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Strategy tools as boundary objects

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Introduction

The strategy literature has generated an array of strategy 'tools', such as core competences and scenario planning. While these are used extensively in strategy teaching and in strategic planning processes, we have few insights on *how* they are used in practice or of their consequences. Our thinking on tools is shaped by the growing strategy-as-practice perspective, which views strategy as a type of work that people do, not just a property of organizations (Whittington, 2003). Thus, we shift our attention to what actually happens when individuals use a strategy tool, rather than simply assuming their usage.

So far, current research has only focused on the intended 'textbook' purposes of strategy tools. We argue that we need to know much more about how these tools are used and for what purposes. Focusing upon actual use will offer insights into user's intentions *and* the implications of using tools for specific interactions. In particular, different users may employ the same tool not only in different ways but for different reasons. Practitioners may thus be less concerned about the 'proper' or 'improper' use of a strategy tool than with applying it in particular situations which appear to be appropriate. However, strategy tool use may also lead to unintended consequences. While the language implicit in a particular tool shapes its results, such as a report, the report's content may not be understood by individuals who are unfamiliar with that specific language. Hence, the use of strategy tools may constrain effective communication across organizational boundaries.

There is a literature on boundary objects, which examines how tools and artifacts span work boundaries within organizations (e.g. Bechky, 2003a, b; Carlile, 2002, 2004; Henderson, 1991; Star and Greisemer, 1989), that has not been incorporated into the strategy literature. We aim to build from this literature in order to better understand how strategy tools enable or constrain interaction across intra-organizational boundaries. The boundary objects literature is relevant to strategic organization because it helps us to understand a critical issue in the strategy process. Strategy processes are prone to interaction boundaries because of the hierarchical and distributed nature of organizing strategy tasks (Jarzabkowski, 2005); for example between senior and middle managers (Floyd and Lane, 2000; Mantere, 2005) and between corporate, divisional and strategic business unit levels (Ketokivi and Castañer, 2004). A boundary objects framework reveals how and why strategy tools are used in interacting across these boundaries.

Strategy tools

Based on existing research on strategy tools, we identified that: tools are not necessarily applied instrumentally; and that their use is shaped both by social and political dynamics between actors and by a strategy tool's design properties. Strategy tools are defined as 'numerous techniques, tools, methods, models, frameworks, approaches and methodologies which are available to support decision making within strategic management' (Clark, 1997: 417). Such frameworks include Porter's five forces, core competences and various other matrices and models that are typically taught in strategy classes and texts (Mazza and Alvarez, 2000). While we do not view strategy tools as strategy itself, they are part of wider strategizing activities. For example, despite intense criticism of formal strategic planning (Mintzberg, 1994; Schwenk and Schrader, 1993) recent empirical studies provide evidence

that it is still widely practiced by organizations and that strategy tools are an inherent part of the planning process (e.g. Grant, 2003; Rigby and Bilodeau, 2005).

Much academic debate assumes that strategy tools are used instrumentally for problem-solving and decision-making (e.g. March, 2006). While there is evidence that tools are indeed adopted with problem-solving in mind, empirical findings do not indicate that instrumental purposes are the sole, or even the most important reason for using strategy tools. For example, the assumption that managers adopt strategy tools to foster corporate performance has not yet been validated (Staw and Epstein, 2000). Rather, empirical research indicates that strategy tools are adapted according to the particularities of their use. Haspeslagh (1982), for example, illustrated that the BCG portfolio matrix was adapted to different sectoral contexts. Similarly, tools such as benchmarking were applied for multiple purposes beyond their remit, suggesting that strategy tools have sufficient flexibility to be adapted to a wide range of strategic tasks (Clark, 1997; Frost, 2003). Other studies have shown that strategy tools, such as Balanced Scorecard, may serve conversational rather than analytic purposes (Chesley and Wenger, 1999). For example, Hill and Westbrook (1997) found that while SWOT analysis is widely adopted in strategy discussions, the results of the analysis do not feed through into subsequent strategic decisions. These findings indicate that strategy tools are not necessarily used instrumentally to conduct analysis or solve problems.

Strategy tools also serve socio-political purposes. Most studies have addressed the use of strategy tools by top managers, finding that they are employed to have strategy discussions, for example during workshops (Hodgkinson et al., 2006) and other strategizing activities aimed at generating ideas (Hill and Westbrook, 1997). While tools provide a common language in which to have a strategy conversation (Barry and Elmes, 1997; van der Heijden,

2005), this does not necessarily indicate shared meanings. Rather, Grant (2003) pointed out that tools may also hamper shared meaning, particularly across hierarchical levels. He found that strategy tools can complicate information sharing, particularly between top and middle management, due to the way that they structure and shape information. Furthermore, politicized uses are found, as powerful players shape the outcomes that can be designated to particular tools in order to legitimate their own interests (Hill and Westbrook, 1997). For example, Hodgkinson and Wright (2002) showed that the CEO, due to his power and position, had a strong influence on the use of scenario planning tools amongst a senior management team and also on which scenarios were regarded as viable. The role of power dynamics in using tools to interact within and across levels is thus an important topic for future study. In particular, strategy tools appear to 'do' something in the strategy process, enabling or constraining shared strategy language and meanings according to the purposes and intentions attributed to them in use (Jarzabkowski, 2005). The socio-political situation in which strategy tools are embedded is thus critical both in shaping their use and also in the way that they shape strategizing activities.

Design properties are important in the selection and deployment of strategy tools. For example, both Clark (1997) and Stenfors et al. (2004) found that users prefer tools which are transparent and simple to use, rather than tools based on sophisticated mathematical functions. These empirical findings about the preference for simply designed tools that do not require specialist knowledge or skills, may be explained by three aspects of use. First, simple tools such as the SWOT analysis are considered more flexible, because they can be quickly grasped by managers and adapted to a strategy task (Frost, 2003) or conversation (Hill and Westbrook, 1997). Second, clearly designed tools such as the BCG matrix are easier to remember (Armstrong and Brodie, 1994) and so provide grounds for interaction about

strategy tasks (Worren et al., 2002), particularly for managers who do not frequently work together, or do not typically use tools. Third, strategists continue to draw upon established tools, such as Porter's five forces, because these are well known (Argyres and McGahan, 2000) and have technical, cultural and linguistic legitimacy that makes them easily appropriable (Campbell, 1997), even where they are subsequently adapted to the specific practices of an organization (Zbaracki, 1998). Strategy tools thus assume the status of an artifact; structuring information and providing grounds for interaction around a common tool that is easily recognizable by participants in a strategy task (Jarzabkowski and Wilson, 2006).

In summary, existing research substantiates that strategy tools are used in practice but offers only limited clues about *how* they are used. The common theme arising from current research is that strategy tools have significant boundary implications; the distributed nature of strategy processes across hierarchical, geographical and functional boundaries in the modern firm makes tools critical for spanning intra-organizational boundaries. Therefore, we propose the concept of boundary objects from the knowing-in-practice literature as a framework for explaining how strategy tools are used within the strategy process. From a knowing-in-practice perspective, tools are not reified objects that provide particular outcomes, but, rather, are focal points around which knowing-in-practice arises: 'we must see knowledge as a tool at the service of knowing not as something that, once possessed, is all that is needed to enable action or practice' (Cook and Brown, 1999: 388). The boundary objects literature provides comprehensive explanations of the role of specific types of artifacts in practice, which may be comparable to the role of strategy tools in practice. In particular, this literature focuses upon how meanings and actions are attributed to boundary objects in organizational interactions, which is informative for the role of strategy tools in strategy interactions.

Boundary objects

Boundary objects are artifacts that enable and constrain knowledge sharing across boundaries (Bechky, 2003a). There are three knowledge boundaries, syntactic, semantic and pragmatic (Carlile, 2002, 2004), which present different degrees of difficulty for sharing knowledge. Syntactic boundaries are the simplest, assuming that knowledge can be transferred between actors providing that there is a common syntax. In organizational terms, a syntactic boundary would be one at which specific contracting arrangements between divisions had been agreed, enabling an organization to contract efficiently within its internal supply chain (Sapsed and Salter, 2004). A semantic boundary is more complex because common meanings need to be developed in order to translate knowledge; for example, between a marketing department and a sales division, as they interpret what each other require in order to market and sell a product (Levina and Vaast, 2005). Pragmatic boundaries are the most socially and politically complex, as common interests need to be developed to transform knowledge at a pragmatic boundary (Carlile, 2004). For example, during periods of strategic uncertainty actors within different divisions might have different political interests about what constitutes the appropriate course of strategic action (Jarzabkowski and Kaplan, 2008). Boundary objects assist in the transfer, translation and transformation of knowledge across these syntactic, semantic and pragmatic boundaries (Carlile, 2002, 2004).

Not every artifact is a boundary object *per se*. Artifacts become boundary objects if they are meaningfully and usefully incorporated into the practices of actors working in diverse fields (Star and Griesemer, 1989). Boundary objects are defined as 'flexible epistemic artifacts that inhabit several intersecting social worlds and satisfy the information requirements of each of them' (Star and Griesemer, 1989: 393). Boundary objects also have a common identity across

fields. To provide this common identity, artifacts must have a symbolic structure that 'is common enough to more than one world to make them recognizable' (Star and Griesemer, 1989: 393). Thus, an artifact's flexibility is critical in determining how it will be used for sense-making by different groups (Henderson, 1991; Sapsed and Salter, 2004).

Levina and Vaast's (2005) differentiation between designated boundary objects and boundary objects-in-use clarifies some of the social and political dynamics of sharing knowledge across boundaries. Designated boundary objects refer to 'artifacts that are designated as valuable for boundary spanning, due to their design and properties' (Levina and Vaast, 2005: 342). Typically powerful actors are able to designate an artifact for use. For example, top managers, because of their status and position in the planning process, may designate a market planning tool as a key artifact to be used (Levina and Vaast, 2005). However, such designated boundary objects may or may not become boundary objects-in-use. Boundary objects-in-use are artifacts that have meaning and are useful for the work practices of different groups of actors, and which acquire a common identity across groups (Star and Griesemer, 1989). For example, Bechky (2003b) found that while engineers' blueprints of a machine were the designated boundary object within a manufacturing plant, prototypes of the actual machine became boundary objects-in-use because they had more meaning, and so were more useful, for the work being done by technicians and assemblers. How an artifact is used thus determines whether it becomes a boundary object-in-use. A boundary object-in-use may either be designated or may emerge from the interactions between participants, as they strive to share meaning across local contexts. This distinction between the designation and actual use of boundary objects illustrates that artifacts do not necessarily have 'proper' uses in practice, but rather that they may served different purposes for different users.

Conceptualizing strategy tools as boundary objects

The boundary objects literature helps to explain why, in practice, strategy tools: i) are not necessarily applied instrumentally; ii) may be flexibly interpreted; and iii) are shaped by the social and political context of their use. We conceptualize strategy tools as boundary objects that may enable or constrain interaction about strategy across intra-organizational boundaries.

Boundary objects, used effectively, enable integration of knowledge across boundaries, which explains why strategy tools enable sharing and integration of information about strategy within an organization (e.g. Chesley and Wenger, 1999; Grant, 2003). Sharing strategic information tends to occur within communicative episodes, such as discussions in strategy workshops (Dyson, 2004; Hodgkinson et al., 2006). We can thus understand why, after a strategic conversation, the results of the tools may not be absorbed in future strategy development (Hill and Westbrook, 1997); their purpose may have been to stimulate interaction and enable sufficiently shared meanings to move forward, rather than to provide the answer to a problem (Kaplan, 2008). This is particularly likely, given that boundary objects are perceived as useful when they are in use (Levina and Vaast, 2005) and, at other times may simply serve as a repository for particular aspects of shared knowledge and language until they are again brought into use (Star and Griesemer, 1989). Thus, strategy tools may be useful for facilitating social interactions between strategy participants. However, the analyses performed in a specific interaction may then simply be relegated to a report or document that has little relevance to ongoing strategy activities.

This boundary object interpretation of strategy tools extends our understandings about their possible rent-earning potential (see Staw and Epstein, 2000) and elaborates the finding that strategy tools are not always used instrumentally to attain an analytic output. If one important

use of strategy tools is serving as boundary objects that enable social interaction about strategy, we need to reevaluate the association between using strategy tools and firm performance. The most relevant performance evaluation of a strategy tool as a boundary object is in the context of its immediate use and the way that it enables necessary social interactions, rather than evaluating specific analytic outputs that advance firm performance. Tools that serve as boundary objects may have an indirect impact on firm performance because they enable integration of strategic ideas from multiple actors. However, direct correlations are not appropriate, indicating avenues for future strategic organization research into those performance indicators that may best evaluate the use of strategy tools as boundary objects.

The boundary objects literature helps us explain why strategy tools may be used differently in different contexts and why simple and flexible tools are valued by practitioners. Flexibility permits multiple interpretations (Sapsed and Salter, 2004), as the same tool may be attributed different meanings by different groups. Existing research indicates both that strategy tools are flexible, as the same strategy tool (e.g. BCG matrix) can have different meanings when applied for different purposes, by different individuals or in different contexts and also that simple tools (e.g. SWOT) are favored. It appears, as with boundary objects, that a tool must be sufficiently well known that multiple actors can recognize and use it, at the same time as having sufficient flexibility that multiple actors can attribute different meanings and interests to it (Seidl, 2007). The boundary objects literature thus enables us to focus upon the interpretative scope and flexibility of a strategy, as well as its legitimacy in the wider institutional context (Jarzabkowski, 2004), as a way of understanding how and why such tools are used as boundary objects.

Boundary objects not only enable interaction but also reveal boundaries within organizations, particularly those that are more complex than syntactic boundaries. Boundary objects are not always effective at generating shared understandings but may actually highlight the extent to which semantic (meaning) and pragmatic (political) boundaries constrain shared meaning and action in organizations (Carlile, 2002, 2004). These boundaries explain why strategy tools do not always enable strategic integration and, indeed, why strategic planning processes may experience communication breakdowns (Beer and Eisenstat, 2000). Semantic boundaries explain why the language of a strategy tool and the way that it structures information generate obstacles when shifting planning responsibilities from top to middle management (Grant, 2003). While the tool may enable shared meanings among one group of actors, top managers, it may also create barriers when communicating results to middle managers who have not been involved in selecting or using this tool (see Bechky, 2003a, b; Carlile, 2002). In particular, the strategic planning process may assign strategic responsibility for the selection and use of strategy tools to specific hierarchical levels and functions (Whittington and Cailluet, 2008), and so, inadvertently, create semantic boundaries to communicating strategy. In order for strategy tools to be effective at spanning semantic boundaries, it is important to ensure participation in their selection and use (Mantere and Vaara, 2008). This is because the information encoded in a strategy tool, such as a SWOT or BCG matrix, is not meaningful in and of itself. Rather, strategy tools derive meaning through the interactions in which they are used.

Pragmatic boundaries emphasize that position and status give some actors greater control over the selection and use of strategy tools. In particular, the concept of designated boundary objects versus boundary objects-in-use indicates that some actors have the power to designate a particular tool as a legitimate means for making strategy, and also to influence the outcomes

that will be acceptable from the use of that tool (see Hill and Westbrook, 1997; Hodgkinson and Wright, 2002). While control over which tools are designated as boundary objects helps to define some actors as strategists within an organization (Mantere, 2005), it also constrains those tools from becoming boundary objects-in-use. Less powerful actors will not have been involved in selecting tools, and the use of those tools may not reflect their interests. Indeed, powerful actors may use tools specifically to constrain the array of strategic choices. Such use of tools makes them less effective as boundary objects and serves to highlight pragmatic boundaries within the strategy process. Indeed, an important factor in applying a strategy tool as a boundary object is identifying whether strategic integration is being attempted across semantic boundaries, where it is necessary to generate common meanings, or pragmatic boundaries, where it is necessary to align different political interests. The association between types of boundaries and the particular uses of strategy tools, thus provides a topic for future strategic organization research.

Concluding remarks

In order to serve as a boundary object, a strategy tool needs to have meaning to all strategy participants and to bridge their diverse fields of strategy work. The boundary objects concept thus enables us to shift our focus to what happens when strategy participants use strategy tools to interact across organizational levels. As the actual use of tools, as opposed to their textbook explanations, has been largely ignored, future empirical research might frame strategy tools conceptually as boundary objects in order to analyze how they are used in practice.

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