

Human boundary objects – fact or fiction?

Kasia Zdunczyk

University of Newcastle upon Tyne Business School

kasia.zdunczyk@newcastle.ac.uk

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Working across boundaries

Much of the work in today's organisations is carried out in cross-functional teams as well as through projects which bring together participants from different departments, business units and organisations. Modern supply chain management stresses the issue of integrating with multiple and diverse partners external to the firm. Outsourcing, while seen as a means of simplifying operations, brings with it a new kind of complexity – coordination of work and processes and negotiation of interests between the firm and the providers of outsourced services. In new product development there is the need to interface with a variety of sources of expertise such as universities, research institutes and government agencies. Moreover, in the context of the global economy, partnerships are often struck across national and cultural borders. These are only a few examples of the factors contributing to the increasing importance of developing a strong competence at cross-functional, cross-organisational and cross-cultural collaboration.

This competence is essentially reliant on the ability to cross boundaries between different communities of practice defined by Lave and Wenger (1991:98) as 'systems of relationships between people, activities, and the world; developing with time, and in relation to other tangential and overlapping communities of practice'. Communities of practice, according to Wenger (1998), establish their boundaries by developing an internal coherence resulting from mutual engagement of members in a joint enterprise and the use of a shared repertoire of routines, symbols, tools and other resources. Boundaries therefore are demarcation lines between different world views, identities, enterprises and fields of practice. What constitutes the boundaries holding together a community of practice is at the same time a source of differences between communities and a cause of difficulties in cross-communal relations. A collaborative effort involving several communities of practice requires the establishment of a new field of practice at the boundaries of the communities involved. Wenger (1998) refers to such cross-communal fields of practice as boundary practices. Boundary practices have been in the centre of attention of many scholars interested in the creation, sharing and transfer of knowledge among communities of practice, e.g. in cross-functional new product development teams (Carlile, 2002; Bechky, 2003, Garrety et al, 2004). Much of this research is concerned with identifying different types of

boundaries (Carlile, 2002, 2004), the processes of boundary spanning and roles of boundary spanners (Levina and Vaast, 2005) or brokers (Pawłowski and Robey, 2004), and the use of boundary objects (Carlile, 2002; Levina and Vaast, 2005; Bechky, 2003).

The most elaborate typology of boundaries to date is the one proposed by Carlile (2004), who identifies three properties of knowledge which act as sources of complexity in cross-communal knowledge sharing: difference (specialisation of knowledge), dependence (the extent to which the accomplishment of task requires the absorption of the knowledge of other participants) and novelty (inability to draw upon existing knowledge in assimilating or developing new knowledge). As novelty increases, the uncertainty of the remaining two properties increases as well. Therefore, Carlile proposes that it is the novelty of knowledge involved that drives the emergence and complexity of boundaries in a learning situation. He identifies three levels of boundary complexity – syntactic, semantic, and pragmatic. The least complex of these is the syntactic boundary, which arises under conditions of relatively straightforward differences and dependencies associated with a low level of novelty. As novelty increases, it becomes necessary to interpret the differences and dependencies of knowledge – this is when the semantic boundary appears. The most complex is the pragmatic boundary, which arises largely due to the fact that knowledge is invested in practice. A pragmatic boundary appears when novelty is high and actors need to negotiate changes in their knowledge and trade-offs between interests.

The higher-level boundaries do not simply replace the lower-level ones but incorporate them. Carlile notes that each of the boundaries requires a more sophisticated approach to be overcome – from simply transferring knowledge across the syntactic boundary, through translating across the semantic boundary, to transforming across the pragmatic boundary. When coping with different types of boundaries, one has to follow the top-down order, tackling the lower-level issues only after the higher-level problems have been resolved, i.e. in the case of negotiating a pragmatic boundary, all three boundary processes will need to be used in order of decreasing sophistication.

Carlile's classification operates at a high level of abstraction and while the respective categories seem to be prone to a variety of interpretations, it does not seem to be an exhaustive taxonomy. An external factor such as novelty of knowledge does not account for the situational aspects of cross-boundary interactions (Zdunczyk, 2006). In order to approximate the formation and persistence of boundaries it is necessary to investigate the characteristics of the context (Brown and Duguid, 2001) or situation (Szulanski, 1996, 2000) and to look into the process of the actors' learning "to be" (Brown and Duguid, 2001). The value of Carlile's classification lies in the fact that it draws attention to the different levels of complexity of boundaries and the corresponding need for applying different boundary spanning practices and evoking different boundary objects depending on the type of boundary which arises in a given situation.

Boundary Spanners

Establishing and sustaining a boundary practice requires negotiation of meanings, coordination of efforts and brokering of practices between the communities involved (Wenger, 1998). Individuals who perform these tasks on behalf of their communities are variously known as boundary spanners (Aldrich and Herker, 1977), gatekeepers (Katz and Allen, 1985), or brokers (Wenger, 1998). The role of brokers, as described by Wenger (1998: 109) "requires enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating transactions between them, and to cause learning by introducing into a practice elements of another." Ancona and Caldwell (1992) distinguish four types of boundary spanning roles according to the type of activities undertaken. These are: scout (scanning the environment for information and resources), ambassador (engaging in lobbying, impressions management, and protecting the group from external pressures), task coordinator (coordinating and negotiating with external parties), and guard (preventing information from leaking outside the community).

Wenger (1998) advocates the view that brokers are best positioned for their role if they are legitimate peripheral participants in the communities with which they are working. This view is also supported by Levina and Vaast (2005) who distinguish

three sources of boundary spanners' effectiveness: legitimate peripheral participation, legitimacy as negotiators on behalf of the field whose interest they represent, and inclination to engage in boundary spanning. Other studies indicate that by virtue of their partial and simultaneous membership in different social worlds marginal individuals possess certain advantages for performing the boundary spanning role. These advantages could be derived from sensitivity to different social cues (Caldwell and O'Reilly, 1982) and competence in the different areas of expertise involved (Nochur and Allen, 1992) as well as immunity to the marginalisation problem (Bourdieu, 1977; Tajfel, 1978) which often discourages individuals from undertaking a boundary spanning role. Following Carlile (2002), an effective boundary spanner ought to be able to recognise the type of boundary arising in a given situation and select the adequate boundary spanning process and tools – a capability which is also supported by legitimate peripheral participation.

Boundary objects

Star and Griesemer (1989) define a boundary object as “an object which lives in multiple social worlds and which has different identities in each” (Star and Griesemer, 1989:409) and which is “simultaneously concrete and abstract, specific and general, conventionalized and customised” (Star and Griesemer, 1989:408). It is their internal heterogeneity and simultaneous existence in different worlds that render boundary objects useful for establishing a shared context between different parties, to “act as anchors or bridges, however temporary.” (Star and Griesemer, 1989:414). The role of boundary objects is to help establish a common platform for communication, a way of reconciling differences and finding shared signs, meanings and interests or – as Bowker and Star (1999) call it – a ‘boundary infrastructure’. Wenger (1998) synthesizes the following characteristics of boundary objects from Star and Griesemer’s discussion: modularity, which enables each party to relate to a different aspect of the boundary object; abstraction – emphasizing common features at the expense of domain-specific ones; accommodation of a variety of perspectives and interpretations; and standardization – providing a unified way of dealing with issues. He also stresses the fact that boundary object should be seen as nexus of perspectives and gain their meanings in the meetings of these perspectives.

Star and Griesemer (1989) propose four types of boundary objects: ‘repositories’ – modularised resources from which different users can extract what is useful to them (e.g. databases, libraries); ‘ideal type’ – a symbolic abstraction or representation such as a map or diagram; ‘coincident boundaries’ – objects representing different contents to different users but sharing the same boundaries; and ‘standardised forms’ – common methods of dealing with tasks and communicating. It is important to note Star and Griesemer’s comment that these categories are not set in stone and may be expected to be fuzzy or to overlap as in practice we rarely deal with single boundary objects but rather with systems of boundary objects. Briers and Chua (2001) propose that an additional category is added to Star and Griesemer’s original classification – that of visionary objects, which they define as “conceptual objects that have high levels of legitimacy within a particular community [and] can evoke similar emotive or affective responses from a wide spectrum of people” (Briers and Chua 2001: 242). Levina and Vaast (2005) offer a more basic classification of boundary objects discriminating between designated boundary objects and boundary objects-in-use. This is a very significant distinction as it draws attention to the fact that certain artifacts may possess characteristics which would apparently make them useful in boundary interactions and yet not be adopted by the intended users due to their lack of relevance within the joint field of practice.

Carlile (2002) proposed a classification of boundary objects based on Star and Griesemer’s original typology. He distinguishes three kinds of boundary objects: ‘repositories’, ‘standardised forms and methods’, and ‘objects, models and maps’ (Table 1). According to Carlile, effective boundary objects address the specific problems related to the types of knowledge boundaries. In their ‘practical capacity’ they help establish a shared syntax and a way of discussing differences and dependencies. In their ‘political capacity’ they offer a way of negotiating a transformation of knowledge across a pragmatic boundary. Levina and Vaast (2005) stress that boundary objects will only be effectively used if they possess a symbolic value for all parties. Other studies draw attention to issues of tangibility (Bechky, 2003) and ‘fitness for purpose’ (Carlile, 2002; Bechky, 2003).

Studies conducted to date have identified a vast variety of concrete examples of boundary objects-in-use ranging from design drawings and physical prototypes (eg.

Bechky 2003), maps (Star and Griesemer, 1989) through Gantt charts (Yakura, 2002) and deadlines (Lindkvist et al., 1998) to management systems such as JIT, TQM or ABC (Briers and Chua, 2001). This study wishes to draw attention to the possibility that individuals, particularly those with legitimate peripheral participation in different communities, can be used as boundary objects as well.

Table 1. Type of Knowledge Boundary, Category, and Characteristics of Boundary Objects. Source: Carlile (2002:453)

Types of Knowledge Boundary	Categories of Boundary Objects	Characteristics of Boundary Objects
Syntactic	Repositories	Representing
Semantic	Standardized Forms and Methods	Representing and Learning
Pragmatic	Objects, Models, and Maps	Representing, Learning, and Transforming

Human boundary objects

Star and Griesemer (1989) recognise the fact that marginal people, who simultaneously inhabit more than one social world, share many characteristics with boundary objects. However, they rejected the possibility that marginal people might function as boundary objects. Their argument was that marginal people develop and reflexively use strategies for coping with their marginal condition, which renders them too elusive and unpredictable to have the functionality of boundary objects. It seems that the key distinction they are drawing here is between active and passive presence in a boundary context. Boundary objects need to remain passive to retain their usefulness in facilitating cross-boundary interactions. People are considered to be active agents rather than passive objects – hence in the context of boundary

spanning they are typically considered in terms of their purposeful action as boundary spanners or gatekeepers.

To continue with the example of marginal people, by virtue of their partial and simultaneous membership in different social worlds they ought to be characterised by the kind of internal heterogeneity, which allows members of each of these communities to view them in different categories, while still retaining a 'common identity across sites' (Star and Griesemer, 1989). As such marginal individuals might be considered to have the potential of being used as 'coincident boundaries' type of boundary objects. They can also be expected to be able to display the characteristics of modularity, abstraction, and accommodation outlined above.

Zdunczyk (2005) offers the example of the interim manager as a marginal individual possessing these qualities. Different parties may easily perceive the interim manager in different ways: a manager to the employees, a consultant to the management, a professional colleague to the members of a network of practice. To the extent that the interim manager does not assume an active role in hindering cross-boundary communication, he/she may be used by the participants of an interaction as a boundary object. This would occur if the participants chose to draw upon their different perceptions or indeed different identities of the interim manager to aid their cross-boundary interaction. In this way both the practical and political capacity conditions would be satisfied and the interim manager would emerge as a versatile boundary object in his/her own right.

In similar vein, 'versatile experts', i.e. individuals possessing knowledge of a variety of areas, can act as 'knowledge repositories' for members of different communities, who call upon the versatile expert to provide the information relevant to the joint field of practice to aid cross-boundary communication. Here certain types of management consultants may be used as an example. Due to their constant mobility between firms and assignments consultants accumulate a rich and varied intellectual capital of knowledge and experience. It is the richness and diversity of that intellectual capital (as opposed to the depth of specialist knowledge) that is conducive to fulfilling the boundary object's function of enabling interaction among heterogeneous actors (Bartel and Garud, 2003).

'The customer' can be speculated to be used as a boundary object in those organizations which claim to be customer-centered. In such organizations, it may be expected, an 'ideal type' of the customer is created to provide a commonality of action across the organization both in day-to-day work and in formulating and implementing strategies. The author of this paper is currently working with such an organization and although the early stage of the research does not permit to make any claims at the time of writing, there is some indication of this theme emerging from the data. This observation is supported by Wenger's (1998:108) passing comment that "When designers of computer systems, for instance, are concerned about the issues of use, they often talk about "the user", a generic term of mythical proportions in their jargon."

Finally, to use the 'visionary object' category proposed by Briers and Chua (2001), one might venture a speculation that visionary leaders may be used as boundary objects in the same sense in which a mission statement might function in other organisations. In such a situation members of the organisation would take guidance from and refer to the leader's vision in agreeing their actions. Common reports would indicate that Walt Disney played this role in his lifetime and continued to do so for a considerable time after his death, thus allowing for reconciliation of differences between the different members of the organisation. This possibility seems to offer an interesting avenue for research at the boundary between the field of leadership and boundary phenomena.

The above list of examples is not exhaustive. Nor is it based on empirical evidence to any satisfactory extent. Rather, it is a set of propositions for consideration in future research on cross-communal relations. The main focus of this paper is on investigating just one of those propositions: that marginal people, by virtue of their legitimate peripheral participation, can function as boundary objects

Research Setting

The particular case of cross-communal relations under investigation here is a regional innovation strategy project aimed at laying the foundations for further initiatives targeted at the development of a regional innovation support system. Developing Regional Innovation Strategies (RIS) through interregional projects is a European Commission initiative for promoting innovation as a core competitive strength among member states. The aim is to aid the regions in the transition from reliance on traditional resources to embracing new sources of competitiveness such as building and sustaining intellectual capital, knowledge creation and dissemination, and innovation.

The RIS approach stresses the need for collaboration and consensus building among the different potential contributors to innovation (European Commission DG Regional Policy, 2002), i.e. regional government, regional development agencies, business support organisations, local universities, technology centres, research and development institutes, business associations, etc. Particular importance is placed upon the development of public-private partnerships, inter-firm co-operation in networks and clusters, and inter-regional exchange of best practice. The added value of the European dimension is attributed to the opportunities it provides for the exchange of knowledge and experience between regions.

Methodology

The paper reports findings from an ethnographic study of a RIS project involving three European regions and eight institutional partners. The researcher was involved in the project as a participant observer acting as Project Coordinator for one of the regions. The actual role had little to do with project management and more with spanning boundaries, building relationships, and eliciting cooperation. In performing that role, the researcher has admittedly been exerting influence on the research context. All such 'interventions' have been carefully recorded in order to make it possible to identify their impact on the findings. At the same time, it was in the situations of direct interaction with other participants that the most revealing data were obtained. Although this resonates with Schein's (1987) observation that one cannot understand a human system without trying to change it, the research was

ethnographic in nature and interference was intentionally kept to the necessary minimum.

Data obtained through participant observation has been supplemented with analysis of written project documentation and e-mail communications, as well as by conducting interviews with representatives of all the participating organisations. It needs to be noted that the dual character of the researcher's involvement almost certainly had an impact on the interviewees' accounts as well as the interview questions and the manner of conducting the interviews. However, the direction of the influence on the respondents' openness in answering the questions is not at all certain. While some may have been more careful about the formulation of answers, others were all the more outgoing for having developed a working relationship with the interviewer.

The following section provides an outline of the general findings regarding the context in which the more specific observations relating to the crux of the paper were made. These are illustrated in a vignette, which has been selected for its relevance to the research question.

Findings

The project was riddled with difficulties from the very beginning. At the stage of preparing the proposal, there was significant lack of alignment among the institutions and organisations involved. The task of writing the submission document was delegated to junior members of those organizations and there was little interest from the decision makers. Despite this, the submitted proposal was highly ranked by the European Commission and the funding was awarded with only minor adjustments recommended. This caught the parties involved by surprise and they found themselves unprepared for the subsequent stages of organizing for the commencement of the project. Slippage due to organizational difficulties occurred very early on and project tools such as the Gantt chart became useless before they could be deployed.

More importantly, on closer analysis, the actual content of the proposal submitted turned out to be problematic: some of the actions it included were already being implemented in another initiative funded from another source – an impermissible

situation from the point of view of the European Commission. The project team involved in the competing project (referred to here as the ‘local’ project) was located within one of the institutions participating in the project and mobilized its influence within that organization to exert influence over the EU project. Conflicts arose over suspicions of plagiarism of ideas between the two projects and over issues of control. At the level of day-to-day engagement with the project, there was little coordination of effort and the actors involved found it very difficult to communicate and make progress. It became obvious that there were significant discrepancies between the parties in terms of the understanding of the project’s requirements and the role of particular partners – a situation exacerbated by the various vested interests of the representatives of the organizations involved.

Project management meetings were occasions for conflicts to surface, which impeded progress on the realization of tasks. Coalitions appeared among partners, who attempted to bypass the inertia of the project and proceed with the completion of tasks which they deemed important. This caused further misunderstandings and conflicts around issues of exclusion and lack of ‘good citizenship’. In a project which was meant to develop good practice in the area of regional innovation, as well as establish regional consensus around innovation support for the future, partners admitted to not seeing the value of learning from one another. On the contrary, they found it easier to work independently rather than rely on others to contribute. The rift between communities was perhaps most sharply reflected in the undisguised contempt for the ideas developed by the ‘local’ project team, which were rooted in a radically different worldview.

Human boundary object-in-use

One of the tasks included in the remit of the project was “cluster stimulation”. The main difficulty related to the task resulted from the fact that it constituted a major part of both the local and the international project’s core idea of regional innovation strategy. Because of the EC’s principle of no duplication (the same task cannot be financed twice, even if it is from two different sources) the clusters had to be distributed between the projects. Originally, all the possible clusters were included in the scope of the local project so it was up to that team to release some of them to the

international project. This was not done without significant reluctance and even when eventually an allocation was suggested, the impression among the partners of the international project was that they had been offered the least attractive sectors. The following extract from the research diary illustrates one of the attempts to renegotiate the allocation.

It was my first meeting with the project team in Portovo and I was keen to establish a good rapport with them. We talked generally about the Bridgetown region, its tourist attractions, geography, architecture, industrial history and current developments. I told them about the successful reinvention of the region and stressed that it was orientated towards *new technologies* [...] I also told them that I'd lived in Portovo and how much I liked both Portovo and Bridgetown. I made a comment that it was probably because of my close affinity to both cities that I'd been asked to coordinate the project. I noted that they were very keen to know about Bridgetown and about me.[...] It was following that part of the conversation that P.J. (the EU Project Manager) asked me specifically what kinds of industries the Bridgetown partners were keen to get involved with in connection to the project. I answered that while the sectors they had been allocated were of interest, it was the new technologies that were the main focus for Bridgetown. They took it with understanding and a degree of frustration.

Eventually, I was taken to the office opposite to meet the 'local' project team. We sat down at a table and P.J. explained who I was, effectively giving them the short version of what I'd been telling him – previously a Portovo citizen, now lives in Bridgetown, project coordinator for Bridgetown. I added to this introduction by telling them what my role was supposed to be and said, stretching things a bit, that I thought the reason I was asked to do that was that I was originally from Portovo and could therefore help the foreign partners understand the Portovo perspective on things as well as help the Portovo side communicate their needs and expectations. I stressed the communication aspect, representing myself as a conduit for multi-party communication – not only due to my roots in Portovo and familiarity with Bridgetown, but also because I'd be the only person in Bridgetown to devote my time entirely to that when for all others it would be an added task to their core jobs.

While talking about Bridgetown, I mentioned my affiliation to two business schools in the region. G.G. (the lead author of the 'local' Regional Innovation Strategy), who had not been participating actively in the conversation but listening in whilst looking at his laptop screen, joined in when he heard that. An academic himself, he asked me if I knew Prof. D. I said I hadn't had the pleasure and P.J. explained that Prof D had retired. 'Damn Scott wouldn't buy me a whiskey!' was the affectionate comment from G.G.

And that was when the magic happened. P.J. started telling his colleagues what I'd told him about Bridgetown and the region – losing old industries, investing in new technologies. I let him speak and only inserted brief comments to confirm his words. He went on to raise the issue of industry clusters. He did that in a rather shy, uncertain manner, saying that he knew that they (the 'local' project) had full authority over the new technology clusters and rightly so but perhaps there would be some merit in allowing the EU project to contribute the international dimension to what the 'local' project team had been doing. B.M. (the 'local' Project Manager) said that it was a good idea and that there were no obstacles on their part – they'd identified a group of companies to be involved in the 'local' project activities and that offering the added benefit of international cooperation would be the logical thing to do as long as no efforts were duplicated. I couldn't believe what was happening. I realised that the reason this hadn't been agreed before was that the EU Project people had not dared to suggest it. My presence and the information I'd shared gave them the opportunity, the argument and the credibility that enabled them to raise the issue.

Discussion

The above vignette for the most part reports the researcher's actions in a role which can be described as that of a boundary spanner actively seeking to establish a working relationship and to negotiate a common understanding. In the meeting with the EU project team she was acting in what Ancona and Caldwell (1992) describe as the ambassadorial role. The boundary initially experienced was syntactic, i.e. of the lowest order in Carlile's (2004) classification, requiring merely a transfer of relevant knowledge. The researcher/boundary spanner quite inadvertently used boundary objects such as stories and similes to aid the transfer process. At the same time, the

boundary spanner served as a boundary object of the repository type (Star and Griesemer, 1989), making her knowledge of the Bridgetown community accessible to the EU project team on request and thus representing it (Carlile, 2002) to the Portovo partners. Thus there was an alignment of the boundary type, the boundary process in use, the characteristics and type of boundary objects used, and the boundary spanner's objectives. Common understanding was established efficiently.

In the later encounter with the 'local' project team, a pragmatic boundary arose requiring the boundary spanners to engage in a more complex boundary process of transforming (Carlile, 2002). There were two boundary spanners, representing two related communities: the researcher retained her ambassadorial role on behalf of the Bridgetown community of EU RIS practitioners and the EU Project Manager from Portovo engaged in a 'task coordinator' role (Ancona and Caldwell, 1992) to negotiate an agreement with the 'local' project team. The interests of both boundary spanners converged and they supported each other in the interaction with the representatives of the 'local' team. The researcher was able to successfully engage in impression management with the aid of the EU Project Manager. In doing that, she was more selective about the knowledge shared than in the previous encounter and transformed some of the knowledge to better manage the political issues at the pragmatic boundary. The success of that boundary interaction was largely due to the researcher/boundary spanner's peripheral participation in a variety of communities of practice. She was able to identify herself and gain acceptance as a legitimate member in the community of Portovo citizens, nationals of the country, as well as in the community of academics, and of RIS practitioners to name but a few.

Once the legitimacy of the researcher as boundary spanner and peripheral participant in several relevant communities had been established, the EU Project Manager was able to realise his boundary spanning agenda by using the researcher as a boundary object. Thus, what qualified the researcher to act as a boundary object was her membership in several social worlds and her lack of a definite membership in either of the two project teams. In this sense she could be recognised as a potential coincident boundary object (Star and Giesemer, 1989) endowed with the properties of abstraction and accommodation (Wenger, 1998), which proved to be crucial to the achievement of understanding across the pragmatic boundary. It was by drawing upon

these characteristics of the researcher as boundary object that the members of both projects were able to identify with certain characteristics represented by the researcher and on that basis to gain trust and appreciation of her validity as another type of boundary object: a repository of knowledge. This overlap of boundary object functions provided her with a symbolic value recognisable to both parties of the interaction and made her useful for establishing a common reference for negotiating a new understanding.

Conclusions

There seems to be a significant research potential in the idea that, in addition to acting as boundary spanners, marginal people may also serve as boundary objects in cross-communal interactions. The empirical evidence presented confirms that multiple membership in different communities of practice supports individuals' capacity to act effectively as boundary spanners. A boundary spanner who is able to gain acceptance as a legitimate peripheral participant in relevant communities of practice may also gain the characteristics identified in literature as features of effective boundary objects such as abstraction, accommodation, representing, and transforming. These, in turn, give the individual the potential to serve as a repository and/or coincident boundary object.

The research findings reported here indicate that Star and Griesemer (1989) prematurely rejected the idea that marginal individuals might serve as boundary objects on the grounds that human reflexivity and active manipulation of the situation inhibit boundary object functionality. Rather, the evidence confirms the findings of Levina and Vaast (2005) that effectiveness of boundary spanners relies largely on their legitimate peripheral participation, legitimacy as negotiators on behalf of the field whose interest they represent, and inclination to engage in boundary spanning. All these factors were present in the interactions reported in the vignette suggesting that an effective boundary spanner can consciously allow herself to be treated as a boundary object. In such instances, the human reflexivity and deliberate exertion of influence upon the situation serve to enable the boundary object functionality.

Further research is required to confirm these observations and establish a reliable set of relationships and conditions under which human boundary objects may play an effective role in boundary interactions. A particularly promising avenue for research would be an investigation into the practices of ‘versatile experts’ acting in boundary spanning roles. Other examples of possible human boundary objects include: ‘ideal types’, such as ‘the customer’ or ‘the user,’ and ‘visionary objects’, such as inspiring leaders. The potential of individuals to bear the status of boundary objects independently of their membership in multiple communities of practice still awaits empirical confirmation, though an investigation of relevant marketing and leadership literature would undoubtedly shed some light on the feasibility of conducting such research.

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