Making Strategy Out of Everyday Tools: A Collective Bricolage Perspective

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ORIGINAL RESEARCH ARTICLE

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Abstract

In this article, we explore how non-strategy tools – which we call 'occupational' because they emerge from actors' daily work – allow managers to strategize. Specifically, we focus on the crafting process of such tools, or what we call the strategy tooling process. We take an organizational bricolage perspective to identify the resources that practitioners draw upon in the tool crafting process and the types of dialogues they engage in. Empirically, we draw upon our comparison of two longitudinal case studies to identify a process model of collective bricolage. Combining the literature on collective bricolage with strategy tools allows to cast light on the emergence of strategy from the bottom up. Our contributions are twofold. First, we identify different categories of repertoires and dialogues and highlight their dynamic interactions in the process of bricolage. Second, our study of dialogues broadens the practice perspective on tools beyond the discursive turn. This paper is also relevant for managerial practice at a time when a growing interest in a participatory approach to strategy requires an understanding of how occupational tools help carry out strategy at the operational level.

Keywords: *Strategy tools; Collective bricolage; Dialogue; Strategy emergence*

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Strategy tools play a critical role in the strategy process (Grant, 2003); they are defined as 'numerous techniques, tools, methods, models, frameworks, approaches and methodologies which are available to support decision making within strategic management' (Clark, 1997, p. 417). The diffusion, adaptation and use of formal tools such as Boston Consulting Group (BCG) matrix, Strength Weakness Opportunity and Threat (SWOT) analysis, Porter's five forces and Balanced Scorecard (Kaplan & Norton, 2001) are well documented in different streams of research, ranging from management fashion (Mazza & Alvarez, 2000) to strategy-as-practice (Jarzabkowski & Kaplan, 2015; Paroutis et al., 2015). Strategy tools are mostly used by managers who have received formal training in management, but the tools are often considered by other employees to be too conceptual and remote from everyday practice. Indeed, beyond the role of formal tools in the operationalization of strategy, researchers have also drawn attention to the use of mundane artefacts (Jarzabkowski et al., 2015; Kaplan, 2011) and tools linked to specific occupations. At a time when calls are increasing for a more participatory and open approach to strategy (Smith et al., 2018; Tavakoli et al., 2017), we argue that it is essential to consider the actual tools that practitioners are familiar with in their everyday activity, and through which they may interpret, implement or even formulate strategy. Such occupational tools contribute to both top-down and bottom-up strategizing (Leonard & Mcadam, 2002), yet there is little in the strategy literature about the role of these occupational tools even though research in other fields shows how such tools contribute to tactical strategy (Clegg et al., 2018; Herazo et al., 2012).

In this article, we are interested in how these non-strategy tools – which we call 'occupational' because they emerge from actors' daily occupation – help operational managers bring their strategic issues to the fore. Hence, we explore how occupational tools turn into strategizing tools. Specifically, we focus

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on the crafting process of such tools, or what we call the strategy tooling process. We take a bricolage perspective (Duymedjian & Rüling, 2010; Lévi-Strauss, 1966; Rüling & Duymedjian, 2014) to understand how organizational actors strategize with the available resources. Organizational bricolage allows us to explore the resources used, as well as the dialogues that take place as part of the collective negotiation over the tool. Accordingly, we ask the following research questions: what are the resources that practitioners draw upon in the tool crafting process? What types of dialogues do they engage in?

Empirically, we draw upon our analysis of two longitudinal case studies in two very different contexts – a large company in a traditional process industry and a young start-up in an emerging field – to identify a process model of collective bricolage. This study refines the literature on collective bricolage and strategy tools, specifically in relation to strategy emergence (Mintzberg & Waters, 1985). Our contributions are twofold. First, we identify different categories of repertoires and dialogues and highlight their dynamic interactions in the process of bricolage. We go beyond the traditional representation of dialogues as positive to show that counter dialogues are also a constitutive part of the strategy tooling process. Second, our study of dialogues broadens the practice perspective on tools which has so far focused more broadly on discursive practices (Rouleau, 2013). This article is also relevant for managerial practice at a time when a growing interest in a participatory approach to strategy requires an understanding of how occupational tools help carry out strategy at the operational level.

The remainder of this article is structured as follows: we first review the practice literature on strategy tools and collective bricolage. We then present our method. In the findings section, we use vignettes to narrate our two cases, with a focus on repertoires and dialogues. Finally, we present our process model and discuss our contributions in relation to the literature.

Tools to strategize

The use of strategy tools

Departing from a rationalist perspective (Ansoff, 1980; Ansoff & Sullivan, 1993; Clark, 1997; Porter, 2008) which considers that tools aid rational processes of decision-making, the practice perspective emphasizes the role of agency and looks at tools-in-use (Jarzabkowski & Kaplan, 2015). Scholars in this perspective outline how users adapt formal tools to their local organizational context (Jarratt & Stiles, 2010; Jarzabkowski et al., 2013; Spee & Jarzabkowski, 2011; Stenfors & Tanner, 2007), but also how tool affordances enable or constrain strategizing (Demir, 2015; Leonardi, 2015; Paroutis et al., 2015). Others highlight the symbolic and socio-political uses of strategy tools as they enable collective interactions between different occupational and hierarchical boundaries (Jarzabkowski & Wilson, 2006; Langley, 1989; Spee & Jarzabkowski, 2009). In this sense, they are boundary objects (Spee & Jarzabkowski, 2009) playing a practical and political role (Carlile, 2002). Practical, because they help establish shared meaning; political because they facilitate a process in which individuals can jointly create new organizational knowledge. Belmondo and Sargis-Roussel (2015, p. 91) further analyse the negotiation processes at work when a group of managers turn their individual uses of a strategy tool into a collective use. They characterize strategy tools as having three aspects – 'language, meaning and intention that must align with the users' own languages, meanings and intentions' – and describe the collective negotiations and disagreements that occur over these three aspects. A number of authors call for understanding collective action at the crossroads of practice and communicational perspectives (Arnaud et al., 2018); however, these approaches focus mostly on strategic texts and not on actual dialogues.

Table 1 describes the key works and contributions on tools in the strategy literature, pointing to the prevalence of formal strategy tools, and to a deliberate strategy carried out by top management.

In brief, over the last two decades, the practice approach has contributed great insights into the origin, uses and impact of strategy tools. It has brought to attention the role of agency in the implementation of strategy tools. Formal strategy tools remained the focus of interest of the practice approach until 2013 when a 'material turn' brought attention to the use of non-strategy tool in the practice of strategy (Arnaud et al., 2016; Demir, 2015; Jarzabkowski et al., 2013), and to the role of practitioners other than top managers.

The use of non-strategy tools

Some non-strategy tools have attracted the attention of practice scholars in the last decade. The seminal paper of Kaplan (2011) showed that generic tools such as PowerPoint documents actually contribute to strategy definition, while Arnaud et al. (2016) described how a local manager's material text production fosters employee support of company strategy. Beyond the tool itself, it is the way it is used that fosters collaboration and representation to create new strategic knowledge (Jarzabkowski & Kaplan, 2015; Paroutis et al., 2015). Dameron et al. (2015) call for more research on the role of materiality in strategy work, especially regarding artefacts, technologies, built space and human bodies. Demir (2015) further highlights the entanglement between actors'

Table 1. Strategy tools in a practice perspective

Author	Year	Type of tools	Main strategist	Main contribution
Langley	1989	Formal strategy tools	Top management	Beyond its rational and institutional purposes, the use of a strategy tool depends on the organization's structural configuration.
Jarzabkowski & Wilson	2006	Formal strategy tools	Top management	Importance of bricolage in the ways practitioners adapt tools to their own use.
Stenfors & Tanner	2007	Formal strategy tools	Consultant and top management	Depending on the context, managers expect a variety of outcomes from different strategy tools.
Spee & Jarzabkowski	2009	Formal strategy tool	Top and middle managers at the centre	Defining strategy tools conceptually as boundary objects allows us to analyse how they are used in practice.
Vaara et al.	2010	Formal strategy tool	Top management (mayor and executive group)	Study of the micro-level discursive and textual processes through which strategy documents impact strategizing and decision-making.
Jarrat & Stiles	2010	Formal strategy tools	Top management	The use of strategy tools depends on the interpretation of the competitive environment.
Kaplan	2011	Mundane tool (PowerPoint)	Top management	Interaction of discursive practice and tool for decision-making.
Spee & Jarzabkowski	2011	Strategy tool (written strategy document)	Top management	Strategy planning as a communicative process. Reciprocal relationships between formal strategy texts and agency of actors are involved in shaping the strategy text.
Belmondo & Sargis-Roussel	2012	Formal strategy tool	Top management	Managers collectively adapt strategy tools to the local context through three processes of language, meaning and intention negotiations.
Wright et al.	2013	Formal strategy tool	Top management	Understanding perceived usefulness of strategic tools requires exploring managers' internal logic in terms of how the tools meet their needs for everyday practical coping.
Jarzabkowski et al.	2013	Mundane material artefacts	Operational managers	Material artefacts allow abstraction and substitution, and both help in performing strategy work.
Jarzabkowski & Kaplan	2015	Formal strategy tool	Top management	Tool selection and implementation depends on contextual configuration.
Paroutis et al.	2015	Formal strategy tool and visualization tool	Top management	Tool affordances impact the process of knowledge production.
Leonardi	2015	Occupational tool	Top management	Tool affordances contribute to redefining strategy.
Demir	2015	Strategy tool and occupational tool (marketing)	Middle management	Concept of bundled affordances as a lens through which to study how strategy actors decide, choose and use strategy objects in their everyday activity.
Jarzabkowksi et al.	2015	Mundane and occupational tool	Middle management	Role of tools in creating a strategic space.
Arnaud et al.	2016	Text	Middle management	Texts help to make sense of strategy at the periphery, and to define metrics that satisfy the centre.
Martineau	2017	Occupational and strategy artefacts	N/A	Structuring dynamics of management artefacts evolves between rationalization and contextualisation.

strategic intent and the opportunities for action afforded by the strategic objects themselves. However, the use of these non-strategy tools is mainly studied at the strategic level or in relation to decision-making (Begkos et al., 2020). Even though some scholars acknowledge that practitioners use occupational tools to strategize, we still know little about how they came to be.

The use of occupational tools

A number of strategy scholars have paid attention to occupational tools in the practice of strategy. Clark (1997, p. 425) highlights the use of a wide range of tools to 'support strategic evaluation and decision making' and the need for 'recognition of the contribution of these tools'. Demir (2015) provides an

interesting perspective on how occupational tools interact with strategic tools in the practice of strategy; similarly, Leonardi (2015) shows that the use of occupational tools – such as a trend briefing book developed by a marketing team – contributes to redefining strategy. Martineau (2017) highlights that the use of managerial artefacts varies depending on the context. Yet, in these examples, strategy is a side effect; the tools are first of all used for an occupational purpose. Therefore, we need to turn to more operational fields to find out how occupational tools contribute to strategy. For instance, in project management, Clegg et al. (2018) underline the roles of project portfolios to deal with a great variety of strategic issues, such as governance alignment, long-term development and strategy formulation. Herazo et al. (2012) exemplify how projects can be used to align strategy with sustainable requirements. In the field of public policy, Begkos et al. (2020) show how professionals elaborate tools and practices out of their daily activity in order to strategize. In other fields such as quality control, total quality management tools contribute to realizing intended strategies and providing access to emergent ones (Leonard & McAdam, 2002). This operational literature highlights how occupational tools contribute to a bottom-up approach (Begkos et al., 2020; Herazo et al. 2012) and play a key role in aligning short-term objectives at the tactical, operational level (Leonard & McAdam, 2002) with the general strategic orientation of the firm (Herazo et al., 2012). All in all, this literature shows that strategy is also enacted through the use of tools related to a specific occupation, yet we know very little about how practitioners tinker with these tools to align their activity with the wider strategy.

This article draws attention to how managers rely on available resources (i.e., the tools of their trade) within everyday (strategic) activity. We look at how strategy is carried out through occupational tools, focusing on how such tools turn strategic, or what we call the strategy tooling process. Despite acknowledging the constructed nature of strategy tools (Clark, 1997), the strategy literature is lacking on the elaboration of tools, hence we turn to the literature on organizational bricolage. *Bricolage* in organization studies is mostly associated with modes of use. It is grounded in a practice epistemology, and it is part of everyday strategizing practice (Jarzabkowski & Wilson, 2006) where practitioners creatively tinker with strategy tools, putting them to unexpected uses.

Contribution of a bricolage lens to the practice perspective on tools

Bricolage, defined as 'making do with whatever is at hand' (Lévi-Strauss, 1966), has gained attention in organization studies (Boxenbaum & Rouleau, 2011; Duymedjian & Rüling, 2010; Phillips & Tracey, 2007; Rüling & Duymedjian, 2014). Baker and Nelson (2005, p. 333) offer an integrative definition of *bricolage* as 'making do by applying combinations of the resources at hand to new problems and opportunities'.

In a practice perspective, bricolage provides a useful lens for analysing how actors use artefacts in creative and adaptive ways. It involves taking existing tools and fashioning them to an individual's own ends, without particular regard for the original purpose of the tool (Baker & Nelson, 2005; Lévi-Strauss, 1966). It casts light on the making-do and 'artisan-like inventiveness' (De Certeau, 1984, p. xviii) by which actors produce their own intentful activities (Jarzabkowski & Wilson, 2006, p. 360). In this sense, bricolage is close to the garbage can model (Cohen et al., 1972) suggested by Jarzabkowski and Kaplan (2015) to explain how people select strategy tools: given a particular circumstance, they will pick the first tool that they know how to use that seems to fit the problem at hand.

Lévi-Strauss (1966) described the process of bricolage as involving three overlapping stages: stock or repertoire, dialogue and outcome.

Repertoire includes the material resources at hand, such as occupational tools, and also immaterial resources in the environment that are part of a practitioner's cognitive template (linked to education, personal and professional experiences).

Dialogue, according to Lévi-Strauss, is a solitary, introspective activity in which the bricoleur 'interrogates all the heterogeneous objects of which his treasury is composed to discover what each of them "signify" and so [could] contribute to the definition of a set which has yet to materialize' (Lévi-Strauss, 1966, p. 12). Finally, outcome refers to the final tool crafted, which still shows the bits and pieces from which it was assembled, thus reflecting the underlying process.

Collective bricolage (Rüling & Duymedjian, 2014) explores the processes through which heterogeneous groups of people or teams working under conditions of uncertainty complete a task. They recommend that researchers identify the specific characteristics of the resources used and the coordination mechanisms – such as the role of dialogues – that enable bricolage across different occupational communities. Available resources can be material, such as artefacts, or physical, such as people with specific skills (Baker & Nelson, 2005; Ciborra, 1996; Garud & Karnøe, 2003), but also socio-cognitive: 'the collectively held knowledge about how a task is performed and how activities advance' (Bechky & Okhuysen, 2011, p. 241).

Contrary to Lévi-Strauss, in collective bricolage, researchers refer to real dialogues between people. Dialogue – across hierarchy and occupations – enables mutual adjustment. For instance, Rüling and Duymedjian (2014, p. 106) show that in the production of digital visual effects (VFX), the final outcome is 'generally the result of ongoing dialogue between the director, the VFX supervisor and the

various teams and individuals involved'. More recently, Parmentier-Cajaiba et al. (2021) have shown how new routines are created via entrepreneurial bricolage based on collective work. They emphasize the collective nature of entrepreneurial bricolage through different types of dialogues and the process of elaborating new resources or transforming resources (Desa, 2012).

Boundary objects are another important coordination mechanism (Rüling & Duymedjian, 2014). Boundary objects have different meanings in different social worlds; they act as a means of translation (Star & Griesemer, 1989) between communities. Boundary objects enable dialogue and create the conditions for negotiation and coordination (Cartel et al., 2017). While the literature tends to depict boundary objects in a positive light, Carlile (2002) reminds us that boundary objects can be 'bad' when individuals within different functional or occupational boundaries fail to establish a shared syntax or language and therefore to transform current knowledge into new knowledge by straddling boundaries.

These works have highlighted convincing examples of collective bricolage focusing on the nature of resources and on coordination mechanisms. Yet, dialogue, an essential feature outlined by Lévi-Strauss (1966), needs to be further delved into. While managers' ability to creatively tinker with strategy tools is acknowledged (Jarzabkowski & Wilson, 2006), we still know little about the strategy tooling process itself. In this article, combining the practice perspective on tools with collective bricolage, we aim to dig into the strategy tooling process. We shall identify the types of resources that managers draw upon in crafting a tool, and the types of dialogues they engage in. Ultimately, our aim is to understand how resources and dialogues interact dynamically to help craft a tool.

Method: A comparative case study of strategy tooling

Our research is based on the comparison of two longitudinal case studies in two industries: cement and pesticides. Our case-study approach serves both a theory-building and an illustrative purpose (Siggelkow, 2007). It allows for the emergence of a theory which develops 'recognizing patterns of relationships among constructs within and across cases and their underlying logical arguments' (Eisenhardt & Graebner, 2007, p. 25). The comparison of the two cases allows us to carry out a cumulative analysis in order to propose a generic model synthesizing the patterns identified in each case (Garreau, 2020). The choice to study these two cases together came about following conversations

Table 2. Presentation of the cases

	Agronate	Constructor
Field	Biopesticide, emerging field	Cement, traditional, process industry
	Founded in 2002	Founded in 1833
Type	Start-up	Multinational company
Strategic challenge	Abiding by the European directive on pesticide control in order to sell products on the EU market => developing competence in the European registration process of biopesticide products	Group performance improvement and cost-reduction programme => standardizing product quality control procedures across the company
Strategy discourse	Growth based on two pillars: commercial development and European registration of products	Growth through improved plant performance: transfer of know-how and best practice
Main actors involved	- CEO	- VP Product and Quality at Technical Headquarters
	- Registration, production VP	- Quality control experts in regional technical centres
	- Experts: registration middle managers in registration department	- Plant lab managers
Source of strategic change	External: European Pesticides regulation enforcement:	Internal: 'In order to produce an additional 13 to 15 million tons with a minimum level of investment, we are further boosting the productivity and reliability of our plants, through the systematic application of operational models'. (Company Website)
	Dir 91 414 CE & Dir 2001-36 CE / ISO /ASTM	
	National regulation	
Tools crafted to deal with strategic change	The European pesticide dossier containing all the elements needed for assessing the quality of the active substance (AS) and product submitted for approval	Quality Technical Standards (QTS) aim at providing corporate 'meta' standards encompassing national and international standards for product quality

CEO, Chief Executive Officer; EU, European Union; VP, Vice President.

between authors 1 and 2 at the end of their theses. They realized that quite strikingly, they had observed very similar phenomena despite the different company contexts. This triggered an abductive process of comparing and contrasting the cases, and based on observations, making suggestions in relation to existing literature (Avenier, 2010; Bamberger, 2019; Lorino, 2018).

In the two cases, the researchers carried out collaborative research (Adler et al., 2004; Shani et al., 2007) and were involved in the elaboration and diffusion of a tool in response to a strategic challenge. The main actors were occupational managers who sought to develop a tool that stemmed from their work activity and that would increase their strategic importance within the company.

We present in Table 2 the main characteristics of our cases.

The two cases differ in terms of industry, size, age and type of strategic challenge. Exploring the same phenomenon – the strategy tooling process – in two different contexts allows us to highlight the general conditions, as well as specific boundary conditions, for successful collective bricolage, i.e., the development of a tool that serves strategizing. It allows patterns in the data to be compared and contrasted more easily and provides a stronger base for theory building (Eisenhardt & Graebner, 2007; Yin, 2009).

Case 1: Constructor, creating meta-standards to improve performance

Constructor is a global company in the cement industry. Constructor shares the characteristics of global organizations (Bartlett & Goshal, 1989): it is centralized, and knowledge held at the centre is considered superior. Knowledge developed at technical headquarters is diffused in a top-down way through the regional technical centre experts, who are in charge of sharing the methods and best practice to the plants in their area. At the time of this study, a cost-reduction programme aimed at saving €450 million over the following 5 years was launched. The 'Excellence' programme aimed to reduce fixed costs while improving plant performance. The strategy discourse emphasized the importance of knowledge management for achieving these objectives.

Author 1 was a part-time member of the technical headquarters Knowledge Management team. She was involved in the Product Quality department initiative to standardize methods for product quality control in the group's 150 plant labs in line with the group performance improvement strategy. This consisted of capturing the tacit know-how of lab operators in order to produce written procedures. The object of study was the crafting process of these operating procedures known as Quality Technical Standards (QTS).

Case 2: Agronate – Abiding by the European regulation on pesticides

Agronate is a small company in the biocontrol industry. This nascent industry offers biopesticide substitutes for chemical pesticides. The development of these niche products is mainly carried out by small companies. However, the rapid growth of the biopesticides market[1] has attracted large agrochemical companies such as Bayer, members of the International Biocontrol Manufacturer Association (IBMA).[2]

In Europe, a major change in the environment of the biopesticide industrial segment occurred in 2001. The 91/414 European Directive on pesticide control was extended to biopesticides (2001/36 commission directive). European biocontrol ventures were suddenly required to register their product through an overarching regulation that had been designed for chemical firms. As such, this regulation was not adapted to the properties of biocontrol products. This environmental change led to major strategic change for biocontrol companies. The case of Agronate shows how the registration team[3] crafted tools in order to comply with the European Community (EC) directive.

Author 2 was hired as a researcher to work on the topic of product registration. She was in charge of implementing and developing the registration activity. The object of the study was the crafting process of a European biopesticide dossier.

Data collection

Both studies are the result of a 3-year immersion in the field. The two authors conducted in-depth processual and longitudinal studies (Langley, 2007). They relied heavily on ethnographic techniques to collect rich data as the events unfolded. The data collected are summarized in Tables 3, 4 and 5. The two studies can be considered as collaborative research (Shani et al., 2007). Both authors were working within the company and carried out a number of operational tasks in relation to their object of study. Both authors kept a field diary in which they kept track of events and of their involvement both as a researcher and as a practitioner.

We provide a detailed description of the data collected in the two cases and highlight the position of actors regarding their proximity to the locus of strategic decision-making.

1. The biopesticides market reached $3.7 billion in 2015 and the expected growth rate for the period 2016–2021 was around 14.1%. In comparison, the synthetic pesticide segment is expected to grow over the same period at a rate of 4.8%. http://www.reportlinker.com/p01414091-summary/Global-Markets-for-Biopesticides.html (retrieved on 9 Feb 2021).

2. https://www.bayer.fr/bayer-un-acteur-engage-du-biocontrole (retrieved on 9 Feb 2021).

3. The 'registration team' refers to the people at Agronate involved in the activities of compiling and presenting the information necessary for the launch of products on the European market.

Table 3. Summary of data sets

Type of data	Agronate	Constructor
Interviews	20	21
E-mails	1013	Not applicable
Author's diary	3 years, 75 pages	3 years, 150 pages
Internal documents	6	91
Type of observation	Collaborative research	Collaborative research

Table 4. Data collection at Constructor

Type of data	Name	Field of occupation	Job function and hierarchical level	Duration
Interviews	Pierre	Quality	VP	2 interviews, about 1 h each
	Carmen	Quality	Quality engineer, head of Labnet	2 interviews
	Ivan	Quality	Quality engineer, Europe & Africa region	55 min
	Benoit	Quality	Quality engineer, head of Quality Department, Europe & Africa region	45 min
	Simon	Quality	Lab coach, Europe & Africa region	45 min
	Patricia	Quality	Quality engineer, Europe & Africa region	65 min
	Tatiana	Quality	Quality engineer, Central Europe & Middle East	45 min
	Micha	Quality	Lab coach, Central Europe & Middle East	56 min
	Yasmine	Quality	Plant quality manager, Jordan	1 h
	Eric	Operations	Head of External Relations, Jordan, Egypt	35 min
	Emma	Quality	Quality engineer, Latin America	40 min
	André	Quality	Quality engineer, Asia	45 min
	Maniam	Quality	Lab coach, Asia	40 min
	Louis	Quality	Lab coach, North America	1 h
	Marie	Quality	Quality engineer, head of Quality Department, North America	52 min
	Jean-Pierre	Knowledge Management	Head of KM Technical Division	2 formal interviews (40 min each) and many informal conversations
	Nicolas	Knowledge Management	Member of KM team in charge of quality initiative	1 formal interview (1 h) and many informal conversations as Author 1 shared his office
	Bernard	Operations	VP, Head of Technical Division	35 min
Collaborative research: meetings and informal conversations in line with the operational task of supporting the KM/quality initiative. Data reported in field diary.			Quality experts meeting, North America	3 days
			Product Quality Managers meeting, France	3 days
			Plant training session, France	2 days
			Plant training and coaching session, Jordan.	3 days

Data analysis

Data analysis occurred in three main stages in which we moved back and forth between our empirical data and bricolage literature to reconstitute the strategy tooling process.

Step 1: Sequencing the chronological narratives

We started from the existing chronological account of each case. Author 1 had written a monograph of her case which narrated the unfolding of the different plots following Ricoeur's (1983) concept of emplotment (Corbett-Etchevers & Mounoud, 2011), while Author 2 had created a visual map depicting the course of events (Langley, 1999; Parmentier-Cajaiba & Cajaiba-Santana, 2020). We used abductive reasoning to code our data into NVivo, progressively comparing the unfolding of events across our two cases. This step allowed us to identify two phases in the strategy tooling process: recognition of a strategic issue and crafting the tool. Table 6 presents the two phases of the tooling process.

Table 5. Summary of data set at Agronate

Type of data	Name	Field of occupation	Job function and hierarchical level	Duration
Interviews	Casper	Founder	CEO then VP International Development	1 h 45 min
	Michael	Founder	CEO then VP Production	1 h 15 min
	John	Founder	Registration director	2 h 30 min Close collaboration
	Billy	R&D	R&D director	2 h Working relations
	Priscilla	Administration	Administrative director	1 h
	Allan	R&D	Licensing *(Scientific Board)*	1 h 15 min
	Barnard	Registration	Registration *(Scientific Board)*	2 h 30 min Many collaborative sessions
	Bill	R&D	Biocontrol specialist *(Scientific Board)*	1 h 30 min
	Jack	Market & strategy	Pesticide Market Development *(Scientific Board)*	1 h
	Mark	Strategic Marketing	Head of Marketing and Distribution	2 interviews 1 h 30 min and 1 h 45 min Working relations
	Flore	Registration	Registration PM	1 h Working relations
	Chris	R&D	R&D PM	50 min + informal discussion and working relations
	Isabel	Communication	Communication PM	45 min Working relations
	Tiphany	R&D	R&D PM	1 h 10 min Working relations
	Isabelle	R&D	R&D Technical staff	1 h
	Maryline	R&D	R&D PM	52 min
	René	R&D	Head of KM Technical Division *(Public Research Partner)*	45 min
	Peter	Production	Production PM	40 min
	Celia	Production	Production PM	50 min
Collaborative research: meetings and informal conversations in line with registration activity, and with external actors. Email database: composed of written exchanges around email negotiation.			Registration expert Informal conversation	30 min
			Informal conversations and observation in industry meetings	6 days
			Informal talk with production and commercial teams	Main work place of the researcher
			Observation production research centre and informal conversation	1 day

CEO, chief executive officer; KM, knowledge management; PM, project manager; R&D, research and development; VP, vice president.

Table 6. Phases of the strategy tooling process

Phase	Description
Recognition of a strategic issue	Creating awareness, among the occupational communities and within the company at large, of a strategic issue
Crafting the tool	Negotiating the elaboration of the tool within and beyond the occupational community

Step 2: Thematic coding of the material according to the bricolage framework

While describing our cases, we noticed that in each phase, the main actors drew on certain types of resources and engaged in dialogue with different stakeholders in order to advance their strategic agenda. Therefore, in order to dig deeper into the tooling process, we turned to the literature on bricolage.

Figure 1. Phases of the strategic tooling process

Understanding what is going on in terms of bricolage means paying attention to the significance of each element picked by the *bricoleur* (Lévi-Strauss, 1966): the resources, or in Lévi-Strauss' words, *repertoire,* as well as to *dialogues* on how to use the resource at hand.

Accordingly, each author went back to her narrative and, within each phase of the tooling process, deducted coding categories based on repertoire and dialogue. We then compared our coding in order to fine-tune our initial framework with the data set. We focused on the bricolage practices, on their commonalities and differences in order to generalize out of this two-case comparison.

In a final round of coding, we further refined our coding scheme. As a result, we broke the concept of repertoire into four subcategories: organizational culture, regulatory, occupational and managerial. Similarly, we identified five different types of dialogue: reflexive conversation, within occupational community, cross-occupational community, cross-hierarchical dialogue and counter dialogue (Table 7).

Step 3: Identification of sequencing triggers

We went on describing our cases through the two stages of the tooling process – recognition of a strategic issue and crafting the tool – and highlighted the use and implementation of elements of repertoire and dialogue. We conducted an axial analysis (Charmaz, 2014) comparing similarities and differences at each phase. We observed similarities between the two phases, thus pointing to a generic strategic tooling process. Specifically, we noted that the trigger element between each phase was the creation of an object: an intermediary tool in phase 1 which leads to the elaboration of the final object in phase 2 (Figure 1).

To conclude, our analysis led to the characterization of the strategy tooling process as the combination of different types of repertoires and dialogues within and across occupational and hierarchical boundaries.

Findings

This section describes the two cases according to the two stages of the tooling process: recognition of a strategic issue and crafting the tool. We highlight the use and implementation of elements of repertoire and dialogue at each phase. For each case, we sum up the highlights of phases 1 and 2 in the form of vignettes, and based on the cumulative analysis of the elements we identified in each case, we draw up a generic strategy tooling process model (Garreau, 2020).

Vignette 1. When lab performance turns strategic

For the newly appointed Product Quality VP, the strategy discourse on performance improvement echoed increasing complaints about the poor reliability of plant laboratories' measurements. His first action was to create LabNet, a working group gathering lab experts from the Group's regional technical support centres. 'We asked which KPIs were available to measure our laboratories' analytical performance. We had none, so we developed a lab accuracy index'. (Interview with head of LabNet, 20 June 2006)
The Lab Accuracy Index (LAI) was developed using a method familiar with lab professionals: a round-robin test or inter-laboratory test. The group's 150 plant labs analysed the same product sample using the same method. The results were then compared to the reference sample provided by the group central lab. This first benchmark revealed that one-third of the plants were below the reference level.
The LAI ranking was presented in a general meeting involving all heads of division. As a result, lab performance was added to the list of strategic priorities. The Quality VP later acknowledged: 'You need a kick to create awareness. Sometimes, it's dramatizing a quality accident, or poor LAI results'. (Diary, product quality network meeting)

Phase 1: Recognition of a strategic issue

Case 1: Constructor

In Vignette 1, the quality community draws on three repertoires: occupational, managerial and organizational repertoires. The round-robin test belongs to the quality occupational repertoire. It helps lab experts make sense of the performance issue in terms of their work activity. The KPI draws upon two other repertoires. First, the managerial repertoire: KPI is a popular tool which links performance to strategic goals. Second, the particular insistence on performance is part of the Constructor organizational culture repertoire.

Dialogue occurs first among members of the product quality activity as the community devises the tool, and then with top management. The Lab Accuracy Index (LAI) is communicated to top management as a Key Performance Indicator (KPI). We can observe here the importance of naming. The transformation of a lab practice (round-robin test) into an organizational concern occurs through the designation of the LAI as KPI. Shared language allows those involved to switch repertoire and creates common ground for dialogue outside the occupational community. This phase highlights how naming the tool turns it into an intermediary object between different communities, thus creating a symbolic space for dialogue. In this phase, the convergence of three repertoires sets the scene for collective dialogue beyond occupational communities.

Vignette 2. When red tape turns strategic

Author 2 started by gaining an understanding of the work to be done: 'I am studying the registration procedures on the European Commission websites and the French ministry. I need to find common transcripts [of the European procedures]'. (Diary). She then contacted registration practitioners. From then on, she was convinced that the company needed to align its R&D and product lines with registration requirements. This required adapting the existing registration procedures to the firm's products and R&D activity. She realized that the choice of a rapporteur member state (RMS)[4] would have tremendous consequences on the firm registration activity. In order to convince top management, she wrote a report containing consolidated data on registration processes '[…] several variables are still to be taken into consideration […]. The first variable concerns the choice of a rapporteur member state (RMS) […] it seems that [RMS1] and [RMS2] are more efficient for product assessment [than is our local administration]. […] we need to carry out a benchmark to know exactly what we get in terms of services and waiting time'. (Internal document transmitted to VPs by email)

Case 2: Agronate

Vignette 2 shows two interesting aspects: first, the integration of a new repertoire (registration procedures) that becomes occupational. Second, a shift from the occupational repertoire of registration to the managerial one which emphasizes concerns in terms of cost, processes, delay and services over the technical skills of RMS. This shift to the managerial repertoire allows those involved to get the attention of the top management and highlights the strategic importance of registration.

This phase also features a variety of dialogues. Dialogues occur with external registration experts to acquire knowledge. Dialogues also develop across hierarchies, which leads to the shift from the registration to the managerial repertoire. Hence, we identify two roles for dialogues. First, dialogues within the occupational arena help integrate knowledge. Second, the shift from the occupational to the managerial repertoire creates a symbolic space for talking about registration across the hierarchy. Crossing hierarchical boundaries allows registration to be recognized as strategic. This phase ends with the creation of an intermediary tool that supports dialogues about registration activity (Table 7).

The comparison of our two cases highlights the role of dialogue in creating a convergence of interest between occupational and strategic levels. Intermediary tools are a first outcome of the interplay between the managerial repertoire and dialogues; they bridge the different fields of activity and contribute to raising occupational matters to a more strategic level.

[4] 'Rapporteur Member State' (RMS): An EU country doing the initial scientific and technical evaluation of an active substance dossier. Source: https://ec.europa.eu/food/plant/pesticides/approval_active_substances/application_report_en (retreived on 1 May 2020).

Phase 2: Crafting the tool

Case 1: Constructor

The LAI turned KPI is an intermediary tool that enables collective dialogue and allows both the quality community and top management to make sense of quality issues. In Vignette 3, we describe the crafting of the tool that is intended to solve the labs' quality problem. At Constructor, knowledge codification in the form of best practices is seen as a key driver for group performance. Over the years, the group's technical know-how has been captured in the form of Best Practices available on the intranet. Quality engineers and lab analysts are also familiar with quality norms such as ISO 9000 procedures and regulatory quality standards enacted by the EU or the US (American Society for Testing and Materials (ASTM) standards).

Dialogue is essential, as writing the standard is a collective effort. Once the document was ready, another challenge emerged.

This second phase is extremely complex as the crafting of the tool relies on different repertoires, and different types of dialogues with a multiplicity of actors. It alternates between convergence and divergence. Vignette 3 first highlights the convergence of the organizational and occupational repertoires in the solution to the lab problems: the codification of procedures. This shared practice brings legitimacy to the initiative at both the organizational and occupational levels. It highlights the role of the organizational repertoire, which represents the group strategy discourse, as an important resource in the tooling process. However, Vignette 4 shows that dialogue within and outside the occupational community soon turns into disagreement. Within the Lab Community, negotiations over the contents of the document prove tiresome. Cross-occupational dialogue is characterized by divergence over the naming of the document. Such reactions illustrate the failure of collective dialogue. We labelled such instances as 'counter-dialogue'. Unlike phase 1, where shared language created space for dialogue across the occupational communities, in phase 2, disagreement over the name created divergence as the organizational and occupational repertoires (quality and KM) were at odds.

Case 2: Agronate

Phase 2 covers the creation and implementation of procedures to go through the first European registration dossier. The creation of this tool is strategic in the sense that it organizes the registration process and sets a template for further registration rounds. Registration is a central activity for drugs and pesticide market access. As such, it impacts research and development (R&D) strategy by linking the opportunities to market to the internal R&D capacity. As

Table 7. Coding categories for repertoires and dialogues

Bricolage categories	Codes	Definition	Representative quotes, activities or events
Repertoires	Occupational	Routines and knowledge that are related to the various occupational activities represented within the company	Constructor: Round-robin test *"Every year all our plants labs run round-robin tests using the same product sample"* Constructor: ISO quality standards: *"What is good about the ISO system is that there is an obligation of means"* (lab quality expert) Agronate: Norms and Good laboratory practice (GLP) *"The growth inhibition trial of Alguae was realized under OECD 201 and GLP"* Agronate: European Directives *"[…] for micro-organisms, the elements necessary for the preparation of the dossier for active substances are described in Dir 2001136."*
	Managerial	Vocabulary or practices vehicled by management fashions (business education, consultants, practices) and used by managers and top managers within their managerial activities	Constructor: Performance *"Performance is always measured (…) All of our operations use systems and tools in their daily management: common languages, KPIs, bench-marking, best practices, knowledge and information management systems (…)"*. Constructor Principles of Action. Agronate: Coordination *"As agreed yesterday at the end of the meeting, you will find attached a document summarizing the tasks to be performed and the persons responsible for each item."*
	Organizational	Set of values and ways of doing that are specific and recognized as such by actors of a given organization	Constructor: *"The idea is to present the QTS as a path toward performance"* (Quality VP) Agronate: informal coordination and network development are valued in relation to registration activities
Dialogues	Within occupational community	Dialogue occurs between people from the same occupational background (horizontal adjustment)	Constructor: Product Quality Managers meeting *"We should use the example of a plant in Asia to show that implementation is possible"* (North American Quality Expert) Agronate: Mail exchange within registration occupational team *"I think we should start by taking a complete overview of the European approval process together, the current status of our application and the provisional planning for the preparation and submission of this application."*
	Across occupational boundaries	Dialogue refers to exchanges between people from different occupational backgrounds	Constructor: Meeting between Quality VP and KM team: *"We must define who does what [Quality/KM departments). I feel that there's something going on, but I'm not being told about it."* Quality VP to KM manager Agronate: Mail exchange between registration and scientist: *"I spoke to Mrs. S. on the phone about our agreement on the new protocols used. She told me that the adjuvant for all the solutions would be the [product name], it seems that this is very well known in microbiology and used for all types of cells, so you must know... I let the experts do the work!"*

Table 7 *(Continued).* Coding categories for repertoires and dialogues

Bricolage categories	Codes	Definition	Representative quotes, activities or events
	Cross-hierarchical	Dialogues occur across different hierarchical levels, within or outside the occupational community	Constructor: Quality expert *'We presented the budget (€3 M) for QTS implementation to the highest level of plant management to make sure they will not cut that [expense] line on the budget'.* (Quality Expert) Agronate: Mail exchange with registration scientific board *'It is interesting to work in collaboration with the British as Rapporteur Member State (RMS). That is the proposal I will submit tomorrow to [CEO]'.*
	Counter dialogue	Dialogues that express resistance or reluctance to use the tool	Constructor: Plant operators doubt the quality experts' operational expertise: *'These people, did they ever work in a plant?'* Plant management: priority is cost-cutting *'In plants, when you tell them you have to apply the QTS, they ask you "Why? What is the cost benefit?"'* (Quality Expert referring to Plant Management Team) Agronate: Mail exchange between registration and CEO *'Apparently registration is not a priority for everyone since I only received feedback from J. (registration) and C. (not so central scientists at the moment)'.*

CEO, chief executive officer; KM, knowledge management; VP, vice president.

Table 8. Synthesis of repertoires and dialogues in phase 1

	Repertoire		Dialogue	
	Constructor	Agronate	Constructor	Agronate
Phase 1: Recognition of a strategic issue	Occupational: Quality Managerial: KPI Organizational Culture: Performance	Occupational: Registration Managerial: Cost Analysis	Within-and-across occupation and across hierarchy Dialogues and naming create convergence	Within occupation and across hierarchy Dialogues create convergence
Intermediary tools: Lab Accuracy Indicator- KPI (Constructor) /Cost Comparison Table (Agronate)				

KPI, Key Performance Indicator.

such, the registration dossier is a tool both to organize the activity of R&D and to aid management in strategic decision-making. Its elaboration requires collaboration between departments.

Vignette 5 highlights a turning point when dialogues cross disciplinary boundaries and increase in number and diversity. Dialogues organize the work to be done by probing into existing occupational repertoires or by defining new tasks. These dialogues imply new practices for actors in the company and allow the capability and resources of each team and the eventual need for external resources to be assessed.

In this phase, the repertoire draws on occupational domains (microbiology, agronomics, chemistry and registration) and associated resources. This phase consists of formalizing the occupational knowledge of the firm in a format that is consistent with institutional requirements. The following quotes show that willingness to cooperate is lessened when it modifies the operational routines and knowledge patterns, or when it jeopardizes the skills of the R&D team. At this stage of the strategy tooling process, dialogues are mostly cross-occupational and at the same hierarchical level. In this phase, we also notice the rise of counter dialogues denoting local resistance with regard to organizational changes required by registration activity.

Vignette 3. Negotiation within occupations

When it came to finding a solution to the labs' problem, the quality experts naturally turned to an element that was part of the quality community as well as the company repertoire: the codification (i.e., writing) of operating procedures. 'Our document mustn't repeat what is already in the EN or ASTM standards. It has to be more precise, it must allow the alignment of all the methods used in the group, so we can compare our plant labs' (Diary – quality experts' meeting). Codification involved lengthy dialogues and negotiations: 'We spent 10 hours a day, locked up in a conference room, going over the document line by line' (Interview with Carmen, head of LabNet). Another participant recalls the pressure to agree on the contents: 'We were locked up in Montreal for a whole week and we had to finish the document [QTS] by the end of the week. Of course, we made political concessions'. At one of these meetings, one of the quality experts suddenly addressed author 1: 'You think we're getting into too much detail? But that's how plant operators are going to challenge us' (Diary). Eventually, the experts managed to agree on the contents of the document.

Vignette 4. Negotiation across occupations

In line with their occupational repertoire, the experts named their document 'Quality Technical Standard'. However, the organizational repertoire refers to such documents as 'Best Practices'. The KM team urged the quality community to switch to the name 'Best Practice' but Carmen, the head of the working group, refused to comply. She explained: 'We don't call it Best Practice anymore, that's forbidden! I was stubborn: if we call it "Best Practice," plants will never use it. We have to put forward the idea of standard – a standard, that's mandatory' (Interview with Carmen). To justify her decision to stick to the name 'Standard', Carmen called upon cognitive arguments that belong to the occupational repertoire. 'People in plants are used to reading standards. […] What we want is that when people look at this document, they have in mind, even unconsciously, the idea of a standard' (Diary). Eventually, a compromise was found. In a letter from the head of the Technical Division to all Business Unit Managers, he explained: 'These Quality Technical Standards for laboratories are mandatory best practices'.

Vignette 5. Implementing collaborative work

The registration team wished to implement joint elaboration of the dossier and organized face-to-face talks and group meetings with the different teams (R&D, production and marketing teams, mostly) to provide them with a big picture of the legal and practical concerns. The status of the occupations is different; registration is a new activity, whereas microbiology is considered as a core competence of the company. Dialogues about the creation of the registration dossier aim at launching a new multidisciplinary work organization: 'The *tier* of the dossier was transmitted to the teams […] on August 28th. During this meeting, we attributed the missions to the various teams: microbiology, quality, production, and agronomy' (Internal document transmitted to VPs by email).

However, in the end, R&D and the registration team agreed on the contents of the file.

Our two cases show that the tool crafting process relies on two major elements: the different repertoires available, and

Vignette 6. Excerpts highlighting the fight over knowledge control

Initial cooperation soon turned into disagreement over the registration team's requests. The need for creating specific documents was not perceived as important by R&D. The registration team had to remind both top management and R&D teams of the importance of creating specific documents '[…] to make sure that our studies are accepted by authorities we have to enclose a quality certificate […] it is a quality procedure. […] I know that it is tedious but, in the future, we will have to systematically transfer quality certificates for each of our studies […]' (Email – Registration Project Manager to VPs and R&D team members).

Counter dialogues highlighted the conflicts between occupations: 'Mickael (president) asked me what is going on with Chrystel (scientist), I am trying to translate her studies, and it is not easy, […], she must understand that she does not work for herself, she has a responsibility to communicate' (Email, Registration Project Manager to VP registration).

R&D's reluctance towards registration was confirmed in retrospective interviews that pointed to power and legitimacy issues between scientists and the registration team: 'She (scientist) is frustrated because she does a job, she makes things, she provides scientific results, and somebody else takes it from her to say to the institutions: "Here is what I can present you"' (Interview with R&D Director).

Counter dialogues also emerged within the registration occupation. These counter dialogues stem from the different knowledge patterns related to the chemical and biological fields. Consultants offered to carry out the creation of the dossier, but this was not acceptable from the company's point of view. 'We told them that […] the company strategically needs to keep control of registration. The recent changes in the regulation of pesticides makes [sic] us equals in terms of how to organize the dossier […]' (Minutes of meeting with consultants – transmitted to the Marketing Director).

Despite conflicts between occupations in the company and with the consultants, agreement over the contents of the dossier eventually emerged. 'The registration team did good work; we learned how to register products. I am convinced about that now (…)' (Interview with the VP Marketing).

dialogues within and across occupational and hierarchical boundaries. In both cases, we pinpoint the beginning of the strategy tooling process to a turnaround in the corporate strategy. In both cases, managers seize upon the strategic challenge to bring their occupational specificity to the forefront (Table 8).

Once the strategic aspect of the activity is acknowledged, we observed a convergence of interests ending in a common tool. This convergence of interests is made possible through cross-occupational dialogues and the shift from an occupational to a managerial repertoire.

In spite of an agreement on the strategic importance of an activity, the second phase, 'crafting a tool', appears rather conflictual. It is characterized by alternating bouts of convergence and divergence, typical of negotiation processes, which eventually lead to the emergence of the final tool (Table 9).

Figure 2 represents the phases of the strategy tooling process, highlighting the ongoing interplay between dialogue and

Table 9. Synthesis of repertoires and dialogues in phase 2

	Repertoire		Dialogue	
	Constructor	Agronate	Constructor	Agronate
Phase 2: Crafting a tool	Occupational Product quality (standards) Organizational: Best practices (lever for knowledge transfer)	Occupational Microbiology, agronomics, (know-how) registration (standards)	Within occupation: Counter dialogues create convergence Across occupation: Counter dialogues create divergence	Across occupation: Counter dialogues create convergence
Final tool: Quality Technical Standards (Constructor) & Registration Dossier (Agronate)				

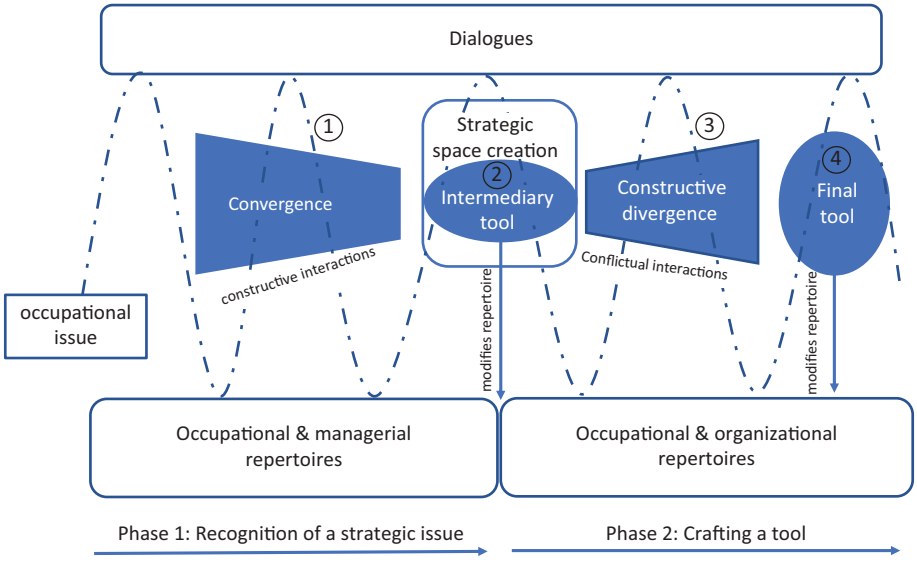

Figure 2. The strategy tooling process model

repertoires. In brief, collective bricolage starts with the available resources from the occupational repertoire. In order for the strategic issue to reach beyond the community, the issue is translated in managerial terms through the creation of intermediary tools, which open a symbolic space for discussing strategy. There, dialogues across occupational communities and hierarchies converge (1) towards the intention of developing a tool (2) to address the strategic issue. In the second phase, crafting the tool requires negotiating across occupations and hierarchies (3). Cross-occupational dialogues are characterized by a strong presence of counter dialogues. In the two cases, counter dialogues are constitutive of tool construction (4). The arguing about which aspects of practice should be retained or discarded reveals the will of each party to defend the legitimacy of their activity. Counter dialogues illustrate a clash of repertoires which paradoxically leads to a form of convergence allowing the different parties involved to find common ground. We qualified this negotiation process as 'constructive divergence'.

Discussion

We compared two strategy tooling processes in two very different companies. In both cases, the trigger element, tooling processes and the successive objects stemming from the process proved to have many features in common. Our analysis allowed us to uncover the specific bricolage mechanisms contributing to strategy emergence. We shall first focus on dialogues, and then on the tools and the repertoires they draw on.

The performative role of dialogues

Our fine-tuned study of dialogues in the process of bricolage contributes to the practice perspective on tools, which so far has focused more broadly on discursive practices. Here we consider actual dialogues occurring *in vivo* rather than discourses such as texts (Arnaud et al., 2016, 2018; Vaara et al., 2010) and other strategy discourses (Kaplan, 2011; Spee & Jarzabkowski, 2011). We underline the importance of naming, which can act as a trigger to switching repertoire. In that sense, the naming of tools is performative (Austin, 1962). Naming enables an occupational tool developed at the periphery to become a strategy tool used at the centre. Managerial language appears as a lingua franca within the company and acts as a mechanism for strategizing and decision-making.

Research has acknowledged the role of discourse in the elaboration of strategy (Jarratt & Stiles, 2010; Jarzabkowski & Kaplan, 2015; Jarzabkowski & Wilson, 2006; Spee & Jarzabkowski, 2009; Stenfors & Tanner, 2007). In this paper, we cast light on the specific role of dialogue in the elaboration of all sorts of tools rather than focusing on the managers' internal logics (Wright et al., 2013). We identify different types of dialogues that occur within/across the occupational community and hierarchy. This points to the relational nature of dialogues in bridging occupations. Thus, we extend the view of strategy formulation as a communicative process (Spee & Jarzabkowski, 2011).

The literature on collective bricolage has usually treated dialogue in a positive light and indiscriminately. Dialogue is described as a coordinating mechanism that allows alignment between different professionals from different disciplines (Belmondo & Sargis-Roussel, 2015; Duymedjian & Rüling, 2010), while tensions and disagreements are vaguely alluded to under the terms of 'negotiation' or 'mutual adjustment'. We show that the resistance expressed in counter dialogues is constitutive of the strategy tooling process. Counter dialogues illustrate a clash of repertoires which paradoxically leads to a form of convergence allowing the different parties involved to find common ground. We call this process 'constructive divergence'. It resonates with the contextualization/decontextualization described by Belmondo and Sargis-Roussel (2015), which enables agreement to be reached over an existing tool.

Of repertoires and tools

In relation to the bricolage literature, we offer more refined study by identifying different repertoires: occupational, organizational and managerial repertoires. We join previous works on the recursiveness in bricolage (Cartel & Boxenbaum, 2019) whereby repertoire, dialogue and outcome intermingle and feed off one another. Specifically, we show that the ongoing interaction between repertoires and dialogues produces temporary outcomes in the form of intermediary tools. This invites further research that might consider the concept of bricolage in terms of the duality between ends and means put forward in a pragmatist perspective (Lorino, 2018).

The heteroclite nature of intermediary tools, or bundled affordances (Demir, 2015), reflects the involvement of different hierarchical levels and occupations in the process. We highlight their boundary spanning role, which enables dialogue and coordination (Cartel et al., 2017; Christiansen & Lounsbury, 2013) outside occupational boundaries (Spee & Jarzabkowski, 2009). As such, we conceptualize these tools as intermediaries; they are not truly occupational, nor purely managerial. They represent a first stabilized agreement on local knowledge (Belmondo & Sargis-Roussel, 2015; Leonardi, 2015), which is the starting point for crafting the final tool. We consider these tools as epistemic objects in the sense that they embed occupational know-how rather than the theoretical stabilized knowledge of strategy tools (Jarzabkowski & Kaplan, 2015). Kaplan (2011) showed how generic tools, due to their wide acceptance in society (Yates & Orlikowski, 2007), influence the definition of strategy. We also show that the similarity of the intermediary tools with widely accepted managerial tools makes them legitimate in the eyes of the different occupational communities.

Mechanisms of strategy emergence

This article highlights the role and nature of mundane tools in the elaboration of strategy (Arnaud et al., 2016; Demir, 2015; Jarzabkowski et al., 2015; Leonardi, 2015), in particular through the interplay between occupational repertoires and dialogues. Specifically, we highlight the role of dialogue and counter dialogue in combining a variety of resources. We offer a further illustration of how managers tinker with the material and socio-cognitive resources at hand (Baker & Nelson, 2005; Bechky & Okhuysen, 2011). This is consistent with the idea that strategy at the periphery comes from managers who draw from a combination of resources by probing into their environment (Lévi-Strauss, 1966; Regnér, 2003).

We note how actors rely on the occupational repertoire to devise a tool that stems from their situated activity to play a role in company strategy. Refining on the work of Regnér (2003), this provides evidence on the mechanisms that make strategy a concern at the periphery, and how it then reaches the centre. Unlike studies of the micro-processes of strategizing based on written texts (where strategizing is studied *a posteriori*), we have attempted to capture strategizing in action through the 'live' dialogues

occurring between practitioners. Thus, we provide mechanisms for how managers cope with strategy and act in a dwelling mode (Bouty et al., 2019; Chia & Holt, 2006; Chia & Rasche, 2015).

Conclusion

In this article, we have endeavoured to look beyond the forest of formal strategy tools to see the occupational tools that take root in the shadow of the canopy. Specifically, we aimed to explore how managers tinker with tools of their trade to bring occupational issues to the strategic fore and introduce change. We adopted a bricolage perspective (Duymedjian & Rüling, 2010; Lévi-Strauss, 1966; Rüling & Duymedjian, 2014) in order to identify the repertoires and dialogues that enter in the strategy tooling process. We have proposed a process model of collective bricolage based on the dynamic interplay between repertoires and dialogues. This study suggests paying greater attention to the role of dialogues and occupational tools in everyday strategic activity

Our operationalization of the collective bricolage concept answers Duymedjian and Rüling's (2010) call to identify the specific characteristics of the resources used. Our focus on occupational tools-turned strategic extends the strategy-as-practice agenda, which focuses mostly on the situated use of formal strategy tools (Jarzabkowski & Wilson, 2006). It goes beyond the idea that strategy tool choice and use depend on organizational configuration or context (Jarratt & Stiles, 2010; Jarzabkowski & Kaplan, 2015; Langley, 1989). In addition to contributing to collective bricolage and the practice perspective on tools, this article joins the conversation on emerging strategy (Bouty et al., 2019; Mirabeau & Maguire, 2014). We show that managers rely on occupational repertoires to orient and participate in strategic action. The expansion of the occupational repertoire through dialogues across occupational and hierarchical boundaries contributes to explaining how strategy comes to be. We invite further research to refine and expand on the mechanisms that lead to strategy emergence. All in all, these findings further advance the potential of a bricolage perspective for strategy and organization studies.

Despite the differences in the two cases – small company versus major group, biotechnology versus process industry and vertical versus more horizontal organization – our model bears witness to similar processes for bringing occupational matters to the forefront. Nevertheless, we acknowledge that our collective bricolage process model is derived from our analysis of two different settings. It could be interesting to study the strategy tooling process in different contexts to refine the general character of our findings, in particular to dig into the mechanisms or conditions that lead to making these tools legitimate in the eyes of others.

Finally, our study provides insights for practitioners. It shows that strategy is not a top-down process from formulation to implementation, but that it pervades all organizational levels. It calls for a more 'open strategy' where the practice of strategy occurs everywhere, with everyone, within and outside the organization. In other words, an approach which is in line with the current organizational transformation towards more bottom up and participatory processes in all fields.

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