Association for Information Systems
AIS Electronic Library (AISeL)

ICIS 2008 Proceedings

International Conference on Information Systems (ICIS)

2008

Information Leadership: The CIO as Orchestrator and Equilibrist

Rik Maes
University of Amsterdam, maestro@uva.nl

Erik J. DeVries
University of Amsterdam, erik.devries@uva.nl

Follow this and additional works at: http://aisel.aisnet.org/icis2008

INFORMATION LEADERSHIP: THE CIO AS ORCHESTRATOR AND EQUILIBRIST

Leadership informationnel: le DSI comme chef d'orchestre et équilibriste

Completed research paper

Maes, Rik
University of Amsterdam Business School
Roetersstraat 11
NL 1018 WB Amsterdam
maestro@uva.nl

De Vries, Erik J.
University of Amsterdam Business School
Roetersstraat 11
NL 1018 WB Amsterdam
erik.devries@uva.nl

Abstract

The dominant interpretation of the function and role of the CIO is technology-related with business-ICT alignment as a core concept. We criticize this vision as a product of the dominant interpretive scheme and show how the logic of this scheme restricts the worldview of CIO's and researchers. To overcome these restrictions, we adopt an alternative interpretive scheme based on our twenty years of experience with collaboration with information managers. This scheme is essentially generative and synthetic. We define the function and role of the CIO as the orchestrator of the information-related activities of the organization. To be successful, the CIO should further maintain equilibrium between inspiring and innovating the organization and informing and architecturing it. Finally, we argue for the use of a new language that can involve all stakeholders in these activities to make them enthusiastic participants. Based on this new view, the CIO can emanate information leadership.

Keywords: CIO, Equilibrist, Information Leadership, Information Management, Informing, Inspiring, Orchestrator, Strategic Alignment

Résumé

Nous critiquons l'interprétation dominante de la fonction de DSI, reliée à la technologie et à l'alignement entre business et technologie comme concept central. Nous proposons un approche alternative. Nous définissions la fonction de DSI comme chef d'orchestre des activités informationnelles et comme équilibriste entre l'inspiration et l'information dans l'organisation.

Samenvatting

De heersende interpretatie van de functie en rol van de CIO gaat uit van een technologische visie en gebruikt hierbij business-ICT 'alignment' als kernconcept. Wij bekritiseren deze visie als zijnde een exponent van het dominante interpretatieve schema en we tonen aan hoe deze visie het wereldbeeld van de CIO en de onderzoeker beperkt. Gebaseerd op een alternatief schema, het resultaat van 20 jaar ervaring met informatiemanagers, definiëren we de CIO als de orkestleider van de informatiegerelateerde activiteiten en als evenwichtskunstenaar tussen het inspireren en innoveren enerzijds en het informeren en architectureren van de organisatie anderzijds.

INFORMATION LEADERSHIP: THE CIO AS ORCHESTRATOR AND EQUILIBRIST

The Dominant Interpretation of the CIO

Ever since its emergence in the 1970s (Gottschalk 1999), the function of Chief Information Officer (CIO) has received regular attention in the literature (e.g. Booth and Philip (2005); Daum et al. (2004); Earl and Feeny (1994); Gupta 1991; Ranganathan and Kannabiran (2004); Stephens and Loughman (1994); CIO Research Report 2005; CIO Role Survey 2006). Synott (1987) was one of the first to define the function of the CIO. He saw the CIO as "a senior executive responsible for establishing corporate information policy, standards, and management control over all corporate information resources". Quite recently, Krcmar (2003) defined the CIO as: "the job title of a person or manager who is responsible for the ICT and the IS Architecture that supports the business objectives". Broadbent and Kitzis (2005) characterize the CIO as "the most senior executive responsible for identifying information and technology needs and then delivering services to meet those needs."

One of the most prevalent challenges of the CIO is to become a strategic business partner (Watts and Henderson 2006). To become a business partner many authors emphasize the need to *align ICT to the business* (Booth and Philip 2005; Earl and Feeny 1994; Stephens and Loughman 1994; Peppard et al. 2000; Enns et al. 2001; Khandelwal 2001). This call for alignment is obviously a result of Henderson and Venkatraman's (1993) introduction of the strategic alignment model which has been followed by a fast array of studies on the concept (Avison et al. 2004; Baets 1996; Booth and Philip 2005; Chan 2002; Ciborra 1997; Currie and Bryson 1995; Hirschheim and Sabherwal 2001; Hu and Huang 2006; Kearns and Sabherwal 2007). Alignment has been the perennial chart topper on top-ten lists of ICT issues for several years now (Luftman 2003). An important means to arrive at alignment is the definition of an ICT strategy (Earl and Feeny 1994; Peppard et al. 2000). Components of an ICT strategy that require the CIO's attention are concepts such as IS architecture (blueprinting for information services) (Gottschalk 2000), ICT portfolio management (Hamilton 1999), infrastructure management (Weill and Broadbent 1998), outsourcing (Cumps et al. 2007), the positioning of the ICT function (Booth and Philip 2005; Ranganathan and Kannabiran 2004) and the monitoring of technological developments to innovate (Jordan, 1993; Stephens and Loughman 1994).

To put these managerial issues into practice and to arrive at strategic alignment, the CIO is supposed to perform six roles (Stephens et al. 1992; Grover et al. 1993): leader, spokesman, monitor, liaison, entrepreneur and resource allocator. Two roles appear to be specifically important for CIO's striving for business-ICT alignment, that of communicator/spokesman (Earl and Feeny 1994; Stephens and Loughman 1994; CIO Role Survey 2006; CIO Research Report 2005) and that of liaison/relationship manager (Broadbent and Kitzis 2005; Watts and Henderson 2006). Both roles are important because the management of information systems issues is spread over different departments, groups, or even organizations (like in supply chains) and everyone is affected by its proper functioning.

What becomes clear from this literature is that the dominant interpretation of the CIO is that they are primarily responsible for IS/ICT issues and that they should align these with business issues. Strikingly no noticeable exclusive allusion is made to the central role of the CIO in the management of information itself as a business resource (instead of ICT). One could, aphoristically speaking, say that the CIO is not a CIO in the real sense of the word, yet. Furthermore, how do we interpret the CIO's job in a world of outsourcing, in which what seems to be generally interpreted as his/her prime responsibility is outsourced to third parties on a large scale? Will CIO's become CHIPOs (CHief ICT Purchasing Officers) or will their careers be over definitively? And how do we proceed with the concept of alignment that over many years has been heavily criticized in the literature? Are CIO's, talking about alignment all day long, not just emphasizing and reinforcing differences? Do people that are categorized by IS people as 'the business' wish to be aligned? Do they know what it means? Is alignment a manifestation of instrumental thinking (aligning ICT strategy to business strategy) or a manifestation of technological determinism and associated power games (ICT impacts on business and therefore business processes should be aligned with ICT)?

The dominant interpretation in the literature is not without problems and if it is an adequate representation of the CIO's practice, this function seems to be in deep trouble. What we intent to offer in this paper is an alternative interpretive scheme of what the job of CIO is all about. We will argue that CIO's are essentially orchestrators and equilibrists. We will work out what they need to orchestrate and between what they are balancing and we will

explore an alternative language to shape orchestration and balancing. We will present this in section four of this paper. Our arguments for such an alternative interpretive scheme are a result from our working method and our critique on the dominant interpretive scheme. We present our working method first in the next section because the critique on the dominant interpretive scheme and indeed the whole concept of interpretive scheme is part of our working method. Our critique on the dominant interpretive scheme is set out in section three. This critique is fundamental in the sense that we strongly believe that the dominant interpretation of the CIO's work causes many troubles experienced in practice and precludes both practitioners and researchers from exploring new avenues.

Our Working Method

Our way of working is interpretive in nature and is therefore quite contrary to the general positivist epistemology in the IS field (Orlikowski and Baroudi 1991). Positivists believe that the world conforms to laws of causation, which could be tested objectively. Their research approach is hypothetico-deductive and confirmatory (Fitzgerald and Howcroft 1998; Lacity and Janson 1994; Orlikowski and Baroudi 1991). Interpretists however, believe that multiple realities exist as subjective constructions of the mind. They see the world as socially constructed. Their research approach is inductive and concerned with interpreting social patterns. (Fitzgerald and Howcroft 1998; Guba and Lincoln 1989; Klein and Myers 1999; Lacity and Janson 1994; Orlikowski and Baroudi 1991; Walsham 1995). Interpretists believe that the process of social construction could lead to temporal collective interpretations.

It is our interpretation that the dominant interpretation in the literature cited above is that the CIO is responsible for IS/ICT related management issues (and in many cases for the IS/ICT department of the organization) and that business-ICT alignment should be strived for to be effective as a business partner. This collective interpretation works as an axiom. It has been taken for granted right from the start. This is despite the fact that Synott (1987), in one of the first definitions of the CIO, did not define the CIO explicitly in technological terms, he saw the CIO as "a senior executive responsible for establishing corporate information policy, standards, and management control over all corporate information resources". Concepts like information policy, standards, management control and information resources however could quite easily be given an ICT-related connotation. It could be assumed that the by that time rather technology dominated IS field has interpreted Synott's definition that way. This assumption is affirmed by Black's (2007) historical account of the work of the information officer which shows that the 'management of mechanization' has got the upper hand of information centered work over the last century. It seems that the technological means to do the job have distracted our attention from the pursuit of the job.

The problem with this dominant scheme is that the scheme gets reinforced by itself all the time. Both practitioners and academics work from the same axioms. They have learned the dominant scheme throughout their education and have been indoctrinated with it. This reinforcement effect is especially strong in the case of dominant perspectives on leadership roles. It is well known from the management literature that top managers have themselves become the system in which they have grown to their positions. Therefore, they don't have many incentives to change that system. Moreover their roles are not only shaped by themselves but by the expectations of their surroundings as well. If there is truth in the understanding of social psychologists that our social environment shapes our identity, it would mean that the identity of CIO's is shaped by the interpretive schemes of the people surrounding them, like suppliers, consultants, employees, fellow CIO's and academics. As they all share the dominant scheme and express their mutual expectations in the dominant language, they will reinforce that scheme. Of course CIO's will meet many people from other disciplines who don't share this dominant scheme but also that has been taken care of in the dominant interpretive scheme…indeed, by the concept of business-ICT alignment.

The argument we make is a structuration argument taken from Giddens' structuration theory (Giddens 1976). Giddens holds that individual human agency and abstract social structure (traditions, institutions, codes, established ways of doing, language, etc) are related to each other. Social structure is produced and reproduced by individual agents repeating acts. These acts are repeated because of the social structure in the sense that the social structure has formed individual's beliefs and language and that actions which are deviant from the social structure are reacted on by other people within the same social structure with disbelief and sometimes even anger. Social structure thus serves as a save haven. This recursive relationship between human agency and social structure is called the duality of structure. Crucial in Giddens' theory is that that same relationship means that social structures *can* be changed. To do so people need to get aware of the dominant social pattern and need to replace it or reproduce it differently. Interpretive schemes are central in such change. Interpretive schemes are the means through which meaning is communicated in human interaction (Giddens 1979). Humans draw on a stock of commonly held knowledge in the interpretive scheme in their interaction. Interpretive schemes do not only serve interaction, they inhibit interaction as

well by serving as a medium to impose structural constraints. The sharing of meaning through a dominant interpretive scheme inhibits alternative schemes of meaning because these are interpreted through the dominant scheme. It is for this reason that we have to open up the dominant interpretative scheme to allow for alternative interpretations. This opening up of the dominant scheme to change agency (including communication) is especially important for those having a powerful position, like CIO's (and those who advice them) and academics, because these people have the facilities (resources) to change the social structure and have the power to sanction. They can sanction change of social structure by their production and reproduction of alternative interpretive schemes. Likewise they can do the opposite by reproducing the dominant interpretive scheme. Gidden's structuration theory recognizes this interlinking between communication, power and sanction as dimensions of agency by which social structure gets reinforced through the modalities interpretive schemes, facilities and norms.

To open up the dominant interpretive scheme, empirical research doesn't make sense to us because of the duality of structure. It would only reinforce the dominant scheme and reproduce the social structure. In classical hypothetico-deductive empirical research academics work from the academic method of taking stock of existing knowledge and publications and design empirical studies on it. The design of such studies will bear the dominant interpretive scheme expressed in the literature. Moreover, the empirical work will be done in the dominant language to reach practitioners in the field and these practitioners will answer questions (in the case of surveys or interviews) or show conversations (in the case of ethnography or case studies) that confirm the dominant scheme simply because they don't have alternatives for the dominant language. Academics interpreting such empirical material on their turn have no alternative than to interpret it from the dominant scheme as the design of their study was done in these terms, the results show the dominant language and the discussion in the literature is done in that language. The end result is that both the social system of practitioners and of researchers reinforces the dominant interpretive scheme. With inductive research approaches like for instance grounded theory, there is a fair chance to end up in the same situation. The empirical material on which to ground on will be laden with the dominant interpretative scheme of practitioners in the field and alternative coding schemes to interpret this material will be questioned by fellow researchers from the dominant interpretative scheme. Moreover, a methodology like grounded theory has been criticized for showing the immediate apparent and observable at the expense of recognition of underlying social structures and interpretation schemes behind the observable behavior (Layder 1993). Those researchers daring to interpret the empirical material from alternative schemes run the risk of being accused of not following the 'abstract wonderment' or 'clean tabula rasa' guideline of the method (a guideline which has been criticized for its naive, formalist and non-interpretist character (Alvesson and Sköldberg 2000; Thomas and James 2006)). Furthermore, grounded theory insists that theories derived from the data should be recognizable for those who were studied (Layder 1993). But rather provoking, challenging or simply deviant interpretations could be hard for them to accept because whereas theorists are pleased with alternative interpretations because these open up new avenues of research, non-theorist (like people studied in grounded theory studies) usually get worried by alternative interpretations because it interrupts with their daily practice and suggest that their past experience potentially mislead them in their actions (Weick 1999).

We therefore have chosen to open up the dominant interpretive scheme theoretically. We do so by challenging two of its core concepts in the next section: the overemphasis of technological notions to the detriment of information-related notions and the concept of business-ICT alignment. In the following section we present an alternative interpretation scheme consisting of an holistic framework to support generative syntheses (as we have learned that practitioners appreciate such frameworks) and a vision and language to use the framework to balance between providing structure (in our terms to inform) and leaving room for interpretive viability and sense making (in our terms to inspire). Mouzelis (1995) differentiates between two kinds of theories used by social scientists: theories meant to explain and predict (a set of statements about the social world to be proven by empirical investigation); and theories as tools for thinking, theories to inspire, to bring ideas together (Thomas and James 2006; Weick 1999), theories to map out a problem area (Nadel 1957), to make sense of the world (Astley 1985; Weick 1999). Our alternative interpretation scheme should be seen as the development of a theory of the latter kind, to map out a problem area, to think over alternatives and to inspire practitioners and researchers. Acknowledging the difference between understanding and prediction (Ricoeur 1970), our emphasis is on the understanding.

Our alternative interpretive scheme has been formed in a social structure which only has been moderately influenced by the traditional dominant interpretive scheme, which has been influenced by interpretations schemes from other disciplines as well and in which we have been actively involved for over twenty years. As knowledge is path dependent, our knowledge results from the many interpretations of events, trends and interactions that we experienced throughout our professional journey. Where did our journey start? It started twenty years ago with a

one year educational program for executives who were responsible for ICT related issues in businesses or governmental organizations. By that time the word CIO had just been introduced, academics and practitioners alike were debating its positioning and role taking and expectations were high. The first jokes on careers had to be made yet and the concept of alignment had not yet been introduced. The first papers on the strategic impact of information systems began to see the light and James Martin amongst others just had introduced the concept of strategic IS planning.

Our program started from the notion of strategic IS planning, strategic impact and the idea that within a couple of years large Dutch companies would need someone in some sort of CIO position. We believed that such a person would need knowledge on strategy, organizational design and behavior and ICT. This educational program was targeted towards people in IT departments *and* business people. The program was called Information Management to emphasize that it was more than an IS program. The start of the program was quite participatory. We defined problems in the field together with our participants and sought for solutions and experts together with them. This way we built a network of lecturers right from the start. They were a mix of academics with insight in practitioners' problems and reflective practitioners.

Retrospectively, this could be denoted as our root definition (Checkland and Poulter 2006): participatory, multi-disciplinary in subjects and participants and working from a network of lecturers. Even today after 20 years of experience, we encourage practitioners to bring in their problems and challenges and support them in their search for solutions. The percentage of business people following the program has exceeded the percentage of ICT people to that extent that nowadays only about 15% of our participants have a genuine ICT/IS background. During the mid 90's we already envisaged the merger of ICT and media and introduced a second year in the program on the management of multimedia. This made our program even more multi-disciplinary with lecturers coming from fields like communication studies, philosophy, media economics, design and the like. Nowadays this subject is fully integrated in the program which is, including the master thesis, a two years program, the Executive Master in Information Management (EMIM). Participants' age varies from 30 to 55, having an experience in the field of at least 7 years. Over 20 years we have educated more than 400 people from almost all industries. Only 20% of our lecturers have an affiliation with the program's host institution, the University of Amsterdam.

Our root definition has led to a range of associated initiatives. Ex-participants started a vivid association of alumni right from the beginning. We started a Fellows program for personal development (complementing professional development) 5 years ago. Every year a selected amount of 25 EMIM-alumni follow this program which is highly participatory. The participatory aspect of our root definition has been worked out in an educational approach in which participants, their organizations, lecturers and researchers equally learn from each other (Maes 2003). Eleven years ago, we started our research program. The interdependence of our research program and executive education and our educational approach has been documented in the literature (Maes 2003). Recently we edited a book with contributions from our network of lecturers and many other scholars from around the globe (Huizing and De Vries 2007). In addition to this book, we organized a conference with over 100 attendants from industry and academia. We started the organization of the book and conference with a meeting of the academic editorial board and conference program committee with about 15 CIO's of the largest companies and governmental organizations in the Netherlands. We organized around 25 interviews with CIO's in the period before the conference and made a 12-minute documentary with 6 CIO's to show at the conference. The night before the conference we organized a thematic *diner-pensant* for 25 CIO's and 10 academics. Benbasat and Zmud (1998) view the limited exposure of many academics to relevant practitioner's contexts as one of the reasons for the lack of relevance in the field. We haven't felt any limitation for over the last twenty years in this regard.

Over the years our approach has been based on engagement and participation from both the academic and practitioner's side. We not only learned the needs of highly involved practitioners, but have learned to appreciate their directions for solutions fully. We have learned that *their* appreciation is in the combination of analytics and generative synthesis; whereas many research output from the academic field overemphasizes analytics (and statistics), a point that has been made by academics themselves in the IS field as well (Robey and Markus 1998). It has become clear to us that the kind of specialism required for an academic career is quite different from the kind of specialism needed by high placed practitioners and the ones involved in educating them.

The appreciation of generative synthesis by practitioners asks for rather *holistic frameworks* (like the one in figure one) to position different aspects of the field in a way that makes sense to them and the people in their organizations and which leaves room for interpretive viability (Benders and van Veen 2001). It further requires a *multi-disciplinary approach* because the phenomena they have to deal with in their everyday lives rarely are one-

dimensional. In fact, what appears to be an information systems problem regularly turns out to be a problem with strategic, marketing, communications, behavioral, accounting, supply chain, media economics or other issues involved. Such a multi-disciplinary approach asks from people to be open-minded to other worldviews and alternative interpretive schemes. Being *provocative* is an educational strategy to arrive at that. What we mean is building a relationship with people so that they become open to other worldviews and then confronting them with it without being normative, without imposing our 'regime of truth' (Foucault 1980) on them, let alone examining them about it. Depending where they intellectually come from, such a confrontation is experienced as more or less provocative, but always attracts their attention and leaves sediments in their minds. It is the strategy of the court jester (Otto 2001). The court jester performs the delicate role of saying what cannot be said, of gradually changing interpretive schemes through confronting hard held beliefs with alternative interpretations. His/her primary weapon is humor. We are permitted to laugh at the jester that provides us and the King and Queen with a socially easy way out in case s/he might provoke us, which is obviously inescapable for the jester as her/his role is to confront us with the limitations of our system of beliefs.

It is this way of working that we have in mind in this paper. Because we have to deal with a quite pronounced dominant scheme of interpretation of the CIO's working field and role taking which gets expressed in a seemingly hard to change language that reinforces the dominant scheme, we need to be somewhat *provocative* in our approach.

As we have to deal with a *multi-disciplinary* field of working in practice and the nomenclature of our own field reinforces the dominant scheme, we 'borrow' meaning and language from other fields like architecture, design, organizational behavior, etc. We like to emphasize that we do not mean ICT-architecture, systems design or behavioral issues like resistance to systems because we hardly believe that that has anything to do with what non-IS people (we mean the rest of the world) think of when they talk about informational issues.

As we, at the same time, have to deal with interpretative schemes of the work of practitioners, our approach has been practitioner oriented and participatory in the first place for over twenty years and we remain to do so. We are fully aware of the fact that dominant schemes have their origins in education which is in many cases based on academic research. However, as has been put forward earlier, we do not expect traditional empirical research to bring us closer to alternative schemes. This stance is in line with the one adopted by Ciborra who heavily criticizes detached academic practice for the benefit of research "anchored to the unfolding of the human process of encountering the everyday world" (Ciborra 2002: 6). Moreover, the academic field itself has expressed that most new issues in the IS field has been brought in by practitioners and consultants (Davenport and Markus 1999). Furthermore, we experienced that only a fraction of the people we educate in our programs and many of the CIO's we have spoken to over the last few years have a primary background in IS. With IS curricula not attracting many students worldwide and many industries facing a huge shortage of people being competent enough to manage information and IS related issues (Dedene and Heene 2007; Simon et al. 2007), we expect the amount of practitioners in our field without a primary IS background to grow steadily over the next decade. The witnessing for over many years by IS scholars of a gap between what industries need and what curricula deliver (Abraham et al. 2006; Lee et al. 1995; Simon et al. 2007; Todd et al. 1995; Yen et al. 2003) is not very promising in this respect. The current state of the IS field with its over-emphasis on the positivist regime of truth (Orlikowsky and Baroudi 1991), its lack of relevance in research (Benbasat and Zmud 1999; Davenport and Markus 1999; Robey and Markus 1998) and education and the diminishing attention of prospective student, doesn't hold much promise for the future. We expect more change to come from role models of practitioners and those who educate them. Furthermore, a practitioner-oriented approach provides us with first hand experiential knowledge on which we could reflect and change our strategies. Gradual change in the practitioner's domain and reflection on its effects is what we have in mind with our working method. Nevertheless, we acknowledge that the IS field is one of the primary reference fields that we work from. Therefore, we share our concerns, approach and alternative interpretations on conferences like the International Conference on Information Systems and hope to be of inspiration.

Problems with the Dominant Interpretive Scheme

Denial of the Concept of Information

Our first and foremost objection against the prevailing conceptualization of the CIO is the almost complete absence of the concept of *information*. The usage of notions such as business-ICT alignment, ICT strategy, architecture and sourcing has led to the idea that the management of ICT has become almost synonymous with the management of

information. "In short, the 'T' of IT has become the focus of attention rather than the 'I'." (Peppard et al. 2000). Now that ICT is increasingly outsourced, the lack of *information* related notions and the over-emphasis on technological notions become apparent. The resulting situation is a challenging one. Now that technology no longer distracts our attention from the real issue, we can return to that issue and consider the information itself as an important variable for analysis (Glazer 1991). We can shift our attention from the means to the ends.

We should however be careful in this endeavor. The heritage of the past two to three decades of technology oriented thinking has left us with a 'cabinet full of mechanical information notions' like for instance information logistical notions, such as the gathering, storage, refinement, and distribution of information or concepts like information users and producers, information requirements or senders and receivers. The problem with this cabinet is that these notions are still technology related and systems oriented. Another way of thinking about information that will be rather tempting in an environment of ICT outsourcing would be market related notions like information demand and supply. However, such market terminology commoditizes the concept of information, such that it degenerates into a marketable product (Huizing 2007a) and will distract our attention to the medium of commodity distribution (the technology) once again. With such a set of notions, CIO's would be caught in a vicious circle from technology trap to commodity trap and back again. With such set of notions, they will only 'shed' their image of technologists, as some ICT representatives appear to do (Booth and Philip 2005).

Another set of notions, which has always been around in the working field of the CIO, is that of accounting, accounting information systems and financial information systems. It is obvious that the information related concepts in this field belong to the core competencies of another profession and that these concepts address only (a biased) part of the information related issues. To state it in a provocative way: information management is broader than management information. Adhering to these notions further puts the CIO back in the position of the responsible for IT.

What we need is a genuine interest to develop management notions around the function of information in social (psychological) processes that goes beyond the concept of individual users (Lamb and Kling 2003) or rather mechanical decision-making models. We need notions around how information and communication processes develop identities of organizations and influence their strategic positioning; notions on the relation between information and communication processes and the division of labor, specialization and resulting coordination and contracting needs; or notions on the function of information in innovation (diffusion and adoption) processes (De Vries and Huizing 2007). Such notions are primarily focused on social processes and are not systems oriented. These notions should be on processes of communication, interaction and learning, on how people understand and attach meaning in social processes. We need to acknowledge fully that at this moment in time only a fraction of information (and probably only the fraction of commoditizable data) can be caught in systems and that a systems orientation restricts our view on how information is dealt with by people in their social (inter)action. Understanding how people deal with information is not a means to arrive at systems but systems are a means to support people's dealing with information. We should keep in mind that there are many information and knowledge related processes that cannot be designed, but should be designed for (Wenger 1998).

A set of information notions like these complements competencies on technological commodities, which are rather easy to duplicate, with socio-organizational competencies. Resource configurations consisting of a profoundly intertwined combination of socio-organizational competencies and technological systems which are infused with social values during development, implementation and usage and as a consequence bear the values of the social organization, could become complex, tacit, specific and opaque and are therefore hard to duplicate (Barney 1999). These are of high value to the organization. CIO's that orchestrate the development of such configurations from their information-related and technological systems related notions do not only support their organizations but have become part of such valuable socio-organizational configuration.

As long as we conceptualize the CIO as a senior manager, responsible for IS/ICT related issues, our attention and that of those we educate will be distracted by the technology, which becomes increasingly commoditized. Furthermore, we would be tempted to further develop a language full of systems and technology-related concepts. A language that is probably highly creative but ineffective in our communication with others. For those who need examples, think about virtual reality, artificial intelligence, ambient mobility, enterprise resource planning or customer relationship management. The list could be endless. The danger of such language does not lie in the fact that others do not understand it (it could be explained), but in the fact that others understand it *very well*. Those who understand terms like customer relationship management or enterprise resource planning very well recognize the mechanical nature of the language and view this as a reflection of the way of thinking of the speaker. The

identification of the CIO with technology related issues could lead to an endless cycle. Those who hold themselves primarily responsible for technological issues will be regarded that way and as a consequence will be asked questions about it. As they feel responsible for these technological issues, they need to speak technology-related language in response to these questions. This reconfirms their technological image. Even when the conversation is not about technology as such but about information, the conversation will be in systems-related language, thus restricting the conversation. The dominant interpretive scheme is both cause and effect. The only way out is to free ourselves from such language through the development of notions that have to do with the ends (information) instead of the means (technology) and which does not reconfirm a mechanical image. Hence, we repeat our statement: the CIO is not a CIO….yet.

The Myth of Alignment Romanticism

Our second objection against the dominant interpretive scheme of the CIO targets the concept of strategic alignment. In this notion, the CIO is seen as a sort of liaison officer between business and ICT, in academic terms between the management discipline and information systems, if not computer science. The image of the business-ICT relationship has been that of "a troubled marriage in need of guidance" (Ward and Peppard 1996). Maes (2007) prefers René Magritte's painting "Les Amants" ("The Lovers") as a metaphoric representation, where both lovers are dying to kiss each other on the mouth but are severely obstructed by their heads being fully wrapped up. Miscommunication and even non-communication are said to be the main source of misalignment between business and ICT departments (Coughlan et al. 2005).

Strategic alignment (Henderson and Venkatraman 1993) has become the key to open up and manage the business-ICT relationship (Avison et al. 2004; Hirschheim and Sabherwal 2001), though it has been criticized heavily as being only a purely rational top-down approach (Simonsen 1999) and hence only partially effective (Chan 2002), lacking practical handles and therefore in large measure irrelevant (Sauer and Burn 1997), unclear how to reach (Currie and Bryson 1995) and even inconvenient and harmful (Ciborra 1997). Despite all this, it is still high on the hit parade of any CIO survey of pressing questions. We believe, in line with Hussain et al. (2002), that strategic alignment is used to denote a variety of things and consequently is a misleading term, as it implies e.g. both the ultimate destination and the road leading towards it (though driving this road is pretended to be badly understood (Sabherwal and Chan 2001; Smaczny 2001)). More recent publications either deal with reasons why strategic alignment hasn't realized yet (Chan 2002; Hirschheim and Sabherwal 2001) or with a more detailed investigation of the concept itself (Avison et. al. 2004; Luftman 2003), but fail to deliver clear empirical evidence.

An additional view from the structuralistic point of view as advocated by Roland Barthes (1957) indicates strategic alignment as a breeding ground (the dominant ideology) for hidden but nevertheless accepted meanings, myths. According to Barthes, myths record what is considered as being normal and universal, whilst this is in reality ideologically determined and therefore arbitrary as opposed to being natural and self-evident. When projected on the original scheme presented by Henderson and Venkatraman (1993), strategic alignment means that at least the following five aspects of manipulability are accepted as being implicit and self-evident: (1) business and ICT strategy can be geared perfectly to each other; (2) the structure and operations of an organization can be fully governed from the organizational strategy; (3) ICT structure and operations can be controlled from an integral ICT strategy; (4) structure and operations of an organization and its ICT can be realized in perfect mutual coherence and (5) under all circumstances, maximum attunement is the best solution for each of the aforementioned four attunements. These myths are underpinned by observations taken from the (ICT) strategy literature: the assumption that it is anyhow possible to align all these business aspects with each other and their environment and that the development of ICT systems and infrastructures is controllable to the extent that it can be fully exploited to support organizational goals is illusory (Brigham and Introna 2007). Ciborra's (2002) notions of drift and bricolage tell us a similar story and point to a more factual description of reality.

Taken from a linguistic perspective one could say that openly speaking of alignment and the strive for it, resembles speaking openly about the strive for a good marriage. Both emphasize what is missing and give the other party a feeling of impotence. The adding of the predicate 'strategic' does not ease those feelings because it stresses importance. Obviously, expressing oneself in dichotomies confirms differences (Barad 2003).

The concept of strategic business-ICT alignment is highly romantic in nature altogether. Everything to strive for seems beautiful, appeals to general cultural values and above all might solve a problem that at least is experienced by one of the parties. However, the road leading to it is unclear, as are the benefits once reaching it. As we encounter
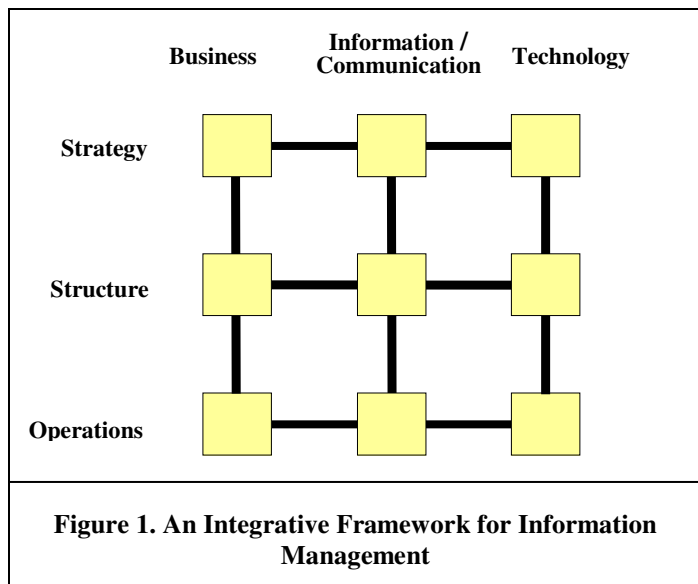
many people along the road which seem not be aligned yet, our search for this Holy Grail is harmful in the sense that we confirm socio-organizational differences and shape distances. In those cases where strategic alignment manifests itself as a traditional top down strategic planning exercise, the concept reinforces the mechanical image of CIO's. We conclude again that the dominant interpretive scheme is both cause and effect.

We end our discussion on alignment with the statement that the CIO is not to become a partner in business, but a part *of* business. In a world of ubiquitous outsourcing, the romantic notion of business-ICT alignment boils down into a contractual relationship and the CIO becomes part of business or otherwise will end up as CHIPO. We repeat that the challenge is to be a genuine *information* officer, a CIO that orchestrates complex resource configurations of socio-organizational competencies and technological systems that are highly valued by the organization and as such be part of this valuable socio-organizational configuration itself.

An Alternative Interpretive Scheme: the CIO as Orchestrator and as Equilibrist

The CIO as Orchestrator

Maes (2007) provides us with an integrative framework for information management (figure 1) in which we can position issues which are central to the working field of the CIO. Based on this framework, we describe information management and the work of CIO's as the integrative, balanced management of the different domains represented in the framework. It concerns strategic, structural and operational information-related issues (the vertical dimension of figure 1) and relates the (external and internal) information and communication processes and their supporting technology to general business aspects (the horizontal dimension). We like to emphasize that what we mean by information management is much broader than domains like content management, information retrieval, management information, knowledge management or indeed IS or ICT management. These domains might all be part of

Figure 1. An Integrative Framework for Information Management

what we define here as information management. This implies that the whole working field of information management is spread over the organization and not the (exclusive) working field of an IS/ICT department. Despite this spread, someone needs to be responsible for the orchestration and development of this broad field and all people involved in it: the Chief *Information* Officer.

The integrated framework tries to meet the shortcomings of the concept of strategic business-ICT alignment. Therefore, it makes the connecting factors *information/communication* and *structure* explicit as central components of information management, but it deals above all summarily with the suppositions of strategic alignment: (1) the elements of the framework represent essential, integral components of information management, which cannot be understood isolated from each other; in the terms of Barad (2003) this involves intra-action of these components; (2) the framework is descriptive by nature and does not pretend that the components of information management have to be geared to each other as seamless as possible, as is the case with alignment; and (3) the framework only indicates that these components always need to be considered within their correlation.

In this vision, the CIO is the *orchestrator*, the person that orchestrates the information-related activities of an organization (or part thereof, or across organizational borders) represented in the framework. In this, the components embodied by the middle axles of the framework are his/her main sets of tools. We further elaborate on these central axles, a more comprehensive treatment of the domains of the framework can be found in Maes (2007).

With the I/C column in the framework, we focus attention on the so often neglected information and communication processes. In our view this is the aorta of modern organizations. Increasingly economic rent comes from the production and reproduction of concepts (Murphy and Pauleen 2007). I/C processes, both formal and informal, have become the central arena in competition, not only on the output side but also on input markets. Related to these processes is the concept of knowledge management. We don't mean the knowledge management approach focusing on the deployment and use of technology, the so called *hard* approach (Pauleen et al. 2007) which seems the most popular in the IS field. We mean the *soft* approach, in which the capture and transformation of knowledge into a corporate asset through the management of people is central, in other words the approach that focuses on knowledge as a process (Pauleen et al. 2007). Although several studies have been done to explore the field of information, communication and knowledge related to social processes over the last years (e.g. Bates 2005; Choo 1998; Choo and Bontis 2002; Davenport and Prusak 1997; Huizing 2007b; Marchand et al. 2001; Introna 1997; Peppard et al. 2000; Rowley 1998), our knowledge in this field is still limited. Here, we limit ourselves to some key issues covered by this pivotal column, without making any claim to comprehensiveness, let alone definitiveness.

I/C strategy

- I/C scope
    - To determine the organization's generic external (e.g. what kind of information do we want to share with customers?) and internal (e.g. who owns and interprets the information?) I/C strategy.
    - To assess societal evolutions in the use of information, e.g. the advent of communities, the use of social software, etc.

- I/C core capabilities
    - To determine the organization's overall strategy regarding knowledge management.
    - To determine the differentiating capabilities for using and sharing information (the forming of an information sharing culture).

- I/C governance
    - To develop guidelines for the appropriate use of information.
    - To decide on strategic partnerships for information sharing.

I/C structure

- I/C architecture
    - To develop the organization's information/communication architecture (in essence: who should inform/communicate with whom?).
    - To design critical information and communication processes.
    - To communicate through design.

- I/C capabilities
    - To select and develop promising information and communication capabilities (e.g. to share information over departmental borders).
    - To combine information on customers from different sources.

I/C operations

- I/C processes
    - To install and monitor I/C processes (e.g. the exchange of information between different departments).
    - To install integrated and easily manageable information about the customer.

- I/C skills
    - To train people in the use and interpretation of information.

The structure level of the generic framework emphasizes the significance of tuning the organizational, informational/communicational and technological architectures and capabilities. Its importance has significantly increased due to the emergence of resource based thinking. The integrated information infrastructure, defined as the

generic, relatively permanent basic facility for the purpose of developing and using information services and encompassing technological, informational and organizational components (Maes 1990), is recognized as the managerial instrument par excellence in this respect (Weill and Broadbent 1998). The main decision areas at the structure level concern the *architecture* of the information infrastructure and the establishment of *capabilities* (Henderson et al. 1996); the latter are derived (in essence: generalized) from work practices at the operations level. Information infrastructure and capabilities constitute the substantiated capacity of the organization to realize its goals. We like to emphasize that Maes' definition of infrastructure deliberately takes informational and organizational aspects into account, leaving severe room for non-system issues. Furthermore, as we shall tip on to in the remainder of this section, we don't adhere to the current mechanical conceptualization of architecture in the IS field. We have learned from architects and designers alike that such a conceptualization has more to do with what they call construction than with architecture and design. Therefore the following list of topics, that we think belong to the structural row, should not be read from a typical IS mindset. In our interpretation, there is much more involved than Zachman (1987) like notions, Service Oriented Architecture, Software as a Service (SaaS), UML and the like.

Business structure

- business architecture
    - o   To develop the organization's basic structural arrangements to do business.
    - o   To design critical business processes.
- business capabilities
    - o   To select and develop promising business capabilities (e.g. to work in mixed teams).
    - o   To transform a product-centered organization into a customer-centered one.

I/C structure: see above

Technology structure

- technology architecture
    - o   To develop the organization's technology (data, systems, configuration and the supporting ICT organization) architecture (the technology 'blueprint').
    - o   To design critical ICT processes or sourcing procedures (like SLA structures).
- technology capabilities
    - o   To select and develop promising technology capabilities (e.g. knowledge about SaaS).
    - o   To develop an ICT staffing and recruitment plan.

A vast number of large organizations are using the framework as a guideline for analyzing and organizing their information services. The framework has proven to be a practical instrument for managers of different departments and at different management levels, not just for information managers or ICT managers. It is specifically useful for sharing mutual understanding of the situation as it leaves room for interpretive viability so that different understandings of the situation at hand can be shared within a common framework. The framework works as a sensitizing concept, stimulating people to work with variable forms of expression, yielding "a meaningful picture, abetted by apt illustrations which enable one to grasp the reference in terms of one's own experience", enabling one to "come to see meaning and sense in our concepts" (Blumer 1954). As such the framework opens up existing interpretation schemes (like the dominant one), provides room for alternative interpretations and serves to share meaning. More in detail, the framework is used as follows.

- *Descriptive/orientating*: in this case, the framework is functioning as a 'lingua franca' for all parties involved in information management (ranging from business people to IS people). The different information-related problem areas are indicated in the framework. Experience shows that especially the differentiation between information/communication and IS/ICT, but also between (infra) structure en operations are fruitful to consider. The framework is stimulating the participants to converse about information without recurring to technical jargon and to position the areas for special attention in their mutual relationship. Ample experience was gained in this respect in discussions with Boards and directions of business units of large organizations.

- *Organizing/designing*: a number of organizations is using the framework to redesign their overall management of information and IS/ICT, especially in the case where the IT facilities themselves are concentrated or outsourced. Used in this way, the framework is useful in delineating the areas of concern and responsibility of the CIO and other managers (Cumps, Viaene and Dedene 2006). Remark that the framework is not a diagram of the organization, but an indication of the domains of attention and their interrelationships. Many organizations, including the Dutch Police, the City of Amsterdam and insurance companies like Delta Lloyd and Achmea are differentiating between the demand and the supply side of their information-related activities by using the framework in this way. The Dutch association of coordinators on information and ICT issues in municipalities (with all Dutch municipalities represented) uses the framework to differentiate functions and roles and to manage competencies (Louweret 2005). Recently their Flemish sister organization in Belgium took a similar initiative.

- *Future oriented/plan-wise*: yet other organizations (including their consultants) are using the framework as a diagnosis tool, e.g. to define and further investigate 'blind spots'. Traditionally and dependent on the 'information maturity' of the organization, the central axes of the framework are serious candidates for this. It helps people in evaluating the current situation and in steering future developments through mapping both on the framework. Indeed, a completed framework details the position of the organization, in terms of business, information and technology, from a strategic, structural and operational perspective. Gaps in some of the domains indicate either a poor understanding of these parts of the organization or an effective lack of provisions, often leading to re-allocation of project resources and management attention. A typical example is the Dutch District Water Board, which used the framework not only to pinpoint and address major flaws in their information services, especially from an architectural point of view, but also to enhance cooperation between the different districts (Toet 2007).

The CIO as Equilibrist

Are CIO's able to fulfill the orchestrating role that organizations expect of them and/or should expect of them and are they able to become *part* of the business in doing so? The answer is a balanced one: yes, providing that… Providing that they (a) develop a *vision* in which information management "does no longer exclusively deal with (the organization of) facts but also more or less deals with the mechanisms that put a meaning on these facts" (Introna 1997) and (b) develop a *language* for this that transcends the 'logos' of the technology. After all, an organization is more than just an abstract entity that can be modeled according to clear-cut principles and you cannot put the subtle wealth of meaning of an organization into XML, UML or any sort of formal expression.

In this paragraph, we develop such a vision. This is a vision on the interface of information and inspiration, form and content. In the next subparagraph, we will give the initial impetus to a language that does justice to information management within the complex reality of a living organization. In the future, this impetus might become recognized as a root definition.

In order to develop the new vision on the CIO's sphere of action, we return to the original meaning of 'in-form-ation', namely 'to provide with a form', in other words design. A carpenter for example 'informs' the tree trunk that s/he is using to make a table; people informing each other, give form to their thoughts (Flusser 1983). This interpretation is in line with Boland's (1987) understanding: "…information is the **in**ward-**forming** of a person that results from an engagement with data". Projected on the framework of figure 1, this means that the middle structure row stands for this 'in-form-ation': through architectures, varying from business architectures to technical architectures, we inform an organization.

This information has a prescribing, standardizing character. Using information architectures and information models, an attempt is made to determine a standard integral set-up. The implicit worldview behind 'in-form-ation' is formal and makable; the vision on the factor information is cognitive (Lash and Urry 1994) and objectivistic (Huizing 2007a). At the same time, 'in-form-ation' stands for the binding character of an organization: the infrastructure realized by means of architectures materializes the competencies and to a certain extent the identity of the organization. 'In-form-ation' acts centripetal.

Conversely, too much or too one-sided information, a tendency the ICT world should guard against, means stagnation, excessive bureaucracy, in other words the proverbial 'overkill'. Thus, many information architectures as well as information systems overshoot themselves: they incorporate too much form and restrict their users instead of providing them with the necessary space.

This space can be found in the middle column of meanings in the framework: information and communication 'in-spire' the organization, they 'couch' it in meaning. This inspiration is interpreting in character: ambiguity,

uncertainty and risk are accepted as being actual characteristics of the organization and its environment, using which we try to act by means of intuition and imagination. The world image behind 'in-spir-ation' is ruled by the informal and inherently unmakable, whilst the vision on information is aesthetic (Lash and Urry 1994) and subjectivist (Huizing 2007b). At the same time, 'in-spir-ation' is synonymous for the innovative character of an organization and as a result is inherently disruptive: an 'in-spir-ed' organization renews itself continuously by letting go of positions that were once taken up and by questioning its identity. As opposed to 'in-form-ation', 'in-spir-ation' is centrifugal.

In this case it also applies that you can have too much of a good thing: too much or 'in-spir-ation' that is too one-sided without taking care of 'in-form-ation' leads to chaos. Organizations that do not have their infrastructure straight are relatively more susceptible to this.

However, 'in-form-ation' and 'in-spir-ation' do ideally balance each other out. This requires the CIO to master the art of keeping both balanced, the CIO as equilibrist. He or she is constantly searching for forms that offer sufficient structure but do not restrict and for meaning that inspires sufficiently without leading to chaos. The ideal structure inspires by means of arrangement, the ideal content forms ideas.

The exact balance between 'in-form-ation' and 'in-spir-ation' is situational. Organizations that, for example, have allowed their information systems to expand unbridled will sooner look for this balance in the region of 'in-form-ation', as opposed to organizations that have allowed bureaucracy to take over that will sooner need to pursue a position that will lead to 'in-spir-ation'. Information plans, teaches the experience, traditionally pay the most attention to 'in-form-ation'; in this case the CIO has not yet discovered his/her role as equilibrist. Otherwise, the natural process goes from 'in-spir-ation' to 'in-form-ation': ideas take shape and create a new reality, the inspired organization. This is where the master craftsmanship of the CIO unfolds: laying down things too quickly leads to solidified meanings without all too much added value, doing this too slowly leads to wild ideas that are not widely accepted within the organization.

The Quest for 'Languageability'

Our alternative interpretive scheme asks for an alternative language to express ourselves as well as we need to free ourselves from dominant technology-oriented language. Indeed, so far in this section of the text we have tried to do so. As far as possible, we have moved away from traditional technological notions and where notions that could be interpreted in the traditional way were inescapable, we have made clear what we had in mind, like in the case of the concept of architecture. Interestingly we revisit the concept of architecture in this subsection to explore alternative language.

If we translate the objections to the dominant scheme from section three to the vision in the previous paragraph, then it is clear that information management suffers from an excess of formal thinking; therefore, it is not surprising that it does not radiate the inspiring force that leads to innovative acting. This excessive formality has also nestled itself in the language of information plans, architectures and so on. The dominant language of these being the language of out-and-out 'in-form-ation': full of structural terms that indeed start to lead a life of their own within the organization but are no reflection of any experienced reality whatsoever. If it is true that language represents the common view of reality of the people in an organization and therefore shows what they consider to be really important, then it follows that many organizations have lost the basic contact with that reality in the discussion about their information provisions.

If we wish to fundamentally address the innovative possibilities of the application of information and technology, then the language used for this has to be freed from the abstract language as used by the policy-maker and the technology-drenched language used by the computer scientist. The language of 'in-spir-ation' is at the same time supplementary to the language of 'in-form-ation' as well as it precedes this: it is the language of the narrative mode of gathering knowledge, which we use to generate meaning and work out what is possible within the rich organizational context. It is the language of "hospitality", "improvisation" and "caring" (Ciborra 2002), not the language of process descriptions and structural diagrams. It is the language that we use for articulating our dreams, the language of being touched, emotion and imagination as a starting point for our thinking and of the free space in which this thinking can develop (Kessels et al. 2002; Zandee 2007).

In the following, we limit ourselves to illustrating two such linguistic elements within the framework of respectively the realization of business and information architectures and the first phase of an information planning cycle. Both illustrate "how words may inspire worlds" (Zandee 2007).

In the practice of information management, architectures are realized in a fairly unusual way. Where technical architectures are concerned, the purposiveness is usually found in more flexible information systems: systems that are built under architecture are easier to adjust, easier to maintain etc. The purposiveness of more business-related architectures is not always that clear; these are often, strangely enough, linked with time-related aspects such as streamlining of processes or the ease and/or speed at which information systems next can be built. However, in classical architecture this is an entirely different process. A process in which the concept of 'space' plays a very decisive role. Architecture serves for creating space in which its users generate meaning. This space is inviting: "Creating space and leaving space are inextricably linked to each other, the room for new interpretations has to remain permanently available. This involves a certain dilemma regarding the fact that the more suitable, the more appropriate you make something, the more likely it is for you to be inclined to strongly attach just one single meaning to it. Next, this specific meaning will lead a persistent life. The more tightly space is riveted to a particular meaning, the less space there will be left for other meanings and experiences." (Hertzberger 1999). Is it not time to select a similar concept of space as a starting point for no matter what business and information architecture? Isn't it time to depart from the question what space employees need for arriving at creative an innovative interpretation of their work and to use this when setting up the architecture? Isn't it about time for architectures to be inspiring instead of restricting? The current ideas about architecture within information management too often start from the premise that outside the clearly framed architecture there is nothing but the chaos of absolute freedom, whilst the previously sketched concept of space includes the befitting combination of 'in-spir-ation' (as point of departure) and 'in-form-ation' (as arrangement). 'In-spir-ation' precedes 'in-form-ation' and a correct interpretation and translation of the concept of space is a useful link in this process.

In many organizations, information planning is a combination of thinking according to policy and alignment, resulting in a vaguely business-requirements based setting of priorities and a technologically colored arrangement. The stereotypical effects of this were mentioned in paragraph 3; we hardly know of any information plans that generate any organization-wide enthusiasm. In figure 2, we give a strongly simplified idea using an adjusted vocabulary of what a first planning cycle based on 'in-spir-ation' could look like.

Point of departure for this ideas-generating first cycle is that it falls back on the individual input of as many involved parties as possible and that this is done without using any restrictive jargon. Based on shared experiences, desires (as opposed to: policy or strategy) are expressed and shared. This common desire is envisioned using the possibilities as offered by technology and next it is established whether this can be processed and subsequently realized at all. The connections within this cycle, the arrows in figure 2, are explicitly narrative: using stories, metaphors, images, documentaries etc, the participants share their creative thoughts and feelings. The result of this cycle can be presented in many shapes and forms, provided that these forms find a response in the organization as a whole. Involvement, recognition, detachment from worn language and habits are important variables in this first cycle, in which the CIO should play a stimulating and somewhat disruptive part. After this largely diverging cycle, aimed at discovering the

Figure 2. First Cycle of Information Planning Based on 'In-spir-ation'

'in-spir-ation' in the organization, a second cycle can be started, aimed at convergence, laying down, embedding in architectures or adjusting of these architectures etc. Only then, when the innovative in the organization has been addressed and has been made explicit, it is possible to start the 'in-form-ation'.
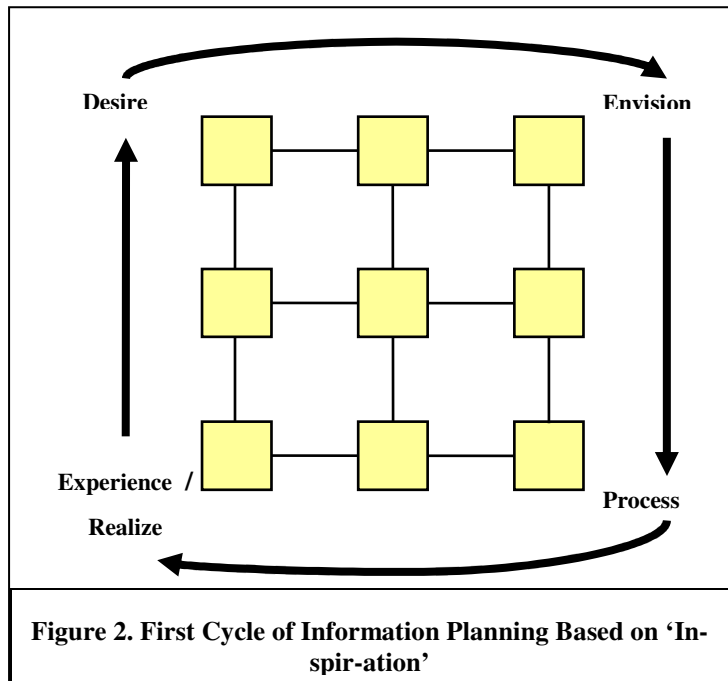
This approach has been applied at several occasions in the context of executive teaching and in advisory projects, including such organizations as the Dutch Ministry of Social Affairs and the Dutch Police Organization. The approach is similar to approaches found in architecture and in design. Frank Gehry, for instance , is constantly advocating the application of innovative, mind-expanding models addressing the personal beliefs and intuition of the people involved (Boland and Collopy 2004, Boland, Collopy, Lyytinen, and Yoo 2008). Similarly, IDEO is following an approach that is completely in line with the one described above, explicitly appealing to human desires and real-life experiences: "Our experience creating successful innovations at IDEO tells us again and again that the best efforts come from organizations that solve for human desirability." (Jacoby and Rodriguez 2007).

Conclusions

Any other conclusion than a provocative one is futile. Obvious statements might be the most provocative ones. Information management is not the management of ICT, nor the management of the alignment of business and ICT. Information management is *the management of information*. Organizational information is not about facts, but about the interpretation of facts. Hence, information management is in its essence the orchestration of the construction of meaning. The most crucial construction of meaning is the construction of the meaning of the organization for its environment, the identity of the organization. Therefore information management contributes to the identity of the organization. CIO's might envision themselves as Chief Identity Officers through Chief Information Orchestration.

As CIO's are orchestrators of the construction of meaning and their ultimate task is to contribute to the identity of their organization, CIO's who have no clear idea about their own identity, will have a hard time in contributing to the identity of their organization. This implies that they can no longer revert to an official's attitude: in an open network environment you are just as much selected as well as you yourself select and who would choose to go for less than the full effort with regard to innovation and renewal? Only like this, acting as a fully fledged individual, a CIO is able to give the idea of *information leadership* its full content and form. The CIO has the future but only if s/he believes in that future!

We have made clear that information management is not the exclusive domain of 'in-form-ation', the integrated design of the combination of organization, information and technology. Today's organizations have a need for information management that simultaneously provides room for 'in-spir-ation', which literally puts the spirit (back) into the organization. To achieve this, we need to dare fall back on the imaginative capacity of all those involved, both within as well as outside the organization. That capacity is individual and is shared by means of stories, metaphors, depictions etc; it is emotionally charged with poetic eloquence (Zandee 2007).

The CIO plays a decisive part in bringing together 'in-form-ation' and 'in-spir-ation' and in linking the imaginative powers: part of the task is to form alliances of all those having an interest. By orchestrating, informing and inspiring in a balanced way, the CIO becomes a part of business, speaking a language of inspiration, of organization, of innovation and of identity without the hazards of alignment (reflecting mechanical plan-wise and romantic thinking, overemphasizing differences). In this way, s/he taps new sources to cut across social structures, in the first place by overcoming the oppressive ICT induced language and culture but consequently by introducing a new lively and recognizable language that is instrumental in motivating people and in introducing effective structural changes.

Our approach in this paper deliberately has been one of deviating from the norm embedded in the dominant interpretive scheme. We aim at generative knowledge that can at the same time inspire practicing CIO's and liberate IS research from its sterile irrelevance outside its own community. Our approach is based on twenty years of experience in dialoguing with practitioners, both CIO's and their counterparts in organizations. The framework derived from this experience has proven to be of value as a common frame of reference for positioning and discussing real-life problems and for bringing business managers, CIO's, information managers, ICT people and academic researchers together not in futile and ineffective explanations of the existing, but in an attempt to imagine and design the contingent. After all, "*our professional responsibility is not to discover the laws of the universe, but to act responsibly in the world by transforming existing situations into more preferred ones*"(Simon 1969).

References

Abraham, T., Beath, C., Bullen, C., Gallagher, K., Goles, T., Kaiser, K., and Simon, J. "IT Workforce Trends: Implications for IS Programs," *Communications of the AIS*, (17:50), 2007, pp. 1147-1170.

Alvesson, M. and Sköldberg, K. *Reflexive Methodology-New Vistas for Qualitative Research*, Sage, London, 2000.

Astley, W.G., "Administrative Science as Socially Constructued Truth," *Administrative Science Quarterly* (30:4), pp. 497-513.

Avison, D., Jones, J., Powell, P., and Wilson, D. "Using and Validating the Strategic Alignment Model," *Journal of Strategic Information Systems* (13:3), October 2004, pp. 223-246.

Baets, W. "Some Empirical Evidence on IS strategy Alignment in Banking," *Information & Management* (30), 1996, pp. 155-177.

Barad, K. "Posthumanist Performativity: Toward an Understanding of how Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* (28:3), 2003, pp. 801–831.

Barney, J.B. "How a Firm's Capabilities Affect Boundary Decisions," *Sloan Management Review* (40:3), 1999, pp. 137-145.

Barthes, R. *Mythologies,* Editions de Seuil, Paris, 1957.

Bates, M.J. "Information and Knowledge: an Evolutionary Framework for Information Science," *Information Research* (10:4), 2005, paper 239 [available at http://InformationR.net/ir/10-4/paper239.html]

Benbasat, I. and Zmud, R.W. "Empirical Research in Information Systems: The Practice of Relevance," *MIS Quarterly* (23:1), March 1999, pp. 3-16.

Benders, J. and Veen, K. van "What is a Fashion? Interpretative Viability and Management Fashions," *Organization* (8:1), 2001, pp. 33-53.

Black, A. "The 'Information Officer' in Britain Before the Age of the Computer," In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 29-43.

Blumer, H. "What is Wrong with Social Theory?," *American Sociological Review* (19:1), February 1954, pp. 3-10.

Boland, R. J. "The In-Formation of Information Systems," In *Critical Issues in Information Systems Research,* Boland, R.J. and Hirschheim, R.A. (Ed.), Wiley, New York, 1987.

Boland, R.J. and Collopy, F. (Ed.) *Managing as Designing*, Palo Alto, Stanford Business Books, 2004.

Boland, R.J., Collopy, F., Lyytinen, K. and Yoo, Y., "Managing as Designing: Lessons from Organization Leaders from the Design Practice of Frank O. Gehry," *Design Issues* (24:1), Winter 2008, pp. 10-25.

Booth, M. and Philip, G. "Information Systems Management: Role of Planning, Alignment and Leadership," *Behaviour & Information Technology* (24:5), 2005, pp. 391-404.

Broadbent, M. and Kitzis, E.S. *The New CIO Leader. Setting the Agenda and Delivering Results*, Harvard Business School Press, Boston, Massachusetts, 2005.

Brigham, M. and Introna, L.D. "Strategy as Hospitality, Bricolage and Enframing: Lessons from the Identities and Trajectories of Information Technology", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 159-172.

Chan, Y.E. "Why Haven't we Mastered Alignment? The Importance of the Informal Organization Structure," *MIS Quarterly Executive* (1:2)*,* June, 2002, pp. 97-112.

Checkland, P. and Poulter, J. *Learning for Action. A short Definitive Account of Soft Systems Methodology and its use for Practitioners, Teachers and Students*, John Wiley and Sons, Chichester, UK, 2006.

Choo, C.W. *The knowing organization; how organizations use information to construct meaning, create knowledge, and make decisions*, Oxford University Press, Oxford, UK, 2006.

Choo, C.W. and Bontis, N. (Ed.) *The Strategic Management of Intellectual Capital and Organizational Learning*, Oxford University Press, Oxford, UK, 2002.

Ciborra, C. "De Profundis? Deconstructing the Concept of Strategic Alignment," *Scandinavian Journal of Information Systems* (9:1), 1997, pp. 67-82.

Ciborra, C. *The Labyrinths of Information: Challenging the Wisdom of Systems*, Oxford University Press, Oxford, UK, 2002.

CIO Research Report. The state of the CIO 2005. *CIO Magazine*, 2005. Available at: http://www.CIO.com/archive/010106/JAN1SOC.pdf.

CIO Role Survey 2006: Achievement is the Issue, Not Survival, *CIO Insight Magazine*, April 2006. Available at: http://www.cioinsight.com/article2/0,1540,1963698,00.asp.

Coughlan, J., Lycett, M. and Macredie, R.D. "Understanding the Business-IT Relationship," *International Journal of Information Management* (25:4), 2005, pp. 303-319.

Cumps, B., Viaene S. and Dedene, G. "Managing for better business-IT alignment", *IEEE IT Professional* (8:5), 2006, pp. 17 - 24.

Cumps, B., Dedene, G. and Viaene, S. "ICT-outsourcing: a resource-based information management perspective", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 205-224.

Currie, W. and Bryson, C. "IT Strategy: Formal Rational Orthodoxy or Contingent Adhocracy?," *Omega-International Journal Management Science* (23:6), 1995, pp. 677-689.

Daum, M., Häberle, O., Lischka, I., and Krcmar, H. "The Chief Information Officer in Germany - some empirical findings," *European Conference on Information Systems: The European IS Profession in the Global Networking Environment*, Turku, Finland, June 14 – 16, 2004.

Davenport, T.H. and Prusak, L. "*Information Ecology*" Oxford University Press, Oxford, UK, 1997.

Davenport, T.H. and Markus, M.L. "Rigor versus Relevance Revisited: Response to Benbasat and Zmud," *MIS Quarterly* (23:1), March, 1999, pp. 19-23.

Dedene, G. and Heene, A. "Operational Pittfalls and Opportunities in Offshore Software Development", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 225-233.

De Vries, E.J. and Huizing. A. "Information Management: Setting the Scene", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 1-19.

Earl, M. J., and Feeny, D. F. "Is Your CIO Adding Value," *Sloan Management Review*, Spring 1994.

Enns, H. G., Huff, S. L., and Golden, B. R. "How CIO's Obtain Peer Commitment to Strategic IS Proposals: Barriers and Facilitators," *Journal of Strategic Information Systems* (10), 2001, pp. 3-14.

Fitzgerald, B. and Howcroft, D. "Towards Dissolution of the IS Research Debate: from Polarization to Polarity," *Journal of Information Technology* (13:4), 1998, pp. 313-326.

Flusser, V. *Für eine Philosophie der Fotografie*. European Photography, Göttingen, Germany, 1983.

Foucault, M. *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*. Pantheon, New York, 1980.

Giddens, A. *New Rules of Sociological Method*, Basic Book, New York, 1976.

Giddens, A. *Central problems in Social Theory: Action, Structure and Contradiction in Social Analysis,* University of California Press, Berkely, CA, 1979.

Glazer, R. "Marketing in an Information-Intensive Environment: Strategic Implications of Knowledge as an Asset," *Journal of Marketing* (55:4), 1991, pp. 1-19.

Gottschalk, P. "Strategic Management of IS/IT Functions: the Role of the CIO in Norwegian Organisations," *International Journal of Information Management* (19:5), 1999, pp. 389-399.

Gottschalk, P. "Studies of Key Issues in IS Management Around the World," *International Journal of Information Management* (20:3), 2000, pp. 169-180.

Grover, V., Jeong, S.R., Kettinger, W. J., and Lee, C. C. "The Chief Information Officer: A Study of Managerial Roles," *Journal of Management Information Systems* (10:2), 1993, pp. 107-130.

Guba, E.G. and Lincoln, Y.S. *Fourth Generation Evaluation*, Sage Publications Ltd., Newbury Park, California, 1989.

Gupta, Y. P. "The Chief Executive Officer and the Chief Information Officer: the Strategic Partnership," *Journal of Information Technology* (6), 1991, pp. 128-139.

Hamilton, D. "Linking Strategic Information Systems Concepts to Practice: Systems Integration at the Portfolio Level," *Journal of Information Technology* (14), 1999, pp. 69-82.

Henderson, J. C. and Venkatraman, N. "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal* (32:1), 1993, pp. 472-484.

Henderson, J.C., Venkatraman, N. and Oldach, S. "Aligning Business and IT Strategies", In *Competing in the Information Age: Strategic Alignment in Practice*, Luftman, J.N. (Ed.), Oxford University Press, Oxford, UK, 1996, pp. 21-42.

Hertzberger, H. *De ruimte van de architect: lessen in architectuur 2*, 010, Rotterdam, The Netherlands, 1999.

Hirschheim, R. and Sabherwal, R. "Detours in the Path Toward Strategic Information Systems Alignment," *California Management Review* (44:1), 2001, pp. 87-108.

Hu, Q. and Huang, C. D. "Using the Balanced Scorecard to Achieve Sustained IT-Business Strategic Alignment: A Case Study," *Communications of the AIS* (17:8), 2006, pp. 181–204.

Huizing, A. and de Vries, E.J. (Ed.) *Information Management: Setting the Scene*, Elsevier, Oxford, UK, 2007.

Huizing, A.-a "Objectivist by Default: Why Information Management Needs a New Foundation", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 73-90.

Huizing, A.-b "The Value of a Rose: Rising Above Objectivism and Subjectivism", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 91-110.

Hussain, H., King, M. and Cragg, P. "IT Alignments in Small Firms," *European Journal of Information Systems* (11:2), 2002, pp. 108-127.

Introna, L.D. *Management, Information and Power*. Macmillan Press Ltd., London, UK.

Jacoby, R. and Rodriguez, D. "Innovation, Growth, and Getting to Where You Want to Go," *Design Management Review* (18:1), Winter 2007, pp. 10-15.

Jordan, E. "Executive Information Systems for the Chief Information Officer," *International Journal of Information Management* (13:4), 1993, pp. 249-259.

Kearns, G. S. and Sabherwal, R. "Strategic Alignment Between Business and Information Technology: A Knowledge-Based View of Behaviors, Outcome, and Consequences," *Journal of Management Information Systems* (23:3), 2007, pp. 129–162.

Kessels, J., Boers, E. and Mostert, P. *Vrije ruimte: filosoferen in organisaties,* Boom, Amsterdam, The Netherlands, 2002.

Khandelwal, V. K. "An Empirical Study of Misalignment Between Australian CEOs and IT Managers," *Journal of Strategic Information Systems* (10:1), 2001, pp. 15-28.

Klein, H.K. and Myers, M.D. "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems," *MIS Quarterly* (23:1), March, 1999, pp. 69-94.

Krcmar, H. *Informationsmanagement*, Springer, Berlin, Germany, 2003.

Lacity, M.C. and Janson, M.A., "Understanding Qualitative Data: A Framework of Text Analysis Methods," *Journal of Management Information Systems* (11:2), 1994, pp. 137-155.

Lamb, R. and Kling, R. "Reconceptualizing Users and Social Actors in Information Systems Research," *MIS Quarterly*, (27:2), June 2003, 197-235.

Lash, S. and Urry, J. *Economies of Signs and Space,* Sage Publications, London, UK, 1994.

Layder, D. *New Strategies in Social Research: an Introduction and Guide*, Polity Press, Cambridge, UK, 1993.

Lee, D.M.S., Trauth, E.M. and Farwell, D. "Critical Skills and Knowledge Requirements of IS Professionals: A Joint Academic/Industry Investigation," *MIS Quarterly* (19:3), September 1995, pp. 313-340.

Louweret, M., *Informatiemanagement op maat. Competentiemodel voor gemeenten*, VIAG, Culemborg, 2005.

Luftman, J. "Aligning IT with the Business Strategy: Assesing IT/Business Alignment," *Information Systems Management* (42:1), 2003, pp. 9-15.

Maes, R. "Infrastructuur: een sleutelbegrip voor het plannen, ontwikkelen en gebruiken van informatiesystemen," In *Informatie-infrastructuur, een instrument voor het management,* Truijens, J., Oosterhaven, A., Maes, R., Jägers, H. and Iersel, F. van (Ed.), Kluwer Bedrijfswetenschappen, Deventer, The Netherlands, 1990, pp. 58-77.

Maes, R. "On the Alliance of Executive Education and Research in Information Management at the University of Amsterdam," *International Journal of Information Management* (23:3), 2003, pp. 249-257.

Maes, R. "An Integrative Perspective on Information Management", In *Information Management: Setting the Scene*, Huizing, A. and De Vries, E.J. (Ed.), Elsevier, Oxford, UK, 2007, pp. 11-26.

Marchand, D.A., Kettinger W.J. and Rollins, J.D. *Information Orientation: the Link to Business Performance,* Oxford University Press, New York/Oxford, US/UK, 2001.

Mouzelis, N. *Sociological Theory: What Went Wrong?*, Routledge, London, UK, 1995.

Murphy, P. and Pauleen, D.J. "Managing Paradox in a World of Knowledge," *Management Decision* (45:6), 2007, pp. 1008-1021.

Nadel, S.F. *The theory of Social Structure*, Cohen & West, London, UK, 1957.

Orlikowski, W.J. and Baroudi, J.J. "Studying Information Technology in Organizations: Research Approaches and Assumptions," *Information Systems Research* (4:2), 1991, pp. 1-28.

Otto, B.K. *Fools Are Everywhere. The Court Jester Around the World*, The University of Chicago Press, Chicago, 2001.

Peppard, J., Lampert, R. and Edwards, C. "Whose Job is it Anyway?: Organizational Information Competencies for Value Creation," *Information Systems Journal* (10:4), 2000, pp. 291-322.

Ranganathan, C., and Kannabiran, G. "Effective Management of Information Systems Function: an Exploratory Study of Indian Organizations," *International Journal of Information Management* (24:3), 2004, pp. 247-266.

Pauleen, D.J., Corbitt, B. and Yoong, P. "Discovering and Articulating what is not yet Known," *The Learning Organization* (14:3), 2007, pp. 222-240.

Robey, D. and Markus, M.L. "Beyond Rigor and Relevance: Producing Consumable Research about Information Systems," *Information Resources Management Journal* (11:1), 1998, pp. 7-16.

Rowley, J. "Towards a Framework for Information Management," *International Journal of Information Management* (18:5), 1998, pp. 359-369.

Ricoeur, P. *Freud and Philosophy: an Essay on Interpretation*, Yale University Press, New Haven, CT, 1970.

Sabherwal, R. and Chan, Y. "Alignment Between Business and IS Strategies: a Configurational Approach," *Information Systems Research* (12:1), 2001, pp. 11-33.

Sauer, C. and Burn, J.M. "The Pathology of Strategic Alignment", In *Steps to the Future – Fresh Thinking on the Management of IT-based Organizational Transformation*, Sauer, C., Yetton, P.Y. and Associates (Ed.), Jossey-Bass, San Francisco, 1997.

Simon, H.A. *The Sciences of the Artificial,* MIT Press, Cambridge, Mass, 1969.

Simon, J.C., Kaiser, K.M., Beath, C., Goles, T. and Gallagher, K., "Information Technology Workforce Skills: Does Size Matter?," *Information Systems Management*, (24), 2007, pp. 345-359.

Simonsen, J. "How Do We Take Care of Strategic Alignment?," *Scandinavian Journal of Information Systems* (11:2), 1999, pp. 51 – 72.

Smaczny, T. "Is an Alignment Between Business and IT the Appropriate Paradigm to Manage IT in Today's Organisation?," *Management Decision* (39:10), 2001, pp. 797-802.

Stephens, C.S., Ledbetter, W.N., Mitra, A., and Ford, F.N. "Executive or Functional Manager? The Nature of the CIO's Job," *MIS Quarterly* (16:4), December, 1992, pp. 449-468.

Stephens, C., and Loughman, T. "The CIO's Chief Concern: Communication," *Information & Management* (27), 1994, pp. 129-137.

Synott, W.R. *The Information Weapon*, Wiley, New York, US, 1987.

Thomas, G. and James, D. "Reinventing Grounded Theory: Some Questions about Theory, Ground and Discovery," *British Educational Research Journal* (32:6), December 2006, pp. 767-795.

Todd, P.A., McKeen, J.D. and Gallupe, R.B. "The Evolution of IS Job Skills: A Content Analysis of IS Job Advertisements From 1970 to 1990," *MIS Quarterly* (19:1), March 1995, pp. 1-27.

Toet, R. *Een referentie-architectuur voor de waterschappen - de realisatie en invloed van een integraal model*, University of Amsterdam, Ph.D. Thesis, Amsterdam, 2007.

Walsham, G. "Interpretive Case Studies in IS Research: Nature and Method," *European Journal on Information Systems* (4), 1995, pp. 74-81.

Ward, J. and Peppard, J. "Reconciling the IT/business Relationship: a Troubled Marriage in Need of Guidance," *Journal of Strategic Information Systems* (5:1), 1996, pp. 37-65.

Watts, S., and Henderson, J. C. "Innovative IT climates: CIO perspectives," *Journal of Strategic Information Systems* (15:2), 2006, pp. 125-151.

Weick, K.C. "Theory Construction as Disciplined Imagination," *Academy of Management Review* (14:4), 1999, pp. 516-531.

Weill, P. and Broadbent, M. *Leveraging the New Infrastructure - How Market Leaders Capitalize on Information Technology,* Harvard Business School Press, Cambridge, 1998.

Wenger, E. *Communicaties of practice: learning, meaning, and identity*, Cambridge University Press, Cambridge, UK, 1998.

Yen, D.C., Chen, H., Lee, S. and Seokha. K.. "Differences in Perception of IS Knowledge and Skills Between Academia and Industry: Findings from Taiwan," *International Journal of Information Management* (23:6), 1993, pp. 507-522.

Zachman, John A. "A Framework for Information Systems Architecture," *IBM Systems Journal* (26:3), 1987, pp. 276-92.

Zandee, D.P. "The Poetics of Organizational Design: How Words May Inspire Worlds," In *Designing Information and Organizations with a Positive Lens*, Avital, M., Boland, R.J. and Cooperrider, D.L. (Ed.), Elsevier, Oxford, UK, 2008, pp. 131-146.