

NRG WORKING PAPER SERIES

TOWARDS A SPATIAL THEORY OF ORGANIZATIONS

CREATING NEW ORGANIZATIONAL FORMS TO IMPROVE BUSINESS
PERFORMANCE



René Tissen
Frank Lekanne Deprez
February 2008 no. 08-04



NRG WORKING PAPER SERIES

Towards a Spatial Theory of Organizations

Creating new organizational forms to improve
business performance

René Tissen
Frank Lekanne Deprez

February 2008
NRG Working Paper no. 08-04
ISSN 1872-3934

NRG

The Nyenrode Research Group (NRG) is a research institute consisting of researchers from Nyenrode Business Universiteit and Hogeschool INHOLLAND, within the domain of Management and Business Administration.

Straatweg 25, 3621 BG Breukelen
P.O. Box 130, 3620 AC Breukelen
The Netherlands

Tel: +31 (0) 346 - 291 696

Fax: +31 (0) 346 - 291 250

E-mail: nrg@nyenrode.nl

NRG working papers can be downloaded at
<http://www.nyenrode.nl/research/publications>

Abstract:

Research in the field of management and organizational theory generally indicates the absence of space in organizations. Space has largely been a neglected phenomenon, left implicit to practice as something 'limiting' without actually 'existing'. The aim of this research paper is to explore and develop the meaning and concept of space in organizational design theory. By making '*the case for space*' we postulate the emergence of a spatial theory of organizations, which markedly breaks with the resource-based ('placebound') view on organizations, common in organizational theory and practice. In this first paper we investigate the metaphor of *space*, specifically with a view to its potential value for contemporary practice. Furthermore, we discuss '*space and time*' in a managerial framework and develop an organizational spatial *design perspective* allowing managers to overcome existing constraints and boundaries, in order for their organizations to better succeed in a complex, volatile and turbulent world without being restricted by traditional limitations, which often require continuous adjusting and/or adapting through restructuring and change. In a further working paper - planned for mid 2008 - we intend to extend the notion of space in modern organizations to involve a distinct set of design criteria and parameters allowing space to be operationalized in organizational practice.

Keywords

Space, Spatial Theory of Organization, Spatial Arrangements, Metaphor, Organizational Design.

Address for correspondence

Prof.dr. R.J. Tissen & Drs F.R.E. Lekanne Deprez
Nyenrode Business University
P.O.Box 130, 3620 AC Breukelen, The Netherlands
E-mail: r.tissen@nyenrode.nl; f.lekannedeprez@nyenrode.nl
Phone: (+31) 346 – 291288

This paper has benefited greatly from helpful comments from Rosalie Burgers, Hans Koolmees, Bill Starbuck, Robert de Hoog, Raghu Garud, Hans Bodt, Frank Halmans and Sumita Raghuram. We would like to acknowledge the financial support of the Nyenrode Research Group (NRG) and of Achmea Pensioen which made it possible to conduct the research underlying this paper .

1. Introduction

This Nyenrode Research Group (NRG) working paper explores the emergence of ‘spatial organizing’^a as an alternative to mainstream organizational design, i.e. as a new logic on organizing for better (business) performance. Our earlier research (Lekanne Deprez & Tissen, 2002) indicates that companies will be better capable of achieving business performance through ‘spatial organizations’ than through conventionally structured and ‘boundary-fixed’ (Santos & Eisenhardt, 2005) or even ‘bounded’ (Hernes, 2004) organizational forms, such as the pyramid-shaped organizational structure. Signs that traditional structures and existing management approaches have reached their limits continue to surface within both the academic and practice based studies (Tissen & Lekanne Deprez, 2006, Pfeffer & Sutton, 2006; Bryan & Joyce, 2007; Hamel & Breen, 2007). So far, however, management of the twenty-first century appears not much different from management in the late twentieth century.

A New Managerial Revolution?

Gary Hamel: “In any field of human endeavor you ultimately reach a point where you can’t solve the new problems using the old principles. I think we’ve reached that point in the evolution of management. When you go back to the principles upon which our modern companies are built – standardization, specialization, hierarchy, and so on – you realize that those are not bad principles but they are inadequate for the challenges that lie ahead (Barsh, 2008, p. 9)”.

To assert that an organization exists implies that it is possible to distinguish an organization from its environment and to agree about its properties. However, drawing boundaries is a not a neutral act. One has to include and thus exclude, to join and still separate, to draw lines of demarcation and yet homogenise all that ‘which is within’ (Dale & Burrell, 2008). It is however very difficult to distinguish the boundaries of an organization. Some of its constituent components which seemingly are internal on some dimensions, will be peripheral or even external on other dimensions. The ambiguity of organizational boundaries within the field of organization science was already evident some 40 years ago (Starbuck 1976). Since then organizational boundaries have grown even more obscure as subsequent changes in technologies such as digitization have led to a “flattening” of the world (Friedman, 2005; Fung, Fung & Wind, 2007) and to the organizational rise of phenomena such as teleworking, virtual working, globalization, offshoring

^a *Spatial organizing* involves the design and management of ‘spatial arrangements’, i.e. of the purposeful mix of ‘physical’, ‘virtual’ and ‘mental’ spaces as part of and shaping the organizational landscape.

and short-term contracting (Florida,2003; Malone, 2004; Barley & Kunda, 2006; Gratton, 2007; Van Gorp, 2007; Heckscher, 2007), which enable people to collaborate and compete with one another “anytime, anywhere, anyhow (Davis, 1987)”.

1.1 Beyond Organizational Limits

Organizational limits are difficult to define and to observe (Lekanne Deprez & Tissen, 2002; Farjoun & Starbuck, 2007). Limits are difficult to observe because they typically involve interactions between organizational and environmental properties, while many people have divergent perceptions of these properties. We believe that the concept of spatial organization design theory can overcome some important limits of organizing particularly as the apply to common perceptions of boundaries and borders.

Breaking down boundaries

“We all feel safer when our boundaries are clear, well marked, well established. We like the idea that there is a place for everything, and everything in its place. Certainly boundaries have their uses. They help keep discussions “on track” and ensure efficiency. They provide mental concepts that help people understand new ideas quickly and easily. And they provide a common vocabulary for discussing and communicating new concepts. However, many boundaries are no longer facilitating interaction, but preventing it. Boundaries between departments, partners, and employees do not contribute to the exchange of knowledge and ideas that is the fuel of the knowledge-based economy. Boundaries simply *have no place in zero space* (Lekanne Deprez & Tissen, 2002, p.149, *italics added*).”

Studies of spatial organizations need to take boundaries and their dynamics as their point of departure to realize a break in the way organizations tend to be arranged, into what we later shall define to be spatial configurations of organizations. Configurational approaches to organizations are based on the fundamental premise that patterns of attributes will exhibit different features and lead to different outcomes depending on how they are *arranged* (Fiss, 2007, p.1181). Within this approach we take a systematic and integrated view of organizations. We build upon typologies of configurations - such as those suggested by Mintzberg (1978), Nadler & Tushman (1997), Galbraith, Downey & Kates (2002) – and view organizations as “*opportunity spaces*” which can be transformed into purposeful spatial configurations:

“Both organizations’ successes and failures depend on their abilities to exceed only those limits they choose to exceed and to remain within other limits (Farjoun & Starbuck, 2007, p. 563).”

1.2 Space in Organizational Studies

A number of authors suggest that space has largely been a neglected phenomenon in organizational studies (Berquist, 1999; Hernes, 2004; Kornberger & Clegg, 2004; Clegg & Kornberger, 2006; Taylor & Spicer, 2007). Although the study of the relationship between physical spatial settings and organizations – i.e. workplace layout, geographic concentration of high tech companies - has a long history (Oldman, Cummings & Zhou, 1995; Berquist, 1999; Halford, 2005; Clegg & Kornberger, 2006; Chanlat, 2006; Taylor & Spicer, 2007), the notion of space within organizations and management theory is largely ignored (Hernes, 2004; Clegg & Kornberger, 2006; Taylor & Spicer, 2007; Dale & Burrell, 2008, Kornberger, 2008).

Even the historical foundation of the term ‘space’ is difficult to grasp, or – as Berquist (1999) eloquently deliberates - is difficult for us to see other than as the result of “a long history of not seeing space” (Berquist, p. 1):

“First, space is an odd term about which to write a history. Throughout most of the history of western thought, few persons have recognized that space is historical; that is, space has generally been understood as a given, not as a category about which there could be variation. History existed within space (and time); there was no possible history of space, because history required variation and space was neutral and beyond change. Tracing the transformation of this static view of space can proceed only with difficulty, but one might profitably point first to the Einsteinian notions that understand space, time, mass, and energy as functions of each other. The interrelationship between such realities requires us to rethink all of them and to change at fundamental levels our approach to space. But the ramifications of such notions have been slow at best. Only in the 1960s can one readily perceive further changes, or at least easily trace the movement of such ideas outside of physics.”

According to Berquist (1999), during the last thirty-five years, culture as a whole and philosophy in particular have paid increasing attention to space. Current literature on space routinely nods to Michel Foucault’s famous 1967 lecture, "Of Other Spaces," as the first time that space began to have a discernable history, or at least a possibility for a history, as it connected with the genealogical projects of Foucault’s critical historical work (Foucault 1986). Yet the notions of space and its history remain sparsely developed within the Foucauldian corpus.

Thus, the first difficulty in sketching a history of space is that such a history would have to begin with *a defense of itself as an acceptable reality*. Next, the spatial historian would need to interrogate sources from the ancient and modern worlds, even though those sources were convinced that space had *no potential history*. Then we would need to examine the *changes in our academic work* as a result of space's history. Such a prerequisite does not remove either the need for the task of writing the history of space nor the possibility for doing so, but it certainly problematizes the project, well past the point where an academic paper's introductory gesture can easily bear the weight of a reference to it.

Nevertheless, for the last three and a half decades, more or less, philosophers and other academics have gained “ground” in the sense that space is seen to be an important and necessary category of discourse (Hubbard, Kitchin & Valentine, 2004) , even a historical discourse (Clark 1992; Casey 1997). Space has a genealogy and a history; it exists as a constructed category within the framework of human history. Space is something we make, create, produce, shape, reshape, form, inform, disform, and transform. All these human activities are operations upon space, leaving traces that mark its history.

Secondly, when discussing space we generally wish to simultaneously change our perceptions of space, i.e. to bring space into our focus, to direct our minds towards space instead of place. This proves exceedingly problematic, because most of us don't know how to see space. In fact, space — in continuing common consciousness as well as in the history of academic thought— is *invisible emptiness*; space is the absence of things, as well as (by definition) in between things. This is the space of outer space, for instance, the pure emptiness which existed between the stars in an age before the dominance of dark matter became eminent in astrophysics. Perhaps space is even *beyond emptiness*; space can ultimately be conceived as the framework of existence in which other things exist. Such definitions and notions push space almost outside the realm of existence, certainly past the realm of perception, and thus almost outside the possibility of investigation and analysis, let alone design. Such space is mathematical, theoretical, and imperceptible. One may analyze it, but one cannot impact it, for such space constitutes the very fabric of reality. Mathematicians can categorize space (as rectilinear or Euclidean, or as curved, or as imaginary, or in any of an infinite number of kinds of space), but space can never be experienced and no one can act upon space. Einstein's theoretical work proved exceptions to this, but those exceptions were *outside the human scale*; a singularity or even a smaller gravity well can curve space, but human-sized objects affect space only in imperceptible ways, and perceptible effects upon space and time remain the result only of non-human-proportioned objects, such as stellar masses.

If a defined history of space does not exist, other conventions call for definitions to capture its meaning. A *definition of space*, however, always remains an approximation, as the field of study has not yet built its rightful boundaries. We propose – with regard to Berquist (1999) - to use the terms ‘space’ and ‘spatiality’ to refer to aspects of reality that *involve concepts of distance, height, width, breadth, orientation, and direction, and also human perceptions, constructions, and uses of these aspects* (Berquist, 1999, p.2) . Moreover, our focus is on *critical spatiality*, those theories that self-consciously attempt to move beyond modernist, mechanistic, essentialist understandings of space. Critical spatiality understands all aspects of space to be human constructions that are socially contested. This study of space finds natural allegiances and a shared language with a diverse range of fields, such as critical human geography, geology and geography of specific areas under study, psychological analyses of sensory perception, physics, sociology, and postmodern philosophy.

In Berquist’s seminal paper both organization- and management theory are largely *absent* as an emerging field for the development of a spatial theory on organizational design and management. This reflection strengthens the notion of ‘invisible emptiness’. Paradoxically, space within an organizational context potentially creates a powerful metaphor for describing and communicating those “hidden” features of an organization that represent its foundation, its potential capabilities and its success in the future.

This research paper unfolds in the following way. We will start with exploring space as a metaphor for organizations. Then we will set the stage for introducing and defining the concepts of space and time, spatial organizations and spatial arrangements. These concepts will be the lenses through which we analyze existing academic and management literature and explore the relationship between spatial theory, spatial organizational design and business performance. The focus of this paper remains as stated, i.e. to study space, spatial organization and spatial arrangements within the context of developing a *spatial theory of organizations*.

2. Exploring Space

Within the context of organizational and management theory, a wide range of ‘labels’ have been applied to new organizational forms. Many alternative organizational shapes exist, mostly in metaphorized forms, such as ‘brains’ (Garud & Kotha, 1994) as ‘machines’ (Morgan, 1986; Morgan, 1998), ‘garbage cans’ (Cohen, March, Olson, 1972), ‘jazz’ (Hatch, 1999; Zack, 2000), ‘theatres’ (Schreyögg and Höpfl, 2004), ‘landscapes’ (Oliver and Roos, 2000), ‘morphings’ (Rindova and Kotha, 2001; Kauffman, Miller and Wang, 2002), ‘sponges’ (Rodriguez, Ponti & Ayuso, 2006) ‘hypermodern’ (Roberts & Armitage, 2006) and as ‘platforms’ (Ciborra, 1996; Ciborra, 1997). Most of these metaphorized organizational forms result from case studies of organizations that have pioneered various organizational innovations. Organizational metaphors do not all have equal status. They differ both in what they refer to and from where (or from whom) reference is made. According to Lakoff & Johnson (1980, 1999) we use metaphors to conceptualize phenomena, structure our thinking, and create abstract concepts. Metaphors are not simply a matter of words that describe similarities, but form the basis of most of our being. According to Lakoff & Johnson (1980, p. 3):

“Metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.”

Its function is to “communicate the unknown by transposing it in terms of the known (Gowler & Legge, 1989, p. 439)”. Metaphors may underlie not only our thinking about specific organizations but our thinking about organizations in general. This implies both problems and opportunities. One problem is that our preference for a particular metaphor may constrain our ability to see organizations in terms of alternative, equally plausible, metaphors (Inkson, 2004). A second problem is that a metaphor may be used to persuade, to deceive, and to induce us to see things that are not there.

But metaphors also provides opportunities. Metaphors not only express our thinking, they help us to structure it. Listening to, and visualizing, metaphors coined by others may help us to broaden our vision. They tend to describe the world in a vivid, lively, yet familiar way, enabling us to see events from a special perspective. When we look for organizations, all we see are its presumed pieces (e.g., a building, suppliers, a logo, products, information systems). Organizational elements are united by the assumption that they refer to the same abstraction. Instead of an image of an organization, we have images of *disparate objects and events that are supposed*

to constitute an unseen whole. Such an enumeration of perceptible parts no more defines an organization than a parts-list defines an automobile. In fact, organizations are more like ‘artifacts (Rafaeli & Pratt, 2006)’, created by people for their instrumental purposes:

“They [organizations] are designed when they start up, redesigned as they go through life-cycles and change their strategy, and transformed when they encounter major societal and environmental upheavals (Mohrman, Mohrman and Tenkasi, 1997, p. 194).”

This has over the past years led to a plethora of organizational metaphors, all mostly lead to increased recognition and a better understanding of organizations, but some increasing our confusion on the subject. We accept that a metaphor might not only enlighten but also obscure. All can be regarded as an attempt to provide vicarious experience of an entity that cannot be captured as a whole (Morgan, 1986; Grant and Oswick, 1996; Morgan, 1998; Lennon and Wollin, 2001; Oswick, Keenoy and Grant, 2002; Inns, 2002; Cornelissen, 2004; Cornelissen, Kafouros & Lock, 2005; Cornelissen, Oswick, Christensen & Philips, 2008).

The utility of metaphor in helping make sense of organizations has been perhaps most convincingly demonstrated by Morgan (1986) in his now classic work, *Images of Organization*. Through a series of different metaphorical lenses, Morgan views organization variously as machines, organisms, brains, cultures, political systems and psychic prisons, as well as in flux and transformation and as instruments of domination. In doing so, he generated critically new insights into all aspects of organizational life. According to El-Sawad (2005, p.24):

“Morgan acknowledges, though does not accept, the criticism that metaphor is merely ‘a device for embellishing discourse’ (Morgan, 1986, p. 12). Metaphor, he argues, is far, far more significant than this and to dismiss it as such is to neglect a potentially powerful analytical tool. ”

Cornelissen (2004) points out that metaphors serving as *comparison models* have dominated the study of organizations far too long, particularly as these are essentially flawed, misguided and – even more importantly- incapable of accounting for the fact that:

“Metaphors generate inferences beyond the similarities required for comprehending the metaphor and that metaphoric understanding is creative, with the features of importance being emergent (Cornelissen, 2004, p. 708).”

The key problem lies in the fact that comparison models focus on finding a feature (or a set of features) already present in the representation of the topic. Here, Oswick, Keenoy & Grant (2002) believe that a metaphor draws out mere aspects of sameness, as the focus in metaphors is primarily on the similarities or overlapping ground between entities (*'making the familiar more familiar'*, Oswick, Keenoy & Grant, 2002, p. 295) and *not* on the dissimilarities or 'tension' that may exist in comparing them. A stream of research within the cognitive sciences (e.g. McGlone and Manfredi, 2001) shows that the basic mechanism involved in the production and comprehension of metaphors is *not* the selection of pre-existing attributes but, "*rather, the generation and creation of new meaning beyond an antecedently existing similarity* (Cornelissen, 2004, p.708)."

The process of developing and working with metaphors stimulates creativity. Conceptualizing the organization as a machine (Morgan, 1986) enables us to engage with a new imagery which helps us to understand its functioning, both strengths and weaknesses. When an organization is described as a machine, we see it as efficient, rational, rigid, and inflexible. But it is also apparent that an organization which functions only in a mechanical way is *limited*: other modes of operating are also needed. People who allow organization metaphors to become stereotypes — for example the ambitious corporate climber who mentally characterizes his or her organization only as a pyramidal political system— may gravely limit themselves in both personal accomplishment and fulfilment, and in corporate contribution. Morgan (1986) advocates the method of multiple metaphor. He argued that the metaphors of machine, organism, culture, brain, etc. can be applied to any organization:

"Each metaphor reveals a special truth about that organization, and about organizations in general. But no metaphor on its own tells the whole truth. Organizations, like careers, are complex entities. Every metaphor has its own strengths and weaknesses, its applicability and non-applicability to the specific situation. True understanding comes from considering a range of metaphors (Inkson, 2003, p. 98)."

2.1 Metaphors and their Use in Scientific Discourse

A metaphor is a statement characterising one thing in terms of another, where two are normally considered to be unlike each other. For example, 'Time is a river'. Metaphors involve the juxtaposition of concepts from separate domains of experience; they ask us to think of something in terms of something else that is radically different (Gentner & Bowdle, 2002). Metaphors are closely related to 'similes', which include an explicit comparison intention. 'Time' for example, 'is like a river'. In a standard metaphor or simile, the first term ('time') is called the *topic* and the

second term ('river') is called the *vehicle*. The interpretation of the metaphor is called the *ground*. In a good metaphor, the interpretation reveals something interesting about the topic, and sometimes about the vehicle as well.

Similies and Analogies (Tsoukas, 1991)

A *simile* is a comparison of one thing with another (e.g., an organization is *like* an organism). Like metaphors, similies involve the transfer of information from the source domain to the target domain. Unlike metaphors, similies involve explicit comparisons and assert directly the similarities between the compared items. An *analogy* “operationalizes” a metaphor or a simile by focusing on relationships between items. More formally, an analogy is “a name for the fact that the relation borne to any object by some attribute or circumstance corresponds to the relation existing between another object and some attribute or circumstance pertaining to it (Simpson & Weiner cited in Tsoukas, 1991, p. 570)”. For instance, a person might say “Kuala Lumpur is to Malaysia as London is to Britain.”

Metaphors serve a number of cognitive and communicative functions. For instance, they can provide a compact and memorable way of expressing ideas that would be difficult to convey with literal language. Metaphors are often used to describe abstract or unfamiliar topics. For example, time (a relatively abstract dimension) is often described using metaphors drawn from space, as in 'The holidays lie before us' or 'Summer is coming fast' .

Direct similarity comparisons differ from metaphors as in literal similarity, many or most properties match, whereas in metaphor only a *few* properties match. As Ortony (1979) noted, the matching properties in a metaphor are often far more salient in the vehicle than in the topic. The metaphor acts to highlight otherwise unnoticed properties of the topic. Gentner, Holyoak & Konikov (2001) found that many of these highlighted properties are relational: for example, “Sermons are sleeping pills” conveys that they both put people to sleep. Because properties of the vehicle are used to illuminate the topic, metaphors are strongly directional. This directionality is a key diagnostic of literal versus metaphorical comparison. Whereas literal comparisons can typically be reversed - for example, 'A sweater is like a jacket/A jacket is like a sweater', a metaphorical comparison *cannot* be reversed. For example, 'Some jobs are jails/Some jails are jobs' (Gentner & Bowdle, 2002).

Theories of Metaphor Comprehension: An introduction (adapted from: Gentner & Bowdle, 2002, pp. 19 – 20, *italics added*)

“A central question in research on metaphor is how metaphors are understood. In the past, metaphor was viewed as a peripheral aspect of communication, secondary in status to literal language . Early models of metaphor comprehension treated metaphors as *deviations* from proper literal language - as literally false expressions that violate the usual norms of communication. Current models view metaphor more positively, as a *normal* part of language.

However, theories differ in exactly how metaphor is processed . One long-standing approach is to view metaphor comprehension as *property-matching*. In this view, metaphors are understood by means of finding common properties, and the interpretation of a metaphor is the set of properties shared by the two terms. For example, “The road was a silver ribbon” conveys the common property of a long thin silver line. This idea that metaphor comprehension involves a search for commonalities is intuitively appealing and widely accepted . However, it is *not* the whole story. In general, *metaphors also convey new information that can be imported from the vehicle to the topic*. For example, the metaphor 'That senator is a puppet' can be used to convey that the senator is being manipulated by someone else. Thus, metaphors do more than highlight existing commonalities - they create *new* insights about the topic .

Metaphors thus involve both highlighting common information and projecting new information from vehicle to topic. There are two current theories that attempt to explain both these aspects of metaphor: one likens metaphor to analogy, and the other likens metaphor to category inclusion:

1) Taking the *analogy view*, Gentner, Holyoak & Kokinov (2001) propose that metaphors are processed by means of the same structure-mapping processes that are used to understand analogies. Analogies are often used to explain or predict the behaviour of an unfamiliar complex or abstract system by comparing it to another, better understood system: for example, 'Electricity is like water flow' or 'Poverty is a disease'. Further, the information conveyed by an analogy is typically relational information, rather than simple object properties. For example, the electricity/water flow comparison does not mean that electricity is wet or blue like water, but rather that it obeys the same relational principles: it flows from a high place (high voltage) to a low place (low voltage), it is impeded by obstacles (resistors), and so on.

On this view, metaphors are like *analogies*. They are comparisons between two situations that highlight common information and invite inferences *from the base (the vehicle) to the target (the topic)* .

For example, to understand a metaphor like 'A suburb is a parasite' the hearer first compares the topic and vehicle (base) representations, arriving at a common relational system : for example, 'A suburb uses the resources of a city just as a parasite uses the resources of an organism' . Once this structural match is established, any additional properties connected to the common relational system are projected as possible influences - for instance, the knowledge that parasites can sap the strength of an organism might be transferred to the topic concept, resulting in the inference 'Suburbs can sap the strength of a city'. By mapping the set of relations in the vehicle to the topic, one gains new insight into the topic .

2) Another prominent approach views *metaphors as category statements*. In the Attributive Category theory of Glucksberg (Glucksberg, Gildea & Bookin, 1982), metaphors are understood as class inclusion statements. The idea is that in a metaphor one asserts that the topic is a member of the category of which the vehicle is a prototypical member: for example, the metaphor 'A suburb is a parasite' asserts that suburbs can be classified as parasites. Of course, suburbs do not fit the literal meaning of parasite - 'an organism that lives off another organism' . A metaphorical meaning such as 'something that lives off the resources of another entity without recompense' must be invoked or created from the vehicle. By assigning the topic 'suburb' to this metaphorical category, the properties of the metaphorical category derived from the vehicle can be attributed to the topic . On this account, *metaphors are processed differently from literal statements*. An open question for category theories is what signals the listener to create a metaphorical category instead of using the literal meaning of the vehicle.”

According to Gentner & Bowdle (2002) recent evidence suggests an evolution in metaphor processing. Metaphors with novel vehicles are processed as comparisons, whereas conventional metaphors are processed as categorizations. This occurs because initially novel vehicles become conventionalized over time. If a given metaphoric base is used repeatedly in the same way, the abstraction it conveys becomes more and more accessible. Eventually the metaphoric meaning can be stored as a secondary word meaning. For example, “goldmine” once referred solely to a shaft in the ground from which gold is excavated. But it has taken on a secondary metaphoric meaning - now listed in most dictionaries - as “anything that is a source of something valuable” (as in 'A garage sale is a goldmine'). At this point the metaphor has a dual representation.

If this process of conventionalization continues, the metaphoric meaning can become quite stable and fixed. For example, the assertion 'My computer is a dog' conveys that the computer is

no good, even if both speaker and hearer believe that dogs are loyal, intelligent, and reliable, because 'dog' has a stock metaphoric meaning. At this point the metaphor has become a *stock metaphor* and lost its early creative potential. Such metaphors are sometimes referred to as 'dead' metaphors.

Living, Dead and Dormant Metaphors

For analytical purposes three types of metaphors can be distinguished (Tsoukas, 1991, pp. 568 - 569):

** Live metaphors.*

First we use live metaphors knowing that these words are substitutes for literal utterances (e.g., "The production plant is at the heart of the firm"). Live metaphors lend themselves to further conceptual development.

** Dead metaphors.*

Frozen or dead metaphors have become so familiar and so habitual that we have ceased to be aware of their metaphorical nature and use them as literal terms. Many, if not most, utterances in our language are dead metaphors (Rorty, 1989). The concept organization (from organon, meaning "tool" in Greek) is an example of a dead metaphor that are widely used in management. Because dead metaphors are used in literal terms, their meanings usually are discontinuously shifted rather than continuously developed. They prefigure the ground to be studied, but by themselves they cannot provide significant insights regarding the study of specific phenomena. For example, although the term organization is a (dead) metaphor, it is not very suggestive in the study of specific organizational phenomena and processes (e.g. motivation, culture, development). For the latter to be understood and explained the use of live metaphors may be necessary.

** Dormant metaphors.*

These are quasi-literal terms through which we restrict ourselves to seeing the world in particular ways. However, the metaphorical nature of these terms can be easily exposed (e.g, the term *organization structure*). Dormant (= latent) metaphors can aid the process of creative problem solving because by using them individuals can be encouraged to conceive of the topic through a different vehicle. Ultimately, dormant metaphors are convertible to either dead or live metaphors.

If the conventionalization process continues still further, the metaphor may even lose its connection to the original literal meaning. For example, the term 'deadline' in the American Civil War meant a line around a prison camp; any prisoner crossing the line was shot. It was then

metaphorically extended to a game of marbles, and then further extended from space to time: in newspaper parlance, it meant a time limit after which an article was unacceptable. Eventually, the literal meaning disappeared. The word 'deadline' now retains only its originally metaphorical sense of a time limit. In this way, metaphors can create new meanings.

2.2 The Role of Metaphors in Organizational Theory Development

The role of metaphors in theory development has been a controversial issue in organizational science. According to Tsoukas (1991) the debate has predominantly clustered around two poles:

“On the one hand, it has been argued that organizational scientific discourse does not describe, explain, or intervene in an independent reality, but it essentially draws upon symbolic constructs in helping to bring about such a reality. According to this view, metaphors encourage different ways of thinking, which enable social scientists and lay people alike to focus upon, explain, and influence different aspects of complex phenomena. On the other hand, it has been suggested that organizational theories need to account for independently existing social phenomena. In such a process, metaphors are deemed as initially inevitable but eventually detrimental to theoretical development due, mainly, to their imprecision and low conceptual content. At the more mature phases of a scientific inquiry, researchers should make a conscious effort to dispense with metaphorical language in preference for literal language, namely the formal theories (Tsoukas, 1991, p. 566).”

Metaphors, similies and analogies, more than literal assertions, do not simple describe an external reality; they also help constitute that reality and prescribe how it ought to be viewed and evaluated (Tsoukas, 1991). *Literal language*, best manifested in scientific theories, attempts to redescribe the world in order to establish identities; it is used to lay bare the mechanisms responsible for the observable phenomena we experience. Tsoukas (1991) describes the differences between metaphorical and literal language in order to develop a method (see figure 1, page 17 of this paper) – a transformational^b view of metaphors – in which the initial metaphorical insight is progressively disposed of its literary variety through a set of homomorphic transformations - i.e. an *isomorphism* involves a one-to-one transformation while also preserving operational relations e.g. a map and the town it represents are isomorphic just as a photographic negative and a print; a *homomorphism* involves a many-one transformation while

^b The elements of a set a en A can be corresponded in various ways to elements of a set B. The process of making this correspondence is a *mapping*. The rules underlying a correspondence constitute a *transformation*.

preserving operational relationships – until, “it is hoped, an invariance is revealed in the form of a scientific model (Tsoukas, 1991, p. 577).”

Tsoukas (1991, pp.577 - 581) illustrates this transformational view of metaphors through three examples (‘learning as a function of experience’; ‘failures in socio –technical systems’ and ‘biological metaphors in organizational science’) that follow the steps from metaphorical insight via a conceptual model at analogical level into – if applicable - a scientific model: see figure 1 page 17.

Metaphors are better ‘sensors’ than literal terms for capturing and expressing the continuous flow of experience:

“They allow the the transfer of concrete bands of experiences, whereas literal discourse segments experiences. Although three types of metaphors were distinguished [live, dead, and dormant], it has been argued that only live metaphors lend themselves to further conceptual development. However, metaphors are not as adequate as literal terms when human beings want to explain their experiences, predict new experiences from previous experience, or judge the generality of their experiences. Metaphors tend to be used as substitutes for deeper knowledge, and they tend to be constitutive of, and prescriptive in relation to, the social phenomena they are connected with. By contrast, literal re-descriptions of social phenomena tend to be more detached, more precise and certainly more testable, accounting for the mechanisms (and the generality of their operation) that are really responsible for any experienced events. Writers of scientific discourse aspire to use literal language, but at the same time they could benefit from metaphorical insights, whenever this is possible.

Although the ideal of a purely literal scientific discourse is unattainable, for researchers to neglect metaphors and analogies is both uneconomical and unjudicious. The question therefore is not whether either metaphors or literal terms ought to be used in theory development in organizational science, but rather how can metaphorical language be used in such a way as to contribute to the development (Tsoukas, 1991, pp. 581- 582). “

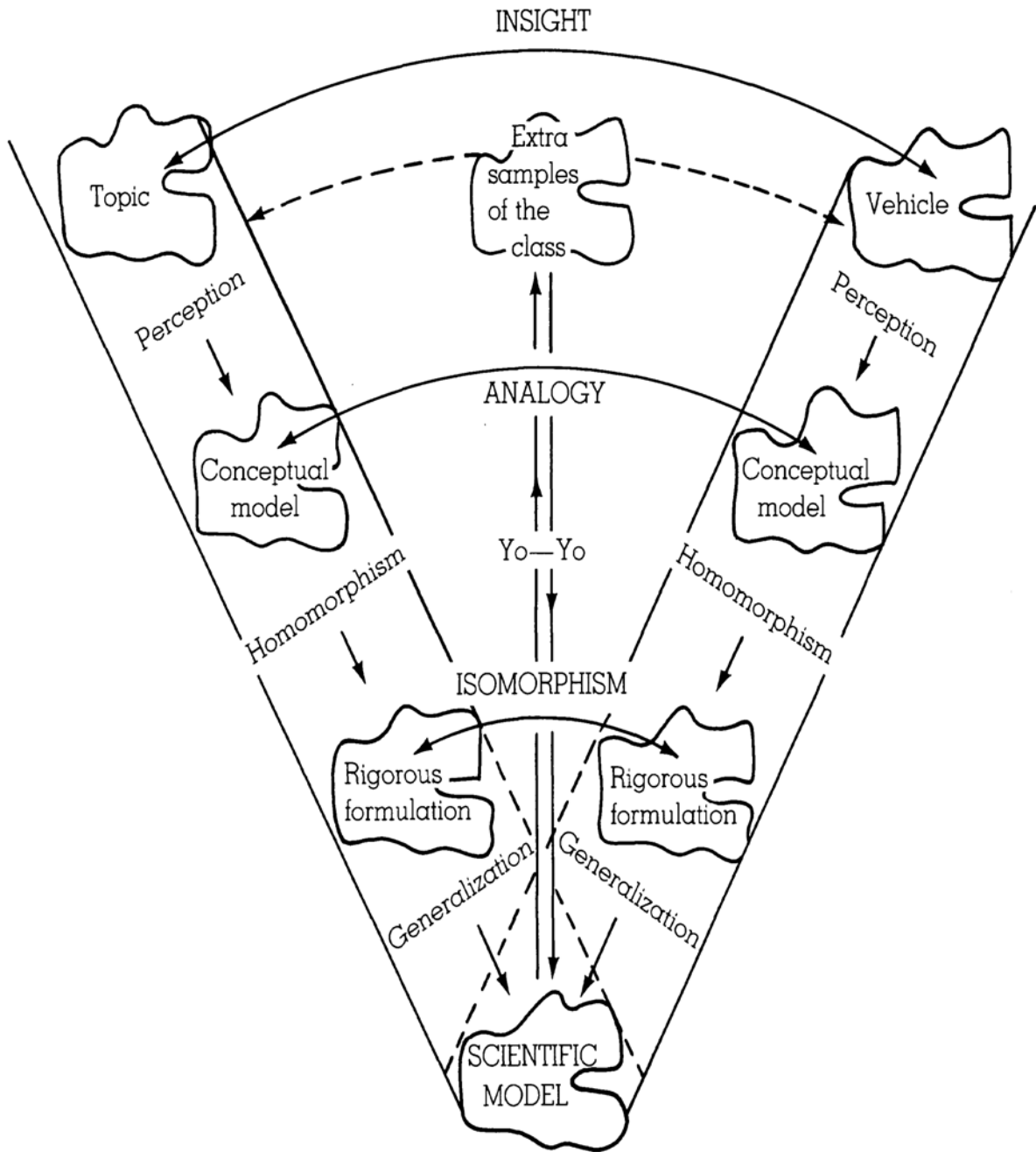


Figure 1: The Transformation of Metaphorical Insights into Scientific Models (Tsoukas, 1991, p. 575)

Tsoukas (1991, pp. 572 – 573):

“Let us assume that X and Y are members of the set O , which is the universal set of objects, both concrete and conceptual. Let us further assume that X is a live metaphor for Y ; for example, ‘Organizations [Y] are (like) organisms (x) in that....’. The question then is to determine the extent to which knowledge about X ’s nature and behavior (i.e. the source domain) can be transferred to the study of Y ’s nature and behavior (i.e. the target domain). Moving from the metaphorical to the analogical level is

an improvement (see figure 1), but it is still an inconclusive step because at this level the researcher cannot determine the extent to which all the theoretically significant aspects of Y have been captured by the postulated theory. There is, however, a third level of identity. As Beer (1966, p. 112) pointed out, 'If two things are literally identical with each other, then conclusions that hold for the one will surely hold for the other under similar conditions.' The initial question then is converted to the following: How can both X and Y be conceptually developed so that their deep identities are revealed? In other words, how can invariance between X and Y be discovered?"

Example: Learning of people and rats as a function of experience

“If we follow figure 1 we would set up a conceptual model at the analogical level, whereby explicit attention is paid to the analogies between the learning process of a rat and the learning process of the people at the [industrial] plant. ..such an analogy is the learning development occurring in both a rat and the people of the plant: As the learning process of the rat improves over time, so does the learning process of the people of the plant... The end of this reasoning process is a scientific model of high generality, which expresses an identity relationship between rats and people concerning the development of their learning processes. From the point of view of a scientific model, rats and people are identical over a specified area of activity: their identity is manifested by the learning curve and the accompanying mathematical expression along with relevant statistical information (Tsoukas, 1991, p. 578).”

2.3 Beyond Compare: The Image – Schematic Model of Metaphor

Cornelissen (2004, 2005, 2006, 2006b), Cornelissen, Kafouros & Lock, (2005) and Cornelissen, Oswick, Christensen & Philips (2008) provide an accurate summary of the vast body of knowledge on metaphors and their use within organization theory:

“In all, since Morgan’s inspiring discussions of organizational metaphors, which, admittedly, lacked any meta-criteria for evaluating and using them, Tsoukas (1991, 1993) has been the only theorist to take up the challenge of suggesting a full-blown model of how metaphor might operate. In Tsoukas’s (1991, 1993) transformational model of metaphor, metaphor is transformed into a scientific model so that “explicit” scientific knowledge about organizational behaviour is generated and “the gap between metaphorical insights and scientific models” (Tsoukas, 1993, p. 336) closes.

A metaphor thus becomes “unfolded” or “operationalized,” in Tsoukas’s (1991) view, by explicating the analogies that are inherent in the entities conjoined in the metaphor, with the eventual purpose of inferring the “deep structure” or “identity” existing between them (Tsoukas, 1991, p. 574).

Following in Tsoukas’s (1991, 1993) steps, Oswick, Keenoy & Grant (2002) recently have reiterated the argument that a metaphor draws out mere aspects of sameness, since the focus is primarily on the similarities or overlapping ground between entities and not on the dissimilarities or “tension” that may exist between them (Oswick, Keenoy & Grant, 2002). As such, they conclude, metaphor is best seen as a means of elaborating and explicating already existing knowledge, since, in its focus on similarities and resemblances between entities, it merely makes “the familiar more familiar (Oswick, Keenoy & Grant, 2002, p. 295)”.

Underlying both these accounts, with their emphasis on explicating the similarity that exists between two terms or entities conjoined in a metaphor, is a comparison model of how metaphor works. In this model, which goes back to Aristotle’s earliest writings, metaphor interpretation is assumed to involve a comparison of objects or domains to determine what discrete properties or relations applying to one term can also apply to the other in the same or a similar sense. In short, metaphor is seen as a comparison in which the first term, A—that is, the target—is asserted to bear a partial resemblance (i.e., the ground) to the second term, B—that is, the source (Katz, 1992; Shen, 1997)—the resemblance being insufficient to sustain a literal comparison. As with any comparison, there is always some residual dissimilarity (the tension) between the terms involved in the comparison. But, importantly, comparison theorists such as Tsoukas (1991, 1993) and Oswick, Keenoy & Grant (2002) tend not to emphasize this dissimilarity (see Tourangeau & Sternberg, 1982). The sole difference between metaphors and similes is, according to this [comparison] view, their overt form: similes include explicitly comparative phrasings; metaphors do not (Tourangeau & Sternberg, 1982, p. 205).

In the comparison view, the understanding of metaphors is assumed to depend on finding a feature (or set of features) already present in the representation of the target, albeit one that might, at least initially, be of low salience to it. Metaphor comprehension then consists of seeking out the “ground”—namely, those feature shared by the target concept and the source concept of the metaphor (Cornelissen, 2005, p. 754).”

Cornelissen (2005, p. 754) challenges the comparison model by asserting that:

“As appealing as this view is, a vast amount of literature in cognitive science (and carried over into linguistics and philosophy) now indicates that it cannot account for the fact that metaphors generate inferences beyond the similarities required for their comprehension. In many (if not all) cases, metaphoric understanding is creative, with the features of importance being emergent, and the basic mechanisms involved in the production and comprehension of metaphors are the generation and creation of new meaning beyond a previously existing similarity”

Metaphors invite us to see similarities and differences between two concepts, and to see the one concept in terms of the other, making its meaning inherently more profound and exotic than a rendering of the pre-existing similarities between the conjoined concepts might suggest. In sum, this evidence against the comparison view of metaphor points, if anything, to the need for opening up, instead of — as Oswick et al. (2002) recently suggested — closing down the debates on why and how metaphors work in organizational theorizing. The current adoption and entrenchment of the comparison view of metaphor in organizational writings in particular seems a premature conclusion, indicating that organization theory has been rather insulated and not sufficiently informed by theoretical developments and research on metaphor in cognitive science (Cornelissen, 2005, p. 755).”

The so-called *interaction model* pioneered by Black (1962, 1993) provides an alternative perspective, proposing that metaphor *cannot* be reduced to well-defined features or attributes because, when these are specified, one does not get the metaphorical effect in question. The characteristics or features of the source cannot be applied directly to the target, since the features they “share” are often only shared metaphorically (Cornelissen, 2005, p.756). Cornelissen has developed the *domain – interaction model* of metaphor (Cornelissen, 2005; Oswick & Jones, 2006; Cornelissen, 2006c) that has recently evolved into the *image - schematic model* of metaphor (Cornelissen, 2006). This model suggests that the metaphorical comparison of concepts triggers certain image-schemata (abstract imaginative structures) – that may vary among individuals – and are then blended, completed and elaborated upon into a *new, emergent meaning*.

	Theoretical assumptions	Principles of metaphor	Suggested heuristic
Comparison model	Metaphor works by likening the source to the target concept. The comparison paradigm suggests that an analogy or simile not only exists as a necessary condition for metaphor but also provides the ground for its comprehension (after a metaphor has been recognized as false and paraphrased into a comparison statement).	Extraction: Metaphor comprehension involves a comparison of (target and source) terms or concepts to determine (extract) what discrete properties or relations applying to one term can also apply to the other term in the same or a similar sense	Apt and insightful metaphors are those metaphors of which the concepts are judged as dissimilar in some respects, while similar in theoretically important respects
Domains- interaction model	Metaphor creates an emergent meaning structure that cannot be reduced or explained by referring to its constituent parts (i.e. the target and source concepts). A distinction between higher – order conceptual domains and lower-level, instance - specific information (at the level of the target and source concepts) is important to metaphor; as domain-level knowledge is automatically engaged on encountering a metaphor and guides further processing.	Construction Metaphor comprehension involves considering (constructing) in what structural sense two concepts are alike (at the domain level), which provides a frame for the further blending of implications and that leads to an emergent meaning.	Apt and insightful metaphors are those metaphors that are judged to relate concepts 1) between which a correspondence (in a structural sense) can be constructed, and 2) that are drawn from domains that are in the first instance seen as distant.

Table 1: The Comparison and Domains-Interaction Models of Metaphor (Source: Cornelissen, Kafouros & Lock, 2005, p. 1552).

In the case of the ‘organizational learning’ metaphor, for example, this means that once it was established that in a structural sense ‘organization’ and ‘learning individual’ are alike as their image-schemata matched – i.e. the image-schemata that cognitive, mental activities are engaged in

for both entities and acquired information and knowledge is stored in collective or individual residuals – further instance specific information from both the tenor and vehicle concepts was sourced and blended. The implication of ‘individual agency’ from the ‘learning individual’ vehicle concept, for instance, was blended with collective learning within the ‘organization’ and has led theorists to complete and elaborate upon this composition by considering how *collective learning can be imagined as an entity of its own* (instead of being conceived of as an aggregate of individual learning) (Argyris and Schön, 1978), how an organization can become ‘adaptive’ through all the connected learning behaviours and activities that it professes with respect to its environment (Fiol and Lyles, 1985; Huber, 1991), and how this type of learning can become a ‘sustainable competitive advantage’ (Miner and Mezias, 1996, p. 90).

Building on this example, the image-schematic view of metaphor comprehension is conceptually characterized by three steps:

1. First, upon encountering a metaphor, whatever image-schematic structure is recognized as belonging to both the tenor and vehicle concepts in their domains constitutes a generic match. This then provides the ground for further connections and projections to be made between the tenor and vehicle concepts. This first step – image-schematic matching – is guided by the invariance principle referred to earlier. After such an image schematic match is constructed, further instance-specific information is, as said, transferred from the tenor and vehicle concepts and elaborated upon.
2. ‘Blending’, the second step in metaphor comprehension, composes elements from the tenor and vehicle concepts and, furthermore, leads an individual (theorist or researcher) to *complete* and *elaborate* upon the composition made.
3. The ‘blend’, or emergent meaning that subsequently comes off it, is the third and final step of metaphor comprehension. It concerns the more specific meaning resulting from the comparison which, because of the combination of elements from the tenor and vehicle, makes relations available that did not exist in these separately (Cornelissen, 2006).

Conclusion: the image-schematic model provides a fundamental theoretical understanding of how metaphor operates within organizational theorizing. Here, the image-schematic model provides a set of principles of how metaphor works (i.e. image-schematic matching, blending, and emergent meaning) and explains how a metaphor produces a new, emergent meaning that is *more* than the sum of its parts. Prior work within organization theory, while recognizing the generative value of metaphor, has stopped short of suggesting a set of constitutive principles of

how metaphor works. The image-schematic model that Cornelissen (2006) has developed enters into and elaborates on this point. It is well grounded in evidence from cognitive scientific research on metaphor and provides a more valid account of how metaphor works than the objectivist ‘comparison’ accounts (Oswick, Keenoy & Grant, 2002; Tsoukas, 1991) or simple ‘projective mapping’ approaches (Morgan, 1980, 1983) that have gone before. An objective comparison account with its suggestion of a comparison of similarity between two concepts – a symmetrical relation – as the sole mechanism of metaphor is incapable of explaining why a metaphor such as ‘organizational learning’ makes sense to organizational theorists and researchers and is then used in theorizing and research (Cornelissen, 2006).

2.4 Towards Space as a Metaphor-for-Future-Use in Organizations

A metaphor provides a cognitive bridge between two domains. For it to be effective, those domains (e.g. space and organization) must clearly share some key ‘traits’ and should produce a new, emergent meaning that is *more* than the sum of its parts. Metaphors can be good or bad, brilliantly or poorly conceived, imaginative or dreary – but they cannot be “true” (Von Ghyczy, 2003, p. 90). Therefore metaphors are often considered as “too imprecise, as promoting ‘sloppy thinking’ and as lacking rigour (Putman & Boys, 2006, p. 542)”. Both Tsoukas (1991) and Cornelissen (2006) have developed models that overcome some of these critical comments. Especially the generative capacity of metaphor to create new ways of seeing, conceptualizing and understanding organizational phenomena is widely acknowledged within the scholarly organizational community (Cornelissen, Kafouros & Lock, 2005).

Cornelissen, Kafouros & Lock (2005) have examined how metaphors are developed and selected within organizational theory and research. They have reviewed the theoretical literature on metaphor and surveyed the organizational literature to document past and contemporary metaphors-in-use (1993 – 2003). They identified the heuristics (e.g. judgmental rules) that have been used by organizational researchers in developing and selecting metaphors. On the basis of these identified heuristics, and the biases and errors associated with them, the article poses a number of governing rules which can guide organizational researchers in their continued development and selection of metaphors in the organizational field. Within their research they:

“define metaphor as a linguistic utterance in which the combination of words is literally deviant in the sense that terms that have originally or conventionally been employed in relation to a different concept or domain are applied and connected to a target term or concept within organization theory... We also

assume that metaphors as linguistic utterances reflect and intimate cognitively fundamental meanings about organizations and organizational life; and that these meanings can be traced and inferred through a cognitive linguistic analysis. In other words, we consider metaphor as ‘a salient and pervasive cognitive process that links conceptualization and language’ (Cornelissen, Kafouros & Lock, 2005, p. 1549).”

The final product involves a categorization of metaphorical theoretical constructs central to the field of organization theory, classified according to the root metaphorical schemes upon which they are each formulated and understood. They then elaborated upon the different ‘root metaphorical schemes’ and the set of ‘organizational’ and ‘organization’ conceptual metaphors that according to the first stage of their analysis are prominent within organization theory; that is, metaphors that are frequently mentioned and used, and on that basis occupy a central place within organization theory. Within this elaboration, we aimed to retrace and reconstruct the heuristics that organizational researchers have used in developing and selecting certain metaphors in their theorizing and research. In the end, the authors have categorized each conceptual metaphor (a metaphorical word combination involving either ‘organizational’ or ‘organization’) according to the larger root metaphorical scheme upon which they are each formulated and understood. *Twenty-five* significant categories for the ‘organizational’ conceptual metaphors and *10* categories for ‘organization’ conceptual metaphors were identified. Within the root metaphorical category of “organizational” conceptual metaphors. Geographical *Space* metaphors have as their source domain the distribution of objects or places in space, particularly geographical locations and places. This root metaphorical category includes such metaphors as ‘*domain*’, ‘*world*’, ‘*setting*’ and ‘*landscape*’, whereby organizations are represented in terms of geographical spaces and locations. The image of organization as an ‘*organizational domain*’, for example, represents the scope and nature of organizational activities as confined to an *enclosed space*.

The authors have identified six heuristics that provide a motivated explanation for how predominantly metaphors are developed and selected within organization theory:

1. The *integration heuristic*; that representations in the metaphorical image can be manipulated as a single unit;
2. The *relational heuristic*; that relations in the metaphorical images should match the relations of their counterparts in other semantic domains;
3. The *connection heuristic*; that the representation in the metaphorical image should maintain a relationship to the input target and source concepts;

4. The *availability heuristic*; that, given a metaphorical image, the interpreter should be able to infer the structure in relation to other subjects and applications;
5. The *distance heuristic*; that the target and source concepts need to come from semantically distant semantic domains;
6. The *concreteness heuristic*; that the source concept compared to the target is sufficiently concrete (rather than abstract) to be understood and manipulated (Cornelissen, Kafouros & Lock, 2005, p. 1563).

The authors argue that metaphorical images are often selective in the heuristics that they embody, and that the *most apt and effective metaphors are the ones that satisfy multiple heuristics rather than a single one* (Cornelissen, Kafouros & Lock, 2005, p. 1569). They have identified two governing rules to aid organizational researchers in their search for novel categorizations and deeper insights through metaphor:

- *Governing rule #1: relational metaphors are preferred over attributive metaphors.* This first governing rule, related to the relational heuristic, is based upon the evidence that there is a marked difference between the effect of an attributive metaphor (which may provide conceptual clarification and frameworks through perceived common object-attributes between the target and source concepts) and a relational metaphor. The relational metaphor, through its projection and mapping of interconnected relations between previously unrelated concepts, has the potential to produce novel cognitive categorizations and new frames for researching the world of organizations. Space - and the related concepts spatial organizations and spatial arrangements - can be regarded as a relational metaphor, because the relationship between space and organizations has been largely absent in the academic and managerial literature (for some notable exceptions: Hernes, 2004; Clegg & Kornberger, 2006; Taylor & Spicer, 2007; Dale & Burrell, 2008, Kornberger, 2008). The metaphor “space” is not restricted to an organization’s internal “built” physical environment, but it is just about how organizations *relate* to each other and to the world they are part of.
- *Governing rule #2: it is preferred in metaphor to conjoin concepts from semantic domains that are in the first instance seen as distant from one another.* This second governing rule, related to the distance heuristic, implies a potentially greater cognitive effect than juxtaposing concepts from semantic domains that are perceived as close. The

guiding premise here is that distance provides for strong and cognitively profound metaphorical imagery and that without perceived (sufficient) distance a metaphor fails to shock organizational researchers into conceiving of a subject in a completely new way. That is, in such cases, a metaphor may have conjoined two concepts that are conceived of as in some sense alike (in either an attributive or relational sense), but because the semantic domains are seen as not too distant it has little further cognitive effect. In effect, such a metaphor may then just lead into a re-labelling of the targeted subject with concepts and terms from the source domain, but at a rather superficial, nominal level and without offering any new and truly profound insights.

According to Dale & Burrell (2008) there has been a recent explosion of interest in space across all social sciences, although less so within the fields of management and organisation studies. In the context of this study we regard space a *'metaphor-for-future-use'* within the context of organizational theory and practice. Although space and organizations can at first glance be considered to be distant from each other, this distance will likely be reduced in due time.

Together, these governing rules *"encourage organizational researchers to search for creative and new ways of conceptualizing organizations* (Cornelissen, Kafouros & Lock, 2005, p. 1571)". These rules allow for a more liberal and advanced use of metaphor with metaphor being used to reveal deeper and more profound insights into the world of organizations:

When used in such a way, we believe that metaphors can prove enormously productive of further theoretical advances and empirical observations within organization studies; by sparking off inquiry and directing researchers to explore links that would otherwise remain obscure (Cornelissen, Kafouros & Lock, 2005, p. 1572).

As we have discussed above, the focus of this research paper is to examine space, spatial organization and spatial arrangements within the context of a *spatial theory of organizations which can be derived from it*. Although we cannot prove a metaphor (Kolb, 2008), we believe that the metaphor space and the related concepts of spatial organizations and spatial arrangements will bring researchers out of their "cognitive comfort zone" (Cornelissen, Kafouros & Lock, 2005, p. 1572). These concepts potentially embody enough creative tension and turmoil to search for innovative and new ways of conceptualizing organizations.

3. Organizing for Space: Setting the Stage

Typically researchers and managers draw boundaries through time and space. Time and space often serve as implicit design criteria but constitute a fundamental dimension of human organizations, of organizational life and of action. Yet, according to Goodman et al (2001, p. 509), ".... despite the pervasiveness of time in all aspects of our lives, it has not been a central theme in organizational research. There is no well – developed set of theories or empirical studies."

Despite the still-emergent state of research on time in organizations (Clark, 1985; Hassard, 1991; Burrell, 1992; Butler, 1995; Cunha, 2004; Saunders, Van Slyke, Vogel, 2004; Crossan et al, 2005), the management's lexicon is swamped with references to time: cycle time, real time, virtual time, clock time, downtime, just-in-time, slack time, slow time, fast time^c time-to-market, time-wasters and reaction time.

Cyclic and linear perspectives of time.

The strategy debate between the so-called 'design' and 'learning' schools echoes the difference between cyclic and linear perspectives of time (Cunha, 2004): "The 'design' school, which contends that the best-performing organizations are those that plan their future, often assumes that the past is a good guide to the future, an assertion shared by those who see time as a cyclic phenomenon in which the past is often a template for the future. The 'learning' school, which contends that the best - performing organizations are those that act out their future, often asserts that relying on the past is a threat to the future, mimicking, in a way, the unimportance of the past shared by those who see time as a linear phenomenon, never travelling the same path twice (Cunha, 2004, p. 272)".

In the social sciences it has been common practice to separate space and time conceptually, with analysis of time given a more prominent role. Within geographical sciences (e.g. Harvey, 2001) the analysis of space within "time-space spectrum" has been more emphasized.

^c Fast time happens when people multitask, or use a short period when they have nothing to do (in that they are not at that particular moment engaged in an activity) to carry out another activity rather than simply relax. Harvey (1989) neatly refers to these developments as time-space compression. (Towers et al, 2006, p.598)

The battle for time is tough. Although most managers and employees are convinced of the value of “slack –time^d” (Lawson, 2001; Hamel & Breen, 2007) or “social” time in organizations, they find it nearly impossible to act on that belief. Some managers seem to regard time to talk, get together and exchange thoughts and ideas as an “unaffordable luxury”. However, critical organizational success factors such as trust, commitment, understanding and the habit of reciprocity only develop over time (Cohen & Prusak, 2001). In fact, “*if you wring all the slack out of a company, you’ll wring out all of the innovation as well. Innovation takes time – time to dream, time to reflect, time to learn, time to invent, and time to experiment. And it takes uninterrupted time – time when you can put your feet up and stare off into space* (Hamel & Breen, 2007, pp. 54 – 55).”

Three cycles of social time.

According to Lewis and Wrigart (1990) there are three cycles of social time: the daily round (the traditional working day); the weekly routine (consisted of a single block of two days which were reserved for private use – the weekend - followed by five days of the work week); and the annual routine (comprised 50 weeks of work and two weeks of non-work – vacation). But the new ways of working (virtual work, tele-work and other new forms of organizing) have eroded these three cycles. Towers et.al. (2006, p.596) believe that “it appears that the cycles of social time are changing as personal time codes are becoming increasingly synchronised with organizational time codes. The organization has its own rhythms and timeframes, often related to production and accounting routines.”

Time Isn’t Really Money.

In his book “Faster, the Acceleration of Just About Everything”, Gleick (1999) quotes Lakeoff & Johnson (1980). Like all good metaphors, *Time is money* has a degree of truth that varies with where you stand. For Henry Ford, time was money and was not money; he was not paid by the hour. Lakeoff & Johnson (1980) take pains to note that “Time isn’t really money”: “If you *spend your time* trying to do something and it doesn’t work, you can’t get your time back. There are no time banks. I *can give you a lot of time*, but you can’t give me back the same time, though you can *give me back the same amount of time* (Lakeoff & Johnson in Gleick, 1999, p. 242)” .

^d Slack can be thought of as resources – e.g. time – available to an organization that are in excess of the minimum necessary to produce a given level of organizational output (Geiger & Makri, 2006). Organizational slack is that cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy as well as to initiate changes in strategy with respect to the external environment (Lawson, 2001).

The purpose of this chapter is to briefly investigate the relationship between space and time in organizations. The next section outlines the spatial theory of organization and the conditions that stimulated its origin.

3.1 Space and Time in Organizations

Space and time for people to make human - and digital - connections with one another is crucial for any organization to start, develop, grow flourish and even decline or die:

“All attachments and memberships take time, and time is scarce. We cannot be members of an infinite number of groups in the same way because attachments require not just ‘quality time’ but also quantities of time, to learn about the people involved, their motivations and idiosyncrasies (Mulgan, 1998 cited in Cohen & Prusak, 2001, p.100).”

Since trust, understanding and commitment are nearly impossible to develop and difficult to maintain at a distance, spatial organizations will have a hard *time* acting coherently and collaboratively. Heckscher (2007) believes that *collaborative enterprises* need a great deal of structure to organize specialists, professionals and experts around complex and fast moving activities without descending into chaos. But this is a *new* kind of structure and discipline that has to deal with accountability and careers (e.g. loyalty and commitment) within various configurations of fluid, inconstant and incomplete collaborative workspaces.

The focus on the *space – time connection* is reflected in organization and management research (Jones, McClean & Quattrone, 2004; Waistell, 2006; Carr & Hancock, 2006; Clegg & Kornberger, 2006; Taylor & Spicer, 2007). Time and space are “twin notions that may be treated separately; they may be intertwined with one another, form part of one another or one may dominate the other (Hernes, 2004, p. 143)”.

Connecting Space and Time

Lefebvre (1991, p. 181) observed that: “Time *per se* is an absurdity; likewise space *per se*. The relative and the absolute are reflections of one another: each always refers back to the other, and the same is true of space and time.”

Recently Carr & Hancock (2006, p. 547) quoted Hawking (1989) from his book “A Brief History of Time” in which he suggested that Einstein’s theory of relatively challenged the Newtonian

perspective on space and time. Specifically, Hawking proposed that “we must accept that time is not completely separate from and independent of space, but is combined with it to form an object called space-time (Hawking, 1989, p. 24).”

Within an organizational context, Taylor (1911) viewed space and time as commodities to be factored into job design, organization processes and control mechanisms: “*Space and time were conceived as a priori categories, as natural fixed entities, that instrumentally should be of core concern to management* (Carr & Hancock, 2006, p. 545)”. Taylor represents a tradition within both mainstream organization studies and managerial practice of treating space and time as *a priori* categories to be understood in singular and linear terms and subject to manipulations and control. But organizational context can be understood containing a multiplicity of *possible times and spaces* (Cairns, McInnes & Roberts, 2003).

Lefebvre (1991, p. 175): “Time is distinguishable but not separable from space.”

In history, time has tended to be treated as an abstract category, separated from space. However, many social and historical studies indicate that diverse ways of understanding time are practised that are embedded in place and lived experience.

“*Even when these focus specifically on time, the thrust of their analysis are that the experience of time is very much located in everyday lived practices, and cannot be dissociated from them* (Burrell & Dale, 2008, p. 20).”

Once formed, a space cannot be unformed; it can be demolished in its present form, but it is impossible to act as if it did not exist. Space formation is both indispensable and uncontrollable in its consequences. A group of friends that decide to launch a business together are obliged to establish social spaces for trust, mental spaces for what is important to prioritize and physical spaces for production; spaces that cannot but evolve and interact as time goes by. Consequently, an organization is not a fixed entity, but is constantly in flux *across space and time* contributing to and extend the existing organizational theory into a spatial theory of organization.

3.2 Towards a Spatial Theory of Organizations

The concept of spatiality and space within organizational science was until recently regarded as no more than an idea with ‘appeal’, but with little practical relevance:

“In terms of more classical academic foundations, space has long been an implicit concern of organization theory (Kornberger & Clegg, 2004, p. 1996)”.

The spatial dimension in organization and management existed for a long time, but mostly in a physical context of interpretation (Kornberger and Clegg, 2004, Dale & Burrell, 2008) focusing on the geographical location (Yeung, 2005) or the (re)configuration of workplaces and/or workspaces within an organization (Becker & Steele, 1995; Allen et al, 2004; Schaffers et al, 2006). We believe that *spatial organization theory* will enable organizations and will allow managers and employees to perform *beyond* existing boundaries and limits, whether perceived or real and structural or incidental, to achieve better results more easily in a complex, volatile and turbulent world. We argue that spatial organizational theory, although emergent, allows for a way of bringing knowledge, people and technology together in an inherently more effective way than traditional organizational configurations can, as the latter require continuous adjusting and/or adapting through restructuring and change. These traditional organizational configurations often *continue* to exist in the *minds* of managers and employees responsible for leading organizational transformation efforts to create agile, ‘boundaryless organizations’ (Ashkenas et al., 2002). In effect, they often result in the opposite

3.3 Towards a Knowledge Based View of the Organization

During the 1980s the resource based view of organizations (Snow & Hrebiniak, 1980) created a breakthrough in organization theory and practice. Traditionally, organizations are confronted with uncertainty, risks, complexity and turbulence. Therefore companies built mechanisms and resources to get through difficult periods. The ‘resource base’ (e.g. specialized know – how, financial capital) of an organization (Penrose, 1959; Barney 1991; Barney & Arikan, 2001; Newbert, 2007) includes tangible - and intangible resources as well as capabilities which an organization possesses, controls, or have access to on a preferential basis (Helfat et al, 2007). Thus resources are assets with value-adding potential which organizations can draw upon to accomplish certain aims (Helfat et al, 2007, p. 4). According to the *resource – based theory*, a companies’ competitive advantage is regarded to be the result of a unique set of conditions

originating from the resources of an organization, which value is determined by phenomena such as rarity, non – imitability and non – substitutability of its resources. Organizations have access to many sorts of resources of their own and of others that they do not possess but which they can use purposefully. For example, companies may choose to invest in developing :

- a *dynamic capability* (Teece, Pisano and Shuen, 1997; Wang & Ahmed, 2007) , i.e. the capability of an organization to *purposefully* create, extend, or modify its resource base (Helfat et al, 2007, p.1)
- an *absorptive capacity*^e (Cohen & Levinthal,1990), i.e. the ability to recognize new external knowledge, assimilate it and apply it to commercial ends (Jansen, Van den Bosch & Volberda, 2005; Lane, Koka & Pathak, 2006).
- a *transformative capacity* (Garud & Nayyar, 1994), i.e. the ability to continue redefine a product portfolio on technological opportunities created within a firm (Garud & Nayyar, 1994, p. 367).

These capabilities and capacities improve a company's ability to convert its inputs into valuable outcome. Nonetheless value and the process of creating value has risks and opportunities associated with and attached to it. For example, one of the key roles of today's management relates to shifts that need to be accomplished in the mindset of workers (Colbert,1996; Gosling & Mintzberg, 2003; Gardner, 2007) toward considering risk as an *opportunity* (Davis & Meyer, 2000) particularly with regard to processes and practices of exploring, generating, updating, advancing and exploiting *knowledge*. Such mindshifts are in literature referred to as a paradigm shift towards a knowledge-based view on organizations (Schendel, 1996, Grant, 1996). Together with a number of other authors (Kaplan et al., 2001; Krogh & Grand, 2002; Nonaka, Krogh & Voelpel, 2006; Kapoor & Lim, 2007) this view has focused both on organization science and practice on *knowledge* as a dominant *source* of competitive advantage, resulting in what we now define as the 'knowledge based theory of the firm' (Grant, 1996; Kaplan et al, 2001; Spender, 2002; Nickerson & Zenger, 2004; Nonaka, von Krogh & Voelpel, 2006; Felin & Hesterly, 2007). Viewing

^e “The word ‘capacity’ refers to the ability to perform a task in at least a minimally acceptable manner. Thus , if an organization has a dynamic capability, it can alter its resource base in at least some minimally satisfactory manner. How well the organization alters its resource base is another matter. Neither ‘capability’ nor the related term ‘competence’ implies outstanding ability according to the Merriam – Webster Dictionary of Synonyms and Antonyms. These terms imply only the potential for ‘adequate performance’. In the definition of dynamic capability, we therefore are careful to exclude any sort of tautology with regard to superior performance. Change in the resource base of an organization implies only that the organization is *doing something different, but not necessary better, than before* (Helfat et al, 2007, p. 5 *italics added*).

organizations in this way does not mean the end of the resource – based view of organizations. It simply means that knowledge has emerged as an extension to it (Grant, 1996). Knowledge-based theories of the firm are diverse, but have according to Baldwin (2007, p. 9) in common:

- (1) an overall focus on what goes on *inside* a firm or organization
- (2) a general agreement on the value (or “advantage”) derived from ‘things’ that a firm can do, variously labelled as routines, competencies, or capabilities—that are *not easily imitated or purchased*
- (3) a joint recognition that these routines, competencies or capabilities are *based on knowledge*, which is distributed across individuals and must and can be assembled and reconfigured in various ways.

According to Grant (2002, pp. 135 – 136), the knowledge – based theory of the firm is not a theory of the firm in any formal sense of the word. It is more a set of ideas about the existence and nature of those firms emphasizing the role of knowledge. At its core lie a number of observations concerning the nature of knowledge and the role knowledge plays in the production of results (Grant, 2002, p.136):

1. *Knowledge is the overwhelmingly important productive resource in terms of market value and the primary source of Ricardian rents (Machlup, 1980; Grant, 1996).*
2. *Different types of knowledge vary in their transferability: explicit knowledge can be articulated and easily communicated between individuals and organizations; tacit knowledge (skills, know-how, and contextual knowledge) is manifest only in its application--transferring it from one individual to another is costly and slow (Nonaka, 1994; Kogut and Zander, 1992).*
3. *Knowledge is subject to economies of scale and scope. A characteristic of all knowledge is that its initial creation is more costly than its subsequent replication. As I have already argued, economies of scale in knowledge together with the complementarity of different types of knowledge imply increasing returns in knowledge-intensive industries — a fundamental feature of the “new economy” (Arthur, 1994). To the extent that knowledge is not specific to the production of a specific good, economies of scale translate into economies of scope. The extent of economies of scale and scope vary considerably between different types of knowledge. They are especially great for explicit knowledge, information in particular, which is “costly to produce, but cheap to reproduce (Shapiro and Varian, 1999 , p. 3). Tacit knowledge tends to be costly to replicate, but these costs are lower than those incurred in its original creation (Winter, 1995).*
4. *Knowledge is created by human beings and to be efficient in knowledge creation and storage, individuals need to specialize (Simon, 1991, p. 127).*

5. *Producing a good or service typically requires the application of many types of knowledge (Kogut and Zander, 1992).*

According to Grant (2002), an important implication of the assumptions underlying knowledge is a dichotomy that starts to occur between two types of knowledge-based activity in the economy. There are those activities that are concerned with increasing the stock of knowledge—what March (1991) refers to as “exploration,” and Spender (1992) calls “knowledge generation” —and those activities concerned with deploying knowledge in order to produce goods and services—what March (1991) refers to as “exploitation,” and Spender (1992) calls “knowledge application”. Reconciling the dichotomy between knowledge creating and knowledge applying activities represents a key challenge for organizations: knowledge creation requires specialization (points 3 and 4 above), while knowledge application requires diversity of knowledge (point 5). Given the limited transferability of knowledge (point 2), this presents considerable difficulty for the institutions of production. The solution lies in some process of knowledge integration that permits individuals to apply their specialized knowledge to the production of goods and services, while preserving the efficiencies of specialization in knowledge acquisition (Demsetz, 1991). Grant (1996) interprets many new organizational form initiatives as attempts to access and integrate the implicit knowledge - Grant uses the term “tacit” knowledge - of organizational members while recognizing the barriers to the transfer of such knowledge:

“A knowledge based view favours integration mechanisms which bring the varied knowledge of small numbers of individuals together to deliver organizational solutions. The question of boundary of the firm is then analysed in terms of relative efficiency of knowledge utilization (Fenton & Pettigrew, 2000, pp. 29 – 30) ”

One of the key questions within the knowledge - based theory of the firm is:

“...what is the source of competitive advantage within a firm? Asked somewhat differently: How is advantage created and how is it sustained (Schendel, 1996, p. 2)?”

Recent developments in the knowledge – based theory of the firm (Nonaka, von Krogh & Voelpoel, 2006; Sillince, 2006; Nonaka & Toyama, 2007; Felin & Hesterly, 2007; Kapoor & Lim, 2007) recognizes that “despite the recent proliferation of research into knowledge based arguments, a number of fundamental constructs and questions have yet to be clearly defined and

explored (Felin & Hesterly, 2007, p. 195).” For example, a critical, implicit debate underlying much knowledge and capabilities - based work is whether the individual or the collective is the source of new value, or put differently, the locus of knowledge. That is, at what level is new value created (Felin & Hesterly, 2007).

Both Nonaka, von Krogh, Voelpel (2006) and Nonaka & Toyama (2007) address another key question within the knowledge – based theory of the firm: “Why firms differ?” People create new organizations to pursue goals that are *not already being achieved*. That is, organizations are supposed to differ from each other (Starbuck, 2007). Firms differ because they want and strive to differ, and

“... first and foremost, because they cannot escape the idiosyncrasy of organizational knowledge creation. Organizational knowledge creation theory proposes concepts and relationships regarding organizational enabling conditions and organizational forms (“ba”), as well as leadership that explain the conundrum of firm differences, and hence provide the building blocks of a knowledge – based theory of the firm. Due to the intersubjective nature of knowledge, firms differ because organizational knowledge creation gives rise to unique organizational knowledge systems. In an industry, firms may share certain characteristics, such as knowledge visions, but they will produce distinct knowledge outcomes (Nonaka, von Krogh, Voelpel, 2006, p. 1193).”

According to Nonaka & Toyama (2007, p.25) *knowledge assets* arise within the knowledge creating process: “Unlike other assets they are intangible, are specific to the firm and change dynamically.

^f *Ba*, is a Japanese concept that roughly translates into the English ‘space’. *Ba* is *shared space for emerging relationships*. It can be *physical, virtual* or *mental* space, but all three have knowledge embedded in *ba in common*, where it is acquired through individual experiences, or reflections on others’ experience: “Various *ba* characteristics are particularly suited for the conversion of knowledge. In the *originating ba*, individuals meet face-to-face, share emotions, feelings, experiences and mental models. The *originating ba* is where knowledge creation begins, and it represents socialization among individuals. The *interacting ba* supports externalization. Here, individuals work with peers. Through dialogue, their mental models and skills are probed, analysed and converted into common terms and concepts. The *cyber ba* is a place of interaction in the virtual world rather than in the physical world (Nonaka, von Krogh & Voelpel, 2006, pp. 1185 - 1186)

The essence of knowledge assets is that they must be built and used *internally* in order for full value to be realized, and hence they cannot be readily bought and sold.”

Nickerson & Zenger (2004) explain how a firm’s prospective objectives for knowledge formation dictate the choice of how to organize:

“Here the critical question is not whether knowledge should be owned or acquired in the market or how the exchange of knowledge should be facilitated, but rather how a manager should organize individuals to generate knowledge that a firm seeks (Nickerson & Zenger, 2004, p. 618).”

It’s all about identifying knowledge boundaries and organizing valuable knowledge. Finally, Grant (2002) distinguishes a specific area where the impact of knowledge – based thinking has yet to make its mark:

“Knowledge – based approaches offer some hope for filling the widening gap between the evolution of organizational forms in the business sector and the capacity for organizational theory to explain them (Grant, 2002, p. 145).”

Within our spatial theory of organization we want to elaborate on this statement and further explore his proposition that

“some of the most potentially interesting applications of knowledge-based approaches to the theory of the firm lie in the area of organizational design (Grant, 2002, p. 142).”

According to Jackson (2000, p.15), “organization design is to the knowledge era what the steam engine was to the industrial revolution and the computer was to the information age. Excellence in organization design, in full sense of the phrase, is the essential skill for success in the knowledge era... There will never be one form of organization that is right for all situations. The key is not to find the right organization but rather to *master the art of organization design (italics added).*”

4. 'Reanimating' The Art of Organizational Design

As companies are increasingly part of complex institutional systems and activities, organizational forms and business models do not have a multidecade lifespan. The way to restore 'fit' either takes place by:

- alligning^g external developments and demands to internal competencies and capabilities, and/or
- by reducing internal control and coordination mechanisms for organizations to become less structured and more flexible, even agile (Galbraith, 1974).

Most organizational design initiatives are based on a fit between strategy, structure, people, rewards, processes and its environments (Galbraith, 1995; Galbraith, Downey & Kates, 2002). The idea is that by configuring and reconfiguring various dimensions (e.g. shape, distribution of power and decentralisation), managers and employees can create organizational forms suited to respond to or anticipate to the most turbulent environments. Often organizations revamp themselves from functional structures into process-, product – or customer driven structures. Existing organizations are in a continual state of formation, where there is no clear separation between in the inside and outside. Simple organizational designs hardly offer any advantage and are often easily copied.

The renewed interest in the development of critical organizational design principles (e.g., Joyce, Nohria & Robertson 2003; Roberts, 2004; Neilson & Pasternack , 2005; Bryan & Joyce, 2007) will (further) enhance organizational performance by exploring existing resources and at exploiting new opportunities (March, 1991; Benner & Tushman, 2003; Gupta, Smith & Shalley, 2006) . Because of the 'reanimation' of organizational design, many new alternative organizational design options have emerged. They have been propelled by a recent surge in attention towards new ways of working, resulting from a structural shift in the nature of work. Work itself is becoming knowledge – based (Wolff, 2005; Sinha & Van de Ven, 2005; Davenport, 2005; Chan, Beckman & Lawrence, 2007; Heckscher, 2007), with knowledge-based work being regarded as

^g The contingency approach maintains that organizations with forms that 'fit' their environmental context will out - perform organizations with configurations that do not. How to achieve 'fitness' is a primary challenge for organizational design (and how do keep fit over time!). The alignment practice (Benson, Bugnitz & Walton, 2004) looks at organizational activities and assesses the cause and effect between existing activities end the company's strategic intentions and operations.

cognitively complex, intense, passionate, time pressured, and collaborative. The frontier of human and organizational productive capacity is the ability knowing when to work and learn together - beyond the scope of small groups - and when to work individually as an expert, professional or knowledge worker. Modern work design is “*no longer contained within a job or even an organization; it often transcends the boundaries of organizations, professions and countries* (Sinha & Van de Ven, 2005, p. 389).”

Before transcending boundaries, they must be identified. Boundaries are drawn again and again. Apart from tangible boundaries – such as gates, walls, budgets and programmes – most boundaries are unclear, invisible and at best blurred. Even the study of boundaries – just like space – involves analyzing something that often cannot be seen.

“Space only really makes sense in the presence of boundaries (Hernes, 2004, p. 84).”

Hernes (2004) differentiates boundaries according to the mechanisms that govern *what goes on inside them*, which differs depending on whether we consider space to be social, virtual mental or physical. Organizations take up space. Lots of it. Most of it is physical space. We can all witness this in the offices and sometimes even factories which surround us and their rapid expansion during economic growth. Space matters. Increasingly, organizations also consist of other spaces which can and should form part of organizational design and practice. Next to being physical, organisations are also virtual and mental. Sometimes organisations are even social and thus recognized as being different.

Hernes (2004) believes that boundaries reflect the substance of space: “Boundaries may be grouped according to the substance of space, which distinguishes between social, physical and mental boundaries (Hernes, 2004, p.84). Therefore, following Lefebvre (1991) spatial typology - physical, social and mental space - , a three fold typification is drawn between physical, social and mental boundaries:

- *Physical boundaries* relate to formal rules and physical structures regulating human action and interaction in the group or organization.
- *Social boundaries* relate to identity and social bonding tying the group or organization together.
- *Mental boundaries* relate to bounding of core ideas and concepts that are central and particular to the group or organization

Studying the *effects* that boundaries have on space, Hernes (2004) distinguishes between three different ways how boundaries regulate the space in question:

- Boundaries as ordering devices
 - Boundaries act as tolerance limits for human actions and interactions, which means that most of the time, most of the people will stay within the boundaries, which again creates some stability of expectations. We expect that people and units generally stay within the limits, which makes it possible for others to plan and to achieve what they set out to do. Crossing the ordering boundary implies transgressing organizational arrangements, such as by breaking formal rules (in relation to physical boundaries), violating social norms (in relation to social boundaries) or practicing heresy (in relation to mental boundaries).
- Boundaries as distinctions
 - Boundaries are markers of identity serving to convey distinct physical, social and mental features by which a space is distinguished from the environment. As spaces are formed through the drawing of distinctions between themselves and the external environment, over time distinctions are continuously redrawn.
- Boundaries as thresholds
 - Boundaries act as thresholds to import and export of resources such as people, ideas and materials. Boundaries are “permeable” or “leaky”. Very high thresholds signify that space is strictly regulated. Low thresholds, on the other hand, signifies a higher degree of exchange with the external environment and has as main consequence a higher degree of malleability, because people may easily move in and out of space.

As organizational work and organizations increasingly become ‘unbounded’, the development of a spatial theory of organization becomes evident. Early indications of this theory are presented among others by Kornberger & Clegg (2004) Chanlat (2006), Taylor & Spicer (2007) and Dale & Burrell (2008). Hernes (2004) put forward the assumption that ‘organization is seen unbounded’ in several ways. We assume that organization is unbounded:

- *in time*: it is emergent and unfinished.

- *in space*: it is multiple and amorphous

Beyond Organizational Limits

“Organization in its unbounded state does not correspond to ”the organization”, which is normally seen as a set of coherent mechanisms serving to distinguish it from the environment. Instead we opt for the idea of different types of space, each of which may be used to describe different aspects of organization. The three types of space – physical, social and mental – have distinctly different characteristics in the ways they emerge, evolve and reproduce themselves.

... with the unbounded assumption, the three types of space are assumed to converge towards what we commonly refer to as ‘the organization’. The organization consists of structures, norms, beliefs and many other things that together underpin a stabilized system. The main implication is that we analyze processes in the light of equilibrium we assume that they evolve towards. With the assumption of unboundedness, on the other hand, there will always be moves towards something *different*, both in space and time. Whatever changes take place, they occur as a result of spaces *interacting* (Hernes, 2004, p. 125, *italics added*).

Recently, Chanlat (2006) presented “some footprints [of space] in the history of management literature (p. 17).” First of all, the author has summarized the reflections of space mainly drawn from psychology, social psychology, sociology, anthropology and geography into seven characteristics of what constitutes organizational space . Organizational space as (Chanlat, 2006, pp. 18 – 21):

1. *divided*: separation between internal and external worlds. There are buildings, doors, walls, guardians, etc. This separation between inside and outside was fundamental for the identity of the workers, foremen, employees and managers. Today, these physical limits still always exist, but nowadays people can work for an organization without being inside it.
2. *controlled*: each space is by and large controlled (e.g. visual, distant, electronic, management control).
3. an *imposed and hierarchical space*: every organization is more or less hierarchically divided and each hierarchy is visible in space.

4. a *productive space*: all organizing occurs in a productive space that has to fulfill its objectives. In that sense, a hospital, university, theatre, public office or a plant are different productive spaces because of their own objectives.
5. a *personalised space*: historically, human beings have been territorial beings. Life in organizations is fundamental territorial. We make claims on and defend our control of a variety of organizational objects, spaces, roles and relationships (Brown, Lawrence & Robinson, 2005). So people embed their home and workplace with personal meaning (i.e. the individualisation process). Some organizations do not allow personal displays because of the fear they will compete with organizational identity: "Organizations must recognize, however, that people strive for balance between inclusion in the group and individuality (Brown, Lawrence & Robinson, 2005, p. 591)."
6. *symbolic*: the sense of culture feeds the identity and image of an organization, its spatial configuration, and aesthetics, which, together, participate to create the symbolic universe of the organization (Strati, 1999; Gherardi, Nicolini & Strati, 2007; Ewstein & Whyte, 2007).
7. *social*: every organizational space is a social milieu. In it, we find different people organized in a social system that is organized through a certain type of division of labour.

Second, Chanlat (2006, p.21) believes that "each organization can be understood according to a *spatial reading*." The author portrays an overview how some of the main management schools during the 20th and early 21st century (e.g. Scientific Management, Fordism, Bureaucracy, Human Relations, Cognitive, Systems Theory, Culture and Symbolism, Critical perspectives, Political and Psychosociological currents) have treated space. In his review of these main readings of organizational space in management thinking, many times space is not explicitly discussed except in terms of physical settings: "But, we can also notice that space in spite of everything is implicitly present (Chanlat, 2006, p. 21)."

For example, within the Human Relations School, the classic work of Mayo (1933) and Roethlisberger and Dickson (1939) introduced the idea of a relationship between work performance and group dynamics. Through the Hawthorne experiments and other studies, they showed that the formal organization could not provide a real picture of what was going on in the organization. They developed the idea of informal relations among workers and employees and management must incorporate the informal reality in their daily practice:

"By such an analysis, Mayo and his main collaborators focused on organizational space as a social space. The *physical design of space* became a factor in the construction of social links by spatially organizing the formal and informal relationships in a plant. Moreover, it created a feeling of belonging that permitted a symbolic investment not only in the job done but also in working life more broadly. For Mayo, this knowledge leads to a better organization that could realize social harmony (Chanlat, 2006, p. 25, *italics added*)."

Also Kornberger & Clegg (2004, p.1096) present some examples of "spatiality" within organizations:

- *Taylor reorganized the spatial arrangement of the entire organization by dividing space into individual cells, so that every single activity had to take place within its own space (cell), separated from the others. According to Carr & Hancock (2006, p. 545) Taylor viewed space and time as commodities to be factored into job design, organization processes and control mechanisms. Space and time were conceived as a-priori categories, as natural fixed entities that instrumentally should be of core concern to management. Inspired by Taylorism, modernist architects rendered workspace rational, instrumental and, above all, controllable.*
- *Ford wanted to redesign the use of space, inspired by the Chicago slaughterhouses. He sought to impose a new design of power on 'bodies and hands' and on the spaces they occupied. In those early days, Fords' companies spent large sums on socially (re-) organizing its inner space – the moving production line of Ford involved a significant investment in human based plant layout and design that many rivals could not afford to emulate.*

Within this context, the work of Lefebvre, written in 1974 but translated into English only in 1991, entitled *The Production of Space* (Lefebvre, 1991) aimed at overturning the idea that :

"...empty space is prior to whatever ends up filling it, and so to argue that space is produced, through bringing together the various modalities of space – physical, mental and social – into one 'logico-epistemological space, the space of social practice, the space occupied by sensory phenomena, including projects of imagination' (Ford & Harding, 2004, p .817)."

Lefebvre's work underlines that space is a *process of production* rather than the product. The act of producing space is recognized as fundamental to our experiences of the world. Lefebvre's theory of space is a response to received understandings of space as a neutral container or medium.

Rejecting this approach, Lefebvre argues that space is first and foremost a social product (Taylor & Spicer, 2007, pp. 334 – 335).

Lefebvre identified a ‘conceptual triad’(Ford & Harding, 2004, p.817), i.e. three ways of *understanding* space. Every experience is covered within three interrelated aspects of space:

- *Spatial practice* (denotes *perceived spaces*), this is space in its specific form, which embraces production and reproduction
- *Representations of space* (denotes *conceived spaces*), i.e. the dominant space in any society. They are imaginary spaces as we conceptualize them with non-verbal symbol and signs.
- *Representational space*(denotes *lived spaces*), that is the way that we order space through signs and codes

According to Hernes (2004) the *perceived*, the *conceived*, and the *lived* are Lefebvre’s more epistemological dimensions of how we position ourselves in relation to space. Our everyday actions are embedded in spaces which we actually *perceive* as such. Organization reality is a *spatial practice* that reproduces itself through many different means. Meetings are spatial practices that reproduce themselves through social action. *Conceived spaces* are tied to the imageries created by people in power as the ‘producers’ of space (e.g architects, managers). An organization chart represents an example of a *representation of space*. *Lived spaces* evolve from our historical past. They consist of subtle non-verbal signs and codes through which we we make sense of what goes on around us (this is why we *live* these spaces rather than just perceive them). For Lefebvre, space is something which is the product of three specific and continuous *struggles*. These are the everyday struggles around *spatial practices*, the carefully planned *representations of space* and the *imagined representational space* (Spicer & Taylor, 2006, p. 11).

The threefold distinction briefly described here is useful as a classifier of main uses of space, although it does not describe *what different space actually involves* (Hernes, 2004).

Apart from Lefebvre (1991), Soja (1996) has adapted to the notion of space as “three tiered”. Soja (1996) has extended Lefebvre’s model into the trialectics of spatiality. Soja believed that space is never given. It is never an “empty box” to be filled, never only a stage or a mere background. On the contrary, *space is always a cultural constructed entity*. It is part of the general cultural web, and like any cultural entity space is formed and changed, accepted or rejected. Soja (1996) presents three modes of spatial thinking:

- *First space* (Perceived pace) is concerned with physical space

- *Second space* (Conceived space) is the mental/cognitive representation of space
- *Third space* (Lived space) is the lived experience. Lived space embodies the real and imagined lifeworld of experiences, emotions, events, and political choices. Thirdspace is a mode of thinking about space that draws upon both the material and the mental spaces of perceived space and conceived space, but *extends* well beyond them in scope, substance, and meaning. It is simultaneously real and imagined and more.

	Space 1	Space 2	Space 3
Lefebvre	Perceived Space	Conceived Space	Lived Space
Soja	First Space Physical place	Second Space Perceived, (mental/cognitive representation of a place)	Third Space Lived Experience

Figure 2: Understanding Space in a Three Tiered Way: An Overview

The second threefold distinction offered by Lefebvre is the difference between three *forms* of space: mental, social and physical. *Mental space* accommodates the sphere of theory and meaning, *social space* consists of social relations and *physical space* is essentially tangible material. Within an organizational context these different notions of space focus on different areas (Hernes, 2004):

- *Physical space* refers to tangible structures created principally in order to regulate work and interaction. Examples within an organizational context are structures in organizations, budgets, work schedules etc.
- *Social space* evolves from interactions that form relations of a more predictable nature. Social space is a network of relations where norms of behaviour regulate much of what is going on. For example, human presence. This need not to be physical and it may just as well be virtual, imagined or contingent).
- *Mental space* is basically the space of thought. It consists of, for example, knowledge, learning and sensemaking (Hernes, 2004)

This three fold distinction suggests an approach to organizational analyses and it is one of the first attempts to *organize for space*. We agree with Hernes (2004, p.74) that Lefebvre’s ambitions go far beyond the more our modest ambition of offering alternatives to the way firms organize for space. Within the spatial theory of organization we will built upon Lefebvre’s distinction between physical, mental and social space. Lefebvre concludes that “space is *never* empty and always embodies diverse meanings for the actors who share in it. Space may be physical and geographical, but ‘space’ is also a metaphor for people’s range of intention and understanding – things seen, but also things thought. Thus organizational actors may find both freedom and control within the spatial constraints within they operate (Cairns, McInnes & Roberts, 2003, pp. 129 – 130, *italics added*.” Also Kerckhove (2001) uses a three-pronged distinction ‘physical’, ‘virtual’ and ‘mental’ to pinpoint space. Within this paper we refer to Kerckhove’s three tiered way of locating forms of space

The notion of *organizing for space* requires a proper understanding of why, where and how these three kinds of spaces should and can be defined, constructed, implemented and optimized. First and foremost space is regarded – and in many cases should be regarded – as something *physical*. It is matter that we can objectively point to. The problem with physical ‘things’ is that they can be in only one place at a time (e.g. the availability of a virtual versus a hard copy book in a library). It’s here and there, and can be compared with what can be observed and experienced. For people in contemporary workplaces, space is something in which “you can checkout anytime, but you can never leave (Fleming & Spicer, 2004, p. 75).” Secondly space can be regarded as *virtual*, i.e. as something non-physical, but still existing. Allen et al (2004) describe virtual space as a variety of different work settings (a.o. supporting communal spaces) that might be introduced into physical space:

”Such (virtual) spaces can vary according to whether they are: formal or informal; confidential or open; owned by an individual or shared; quiet or noisy ... [there] are spaces which support individual focus, concentration and reflection, and which provide a contrast to the dynamic, collaborative workplaces (Allen et al, 2004, p. 24).”

Thirdly space can be regarded as ‘*mental space*’, i.e. as being closely related to virtual space but still distinctly different from it. Virtual space focuses on (globally) shared work spaces or digital spaces that provide a shared context in which teams, communities or networks can communicate and share knowledge and create shared mental models. Mental space points to an ever wider

number and variety of 'individualness', 'collectives' and 'collaborative enterprises' (Heckscher, 2007). Mental space is however often difficult to identify and capture and it is equally difficult to utilize its potential. We all know that mental space exists, but it is hard to operationalize. Mental space is a subjective space: it's selective. It can be 'open' or 'closed' space. Mental space is an all-encompassing concept that indicates the degree of 'freedom versus focus of mind' a manager should possess to allow him or herself to perform effectively. At the same time mental space is an organizational attribute, i.e. an indication of the type of knowledge-creation and decision-making that is required to optimize organizational effectiveness and efficiency. In their narrative review of research on organizational spaces, Taylor & Spicer (2007) present an integrated framework for studying organizational spaces. It suggests that existing research can be classed into three categories: studies of space as distance; studies of space as the materialization of power relations; and studies of space as experience. These approaches are drawn together using Henri Lefebvre's theory of spatial production to argue that an adequate understanding of organizational spaces would investigate how they are practised, planned and imagined. Each of these three different conceptions involves different methodological preconceptions that shape key analytical concepts and protocols of data collection (Taylor & Spicer, 2007).

"Studies of space as distance tend to emphasize the physicality of organizational spaces, with a focus on the most obvious empirically observable aspects of space such as where people sit, where businesses are located, and how resources are distributed around a building.

Studies of space as the materialization of power relations draw our attention to the structural conditions which shape certain spatial dynamics. At the centre of such analyses are systems of planning and domination which underlie and co-ordinate any given space.

Studies of space as lived experience emphasize the symbolic and imaginary dimensions. Underlying this work is a clear focus on how people imagine and experience the spaces in which they dwell.

We have also argued that, while each of these approaches highlights important issues, they also tend to have significant shortcomings. Rather than seek to champion one approach above others, we suggest that these approaches can all contribute to a more integrated theory of organizational spaces. Following our review, such an integrated theory of space would emphasize the physical manifestations and uses of space, the power relations and dynamics of planning that space, and the way in which actors experience and imagine that space. In order to draw these three dimensions together, we shall draw on Lefebvre's (1991) influential account of the production of space, combining it with an understanding of the various scales that organizational spaces can occupy (Taylor & Spicer, 2007, p.334)."

“A number of researchers working on organizational space have already found Lefebvre’s frame a useful analytic distinction to make (e.g. Ford & Harding, 2004; Hernes, 2004). However, interpretations of Lefebvre’s theory of spatial production emphasize that each of the three dimensions cannot be analytically separated, but must be treated holistically. Spatial practice, spatial planning and spatial imagination all come together into a single moment of social space (Taylor & Spicer, 2007, p. 335).”

From Place to Space: Creating Shared Paths

“A few decades ago, our lives were centred in places. We had the most in common with our village or city neighbours, with the people geographically closest to us. Place formed our connections to the social groups that mattered most: our tribes, churches, jobs, and schools. The defining politics -- and so, defining values -- were those rooted in physical communities.

Today, place has lost relevance for most of us in a connected, global world. We reside in places, of course, but that's basically a lifestyle choice. Rather, Smith writes, "it is in markets, organizations, and networks, and among family and friends that you spend your time, pursue your most pressing purposes, and find meaning in your life." So "Where do you live?" is an interesting question, but "What do you do?" is more telling.

Think of your kids. How much time do they spend playing near home with other neighbourhood children, as you probably did at their age? More likely, they divide their afternoons among a raft of organized activities, from baseball to dance to religious studies. They have friends from any number of these groups, plus school, and their experience is a function of the amalgam. Like them, we now form myriad communities around ‘shared paths’ -- our common interests, experiences, and desires (Hammonds, 2004, p.67).”

Currently there has been an explosion^h of interest in space, although less so within the field of management and organisation studies. Dale & Burrell (2008, p. xi) believe that “... in many ways this is odd, because it is within the business world that there have been many conscious attempts to *re-order spatial practices*. Contemporary practice within organizations is often driven by a

^h For an overview we refer to “Key Thinkers on Space and Place” (Hubbard, Kitchin, Valentine, 2004). This publication offers a critical discussion of a selection of 52 key figures, including Latour, Lefebvre, Soja, Thrift etc, currently dominating debates about space and place

consuming interest in space, both as an economic asset to be effectively utilized and as a social tool to achieve key organizational goals, such as commitment, creativity and innovation.”

The traditional scientific approach employs principles from the natural world to design an “artefact” - e.g. organization – with enduring qualities that fulfilled a specific purpose in an almost stable, unchanged world. From this perspective, design was *fixed in time and space*. The *organizing for space* approach is not just about re-ordering, re-organizing or re-arranging activities to the fixed organization’s “built in environment”, but it’s all about how organizations relate to each other and what spatial organizational design alternatives lead to the expected (business) performance in a turbulent environment.

In an earlier publication we characterized organizations as “fluid affairs” (Lekanne Deprez & Tissen, 2002, p. 31). The spaces and places around us, construct us as we construct them (Dale & Burrell, 2008, p.1). This process of “interactive construction” keeps organizational design in a state that is neither too fluid nor too crystallized (Garud, Jain & Tuertscher, 2008). The challenge is to keep things liquid as long as possible. Intentionally incomplete - that is, imperfect - design leaves room for growth, adaptation and ...space. As soon as a design is drawn and installed, the independent reactions of all the individuals affected begin to blur the lines, reshape the edges, and fill in the *white spaces*:

"Good organization designs are not monuments to the ages. They are a temporary shelter and shaper of the economic life within them (Yokoyama, 1992, p.127)".

We believe that our research will offer a spatial theory of organization that can be applied within organizations to bring about new management innovation, organizational thinking and new organizational forms for better performance.

According to Palmer & Dunford (2002, p. 210) “much of what has been written on the emergence of new organizational forms and their associated practices, is either prescriptive or relies on case studies of individual organizations.” Often concern for organizational design has been more symbolic than real (Dunbar & Starbuck, 2006). Researchers of organizational theory and design have long recognized that there are few universal truths in their field (Starbuck, 2003). The process of reshaping organizations can be driven by an ambition to create or adopt a new agile, flexible organizational form to adapt and /or anticipate to an ever increasing (global business) environment or “simply” to improve performance through cost reductions and /or

productivity improvements. Of course there is no “one best way” to organize (Kanigel, 1997). In an environment that is continually changing, designs that have been completed at a point of time are likely to become incomplete over time. On the other hand, designs that anticipate their incompleteness are likely to be more complete over time (Garud, Jain & Tuertscher, 2008) While any theory or perspective that is brought to the study of organization and management is capable of creating valuable insights, it is also incomplete, under construction and potentially misleading.

We believe that *spatial theoryⁱ of organization* will enable organizations to push managers in practice *beyond* their current boundaries^j to thus better survive in a complex, volatile and turbulent world without being restricted by traditional organizational configurations which require continuous adjusting and/or adapting through restructuring and change. These traditional organizational configurations and boundaries often *continue* to exist in the *minds* of managers and employees responsible for leading organizational transformation efforts to create modern flexible and agile organizations. Daniel Kahneman (Scharge, 2003, p.5) believes that it is “absolutely the most striking how seldom people change their minds. First, we’re not aware of changing our minds even when we do change our minds. And most people, after they change their minds, reconstruct their past opinion – they believe they *always* thought that.”

ⁱ Organizing is the allocation of resources to decisions. Strategizing is the search for combinations of choices, that, together, generate strong performance (Rivkin & Siggelkow, 2006).

^j The notion of boundaries in organizations is usually something to be loosened, broken down or abolished (Ashkenas et al, 2002).

Literature

- Allen, T. et al. (2004) *Working Without Walls*, HMSO, Norwich (www.degw.com).
- Argyris, C., D. Schön (1978) *Organizational Learning*, Reading MA: Addison Wesley.
- Aristotle (1991) *On Rhetoric: A Theory of Civil Discourse* (Translated by G.A. Kennedy) , New York: Oxford University Press.
- Ashkenas, R. et al. (2002) *The Boundaryless Organization*, San Francisco: Jossey-Bass (revised second edition).
- Arthur, B.W. (1994) *Increasing Returns and Path Dependency in the Economy*. Ann Arbor, MI: University of Michigan Press.
- Baldwin, C.Y. (2007) *Modularity, Transactions, and the Boundaries of Firms: A Synthesis*, Harvard Business School, Working Paper 08-013.
- Barley, S.R., G. Kunda (2006) Contracting: A New Form of Professional Practice, *Academy of Management Perspectives*, February, pp. 45 – 66.
- Barney, J.B. (1991) Firm Resources and Sustained Competitive Advantage, *Journal of Management*, vol 17, no. 1, pp. 99 – 120.
- Barney, J.B., A.M. Arian (2001) The Resource – Based View: Origins and Implications. In: M.A. Hitt, R.E. Freeman, J.S. Harrison (eds), *The Blackwell Handbook of Strategic Management*, Oxford: Blackwell, pp. 124 – 188.
- Barsh, J. (2008) Innovative Management. A Conversation with Gary Hamel and Lowell Bryan, *McKinsey Quarterly*, no.1, pp. 1 -10.
- Bate, P., R. Kahn, A. Pye (2000) Towards a Culturally Sensitive Approach to Organization Structuring, *Organization Science*, vol. 11, no. 2, pp. 197 – 211.
- Becker, F., F. Steele (1995) *Workplace by Design: Creating and Managing the High -Tech Performance Workscape*, San Francisco: Jossey Bass.
- Bier, S. (1966) *Decision and Control*, Chichester: Wiley.
- Benner, M.J., M.L.Tushman (2003) Exploitation, Exploration, and Process Management: The Productivity Drama Revisited, *Academy of Management Review*, Vol. 28, no. 2, pp. 238 – 256.
- Benson, R., T.L. Bugnitz, W.B. Walton (2004) *From Business Strategy to IT Action. Right Decisions for a Better Bottom Line*, New Jersey: John Wiley & Sons.
- Berquist, J.L. (1999) *Theories of Space and Construction of the Ancient World*, Paper presented at the AAR/SBL Annual Meeting, Constructs of the Social and Cultural Worlds of Antiquity Group, November 20.

- Black, M. (1962) *Models and Metaphors*, Ithaca, NY: Cornell University Press.
- Black, M. (1993) (First Published in 1979), *More About Metaphor*. In : A. Ortony (Ed.), *Metaphor and Thought*, Cambridge: Cambridge University Press, pp. 19 – 43.
- Brown, G., T.B. Lawrence, S.L. Robinson (2005) *Territoriality in Organizations*. *Academy of Management Review*, vol. 30, no.3, pp. 577 – 594.
- Bryan, L. (2007) *The New Metric of Corporate Performance: Profit per Employee*, *The McKinsey Quarterly*, no.1, pp. 56 – 65.
- Bryan, L.L., C.I. Joyce (2007) *Better Strategy through Organizational Design*, *McKinsey Quarterly*, no. 2, pp. 21 – 29.
- Burrell, G. (1992) *Back to the Future: Time and Organization*. In: M. Reed, M.Hughes (eds), *Rethinking Organization: New Directions in Organizational Theory and Analysis*, London: Sage, pp. 165 – 183.
- Butler, R. (1995) *Time in Organizations: Its Experience, Explanations and Effects*, *Organization Studies*, vol. 16, no. 6, pp. 925 – 950.
- Cairns, G., P. McInnes, P. Roberts (2003) *Organizational Space/Time: From Imperfect Panoptical to Heteretopian Understanding*, *Ephemera*, vol. 3, no. 2, pp. 126 – 139.
- Carr, A.N., P. Hancock (2006) *Space and Time in Organizational Change Management*, *Journal of Organizational Change Management*, vol. 19, no. 5, pp. 545 – 557.
- Casey, E. S.(1997), *The Fate of Place: A Philosophical History. A Centennial Book*. Berkeley, California: University of California Press.
- Chan, J.K., S.L. Beckman, P.G. Lawrence (2007) *Workplace Design: A New Managerial Imperative*, *California Management Review*, Vol. 49, no.2, Winter, pp. 6 – 22.
- Chanlat, J. (2006) *Space, Organization and Management Thinking: A Socio – Historical Perspective*. In: Clegg, S.R. & M . Kornberger (eds), *Space, Organization and Management Theory*, *Advances in Organization Studies*, Copenhagen: Liber & Copenhagen Business School, pp. 17 – 43.
- Ciborra, C.U. (1996) *The Platform Organization: Recombining Strategies, Structures, and Surprise*, *Organization Science*, vol. 7, no. 2, pp. 103 – 118.
- Clark, G. (1992), *Space, Time and Man: A Prehistorian's View*. Cambridge: Cambridge University Press.
- Clark, P. (1985) *A Review of Theories of Time and Structure for Organizational Sociology*. In S.B. Bacharach, S.M. Mitchel (eds), *Research in the Sociology of Organizations*, vol. 4, Greenwich ,CT: JAI Press pp. 125 – 176.

- Clegg, S.R. & M. Kornberger (eds) (2006), *Space, Organization and Management Theory*, Advances in Organization Studies, Copenhagen: Liber & Copenhagen Business School.
- Cohen, M., J. March, J. Olson. (1972) A Garbage Can Model of Organization Choice, *Administrative Science Quarterly*, vol. 17, March, pp. 1 – 25.
- Cohen, W., D. Levinthal (1990) Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly*, vol. 35, pp. 128 – 152.
- Cohen, D., L. Prusak (2001) *In Good Company*, Boston: Harvard Business School Press.
- Colbert, S.A. (1996) *Mind-Set Management. The Heart of Leadership*. Oxford: Oxford University Press.
- Cornelissen, J.P. (2004) What Are We Playing At? Theatre, Organization, and the Use of Metaphor, *Organization Studies*, vol. 25 no. 5, pp. 705 – 726.
- Cornelissen, J. P. (2005) Beyond Compare: Metaphor in Organization Theory. *Academy of Management Review*, vol. 30, pp. 751–764.
- Cornelissen, J.P. , M. Kafouros, A.R. Lock (2005) Metaphorical Images of Organization: How Organizational Researchers Develop and Select Organizational Metaphors, *Human Relations*, Vol. 58, no. 12, pp. 1545 – 1589.
- Cornelissen, J.P.(2006) Metaphor and the Dynamics of Knowledge in Organization Theory: A Case Study of the Organizational Identity Metaphor, *Journal Of Management Studies*, vol. 43, no. 4, pp. 683 – 709.
- Cornelissen, J.P. (2006b) Making Sense of Theory Construction: Metaphor and Disciplined Imagination, *Organization Studies*, vol. 22, no. 11, pp. 1579 – 1597.
- Cornelissen, J.P. (2006c) Metaphor in Organization Theory: Progress and the Past, *Academy of Management Review*, vol. 31, pp. 485 – 488.
- Cornelissen, J. (2007) The Metaphorical Construction of Organizational Identity. In: A. Pullen, N. Beech, D. Sims, *Exploring Identity. Concepts and Methods*, Hampshire: Palgrave Macmillan.
- Cornelissen, J.P., C. Oswick, L.T. Christensen, N. Philips (2008) Metaphor in Organizational Research: Context, Modalities and Implications for Research Introduction, *Organization Studies*, vol. 29, no.1, pp. 7 – 22.
- Crossan et al. (2005) Time and Organizational Improvisation, *Academy of Management Review*, vol. 30, no. 1, pp. 129 – 145.
- Cunha, M.P. (2004) Organizational Time: A Dialectical View, *Organization*, vol. 11, no. 2, pp. 271 – 296.
- Dale, K., G. Burrell (2008) *The Spaces of Organization and The Organization of Spaces. Power, Identity and Materiality at Work*, Hampshire: Palgrave/MacMillan.

- Davenport, T.H. (2005) *Thinking for a Living*, Boston: Harvard Business School Press.
- Davis, S. (1987) *Future Perfect*, London: Addison – Wesley Publishing Company.
- Davis, S, C. Meyer (2000) *Future Wealth*, Boston: Harvard Business School Press.
- Demsetz, H. (1991) The Theory of the Firm Revisited,. In: *The Nature of the Firm*, New York: Oxford University Press pp: 159-178.
- Dunbar, R.L.M. W.H. Starbuck (2006) Learning to Design Organizations and Learning from Designing Them, *Organization Science*, vol.17, no. 2, pp. 171 - 178.
- El-Sawad, A. (2005) Becoming a ‘Lifer’? Unlocking Career Through Metaphor, *Journal of Occupational and Organizational Psychology*, vol. 78, pp. 23 – 41.
- Ewenstein, B., J. Whyte (2007) Beyond Words: Aesthetic Knowledge and Knowing in Organizations, *Organization Studies* , vol.28, no. 5, pp. 689 – 708.
- Farjoun, M., W.H. Starbuck (2007) Organizing At and Beyond the Limits, *Organization Studies*, vol. 28, no. 4, pp. 541 – 566.
- Felin, T., W.S. Hesterly (2007) The Knowledge - Based View, Nested Heterogeneity, and the New Value Creation: Philosophical Considerations on the Locus of Knowledge, *Academy of Management Review*, vol. 32, no. 1, pp. 195 – 218.
- Fenton, E.M., A.M.Pettigrew (2000) Theoretical Perspectives On New Forms of Organizing. In: A.M. Pettigrew, E.M. Fenton, (eds) ,*The Innovating Organization*, London: Sage.
- Fiol, M.C., M.A. Lyles (1985) Organizational Learning, *Academy of Management Review*, vol. 10, pp. 803 - 814.
- Fiss, P.C. (2007) A Set-Theoretic Approach to Organizational Configurations, *Academy of Management Review*, vol. 32, no.4, pp. 1180 – 1198.
- Fleming, P. A. Spicer (2004) ‘You can checkout anytime, but you can never leave’: Spatial Boundaries in a High Commitment Organization, *Human Relations*, vol. 57, no.1, pp. 75 – 94.
- Florida, R. (2003) *The Rise of the Creative Class*, New York: Basic Books.
- Ford, J., N. Harding (2004) We Went Looking for an Organization but Could Find Only the Metaphysics of its Presence, *Sociology*, vol. 38, no.4, pp. 815 – 830.
- Foucault, M.(1986) Of Other Spaces. *Diacitics*, 16, pp. 22 – 27 (translated by J. Miskowiec).
- Friedman, T.L. (2005) *The World is Flat: A Brief History of the Twenty-First Century*, New York: Farrar, Strauss and Giroux.
- Fung, V.K., W.K. Fung, Y. Wind (2007) *Competing in a Flat World. Building Enterprises for a Borderless World*, New Jersey: Wharton School Publishing.
- Galbraith, J. (1974) *Designing Complex Organizations*, London: Addison-Wesley.

- Galbraith, J.R. (1995) *Designing Organizations: An Executive Briefing on Strategy, Structure and Process*, San Francisco: Jossey Bass.
- Galbraith, J., D. Downey, A. Kates (2002) *Designing Dynamic Organizations*, New York: Amacom.
- Gardner, H. (2007) *Five Minds for the Future*, Boston: Harvard Business School Press.
- Garud, R. , S. Kotha (1994) Using The Brain as a Metaphor to Model Flexible Productive Units. *Academy of Management Review*, vol. 19, no. 4, pp. 671 - 698.
- Garud, R., P.R. Nayyar (1994) Transformative Capacity: Continual Structuring by Intertemporal Technology Transfer, *Strategic Management Journal*, vol. 15. pp. 365 – 385.
- Garud, R., S. Jain, P. Tuertscher (2008) Incomplete by Design and Designing for Incompleteness, *Organization Studies*, (in press).
- Geiger, S.W., M.Makri (2006) Exploration and Exploitation Innovation Processes: The Role of Organization Slack in R&D intensive Firms, *Journal of High Technology Management Research*, vol. 17, pp. 97 – 108.
- Gentner D., K.J. Holyoak B.N. Kokinov (eds) (2001) *The Analogical Mind: Perspectives from Cognitive Science*, Cambridge, MA: MIT Press.
- Genter, D., B. Bowdle (2002) *The Psychology of Metaphor Processing*, *Encyclopedia of Cognitive Science*, London: Nature Publishing Group.
- Gherardi, S., D. Niccolini, A. Strati (2007) The Passion for Knowing, *Organization*, vol.14, no. 3, pp. 315 – 329.
- Gleick, J. (1999) *Faster. The Acceleration of Just About Everything*, New York: Vintage Books.
- Glucksberg S., P. Gildea, H.P. Bookin (1982) On Understanding Non literal Speech : Can People Ignore Metaphors? *Journal of Verbal Learning and Verbal Behavior*, vol 21, no. 1, pp. 85-98.
- Goodman, P.S. et al. (2001) Special Topic Forum on Time and Organizational Research, *Academy of Management Review*, vol 26, no. 4, pp. 507 – 511.
- Gorp, van D. (2007) *Offshoring by Service Firms. Global Sourcing and Innovation: Reality or Myth?*, Research Study, Nyenrode Business University, Breukelen, The Netherlands.
- Gosling, J., H. Mintzberg (2003) The Five Minds of a Manager, *Harvard Business Review*, November, pp. 54 – 63.
- Gowler, D., K. Legge (1989) Rhetoric in Bureaucratic Careers: Managing the Meaning of Management Success. In M. Arthur, B. S. Lawrence & D. T. Hall (Eds.), *Handbook of Career Theory*. Cambridge: Cambridge University Press.
- Grant, D., C. Oswick. (1996) *Metaphor and Organizations*, Thousand Oaks: Sage.
- Grant, R.M. (1996) Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17, pp. 109-122.

- Grant, R.M. (2002) The Knowledge-Based View of the Firm, In: N. Bontis en C.W. Choo (editors), *The Strategic Management of Intellectual Capital and Organizational Knowledge*, London: Oxford University Press, pp. 133 – 148.
- Gratton, L. (2007) *Hot Spots. Why Some Teams, Workplaces, and Organizations Buzz with Energy – and Others Don't*, San Francisco: Berrett – Koehler Publishers.
- Gupta, A.K., K.G. Smith, C.E. Shalley (2006) The Interplay Between Exploration and Exploitation, *Academy of Management Journal*, vol. 49, no. 4, pp. 693 - 706.
- Halford, S. (2005) Hybrid Workspace: Re-spatialisations of Work, Organisation and Management, *New Technology, Work and Employment*, vol. 20, no. 1, pp. 19 – 33.
- Hamel, G. , B. Breen (2007) *The Future of Management*, Boston: Harvard Business School Press.
- Harvey, D. (1989) *The Conditions of Postmodernity*, Oxford: Basil Blackwell.
- Harvey, D. (2001) *Spaces of Capital*, Edinburgh: Edinburgh University Press.
- Hassard, J. (1991) Aspects of Time in Organization, *Human Relations*, vol. 44, no.2, pp. 105 – 125.
- Hatch, M.J. (1999) Exploring the Empty Spaces of Organizing: How Improvisational Jazz Helps Redescribe Organizational Structure, *Organization Studies*, vol. 20, no. 1, pp. 75 – 100.
- Heckscher, C. (2007) *The Collaborative Enterprise. Managing Speed and Complexity in Knowledge Based Business*, New Haven: Yale University Press.
- Helfat, C.E. et al. (2007) *Dynamic Capabilities. Understanding Strategic Change in Organizations*, Oxford: Blackwell Publishing.
- Hernes, T. (2004) *The Spatial Construction of Organizations*, Amsterdam: John Benjamins Publishing Company.
- Hoegl, M., A. Schulze (2005) How to Support Knowledge Creation in new product development: An investigation of Knowledge Management Methods, *European Management Journal*, vol. 23, no. 3, pp. 263 – 273.
- Hubbard, P., R. Kitchin, G. Valentine (2004) *Key Thinkers on Space and Place*, London: Sage Publications.
- Huber, G.P. (1991) Organizational Learning: the Contributing Process and the Literatures, *Organization Science*, vol 2, pp. 88 – 106.
- Huber, G.P. & W.H. Glick (eds), (1993) *Organizational Change and Redesign*, New York: Oxford University Press.
- Ichijo, K., I. Nonaka (eds) (2007) *Knowledge Creation and Management*, London, Oxford University Press.
- Inkson, K. (2004) Images of Career: Nine Key Metaphors, *Journal of Vocational Behavior*, vol. 65, pp. 96 – 111.

- Inns, D. (2002) Metaphor in the Literature of Organizational Analysis: A Preliminary Taxonomy and a Glimpse at a Humanities – Based Perspective, *Organization*, vol. 9 no. 2, pp. 305 – 330.
- Jansen, J.J.P., F.A.J. Van den Bosch, H.W. Volbeda (2005) Managing Potential and Realized Absorptive Capacity: How Do Organizational Antecedents Matter?, *Academy of Management Journal*, vol. 48, no.6, pp. 999 – 1015.
- Jones, G., C. McClean, P. Quatrone (2006) Spacing and Timing, *Organization*, vol. 11, no. 6, pp. 723 – 741.
- Joyce, W., N. Nohria, B. Roberson (2003) *What Really Works: The 4 + 2 Formula for Sustained Business Success*, New York: Harper Business.
- Kanigel, R. (1997) *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency*, New York: Viking.
- Kaplan, S. et al. (2001) Knowledge-Based Theories of the Firm in Strategic Management: A Review and Extension. MIT Sloan Working Paper #4216-01, February.
- Kapoor, R., K. Lim (2007) The Impact of Acquisitions on the Productivity of Inventors at Semiconductor Firms: A Synthesis of Knowledge – Based and Incentive Based Perspectives, *Academy of Management Journal*, vol. 50, no. 5, pp. 1133 – 1155.
- Katz, A.N. (1992) Psychological Studies in Metaphor Processing: Extensions to the Placement of Terms in Semantic Space, *Poetics Today*, Vol. 13, pp. 607 – 632.
- Kauffman, R.J., T. Miller, B. Wang. (2002) When Internet Companies Morph: Understanding Organizational Strategy Changes in the ‘New’ New Economy, *First Monday*, vol. 7, no. 7 (www.firstmonday.com).
- Kerckhove, D. de (2001) *The Architecture of Intelligence*, Basel: Birkhäuser.
- Kogut, B. , U. Zander (1992) Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology, *Organization Science*, vol. 3, pp. 383-397.
- Kolb, D.G. (2008) Exploring the Metaphor of Connectivity: Attributes, Dimensions and Duality. *Organization Studies*, vol. 29, no.1, pp. 127 – 144.
- Kornberger, M., S.R. Clegg (2004) Bringing Space Back In: Organizing the Generative Building, *Organization Studies*, vol. 25, no. 7, pp. 1095 -1114.
- Kornberger, M. (2008) Spatial Organization. In: S.R. Clegg, J.R.Bailey,(eds) *International Encyclopedia of Organization Studies*, Part 4, Los Angeles: Sage, pp. 1451 – 1452.
- Krogh, von, G., K. Ichijo, I. Nonaka (2000) *Enabling Knowledge Creation*, New York: Oxford University Press.
- Krogh, von, G., S. Grand (2002) From Economic Theory Toward a Knowledge – Based Theory of the Firm: Conceptual Building Blocks. In: N. Bontis en C.W. Choo (editors), *The Strategic*

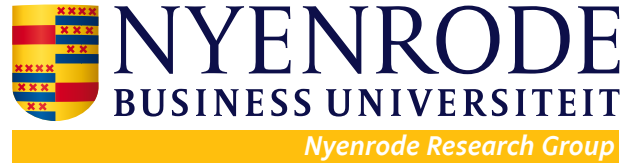
- Management of Intellectual Capital and Organizational Knowledge*, London: Oxford University Press, pp. 163 – 184.
- Lakoff, G. and Johnson, M. (1980) *Metaphors We Live By*, Chicago: The University of Chicago Press.
- Lakoff, G. and Johnson, M. (1999) *Philosophy in the Flesh*, New York: Basic Books.
- Lane, P.J., B.R. Koka, S. Pathak (2006) The Reification of Absorptive Capacity: A Critical View and Rejuvenation of the Construct, *Academy of Management Review*, vol. 31, no.4, pp. 833 – 863.
- Lawson, M.B. (2001) In Praise of Slack: Time is of the Essence, *Academy of Management Executive*, Vol. 15, no. 3, pp. 125 – 135.
- Lekanne Deprez, Frank R.E., René J. Tissen (2002) *Zero Space: Moving Beyond Organizational Limits*, San Francisco: Berrett-Koehler.
- Lennon, A., A. Wollin (2001) Learning Organizations: Empirically Investigating Metaphors, *Journal of Intellectual Capital*, vol. 2 no. 4, pp. 410 – 422.
- Lewis, J.D., A.J. Weigart (1990) The Structures and Meanings of Social Time. In : J. Hassard (eds), *The Sociology of Time*, New York: St Martin's Press, pp. 77 – 101.
- Lefebvre, H. (1991) *The Production of Space*, Oxford: Blackwell.
- Machlup, F. M. (1980) *Knowledge: Its Creation Distribution and Economic Significance*. Princeton, NJ: Princeton University Press.
- Malone, T.W. (2004) *The Future of Work*. Boston: Harvard Business School Press.
- March, J.G. (1991) Exploration and Exploitation in Organizational Learning, *Organization Science*, vol. 2, no. 1, pp. 71-87.
- Miner, A.S., S.J. Mezias (1996) Ugly Ducking No More: Pasts and Futures of Organizational Learning Research, *Organization Science*, vol. 7, pp. 88 - 99.
- Mintzberg, H. (1978) *The Structuring of Organizations*, London: Prentice Hall
- Mohrman, S.A., A.M. Mohrman, R. Tenkasi. (1997) The Discipline of Organization Design. In: C.L. Cooper , S.E. Jackson, *Creating Tomorrow's Organizations. A Handbook for Future Research in Organizational Behaviour*, Chichester: John Wiley & Sons.
- Morgan, G. (1980) Paradigms, Metaphors and Puzzle Solving in Organization Theory, *Administrative Science Quarterly*, vol. 25, pp. 605–622.
- Morgan, G. (1983) More On Metaphor: Why We Cannot Control Tropes in Administrative Science, *Administrative Science Quarterly*, vol. 28, pp. 601–607.
- Morgan, G. (1986) *Images of Organization*, Thousand Oaks, Sage.
- Morgan, G. (1998) *Images of Organization. The Executive Edition*, Thousand Oaks, Sage.

- Mulgan, G. (1998) *Connexity: Responsibility, Freedom, Business and Power in the New Century*, London: Vintage.
- Nadler, D.A., M.L.Tushman (1997) *Competing by Design*, New York: Oxford University Press.
- Neilson, G.L., B.A. Pasternack (2005) *Results*, New York: Crown Business
- Newbert, S.L. (2007) Emperical Research on the Resource – Based View of the Firm: An Assessment and Suggestions for Future Research, *Strategic Management Journal*, vol. 28, pp. 121 – 146.
- Nickerson, J.A. & T.R. Zenger (2004) A Knowledge – Based Theory of the Firm - The Problem - Solving Perspective, *Organization Science*, vol. 15, no.6 , pp. 617 – 632.
- Nonaka, I. (1994) A Dynamic Theory of Organizational Knowledge Creation, *Organization Science*, vol. 5, pp. 14-37.
- Nonaka, I., G. von Krogh, S. Voelpel (2006) Organizational Knowledge Creation Theory: Evolutionary Paths and Future Advances, *Organization Studies*, vol. 27, no.8, pp. 1179 – 1207.
- Nonaka, I., R. Toyama (2007) Why Do Firms Differ? The Theory of the Knowledge Creating Firm. In: Ichijo, K.I. Nonaka (eds), *Knowledge Creation and Management*, London: Oxford University Press, pp. 13 – 31.
- Oldman, G.R., A. Cummings & J. Zhou (1995) The Spatial Configuration of Organizations: A Review of the Literature and Some New Research Directions. In: K.M.Rowland (ed.), *Research in Personnel and Human Resources Management*, Vol. 13, Greenwich, CT: JAI, pp. 1 – 37.
- Oliver, D., J. Roos. (2000) *Striking Balance: Complexity and Knowledge Landscapes*, Maidenhead: McGraw Hill.
- Ortony, A. (1979) Beyond Literal Similarity . *Psychological Review*, vol. 86, pp. 161-180.
- Oswick, C., T. Keenoy, D. Grant (2002) Metaphor and Analogical Reasoning in Organization Theory: Beyond Orthodoxy, *Academy of Management Review*, vol.27 nr.2, pp. 294 -303.
- Oswick, C., P. Jones (2006) Beyond Correspondence? Metaphors in Organization Theory, *Academy of Management Review*, vol. 31, pp. 483 – 485.
- Palmer, I., R. Dunford, (2002) Out With the Old and In With the New? The Relationship Between Traditional and New Organizational Practices. *The International Journal of Organizational Analysis*, vol. 10, no. 3, pp. 209 – 225.
- Penrose, E.T. (1959) *The Growth of the Firm*, New York: Wiley.
- Pfeffer, J., R.I. Sutton (2006) *Hard Facts, Dangerous Half Truths, and Total Nonsense. Profiting from Evidence-Based Management*, Boston: Harvard Business School Press.
- Pettigrew, A.M. et al (2003) *Innovative Forms of Organizing. International Perspectives*, London: Sage Publications.

- Putman, L.L., S. Boys (2006) Revisiting Metaphors of Organizational Communication. In S.T. Clegg et al, *The Sage Handbook of Organization Studies*, Thousand Oaks: Sage Publications, pp. 541 – 576.
- Rafaeli, A. & M.G. Pratt eds, (2006), *Artifacts and Organizations: Beyond Mere Symbolism*, NJ: LEA.
- Rindova, V.P. , S. Kotha (2001) Continuous “Morphing”: Competing Through Dynamic Capabilities, Form, and Function, *Academy of Management Journal*, vol. 44, no. 6, pp. 1263 – 1280.
- Rivkin, J.W., N. Siggelkow (2006) Organizing to Strategize in the Face of Interactions: Preventing Premature Lock-in, *Long Range Planning*, vol. 39, pp. 591 – 614.
- Roberts, J. (2004) *The Modern Firm. Organizational Design for Performance and Growth*, Oxford: Oxford University Press.
- Roberts, J., J. Armitage (2006) From Organization to Hypermodern Organization, *Journal of Organizational Change Management*, Vol. 19, no. 5, pp. 558 – 577.
- Rodriguez, M.A., F. Ponti, S. Ayuso (2006) *The ‘Sponge’ Organization: A Creativity – Based Reflection of the Innovative and Sustainable Firm*, Center for Business in Society, University of Navarra, Working paper no. 616, Spain.
- Roethlisberger, F.J., W.J. Dickson (1939) *Management and the Worker*, Cambridge: Harvard University Press.
- Santos, F.M. , K.M. Eisenhardt (2005) Organizational Boundaries and Theories of Organization, *Organization Science*, vol.16, no.5, pp. 491 – 508.
- Saunders, C., C. van Slyke, D.R. Vogel (2004) My Time or Yours? Managing Time Visions in Global Virtual Teams, *Academy of Management Executive*, vol. 18 , no. 1, pp. 19 – 31.
- Schaffers, H. et al.(2006) *The Future Workspace: Mobile and Collaborative Working Perspectives*, Telematica Institute (www.telin.nl).
- Schendel, D. (1996) Notes from the Editor in Chief, *Strategic Management Journal*, vol. 12, pp. 1 – 4.
- Schrage, M. (2003) Daniel Kahneman: The Thought Leader Interview, *Strategy + Business*, Winter, pp. 1 – 6.
- Schreyögg, G., H. Höpfl (2004) Theatre and Organization: Editorial Introduction, *Organization Studies*, vol. 25 no. 5, pp. 691 - 704.
- Shen, Y (1997) Metaphors and Conceptual Structure, *Poetics*, vol. 25, pp. 1 - 16
- Sillince, J.A.A. (2006) The Effect of Rhetoric on Competitive Advantage: Knowledge, Rhetoric and Resource – Based Theory. In: S.R. Clegg, et al (eds), *The Sage Handbook of Organizational Studies*, London: Sage Publications (second edition) pp. 800 – 813.
- Simon, H.A. (1991) Bounded Rationality and Organizational Learning, *Organization Science*, vol. 2, pp. 125-134.

- Sinha, K.K., A.H. Van de Ven (2005) Designing Work Within and Between Organizations, *Organization Science*, vol. 16, no.4, pp. 389 – 408.
- Sirkin, H.L., P. Kennan & A. Jackson (2005) The Hard Side of Change Management, *Harvard Business Review*, October 2005, pp. 109 -118.
- Snow, C.C., G.L. Hrebiniak (1980) Strategy, Distinctive Competence, and Organizational Performance, *Administrative Science Quarterly*, vol. 25, pp. 317 – 336.
- Soja, E.W. (1996) *Thirdspace: Expanding the Geographical Imagination*, Massachusetts: Blackwell Publishing Ltd.
- Spender, J.C (1992) Limits to Learning from the West: How Western Management Advice May Prove Limited in Eastern Europe. *International Executive*, vol. 34, nr.5, pp. 389 - 410.
- Spender, J.C. (2003) Exploring Uncertainty and Emotion in the Knowledge – Based Theory of the Firm, *Information, Technology & People*, vol. 16, no. 3, pp. 266 – 288.
- Spicer, A., S. Taylor (2006) The Struggle for Organizational Space, Submitted to : *Journal of Management Inquiry*.
- Starbuck, W.H. (1976) Organizations and their Environments. In M.D.Dunette (ed.), *Handbook of Industrial and Organizational Psychology*, Chicago: Rand McNally, pp. 1069 – 1123.
- Starbuck, W.H. (2003) The Origins of Organization Theory. In: Tsoukas, H., C. Knudsen, *The Oxford Handbook of Organization Theory*, Oxford: Oxford University Press, pp.143 -182.
- Starbuck, W.H. (2007) Living in Mythical Spaces, *Organization Studies*, vol. 28, nr. 1, pp. 21 – 25.
- Strati, A. (1999) *Organization and Aesthetics*, London: Sage.
- Taylor, F.W. (1911) *The Principles of Scientific Management*, New York: Harper.
- Taylor, S. & A. Spicer (2007) Time for Space: A Narrative Review of Research in Organizational Spaces, *International Journal of Management Reviews*, vol.9, no.4, pp. 325 - 346.
- Teece, D.J., G. Pisano, A. Shuen (1997) Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, vol. 18, no. 7, pp. 509 - 533.
- Tissen, René J.; Frank R.E. Lekanne Deprez (2006) *De toekomst van management, Over het nut van management in moderne organisaties*. Den Haag, SDU/Academic Service (In Dutch).
- Tourangeau, R., R. Sternberg (1982) Understanding and Appreciating Metaphors, *Cognition*, vol. 11, pp. 203 – 244.
- Towers, I. et al (2006) Time Thieves and Space Invaders: Technology, Work and the Organization, *Journal of Organizational Change Management*, Vol. 19, no. 5, pp. 593 – 618.
- Tsoukas, H. (1991) The Missing Link: A Transformational View of Metaphors in Organizational Science, *Academy of Management Review*, vol.16 , no. 3 , pp. 566 – 585.

- Tsoukos, H. (1993) Analogical Reasoning and Knowledge Generation in Organization Theory, *Organization Studies*, vol. 14, pp. 323 – 346.
- Von Ghyczy, T. (2003) The Fruitful Flaws of Strategy Metaphors, *Harvard Business Review*, vol. 81, pp. 86 – 94.
- Waistell, J. (2006) Metaphorical Mediation of Organizational Change Across Space and Time, *Journal of Organizational Change Management*, Vol. 19, no. 5, pp. 640 – 654.
- Wang, C.L., P.K.Ahmed (2007) Dynamic Capabilities: A Review and Research Agenda, *International Journal of Management Reviews*, Vol. 9 no. 1, pp. 31–51.
- Wolff, E.N. (2005) The Growth of Information Workers in the U.S. Economy, *Communications of the ACM*, vol. 48, no. 10, pp. 37 – 42.
- Yeung, H.W. (2005) Organizational Space: A New Frontier in International Business Strategy?, *Critical Perspectives on International Business*, Vol.1, no. 4, pp. 219 – 240.
- Yokoyama, Y. (1992) An Architect Looks at Organizational Design, *McKinsey Quarterly*, Vol. 4, 116 -127.
- Zack, H.Z. (2000) Jazz Improvisation and Organizing: Once More From the Top, *Organization Science*, vol. 11, no. 2, pp. 227 – 234.
- Zohar, A., G. Morgan. (1996) Refining Our Understanding of Hypercompetition and Hyperturbulence, *Organization Science*, vol. 7, no. 4, pp. 460 - 465.



Nyenrode Business Universiteit
Nyenrode Research Group

Straatweg 25
Postbus 130, 3620 AC BREUKELEN

T +31 346 291 696
F +31 346 291 250
E nrg@nyenrode.nl

www.nyenrode.nl/nrg