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Jeanne Mengis, Martin J. Eppler

Cultural Differences among Occupational Groups and their Impact on Communication Processes – The Case of Domain Experts and Decision Makers

The paper discusses the role of cultural differences in the communication among occupational groups, such as domain experts and decision makers. On the basis of three explorative case studies, the authors identify four cultural dimensions to distinguish the occupational cultures of domain experts and decision makers, namely: reflective versus action oriented, risk averse versus opportunity seeking, detail oriented versus overview seeking, functionality oriented versus benefit oriented. They discuss the implications of creating awareness for specific cultural differences and, in particular, consider the role of boundary objects in mediating the different meanings across various occupational cultures to create a shared understanding.

Introduction

Culture is a polysemic concept that is no longer constrained to the level of nations or ethnic groups. More and more, culture is conceptualized in respect to smaller units (Hepp 1999) such as social classes (e.g. working class culture, civic cultures), age (e.g. youth culture), musical preferences (techno-culture), organizations and organizational sub-units (Hofstede 1998; Sackman 1992; Schein 2004), as well as professions. In all of these conceptions, culture is viewed in terms of *values and practices* (Giddens 1994; Hofstede 1998; Williams 1981). It is conceptualized as a symbolic, meaningful system that informs actions (Kroeber / Parsons 1958) and guides us in the way that we make sense of our environment. In this understanding, culture has an integration function and embeds individuals in a group. When adapted to smaller cultural units, this view of culture helps to develop a critical reflection on a particular culture, and to appreciate other cultures.

In the organizational context, culture has also been discussed in terms of *professions* (Barber 1995; Carayannis/Sagi 2001; Hofstede 1998; Raelin 1986). Occupational groups such as media specialists, lawyers, software specialists, film celebrities, etc. show specific cultural characteristics that are not primarily based on national, religious, or ethnic traits. They are the result of a particular professional setting (Barber 1995; Carmel 1999). Hofstede (1998) has shown that professional cultures become important elements for organizational subcultures if tasks are non-routine and difficult, and work is consequently carried out by very skilled and specialized personnel (i.e., knowledge workers).

While traditional views of culture often emphasize the integration function of culture, culture can alternatively be understood as a *scheme of second order observation*, as an invitation to observe how we observe (Romano 1999). As such, culture is the perspective of observers' observations (Luhmann 1995: 54) and as thus broaches the *contingency* of a certain perspective and fosters *comparisons:* How does a certain group observe and how does it relate to the way another group observes? In such an understanding, culture does not fix identities, but rather focuses attention on the relativity of a certain perspective.

This article is therefore based on the premise that the concept of culture can be fruitfully employed to explore the relativity of professional perspectives and to create awareness for *challenges in the communication* between two 'culturally diverse' occupational groups. The communication and integration of knowledge across occupational groups is particularly challenging (Bechky 2003; Black et al. 2004; Carlile 2002; Henderson 1995). Bechky, for example, showed that the communication between engineers, technicians, and assemblers is difficult because they lack common ground, which is manifested in differences in language. She describes how engineers and assemblers, although talking about the same object, had such different perspectives and understandings of it that they continuously misunderstood each other. Not being aware of these (cultural) differences, the misunderstandings between the two occupational groups remained hidden for a long time (Bechky 2003: 320).

In this article, we will focus on the communication between two specific occupational groups – experts, on the one hand, and decision makers, on the other – and argue for the crucial role of culture in this communicative constellation. Decision makers who have to take decisions in complex, uncertain, and fast-moving environments increasingly call on experts. In the political context, for example, the Swiss public administration, which itself provides expertise to public policy makers, assigned 6100 mandates to external experts in 2004 alone, for which it spent a total of 490 million Swiss Francs (307 million Euro) (Geschäftsprüfungskommission der Schweiz 2006). Referring to experts allows decision makers to absorb the uncertainty of the environment, to delegate responsibility, to enforce an already taken decision, but also, and perhaps most impor-

tantly, to make informed decisions. In this last case, the fact that the decision makers call on experts in their decision making requires that they acknowledge their partial ignorance of an issue. Knowing not to know is itself a cultural competence as mentioned by Baecker (2002: 151). Thus, the expert-decision maker situation presupposes a certain awareness and appreciation of differences in perspectives and in culture. However, not knowing what these cultural differences precisely consist of can be challenging for the communication that unfolds between experts and decision makers. If a decision maker knows that a certain orientation, perspective, practice, or value is part of the expert's occupational 'culture', he or she has better means to appreciate it and question his or her own perspective. *Knowing the specific cultural differences among occupational groups is thus a first condition to overcome the communicative barriers across these groups.*

In the following, we hence aim to identify how domain experts and decision makers describe their relative 'cultures'. In particular, we seek to exemplify how these differences manifest themselves in the knowledge-intensive communication between the two groups. In making such differences explicit, we believe that both professions can create a greater awareness of their modus operandi and learn how to appreciate and better deal with the practices, values, and interpretation schemes of the other group. We present various dimensions of the occupational cultures as described by experts and decision makers. Such an approach was already followed in earlier studies, in which cultural differences within and across organizations were discussed in terms of various dimensions along which these cultures differ (Burns / Stalker 1961; Hofstede 1980). Hofstede (1998) for example presented six dimensions (e.g. process oriented vs. results oriented; employee oriented vs. job oriented; parochial vs. professional) for the identification of three sub-cultures within organizations (a professional, an administrative, and a customer interface culture).

We aim to explore if there are such cultural dimensions also for the occupational groups of experts and decision makers. We propose that that there are specific cultural characteristics that hold not only for single types of experts (e.g. engineers, IT architects, financial analysts) or decision makers (CEOs, department managers, project managers), but for the occupational group of *domain experts* and that they differ from those of *decision makers*.

Method

Our research design employs a qualitative analysis of three explorative cases and considers within-case and cross-case analysis (Eisenhardt 1989). Since there is no sufficient prior research to date that compares the occupational cultures of experts and decision makers with regard to knowledge integration, an explorative approach seems adequate. In the case studies, we have analyzed the descriptions of the knowledge communication between domain experts and decision makers in three contexts: 1. engineers and the management team of a manufacturing company (1st company); 2. IT-specialists and middle managers of the business line of an insurance company (2nd company), 3. consultants specialized in facility-, portfolio and construction management and their clients (3rd company).

For every case study, we have conducted 15 in-depth interviews with both experts and decision makers, each lasting on average 45 minutes (in total 45 interviews). In the interviews, after an introductive part on the background of the interviewee and his/her work context, we asked to describe the communication with the experts, respectively decision makers (e.g. communication formats, processes) and then invited interviewees to recall episodes of their communication that exemplify typical communicative behavior of both experts and decision makers (thus employing a narrative interview style). In the final part of the interviews, we asked them for typical challenges and practices in their communication with the other occupational group. All interviews were audiotaped and transcribed word-by-word. We recursively coded the transcriptions of the interviews. We used open coding (Glaser 1998) and added tags with comments or categories to the transcribed text. We compared tags first within the single cases and then across cases and used tables (Miles / Huberman 1984) to further structure coding categories. In a first step, both authors developed categories independently from the transcripts, and then met to discuss differences and similarities of the individual work and iteratively came up with the dimensions defining the occupational culture of experts and decision makers reported below.

For the theoretical sampling of the three case studies (Glaser 1998), we have selected case contexts in which experts and decision makers can be easily identified and there is a clear functional difference between the two roles (the experts' role is mostly one of providing advice). In addition, all decision contexts show a considerable complexity (ambiguous and dynamic contexts) and knowledge asymmetry (i.e., experts know a lot about their domain, but little about the overall corporate context, and vice versa for the decision makers). We introduced variety across cases with regard to the industry, organizational, and institutional contexts in which the communication between experts and decision makers takes place. Case company number one is a medium-sized German high-tech firm. The experts in this context are mostly engineers with a specialization in production and material sciences. Decision makers are the members of the top management team. Case company number two is a large multinational insurance company, where experts are IT-analysts and programmers and decision makers are middle managers with line or project responsibility. Case company three is a small facility man-

agement consultancy where experts are engineers with a focus on building management, and decision makers are their clients, typically department heads in a medium-sized to large organization.

Understanding the Occupational Cultures of Domain Experts and Decision Makers and the Implications for Communication

In the following, we outline core dimensions of the occupational cultures of domain experts and decision makers by referring both to their actual *practices* and to the guiding *values* with which they view and interpret the world and which inform their actions (as reported by them in the interviews). While practices represent the more visible part of a culture and are amenable to planned change, values are more hidden, do also change, yet less by someone's deliberate intention (Hofstede 1998). As shown in Figure 1, we conceptualize these dimensions as opposites of various continuums. The bi-polar ends show orientations of the two occupational groups in comparison to the other. The single domain experts and decision makers are not positioned at their extreme ends, but along the continuum. In the following we describe these key differences and illustrate them through verbatim quotes of the interviews that have been selected because they highlight reoccurring themes in a concise manner. We discuss these informative differences among the two groups in general terms below, although their specific form and impact may vary according to the situation in which these differences arise or become apparent (i.e., in the briefing stages versus in the collaboration or final assessment stage of an expert-decision maker cooperation). Next to these diverging values and practices we also describe (further below) an exemplary communicative challenge that results from these key differences, namely the diverging vocabularies of both occupational groups.

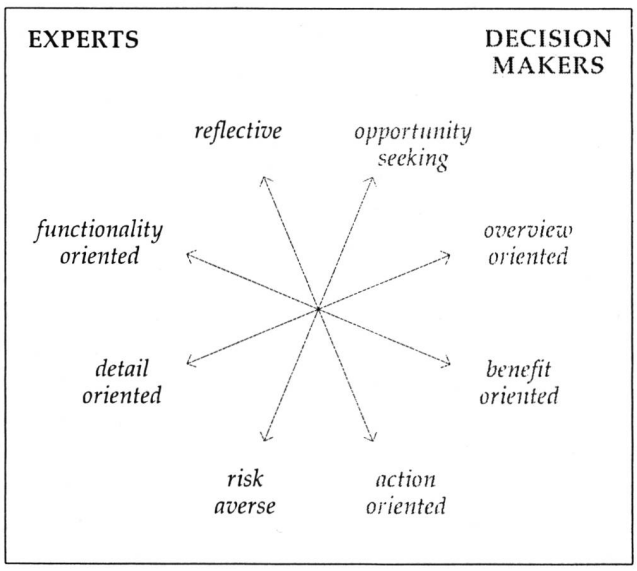

Figure 1: Dimensions of the Occupational Cultures of Domain Experts and Decision Makers

Practices:
Reflective versus Action Oriented

A first difference in practice and orientation that ensued from the interviews is that experts tend to be more reflective and decision makers more oriented towards action. Domain experts, by their education and organizational function or role, are trained to question accepted solutions, and to analyze the root causes of a problem. Decision makers, on the other hand, have an urge to take actions and quickly find pragmatic solutions, as the following expert quote illustrates:

> "Sometimes, our approach is a little bit too theoretical for certain people. [...] They come to us and want us to implement a tool and a ready-made solution. [...] But we do not propose the one suitable software for his CRFM to the client. Rather, we present criteria that he/she should take into account when choosing between the various software packages" (expert, company 3).

These reflection-oriented practices are often not easily comprehensible to decision makers, as the following expert quote illustrates.

> "We have to explain to the client why it makes sense to engage in our methodological approach, which is, at first sight, a more costly procedure. We have to convince him that the more demanding 'backwards-parking' is necessary in order to then be able to depart more directly and more quickly once we start" (expert, company 3).

If experts do not succeed in such an undertaking, managers have the impression that "engineers like to make a dissertation out of every single request" (manager, company 1). This action-orientation of managers has been previously labeled as "a bias for action" or the problem of the busy manager in recent management literature (Bruch/Goshal 2002). It highlights the need for a complementary occupational group, experts, with less risk of this apparent bias – or the need for managers to break out, at least occasionally, of their 'cultural fingerprint'. Donald Schön has labeled this hybrid type of decision maker the 'reflective practitioner' (Schön 1983).

Whereas this distinction is very much focused on how each occupational group approaches its work, the next three distinctions address underlying values and preferences. These preferences have also surfaced numerous times in the conducted interviews and formed a pattern that is described below.

Values:
Risk Averse versus Opportunity Seeking

As a tendency, domain experts back up their statements with measurable facts, indicate their level of certainty and

confidence in an assessment, and avoid risky statements. An engineer (company 1) mentions the following regarding this fundamental value of his occupational group:

> "Often, reality is more complicated than decision makers have time for. They need clear-cut answers and the caveats get lost. [...] It is as if I was forced not to reveal my uncertainties. Intellectually and morally, this is very hard for me."

Experts often feel bound to the correctness of their statements, so that when confronted with an either-or decision, their preferred answer is: "it depends". They feel more comfortable 'hedging' themselves from possible uncertainties and risks. On the other hand, decision makers are more inclined to rapid, often risk seeking solutions. This tendency of experts identifying risks where decision makers see opportunities is expressed in the following quote:

> "Engineers always say: 'you promise too much!' and the management, on its side states: 'You have too many concerns'" (manager, company 1).

This difference regarding the values of certainty versus uncertainty may be affected by another fundamental difference that is partly practice partly a value, namely the focal scope of both occupational groups. This aspect is explored in the next section.

Detail Oriented versus Overview Seeking

In part because of experts' inclination to avoid risk (as discussed above), they thrive to present an issue thoroughly and find it difficult to represent it in a concise manner.

> "To represent complex problems in a concise manner, but to assure that nothing essential will be lost, that is really the great challenge" (expert, company 2).

While decision makers need to manage a variety of projects and activities and are therefore interested in a top-level overview, experts believe that

> "if technical details are not explored enough, problems in the communication are almost certain. Often, the facts that should be known are not clear to everybody. Then, one has to elaborate until everybody is on the same page" (expert, company 1).

In part, the expert's inclination to get lost in technical detail is also fostered by the fact that he/she has a deep understanding of a narrow field (Ericcson 2006) whereas the decision makers mainly need a more transversal and broad knowledge (Langlois 1986).

Functionality Oriented versus Benefit Oriented

"The engineers want to create something superbly crazy and do not think about the money – as usual!" (manager, company 1). While domain experts often think that the technical solution is already the solution to a complex socio-economic issue and thus remain focused on technical aspects, managers tend to focus on the benefits of a solution in terms of time and money. This tension is illustrated by the following quote of an expert in company 1:

> "The main problem is that the objectives 'time and money' versus 'technology' are not congruent. This is an area of conflict that we need in order to pursue both directions. Yet, we can only find a solution if the respective objectives are meaningful to the other party" (expert, company 1).

On the surface of these diverging cultural orientations, we can observe different uses and strategies of language that often lead to misunderstandings in the knowledge-intensive communication between experts and decision makers. "They (from the business) consider the problem on a different level and then speak a different language than us." (expert, company 2). Next to having different thematic focuses (focusing on cost aspects of the issue versus the technical functionalities), experts and decision makers use a different jargon that is difficult to understand for the other group. Difficulties in building a shared understanding do not only arise when the employed vocabulary is highly technical. There is a particular risk for misunderstandings with regard to apparently clear and simple terms. A facility management consultant (company 3) reports the following incident:

> "It often happens that someone from the construction industry uses the same term as someone from the IT industry, but understands something completely different. [...] For example: what is a *building?* From a microeconomic point of view a building is understood as a utilization unit and as such it is also represented in SAP [the planning software]. Added to this definition are criteria how to rent out and bill the building. From a legal point of view, it is all different. There is a cadastral register, in which the building is marked with a cadastral number, its borders are clearly circumscribed, and it has an insurance number. [...]"

Similar to Bechky's findings (2003) we have encountered numerous interview statements that show that *different uses of the same term* can be a source of (at times undiscovered) misunderstandings. The implications of such misunderstandings can be that a database, constructed on categories that are understood differently by the various occupational groups, will be filled in and used in inconsistent ways. Project redefinitions late in the project process and expensive project delays are another consequence of such

terminology mismatches. Different use of vocabulary and language is an exemplary surface expression of the underlying different cultural orientations (i.e., perspectives and priorities) that we have discussed above.

Bridging the Cultural Gap by Improving the Communication among Experts and Decision Makers

So far, we have argued that culture as a frame for observation and comparison, can serve to *identify and make differences explicit* with regard to perspective, values, and focus, which persist between domain experts and decision makers, yet often remain implicit. Through such elicited differences, experts and decision can attribute specific communicative challenges not to single individuals, but to more general cultural dimensions. This can help to abstain from relational tensions that threaten the knowledge integration between the two occupational groups (Mengis/ Eppler 2006). Having a more explicit knowledge of the cultural dimensions, in which the occupational groups differ, builds the basis for institutionalizing processes that allow for *perspective changes and role switching* as, for example, establishing internships for IT-experts in the business context of the managers (a practice that we have observed in one of the case companies). In such programs, sensitivity for the differences in approaches and perspectives can be enhanced.

A second, but closely related, step in improving communication among the two groups consists of *clarifying the often mismatched terminology* (Bechky 2003; Carlile 2004: 558). In order to develop a shared basis of understanding company 2, for example, has developed a glossary, which is shared between the IT-department and the business line and which includes not only technical, but also apparently clear and simple terms, such as 'task', 'process', 'work step', as well as acronyms and abbreviations.

A third step in improving the communication consists in working with *richer communication media* that includes the use of *boundary objects* (Carlile 2002; Star/Griesemer 1989) for mediating the different meanings across various occupational cultures. Boundary objects are flexible epistemic artifacts that "inhabit several intersecting social worlds and satisfy the information requirements of each of them" (Star/Griesemer 1989: 393). They are flexible in so far as they can have different meanings in different communities and cultures, like occupational groups, yet their structure is common to all these groups so that they are recognizable to them and can serve as a means of translation. Examples of boundary objects are repositories like client database or the before mentioned glossary, standardized forms and methods (e.g. shared approaches for assuring quality standards), but also joint sketches, assembly drawings, mock-ups, common workflow matrices, or process maps (Carlile 2002: 451; Star/Griesemer 1989: 410). Used conjointly by the two occupational groups, boundary objects can serve to detect misunderstandings and disagreements, so that a common understanding can ensue. The following quote of a facility management consultant of company 3 illustrates this idea:

> "Once I was in a meeting, in which a conflict arose out of a misunderstanding. My colleague went to the flipchart and laid out who said what and which relations existed. This deeply impressed me since one could see that they said the same thing, but expressed it differently. As a matter of fact, both wanted to go on the same way, to the same goal, just that the one a little bit slower than the other."

The drawing helps as an additional common structure and gives ideas a tangible reality so that it becomes easier to uncover the differences in understanding between one's own and the depicted view (Cecez-Kecmanovic/Dalmaris 2000). Boundary objects, by giving the occupational groups the possibility to create *rich representations of their perspectives*, enables them to more easily engage in the perspectives and understandings of others (Boland/Tenkasi 1995) and *translate meaning* (Carlile 2004) across occupational cultures. It also helps to overcome the tension between details (expert view) and overview (decision maker), as the two can be continuously linked. In this way boundary objects, such as visualizations, help to mediate between two poles of a cultural dimension: the polar opposition of "detail oriented versus overview oriented" that we have discussed earlier. In the case of company two, the IT-management knew that their IT-experts tend to stick to details and make it difficult for the management of the business line to gain the big picture of the issue. This is why the IT-management insisted in developing visual overviews of technical processes showing all interfaces, services, and applications involved.

> "The picture shows that there is a location, where the interest rates are defined. One makes a fixed package and distributes it all over. [...] Nobody had the overall picture of the sum of the places to where the package was distributed. That is why we elaborated this figure and it shows what it is all needed in order to change the interest rates within one day. [...] Before, there were so many misunderstandings around this process and [...] as we have such a limited space and time for our communications, these visual representation were really key" (IT-manager, company 2).

In this way, the visual representation presented a *common space* where the polar oppositions of *detail* and *overview* could be combined. IT-experts had the possibility to present the single interfaces and processes, but were forced to bring them into an overall structure and to present an overview. In this way, having a clearer idea of the cultural differences between the occupational groups that collaborate helps to understand in which ways a boundary object

should help for mediation and translation. This may also have a positive effect on the other identified poles: adequate visualizations of expert analyses used in deliberations may be conducive to action (by highlighting action areas) and they may make risks visible to managers so that they can make more risk-conscious decisions. In the same way boundary objects can also be used to visualize how technical functionalities (expert view) can lead to business benefits (decision maker view).

Figure 2 shows an example of a versatile boundary object intended for collaborative use between two or various occupational groups that need to agree on a common rating of an issue. It helps to integrate knowledge among specialists and decision makers by visualizing the participants' opinions in a common graphic framework.

The screenshot depicts a so-called interactive rating ruler that we have developed to give experts and decision makers a joint (beamer-projected) tool in which they can visualize their collective evaluations (for example regarding an information technology investment, such as an e-learning system). This visualization does not reduce cultural differences, but makes them explicit through joint ratings and explicit criteria definitions. As the implications of different values of experts and decision makers become visible (for example in differing positions of the sliders in the ruler), the differences become accessible to communication, and this in turn improves mutual understanding and ultimately joint decision making. This visualization of differences among the two groups may lead to conflict and disagreements, but – if well managed – this conflict can lead to new solutions that take into account more of the knowledge of both occupational groups.

Conclusion

We have argued that applying the idea of culture and cultural differences on the level of occupational groups – e.g. between domain experts and decision makers – can be beneficial for a more constructive understanding of the communicative challenges between them. This is only the case if culture is conceived as a *scheme of observation* that is suited not to fix identities, but to make comparisons and to acknowledge the contingency and *relativity of perspectives*. Otherwise the concept of culture would lead to stereotyping and creating additional boundaries that are difficult to

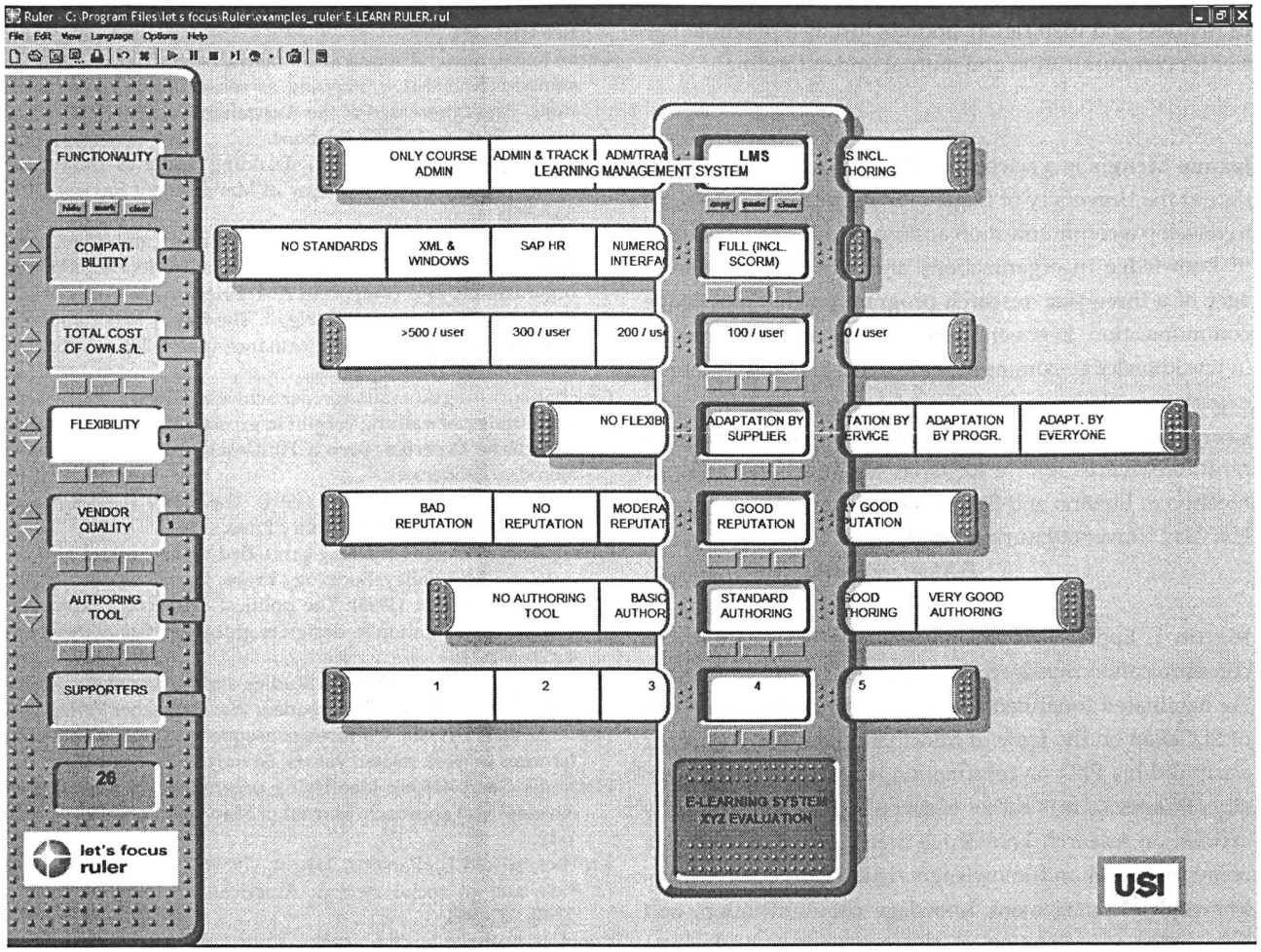

Figure 2: : An Interactive Rating Ruler as an Integrating Medium for Inter-Professional Deliberation among Experts and Decision Makers

overcome in the communication. Culture as a lens to understand the contingency of the perspectives of the communication partners, by contrast, helps to deal more constructively with these differences. We have proposed that the use of *boundary objects* further facilitates the identification of cultural differences across occupational boundaries and supports the creation of a shared understanding.

Future research should seek to establish more robust data on the cultural dimensions that distinguish domain experts and decision makers, which we have elaborated in this article. Surveys could be conducted in various organizations along these four dimensions (for methodological indications, see: Hofstede 1998). With such an endeavor, one could understand where decision makers and domain experts position themselves in the continuum, how distant or close they are from each other in the various contexts, and if other aspects of (organizational) culture are more important than the professional one. Based on such results, one could take into account the emerged differences in a productive way in the style and content of communication in order to more fully profit from each other's perspectives and to reduce potential misunderstandings. Consequently, different occupational cultures could be viewed as source of richness and inspiration, and not just as a potential barrier for communication and mutual understanding.

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