
NEW RESEARCH ON KNOWLEDGE MANAGEMENT MODELS AND METHODS

Edited by Huei-Tse Hou

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Transcending Knowledge Management, Shaping Knowledge Governance

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1. Introduction

From knowledge management to knowledge governance

„Knowledge management as an academic discipline is realizing phenomenal growth and international acceptance.“ However, reviewing three of the most popular models - Nonaka's SECI (Japan), March's Ex-Ex (USA) and Boisot's I-space (Europe) - Curado and Bontis have to confess, that *„there still exists no universally accepted framework or model of knowledge management“* (Curado & Bontis, 2011). But it seems to be a minor problem, if we recognize, that the major approaches of classical knowledge management, distilled to cook-book definitions and consultant practices, are increasingly viewed as inadequate in addressing the growing complexity of information and knowledge flows in modern organizations and societies facing with rapidly changing environments. It is enough to refer to the VUCA-paradigm (*volatility, uncertainty, complexity and ambiguity*) or the disruptive market and technology transformations.

Reflecting a new normative push towards conceptual innovation, knowledge governance has emerged as a new paradigm to describe, understand, and analyze the expanding “knowledge domain” in a holistic and comprehensive way. Knowledge governance involves the design of structures and mechanisms to support the processes of sharing and creating knowledge in the (almost) exclusive frame of strategic management. In this chapter we try to draw the portrait of this pretender theory and practice with deep case studies.

2. Forerunners of knowledge governance

During the “ruling decades” (1975-2005) of knowledge management, every innovative approach, dealing with the “knowledge domain” was introduced as a fruitful contribution to the mainstream knowledge management literature. Then again some of them had more complex scope and abstraction level, but their alternative classification became possible only in the last few years, identifying them as early attempts to find broader and more comprehensive framework. We have to start with the short review of these pioneer approaches and models¹.

¹ Part 2-3 is a slightly modified version of our papers with Nikunj Dalal. (Dalal & Z. Karvalics, 2009, 2011)

2.1 Management cybernetics

Stafford Beer was the first to apply cybernetics to management in the 1960s, calling it the "science of effective organization". Management cybernetics focuses on the study of organizational design, and the regulation and self-regulation of organizations from a systems theory perspective (Beer, 1985). Beer's viable system model (VSM) can be used to study different aspects of knowledge management in an individual, organization or network and to model knowledge processes dynamically over time with the goal of improving the organizational systems (Leonard, 2000). Management cybernetic approaches have led to the transformation of organizations particularly of public bodies such as governments and the advancement of new forms of governance.

2.2 Learning organizations and communities of practice

According to the influential vision of Peter Senge, learning organizations are: *"organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together."* (Senge, 1990). From the perspective of learning organizations, the focus of knowledge creation should begin with individuals and in helping them to learn using tools such as: systems thinking, personal mastery, mental models, building a shared vision, and team learning (Senge, 1990). Arising from the field of organizational learning, the notion of communities of practice refers loosely to interest groups that get together at work and in social settings into which newcomers can enter and learn the sociocultural practices of the community. A community of practice is defined as "a unique combination of three elements: a *domain* of knowledge, which defines a set of issues; a *community* of people who care about this domain; and the shared *practice* that they are developing to be effective in their domain" (Wenger et al., 2002). From our perspective, a community of practice within an organization can be seen as a practical way to connect people, share existing tacit knowledge, and create new knowledge.

2.3 Knowledge communities and knowledge ecology

Closely allied to the notion of learning organizations, the concept and practices of knowledge communities and knowledge ecology recognize the systemic and holistic nature of knowledge and aspire to go beyond knowledge management to develop shared intelligence and collective wisdom. Members of several communities of practice will often interact with one another in wider knowledge communities. George Pór describes communities as those that connect islands of knowledge into self-organizing networks that share knowledge. Knowledge ecology, in contrast to command and control hierarchies, aims to unleash the full potential of its participants in order to design and support self-organizing knowledge ecosystems, whereby information, knowledge, intelligence, and wisdom can cross-fertilize and feed on one other (Pór, 2000). The practices of knowledge ecology seem to be more distributed, discipline-transcending, and customer-or problem focused than communities of practice.

2.4 Knowledge and policy networks

Knowledge networks can be seen as being larger, more diffuse and distributed, and less cohesive and practice-oriented than communities of practice or knowledge communities (Jordan & Schubert, 1992). Networks are neither solely organized like a market nor do they

have official hierarchic regulatory structures. Rather, while they may share some characteristics with markets and hierarchies, they are more likely to have informal practices of coordination, common goals or interests, and transaction mechanisms based on attributes such as trust and recommendations rather than prices or administrative orders (Thompson, 2003). Knowledge networks provide an effective coordination mechanism for creating, sharing, and distributing knowledge within and across organizations as well as in specialized domains such as cancer and climate change. Policy networks may be seen as special types of knowledge networks in the political domain which attempt to relate private and public actors.

2.5 Knowledge asset management and knowledge markets

Knowledge asset management views knowledge as an organization's intellectual capital (Boisot, 1998) and as a strategic asset. This view attempts to combine process-centric approaches that views knowledge management as a set of communication processes and the product-centric approach that focuses on the documents, creation, and reuse. In the early knowledge management literature, the knowledge market was generally described as a mechanism for distributing knowledge resources between providers and users. It was Albert Simard, who developed a cyclic end-to-end knowledge-market model (Simard, 2006). The model is based on nine stages: generate, transform, manage, use internally, transfer, add value, use professionally, use personally, and evaluate. The latest (third generation) vision of knowledge markets is even more ambitious: It views knowledge markets as formal or informal community contexts, platforms, or environments (real or virtual) used to promote knowledge commerce, trade and exchange, demand and supply, between knowledge buyers and sellers. They are used to organize, coordinate, aggregate, facilitate, communicate, broker, and network flows and exchanges of knowledge between knowledge seekers and knowledge providers (Davis, 2007).

2.6. Wisdom management

Many recent approaches have begun to recognize that the focus on mere knowledge is not enough. Many organizational and societal crises are crises not because of a lack of information, knowledge or other resources but because of greed, lack of values, and a dearth of wisdom. While wisdom has been a focus of philosophical and religious traditions since antiquity, only in recent times are we seeing attempts to understand wisdom from an organizational science perspective. Combining the notions of wisdom, communities of practice, and networks, Nikunj Dalal has proposed the vision of wisdom networks as communities that aim to actualize and inculcate wisdom in specific domains (Dalal, 2008). Wisdom networks are involved in inquiry of key issues in a domain, the creation and dissemination of wisdom-based learning, counseling, participation in community initiatives, and in building linkages with other wisdom networks.

2.7 Chief knowledge officers

It was Thomas H. Davenport, one of the „founding fathers“ of Knowledge Management who has successfully introduced the concept and described the „activity portfolio“ of the Chief Knowledge Officer (CKO), fertilizing the discussion about the „knowledge leadership“ of an organization (Davenport, 1994). Michael J. Earl and Ian I. Scott created a well-itemized typology of the CKO's, as integrator and synchronizers of all the relevant

aspects of the corporate knowledge flow, building and maintaining a network from knowledge champions, knowledge sponsors, knowledge partners and knowledge skeptics (Earl & Scott, 1999). The expression itself became very popular, but the appearance of CKO's in a corporate leadership hierarchy was very limited in the last decade. Conversely, the sweep of Knowledge Governance could bring the "big time" for the new generation CKO's.

3. The birth of a narrative: Coining and defining knowledge governance

In recent years, based on the work of Nicolai Foss and others, the concept of knowledge governance is expanding and gaining popularity. The primary underlying premise of knowledge governance is that knowledge creation, retention, and sharing processes can be influenced and directed through the deployment of organizational governance mechanisms and other coordination mechanisms.

In Foss's theoretical works, knowledge governance is a distinctive approach, having many cross-connections with knowledge management (Foss, 2005). In his early works, he refers to only the cross-points of general management, strategic issues and human resource management (Foss, 2007) and defines knowledge governance as follows: *"The 'knowledge governance approach' is characterized as a distinctive, emerging approach that cuts across the fields of knowledge management, organisation studies, strategy, and human resource management. Knowledge governance is taken up with how the deployment of governance mechanisms influences knowledge processes, such as sharing, retaining and creating knowledge. It insists on clear micro (behavioural) foundations, adopts an economizing perspective, and examines the links between knowledge-based units of analysis with diverse characteristics and governance mechanisms with diverse capabilities of handling these transactions."* But over the next two years, Foss gradually broadened the scope of knowledge governance to connect with the management of intellectual capital, innovation theory, technology strategy, and the international business itself (Foss & Michailova, 2009). In the current vocabulary of Foss, knowledge governance *"refers to choosing structures and mechanisms that can influence the processes of sharing and creating knowledge"* (Foss & Michailova, 2009).

4. Knowledge governance in corporate environment

There is no doubt, that the most distinctive area of knowledge governance research is the corporate scene. In the lack of systematized, course book-like summaries, first of all I present a nine element table to highlight the differences between the „old“ and the „new“ paradigms, portraying the most substantive deviations and distinctions. After that I share the experiences of one of our knowledge governance fieldworks as case study, and finally I briefly present our innovative methodology to understand the Corporate Mind from a knowledge governance perspective.

4.1 Face to face with the knowledge management

Although more and more special aspects of knowledge governance are already discussed (see for example Antonelli, 2005, Sacchetti & Sugden, 2008), the main identity constitutor of this new approach is an ability to make strict distinction between the main characteristics of knowledge management and knowledge governance. Since we can find independent discourses behind every item with extended literature background, it seems to be enough to show the main arguments, the basic aspects – in a simple table format.

	Information and Knowledge Management	Knowledge Governance
Organizational focus, operative basis and nature	<i>Divisional</i> by the division of labour of corporate units, having additive character (1+1=2)	<i>Company as a whole</i> by information interfaces, having complementer character (1&1=3)
Leadership approach	Effectivity, return, value-proportionality, rationalisation, optimisation of the business, production and decision processes	Coordinative effectivity, adaptation and reaction skills in changing environments, ability for regenerational capacity improvement
Main knowledge work	<i>Learning</i>	<i>Knowledge building</i> (Hong, Scardamalia and Zhang, 2010)
Control	Distributed CIO (<i>Chief Information Officer</i>), Education/Training director, Leader of Research and Development, Director of Human Resources, PR and communication	Integrated CKO (<i>Chief Knowledge Officer</i>)
Approaching problems	inductive, deductive reasoning	abductive reasoning
Way of thinking	<i>technical thinking</i> : analytic certainties	<i>design thinking</i> : interpretational probabilities
Technological macro-environment	„instant“ software products, consultant-driven implementations, platform and solution development by the IT units, information center	revealing and interpreting the points of relevance, planning, building and operation of knowledge environments, coaching, facilitation of knowledge transfer
Typical domains and forms of activity	Business and operations information systems, ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), DSS (Decision Support Systems), DMS (Document Management Systems), data mining, market research, corporate Intranet, training, etc.	problem solving based on environmental scanning and the development of related skills, maintenance and development of constructive and creative technologies, detection and organic elimination of knowledge deficiencies
Consultant strategy	Work <i>for</i> the corporate partner Selling existing solutions	Work <i>with</i> the corporate partner Finding tailored solutions

Table 1. Knowledge Management versus Knowledge Governance – a comparison

4.2 Knowledge governance in action: A case study²

A prominent Hungarian service provider invited us to conduct a Knowledge Governance audit of his organisation. Through our initial discussions we learned that in an effort to make the incumbent company a more agile competitor of its industry they have already had a corporate risk profile audit completed and another one focusing on corporate culture. They wanted to concentrate on knowledge because there was a shared understanding

² The research was conducted by DEAK Zrt., a joint research and development company of the University of Szeged and Hungarian Academy of Sciences, established in 2008 to enhance industrial cooperations, international innovation relations, and the development of knowledge based economy. The field work and desk research was supported by the New Hungary Development Plan GOP-1.1.2-07/1-2008-0007 „Multidisciplinary research and development by DEAK KKK”. The main author of this summary is Judit Benczik.

within the organisation that the experience they cumulated under their belt, an experience base that earned them the third place as the most trusted profession (right after the fire department and the medical profession) is an untapped resource. A resource they wanted to make better use of since competitive dynamics created a setup in which it proved increasingly more and more difficult for the giant to meet both owners' and customers' expectations in equal measure.

In the first phase of the research we wanted to develop a bird's eye view on the most important organisational 'pain points' that top decision makers felt cut deeply into their overall performance. The interview series conducted revealed three problems and the situation was ripe for the company to make significant changes in how it made use of its existing knowledge and how it was handling the need to fill its knowledge gaps. The three problem areas were:

- despite of its outstanding reputation the organisation had an issue with how to turn this brand-related knowledge around and capitalise on it;
- decision making processes suffered from substantial inefficiencies as knowledge instead of flowing through the system got stuck in various parts of the organisational structure;
- and in terms of performance impact local knowledge had very little bearing on actual outcomes.

Once the initial findings were formulated we had a session with the General Manager confirming that the issues our analysis highlighted were indeed on the organisational agenda – though not phrased in knowledge terms – for a while and the need to address them initiated both the risk and the corporate culture studies. (We did not ask for such a brief prior to formulating our initial findings so that the value of a fresh perspective could be fully exploited.) This feedback struck a chord with us: if there was ample evidence and reasoning put forward in the available diagnoses (provided by both internal and external sources) how come the organisation was still not making decisive progress on its most pressing issues, not even when sizeable chunks of the market were taken over by competitors? So, we looked again into our research material but this time instead of looking for identifiable problem sets, we looked for signs that could provide a reasonable backdrop against which such a perceived reluctance could be explained.

Having completed this second phase of the research we came up with a framework. In this framework the explanatory power of our findings got an extra kick since we were able to demonstrate that the three elements were in crucial ways interlinked. The framework also provided clues to the broader question, as to why in an organisation where all the right calls seemed to have been made the elements on the activity field still did not come together to power up the performance engine and drag the system out of what seemed to be slowly becoming an inwardly spiralling cyclical trap. The link among the findings can be found once we depict the organisation as a self-sustaining entity that gains its identity through constructing its performance by managing a network of three models: its business model (how the organisation makes money), its operational model (how its interactions are designed across its domains), and its organisational model (how it allocates various rights and duties).

The issue of *how to turn the existing brand-related knowledge around to capitalise on it ties in with the business model*. The issue of knowledge getting stuck at various parts of the system ties in with the operational model. The issue of local knowledge playing a somewhat marginalised role ties in with the organisational model. In sum, we can state the entire architecture of the organisational identity was being challenged. This made the need to address the issues we

highlighted apparent from a competitiveness point of view but did not provide a clue as to why such recommendations (plural is used to refer to earlier diagnoses as well that articulated points similar ours) are received reluctantly. It could be argued, of course, that to integrate modifications at such scale are complex hence the less than heartfelt reception. And it is also only fair to say that there were many attempts made (all of which were outlined in great detail in the interviews) during the last decade but none were powerful enough to stop the erosion of the company's market position.

Having accumulated from the interviews a fair understanding of what the three major re-organisation attempts of the past decade entailed and juxtaposing those goals to the organisation's current strategic goals we could see that although the characteristics of issues evolved over time, the underlying structures showed an eerie resemblance throughout this time period. The company launched many initiatives to react to the changing needs of its customer base but most of those initiatives did not bring the expected results. A fair percentage of those actions were partially at odds with what the customers really wanted to accomplish by using this particular service provider. In other words, the solutions applied by the company did not or only to a degree matched customers' expectation about the realisable benefits of dealing with the company. This recurring pattern was confirmation enough for our hypothesis that the corporate identity crisis is not the cause but the symptom of the company's ailing health and we should dig deeper to find a possible cause.

We compiled a full list of the most important initiatives introduced that populated the company's activity field. A short extract of which:

- introduction of new products that utilise the existing distribution channel and also add to the company's modernised profile → targeted to lead to improved customer perception
- investment into technological solutions that help to streamline customer throughput → designed to monetize efficiency gains and to increase satisfaction generated by professional customer handling
- establishing quality insurance processes and qualifying for the relevant international title that acknowledges it → intended to ensure priority setting in the operation and remove inefficiencies that add to the company's cost base
- installing a reporting system that ties appropriate accountabilities into the planning process → designed to establish clear line of sight
- allocating funding to training & development → implemented not only to upgrade the knowledge base but also to motivate those who are eager learn
- adopting performance assessment techniques → intended to support the integration of appropriate behavioral pattern into daily work, behaviours that match customer expectation

Even this list shows clearly that customer and cost based issues were tackled together with individual and organisational development needs. The company's reaction repertoire to the challenges of toughening competition was broad enough to save them the criticism of inaction. It was not what they did, but how they did it. In order to be able to elaborate on this point further we have to introduce a distinction into the concept of organisational 'reaction'. According to the view to be presented here the capability to react involves at least two processes: that of 'reproduction' and that of 'regeneration'. The two processes are distinctively different in how they 'respond' to competitive pressure. In the first case the major concern is throughput, in the latter finding the right fit. As long as we regard reaction

as a unified process during which an organisation adapts its practices to generate competitive advantage it is hard to see why so much effort might still not be 'good enough'. Irrespective of the disciplinary field's mindset applied as a filter to scan through management science for solutions to advance organisational competitiveness, there will be an abundant supply of ideas. For the sake of example, in a quite arbitrary fashion, let's take a strategic perspective now. We've been through the cycles of scale economies, market positioning algorithms, resource views and capability structures and they all added an understanding to what constitutes to 'success' – however that might be defined and measured by the given organisation. What appears to be unchanged are the fundamentals of 'competitive pressure'.

Even if the formulation of it slightly changes, at its core is the concept of a uniform process whereby the component parts that make up the conditions and circumstances within which the organisation operate set the framework for the organisational activity field. According to the view presented here however, competitive pressure has a double-decker nature. It operates as a mechanism that allows every organisational solution to thrive if it does not limit the organisation's capacity to stay in the game; and as another mechanism that sorts out how those solution sets rank compared to each other. This is not a simple theoretical whim. Quite the contrary. It has important implications for knowledge management. The differentiation we are to describe will allow us not only to give an answer to the question why our client's actions – that were mostly in line with that of its competitors – did not help it defend its highly profitable income streams, but it also helps us in our attempt to create an adequate foundation for how to incorporate knowledge management into organisational problem solving under increasing competitive pressure.

So let's reformulate our point proposed here. Do conditions and circumstances shape the directions an organisation can take? The answer is a resounding yes. Can we exclusively explain by looking at the same forces what determines the rank ordering of organisational performance of those participating in the same ball game? Well, not so sure about it. And if there is doubt, there is room for further investigation. We developed a special model for the company to plan the interventions³.

4.3 A knowledge governance model of a corporate mind

We regard organisations as self-sustaining entities that gain their identity by managing their performance construct. We also put forward the argument that in order to better understand the contribution potential of knowledge governance to this performance construct the 'sanctity' of competitive pressure has to be dismantled. Since both of these premises are fairly complex especially when put into the context of high stake management dilemmas, not to mention the fact that their relationship to each other was expected to appear as counter-intuitive to our client, we decided to work out a model that captures the most important dynamics of how these components interact. Our model, dubbed the 'Corporate Mind', is based on the analogies that the connections of brain-mind-intelligence offer.

The Corporate Mind as a metaphor was very popular in the late 80's and early 90' (see Zaleznik, 1985, Hampden & Turner, 1990, Cornwell, 1992) and reflected to Stafford Beer's early classics, *The Brain of the Firm* (Beer, 1972). We use the expression as a pure help to visualize the main relationships.

³ The model, the figures and the methodology is a property of the developer partner, *Zebnick & Associates*. The main author of this chapter is Judit Benczik.

The underlying message of placing informed decision making into a model that reflects the double-decker nature of competitive pressure under which organisational decisions are made is to point out that the key to the appropriateness of those decisions is not 'out there' but is 'in here'. The replies and reactions that a given Corporate Mind produces will reflect how it handles the inherent difficulties that come with accomodating the double-deckedness of competitive pressure. Results of which will show up in the overall competitiveness of the firm. It also follows from the above, that the appropriateness of an action and the utilisation of relevant knowledge cannot be simply derived from the relationships between the attributes of desired change and that of competitive conditions and how the two sets correlate with each other in a complex situation. Obviously, such connections do exist, no question about that. But if we are interested in understanding what makes one solution work better for one organisation and not the other, we need to look elsewhere.

Our Corporate Mind model simplifies the behaviour of the more complex organisational decision making system but it can still sufficiently represent the connections that help describe the observed phenomena – that of under-achievement in the presence of appropriate actions. Just like in the individual case, the way the Corporate Mind works is by running a mental model in which one or more concepts interact – the communication between those concepts are expressed by arrows.

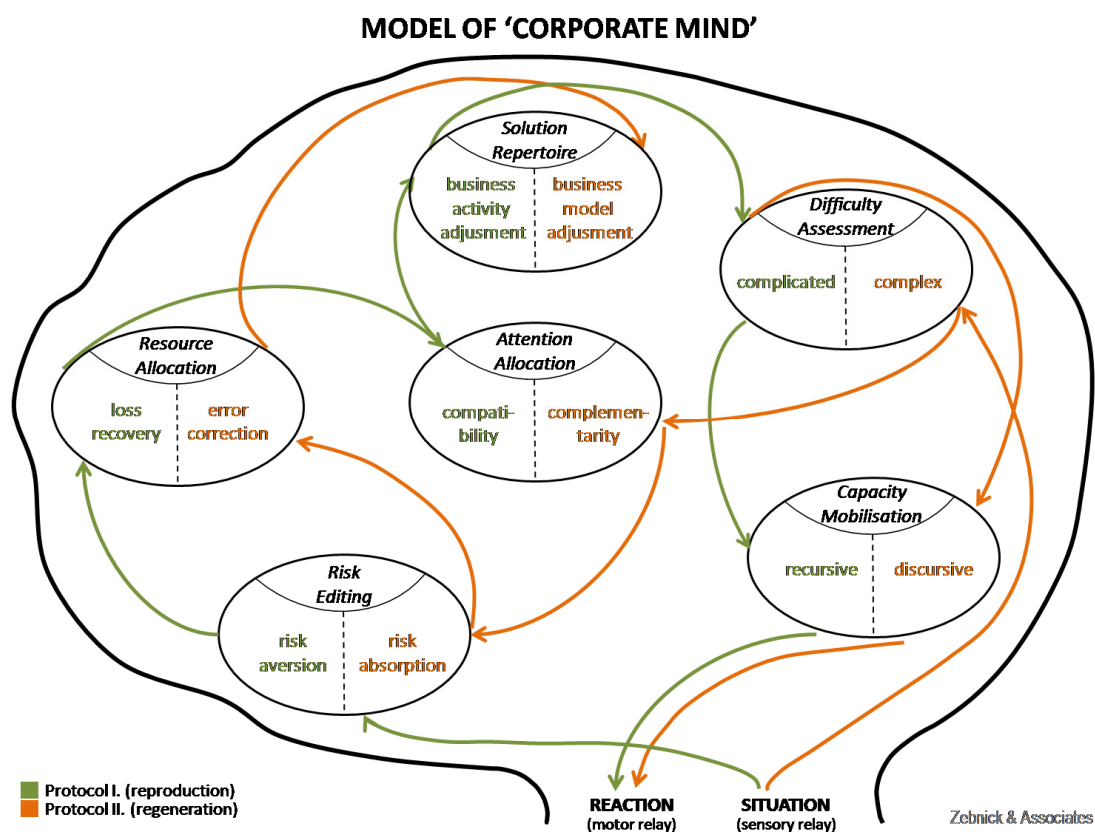


Fig. 1. Model of the Corporate Mind

In the given organisational situation information is extracted and flows from feature extraction through percept to concept formation. It is important to emphasise here that according to this view the representations that this process creates are in a constant flux as

transformations are conducted with the information obtained. In this regard, the Corporate Mind's task is maintaining both the mechanism and the construct that creates the representation of reality, so that the organisation can trace changes in it as closely as possible. *Any flaw in this activity will hinder the organisation's ability to reply appropriately.* Interaction among the concepts, as far as our current knowledge goes, appear to go on throughout the entire cerebral cortex. But the functions of different regions put this capacity to different uses. The six major regions in the brain are: the limbic system, the executive functions, the integrative functions, the motor program selection, the sensory processing and feature extraction, and the motor program execution. We mapped out the regions of the Corporate Mind accordingly.

Coming back to the point about the double-decker nature of competitive pressure, we proposed that it operates both as a mechanism that allows alternative solutions to thrive and as a mechanism that rank orders those solutions. One is there to navigate the maze and to find what's applicable, the other to opt for the 'best'. The former is more of a complex task, whereas the latter is more of a complicated task. And because of the intrinsic differences of complexity and complicatedness, they are best handled by deploying alternative protocols. In our model the seven green lines represent the loop that is more geared towards tackling complicatedness, whereas the other seven orange lines represent the loop that is better tailored to handle complexity.

The problem however for organisational decision makers is that situations do not emerge nicely labeled 'complicated' or 'complex' for the sake of managerial convenience. As if this was not enough, due to the pressures of globalisation, regulatory changes, technological advances and an increasing demand for new services, the issue becomes further exacerbated. In most industries where these four forces exert pressure on the reaction capabilities of organisations – and it is hard to point to one where they wouldn't – they made it ever more prevalent that the flow and characteristics of knowledge and the context in which it is applied is changing quicker than we are mostly ready to admit it.

The Corporate Mind model in itself does not answer the question of how to address specific situational constellations. It is there to highlight the fact that in order to process the double demands of competitive pressure (that of finding and that of choosing) the Competitive Mind has to run the double protocol depicted by the model. Why? Because one loop is governed by the principle of compatibility to give the best result, the other by complementarity to do the same (see the middle region of 'Attention Allocation' in Figure 1.) The situation itself will not determine which one to deploy because the risks the organisation will take by opting for one action rather than the other will depend on what it deems learnable about the situation. By running the green loop, the Corporate Mind makes the organisation ready to learn from mustering complicatedness that will most benefit performance through efficiencies of reproductive success. This learning greatly enhances the organisation's ability to come up with consistent performance time period upon time period. By running the orange loop, the Corporate Mind allows the organisation to learn from holding up to complexity that will most benefit performance through efficiencies of regenerative success. This learning supports the organisation's ability to self-correct or recover, as the case might be. Hence the name of the two loops in our model.

How the balance between the two loops will be managed over time is unique to any organisation. The shifts will be reflective of when and how the Corporate Mind adjusts the representation of its reality by activating either one of the loops. The more generalisable message of the model, however, is that loop dominance – i.e. frequenting the appropriate

benefits of either the Reproductive cycle or that of the Regenerative cycle – will sooner or later strain the ability of the organisation to meet its own targets. Why? Because no lopsided Corporate Mind can fully engage with the dialogue that is going on in its marketplace and the organisation will either come to false conclusions about what aspects of its activity field need to be aligned, or about the relevance of its business model. In case a Corporate Mind allows for an over-drive to happen (that is one loop over-powering the other), it will sooner or later find itself in a self-inflicted trap. The longer it keeps postponing the need to address both requirements that competitive pressure presents, the tighter the grasp of self-inflicted trap will become.

In sum, as the Corporate Mind switches from a double protocol to a single protocol – which often happens in an effort to recover losses from unexpected performance decrease – it tries to release resources (time, money, energy) from alternative uses that may divert efforts from recovery. Which is just as well. But the solution begins to backfire when reallocation restrains the permeability of the system. In every region of the Corporate Mind the two protocols are to inform each other, otherwise one of the aspects of competitive pressure is not being addressed. If reallocation severs the knowledge transfer ties between the two protocols, the organisation is a strong candidate for implementing actions that do not bring the expected results. But the explanation is not in the action itself, but how it was achieved. If due to the lack of permeability there was minimal or no referencing of the knowledge base that can appropriately handle either the complicatedness or the complexity aspects of the situation, there will be no fit between what the situation calls for and the reaction provided.

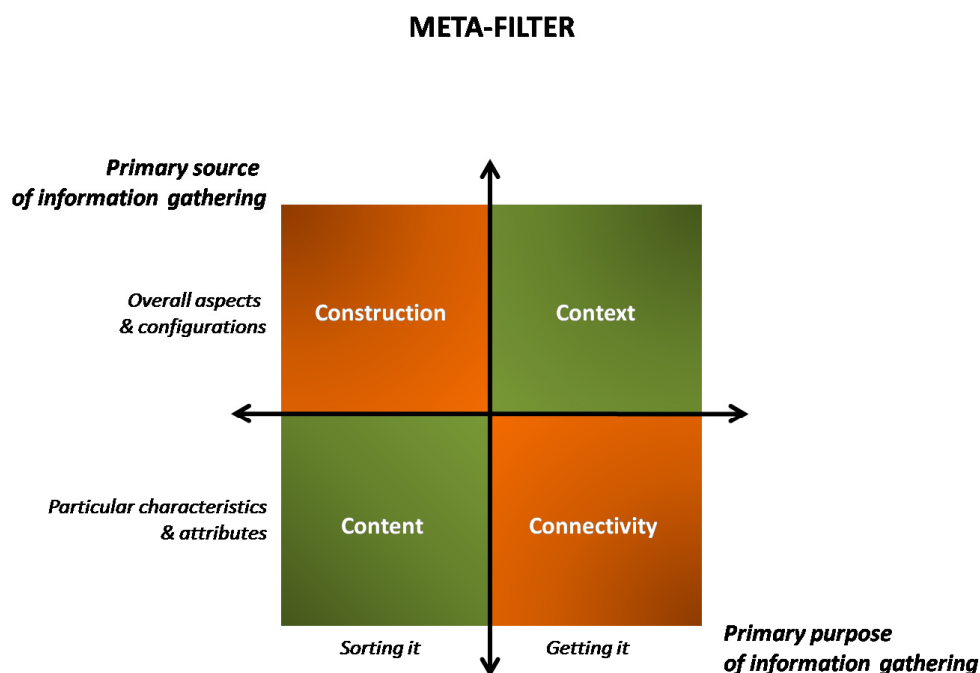
Often times, managers of stressed organisations propose arguments, solutions that go into intricate analytical details that are designed to prove a particular point. The analysis is mostly valid but by their very nature of being recursive most analysis is ill equipped to handle ambiguities, incongruities and parallel definitions of the same phenomema that are characteristic features of juggling to find most of the viable solutions that allow the organisation to stay part of the game and ranking them at the same time. Analysts typically open only a small window to the discursive space where the juggling is going on and by doing so they can limit access to the relevant knowledge base. Juggling is the task of the Corporate Mind. Analysis is only a part of it.

This brief interpretation of how the model works, hopefully illustrated the proposition that ignoring the double-decker nature of competitive pressure – which most Corporate Minds in a single protocol over-drive do – is a self-inflicted wound that limits the organisation's capacity to decipher meaning from what's going on in and around its competitive landscape.

4.3.1 The dynamic model

As it was emphasised in the previous chapter, the concept network in the Corporate Mind is created by the transformational activities that happen when loop-specific knowledge is exchanged through the permeable boundaries of the regions. This malleable characteristic enables the Corporate Mind to update its cognitive map. Learning takes place as new concepts join and leave. New links can be made at all levels and old links can fade if not reinforced. What's even better from a performance improvement potential point of view is that old links can be inhibited when new links have a contradictory or dampening effect on earlier associations. The performance intelligence of an organisation can be assessed by looking at the activities that go in the Corporate Mind.

It is much like doing brain diagnosis with a fMRI (functional magnetic resonance imaging). This non-invasive specialised scanning technology picks up change of blood flow related to neural activity. Stimuli will activate different areas of the brain and will show up as dense colour patches over the areas involved. Adopting this method of investigation we have created a diagnostic toolkit that helps us detect the activity of Corporate Mind. Dynamic choice sets and visual aids help us identify the signs the Corporate Mind pays attention to in a given situation. By asking organisation members to place a dot representing their selected items into a stylised schemata we call the Meta-filter, we can demonstrate what the information that the Corporate Mind picked up is used for. Figure 2. shows the basic skeleton of the Meta-filter.



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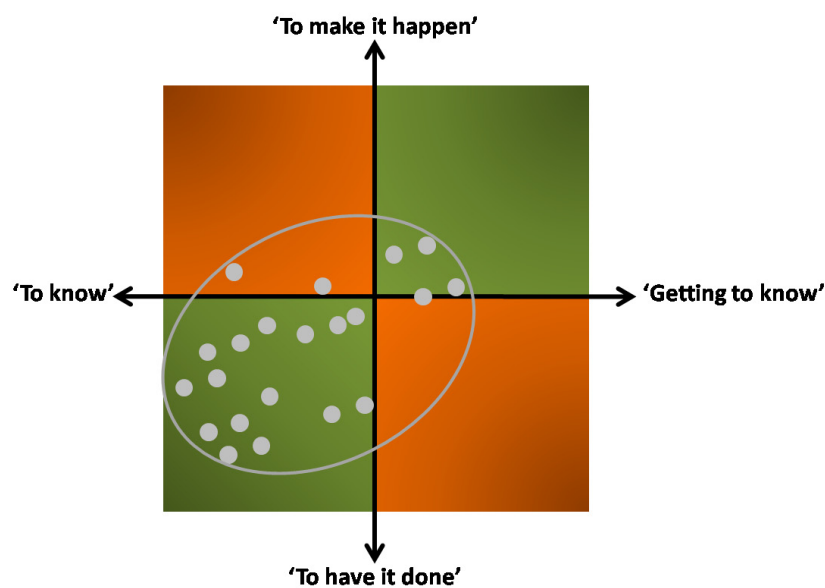
Fig. 2. Meta-filter

When information is used to perfect every operational flaw and wrinkle the Corporate Mind is focused on realising efficiency gains of its reproductive potential. To do this it has to dig deep, so to speak, and the dots will mostly populate the areas of 'content' and 'context'. When information is used to look into every nook and cranny of the operation the Corporate Mind is focused on realising efficiency gains of its regenerative potential. To do this it has to go broad, so to speak, and the dots will mostly populate the areas of 'connectivity' and 'construction'.

The diagnostic results of a Corporate Mind that tries to tackle the double-decked nature of competitive pressure will show activity over a wide spread. Not necessarily covering all areas proportionately. Actual distribution will depend on the situation. But a wider spread is indicative of the Corporate Mind embracing the challenges that the double-decker nature

of competitive pressure presents. The more asymmetry is present, that is one area being over-populated (see illustration in Figure 3.), the more characteristic it will be that to boost its performance, the organisation will concentrate on what its tools can accomplish rather than realising reproductive and regenerative efficiency gains. This kind of self-referencing is often enough to set the vicious circle of an inwardly spiralling cyclical trap into motion. Therefore, whenever this over-population is present it is high time to update the cognitive map. In other words, in all such cases the Corporate Mind is not supporting enough the reality tracing ability of the organisation.

ILLUSTRATIVE EXAMPLE



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Fig. 3. Operationalization of the model design

4.3.2 Results

By outlining the specificities of reproduction and regeneration we hopefully demonstrated that in order for an organisation to improve its competitiveness it must not ignore the double-decked nature of competitive pressure. It has to run a parallel mental process that ensures continuity as well as recovery. By taking the analogy offered by the scientific dialogue that is going on about the interlinkages of the brain-mind-intelligence construct we outlined in a model the basic characteristics of a Corporate Mind that is tailored to address this challenge. In this model, the Corporate Mind is both a control system that activates coordinated responses and an 'organ' of perception.

A brief overview was also given as to how the model can be operationalised in a real life situation. The model and its related diagnostic tools powerfully demonstrated to our client that the key to understand the systematic nature of under-achievement in the presence of

appropriate actions is neither in the actions themselves, nor in the what's 'out there'. We could also show that our knowledge governance audit can not only tie together the findings of all other available diagnoses (this we showed by describing the contributing factors to the corporate identity crises and how it related to risk management and corporate culture issues) but can answer the seeming reluctance of the organisation to make progress on its most pressing issues (this we demonstrated by preparing the Meta-filter diagnosis that showed on overwhelming presence of loop-dominance in the content area).

The relevance of our model to knowledge governance is in emphasising that by taking into account the characteristics of both protocols that interact to create a representation of the organisation's reality, it is easier to see that appropriateness of action and utilisation of relevant knowledge will harbor on how the Corporate Mind orchestrates the interactive linkages among its own functions. Successfully mobilised and coordinated knowledge bases will promote a degree of organisational cohesion that supports performance progress. In case of the less successful ones, their very own actions will be putting strain on the permeability of the system that in turn prevents relevant knowledge to bear on decisions. In sum, the approach taken here proposes that knowledge as it pertains to the development of an appropriate reaction to competitive pressure, one that takes both the complicatedness and complexity of the business issue into account, is the key the driving factor behind organisational success.

5. The extension of knowledge governance framework

Knowledge governance has two main interpretation levels in the early literature: the company- (micro-) and the national (macro-) level. For example, knowledge governance has been discussed as a profitability issue at the company level and as an effectiveness issue at the government level in the research project series of the University of Bonn. Whitley (2000) conceptually classified knowledge governance as: 1) *entrepreneurial knowledge governance* based upon knowledge codification and privatization, and the organizational methods of generation and usage of new corporate knowledge, and 2) *associative knowledge governance*, which addresses the macro-level distribution of the complex forms of knowledge.

Original model	Advanced model	The Dalal-Z.Karvalics model 2009	Z. Karvalics four layer model 2011
Company/ Corporate/ Entrepreneurial	Company <i>Micro-level</i>	Company <i>Micro-level</i>	Individual <i>Nano-level</i>
			Company <i>Micro-level</i>
	Nation(al) <i>Macro-level</i>	Nation(al) <i>Meso-level</i>	Nation(al) <i>Meso-level</i>
		Global <i>Macro-level</i>	Global <i>Macro-level</i>

Table 2. Development of Knowledge Governance Models

Entrepreneurial and associative knowledge governance are simultaneously evolving narratives sharing many similarities such as the inclusion of holistic approaches and high-level planning and control functions. Smits and Moor composed an indicator system to measure the effectivity of corporate knowledge management, dubbing it the "Knowledge

Governance Framework" (Smits & Moor, 2004), while Mariussen used it to address the integration of the knowledge system and managing on a nation-state level (Mariussen, 2003).

However, we could successfully define and describe 3 levels with their main characteristic features with Nikunj Dalal, adding the *Global Knowledge Governance* (Dalal & Z. Karvalics, 2009) to the basic model. And, finally, the model has currently upgraded with the *Personal Knowledge Governance* layer.

5.1 Personal Knowledge Governance (PKG)

Once upon a time the discourse has started with the Personal Information Management (PIM), the practice and training of skills professionals need „to process the information, save time, and work more effectively" (Etzel & Thomas, 1999) in organizational (business) environment. With other words: how to manage the constantly and rapidly changing Personal Information Technologies (PIT's - hardware and software components, methods, services, etc.) in work. Later (Jones, 2007) and recently (Jones & Marchionini, 2011) William Jones has started to broaden the definition: Personal information management (PIM) is „the practice and study of the activities people perform to acquire, organize, maintain, and retrieve information for everyday use", more generally: *PIM is about taking charge of the information in our lives.*

David Pauleen was the first to go one step beyond, introducing the „Personal Knowledge Management" (PKM) (Pauleen, 2011), „coping with complex environmental changes and developments... as a „form of sophisticated career and life management. "Personal Knowledge Management" is an emerging concept „that focuses on the importance of individual growth and learning as much as on the technology and management processes traditionally associated with organizational knowledge management".

The „physical" infrastructure of its individual „nano-level" constituted by the concept of Personal Area Network (PAN). Integrating the existing Personal Information Technologies (PIT's), Personal Information Management (PIM) and Personal Knowledge Management (PKM) approaches and combining it with the emerging Personal Learning Environments (PLE), it seems to be very topical to define a new, synthetic Personal Knowledge Governance frame. It contains all the mentioned parts, bundling up into a (personal) set of planning and performance activities, based on values, goals, personal and family considerations.

5.2 National Knowledge Governance (NKG)

Although the term itself is rarely used, the national (and local, regional) knowledge governance discourse is very old starting with the thousand years old brain drain practices (Dedijer, 1968). National Knowledge Governance sometimes a simple reformulation of traditional policy discourses (see for example the bright analysis about the monopoly of knowledge production and diffusion in China since 1949 (Zhenglai (2000), sometimes it generates innovative approaches - as Johann Peter Murmann discovered the role of applied scientific knowledge and the national institutions in the dawn of industrial era in his classics (Murmann, 2003).

5.2.1 Fields and topics: A first look

Since the number of relevant fields are too high and the narratives are well-known, there is no time and reason for systematic mapping of National Knowledge Governance issues. But it can be very useful to illustrate the changing face of traditional discourses listing recent,

“hot” topics, and reviewing nation state employment strategies as knowledge governance responses for the economic crisis.

„Traditional“ policy fields	New type of narratives and interventions
Innovation policy	Capacity building, data and knowledge asset policy, „national crowdsourcing“ models
Science policy	Planning the structure and resource map of Natural-, Life-, Technical Sciences and Humanities
Education policy and literacy	Information literacy, talent management, lifelong learning schemes
Media and dissemination of scientific information	Nation-state reactions on current brain drain, brain gain, and brain sharing issues
Knowledge Industry Development (Fostering attractivity and visibility)	Competition in creative industries, talent hunting
Copyright, patent issues	Indigenous knowledge management, copyleft

Table 4. National Knowledge Governance discourses - examples (Dalal-Z. Karvalics, 2009)

5.2.2 How to increase knowledge-based employment? A case study⁴

As a special response for the worldwide economic crisis, lot of nations turned to a radical increase of employment in research and development, accepting, that it is critical for business, innovation, higher education and the political, economic and media elite, would be timely and could serve as a strategic point of departure in and of itself.

In the United States, one key element of the *American Reinvestment and Recovery Act* package (ARRA), launched in response to the economic crisis, was the supplemental support to be given to the sciences (Lane, 2009) in the form of billions of dollars provided to various scientific agencies. This support was granted based on the conviction that the new value produced as a result of scientific activities serves as the basis of economic growth and results in the creation of new workplaces. Decision-makers were convinced that investing in science leads to more competitive firms, as well as more and better workplaces. Naturally, they were able to rely on forecasts from organizations such as the *Information Technology and Innovation Foundation*; ITIF's report suggested that an extra investment of 20 billion USD in the sciences leads to the creation of over 400 thousand new jobs within one year. Julia Lane quotes a study showing that 50 thousand new jobs in the biotechnology and electronic sectors – in the high-tech zone outside San Diego – may be traced back to the work of four (!) scientific researchers at the University of California in San Diego.

It is stunningly insightful that the real questions for Lane are how money can be well spent and how its use may best be measured. Given, however, that sufficient information was not yet available to answer these questions, or to explore the subtle correlations between scientific development and economic growth, an NSF program was immediately established to provide scientific policies with appropriate input in the matter.

⁴ Excerpt from my brochure on „dual flue effect“ of knowledge-based employment (Z.Karvalics, 2011).

According to the Obama administration, the major question is how employees are able to benefit from the kinds of skills and abilities which will ensure their competitiveness in the labor market of the future. The number of jobs requiring higher education degrees will increase twice as fast as the number of jobs not necessitating such qualifications; therefore, says Obama, it has never been more important to ensure that learning continues past the secondary school stage. The goal, then, is for the United States to be the world's leader in advanced professional training by 2020. Thanks to an impressive development program providing schools with funding for infrastructure development, asset purchases and online courses, the number of students graduating from the community colleges of specific states will increase by five million. The schools themselves will become 21st century job training centers.

Great Britain also found a similar point of departure, reaching eerily similar conclusions⁵. They simply placed their basic structural data from the past forty years next to each other. The figures indicate that the percentage of the population employed in knowledge-based sectors increased from 25% in 1970 to 50% today. This sector was also the creadle of new job creation, increasing the share of value-added activities and exports (specifically: business, finances, high-tech services, creative and cultural industries, advanced technology manufacture, education and healthcare). In 1970, the share of investments in intangibles was only 40% of the amount put toward buildings, vehicles and machinery. In 2004, investments in design, software, databases, research and development, as well as human and organizational capital have reversed the previous figures, and – at 120% – have taken the lead. In 1970, 60% of the labor force did not possess appropriate qualifications; their numbers dropped to 10% by 2005. For Great Britain, the findings led to the following results: the launching of business and employment development programs centered on the pivotal role of the knowledge sector, together with the increase of the numbers and quality of higher education programs and graduates.

Ireland's latest action plan, *Technology Actions to Support the Smart Economy*, aims to create 30 thousand new jobs in the next decade. These would all be created in the field of smart economy – digital industry and network technologies. The International Content Services Center, to support over one thousand Irish companies, is expected to create ten thousand new jobs by 2020, primarily in the world of creative digital arts (film, games, music and animation) and in communications, legal and other services.

It is hardly surprising that the same focal points are seen in China's latest initiatives in the field of scientific policy: new and improved innovations capacities are expected to support economic restructuring and transform development practices. China's State Council augmented its fifteen-year medium-term science development plan, adopted in 2006 for the period 2006-2020, with a fifty-year long-term plan adopted in July 2009 (and compiled by the Chinese Academy of Science). The long-term plan was designed in the understanding that the next 10-20 years will see yet another "technological and industrial revolution" in many areas of science, and that these must be identified in due course. The plan recognized the fostering of innovation as the strongest possible answer to the global economic crisis. The plan points to 18 focus areas, demonstrating a strong "green" commitment: agriculture,

⁵ Based on the latest report (*The Knowledge Economy Programme*) of the strategic U.K. think tank Work Foundation; the report outlines plans to restore and develop the knowledge economy of the United Kingdom by 2020. <http://www.theworkfoundation.com/research/keconomy.aspx>

ecology, environment, health, oceanography and “clean” and renewable energy resources are in the center. Certainly, the areas selected are not limited to the specific supporting sciences: multidisciplinary teams stand the greatest chance of arriving at solutions to particular problems (in the case of healthcare, for instance: biology, environmental sciences, psychology and social sciences). The two most important motives are talent programs and institutional reform. The central question as far as China’s scientific and technological future is concerned is how talented young people can be drawn toward the sciences and how their talents may best be used. The answer is fairly general, but certainly points in the right direction: the kind of fertile environment must be created for them which will bring forth their “best creative thoughts.”

In Japan, the state has shown extraordinary planning and care in its expansive central developments of the past decade (science towns, intellectually creative society, “ubiquitous Japan”); the efforts of Japanese companies also point in much the same direction. A survey of 253 large Japanese companies (Rowley, 2009) showed that despite difficulties in sales, companies keep their contributions to research and development activities high. Much of these funds go toward alternative energy and environmentally friendly technologies; and while unemployment has increased in virtually every sector, research and development has continued to see high rates of employment.

5.3 Global knowledge governance (GKG)

The very popular Global Knowledge Management (GKM) discourse is not else than a knowledge management practice of *global companies* (Gu, 2004). In contrary, the Global Knowledge Governance is not else than managing *global issues, raised in and connected to the knowledge domain*.

On the economic scene the discourse is an organic continuation of the worldwide economic development planning efforts, that’s why the University of Oxford’s Global Economic Governance Programme has recently (in November, 2009) launched it’s independent *Expert Taskforce on Global Knowledge Governance*⁶ to propose a „set of principles and options for the future of global knowledge governance“. However, the „scope“ is much more broader, than the „economy“ itself: there are lot of knowledge-related relevant cultural, scientific, media and technology challenges at the global level, including the need for new generation *international knowledge institutions* (Miller, 2007).

5.3.1 Towards a knowlege governance-based new vocabulary of global issues

Knowledge Governance issues are mainly reinterpretations and re-integrations of old problems (see Deere Birkbeck’s forthcoming book on intellectual property management from global knowledge governance aspects (Birkbeck, 2012), combining this „texture“ with fresh reflections and reactions to the emergent, new fields, like the globalization of the scientific community and it’s knowledge infrastructure, the global library building efforts from Project Gutenberg to Google Books. The results of this hybridization are new terms and tools: we will be able to talk about a set of the main civilization problems in a new language.

⁶ <http://www.globaleconomicgovernance.org/wp-content/uploads/KnowledgeTaskforceoverview-8-Dec.pdf>

„Phenomena“ to reflect	Scientific domain	Development/ Policy/ Planning issues
International cooperation in the fields of education, science and communication	Cultural politics, Communication politics	Reengineering of UNESCO-type global coordination
Collaborative Research Megaprojects	Sociology of Science	New generation workflow tools, Regulation challenges
Knowledge readiness (knowledge development indicators)	General politics	Narrowing the gap between the developed and underdeveloped nations and regions
Global Conference and Publication Industry	Knowledge Management	Re-thinking of the channels of distribution of knowledge
Circulation of Brains	(Im)migration, Demography, Sociology	Equation mechanisms, regulation, monitoring
Globalized higher education, virtual universities	Pedagogy, Economy	Quality management, equivalence and interoperability issues
„Global“ libraries, common scientific repositories (data silos)	Library and Information Science	Regulation, standardization

Table 5. Mapping the Global Knowledge Governance scene (Dalal-Z. Karvalics, 2009)

5.3.2 Case study: Approaching the future of UNESCO

UNESCO, a specialized organization of the UN has been the symbol of cultural progress and dialogue since its foundation in 1945, as “antithesis” to the war. In the past decades it has contributed significantly to the dissemination of basic civilizational values, it has helped raise awareness regarding the universality of the cultural heritage, has launched several successful projects aiming at the preservation, popularization of this heritage, as well as at ensuring the accessibility of the same. It has established (more than fifty) institutions of long-lasting impact, has helped achieving significant scientific results, has tried, with steadfast policy and dedicated action, to balance differences in the development of groups of countries. All these have probably contributed to the fact that, in a world burdened with fear, insecurity and mutual distrust, it managed to become a highly supported trans-national institution, and could maintain its crucial role in the long run⁷.

However, in case we wish to scrutinize UNESCO regarding the importance of its role in key areas (natural sciences, social sciences and humanities, public education, and the world of culture and information and communication networks) and compare it to the goals set in its Mission Statement, we see that apart from its success at emblematically successful areas, its position has been increasingly weakening, the organization has been losing its reputation and significance in almost every respect. We witnesses a process

⁷ On the latest goals, programs, organizational structure see UNESCO’s exemplarily well maintained website at <http://www.unesco.org/new/en/unesco/>

during which the unsustainability of the organizational model is clearly revealed, pointing towards the need for redesigning the future, the essence and the whole organizational structure of the institution, replacing the present practice of debating scrupulously minor amendments to the budget. The time has come that we state clearly and firmly, beyond the context of standing receptions with their background noise, that everything has to be rebuilt from the base, since the success of minor reforms only delays the unavoidable fundamental reform.

Only little can be felt from all the above – both from the inside and the outside. An increasing number of people acknowledge that the compulsions of the diplomatic context that are officially and legally governing UNESCO are too tight. In the labyrinths of the offices career diplomats, as representatives of national interest, delegated by member states pass the time trading with memberships and positions. Instead of acting as sites for exchanging ideas, the biennial General Assemblies and their sections are generally about communicating presence; while ceremonial greetings and the formal approval of minor opinions takes more time than anything else. Such contributions are combined with lengthy and completely ineffective debates about the meaning of prepositions included in the documents. The single *pro forma* goal of these strenuous meetings is the legitimization of the budget and of the related circle of planned activities. The process is seemingly democratic and seemingly launched from the grassroots level, since member states have the opportunity to make remarks and give recommendations regarding the quotas and priorities. However, unchanged conceptual frames, the significant divisional separation of large fields of activities and the documents that are prepared by officials – who are biased towards the program structures of previous terms – predetermine the discussions, and member states have very little scope to contribute significantly to the forming the future. For a considerable time now UNESCO has been merely *capable of following talks, but cannot create, launch or initiate discussions*. The organization is increasingly lagging behind “state-of-art” situations, and *cannot reflect adequately on the latest problems of global scope*. Such a structure has both an illusion and a rhetoric: from the point of view of the sociology of organization it would be possible to understand the preference of the staff towards minor changes, however, officers in the position of making decisions are interested in the exact opposite of what can be interpreted as progressive, brave and pioneering initiatives. The more long-term these ideas are, the more they hurt various national and business interests, and thus any undertaking can be aborted very quickly by referring to “diplomatic correctness” in its bad sense and interpreting the principle of *paritas* mechanically.

The reason for this, on the one hand, is that the main directions, the basic activities and the possible interventions are not formed by “cases” or the nature of represented areas, nor by recommendations of experts or communities, but by the compromises of cultural diplomacy set by the 193 member states. The scope of activities, the norms and compliance to these norms are defined by the interstate and international legal context. Professional initiatives can be realized only vis-à-vis this pact system of *Realpolitik*. On the other hand, the reason is that the amount of funds at disposal restricts all activities in the first place. UNESCO is not able to solve, nor to moderate contradictions deriving from unequal development. Even challenges that can be interpreted as cultural are too big to be affected by the choice of the organization between several programs. This is why UNESCO has never been, and cannot ever be a development agency, at the same time its activities would seem incomplete if it had not offered “traditionally” direct resources for

the realization of local projects. These, however, amount next to nothing, no matter how important they seem for “poorer” countries that always make sure to apply for the help of “donor” countries. In the meantime, in the past ten-fifteen years a certain takeover has occurred, since dynamic and effective civil organizations, NGOs and foundations are supporting hundreds of progressive projects independently of UNESCO, with funds way beyond the ones at UNESCO’s disposal.

The real obstacles, the ones which have to be overcome independently of the management and apparatus of the organization, are to be found elsewhere. If we wish to understand the root of the increasing anachronism of UNESCO, we have to start analyzing the problem from a different perspective. In the last third of the 19th century capitalist “center-countries” found themselves in a curious position. In the well-developed territories the overall success and transformation power of big industry led to a crisis of management in economy, society, and politics (or control crisis in James Beniger’s widely spread words), which could be overcome by the massive and creative use of modern information and knowledge technology (Beniger, 1986). The nature of the solution was similar in all sub-systems. The management and competitiveness of companies and of the administrative “industry” of states were based upon systems using almost identical solutions, and the same applied to modern systems of public education as well as institutions of academic management and academic organization. Relying on James Beniger’s model we can say that the revolution of bureaucratic control took place in the scope of just a few decades, and it proved highly successful. This control revolution contributed most significantly to the realization of the civilizational change which was launched before the First World War, continued during the interwar period, and was completed in the decades succeeding the Second World War – while the industrial period was flourishing.

The success of the industrial civilization, however, was much shorter than what may be deducted based on history coursebooks or the statistics of “developed industrial countries”. As opposed to the agrarian sector and parallel to the rise of industry already at the end of the 19th century, the service and the information-knowledge sector started increasing its share regarding both production and consumption. The success of the bureaucratic control revolution not only revived the industrial civilization, but it also gave birth to informational society as well, which soon put an end to the world dominated by traditional industries. In other, slightly simplified words, the next civilizational change, the birth of information society took place in the sixties in the United States, at the beginning of the seventies in Japan, and at the beginning of the nineties in Western-Europe, while for developing countries somewhere around the turn of the millennium. Still, the bureaucratic control revolution was so successful that the structures of the industrial era could be well maintained within the context of the information society. In the schools of the information society the order that has to be followed by teachers and students alike has been formed to match the objective functions of the bureaucratic control revolution of the industrial era. The science of information society is financially bound by national and ideological interests, as well as business and commercial commitments that – regarding the logic of management and distribution – have been inherited from the industrial era. The industrial era, optimized for nation states, created the organizational and institutional structure of transnational coordination, and this system tries to cope with coordination of information society at a global level with the old, tried and tested algorithms of bureaucratic control.

It is increasingly clear, however, that the technologies used fruitfully by bureaucratic control have started successfully to restructure society, economics, and even culture. As it has been noticed by many, we are heading towards a next control crisis, and the way out of it is a next control revolution: networks instead of hierarchies, human technology next to machine technology, cooperative and “multistakeholder” management instead of single-center organization, sustainability and humanization instead of profit-oriented growth function, as well as local and global coordination based on reciprocity, voluntariness and solidarity.

This perspective shows clearly the nature of the multiple trap in which UNESCO is caught. The organization (with its goals, mission, networks of interest and its organizational structure) is a (top) product of the industrial era. The organization has moved forward from its past rooting in the industrial era with the fact that not so long ago the area of “information and communication” has been integrated into its main scopes of activities as the fifth pillar, and thus the rhetoric of information society have also been included into its documents. In order to reach a civilizational change, the organization should go beyond its restrictions in information-age science, in information-age education, and should think along a radically innovative logic regarding the production, consumption and the geography of culture. It has to perform this task in a way that it also takes into consideration that countries of crucial importance – let us just think of the BRIC group (Brazil, Russia, China and India) – are still fighting for the industrialization and modernization of their own country, and are very far from patterns of employment, consumption, stratification of society and culture typical of information society, but enjoy all the advantages of up-to-date information technology. And we have not mentioned yet agrarian countries that are in a pre-industrial stage... All this does not contradict the idea that norms and relationships typical of information society should be taken as guidelines for action: in a concrete information society an urgent task in development is bridging the gap between areas and social groups at different levels of development, and similarly, it is important to keep on the agenda that nations that are seemingly the furthest from the global information society are included into its network.

As long as UNESCO functions as the rear-guard of the industrial era, it cannot act as vanguard of information society in order to replace bureaucratic control via creating social control structures and alternative value chains. If it cannot and does not wish to be a “laboratory of future”, which supports the future control revolution relying on systems of producing, distributing and consuming knowledge, and which is based upon a model of culture and society or world-view that is typical of the information age, if it does not face conflicts with the monstrous interest relations of the industrial age, then it will deteriorate rather quickly into an empty display of a declining era.

Luckily, there is still potential to fulfill. Despite all its problems, UNESCO is an authentic “brand”. It managed to address and keep working with several dedicated, well-prepared experts who have a mission, as well as to build a network of cooperation with NGOs, and its activity has always been formed along the lines of preserving and fostering values. Thus, it has a significant amount of opportunity points and trust capital that it can still turn towards a change of philosophy and organization required for solving global problems that are included into its mission statement, instead of maintaining the organization as an end in itself. If this effort is successful, the moulds and paths will be formed almost automatically,

through which UNESCO can become a decisive and accepted actor of a new control revolution in the governance of global knowledge and literacy.

6. Conclusion and further research directions

Research on Knowledge Governance has a two-way future. The theoretical clarification and the development of everyday practice are interactively and mutually influencing each other. Similarly, the national and global actors can learn a lot from the consolidated experiences and best practices of the corporate arena. In the same way, scientists, consultants, policy experts and CKO's can start a fruitful conversation about the Knowledge Governance basics and specialities.

From a „disciplinary and theoretical perspective“ (Foss & Michailova, 2009), *region, culture and business sector-specific research programmes* are very important to aggregate field experiences, supporting the formation of general statements, methods and next generation research questions. The Knowledge Governance Program of the Center for Development Research at University of Bonn, led by Hans-Dieter Evers is currently in its fourth project phase. This comparative research is simultaneously studies the practice of large corporations and small and medium enterprises in South-East Asia and Africa. Their results successfully demonstrated, that „Asian nations differ greatly in their success in closing the gap between local and global knowledge“⁸. The fresh, sustainability-oriented Knowledge Governance program of the transdisciplinary Canadian POLIS Project on Ecological Governance explores „complex philosophical, ethical, legal and political issues“ in the context of academic and indigenous knowledge, concentrating to the „collaborative knowledge creation and sharing of associated rights and responsibilities beyond the corporate partnership model“⁹. The Knowledge Governance Fora of KEI (Knowledge Ecology International)¹⁰ joins with the main global representatives of the legal field.

From a „methodology perspective“, knowledge governance experts have to find convincing and standardizable solutions for the most painful organizational challenges: how to develop new methods to reengineer the channels of knowledge acquisition? How to insert the culture of knowledge building into the center of strategic thinking? How to design new, effective knowledge environments for decision makers, and how to make them *abductive*? It would be easy to produce far longer question lists and more dense keyword maps, but detecting the dynamics is currently more important than providing full analytic descriptions.

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⁸ <http://www.zef.de/606.html>

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