptive construction	Radical connections
Converges, coordinates, motivates, or attracts activities across insulated timescales <ul style="list-style-type: none"> • To what degree do object and habits of action converge, or coordinate, operationally insulated activities or structures such as information, processes, and hierarchies? 	Diminishes standards and introduces new ones <ul style="list-style-type: none"> • Do the object and habits of action replace well-accepted standards with new standards ones such as ways of working, norms, and processes? 	Connects radically distinguished genres and domains of activities <ul style="list-style-type: none"> • Do the object and habits of action create new meanings for products or activities outside their usual context, enabling connections for isolated objects and activities?

Design verification

There are two aspects to consider on verifying the design of the meaning-making framework. This verification concentrates on the design itself and does not include aspects on using the framework such as utility and usefulness. There are two basic verifications. Does the framework meet all requirements? What is the quality of the design?

First, verifying whether the framework meets all requirements simply needs an assessment of these requirements, defined in this chapter, against the properties that characterize the framework. Table 26 enumerates the requirements with the properties of the framework. It clearly shows that the framework meets all requirements, except for the fourth requirement regarding mental model. This is a requirement that involves field verification because it needs user interaction. This similarly applies to the fifth requirement on comprehension. Although the construction of the framework shows reasonable steps that simplified its structure it is fair to include a property that indicates this, however comprehension is subject to the user and requires field verification as well for a final verdict. The evaluative case study will include steps to assess both non-functional requirements.

Table 26: Verification of design requirements

No.	Requirement	Framework Property
1	Address objective meaning and connective meaning	The framework has a perspective that addresses habits of action.
2	Includes an innovation perspective	The framework has an innovation perspective that subdivides into time-converged, disruptive construction, and radical connections.
3	Support one or more objects	The framework has an object perspective.
4	Serve as a mental model to its users	N.A.
5	Easy to comprehend	The framework has a simplified structure, with all unnecessary items removed.

Second, in order to create proper abstract models of organizational activities, Dietz (2006) suggests five quality criteria: coherency, comprehensiveness, consistency, conciseness, and essentiality. They can be equally applied for assessing the design of the meaning-making framework.

- **Coherency** – is the framework a logical integrated whole? There are no loose elements in the framework. Each element has a relationship to one or more other elements in the framework. The three separate elements on time-convergence, disruptive construction, and radical connections are a subdivision of the innovation perspective.
- **Comprehensive** – does the framework cover all relevant issues? The purpose of the framework is to include connective meaning into the information governance discourse against the background of a technological phenomenology (Lash, 2002). The relevant issues unfold for that threefold. 1) The perspective on habits of action covers the issue of meaning. 2) The perspective on innovation covers the governance issue. 3) The object perspective covers the phenomenological notion.
- **Consistent** – is the framework free from any inconsistencies? All the elements of the framework use the same level of abstraction and refrain from using formal languages. Table 25 lists some guiding questions to use the framework; it is an exemplar of the consistency used throughout the framework.
- **Concise** – are there no superfluous matters contained in the framework? The notions on meaning and governance that I developed against the background of a broad philosophical understanding of the contemporary information society come together into a lean unifying meaning-making framework.
- **Essential** – is the framework limited to the bare essence, independent of its operation? The essential parts of the framework, the perspectives on objects, habits of action, and innovation do not require other constructs. When populated, it stands on its own and is ready for evaluation.

The assessment against the five quality criteria for abstract models contributes to the understanding, that, based on the premises on meaning and governance developed in the preceding chapters, the framework has a proper design and construction. Its degree of utility and usefulness requires assessment in evaluative case studies.

Framework solution mapping

The next chapter in this dissertation will cover the evaluative case studies. Proper evaluation requires an appropriate measurement model. The preamble to such a model is a unifying model that shows the complete mapping between requirements and hypotheses to test. Table 27 summarizes how the earlier-developed design requirements map against the proposed hypotheses that are foundational to the framework characteristics.

Table 27: Solution hypotheses mapped to framework requirements

No.	Requirement	Solution
Functional		
1	<p><u>Requirement</u> Address objective meaning as well as connective meaning</p> <p><u>Indicator</u> Users discuss one or more of the meaning categories communicative, symbolic, inherent, or contextual</p>	<p><u>Hypothesis</u> Comprehensive meaning manifests as habits of action.</p> <p><u>Indicator</u> Users explicate any of the four orientations of meaning (communicative, symbolic, inherent, contextual), or any combination thereof, as habits of action.</p>
2	<p><u>Requirement</u> Includes an innovation perspective</p> <p><u>Indicator</u> Users discuss innovation issues from one or more of the categories product or service, production process, organization or management structure, or market type.</p>	<p><u>Hypothesis</u> Time convergence, disruptive construction, or radical connections are meaning-making perspectives to consider innovation potential.</p> <p><u>Indicator</u> Users explicate innovation potential of product or service, production process, organizational or market structure as time convergence, disruptive construction, or radical connections.</p>
3	<p><u>Requirement</u> Support one or more objects</p> <p><u>Indicator</u> Users list properties of objects in the framework.</p>	<p><u>Hypothesis</u> The device paradigm allows for a phenomenological explication of objects.</p> <p><u>Indicator</u> Users explicate what an object makes available to them such as, for example, information, insights, and knowledge.</p>
Non-functional		
4	<p><u>Requirement</u> Serve as a mental model to its users</p> <p><u>Indicator</u> Proportion of framework elements applied in describing governance innovation issues during image building > 75%</p>	<p><u>Hypothesis</u> The framework provides opportunity for expressing the functionality and/or outcome of other models or notions during image formation activities.</p> <p><u>Indicator</u> Users retain framework elements and their interrelations in expressing issues in image formation.</p>
5	<p><u>Requirement</u> Easy to comprehend</p> <p><u>Indicators</u> Proportion of informal language used > 75% Proportion of framework elements recalled correctly > 75%</p>	<p><u>Hypothesis</u> The framework structure has an orderly, logical, and aesthetically consistent relation of elements, which can contain informal language.</p> <p><u>Indicator</u> Users can reproduce the framework and populate it using informal language.</p>

Summary and conclusions

This chapter started with an overall introduction on the design process. It became clear that design is a creative and heuristic process that lacks proper theories on how to structure such a process. This challenges design in a research setting because design decisions must be justified through theory or experience rather than through the commonly used requirement elicitation from stakeholders. Therefore, I have used the mechanism of requirements in an alternative approach that integrates the concepts and theories, discussed previously in this dissertation, systematically and justifiably into theory-derived requirements and design hypotheses. As part of this design process, I developed hypotheses that map against requirements. Because, requirements, as well as their matching hypotheses, have indicators assigned in order to assess their compliance, their indicators required a similar level of granularity.

After the general introduction to the design process, the chapter continued by developing design requirements. It decomposed the overall design goal, constructing a meaning-making framework for governing actors, into three functional requirements and two non-functional requirements. The requirements concerned comprehensive meaning, innovation, life-world objects, mental model, and comprehension respectively.

Requirements

Comprehensive meaning is a requirement to ensure that the framework can operate with objective meaning as well as connective meaning. In fact, the synthesis of meanings that developed in the critique of meaning in chapter 4.

Innovation is a requirement to address my interpretation of information governance. Innovation from a governance perspective relies on the meaning that governing actors ascribe to things, situations, or opportunities that involve sign-value. It is an essential part of the information governance discourse and, therefore, a meaning-making framework cannot do without it.

The requirement life-world object is a direct implication from the inseparability of content and method, the 'what' and the 'how,' in the phenomenological orientation of meaning – contextual meaning. It follows the technological phenomenology where object and subject become one. A one-world paradigm forces to obtain knowledge rather through operation than through observation. Therefore, the framework must enable organized settings in which the user can incarnate a technological life-world – experience an object. This contributes to the notion that one cannot design this meaning-making framework without considering its usage and that an object must be part of the framework. An object in this context can range from tangible objects but also anything that represents these objects such as information and constructs.

Mental model is a non-functional requirement that reflects the notion that governing images are an inevitable concept in governance. The image-building processes involved in governing images relate directly to how people create images in their minds through various thought processes. In order to create images, people need mental models to link phenomena in the real world to mental processes; mental models support thought processes. This contributes to the notion that the usefulness of the framework depends, among others, on whether governing actors adopt it as a mental model when looking at real-world phenomena in image-building processes.

The non-functional requirement on comprehension developed from the understanding that one cannot assume a strong technical literacy among framework users. The targeted users of the framework such as board members, directors, and senior managers shy away from formal and detailed operational frameworks. Therefore, the framework must be easy to understand, refrain from formal languages, and must have an 'easy-going' logical structure such that inexperienced users can easily work with it.

The overall conclusion regarding the requirements for the framework is that they emphasize on addressing the conceptualizations on governance and meaning done in chapter 3 and chapter 4, include objects as a necessity because of the phenomenological character, as well as the usability of the framework for governing actors.

Design

The next step in the design process was the actual development of hypotheses that map to the earlier developed requirements. This step naturally divided into three sections, the development of hypotheses on meaning, innovation, and objects respectively. Developing hypotheses addressing the non-functional requirements concluded the former.

The central theme in developing a hypothesis on meaning was to weave the whole fabric of objective meaning and connective meaning into one unifying comprehensive concept. It was tempting to use a communication perspective and sense-making perspective for that, because they both contain extensive meaning and meaning-related concepts. However, the four constituting orientations of meaning in objective meaning and connective meaning do not mutually use any part of these concepts. First, the communicative interpretation of meaning does not provide a common philosophical ground between objective and connective meaning. 1) Communication does not address the key aspects of the inherent orientation of meaning: the inclusion of how prior experiences and life-worlds affect actors. 2) Communicative action vastly differs from the world subjectively constructed by humans in the symbolic orientation of meaning. 3) The communication perspective cannot frame a one-world paradigm such as contextual meaning because it would 'fall-back' into a two-world semantic deconstruction – a two-world paradigm. This contributes to the philosophical understanding of the four

orientations of meaning that communication is a too limited concept to synthesize these orientations into one unifying concept.

Second, sense making is about how meaning emerges through past events. It misses, however, a number of conceptual issues that prohibit using it to reconcile the various orientations of meanings. 1) It is a cognitive process that contrasts the affection and incarnation that exists in connective meaning. Sense making creates understanding of unknown and ambiguous situations by rationally comparing events with existing frames of reference. 2) Sense-making is predominantly retrospective, creating a meta-view of unconnected past events. This contrasts the radical empiricism that is typical for contextual meaning – the phenomenological orientation of meaning. 3) Sense making is inherently two-world thinking because it involves labeling and presumptions. It limits itself to a communicative orientation of meaning because it is an objective act of reference. This contributes to the understanding of meaning making that sense making distinctively differs from my interpretation of meaning making, because it is a concept that concerns reducing uncertainty and ambiguity in interpretation processes instead of the concepts involved in connective meaning such as biased action, affection and incarnation.

The communicative perspective of meaning as well as the perspective how meanings emerge – sense making – do not cover my interpretation of meaning making. Therefore, I developed a pragmatist interpretation. The motivation for this lies in the premise that looking at the effects of, for example, objects, events, situations, and processes, avoids the difficulty of finding common concepts in the four orientations of meaning and better illuminates the phenomena that affect the governance discourse. For this, I heavily leaned on the Peircian pragmatist thoughts that concern the notion of a habitual foundation of meaning. If objects, events, situations, or processes lead to change in deep-rooted day-to-day practices, if they result in changing existing habits or producing new habits, they are meaningful. I conclude that comprehensive meaning – the four orientations of meaning – manifest as habits of action, which is the first hypothesis.

The development of a hypothesis on innovation concentrated on the creativity phase of innovation because, from an information governance perspective, it is the phase where governing actors ascribing meaning to things, situations, or opportunities that involve sign-value. In contrast to the follow-on innovation processes that concentrate on rational verification and realization of innovative ideas in the enterprise context, the creativity phase is where meaning making prevails. Three issues seem relevant in assigning meaning to innovative ideas. 1) The cognitive style involved determines whether people want to do things better or do things differently; these styles exhibit different meaning making. 2) The dominant focus on problem solving as a point of departure does not include the imaginative processes that can look beyond existing paradigms. There *has* to be a problem; what if there is no problem but an excellent opportunity? 3) The notion that, in the semiotic order semiotic means and material replace the traditional notion on product-related innovation elevates the role of meaning to the outcome of a process

of interaction with the environment. Hospitality becomes the decision basis for governing actors to consider new semiotic means and material – what does it mean to them.

These issues urge for a different mindset on creativity in innovation. Aside from problem-driven innovation, organization must also look for opportunity-driven innovation – imaginations on how organizations can benefit from products of the contemporary information society. The theory of traversals contributed to the understanding of innovation that looking beyond problem-driven innovation requires governing actors to augment context creation of the technological life-worlds onto the daily practices of organizations. The theory of traversals reveals three essential perspectives on innovation that support this: 1) time convergence, 2) disruptive construction, and 3) radical connections. I embedded these perspectives in the meaning-making framework.

The perspective on time convergence learns that the dynamics in complex systems, where signs and meaning play a key role, break with the strong correlation of time-related scales that natural systems exhibit, such as time, weight, size, and energy. Complex dynamical systems are hierarchical with processes of different time scales – adiabatic separation. In complex dynamical systems, (semiotic) artifacts maintain the relation among processes with timescales that are radically different. I submit that when a semiotic artifact in one timescale affects processes in another timescale it is a meaningful artifact. Semiotic artifacts can deeply affect the existing processes in terms of time. It requires governing actors to make responsible choices; time convergence seems an appropriate measure for that.

The perspective on disruptive construction finds its roots in standardization. Standardization is everywhere; it is a necessary condition, for example, in infrastructures and ecosystems; the progress of the modern world was by virtue of standardization. The thesis with disruptive construction is that meaningful events replace old standards. Ecosystems, infrastructures, and even humans show some resilience, but when the external events are too strong to resist they will disrupt existing standards and introduce new ones. Semiotic artifacts and semiological events similarly affect the behavior of organizations and their users. The standardization of the meaning of semiotic artifacts deeply affects activities in today's society. I submit that meaningful events are both disruptive and constructive in a sense that they make existing structures disappear while new ones arise.

The perspective of radical connections concerns the unlimited innovation potentials when combining radically different (information) contexts. The concept of traversals contributes to the understanding of innovation that even ad-hoc or ephemeral connections can be meaningful. While living their technological life-world, people are consuming and producing almost simultaneously when crossing radical boundaries of information contexts. A post-modernistic hybridization of separated elements from their usual context creates whole ranges of new

possibilities; it creates new life-worlds such as when connecting a running shoe to a smartphone. The extent to which it is possible to connect objects, events, or processes that are radically different is a measure of meaning in the innovation context.

The innovation perspectives on time convergence, disruptive constructions, and radical connections weave together as a measure for innovation. They are meaning-making perspectives that help governing actors making responsible choices. It is the second hypothesis.

The development of the hypothesis on objects started with an exploration of some philosophical underpinnings of the concept of objects, in order to build the notion how to consider a two-world concept – object – in a one-world paradigm such as the technological phenomenology, the key context for the framework. Conceptually this concluded that 1) it involves concrete, as well as abstract, objects; 2) it requires more than just properties to describe objects; 3) accurately describing object requires extensive formalism; and 4) context and engagement are essential aspects to consider. This contributed to the notion that, except for the last one, these conclusions dominantly reflect the two-world paradigm and are of little use for the phenomenological perspective. In order to develop a hypothesis regarding objects in a one-world context, I further explored context and engagement by means of the device paradigm.

The device paradigm helps to see objects as mediating artifacts and exhibit two fundamental characteristics. 1) Devices make a commodity available to their users. In the context of the information society, the flood of devices enables users to interact with their networks while consuming the products they make available. 2) Devices promote engagement, because it may require effort to operate them, because it may invite users to involve with the environment, or because it can involve the user with the products that become available through the device. The one-world paradigm assumes engagement, therefore, the device paradigm resembles the technological phenomenology.

The contribution of the device paradigm to the understanding of objects is that it enables users to describe what the object – device – gives them without going into formal details about object properties and the like. The phenomenological stance for the framework prevents the use of two-world – positivist – ideas to describe objects. Although there are several conceptual notions on objects, most of them are not appropriate in the one-world paradigm. I conclude that the device paradigm is appropriate in the phenomenological context for governing actors to describe objects. It is the third hypothesis.

The next step after the development of hypotheses on meaning, innovation, and objects was the development of hypotheses on non-functional aspects. These aspects concern what the framework must have in order for users to adopt the framework as a mental-model, and find it easy to operate. The insight from theory on human computer interfacing is the basis for the hypothesis on mental-model. The

framework serves as a mental model if the user adopts it mentally to explain other models or notions during image formation activities. This is the fourth hypothesis. The development on the last hypothesis concerns to what extent users find it easy to work with the framework – comprehension. The insights from empirical research on learning are the basis for the hypothesis on ease of use. The framework's structure and the relationships among the framework's constituting elements influence how users work with it. This reflects the fifth hypothesis.

My overall conclusions regarding the developments of the hypotheses are that the phenomenological basis for meaning making has a profound effect on the hypotheses that concern habits of action and objects; one cannot use two-world aspects in these elements of the framework. The development of the hypotheses regarding innovation and the non-functional aspects did not show any noteworthy considerations in that respect.

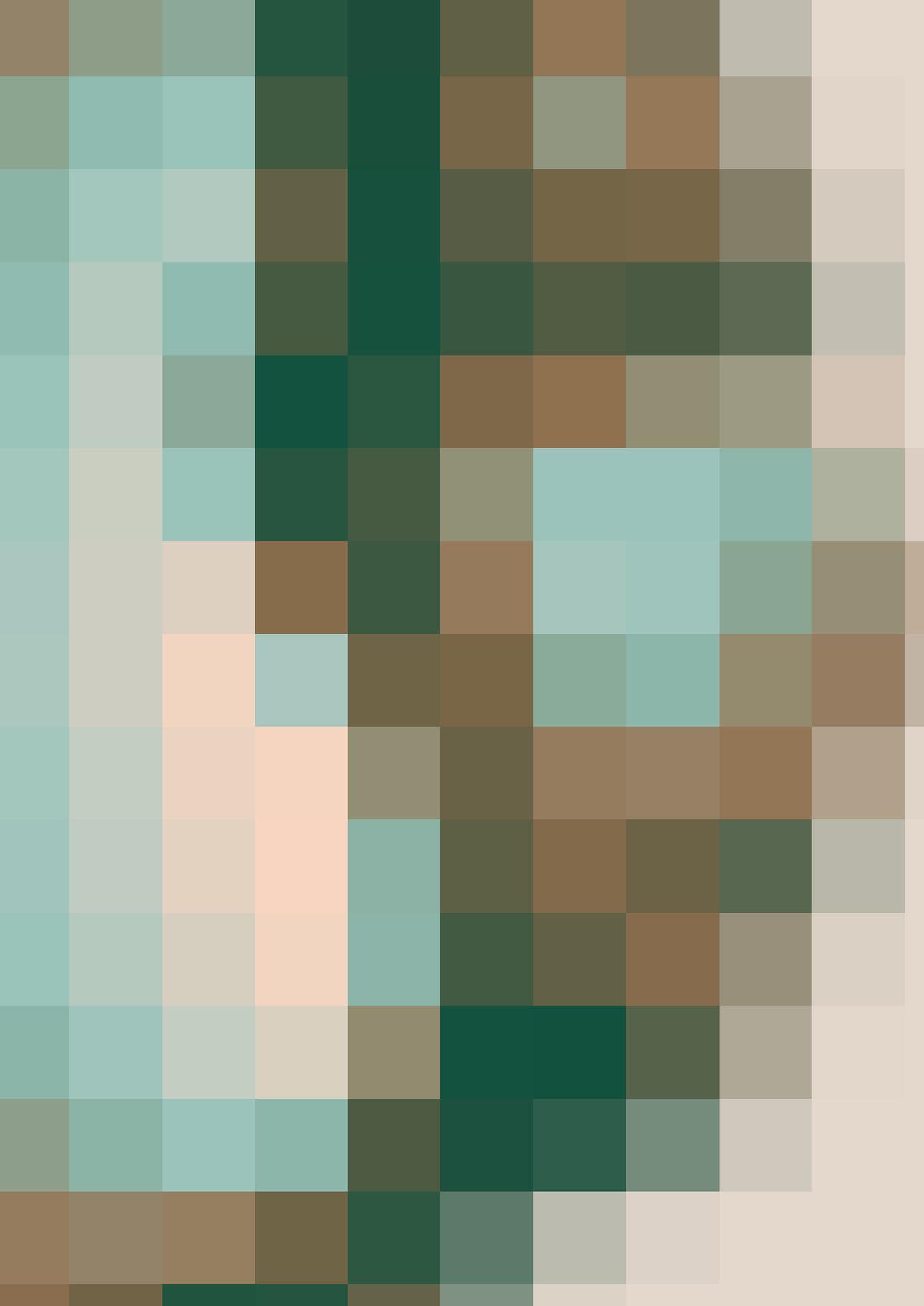
Synthesis

The next step was using the requirements and hypotheses in synthesizing them into a framework; constructing the framework. I took care to use as little as possible visible elements in order to adhere to the requirement on comprehension. The one-world paradigm and the device paradigm contributed to the notion that habits of action and objects have an intrinsic relation. Therefore, these perspectives can bond together in order to position them as a unity opposite to the innovation perspectives. I consider the interplay between object and habits of action as the meaning-making precondition toward the innovation perspective. In order to make responsible choices, the first thing governing actors need to know in evaluating innovative ideas, is whether it means something for the organization; is there an innovation potential?

Because the framework is a rather abstract artifact, I developed some guiding questions for the user. A comprehensive evaluation of the framework is beyond the scope of this chapter, however, I did a rudimentary assessment on its design quality in terms of coherency, comprehension, consistency, conciseness, and essentiality.

Solution mapping

The chapter closes with a mapping of all requirements and hypotheses. It is the prelude to a measurement model, which is required for the evaluative case studies.



6

EVALUATIVE CASE STUDIES

*“Everybody experiences far more than he understands. Yet it is experience, rather than understanding that influences behavior.”
~Marshall McLuhan*

*“Bracketing has turned all my experiences, remembered and present, into a gallery of miracles where I wander around dazzled by the beauty of events I cannot explain.”
~ Martha Beck*

Introduction

This chapter has the purpose to build the notion how the evaluative case studies can accommodate the testing of the hypotheses developed in chapter 5 and to describe the actual case studies done in this research.⁹⁶ It is necessary to note that the empiricist phenomenological stance taken in chapter 5 affects the way one can evaluate the meaning-making framework. Therefore, I will revisit some concepts of phenomenological research, such as attitude and bracketing, in more detail. I will use these concepts to develop an appropriate case-study setup for executing a number of workshops that accommodate the phenomenological stance. Two examples on using the framework accompany the case-study setup. Essential in the evaluative case studies is the approach for collecting data. Therefore, this chapter also pays attention to data quality and data-collection techniques, which also involves the design of a questionnaire.

Although this chapter addresses techniques of sociological research, it is necessary to note that my research only uses the contours of sociological research for creating the appropriate setting in order to obtain legitimate research data. Again, the empiricist phenomenological stance demands this approach.

This chapter starts with building the notion on the case-study requirements. It then proceeds by using this notion to develop the case-study setup, followed by the technique used for collecting the data. The remainder of the chapter describes the case studies and ends with a summary and conclusions.

Case–study requirements

The overall purpose of the evaluative case studies in this research is to verify whether it is possible to develop an instrument that operationalizes meaning making in the information governance discourse. It is about evaluating whether the framework is useful in the meaning making of the informational issues that characterize the contemporary information society – the semiotic order. The design of the framework resulted in five falsifiable hypotheses; therefore, the evaluative case studies specifically concern empirically testing these hypotheses.⁹⁷

In developing the framework design-requirements, I have argued that one cannot simply design a framework without considering its operation; it requires an object perspective to be included in the framework design. This was a direct consequence of the empiricist phenomenological stance that dictates the inseparability of content and method – the *what* and the *how* (Lash, 2002, pp. 167-173). Apart from affecting the framework design, it also affects the evaluation of the

⁹⁶ Analyzing the results of the case studies is beyond the scope of this chapter; it is the purpose of the follow-on chapter.

⁹⁷ See also the discussion starting at page 25 regarding the use of a case study to evaluate artifacts – falsification is what characterizes the case-study research (Flyvbjerg, 2006).

framework. For phenomenological research in general to create knowledge, it requires bracketing and reduction, as well as an appropriate attitude toward the object. This is where content meets method. Because this research assumes the *empiricist* phenomenological stance, in which governing actors experience objects, events, and processes in-the-world,⁹⁸ the attitude toward the object and phenomenological reduction are pivotal concepts in creating an appropriate setup for testing the hypotheses. Therefore, these concepts deserve further attention.

Attitude toward the object

In arguing for meaning as a necessary concept in information governance, I followed Lash (2002) for developing the notion that the technical life-world that governing actors face is intrinsically phenomenological. The strong mediation of technologies in the contemporary information society makes them *reflexively* building up knowledge, the process of image building. Lash (ibid.) referred to this as a technical phenomenology that is radically empiricist.

In the contemporary information society, people have an interest in the objects and processes in the world. According to phenomenologists, people have an attitude to the objects they encounter in-the-world (ibid., p. 164). Earlier I visited the paradigm of play and also contrasted one-world with two-world paradigms, in order to emphasize that the relation people have with objects in their life-world is radically empiricist.⁹⁹ It refers to an attitude where people *attend* to objects and processes in a way that they *experience* them and become one with them; incarnating their life-world.

The evaluative case-study setup for testing the hypotheses must provide an organized setting such that people can incarnate a life-world; have a reflexive attitude toward the object. First, radical empiricism rejects the reflective attitude in which one analyses phenomenon from a distance, transcendently. Second, 'it is not consciousness, but organized settings that have an "attitude," an attitude whose operation yields practical knowledge (Lash, 2002, p. 168).'

Phenomenological reduction: bracketing

Phenomenological research aims to identify and elaborate the phenomena that actors perceive in situations. In so doing, it involves studying experiences from the actor's perspective (Lester, 1999). In order to 'unpack' the phenomena properly, the study must be free from common perceptions and self-evident assumptions from the actors. The phenomenological researcher establishes this by systematically removing the clutter of external signals and meanings that can interfere with the actor's perspective and interpretations. This process of phenomenological reduction, called *bracketing*, goes back to Edmund Husserl (1859-1938), who

⁹⁸ See also the discussion on life-world objects starting at page 95.

⁹⁹ See the argumentation on the phenomenological orientation of meaning starting at page 75.

proposed to suspend the existential question of the physical world while concentrating on the subject's experience (Smith, 2008).

The meaning that people assign to the products and artifacts from the contemporary information society – the object – by large depend on their involvement with it. More specifically, what they do with it, how they use it or operate it. Different people, especially those with various jobs, roles, or functions, engage differently, have different involvements and, therefore, assign different meanings to objects. Their operational structure differs, because their operational actions differ. For example, a mobile field worker and a board member can assign different meanings to the same technologies even if those technologies provide similar information.¹⁰⁰

The concept of phenomenological reduction – bracketing – contributes to the notion that, in order to rule-out taken-for-granted assumptions as well as cross-operational interferences, 1) the organized setting must provide an operational structure with activities that align to the actor's job, role, or function and 2) when operational structures involve different roles, job, or function, they cannot mix.

Synthesis

The foregoing on the attitude toward the object and the phenomenological reduction or bracketing, in short attitude and bracketing, sets the context and constraints for the organized settings in the evaluative case studies. To illustrate this, imagine a management team using a mobile business reporting system – a product of the contemporary information society. The management team is an organized setting that has the purpose of managing an enterprise. It can consist of leadership functions such as business managers, sales managers, people managers, technical leaders, and portfolio managers. These leadership functions all do different things in contributing to the purpose of the team, managing the enterprise. As a team member fulfilling the purpose of the team, they have a common attitude toward the mobile business reporting system – the object. However, each member of the management team will use the system in a way that specifically aligns to its leadership function.

The example of the management team illuminates that the organized setting influences the attitude toward the object (cf. Lash 2002, p. 168). Actors with different roles have different operations – operational structures – but can be part of the same organized setting. From the radical empiricist stance, the mobile business system becomes the life-world of the members of the management team. To emphasize the empiricist phenomenological stance, where people incarnate their life-world, Lash (2002) has denoted the latter as *empirical* reduction. Figure 12 illustrates the process of phenomenological reduction and attitude toward the object.

¹⁰⁰ See also the development on the requirement for life-world objects at page 96 specifically.

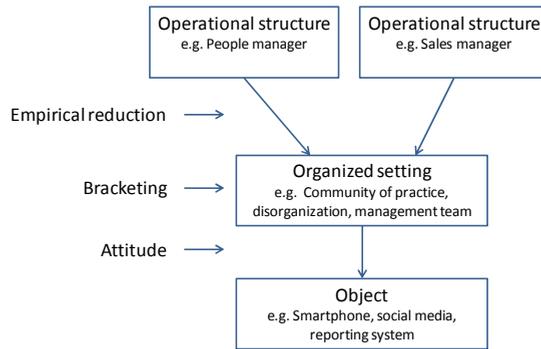


Figure 12: Phenomenological reduction and attitude toward the object

Case–study setup

Testing the hypotheses involved the organization of five evaluative case studies that conducted appropriate organized settings for including integral bracketing and the right attitude toward an object. To arrange an appropriate setting, a number of workshops accommodated the evaluative case studies.

Organized settings

In the workshops, participants use the meaning-making framework to evaluate an idea that involves a product or concept from the contemporary information society on its innovation potential. Depending on the number of workshop participants, the workshops divide into breakout groups that maximize the number of participants to four or five; this allows efficient dialogues and active participation. Bracketing and attitude here unfolds as follows.

First, each workshop focuses on a specific organized setting such as managing an enterprise, medical treatment, insurance selling, and journalistic writing – in fact the overall context. Second, in order to prohibit vastly difference experiences to interfere with one and other, the workshop groups the participants that share similar jobs, functions or roles. Reusing the aforementioned management team as an example, this means that sales managers do not share the same group as people managers.

Workshop setup and execution

Organizing a workshop for each of the evaluative case studies involved careful planning with a sponsor to apply the aforementioned concepts regarding bracketing and attitude. It concerned choosing the right participants and agreeing upon an idea or concept that was actual and worthwhile to evaluate its innovation potential for the organization. Each workshop started with the introduction of one or more ideas

or concepts that needed evaluation, presented by the sponsor or a subject matter expert. Next, I presented the way of working, which contained the introduction of the meaning-making framework. In two of the cases, a small brainstorm and/or discussion preceded the actual use of the meaning-making framework in order to scope the idea or concept to evaluate. Table 28 enumerates the steps involved in the workshop setup, execution and evaluation – the protocol of the evaluative case study.

Table 28: Workshop activities – case study protocol

Phase	Process steps	Output
Preparation	1. Planning	Selected participants, agreed workshop context
Workshop	2. Introduction	Understanding of the concept or product for evaluating its innovation potential Understanding of the meaning-making framework and the way of working
	3. Brainstorm (optional)	Agreed idea, concept or product for evaluating its innovation potential
	4. Execute meaning-making framework	Populated framework
	5. Plenary presentation and discussion	Understanding of innovation potential
	Evaluation	6. Hypothesis testing
	7. Sponsor interview	Interview data

In order to secure the right attitude toward the object, it is necessary to execute the meaning-making framework in a predefined manner. First, the user describes the product or concept – the object – by enumerating all what it makes available to him. Second, the user explicates what the results of the first step mean to him in terms of communicative, inherent, symbolic or contextual meaning. Third, the user assesses the combination of the first two steps – the object-meaning pair – against the three core innovations principles. All three steps require summarizing the results in writing in order to discuss them later. These three steps should give the actors a better understanding of the product or concept evaluated. Table 29 summarizes the steps involved in executing the framework as part of the workshop activities described earlier.

Table 29: Executing the meaning-making framework

Steps	Output
1. Enumerate what the product or concept – the object – makes available to the user	A written description of the user’s explication what the object makes available
2. Explore the orientations of meaning involved	A written description of the user’s explication of the meanings involved
3. Assess the object-meaning pair against the core innovation principles	A written description how the object-meaning pair matches one or more innovation principles

In introducing the meaning-making framework, I elaborated on the various framework perspectives and made the participants acquainted with the terminology. To clarify how it works, I have used two hypothetical examples. The first example illustrates the innovation potential of a tablet device for a hospital doctor (see Table 30). The second example shows how a new insurance concept has a business innovation potential for an insurer (see Table 31).

Table 30: Framework example 1: Tablet device for a hospital doctor

Object	Habits of action	
The tablet device gives me access to patient data everywhere in the hospital as well as outside when I am traveling.	My connection with the hospital information infrastructure [contextual meaning] makes me monitoring the status of my patients more often during the day. I am directly involved with every change [communicative meaning], which makes me react faster and proactive. It feels like I am closer to my patients and have everything under control [symbolic meaning].	
Time-converged activities	Disruptive construction	Radical connections
Direct as well as remote access to patient data without interpretation from nurses etc.	More flexibility in obtaining patient status, and focused attention during patient-visiting rounds with the treatment team. The visiting rounds are more informative toward the patient.	None

Table 31: Framework example 2: Dynamic pricing concept for an insurer

Object		Habits of action
Concept of dynamic pricing gives us more insight in customer driving behavior.		Knowledge of the customer driving context [communicative meaning] makes us develop new business models en enter new markets. We enhance our brand image with just right pricing [symbolic meaning]
Time-converged activities	Disruptive construction	Radical connections
None	Demand-supply models change to include more demand-driven insurance requests. Driving behavior changes – when and how people drive.	Dynamic physical client information (weather data, driving behavior, road usage) combines with static pricing models.

Case–study data

The earlier described setup of the evaluative case study has the objective to put the framework user in a setting that provides legitimate data for testing the hypotheses. Literature on case-study research suggests collecting data from a variety of sources in order to obtain richness and confirmation of the data (Merriam, 1997; Yin, 2003). Several qualitative data-collection techniques, such as observations, interviews, group reflections, and evaluation forms, can enhance the case-study research (e.g. Kabakci Yurdakul, 2011).

Data collection and quality

The primary data-collection technique used for the evaluative case studies is a printed questionnaire that is filled-in by each of the workshop participants, after finishing the workshop. The questionnaire aims at testing the five hypotheses. I have discussed earlier that the evaluative case studies have an interpretive nature, categorizing and conceptualizing with the data from events.¹⁰¹ Social sciences widely criticized relying solely on the testing of hypotheses (Kaplan & Duchon, 1988). Therefore, I complement the testing of the five hypotheses with my own observations and a short interview with the sponsor of the workshop after the completion of the workshop. This provides a form of methodology triangulation and helps to increase the quality of the inquiry (Olsen, 2004; Thurmond, 2001). In pursuing reliability of the research, I have maintained the same structure in describing the evaluative case studies and capturing the resulting data.¹⁰² The case

¹⁰¹ See the discussion on case studies in chapter 2 starting at page 25.

¹⁰² The case descriptions start at page 151.

descriptions structure as 1) introduction that describes the context and sponsor objectives, 2) a capture of the questionnaire forms filled in by the workshop participants, and 3) a description of observations and results from the sponsor interview.

Questionnaire

In developing questionnaires, it is essential to consider what type of data the research requires because it directly affects the structure of the questionnaire and the type of questions required to obtain the necessary data (Frery, 1996; Crawford, 1997). For example, questionnaires can have closed, open-ended, and open response-option type of questions. The structure of a questionnaire can be such that it builds up the appropriate context for the respondent in order to answer the questions accurately and meaningfully.¹⁰³

In this research, the primary objective of the questionnaire is hypotheses testing; therefore, the data required is factual data. The targeted respondents for the questionnaire are the workshop participants, who complete the questionnaire straight after the workshop. Therefore, it is fair to assume that they know the context and no extra measures are necessary for context and structure of the questionnaire in order for the respondents to give accurate answers. The design of the questions is such that they directly reflect the hypotheses. A seemingly redundant question verifies the overall satisfaction of the case-study experience. In order not to burden the respondent with a lot of effort in thinking or articulating answers, I chose to limit the number of open-ended questions to one optional question. This also allows me to classify the responses for the analysis easier. I designed the wording and paper layout for the brief questionnaire following the suggestions and best practices from Frery (1996) and Fanning (2005). Table 32 lists the questionnaire used for the hypotheses testing. Appendix 1 and 2 show the finalized printed form of the questionnaire; the English version and the local language version in Dutch.

Sponsor interview

Earlier I discussed that the testing of the five hypotheses will be complemented with my own observations as well as a short interview with the sponsor of the workshop after the completion of the workshop. The interview with the sponsor follows a semi-structured interview approach in order to collect data without constraining the feedback (Leech, 2002). A semi-structured interview is the middle ground of the two ends of the spectrum of interview techniques, structured and unstructured interviewing. Journalists often use structured interviews with direct questions in order to confront interviewees with facts.

¹⁰³ Questionnaires often have explanatory texts and structured flows to create context and 'guide' the respondent.

The unstructured interview with open questions leans toward a conversation used by ethnographers in order to learn about the subject (ibid.). The questions used for the sponsor interview are of the open type questioning technique. Table 33 lists the questions.

Table 32: Questionnaire for participant experience of the framework

No.	Question
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated. Select one: <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization. Select one: <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization? Select one or more: <input type="checkbox"/> Communicative meaning <input type="checkbox"/> Inherent meaning <input type="checkbox"/> Symbolic meaning <input type="checkbox"/> Contextual meaning <input type="checkbox"/> None of the above
4	How would you characterize the innovation potential of the concept or product – the object – that has been evaluated? Select one or more: <input type="checkbox"/> Time convergence <input type="checkbox"/> Disruptive construction <input type="checkbox"/> Radical connections <input type="checkbox"/> None of the above
5	In discussing and populating the framework, how would you score the language that has been used? Select one: <input type="checkbox"/> Very informal <input type="checkbox"/> Informal <input type="checkbox"/> Neutral <input type="checkbox"/> Formal <input type="checkbox"/> Very formal
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with? Select one: <input type="checkbox"/> Completely <input type="checkbox"/> To some extent <input type="checkbox"/> Not at all
7	Can you remember any or all parts of the framework, and how they connect with each other? Select one: <input type="checkbox"/> Completely <input type="checkbox"/> To some extent <input type="checkbox"/> Not at all
8	Do you have any comments or suggestions regarding the structure, usage or application of the framework?

Table 33: Sponsor interview questions

No.	Question
1	Can you describe how your expectations of the workshop were met?
2	What is your opinion on the way the framework operates?
3	How and to what extent would you use the framework in the future?
4	Can you describe any new insights in the way of looking at innovation?

Evaluative case 1 – Innovation team of a municipality

Introduction

The municipality of Haarlemmermeer has a dedicated team to foster innovation with information technology. Their focus is to support the overall goals and initiatives of the municipality by innovative use of information technology. Initiatives range from increasing the efficiency of internal front and back-office processes to pro-actively increasing the participation of civilians in order to make life easier and increase brand image of the municipality.

Description

The CIO of the municipality sponsored the workshop. After introducing the objectives of the research and the resulting instrument for fostering the governance discourse – the framework, he was motivated to tryout the framework by evaluating two innovative ideas with the innovation team. We agreed to run a two and half hour workshop with the team on an off-site location.

Prior to the workshop, I had a meeting with the manager and a co-worker of the innovation team in order to discuss and select the innovation ideas. In total, we made an inventory of four concepts, which they put in presentation form for presenting them briefly at the start of the workshop.

The ten participants in the workshop consisted of the innovation team, the CIO and three external consultants. We started the workshop with a short welcome and introduction, followed by a presentation of the four concepts by the manager of the innovation team. The next step was presenting the research and the resulting framework. I briefly explained the background and motivation of this inquiry and elaborated on the various parts of the framework; this included the two earlier examples showed in this chapter.¹⁰⁴

After these introductions, a voting took place that selected unanimously two out of four concepts. The first concept concerned the reporting of irregularities with objects in the public space. For example, have civilians upload information from a

¹⁰⁴ Table 30 and Table 31 starting at page 147 list two examples.

broken streetlight with formats such as photographs, QR codes, and location data. The second concept focused on the virtualization of case management with the aid of a digital coach. The need was to decrease the effort for everyone to find case information and customer information; reducing the need for communication such as email traffic and phone calls.

The group divided into two teams, each taking one concept to evaluate using the framework. The steps followed were 1) enumerating what the concept makes available, 2) explore the types of meanings involved, and 3) assess the object-meaning pair against the three core innovation principles.¹⁰⁵ When the population the framework was finished – the assessment of the innovative idea, the two teams presented the results to each other. This whole exercise took a little less than two and a half hours.

When finished, each participant filled in the questionnaire and I interviewed the manager of the team and the CIO.

Results

Table 34 lists the total score of the filled-in questionnaire by the workshop participants. A quick evaluation of the results indicates that they are seemingly positive. The participants were capable of working with the framework and helped them better understanding the evaluated concept as well as assessing its innovation potential. A detailed analysis of the results goes beyond the purpose of this chapter; the next chapter will further analyze the data.

Five out of ten participants responded to the last question of the questionnaire “do you have any comments or suggestions regarding the structure, usage or application of the framework?” The following lists my interpretation from the responses.

- Make the terminology simpler using local language. Increased simplicity makes it stick.
- It is also possible to use the framework to verify and audit project proposals.
- More elaboration of the innovation concept would benefit populating the framework.
- Use less English vocabulary; stick to local language.
- Make it less instrumental by including visuals.

¹⁰⁵ See also Table 29 on page 147.

Table 34: Questionnaire results case 1

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 3 (30.0%)	Agree 7 (70.0%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 1 (10.0%)	Agree 8 (80.0%)	Disagree 1 (10.0%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 7 (30.4%)	Inherent 2 (8.7%)	Symbolic 7 (30.4%)	Contextual 7 (30.4%)	None 0 (0.0%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 8 (33.3%)	Disruptive constructions 9 (37.5%)	Radical connections 7 (29.2%)	None 0 (0.0%)	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 1 (11.1%)	Informal 5 (55.6%)	Neutral 1 (11.1%)	Formal 2 (22.2%)	Very formal 0 (0.0%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 8 (80.0%)	Some 2 (20.0%)	Not at all 0 (0.0%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 3 (30.0%)	Some 7 (70.0%)	Not at all 0 (0.0%)	___	___

In a small interview, the manager of the innovation team noted that in general, the framework would be very helpful in keeping the team focused such that innovative ideas really contribute to the needs of the municipality, all against the background of the political dynamics of the council members. According to the manager, the framework would help to better justify and communicate innovation ideas to these members and all others involved. She also noted that instead of verifying innovation ideas it would help her to create ideas.

The CIO noted the framework would help him to judge project proposals. He also brought up the idea of using the framework for *creating* innovative ideas. Another perspective he introduced was exercising the framework in reverse order: look at the effects of an innovation project and find out whether a simpler or cheaper concept would have been capable of creating the same successes. He wondered what council members would need in order to be politically successful and felt that reversely executing the framework could shine more light in this.

From my own observations of the preparation discussions and the workshop itself, I conclude that it is necessary to have a well 'pre-cooked' idea in order to 'bootstrap' the dialogue in using the framework. An idea, that is just-enough described in order for the participants to imagine what it is, what it comprehends. I noted during the workshop that the majority of the participants had difficulties to separate the object description from the habits of action. They tend to mix them and have problems in describing the object. Even though I prepared the introductory presentation in local language, some of the English words were difficult to comprehend for some of the participants. I had to explain more in-depth the meaning of the words and concepts. Another thing I noted was that the participants quite fast entered into very fundamental discussions; discussions about the very essence of the idea that they evaluated.

Evaluative case 2 – A service delivery team

Introduction

Being a full service provider, Hewlett-Packard (HP) has a dedicated account team to deliver outsourcing services to a large global retailer. The office of the CTO (Chief Technology Officer) of this HP account has the objective to safeguard the quality of services and foster innovation in order to increase the quality of services, as well as introducing new ideas that are beneficial for the client. The latter introduces a proactive attitude for the members of the CTO office to look for opportunities how IT can add value to the service processes as well as to the retail processes.

Description

After a brief introduction of this research and the resulting framework to one of the members of the CTO office, an enterprise architect, he introduced the CTO with the idea of assessing two innovation initiatives they have on their radar by using the

meaning-making framework. The CTO agreed to sponsor a two-hour workshop to assess two ideas. First, the idea of real-time tracking consumer movement and buying information that enables precision in-store consumer interaction in order to influence accurately consumer-buying behavior. For example, depending on the location in the store and buying pattern, the consumer gets product suggestions displayed. Second, the concept of customer-dedicated utility services that exploits a pay-per-usage model for the full stack of information infrastructure components, eventually delivered as cloud-based services. In short, infrastructure-as-a-service specially designed for customer constraints.

The seven participants of the workshop consisted of the CTO, the enterprise architect and five IT strategy consultants and architects working in the information management domain – altogether, a well-balanced team in terms of frames of reference, mode of reasoning. I had a brief meeting with the CTO to align expectations. Because the CTO was already quite determined to assess the two aforementioned ideas, I only had a brief meeting prior to the workshop in order to align expectations. We agreed his team would prepare a short presentation to introduce the two cases to the workshop participants.

We started the workshop with a short introduction, followed by presentations from the CTO and the enterprise architect on the two innovation ideas that needed assessment. They quite elaborated on the innovations, which introduced some discussions without overly going into details. The next step was presenting the research and the resulting framework. I briefly explained the background and motivation of this inquiry and elaborated on the various parts of the framework; this included the two earlier examples showed in this chapter.¹⁰⁶

The group divided into two teams, each taking one concept for evaluation with the framework. The steps followed were 1) enumerating what the concept makes available, 2) explore the types of meanings involved, and 3) assess the object-meaning pair against the three core innovations principles.¹⁰⁷ When the two teams had finished populating of the framework – the assessment of the innovative idea, they presented the results to each other. The workshop took two hours. When finished, each participant filled in the questionnaire and I interviewed the CTO.

Results

Table 35 lists the total score of the filled-in questionnaire by the workshop participants. A quick evaluation of the results indicates that they are positive. The participants were capable of working with the framework and helped them better understanding the evaluated concept as well as assessing its innovation potential. A detailed analysis of the results goes beyond the purpose of this chapter; the next chapter will further analyze the data.

¹⁰⁶ Table 30 and Table 31 starting at page 147 list two examples.

¹⁰⁷ See also Table 29 on page 147.

Table 35: Questionnaire results case 2

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 2 (28.6%)	Agree 5 (71.4%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 1 (14.3%)	Agree 4 (57.1%)	Disagree 2 (28.6%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 6 (46.2%)	Inherent 1 (7.7%)	Symbolic 3 (23.1%)	Contextual 3 (23.1%)	None 0 (0.0%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 5 (33.3%)	Disruptive constructions 6 (40.0%)	Radical connections 4 (26.7%)	None 0 (0.0%)	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 0 (0.0%)	Informal 3 (42.9%)	Neutral 2 (28.6%)	Formal 2 (28.6%)	Very formal 0 (0.0%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 2 (28.6%)	Some 5 (71.4%)	Not at all 0 (0.0%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 6 (85.7%)	Some 1 (14.3%)	Not at all 0 (0.0%)	___	___

Five out of the seven participants responded to the last question of the questionnaire “do you have any comments or suggestions regarding the structure, usage or application of the framework?” The following lists the responses.

- The explanation of the object part of the framework felt short; the image is quite subjective.
- The step toward innovation is too big to have more innovative ideas emerge.
- The habits of action go beyond meanings. It describes behavior, actors and value; a kind of use-case plus business case.
- An interesting concept!
- My organization is HP. I was looking from the client’s perspective.
- Very handy and well structured. A good way to look at innovation.

The post-workshop interview with the CTO revealed that he had no special expectations of the workshop except a better understanding of the two innovation initiatives. In that respect, he emphasized it met his expectations. He found the framework quite manageable and practical in its operation. He noted that the habits-of-action dimension of the framework shed a new light on the customer-dedicated utility services initiative: “a real eye-opener because we never covered the notion how the customer would change their way of working with this proposition.” He found that, with this initiative, several actors are involved. According to him, the habits-of-action dimension of the framework involves aspects of the actor, its behavior, and value.

He mentioned that, in communicating a proposition to his customer, he would not use the framework as such, but use it on a meta-level: analyzing a proposition with the framework and use the results to emphasize the benefit of the innovation proposition. Put differently, it enables him to better argue customer benefits. Another thing he mentioned was that he could use the framework to filter-out the real innovative propositions. He used the term *radical innovation* versus *business-as-usual* efficiency measures.

In observing the workshop, I noticed that a proper presentation of the innovative idea is necessary. During its presentation, the participants asked a lot about reasons and functionality. During the introduction of the framework, the participants tended to go into details by analyzing and reasoning its structures and underlying thoughts. During the population of the framework, I noticed the participants had difficulty in choosing a position: the service provider, the client, or the client’s client. I also noted that a few participants found it difficult to separate the object description from the habits of action.

Evaluative case 3 – Board of directors from a comprehensive school

Introduction

The board of directors from the Bernardinuscollege, a comprehensive school, has the daunting task to secure the quality of learning against the background of new developments from the information society. Being one of the first schools in the Netherlands to introduce the iPad as an interactive learning device demonstrates its innovative culture. In general, learning methods change and increasingly make use of information technology. For example, electronic learning environments lower the burden of school administrative tasks for teachers; schools widely adopt them. With the emergence of social media – a product from the contemporary information society, however, a new trend develops in a sense that these electronic learning environments become more student focused; the administrative domain converges with the social domain.

Description

The advisor to the board of directors sponsored the workshop. After writing him a brief introduction of the research objectives and a possible workshop format that is suitable to verify innovative ideas, he suggested running a two-hour workshop with the board of directors. Prior to the workshop, I met with the advisor to the board of directors in order to introduce the meaning-making framework in more detail and discuss innovation ideas that require verification.

From the four potential innovation ideas, we agreed to verify an idea concerning a new electronic learning environment because it was a dilemma currently discussed in the board of directors. Two students together developed a state-of-the-art electronic learning environment that incorporated social media among the traditional administrative functions. This resulted in an electronic learning environment that is very personalized with increased user-friendliness for a variety of typical users such as teacher, learner, and parents. They made it available as an app to download on mobile devices such as smartphones and tablets. The dilemma for the board of directors was to make a choice between the non-popular but legitimate electronic learning environment and the cheaper popular invention of the two students.

We started the workshop with a short introduction of the electronic learning environment. It did not require any detailed introduction because all board members had intimate knowledge of the innovation idea – the students had held a presentation and demonstration for the board. Next, I presented the research and the resulting framework. I briefly explained the background and motivation of this

inquiry and elaborated on the various parts of the framework; this included the two earlier examples showed in this chapter.¹⁰⁸

Because there were only five participants, the discussion remained plenary with one participant populating the framework. The steps followed were 1) enumerating what the new learning environment makes available to the school, 2) explore the types of meanings involved, and 3) assess the object-meaning pair against the innovation dimension.¹⁰⁹ After the population of the framework, we could quickly wrap-up the workshop because no other team was involved. When finished, each participant filled in the questionnaire and I interviewed the advisor of the board.

Results

Table 36 lists the total score of the filled-in questionnaire by the workshop participants. A quick evaluation of the results indicates that they are positive. The participants were capable of working with the framework and helped them better understanding the implications of introducing a student-made electronic learning environment. A detailed analysis of the results goes beyond the purpose of this chapter; the next chapter will further analyze the data.

Three out of five participants responded to the last question of the questionnaire “do you have any comments or suggestions regarding the structure, usage or application of the framework?” The following lists the responses.

- No suggestions, but the workshop was illuminating. I have my doubts if this new electronic learning environment will be the innovation for us.
- It contributes to making the rights choices.
- It makes a good discussion possible such that meanings diverge.

The post-workshop interview with the sponsor – the advisor to the board of directors – revealed that the workshop met his expectations because it enabled a good discussion on the subject: “The workshop provided a good discussion in a very pleasant way with many new viewpoints on a different level of abstraction than usual.” Overall, he found the framework illuminating and emphasized that it provided him latitude to discuss culture and meaning in various perspectives. He also revealed that, by discussing issues on an appropriate level of abstraction, he realized that, as an organization, they already had done many innovative things to increase the learning experience of students. The framework provided him more insight in the pros and cons of the proposed electronic learning environment. He would use the framework for himself to assess new situations and propositions.

¹⁰⁸ Table 30 and Table 31 starting at page 147 list two examples.

¹⁰⁹ See also Table 29 on page 147.

Table 36: Questionnaire results case 3

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 1 (20.0%)	Agree 4 (80.0%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 0 (0.0%)	Agree 5 (100.0%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 5 (71.4%)	Inherent 0 (0.0%)	Symbolic 1 (14.3%)	Contextual 1 (14.3%)	None 0 (0.0%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 4 (44.4%)	Disruptive constructions 2 (22.2%)	Radical connections 3 (33.3%)	None 0 (0.0%)	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 0 (0.0%)	Informal 3 (60.0%)	Neutral 1 (20.0%)	Formal 1 (20.0%)	Very formal 0 (0.0%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 2 (40.0%)	Some 3 (60.0%)	Not at all 0 (0.0%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 2 (40.0%)	Some 3 (60.0%)	Not at all 0 (0.0%)	___	___

In observing the discussion during the workshop, I noticed that in discussing the first part of the framework – the object – the participants focused mainly on obstacles such as the risks in system continuity of a student-built system versus a commercial-built system. They tended to go into formal innovation discussions.¹¹⁰ The habits-of-actions discussion revealed a number of implementation constraints that resulted from various orientations of meaning. The participants also discussed fundamental issues that directly related to learning science and cultural habits of teachers. In assessing the object-habits pair against the key innovation principles, the participants recognized previous innovation activities and got the insight that they already had done quite innovative things. Considering the electronic learning environment, they gained insight on implementation effects. One of the participants said: “this [the way we look at the problem] transcends the level of instrument-thinking.”¹¹¹ In the discussions, the participants differentiated in looking at the system from an overarching perspective and to the user individually. I also noticed that even though this was a group of people with the same role, except or the sponsor, they all had a different image of the object. Although all participants knew the innovation idea, a re-introduction of it probably would have benefited the discussion.

Evaluative case 4 – Commercial team of an IT solutions vendor

Introduction

The key activity of I³ groep is integrating information infrastructures driven by the information explosion in the contemporary information society. Their ambition is to help organizations to manage the continuity and resilience with regard to the explosion of data by providing solutions such as archiving and backups. Their mission is to help organizations to focus on their key activities by taking away the burden of making information available, manageable and secure.

The commercial team has the task to define and maintain appropriate business models and go to market models, as well as defining capability requirements for the project delivery organization.

Description

The business manager for the healthcare and education sector sponsored the workshop. He was interested whether this approach could help him better

¹¹⁰ See also the discussion on the distinctly different creative phase and formal phase in innovation in designing the framework starting on page 111.

¹¹¹ This is conforms the device paradigm, the essence of the object dimension of the framework (c.f. Verbeek, 2005).

communicating a solution to the healthcare market, which is a complex market because it involves specialized IT domains with a large variety of standards. After introducing the meaning-making framework, he suggested assessing the concept of vendor neutral archiving, a rather new concept, within his own organization. Vendor neutral archiving is gaining ground in the healthcare market because it provides a solution for the many data formats involved, in terms of business continuity as well as uniform access to information. For example, in a hospital there is a large variety of images, documents, and any other data format with clinical relevance, that needs to be stored in such a manner that other systems can retrieve it.

During the pre-meeting with the sponsor and a business developer, the notion developed that introducing vendor neutral archiving requires two perspectives. First, there is the communication toward clients to create awareness on the benefits of the concept. Second, there are the organizational aspects on how to engage and deliver projects deploying vendor neutral archiving. We agreed to run the workshop in that manner, by differentiating in an internal and external perspective.

The business developer started the workshop with a presentation of the vendor neutral archiving concept. I followed this with a brief introduction of the research, after which I introduced the resulting meaning-making framework by elaborating on each of the domains of the framework. I used the two examples showed earlier to illustrate the working of the framework.¹¹²

The seven participants attending the workshop divided into two teams. The first team of four participants focused on the overarching question on how vendor neutral archiving reflects on the organization, the internal perspective. The steps this team followed where 1) enumerating what vendor neutral archiving gives the organization in terms of business aspects, 2) exploring what organizational habits they would encounter, and 3) assess the object-habits pair against the three core innovation principles.¹¹³ During the discussion, a fifth participant joined this team.¹¹⁴

The second team of three participants looked at the innovation potential for healthcare clients such as a hospital, the external perspective. The steps this team followed where 1) enumerating what vendor neutral archiving brings to a healthcare organization, 2) exploring what meanings can develop in healthcare organizations, and 3) assess the object-habits pair against the three core innovation principles.¹¹⁵

After both teams had populated the framework, they presented the results to each other in a plenary session. When finished, each participant filled in the questionnaire and I interviewed the sponsor and the business developer. In total, the workshop took two and a half hours.

¹¹² Table 30 and Table 31 starting at page 147 list two examples.

¹¹³ See also Table 29 on page 147.

¹¹⁴ I will come back to this event later, because it reveals a noteworthy effect.

¹¹⁵ See also Table 29 on page 147.

Results

Table 37 lists the total score of the filled-in questionnaire by the workshop participants. A quick evaluation of the results indicates that they are positive. The participants were capable of working with the framework and helped them better understanding the organizational implications of introducing vendor neutral archiving, as well as articulating the benefits for healthcare organizations. A detailed analysis of the results goes beyond the purpose of this chapter; the next chapter will further analyze the data.

Six out of the seven participants responded to the last question of the questionnaire “do you have any comments or suggestions regarding the structure, usage or application of the framework?” The following lists the responses.

- A good session. I would like to use this with big projects. Objectives for me personally met: how to create awareness on innovative projects with persons in the organization.
- The abstractive approach provides a new and meaningful perspective on the case.
- Adjust the examples to the targeted group. Assess whether people have understood the approach.
- Applying this without guidance seems difficult to me.
- Good agreements regarding view and context lead, must lead, to clarity; leadership and guidance are important.
- It takes a while to connect to an abstract model.

The post-workshop interview was with the sponsor and the business developer – I met them both in the pre-meeting of the workshop. The workshop met the expectations of the sponsor in a sense that it had forced the participants thinking through what is at stake with the new concept of vendor neutral archiving. To operate the framework better, he would like to have questions that are more direct regarding the characteristics of the concept under evaluation. He would use the framework particularly with the bigger innovative projects in order to convince customers in his communication. Working with the framework gave him the notion that it puts you closer to the product – concept – and better in the mindset of his clients.

The business developer did not have any expectations, but noticed that a guiding framework avoids conflicts in the discussions because it made participants respect the variety of interests. He liked the operation of the framework because it made things simple and practical, resulting in a better understanding of what a concept can do for a customer situation. He would use the framework typically with customers to enable communication, talk about concepts, create understanding; gaining trusted advisor status as he called it.

Table 37: Questionnaire results case 4

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 5 (71.4%)	Agree 2 (28.6%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 4 (57.1%)	Agree 3 (42.9%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 5 (41.7%)	Inherent 2 (16.7%)	Symbolic 1 (8.3%)	Contextual 4 (33.3%)	None 0 (0.0%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 2 (16.7%)	Disruptive constructions 5 (41.7%)	Radical connections 5 (41.7%)	None 0 (0.0%)	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 0 (0.0%)	Informal 6 (85.7%)	Neutral 0 (0.0%)	Formal 1 (14.3%)	Very formal 0 (0.0%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 3 (42.9%)	Some 4 (57.1%)	Not at all 0 (0.0%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 3 (42.9%)	Some 4 (57.1%)	Not at all 0 (0.0%)	___	___

In observing the discussions in the breakout-groups of the workshop, the first thing noticed was that an additional participant joined one of the groups. The consequence was that this participant did not have the introduction of the meaning-making framework and the vendor neutral archiving concept. Although his colleagues had quickly introduced him briefly the context, which made him actively participating in the discussions, I had to exclude his post-workshop questionnaire results in order to maintain the integrity of the case study. Later I noticed a lack of understanding of the concepts used in the meaning-making framework such as the different orientations of meanings involved. This event demonstrated though that the framework needs a proper introduction before one can work with it. In general, the participants needed some time to get familiar with the framework. It was noticeable that some participants had difficulties to separate the object from the habits-of-action domain.

The team involved in the external perspective noted that insight in the way the framework works depends on the level in the organization one addresses – the level of abstraction. The discussion in this team led to new interpretations of the concept and the way they can communicate this to their customer.

The team involved in the internal perspective of the vendor neutral archiving concept was predominantly looking at how an introduction of the concept would affect the way they organize – requirements thinking. The discussions touched upon fundamental issues such as new roles and management of change. This team developed the notion that one of the key innovation principles would have a large effect on their organization; it would require special attention in a management-of-change program or project.

Evaluative case 5 – Collaboration for a healthcare innovation

Introduction

The municipality of Almere launched the Almere DataCapital program in order to attract economic activities that leverage on the emerging theme of big data.¹¹⁶ It aims to concentrate firms, services, knowledge and facilities involved in collecting, storing, analyzing, sharing and visualizing big data. The program envisions that big data introduces new disciplines because of the new skills and tools required. The program created the Big Data Value Center in order to foster cross-sector and

¹¹⁶ Big data has become a container term that encompasses many technologies. Its premise is that enhanced analytics of an overabundance of data can create new values for enterprises. The United States Government announced in 2012 a 'Big Data Research and Development' initiative (<http://www.whitehouse.gov/blog/2012/03/29/big-data-big-deal>) and Gartner estimated in 2012 that there will be \$34 billion of IT spending on big data in 2013 (<http://www.gartner.com/newsroom/id/2200815>).

interdisciplinary big data related developments. One of these developments fostered by the Big Data Value Center is the start of a joint venture that aims to explore the value of big data in the healthcare sector.

Description

The program manager for the Big Data Value Center sponsored the workshop. The objective of the workshop was to explore the innovation deliverables for an e-Health solution and identify possible gaps that would require recruiting additional parties to this venture.

At the pre-meeting with the sponsor, I introduced the meaning-making framework and one of the members, the secretary of the Dutch Health Hub, briefly introduced the e-Health idea. The Dutch Health Hub is an association of big data service vendors, targeted to life sciences and health. It is the first spin-off from Almere DataCapital. The idea concerned the technologies required to explore the possibilities of centralized healthcare data in a safe and sustainable manner. The idea of centralizing healthcare data draws a lot of political attention in the Netherlands because of privacy laws and regulatory constraints. The idea was to introduce a concept that demonstrates that today's technology is capable of dealing with these issues and constraints.

The concept involved aspects of the Quantified Self,¹¹⁷ which let humans collect data from several bodily functions measured by a device attached to the body. The intention was that a community forms for people freely uploading and selectively sharing their data, for general or a particular interest. A proof of concept could, 1) demonstrate all the technical challenges involved such as identity, privacy, connectivity, interfaces, security and auditing-reporting, and 2) avoid the regulatory constraints and privacy laws because it is a community-driven initiative where people *freely* participate.

Six people participated in the workshop, representing the device manufacturer, a technology vendor for security, a research institute, a big data computing platform provider, a consulting firm on healthcare and the Dutch Health Hub. The workshop started with the secretary of the Dutch Health Hub who did a twenty-minute presentation on the innovation idea on the concept of quantified self. Next, I briefly introduced the research and made the participants familiar with the meaning-making framework. I elaborated on each of the domains of the framework and used the two examples showed earlier to illustrate the working of the framework.¹¹⁸ The introduction of the framework also took about twenty minutes.

We decided to do a plenary discussion because all participants were stakeholders in the initiation of a joint venture with a clear defined and delineated

¹¹⁷ 'The Quantified Self is a movement to incorporate technology into data acquisition on aspects of a person's daily life in terms of inputs (e.g. food consumed, quality of surrounding air), states (e.g. mood, arousal, blood oxygen levels), and performance (mental and physical) (Quantified-Self, 2013).'

¹¹⁸ Table 30 and Table 31 starting at page 147 list two examples.

innovation objective, and, therefore, eager to hear and discuss the complete perspective. The steps followed were 1) enumerating what the concept of quantified self would make available to an individual as well as to a health provider, 2) exploring what new habits would emerge from the orientation of the individual, and 3) assess the object-habits pair against the innovation dimension.¹¹⁹

After the population of the framework, there was a quick wrap-up, where the secretary of the Dutch Health Hub committed developing a flyer by using the results of the workshop. When finished, each participant filled in the questionnaire and I interviewed the sponsor. In total, the workshop took two hours.

Results

Table 37 lists the total score of the filled-in questionnaire by the workshop participants. A quick evaluation of the results indicates that they are positive. The participants were capable of working with the framework and helped them better understanding the potential of the concept and the feasibility of becoming a member of the joint venture. In more detail, how the idea of the Quantified Self could demonstrate the technological capabilities of centralizing healthcare data for the benefit of several parties. A detailed analysis of the results goes beyond the purpose of this chapter; the next chapter will further analyze the data.

All of the six participants responded to the last question of the questionnaire “do you have any comments or suggestions regarding the structure, usage or application of the framework?” The following lists the responses.

- The power is found in its simplicity.
- A lot of overlap with known concepts such as a paradigm shift and Schopenhauer’s creative destruction. I found the aspect time convergence too limited. I would use Porter as a basis for assessing a successful product.
- Good that the framework allows flexibility; it must serve to think through an innovative concept. Therefore, its usage justifies a somewhat loose interpretation of the questions and definitions.
- Excellent as is.
- I would also rate the three individual innovation aspects in order to better qualify an idea as being innovative.
- It occurred to me that, during the workshop, we were assessing as well adjusting the innovative concept. This creates an interaction between brainstorming and diagnosing the concept.

¹¹⁹ See also Table 29 on page 147.

Table 38: Questionnaire results case 5

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 1 (16.7%)	Agree 5 (83.3%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 1 (16.7%)	Agree 5 (83.3%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 5 (35.7%)	Inherent 3 (21.4%)	Symbolic 1 (7.1%)	Contextual 5 (35.7%)	None 1 (6.7%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 4 (28.6%)	Disruptive constructions 5 (35.7%)	Radical connections 5 (35.7%)	None 0%	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 0 (0.0%)	Informal 3 (50.0%)	Neutral 3 (50.0%)	Formal 0 (0.0%)	Very formal 0 (0.0%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 1 (16.7%)	Some 4 (66.7%)	Not at all 1 (16.7%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 4 (66.7%)	Some 2 (33.3%)	Not at all 0 (0.0%)	___	___

The interview after the workshop with the sponsor revealed that he expected the workshop would help to identify aspects of the innovative concept on how to make a plan for pursuing this further. He was curious to experience how the framework could help in capturing valuable notions concerning the innovative concept. He commented that he found the approach interesting, but would not mind to explore the three core innovation principles further by ranking them. According to him, it would substantiate even better why a concept is innovative and worth pursuing. Regarding the operation of the framework, he felt that the object was still fluid after enumerating what it gives to the user; he questioned whether all participants had the same image of the concept. He would use the framework in the future in some sense, but he would really fix the object and examine its consequences, followed by some iterations in order to delineate the innovation. He then would use it to evaluate the project and intervene when necessary. He clearly saw the use of the framework in the creative part of the innovation life cycle but also limited to that; innovation requires formal processes, in order to instantiate the idea, make it tangible. “We now have qualified an idea, but how can we bring it alive, make a formal plan?” The sponsor gained the insight that governing with meaning is indeed possible – how one can apply complex theories in an elegant manner in order to see how users adapt their behavior.

My overall impression of the discussion was that this group wanted to ‘sell’ the idea because they refrained from using constraints and obstacles in populating the framework. They had fundamental discussions on object properties and how they would affect the habits of its user, as well as other stakeholders such as insurers and medical professionals. The consideration of different stakeholders appeared not to be a problem for the group because they enumerated without hesitation aspects in the various dimensions of the framework that concerned a variety of stakeholders. It was remarkable that some users revisited some parts of the framework during the discussion; they seemingly had a holistic view on the framework. The secretary of the Dutch Health Hub used the populated framework to write a flyer for approaching other parties such as other technology vendors, insurers, and health organizations. My interpretation from the flyer was that it was compelling – meaningful – and very to the point, while I recognized all the content from the framework. He commented that having the populated framework at hand made it very easy for him to write-up such a flyer.

Summary and conclusions

In designing the framework, in chapter 5, it became already clear that the empiricist phenomenological stance would constrain the evaluation of the framework because it dictates the inseparability of content and method. Therefore, this chapter started with developing requirements for the evaluative case studies. It was necessary to elaborate on the empiricist phenomenological stance in order to create an appropriate setup for testing the hypotheses developed in the previous

chapter. This setup involves the application of bracketing and reduction as well as an appropriate attitude toward the object that the framework evaluates. They are concepts from phenomenological research in general and appeared to be pivotal in testing the hypotheses because governing actors experience objects, events, and processes from the contemporary information society in-the-world.

Attitude concerns how people attend to objects and processes in a way that they experience them. It assumes the phenomenological stance, to which I referred to earlier as incarnating a life-world along with the example of the paradigm of play in order to emphasize that the relation people have with objects in their life-world is radically empiricist.

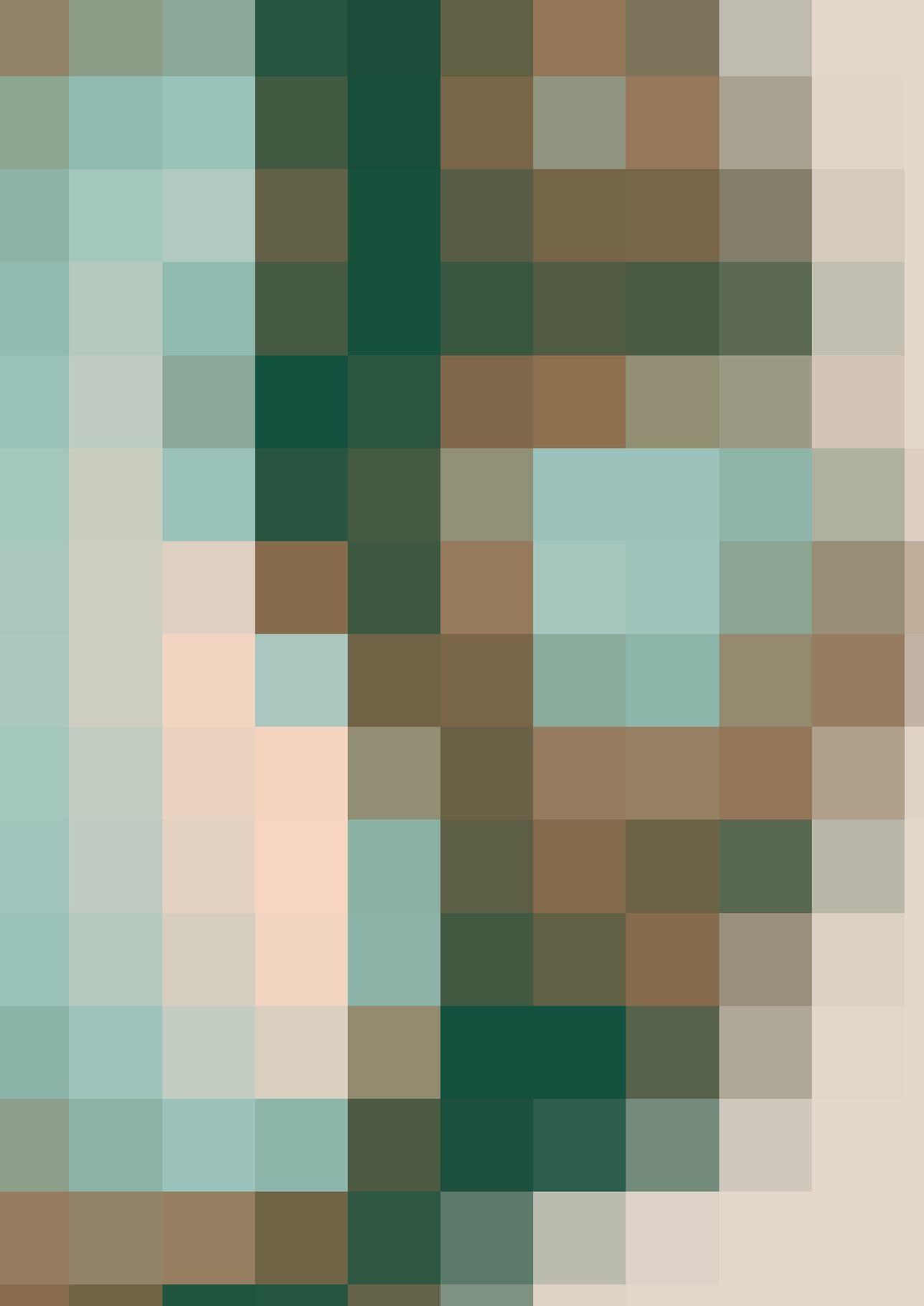
Phenomenological reduction – bracketing – concerns the way researchers want to rule-out taken-for-granted assumptions as well as cross-operational interferences. In the case-study setup, this refers to creating a setting that provides an operational structure with activities that align to the actor's job, role, or function.

In synthesizing these concepts, it became clear that the organized setting influences the attitude toward the object. In order to get legitimate results from the evaluative case studies, it was necessary to create an appropriate organized setting that included integral bracketing and the right attitude toward the object; a key requirement for executing the evaluative case studies.

In describing the case-study setup, the chapter focused on creating the appropriate organized setting for the case studies. The evaluative case studies organized as a number of workshops that secured the relevant operational structure(s) and an attitude toward the object that allowed it to experience it. It involved selecting similar jobs, functions or roles as workshop participants in order to create the right structure. This appeared to be a key notion developed in this chapter: one cannot mix different roles, jobs, or functions in such a setting. In order to experience the object using the meaning-making framework, the workshops followed a protocol that started with describing the object using the device paradigm – what does the object make available to the user, followed by assigning meaning to this and complete it by assessing the object-meaning pair against the innovation dimension.

Next, the chapter elaborated on the approach for collecting legitimate data for testing the hypotheses. It produced a questionnaire that directly relates to the hypotheses to be tested. Workshop participants should complete the questionnaire straight after the workshop. The notion developed that the questionnaire must be easy to understand and not burden the participant with difficult questions.

The remainder of the chapter described the evaluative case studies along with the results of the questionnaires.



7

ANALYSIS AND RESULTS

Introduction

The purpose of this chapter is to analyze the data that originates from the evaluative case studies and to conclude the analysis. To do this, I will start by introducing the various data types used and how they require different modes of analysis. I then continue by sequentially visiting the results from the questionnaires, the interviews, and the workshop observations for analysis. Next, I will synthesize the individual analyses into a single overarching conclusion of the data analysis.

Where the previous chapter focused on capturing the data individually from the evaluative case studies, this chapter integrates all the data while maintaining the separation of data source types: questionnaires, interviews, and observations.

Data analysis

The participant score data from the filled-in questionnaires served as the primary source of data from the evaluative case studies in order to test the hypothesis as defined in chapter 5.¹²⁰ My own observations and short semi-structured interviews with the sponsors of the workshops served as additional sources of data. These two sources of data differ in type and require a different approach for analyzing its data. First, the score data from the questionnaires requires a statistical mode of analysis, ranking the scores given by the workshop participants. Second, my own observations and semi-structured interviews require a hermeneutic mode of analysis (Klein & Myers, 1999), interpreting the meaning of the observations and the responses of the sponsors. The latter also applies to the last question of the questionnaire – question number eight, which is an open question asking for comments or suggestions from the workshop participants regarding the structure, usage and application of the framework.¹²¹

I will now sequentially visit the results from the participant score data, the suggestions of the workshop participants, the sponsor interviews and my own observations.

Participant score data

Table 39 lists the totals of the score data from the workshop participants in the five evaluative case studies. Except for the first question, the score data relates to the hypotheses that I have defined in chapter 5. Table 40 lists the mapping between hypothesis-indicator pairs and the questions. In what follows, I will discuss the results of the first question, after which I will discuss the questionnaire results that particularly relate to the hypotheses. For the latter, each sub section starts by listing the questionnaire results for each hypothesis individually.

¹²⁰ See for the list of hypotheses Table 27 on page 133.

¹²¹ See also Table 32 on page 150, which lists the survey questionnaire for capturing participant experience of the framework.

Table 39: Total score of questionnaire results

No.	Question	Answers				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 12 (34.3%)	Agree 23 (65.7%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 7 (20.0%)	Agree 25 (71.4%)	Disagree 3 (8.6%)	Strongly Disagree 0 (0.0%)	___
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 28 (40.6%)	Inherent 8 (11.6%)	Symbolic 13 (18.8%)	Contextual 20 (29.0%)	None 1 (1.4%)
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 23 (31.1%)	Disruptive constructions 27 (36.5%)	Radical connections 24 (32.4%)	None 0 (0.0%)	___
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 1 (2.9%)	Informal 20 (58.8%)	Neutral 7 (20.6%)	Formal 6 (17.6%)	Very formal 1 (2.9%)
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 17 (48.6%)	Some 18 (51.4%)	Not at all 0 (0.0%)	___	___
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 18 (51.4%)	Some 17 (48.6%)	Not at all 0 (0.0%)	___	___

Table 40: Requirement and hypothesis to questionnaire mapping

No.	Hypothesis	Indicator	Question [n]
1	Comprehensive meaning manifests as habits of action.	Users explicate any of the four orientations of meaning (communicative, symbolic, inherent, contextual), or any combination thereof, as habits of action.	[3] Which of the orientations of meaning create potential new habits for you or your organization?
2	Time convergence, disruptive construction, or radical connections are meaning-making perspectives to consider innovation potential.	Users explicate innovation potential of product or service, production process, organizational or market structure as time convergence, disruptive construction, or radical connections.	[4] How would you characterize the innovation potential of the concept or product that has been evaluated?
3	The device paradigm allows for a phenomenological explication of objects.	Users explicate what an object makes available to them such as, for example, information, insights, and knowledge	[2] In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.
4	The framework provides opportunity for expressing the functionality and/or outcome of other models or notions during image formation activities.	Users retain framework elements and their interrelations in expressing issues in image formation.	[6] Do you think it is possible to use (parts of) the framework to interpret or express the outcome of any other models, approaches, methodologies, etc. that you are familiar with?
5	The framework structure has an orderly, logical, and aesthetically consistent relation of elements, which can contain informal language.	Users can reproduce the framework and populate it using informal language.	[5] In discussing and populating the framework, how would you score the language that has been used? [7] Can you remember any or all parts of the framework, and how they connect with each other?

Object understanding

No.	Question	Total scores				
		Score	Score	Score	Score	Score
1	Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.	Strongly Agree 12 (34.3%)	Agree 23 (65.7%)	Disagree 0 (0.0%)	Strongly Disagree 0 (0.0%)	___

The first question of the questionnaire does not align to any of the hypotheses, but gives an indication whether the framework contributed in answering the third research question, the possibility of developing an instrument to enhance image building. Allegedly, all the participants experienced that the framework contributed to a better understanding of the object under evaluation. Twelve of the thirty-five participants even rated that they strongly agreed to this statement. None of the participants rated this question negatively. We can safely conclude that there is a positive rating to this question.

Hypothesis 1 – meaning as habits of action

No.	Hypothesis	Indicator
1	Comprehensive meaning manifests as habits of action.	Users explicate any of the four orientations of meaning (communicative, symbolic, inherent, contextual), or any combination thereof, as habits of action.

No.	Question	Total scores				
		Score	Score	Score	Score	Score
3	Which of the orientations of meaning from the product or concept create potential new habits for you or your organization?	Comm. 28 (40.6%)	Inherent 8 (11.6%)	Symbolic 13 (18.8%)	Contextual 20 (29.0%)	None 1 (1.4%)

The first hypothesis concerns whether any of the four orientations of meaning – comprehensive meaning – manifest as habits of actions. Put differently, whether meaningful objects introduce a change in behavior, way of working, for individual or organization. The indicator of the hypothesis led to question number three, where users could mark one or more of the four orientations of meaning – which of the four orientations of meaning will introduce change. Two things are noteworthy from these results. First, there seems to be a bias toward communicative meaning. Looking back to the individual cases, the results from the first case diverts from this. The participants from the first case recognized communicative meaning equally among the symbolic and contextual meaning. Of course, the result from this question highly depends on the object under evaluation. Second, the score on

inherent meaning is remarkably low. Considering the concept of inherent meaning in hindsight, I question whether inherent meaning can introduce change because it is present already in the way people think and act; it is a bias. In that respect, the question does not completely reflect the testing of the hypothesis. However, some cases also discussed obstacles and negative effects of the innovation; this was overly present in the second case and partially in the fourth case. I conclude that a broader interpretation of the habits-of-action dimension of the framework could also direct to the notion of what *inhibits* change.

Overall, the results of this hypothesis are positive, with the remark that inherent meaning cannot introduce change because it is already present. According to the requirement that initiated the first hypothesis,¹²² it is fair to conclude that users indeed address objective meaning as well as connective meaning in using the framework.

Hypothesis 2 – innovation potential

No.	Hypothesis	Indicator
2	Time convergence, disruptive construction, or radical connections are meaning-making perspectives to consider innovation potential.	Users explicate innovation potential of product or service, production process, organizational or market structure as time convergence, disruptive construction, or radical connections.

No.	Question	Total scores				
		Score	Score	Score	Score	Score
4	How would you characterize the innovation potential of the concept or product that has been evaluated?	Time convergence 23 (31.1%)	Disruptive constructions 27 (36.5%)	Radical connections 24 (32.4%)	None 0 (0.0%)	___

The second hypothesis-indicator pair verifies whether participants use the framework to assess innovation potential of the object under evaluation. The indicator of the hypothesis led to the fourth question, where the participants could mark anyone of the core innovation principles they recognized. The results from the case studies do not show any anomalies. Allegedly, the core innovation principles enabled the participants to recognize innovation potential of the object under evaluation. We can safely conclude that this hypothesis tests positively. Referring to the second requirement of the framework,¹²³ we can conclude that the innovation dimension of the framework indeed helps users to assess innovation potentials.

¹²² See Table 27 on page 133.

¹²³ See Table 27 on page 133.

Hypothesis 3 – object explication

No.	Hypothesis	Indicator				
3	The device paradigm allows for a phenomenological explication of objects.	Users explicate what an object makes available to them such as, for example, information, insights, and knowledge				
No.	Question	Total scores				
		Score	Score	Score	Score	Score
2	In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.	Strongly Agree 7 (20.0%)	Agree 25 (71.4%)	Disagree 3 (8.6%)	Strongly Disagree 0 (0.0%)	___

The third hypothesis proposes the device paradigm for characterizing an object. It concerned the notion whether users of the framework can explicate objects without going into formal description languages or methods. The indicator led to question number two, which asked the participants to rate to what extent it was possible to indicate what the object made available to them. A vast majority of the participants rate this as possible. Put differently, they were able to explicate what the object made available to them. We can safely conclude that this hypothesis tests positively, which means that it is indeed possible to use the device paradigm in order to avoid formal description languages. This satisfies the third requirement: the framework supports objects.¹²⁴

Hypothesis 4 – mental model

No.	Hypothesis	Indicator				
4	The framework provides opportunity for expressing the functionality and/or outcome of other models or notions during image formation activities.	Users retain framework elements and their interrelations in expressing issues in image formation.				
No.	Question	Total scores				
		Score	Score	Score	Score	Score
6	Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?	Completely 17 (48.6%)	Some 18 (51.4%)	Not at all 0 (0.0%)	___	___

¹²⁴ See Table 27 on page 133.

The fourth hypothesis concerns whether users adopt the framework as a mental model. The indicator setup is to test whether users remember the framework and potentially use it in situations where other models, approaches, or methodologies usually apply. Put differently, are they adopting (parts of) the framework in reasoning and expressing their thoughts. From the questionnaire, we can see that participants reacted positively with a slight trend toward partial adoption. It is safe to conclude that this hypothesis tests positively and that users of the framework adopt some or all of the insights in their thinking; adopt it as a mental model. This satisfies the requirement for the framework to serve as a mental model.¹²⁵

Hypothesis 5 – comprehension

No.	Hypothesis	Indicator				
5	The framework structure has an orderly, logical, and aesthetically consistent relation of elements, which can contain informal language.	Users can reproduce the framework and populate it using informal language.				

No.	Question	Total scores				
		Score	Score	Score	Score	Score
5	In discussing and populating the framework, how would you score the language that has been used?	Very informal 1 (2.9%)	Informal 20 (58.8%)	Neutral 7 (20.6%)	Formal 6 (17.6%)	Very formal 1 (2.9%)
7	Can you remember any or all parts of the framework, and how they connect with each other?	Completely 18 (51.4%)	Some 17 (48.6%)	Not at all 0 (0.0%)	___	___

The purpose of the fifth hypothesis is to indicate whether the framework is easy to remember and easy to use, in short, its comprehension. The indicator led to two questions. The first question concerns the language usage and shows that the majority of the participants found the language during the workshop informal. It is remarkable to see some of participants leaning toward the formal part of the spectrum because the language in the workshops was their own language. This could indicate the question misguided those participants. The second question on the remembrance of the framework parts shows that participants partially or completely remember the structure of the framework. The responses to these two questions indicate a positive test of the hypothesis. Referring to the requirement on comprehension, there is good reason to assume the framework is easy to use.¹²⁶

¹²⁵ See Table 27 on page 133.

¹²⁶ See Table 27 on page 133.

Hypotheses testing results

Although there are some noteworthy effects in the testing of the hypotheses, such as the contribution of inherent meaning and the diverted score on formalism of language used, the overall testing of the hypotheses revealed positive results. Table 41 lists the hypothesis-indicator pairs and the test results. Later I will come back on some of the anomalies detected in the testing.

Table 41: Summary of hypotheses testing results

No.	Hypothesis	Indicator	Test
1	Comprehensive meaning manifests as habits of action.	Users explicate any of the four orientations of meaning (communicative, symbolic, inherent, contextual), or any combination thereof, as habits of action.	Positive
2	Time convergence, disruptive construction, or radical connections are meaning-making perspectives to consider innovation potential.	Users explicate innovation potential of product or service, production process, organizational or market structure as time convergence, disruptive construction, or radical connections.	Positive
3	The device paradigm allows for a phenomenological explication of objects.	Users explicate what an object makes available to them such as, for example, information, insights, and knowledge.	Positive
4	The framework provides opportunity for expressing the functionality and/or outcome of other models or notions during image formation activities.	Users retain framework elements and their interrelations in expressing issues in image formation.	Positive
5	The framework structure has an orderly, logical, and aesthetically consistent relation of elements, which can contain informal language.	Users can reproduce the framework and populate it using informal language.	Positive

Participant suggestions

Table 42 consolidates all comments and suggestions given by the participants after the workshops. There are four significant conclusions we can make here. First, usage of terms in local language is necessary in explaining the framework [1, 4].¹²⁷

¹²⁷ The numbers [n] here refer to the comment-suggestion number in Table 42.

This might not be relevant for every participant. For example, the service team in the second evaluative case study has an international orientation and does not mind to use English terms, while the participants from the municipality prefer local language. I see it as essential because it takes away the possibility of misunderstanding the way the framework operates. Second, the framework seems not self-explanatory [3, 5, 6, 17, 18, 19, 20]. Some participants had trouble following the concepts, even though the introduction of the framework used two examples in order to illustrate its operation;¹²⁸ someone even suggested making the examples relevant to the context of the object under evaluation.

Third, the framework seems adequate in helping to better understanding objects in the image-building processes [2, 11, 12, 13, 14, 15, 16, 26]. Some participants pointed toward the understanding of the concept under evaluation. Some pointed toward the necessary understanding in their decision-making processes. Fourth, the framework shows the potential of being instrumental in innovation processes [11, 12, 15, 23, 25, 26]. Some participants referred to how the innovation perspective affects their decision-making process. Some referred to the framework as a whole in being helpful in thinking-through an innovation.

Sponsor interviews

The sponsors from the evaluative case studies unanimously responded that the framework would contribute in discussions of forming an image of objects in relation to innovations. Looking more detailed to the sponsor interviews, they revealed four major conclusions. First, the framework seems to be of value in decision-making processes because all of the interviewees stated better judgment of innovative ideas. Second, two of the interviewees stated that, aside from assessing innovative ideas, the framework also helps in *creating* innovative ideas. Allegedly, using the framework in a setup such as the workshop stimulates the creation of innovative ideas. Third, four of the interviewees stated that the framework helps in communicating innovative ideas to stakeholders. One sponsor stated that he would not use the framework as such to communicate an idea, but use it to deduct the essentials for proper communicating the benefits to stakeholders. Another sponsor mentioned that the framework helps to guide the discussion on an appropriate level of abstraction. The value of the framework as a communication device, whether it is during meaning-making discussions or stakeholder communications, is a significant conclusion to draw. Fourth, two of the sponsors realized that one could use various perspectives in assessing an innovative idea. To be more precisely, one can describe the object from a variety of stakeholders – describing it for the teacher, learner or parent in the case of the electronic learning environment from the third evaluative case study.

¹²⁸ See also Table 30 and Table 31 starting at page 147.

Table 42: Consolidated participants comments and suggestions

No.	Case	Comment / suggestion
1	1	Make the terminology simpler using local language. Increased simplicity makes it stick.
2	1	It is also possible to use the framework to verify and audit project proposals.
3	1	More elaboration of the innovation concept would benefit populating the framework.
4	1	Use less English vocabulary; stick to local language.
5	1	Make it less instrumental by including visuals.
6	2	The explanation of the object part of the framework felt short; the image is quite subjective.
7	2	The step toward innovation is too big to have more innovative ideas emerge.
8	2	The habits of action go beyond meanings. It describes behavior, actors and value: a kind of use-case plus business case.
9	2	An interesting concept!
10	2	My organization is HP. I was looking from the client's perspective.
11	2	Very handy and well structured. A good way to look at innovation.
12	3	No suggestions, but the workshop was illuminating. I have my doubts if this new electronic learning environment will be the innovation for us.
13	3	It contributes to making the rights choices
14	3	It makes a good discussion possible such that meanings diverge.
15	4	Good session. I would like to use this with big projects. Objectives for me personally met: how to create awareness on innovative projects with persons in the organization.
16	4	The abstractive approach provides a new and meaningful perspective on the case.
17	4	Adjust the examples to the targeted group. Assess whether people have understood the approach.
18	4	Applying this without guidance seems difficult to me.
19	4	Good agreements regarding view and context lead, must lead, to clarity; leadership and guidance is important.
20	4	It takes a while to connect to an abstract model.
21	5	The power is found in its simplicity
22	5	A lot of overlap with known concepts such as paradigm shift and Schopenhauer's creative destruction. I found the aspect time convergence too limited. I would use Porter as a basis for assessing a successful product.
23	5	Good that the framework allows flexibility; it must serve to think through an innovative concept. Therefore, its usage justifies a somewhat loose interpretation of the questions and definitions.
24	5	Excellent as is
25	5	I would also rate the three individual innovation aspects in order to better qualify an idea as being innovative.
26	5	It occurred to me that during the workshop we were assessing as well adjusting the innovative concept. This creates interaction between brainstorming the concept on the one hand, and diagnosing it on the other hand.

Workshop observations

My own observations from the workshops in the evaluative case studies revealed five main conclusions. First, it is necessary to have a sound presentation of the innovation idea at the beginning of the workshop. The discussions in two evaluative case studies demonstrated that good introduction was necessary in order to have the participant a good imagination of the idea. In one of the evaluative case studies, an improper presentation of the innovation idea led to a differentiated image of the innovation among the participants. This led to confusions in the discussion. Second, in two workshops I noticed that participants had difficulties separating the object and habits-of-action dimension of the framework. Third, in general, the discussions in the workshops led to very fundamental aspects of the innovation ideas; the habits-of-action dimension, as well as the core innovation principles of the framework, stimulated that. Fourth, all of the evaluative case studies considered actors. The participants got the insight during the discussion that the innovation idea involves multiple actors. Some participants looked for guidance on that, other participants started naturally and easily talking about the various actors involved. Fifth, the framework allows for broad interpretations of the subjects involved. Several workshops showed a variety of stakeholders as well as viewpoints such as obstacles and advantages. Depending on the objectives of the workshop, it seems necessary to include the position one takes in discussion the innovation.

Synthesis

Synthesizing the data analysis from the evaluative case studies involves: 1) the participant score data on the object understanding, 2) the participant score data on the five hypotheses, 3) the free format participant suggestions, 4) the sponsor interview, and 5) the workshop observations.

The first thing to note is that working with the framework requires good preparation. This applies to presenting the innovation idea correctly, preparing the structure of the workshop, as well as the explanation of the framework. Three things substantiate this, the different notions that participants had on the innovation ideas, the difficulties in discussing the object – the device paradigm, the local language issue, and the difficulties experienced in choosing stakeholders and viewpoints. We can conclude that the framework is not a self-explanatory instrument but does need proper introduction with its users.

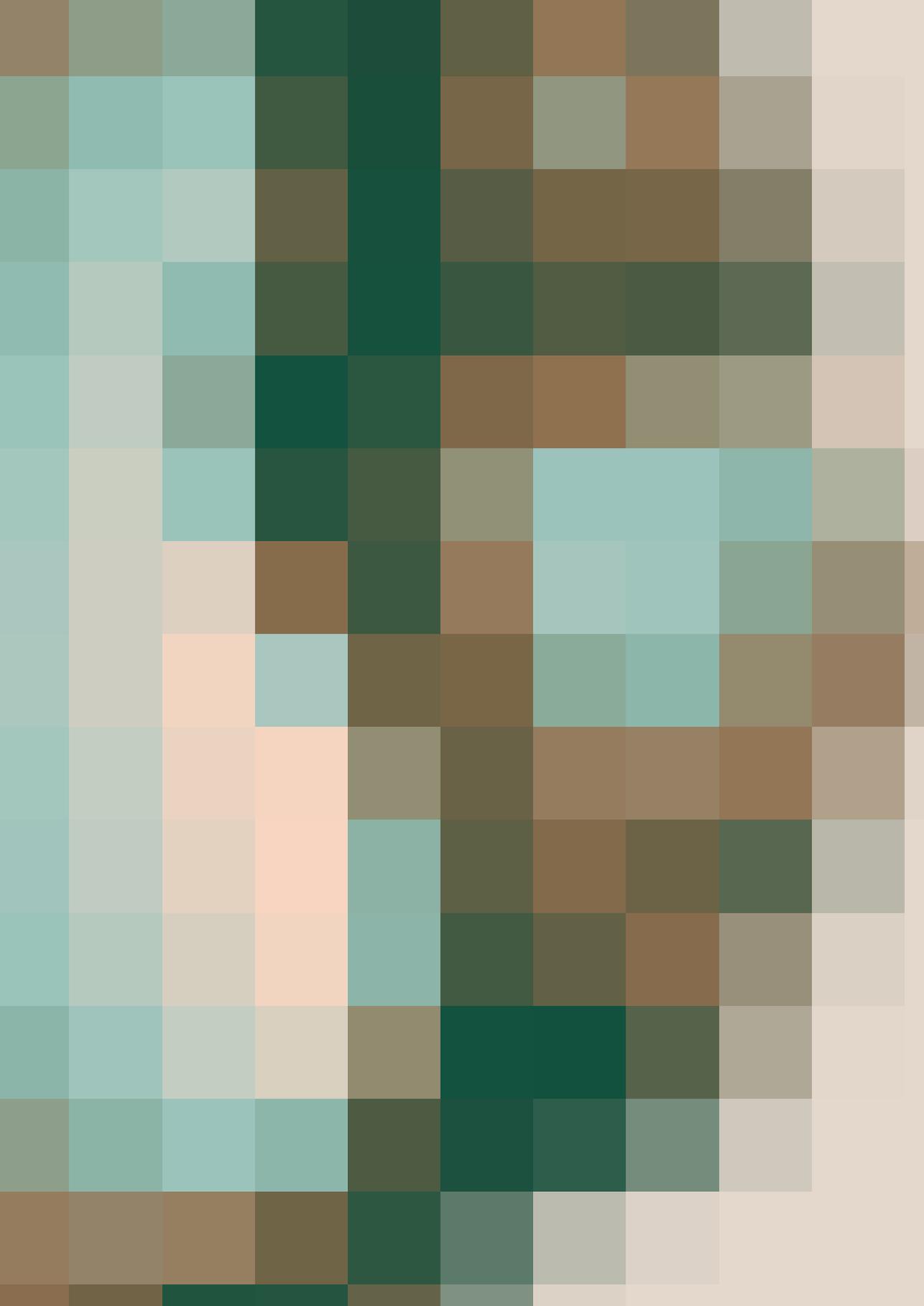
Second, while the instrument does need proper introduction, when the users have taken the first hurdle of understanding the framework, they see it as valuable in guiding the discussions on the right level of abstraction. The user comments, sponsor interviews and workshop observations substantiate this. It means that during the workshops users adopt it in their thinking; they used it as a mental model. The hypothesis testing on the mental model – hypothesis 4 – confirms this.

Third, the framework stimulates to differentiate in the various actors and viewpoints involved in the innovation idea. The sponsor interviews, participant suggestions, as well as my own observations, substantiate this. The fact that, in a workshop, a variety of users explicate what an object makes available to them – hypothesis 3 – confirms this.

Fourth, the framework is supportive in the decision-making process. Translating this to information governance, the framework is supportive in the image-building process. There is a positive response that the framework in general gives a better understanding of the object under evaluation, the participant score data of the first question confirms this. Sponsors mentioned in interviews that the framework would help them in making better decisions, due to a better understanding the object, as well as having the right discussion at the proper level of abstraction. Communication is a common theme in a number of reactions from the interviewees; the framework seems a valuable instrument in order to achieve good communication during and after the evaluation of the object and the involvement of stakeholders.

Conclusions

This chapter started by introducing how the various data sources from the evaluative case studies require different modes of analysis. A statistical analysis of the questionnaire responses related to the five hypotheses versus a hermeneutic mode of analysis of the remaining data sources. The chapter then systematically analyzed all the questions from the questionnaire, followed by analyzing the participant suggestions, the sponsor interviews and my own observations of the workshops. Although the hypotheses served as the primary data source, the data from participants, sponsor interviews and workshop observations revealed additional information. The cross-analysis of the various data sources in the synthesis in the previous section substantiates the findings. However, it also revealed that the rigorous demarcation of the construct dissolves as soon as one start using the framework; at least for the object part versus habits-of-action part. However, I question whether this introduces practical operationalization problems of the framework. Looking back at the evaluative case studies the framework shows a potential value. Overall, it is fair to conclude that the meaning-making framework seems a viable instrument for enhancing the image-building processes in the information governance discourse.



8

DISCUSSION

Introduction

This final chapter provides an overview of the research results taking into account the research questions developed in chapter 1 and the hypotheses asserted in chapter 5. It is not the intention of this overview to go into details about the outcomes in particular, but to provide a higher level of abstraction on the research results. For the detailed outcomes, I refer to the relevant individual chapters developing the concepts, with chapter 7 in particular because it contains the results and analysis of the evaluative case studies. After the overview of the research results, the chapter continues with a discussion on the validity of this research, with suggestions for further research, and practical applications of the instrument – the framework – developed. The chapter concludes with some final thoughts on this thesis and the research.

Overview of research results

The introduction to this thesis formulated three research questions. This section will revisit these research questions and discuss to what extent the exploration of the concepts concerning governance and meaning, as well as the development of the meaning-making framework have answered the research questions.¹²⁹

Key characteristics of the global information order

The first research question concerned the key characteristics of the global information order in the light of the concept of governance. The exposition in chapter 3 on the re-conceptualization of governance and the role of meaning provided the answer to this question.

First, the global information order introduces a fundamental change in the economic value-system due to the emergence of *sign-value*. The mediated society of today exhibits a semiotic order in which abstracted value relocates from commodities to sign-value. Because sign-value violates the means-ends distinctions from the traditional order and industrial order, the traditional management concepts are not suitable; they treat the products from the contemporary information society as mere objectified resources. The first major conclusion on the key characteristics of the global information order is that the focus of managing scarce resources shifts toward dealing with the abundance of information, with sign-value.

Second, through a cybernetic perspective, the research showed that traditional management concepts dominantly follow first and second order cybernetic rules. They focus on maintaining the purpose of organizations and getting the job done, in contrast to organizational evolution. This is a result of reacting to perturbations

¹²⁹ For the formulation of the research questions, see page 15.

from the environment instead of well-thought decisions on innovation. Rather than treating abundance as an 'enemy,' third order cybernetic concepts inherently take in account the world out-there, which enables organizations to deal with the products of the contemporary information society. Third-order cybernetic concepts surpass traditional management and act conform governance theories; management concerns the continuity of day-to-day business while governance aims at strategic choices in innovating enterprises. In order to govern sign-value, governing actors must be able to write, speak, or think about the informational experiences from the products of the contemporary information society. Information governance is the preferred concept for this, but it lacks the 'language' for discourses containing sign-value. The second major conclusion on the key characteristics of the global information order is that it indeed requires governance concepts in order to fill in the deficiencies of traditional management concepts; however, these governance concepts lack the inclusion of sign-value.

Third, to exploit the opportunities from the semiotic order effectively, governing actors face innovation processes loaded with sign-value. It requires them to ascribe meaning to things, situations, or opportunities involved in innovation processes. This so-called process of image building has a significant influence in information governance practices and is anything but a simple, straightforward or predictable process. Governing actors are subject to a self-referential information society in which they reflexively build up their knowledge, mediated through technologies that dictate meaning making in the image-building process of information governance. The third major conclusion on the key characteristics of the global information order is that meaning making is a key concept for governing actors in information governance in the semiotic order, which urges for a meaning-driven governance.

To summarize, the key characteristics of the global information order concern 1) the shift from managing scarce resources toward handling abundance, 2) the need for governance concepts to complement traditional management concepts in order to deal with abundance, and 3) the presence of sign-value, which requires governance concepts to include the concept of meaning making.

Enhancements of image-building processes

The second research question aimed at finding a foundation for enhancements of the image-building processes in information governance. The answer to that unfolds in three directions. There is the exploration of the concept of meaning, motivated by the notion developed in the light of the first research question that meaning making should be a key concept in information governance. The critique of meaning developed in chapter 4 and the section that develops the meaning dimension of the framework in chapter 5 provide the answer to the first direction. The second direction is the notion developed on treating objects in image building. The sections on objects in developing requirements for the framework, as well as

the framework development itself, in chapter 5 provide the answer to this direction. The third direction is the notion developed in chapter 5 on innovation as a necessary aspect in order to address the reconceptualization of information governance. The following will highlight these three directions.

First, the critique of meaning in chapter 4 concluded that ramification of the concept of meaning is difficult because a systemic orientation seems impossible. 1) There is no reasonable classification of concepts; 2) concepts of meaning are fundamentally very different; 3) meaning is subjective and heavily depends on the philosophical position one takes – transcendental or immanent; 4) being an ambiguous concept by itself, meaning also interconnects with other ambiguous concepts such as communication, information, and language. Nevertheless, the study resulted in four distinctively different orientations of meaning because of their different philosophical foundation. 1) Communicative meaning has semiological acts of reference to objects as its philosophical foundation because every form of communication is an act of reference. 2) Inherent meaning, founded on the way people act, biased by prior experiences and life-worlds. 3) Symbolic meaning, which has affection as its philosophical foundation, because affection toward objects varies with people's likes and dislikes. 4) Contextual meaning has incarnation as the philosophical foundation because people become one with objects, events, or life-worlds. This resulted in the notion that marrying these four orientations of meaning into a single concept is not possible due to the lack of a common foundation or any other commonality in these orientations. The research developed the notion that meaning exhibits as habits of actions. The first major conclusion is that in order to enhance the process of image building, it must include the notion that meaning exhibits in what individuals or organizations are changing in their habits when they encounter something meaningful.

Second, in developing requirements for the framework it became clear that the technological life-world forces to consider objects for appropriate image building. Contextual meaning, the dominant orientation of meaning in the technological life-world, follows the technological phenomenology where object and subject become one. Having an object – a concept or product of the information society – is the first and foremost necessity for governing actors to be able to assign meaning; one must have something to assign meaning to, in order make the framework useable. The research explored various philosophical underpinnings of the concept of object in order to consider objects in the technological life-world, a one-world paradigm. It concluded that the conventional wisdom to describe objects is one of formal descriptions of properties of objects, tightly connected to the operated discipline. A solution for this problem is to use the device paradigm, which enables users to describe what objects – devices – give them without going into formal details on object properties. The second major conclusion in enhancing the process of image building is that the device paradigm is a solution for governing actors to abstain from formal descriptions in describing the object they encounter.

Third, innovation is part and parcel of the concept of governance. For a meaning-driven concept of governance, the enhancement of image building concerns the creative phase in the innovation lifecycle, because it is the phase where meaning making prevails. In this phase, governing actors develop the first notions on the products or concepts from the information society they encounter. Do we understand this? Can we use this? The core principle of the contemporary information society is that abundance rules; it elevates the importance of the creative phase in the innovation lifecycle. In designing the framework, the notion developed that innovation processes dominantly focus on problem solving and thereby inherently follow the paradigm of managing scarce resources. Abundance invites governing actors to look beyond problem-driven innovation and requires them to augment context creation of the technological life-worlds onto the daily practices of organizations. Put differently, what do these products or concepts mean – meaning making – and how beneficial are they for the organization? The third major conclusion in enhancing image building is that core innovation aspects are a necessity to ‘materialize’ the meanings assigned by governing actors to the products and concepts of the information-abundant society.

In summary, the enhancement of image-building processes involves 1) the notion of habits of action for a measure of meaningfulness, 2) using the device paradigm in order to have governing actors informally describe objects, and 3) applying core innovation aspects in order to materialize meanings assigned to the products and concepts of the information society.

An instrument to operationalize enhanced image building

The third and last research question concerned the possibility of developing an instrument that enables governing actors to write, speak, or think about the products or concepts from the contemporary information society. Put differently, an instrument that operationalizes the enhancements of image building in information governance developed in the light of the second research question. The development of the meaning-making framework and the evaluative case studies, the treatise in chapter 5, 6, and 7, provide the answer to this.

The first step in finding a solution for such an instrument was eliciting requirements for a meaning-making framework. The whole tenet in developing the framework was that in governance subjects are one with their life-world; a one-world philosophy where subject and object become one resulting from the contextual – phenomenological – orientation of meaning, which implies the inseparability of content and method. This puts constraints on the design of the framework but also as we will see later, on the evaluation of the framework. Revisiting the concepts of meaning and innovation concluded that the concept of life-world objects was a necessary concept to include in the framework in order to make it useable; a serious constraint. Because the framework aims at senior managers and directors, non-functional requirements included concepts such as language and mental models in order to secure ease of use by non-technical

individuals. The first major result in operationalizing enhanced image building is that the framework must enable organized settings in which the user can incarnate a technological life-world – experience an object; without considering its usage, one cannot design this meaning-making framework. An object must be part of the framework and can range from tangible objects to anything that represents these objects such as information and constructs – intangible objects.

The second step was the development of five falsifiable hypothesis-indicator pairs that justified the final structure of the framework. The central theme in developing a hypothesis on meaning was to weave the whole fabric of the four orientations of meaning into one unifying comprehensive concept. Because the research revealed no common ground for this, the framework design ended up with a pragmatist approach: if something is meaningful, it introduces new habits. For governing actors to write, speak or think about life-world objects, the device paradigm provided a solution: explicate what objects make available to the actor while abstaining from formal details. The design of the framework reveals three core innovation principles that support assessing the object-habits pair on its benefits for the organization: 1) time convergence, 2) disruptive construction, and 3) radical connections. The second major result in operationalizing enhanced image building is the conceptual framework.

In the third step, the execution and analysis of a number of workshops evaluated the meaning-making framework. First, the setup for the workshops necessarily followed the rules of phenomenological research. They must provide an organized setting in which participants share similar jobs, functions, or roles in the same contextual domain such as managing an enterprise, medical treatment, and insurance selling. This contrasts many workshop approaches in which consensus among a variety of stakeholders is the objective. For this research context, however, the evaluative case study aims at the experience of participants with the framework and not broad stakeholder consensus; vastly different experiences interfere with one and other and would lead to an improper setup. Second, the analysis of the results included the verification of the average results against the five hypothesis-indicator pairs as well as the interpretation of small interviews, suggestions, and observations. The analysis returned a positive result of the five hypotheses and the interpretative data. The third major conclusion is that it is indeed possible to develop an instrument that enhances image building in information governance in order to enable governing actors to write, speak, and think about the concept and products of the contemporary information society.

Summarizing the foregoing shows that operationalizing an instrument of enhanced image building concludes 1) an organized setting that enables governing actors to experience the product or concept from the information society – the object. 2) The conceptualization of a meaning-making framework that converges objects, meaning making and innovation aspects. 3) The positive analysis of the ability to write, speak, and think about the concepts of the information society by using the meaning-making framework.

Validity of the research

Constructing an artifact in a research setting is only the first step, but a necessary step; the success of the artifact depends on the further possible deployment of the artifact. From a design perspective, an artifact is complete when it satisfies all the requirements and constraints that reflect the problem one tries to solve (Hevner et al., 2004). In order to evaluate the meaning-making framework, this research facilitated a number of evaluative case studies.

The data analysis from the case studies, in the previous chapter, indicated a positive result. However, many variables can influence the validity of case-study results. Gibbert, Ruigrok, and Wicki (2008) report on an extensive study on the validity of case studies and distinguish four criteria that can assess the validity of case study research. 1) Internal validity concerns the causal and logical reasoning on the data to conclude the research results. 2) Construct validity of a study is a measure of how well the researcher conceptualizes and operationalizes the final case-study concept. 3) External validity relates to the extent of generalizability of the results outside the settings used. Would other cases show similar results? 4) Reliability is the extent to the repeatability of the study. Would the study produce the same results if repeated along the same steps?

Even though, this research only is the first step toward an artifact with possibly broad deployment, the aforementioned criteria can give useful insight on the validity of the research and provide ground for follow-on research. The following discusses the research along these four criteria.

Internal validity

Causal and logical reasoning on the data in order to conclude the research results determine the internal validity of a study. The research framework used for this inquiry was design-oriented research that used theories of governance and meaning in order to reason toward a development of a meaning-making framework. In the context of those theories, the development process elicited requirements and developed five falsifiable hypotheses that unified into a model with the full mapping between requirements and hypotheses to test.¹³⁰ This formed the basis for designing as well as evaluating the meaning-making framework.

The setup for the evaluative case studies took care to systematically collected data through anonymous questionnaires in order to test the hypotheses. Suggestions from case-study participants, sponsor interviews, and workshop observations complemented this data in order to provide triangulation in arguing toward the result.

¹³⁰ Table 27 on page 133 summarizes how the design requirements map against the hypotheses.

Construct validity

The way the evaluative case studies are setup determines the construct validity of the case-study process. It concerns how well the case-study setup supports the required inquiry (Gibbert et al., 2008). In developing the framework, the notion raised that the concept of object needed to be included in the framework because I have argued earlier that one cannot simply design a framework without considering its operation. This was a direct consequence of the empiricist phenomenological stance, which dictates the inseparability of content and method. Apart from affecting the framework design, this also affects the evaluation of the framework.

The setup for the evaluative case studies discusses how phenomenological research in general creates knowledge and developed arguments that the evaluative case studies require bracketing and reduction, as well as an appropriate attitude toward the object. This provided the context and constraints for the organized settings for the evaluative case studies.

The choice for the setup was a number of workshops in which the participants could experience the meaning-making framework in discussing a concept or product from the contemporary information society of their choice. Although the workshop preparation explained how the participant must take their position, attitude, toward the object, hindsight gives me the notion that a (serious) gaming environment probably would provide participants to better experience the object.

External validity

The extent how much one can generalize the results of the research outside the settings used determines the external validity of the research. There is a difference between statistical and analytical generalization. Case studies do not lend themselves to generalization based on statistical evidence, whereas analytical generalization based on cross-case analysis seems a good basis for theory development (Gibbert et al., 2008; Eisenhardt, 1989). Furthermore, social sciences widely criticized the idea of solely relying on the testing of hypotheses (Kaplan & Duchon, 1988).

The evaluative use cases provide a variety of cases – verified product or concept – that I assumed to be sufficient for evaluating the first step of constructing an artifact, the meaning-making framework. According to Eisenhardt (1989) building theories from case-study research requires a careful selection of cases. This contrasts the approach taken in this research because the objectives were different. In hindsight, however, I believe that the difficulty of the product or concept participants verify might influence them in scoring the questions in the questionnaire.

Reliability

Transparency and replication determine the reliability of a study such that other researchers can replicate the inquiry. The researcher aimed at describing the steps involved in setting up the evaluative case studies; moreover, the phenomenological stance of the research urged to pay attention on the case-study setup. Therefore, chapter 6 develops case-study requirements and uses them for creating a clear case-study protocol, which is pivotal for reliable results.¹³¹ In order to capture and analyze the data created through the questionnaires the researcher maintained a spreadsheet, which secures replication of the analysis process.

Suggestions for further research

From the discussion on the validity of the research, as well as the analysis of the evaluative cases studies, one can think of a number of research suggestions. First, there is the notion that a case-study setup using a serious gaming environment probably would provide a better setup to experience a product or concept from the contemporary information society. This resembles much more the one-world paradigm visited in the critique of meaning in chapter 4, hence the technological life-world that governing actors face. This would require more effort and, above all, a different research setup. It would need a scenario or process in which governing actors, in fact, use the object in ‘playing’ the game. One can use existing products from the contemporary information society, but in the case of a concept, it requires the research to upfront building prototypes or mockups from the product of the concept suggested. Those are serious research efforts.

The second research suggestion concerns increasing the quality in results of the user experience with the meaning-making framework. The earlier discussion on generalization of the research results mentioned how the difficulty of the product or concept – the object – under evaluation can potentially influence how the user experiences the framework. Further research can provide insight in this. This would require a careful selection of objects, or case-study setups verifying the same object among a large variety of users.

The third research suggestion is in the domain of theory building. Meta-theories do not deal with phenomena or processes in the real world. They focus on the conceptualization of phenomena and processes. The meaning-making framework contains a number of concepts, such as the habits-of-action hypothesis on meaning making and the core innovation principles. They both reflect phenomena and processes. Follow-on research can verify whether these concepts represent meta-theories.

The fourth research suggestion is whether one can use the framework to analyze failed innovation projects. The feasibility of innovation projects is not only a matter

¹³¹ See chapter 6 pages 142 through 149 and Table 28 on page 146 in particular.

of technical feasibility. Factors such as political climate and stakeholder interest can make or break the success of innovation projects. Participants in the evaluative case studies suggested in using the meaning-making framework as a communications device. Research can verify whether the framework is capable of analyzing the communication part on feasibility assessments of innovation projects.

The fifth and final research suggestion concerns the causality built up in executing the framework. The sequential steps involved in using the framework – from the object through habits of actions to the core innovation principles – raised a question with one of the participants whether the framework can be used as a rearview mirror. To be more precisely, does one need a particular object in order to create the same innovation result? Follow-on research can study whether one can start with the core innovation principle and traverse the way ‘up’ in the framework – the causal relations in the framework.

Suggestions for practical use of the framework

The first and foremost application of the framework is to make it part of the set of tools that governing actors use in their image-building processes. From the perspective of this research a logical application, because it was a primary objective to enhance image-building processes; moreover, it was one of the research questions: providing an instrument for governing in the contemporary information society. The reactions from workshop participants, as well as many other discussions provided insight in other applications.

In general, for discussing propositions of new concepts with stakeholders, or all those involved, the framework seems a good communication instrument. The framework dimensions – object, habits of actions, and innovation – provide a coherent structure that allow people to reason and argue aspects of their idea or concept with stakeholders. For example, creating support for large transformation projects.

Earlier I briefly touched upon the idea of consensus building. Brainstorming is an instrument that one frequently uses in workshops for consensus building. There is empirical evidence and academic research that brainstorming not always provides the best solution for creating new ideas (e.g. Furnham, 2000; Jablin, Sorenson, & Seibold, 1978), it tends to result in propositions reflecting the wishes or needs of all participants. The framework can provide a way to validate the outcomes of brainstorming in order to make them more relevant, efficient and effective.

Building further on the notion of consensus building, in general, workshops by design have large varieties of participants in order to create broad consensus. In order to follow the rules for phenomenological research, the workshop setup for the evaluative case studies minimized the variety of participants. With the framework, one can inquire different views on the innovation idea among similar focused participants that have a common background.

One participant in the evaluative case studies mentioned the idea of using the framework to evaluate project proposals. In establishing innovation agendas, one often qualifies projects according to their contribution to the enterprise objectives, the costs involved, and the level of complexity in realizing it. In fact, organizations maintain stage gate mechanisms to move project proposals through the innovation funnel. With the framework, ranking the potential of innovative ideas is possible in order to obtain efficiency and effectiveness in the innovation funnel.

Final thoughts

Until now, science has not provided an integral framework that addresses the comprehensive notion of meaning in the information governance context. The meaning-making framework, developed in this research, is the proposition to provide an instrument for governing actors to practice, what I have denoted as meaning-driven governance. This form of governance is essential in a society that is abundant of information and loaded with sign-value.

The thesis I developed on meaning making against the background of the contemporary information society uses the realm of governance distinctively. Clearly, the question can rise if the concepts of meaning making also apply to regular management theories. The cybernetic study on the concept of management and governance reveals that the two distinctively differ, and that governance in general has a better proposition for leaders to engage with the decisions required in organizations, when facing the opportunities of the information society. Of course, management disciplines can benefit from a notion on meaning making. The daily practices of managers, leaders, do not treat these concepts as different as day and night; there is always a grey area. However, in finishing this research it has become my firm belief that information governance is the preferred discipline to cope with the ambiguous and non-rational concepts that manifest in the contemporary information society. When organizations enhance their image-building processes, they have an opportunity to understand and act upon these ambiguous and non-rational concepts such as sign-value.

The conventional wisdom, mechanistic view, on the concept of information – from data to information to knowledge – made us separate meaning from information. Bringing back the concept of meaning in the information governance discourse enables us to create economies of meaning and to develop new paradigms. Paradigms are important because they make us raising new questions (Janos, 1997). New questions will help governing actors in making responsible choices in the information governance discourse. However, the paradoxical situation arises that the discourse is a necessary condition for governing actors in order to assign meaning to the products and concepts from the contemporary information society. At the same time, meaning making has a level of implicitness. With the meaning-making framework, one can support meaning making, but the actual

assignment of meaning remains on the personal level.¹³² As the saying goes, ‘you can lead a horse to water, but you cannot make it drink.’

My drive for starting this research originates from the notion that technology can play a fantastic role in organizations to innovate business. Against the background of the daily pressure in getting-the-job-done, it became clear that it is not the ordinary for organizations to explore the possibilities of technology for finding new business opportunities. At the end of this dissertation, I quote Robert Dijkgraaf, who noted that in general we do not experiment enough.

‘It reveals itself in our time a huge space, in terms of knowledge and technological capabilities. Unfortunately, that does not lead to an urge to explore and experiment, but a kind of collective agoraphobia [original in Dutch] (Dijkgraaf, 2011).’

The first step in innovation is *seeing the possibilities*. In the contemporary information society, however, this is loaded with meaning. Therefore, it is important to *organize* innovation, make organizations get a ‘taste’ of what is possible. I hope that with the instrument developed in this inquiry, governing actors will find it easier to make that first step, organize innovation processes, and find room to explore the possibilities.

This is the end of my dissertation. For me a meaningful journey that I will remember for life, but also the first steps in the further exploration of economies of meaning – and yes, it did changed my habits of action.

¹³² This is conform learning theories (e.g. Seeger, 2010).

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Summary

This dissertation addresses what actors in the emerging discipline of information governance need for a comprehensive interpretation of the products of the contemporary information society. The technological developments from the last decennium that manifest in today's information society have far-reaching effects on society and enterprises. These effects are sometimes far from being rational and, above all, mostly unpredictable. Governing actors increasingly face aspects from the information society that affects their decision-making processes. A contorted reaction of most organizations is to concentrate on the risks that come with the information society, rather than exploring its opportunities for innovation. A logical reaction, because the traditional notion of information governance discards the subjective wealth of the informational products to its users.

The inquiry re-conceptualizes the notion of information governance in order to include the non-rational aspects of the information society. By including meaning making as a core concept, the re-conceptualized notion of information governance is capable of addressing the non-rational aspects in the realm of innovation. By means of a design-oriented research approach, this inquiry developed an instrument that operationalizes the complemented notion of information governance. Governing actors can now include the non-rational aspects of products from the information society in the information governance discourse; more specifically, in their decision-making processes.

A socio-economic perspective on the information society reveals that principles of abundance complement the principles of scarcity that are typical for the traditional and industrial order. Information has its own self-referential logic of growth, which makes it abundantly available. Consumptionism in the context of information abundance complements labor and production, forming a new order: the semiotic order. An order, where sign-value – meaning – rules, a value that transcends the pure need of scarce resources. Aside from a system of needs and a system of interest, enterprises now face a system of meaning exhibiting activities that violate the means-end differentiation. The present management disciplines are unable to cope with sign-value; they rather focus on optimizing scarce resources than looking at the consumptionist world 'out-there.'

A cybernetic exploration of management and governance shows that these concepts distinctively differ. Management pursues getting-the-job-done while treating any new developments in the world 'out-there' merely as perturbations. Governance, a third-order cybernetic perspective, includes the interaction with the world out-there; we call this innovation and involves making responsible choices, the essence of governance. In the information society, interactions and image formation from governing actors in the information governance discourse are laden with affect – sign-value. Although meaning-making processes are unavoidable in image formation, they do help organizations to make better choices, responsible

choices – the essence of governance. The role of meaning in information governance is twofold. First, with meaning, governing actors are able to consider their biases, their experiences, in image-building processes, processes that are ambiguous and full of sign-value. Second, meaning allows governing actors carefully making their choices in governing sign-value, the new value of the information society.

A critique of meaning reveals that meaning is an ambiguous concept that may include various notions without any common philosophical ground. The study recognizes four orientations of meaning. Communicative meaning, which follows the syntactic, the semantic, and the pragmatic interpretation of meaning – the semiotic triad. Inherent meaning that includes everything humans have done and experienced in the past and how they construct meaning in the flow of the lived-experience. Symbolic meaning, which makes up human identity with symbols influencing their behavior. Contextual meaning where humans directly – reflexively – experience their environment, without being able to explain its meaning because events and processes in this environment happen at the spur of the moment through the technological interfaces they use; they become ‘one’ with their environment and meaning is about the direct experience of their technological life-world.

Putting the critique of meaning in the context of making responsible choices in a semiotic order it seems essential that information governance needs a comprehensive concept of meaning. However, the ramification of the concept of meaning is difficult because a systemic orientation in the jungle of concepts of meaning seems impossible. There is no reasonable classification of concepts, meaning is highly subjective, it refers to fundamentally different concepts such as communicative intent and symbols, and it tightly interconnects with other ambiguous concepts such as communication, information and language.

The dissertation reconciles the aforementioned notions on information governance and the orientations of meaning into one unifying concept, a meaning-making framework, which is the proposed instrument for governing actors to support their image formation in the contemporary information society. Requirement elicitation, as part of the design process for the meaning-making framework, reveals that the framework needs to include four orientations of meaning, the notion of an innovation perspective and support for one or more objects. In order for governing actors to work easily with the framework, it must be easy to comprehend and adoptable as a mental model.

The design overcomes the lacking commonality of the four orientations of meaning by weaving them together through the pragmatist philosophy; when something is meaningful, it results in new habits of action. Because governing actors apply meaning to products and events from the information society, the framework includes an object perspective. To avoid formal object description languages such that governing actors can work with objects, the design applies a modified device paradigm, a philosophy of technology used to describe technological devices. The

object-habits-of-action pair represents a comprehensive subjective interpretation by governing actors of products and concepts from the contemporary information society. The innovation perspective of the framework enables governing actors to assess the object-habits pair against three core innovation principles. The design resulted in five falsifiable hypotheses that characterize the meaning-making framework.

Evaluation of the meaning-making framework follows the approach of evaluative case studies, a special form of traditional case-study research. Following the phenomenological traditions used in the research, the operationalization of the evaluative case studies pays attention to appropriately creating a setup by applying principles of sociological research. It uses phenomenological reduction – bracketing and attitude – in order to rule-out taken for granted assumptions, as well as, cross-operational interferences among participants in the case-study setups. The evaluative case studies executed as workshops of five to ten participants.

The primary data-collection technique used for the evaluative case studies is a printed questionnaire that verifies the five hypotheses that characterize the meaning-making framework. In order to avoid relying solely on questionnaire responses, data from semi-structured interviews and the researchers own observations complement questionnaire data – methodology triangulation.

The analysis of the evaluative case-study data involves a straightforward calculation – simple statistics – of the respondent score data that represent the five hypotheses, complemented by a hermeneutic mode of analysis of the semi-structured interviews and responses to suggestions from participants in the evaluative case studies.

The dissertation concludes with a discussion that gives an overview of the research results, assesses the validity of the research, discusses further research and closes with final thoughts of the researcher. The research resulted in the notion of key characteristics from the global information order, the enhancement of the image-building process in information governance, and an instrument to operationalize enhanced image building – the meaning-making framework. The validity assessment of the research involves causal and logical reasoning, the setup of the evaluative case studies, the extent of possible generalization from the research results, and reliability of the research in terms of its replication. The discussion includes five suggestions for further research that involve increased quality of users experiencing the framework, (meta) theory building, practical application and further refinement of the framework internal structure. The researcher's final thoughts reflect on the research, the framework and meaning-making and organizational implications. Making the first step in innovation in the context of the contemporary information society is about *seeing* the possibilities it offers to organizations. This research provides a framework in order to help organizations enable the necessary discourse for that.

Samenvatting (Dutch)

Deze dissertatie behandelt wat *governing actors* (bestuurders) in de opkomende discipline van *information governance* (informatiebestuur) nodig hebben om de producten van de hedendaagse informatiemaatschappij te kunnen duiden. De technologische ontwikkelingen van het laatste decennium die zich manifesteren in de huidige informatiemaatschappij hebben verstrekkende gevolgen voor de samenleving en het bedrijfsleven. De effecten zijn vaak onvoorspelbaar en bovendien soms verre van rationeel. In hun besluitvormingsprocessen worden bestuurders steeds vaker geconfronteerd met de producten en concepten van de informatiemaatschappij. Organisaties reageren krampachtig op deze ontwikkelingen en zij concentreren zich vooral op de risico's die de informatiemaatschappij met zich meebrengt in plaats van de innovatieve mogelijkheden te verkennen. Een logische reactie, omdat de traditionele interpretatie van *information governance* geen rekening houdt met de subjectieve rijkdom van informatie-gerelateerde producten en haar gebruikers.

De onderhavige studie conceptualiseert een aanvulling op de huidige interpretatie van *information governance* waarmee de niet-rationele aspecten van de informatiemaatschappij te adresseren zijn. Door het opnemen van betekenisgeving als kernbegrip worden bestuurders in staat gesteld de niet-rationele aspecten mee te nemen in het innovatiedomein. Door middel van ontwerpgericht onderzoek ontwikkelt deze studie een betekenisvormend raamwerk dat de aanvulling op *information governance* operationaliseert. Bestuurders kunnen nu de niet-rationele aspecten van de producten van de informatiemaatschappij duiden en meenemen in hun besluitvormingsprocessen; een onderdeel van het discours in *information governance*.

Een sociaaleconomisch perspectief op de informatiemaatschappij maakt beginselen van overvloed zichtbaar die aanvullend zijn op de principes van schaarste uit de traditionele en industriële orde. Informatie heeft zijn eigen recursieve logica van groei, waardoor het tegenwoordig overvloedig en overal aanwezig is. *Consumptionism* in de context van informatieovervloed, completeert de wetten van arbeid en productie en vormt daarmee een nieuwe orde, de semiotic orde. Een orde waarin betekenisgeving – *sign-value* – de waarde en noodzaak van schaarse middelen overstijgt. Naast een *system of needs* en een *system of interests* worden ondernemingen nu ook geconfronteerd met een *system of meaning* – betekenisgeving – dat de grenzen en verhoudingen tussen doel en middel uit voorgaande ordes volledig verstoort. De huidige management disciplines zijn niet ingericht om met betekenisgeving om te gaan omdat zij zich eerder concentreren op het optimaliseren van schaarse middelen dan dat zij kijken naar de consumentgerichte buitenwereld.

Een cybernetische verkenning van management en governance maakt duidelijk dat deze twee disciplines sterk verschillen. Management is vooral uitvoerend gericht

– *getting the job done*. Ontwikkelingen buiten de organisatie worden als verstoring opgevat en operationeel ‘weg’ gemanaged. Governance, een derde orde cybernetisch perspectief, benut juist de interactie met de omgeving buiten de organisatie voor het ontwikkelen van nieuwe mogelijkheden; we noemen dit innovatie en daarmee gaan verantwoorde keuzes gepaard, de essentie van governance. De informatiemaatschappij brengt met zich mee dat de interacties en beeldvorming van bestuurders sterk worden beïnvloed door subjectieve betekenissen – sign-value. Hoewel betekenisgevende processen onontkoombaar zijn in beeldvorming, helpt het organisaties wel om keuzes beter te maken, verantwoorde keuzes te maken – de essentie van governance. Betekenisgeving in information governance heeft twee rollen. Ten eerste zorgt betekenis ervoor dat bestuurders hun eigen vooringenomenheid en ervaringen kunnen overwegen in beeldvormingsprocessen; ambigue processen die bol staan van betekenissen. Ten tweede helpt het bestuurders zorgvuldig keuzes te maken betreffende sign-value; de nieuwe waarde in de informatiemaatschappij.

Een kritische analyse van betekenisgeving laat een ambigue concept zien dat vele begrippenkaders kent zonder dat er sprake is van enige gemeenschappelijke filosofische basis. De studie onderscheidt vier oriëntaties van het concept betekenis. Communicatieve betekenis, die het syntactische, semantische en pragmatische onderscheid van de semiotische driehoek volgt. Inherente betekenis, die zich vormt uit alles wat mensen in het verleden hebben beleefd en gedaan in de flow van hun alledaagse ervaringen. Symbolische betekenis, waar symbolen invloed uitoefenen op menselijk gedrag en identiteit. Contextuele betekenis, waar de directe – reflexieve – ervaring van de omgeving betekenisvol is voor mensen, zonder dat zij kunnen uitleggen waarom, omdat de dingen in-het-moment gebeuren door gebruik van technologie interfaces; zij worden één met hun omgeving – zoals in het spel van kinderen – en betekenis gaat over de ervaring met hun technologische levenswereld – *technical life-world*.

De kritische analyse van betekenisgeving geplaatst in de context van verantwoorde keuzes in de semiotic order motiveert een brede interpretatie en samenhangend concept van betekenisgeving. Echter, de uitwerkingen van betekenisgeving is moeilijk omdat de wirwar van concepten van betekenis een systemische oriëntatie onmogelijk maakt. Er bestaat geen werkbare classificatie van concepten, betekenis is zeer subjectief, het verwijst naar fundamenteel verschillende concepten zoals communicatieve intenties en symbolen, bovendien is het nauw vervlochten met andere ambigue concepten zoals communicatie, informatie en taal.

Deze dissertatie brengt de voorgenoemde begripsvorming van information governance en de oriëntaties van betekenisgeving bij elkaar in één verenigbaar concept; een betekenisvormend raamwerk dat de propositie is voor bestuurders ter ondersteuning van beeldvorming in de hedendaagse informatiemaatschappij. Het samenstellen van *requirements*, als onderdeel van het ontwerpproces, laat zien dat het raamwerk naast de vier oriëntaties van betekenis ook een perspectief voor

innovatie als wel de ondersteuning voor een of meerdere objecten moet bevatten. Bestuurders vragen een hoog gebruiksgemak, daarom moet het raamwerk bruikbaar zijn als mentaal model en gemakkelijk te begrijpen zijn.

Het gebrek aan gemeenschappelijke basis van de vier oriëntaties van betekenisgeving lost het ontwerp op door deze samen te brengen in de pragmatistische filosofie; wanneer iets betekenisvol is resulteert dat in nieuwe gewoontes of gedrag – *habits of action*. Bestuurders kennen betekenis toe aan producten en gebeurtenissen van de informatiemaatschappij, daarom bevat het raamwerk tevens een objectperspectief. Om het gebruik van formele talen voor objectdefinities te voorkomen, zodat ook bestuurders het object kunnen hanteren, past het ontwerp een gemodificeerd device paradigma toe, een filosofie voor technologie die gebruikt wordt om apparaten te beschrijven. Het samenstel object-habits-of-action vertegenwoordigt een brede subjectieve interpretatie door bestuurders van producten en concepten uit de hedendaagse informatiemaatschappij. Het innovatieperspectief stelt bestuurders in staat het samenstel object-habits-of-action te toetsen aan drie kernprincipes voor innovatie. Het ontwerpproces heeft geresulteerd in vijf falsificeerbare hypotheses die het betekenisvormend raamwerk karakteriseren.

De evaluatie van het betekenisvormend raamwerk volgt de aanpak van evaluerende casestudies, een speciale vorm van traditioneel casestudie research. In navolging van de fenomenologische tradities die deze dissertatie gebruikt, besteedt het operationaliseren van de evaluerende casestudies aandacht aan het creëren van een juiste opzet van de casestudies door principes uit sociologisch research toe te passen. Deze fenomenologische reductie – *bracketing* en *attitude* – voorkomt vanzelfsprekendheden en cross-operationele invloeden van deelnemers in de casestudies. De evaluerende casestudies zijn uitgevoerd als workshops met vijf tot tien deelnemers.

Voor het verzamelen van field data is primair gebruik gemaakt van een gedrukte questionnaire om de vijf hypotheses, die het raamwerk karakteriseren, te verifiëren. Om te voorkomen dat alleen gebruik wordt gemaakt van questionnaire data wordt deze aangevuld met data uit semigestructureerde interviews en data van de observaties van de researcher zelf – methodiek triangulatie.

De analyse van de data uit de evaluerende casestudies maakt gebruik van een rechttoe-rechtaan berekening van de deelnemer score data die de vijf hypotheses vertegenwoordigen, aangevuld met een hermeneutische mode van analyseren voor de semigestructureerde interviews en suggesties van deelnemers in de evaluerende casestudies.

De dissertatie eindigt in een discussie omtrent een overzicht van de onderzoeksresultaten, een assessment van de validiteit van de studie, suggesties voor vervolgonderzoeken en afsluitende gedachten van de researcher. Het onderzoek resulteerde in begripsvorming van de kernkarakteristieken van de *global information order*, alsmede de verbetering van beeldvormende processen in

information governance en een instrument om die verbetering in beeldvorming te operationaliseren – het betekenisvormend raamwerk. De validiteit van de studie wordt getoetst op causaal en logisch redeneren, de opzet van de evaluerende casestudies, de mogelijkheid tot generaliseren van de onderzoeksresultaten en de betrouwbaarheid van het onderzoek in termen van repliceerbaarheid. De discussie bespreekt vijf suggesties voor vervolgonderzoek die ingaan op het verhogen van de kwaliteit van de gebruikerservaring, de vorming van nieuwe (meta) theorieën, praktische toepassingen van het betekenisvormend raamwerk en een verdere verfijning van de interne structuur van het raamwerk. De afsluitende gedachten van de researcher reflecteren op het onderzoek, het raamwerk en betekenisgeving, en de implicaties voor organisaties. De eerste stap in innovatie in de context van de hedendaagse informatiemaatschappij is het *zien* van de mogelijkheden die zij organisaties biedt. Dit onderzoek biedt met het ontwikkelde raamwerk een handreiking aan organisaties om daarvoor het noodzakelijke discours te kunnen organiseren.

Appendix A – Printed questionnaire

1 Overall, using the framework gives me a better understanding of the concept or product that has been evaluated.

Select one:

- Strongly agree Agree Disagree Strongly disagree
-

2 In describing the concept or product – the object, it was possible to identify or express what it made available to me or to my organization.

Select one:

- Strongly agree Agree Disagree Strongly disagree
-

3 Which of the orientations of meaning from the product or concept will potentially create new habits for you or your organization?

Select one or more:

- Communicative meaning Inherent meaning Symbolic meaning Contextual meaning
 None of the above
-

4 How would you characterize the innovation potential of the concept or product that has been evaluated?

Select one or more:

- Time convergence Disruptive construction Radical connections
 None of the above
-

5 In discussing and populating the framework, how would you score the language that has been used?

Select one:

- Very informal Informal Neutral Formal Very formal
-

6 Would you use (parts of) the framework to interpret the outcome of other models, approaches, or methodologies you are familiar with?

Select one:

- Completely To some extent Not at all
-

7 Can you remember all the parts of the framework and how they connect with each other?

Select one:

- Completely To some extent Not at all
-

8 Do you have any comments or suggestions regarding the structure, usage or application of the framework?

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Appendix B – Gedrukte questionnaire (Dutch)

1 Het gebruik van het raamwerk geeft mij over het algemeen een beter begrip van het concept of product dat werd geëvalueerd.

Selecteer één:

- Helemaal mee eens Mee eens Niet mee eens Helemaal niet mee eens

2 Het was mogelijk om het concept of product – het object – zodanig te beschrijven, dat duidelijk werd wat het beschikbaar maakt voor mij of mijn organisatie.

Selecteer één:

- Helemaal mee eens Mee eens Niet mee eens Helemaal niet mee eens

3 Welke betekenissen van het concept of product creëren potentieel nieuwe gewoontes of werkwijzen voor u of uw organisaties?

Selecteer één of meerdere:

- Communicatieve betekenis Inherente betekenis Symbolische betekenis Contextuele betekenis
 Geen van het bovenstaande

4 Welk type innovatiepotentieel vindt u dat het geëvalueerde concept of product heeft?

Selecteer één of meerdere:

- Tijd convergentie Disruptieve constructies Radicale verbindingen
 Geen van het bovenstaande

5 Wat vindt u van het taalgebruik tijdens de discussies en het invullen van het raamwerk?

Selecteer één:

- Zeer informeel Informeel Neutraal Formeel Zeer formeel

6 Zou u (delen van) het raamwerk gebruiken om de uitkomst van andere modellen, aanpakken, of methodieken te interpreteren?

Selecteer één:

- Volledig Enigszins Totaal niet

7 Kunt u zich alle onderdelen van het raamwerk herinneren en hoe zij met elkaar verbonden zijn?

Selecteer één:

- Volledig Enigszins Totaal niet

8 Hebt u opmerkingen of suggesties over de structuur, het gebruik of de toepassing van het raamwerk?

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Information products proliferating in the contemporary information society such as Twitter, Facebook, Tablets, Smartphones, and Cloud services deeply affect the daily life of people and raise new challenges for organizations.

Traditional management models no longer suffice to deal with the plethora of these ingenious technologies. They assume the industrial paradigm: managing scarce resources for achieving the goals of the enterprise. Non-rational values are part and parcel of the abundance-driven information society and confront decision makers now to make responsible choices. Sometimes informational products unwittingly jeopardize critical systems in the enterprise, while others provide great opportunities for innovation.

Information governance requires more than the traditional instruments in order to consider the complex meanings of the products of the information society as well as assessing their innovation potential. Governing actors should be able to discuss a product without being a subject matter expert, understand how its meanings affect the behavior of the organization and its users, and identify its innovation potential.

The first step in innovation is: seeing the possibilities, which starts with appropriate image building. That includes explicating what products of the information society offer, what they mean to the organization and its users, and how they assess against the core principles of innovation.

Peter Beijer