SPi	Journal Code				Article ID				Dispatch: 16.07.16	CE:
	S	E	J		1	2	2	7	No. of Pages: 25	ME:

Strategic Entrepreneurship Journal
Strat. Entrepreneurship J., ••: ••–•• (2016)
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/sej

PORTFOLIO ENTREPRENEURSHIP AND RESOURCE ORCHESTRATION

Q1 CAROLINE BAERT,[1] MIGUEL MEULEMAN,[1,2]* MARION DEBRUYNE[1] and MIKE WRIGHT[2,3]
[1] *Vlerick Business School, Ghent, Belgium*
[2] *Imperial College Business School, Imperial College London, London, U.K.*
[3] *Ghent University, Ghent, Belgium*

***Research summary*:** *This study examines the role of resource orchestration for the exploration and exploitation of opportunities through portfolio entrepreneurship. Adopting a single-case study approach, we identify eight distinctive resource orchestration subprocesses that we group into three aggregate resource orchestration processes that enable the development and exploitation of a set of resources and capabilities across a portfolio of ventures. Our findings extend the literature on enduring entrepreneurship by building theory on how resource orchestration across a portfolio of ventures facilitates the emergence of synergies when exploring and exploiting opportunities.*

***Managerial summary*:** *This study examines the processes through which an entrepreneur structures and rearranges resources and capabilities across multiple firms as he/she grows a portfolio of firms to engage in the exploration and exploitation of market opportunities. Entrepreneurs can obtain insights for building their businesses from the eight processes we identify; these processes allow entrepreneurs to develop synergies as they create and put to use a set of resources and capabilities across their businesses. Through these synergies, entrepreneurs can share, transform, and harmonize resources and capabilities across their firms. This can enable them to continuously and simultaneously explore and exploit market opportunities, which ultimately facilitates the sustainability of their businesses.*

INTRODUCTION

Entrepreneurship involves identifying and exploiting opportunities in a setting characterized by uncertainty (Shane and Venkataraman, 2000). The strategic entrepreneurship perspective has stressed the need to focus on how firms create change by exploring opportunities in the external environment while at the same time exploiting those opportunities to sustain value creation across time (Hitt *et al.*, 2001, 2011). Some firms and individuals consistently engage in high levels of entrepreneurial behavior through constant renewal and repeated acts of entrepreneurial activity such that entrepreneurship endures across time and systems. A key question that arises then is what processes and organizational practices help firms and individuals achieve enduring entrepreneurship?

The development of a group of new ventures in the context of portfolio entrepreneurship provides an opportunity to investigate these processes and organizational practices. Portfolio entrepreneurship has proven to be a valuable entrepreneurial

Keywords: portfolio entrepreneur; resource orchestration; exploration/exploitation; enduring entrepreneurship; strategic entrepreneurship
*Correspondence to: Miguel Meuleman, Vlerick Business School, Reep 1, 9000 Ghent, Belgium. E-mail: Miguel.Meuleman@vlerick.com.

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development model (Carter and Ram, 2003; Lechner and Leyronas, 2009). Portfolio entrepreneurs simultaneously hold ownership stakes in two or more independent ventures that have either been established, purchased, and/or inherited (Westhead and Wright, 1998). The characteristics of portfolio entrepreneurs and their motivations to engage in small business group formation have been researched extensively (Iacobucci, 2002; Iacobucci and Rosa, 2010; Ucbasaran *et al*., 2008; Ucbasaran, Westhead, and Wright, 2009). However, the microprocesses by which portfolio entrepreneurs obtain and leverage resources and capabilities across a portfolio of ventures to exploit new opportunities and engage in enduring entrepreneurship in such a setting remain a black box.

Resource orchestration theory has recently been advanced to address the previous neglect of the processes by which managers accumulate, combine, and exploit resources to support current opportunities while developing future opportunities to achieve a competitive advantage (Sirmon and Hitt, 2003). Resource orchestration theory suggests that it is the combination of resources, capabilities, and managerial action that ultimately results in superior firm performance (Chadwick, Super, and Kwon, 2015; Helfat *et al*., 2007; Sirmon, Hitt, and Ireland, 2007; Sirmon *et al*., 2011). However, we still lack detailed insights into how firms orchestrate resources in dynamic environments to facilitate the implementation of firm-level and corporate-level strategies to sustain enduring entrepreneurship (Sirmon *et al*., 2011). Additionally, extant research has primarily examined how managers orchestrate resources within a single firm to develop capabilities and sources of competitive advantage. A separate important and yet unexamined issue concerns how resources might be orchestrated across a portfolio of ventures to develop portfolio-level capabilities and synergies when pursuing opportunities.

We build on this prior work to address an important gap in understanding the behavior of portfolio entrepreneurs and, by doing so, shed new light on resource orchestration processes across a portfolio of ventures that help sustain entrepreneurial activity. Accordingly, we address the following research questions: (*1*) *What specific processes of resource orchestration across a portfolio of ventures are aimed at exploring and exploiting new opportunities*?; *and* (*2*) *How do these processes develop over time to facilitate enduring entrepreneurship*?

Following previous studies on knowledge and capability development (Cope, 2011; Deakins and Freel, 1998), we use a single interpretive case study approach. Through an iterative process involving rich narrative accounts of both successful and failed activities of a portfolio entrepreneur in the digital web industry, we identify eight distinctive resource orchestration subprocesses *across* the entrepreneur's portfolio of ventures; these subprocesses enable the exploration and exploitation of new opportunities. We group these into three aggregate resource orchestration processes new to resource orchestration theory—*sharing*, *transforming*, and *harmonizing*. In essence, resource orchestration across a portfolio of ventures enables the portfolio entrepreneur to create and exploit synergies in the pursuit of new opportunities over time.

We contribute to theory development in several ways. First, we add to the enduring entrepreneurship literature by building theory on how resource orchestration across a portfolio of ventures may facilitate the emergence of synergies when exploring and exploiting new opportunities. Second, in doing so, we respond to the general call by Sirmon *et al*. (2011) to uncover new processes underlying resource orchestration and capability development to support an entrepreneurial strategy in dynamic environments. Third, examining portfolio entrepreneurs enables us to extend previous studies by providing a more fine-grained analysis of the distinctive constructs associated with the resource orchestration processes *across* a group of ventures that have hitherto been largely neglected (Sirmon *et al*., 2011). As such, we contribute by beginning to identify some boundary conditions of Sirmon *et al*.'s (2007) general framework on resource orchestration and, more generally, add to the understanding of heterogeneous resource positions between firms (Maritan and Peteraf, 2011). Our findings suggest that simply extending existing resource orchestration theory to across firms/portfolio entrepreneurship contexts would miss important distinctive mechanisms in the resource orchestration process.

THEORETICAL BACKGROUND

The strategic entrepreneurship perspective stresses the importance of resource orchestration practices to support the simultaneous exploration and exploitation of opportunities to sustain firm performance. Merely

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looking at the resources a firm possesses provides an incomplete understanding of company performance. Resource orchestration theory emphasizes the role of managerial action in mobilizing and leveraging firm resources to achieve strategic objectives (Hansen, Perry, and Reese, 2004; Sirmon *et al*., 2011). The orchestration of resources is critical to support processes to help develop and leverage capabilities (Rindova and Kotha, 2001; Wales *et al*., 2013). Resource orchestration practices include the processes of *structuring* the portfolio of resources (i.e., acquiring, accumulating, and divesting), *bundling* resources to build capabilities (i.e., stabilizing, enriching, and pioneering), and *leveraging* capabilities in the marketplace (i.e., mobilizing, coordinating, and deploying) to create value (Sirmon *et al*., 2007).

As firms engage in resource orchestration, they engage in the constant trade-off between the exploration of new possibilities and the exploitation of existing activities, which entails complications in allocating scarce resources across activities. According to March (1991), exploration is characterized by search, experimentation, innovation, play, and flexibility, while exploitation is defined by efficiency, selection, implementation, and execution. March (1991) portrays the trade-off between exploration and exploitation in terms of learning processes or behaviors organizations engage in as they attempt to adapt to their contexts. Adding to March's (1991) work, scholars have focused their attention on the outcomes of exploration and exploitation to distinguish between the two concepts, linking exploration to radical innovation and exploitation to incremental innovation (Ireland and Webb, 2009). Interestingly, in their work on strategic entrepreneurship and the successful transition from exploration to exploitation, Ireland and Webb (2009) explicitly recognize that as a firm engages in exploration or exploitation, it uses different processes to balance both behaviors. Successful exploration is then linked to the ability to efficiently manage a breadth of resources as a firm searches for new sources of future competitive advantage, thereby keeping in mind the uncertainty related to the potential effectiveness of such resources. In contrast, successful exploitation is connected to the ability to incrementally enhance current sources of competitive advantage, thus efficiently orchestrating a more narrow set of resources that represent the building blocks of such current competitive advantage.

Resource orchestration poses specific challenges for entrepreneurial firms (Benner and Tushman, 2003; Sirmon *et al*., 2011). Emergent entrepreneurial firms need to orchestrate resources to support their nascent business models under conditions of uncertainty (Rutherford, Buller, and McMullen, 2003). During exploration attempts, experimental resource allocation patterns are frequently used to identify valuable and potentially rare operational and product configurations to obtain a competitive advantage. As the firm starts to grow, resource orchestration activities will shift toward structuring the organization, such as implementing formalized procedures and adding a managerial hierarchy in order to facilitate exploitation (Daily and Dalton, 1992).

A key question is how entrepreneurial firms manage their limited sets of resources more efficiently and effectively during the start-up and growth phases (Wales *et al*., 2013). Entrepreneurial firms suffer from 'liabilities of smallness' resulting from: (1) their limited levels of slack resources; and (2) potential inefficiencies in using their resources (Stinchcombe, 1965; Thornhill and Amit, 2003). One way to deal with these resource constraints is by setting up interfirm collaborations to access critical resources (Harrison *et al*., 2001; Wiklund and Shepherd, 2009; Zahra *et al*., 2009) and acquire new knowledge (Lane and Lubatkin, 1998; Yli-Renko, Autio, and Sapienza, 2001). By combining complementary resources and capabilities, firms can realize synergies (Wang and Zajac, 2007). However, this depends both on the potential for synergistic resource complementarity, as well as on the firm's effectiveness in orchestrating resources *within* and *across* firm boundaries to realize those synergies (Capron, Dussauge, and Mitchell, 1998; Madhok and Tallman, 1998; Wiklund and Shepherd, 2009).

Resource orchestration theory has mostly focused on *within-firm* processes that enable firms to explore and exploit opportunities. However, given the emerging theoretical approach, it is unclear whether similar processes apply *across* a group of ventures and how this might lead to synergies when initiating new entrepreneurial activity. Portfolio entrepreneurship represents a distinctive context in which to examine these issues across a group of loosely coupled firms. Through developing separate businesses with legal autonomy, portfolio entrepreneurs can explore new opportunities, yet assure strategic and operational autonomy for their new activities (Iacobucci, 2002; Lechner and Leyronas, 2009). The mechanisms of value creation in portfolio entrepreneurship have received less consideration than those characterizing single-firm

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contexts, yet are crucial to understanding how portfolio entrepreneurs simultaneously engage in exploration and exploitation activities and, thus, enduring entrepreneurship.

One element that holds the potential for enduring entrepreneurship in the context of portfolio entrepreneurship concerns the underlying processes supporting resource and capability development (Cope, 2005; Ucbasaran *et al*., 2008; Unger *et al*., 2011) and, more generally, how resource orchestration contributes to this. First, resource constraints within entrepreneurial ventures require a flexible approach that allows adaptation to new situations (Cainarca, Colombo, and Mariotti, 1992). Portfolio entrepreneurs can leverage and transfer knowledge and capabilities from multiple business ownerships to exploit new business opportunities efficiently in a dynamic environment (Rosa, 1998). Second, Sirmon *et al*. (2011) have stressed the importance of focusing on the locus of resource orchestration activities and how this impacts the flow of knowledge *within* and *across* organizations. Portfolio entrepreneurship holds the potential for newly acquired knowledge to be applied, exploited, and recontextualized in the entrepreneur's group of businesses.

RESEARCH METHODOLOGY

A longitudinal single-case study approach

Our aim was to elaborate the emerging theory on resource orchestration in a setting of enduring entrepreneurship involving a portfolio of ventures, thereby refining and complementing existing concepts (Locke, 2001). We adopted a longitudinal single-case study approach based on the narrative of a portfolio entrepreneur.

A case study approach is especially valuable when researching 'how' and 'why' questions in new topic areas, as here (Eisenhardt and Graebner, 2007; Suddaby, 2006). Since little is known about the processes underlying resource and capability orchestration across ventures in an entrepreneurial setting, we aimed to identify key building blocks of these processes and their emergence. We adopted a single-case design because of the revelatory nature of the case to which we were offered unusually detailed access. The narrative-based approach has become well accepted as a valid method for interpretive studies of entrepreneurship (Cope, 2011; Hjorth and Steyaert, 2004). In particular, we used it to develop an understanding of how resource orchestration processes unfold as the entrepreneur's portfolio of ventures develops.

Based on the detailed case story of the portfolio entrepreneur, we engaged in theory elaboration using a grounded theory-based approach (Glaser and Strauss, 1967) to better understand unexplored dynamics underlying resource orchestration processes across a group of ventures. Our inductive approach entailed many cycles of confrontation between data and theory, each iteration directing us to additional data and drawing on additional concepts and theoretical categories. We followed the approach described by Gioia, Corley, and Hamilton (2013) to develop new concepts and to bring 'qualitative rigor' to the research. The resulting model includes various intermediary conceptualizing steps of first- and second-order coding between raw case data and theory.

Empirical setting

We looked for a context where entrepreneurs need to continuously explore and exploit opportunities in an ever-changing setting. As venturing into emerging markets typically requires entrepreneurs to explore new domains and learn to perform new activities (Crossan, Lane, and White, 1999), we looked for a nascent and dynamic industry. We studied the growth of a Belgian entrepreneur's portfolio of firms, including the development of a digital web agency called Digiwiz (a pseudonym) and related ventures. From 2006 to 2013, the entrepreneur was simultaneously involved in nine independent ventures, of which two ceased to exist. One venture is a holding company supporting a network of eight small independent ventures.

Digiwiz was founded in 2006 by entrepreneur Bart Bruyne (a pseudonym) and a business partner. Digiwiz started out as a web agency focusing solely on website development activities for small- and medium-size enterprises, thereby deploying Digiwiz' web content management system (WCMS[1]) named Knife. Digiwiz diversified its offering and moved

[1] Information technology research company Gartner Inc. defines web content management (WCM) as '*the process of controlling the content of a website through the use of specific management tools based on a core repository*' (Gartner, 2008: 2). Web content management systems (WCMS) can be commercial products, open-source tools, or hosted service offerings. Gartner Research and Industry Report, 26 June 2008, ID number G00158654.

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toward integrated approaches, thereby combining website development, web content management system (WCMS) development, and online marketing components. While exploring nascent markets and new activity domains in the digital industry, the entrepreneur developed new business activities inside as well as outside Digiwiz's firm boundaries. Table 1 provides an overview of these different business activities. Importantly, we not only focused on ventures set up as independent entities, but we also studied the setup of new business activities within existing firm boundaries, as these 'internal ventures' played an important intermediary role in the entrepreneur's resource orchestration activities. We classified new business activities as internal ventures where the activity: (1) was characterized by a different value proposition compared to the existing activities; (2) generated revenues independent of existing activities; or (3) became an independent entity later on.

The development and evolution of the entrepreneur's portfolio of ventures can be contextualized at the intersection of a number of nascent markets in the digital industry, including website development, WCMS development, and online marketing activities. This research setting appeared attractive to study enduring entrepreneurship and resource orchestration, as it captures the dynamic and uncertain nature of new markets, characterized by numerous diversified competitors and ever-changing technology. Entrepreneurs attempted to make sense of, learn, and develop adequate market propositions for nascent markets in the digital industry (Santos and Eisenhardt, 2009). The steady development of the entrepreneur's portfolio of ventures illustrates his aspiration to explore and exploit new business opportunities brought forth by swift technological advancements and the resulting market dynamics. From 2006 to 2013, the entrepreneur's portfolio grew from one to seven independent and viable ventures, while its turnover increased from €850,000 to €5.38 million. Moreover, in 2014, the business group was ranked sixth in a Top 50 ranking of web builders in Belgium (Van Leemputten, 2014).

Table 1. Overview of the business activities and ventures of the entrepreneur (2006-2013)

Year	Business activity	Description	Independent business or internal Digiwiz activity?	Viability business activity?
2006	Digiwiz	Digital web agency	Independent	Viable
2006	DVDXC	DVD sharing network	Internal	Viable
2006	Ringtone network	Ringtone network	Internal	Viable
2006	Blog network	Blog network	Internal	Viable
2007	Monitor	Monitoring the influence of social media	Independent	Failed
2008	Tagger	Facilitating online music purchase by tagging or bookmarking music	Independent	Failed
2008	Talk	Social media marketing	Independent	Viable
2008	Tweety	Tweeting application for digital TV	Internal	Failed
2009	EasyNet	Easy internet marketing services	Independent	Viable
2010	Knife OS	Open sourcing of WCMS Knife	Internal, yet in the process of becoming independent	Viable
2010	Publisher	Digital magazine publishing	Independent	Viable
2011	iPad app	Application for iPad magazines	Internal	Failed
2012	Newton	Online KPI monitoring	Internal (Talk), yet became independent	Viable
2012	Adviz	Optimizing website usability	Independent	Viable
2013	Paradise	Network of independent companies active in the digital industry (including NetDesign, Star, Hello Hello, The Laboratory, Screen, Robot, RawData and Illustrat)	Independent	Some viable, some too early to tell

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Data collection

Data collection took nearly 2.5 years. From early 2011 to mid-2013, we collected data on developments (2006 to 2013) in the entrepreneur's portfolio and the digital industry. Various primary and secondary data sources were used, enabling us to corroborate information and develop a full understanding of the case (Yin, 1984). An overview of data sources can be found in Table 2.

Our initial desk research started in 2011, and we concentrated on developing our understanding of the evolution of the web development industry and identifying market players. To gain additional information, in particular on the web development industry in Belgium, we interviewed seven industry experts who were business analysts (n = 2), leading entrepreneurs (n = 2), specialists working for larger concerns (n = 2), and a venture capitalist (n = 1). Interviews ranged from 30 to 70 minutes. These

Table 2. Overview of the data collection sources

Data source	Type of data	Use in analysis
Archival data	*Industry-related documents*: business press articles (n = 14), industry reports from business analysts (e.g., Gartner) (n = 10).	Familiarize with the industry context.
	Company-related documents: venture websites (n = 4), venture blogs (n = 4), company presentations (n = 30), trend reports (n = 6).	Support the chronological reconstruction of the growth of the portfolio. Support and triangulate evidence from the interviews.
	Entrepreneur-related documents: personal blog (n = 1), presentations (n = 19), interviews in press articles (n = 4).	Developing an understanding of the entrepreneur's reasoning regarding specific business opportunities, business models, and industry trends. Support and triangulate evidence from the interviews.
Interviews	*Preliminary interviews* (*early 2011*) with industry experts (n = 7) to discuss industry evolution, industry trends and characteristics of viable business models in the digital industry.	Familiarize with the industry context.
	Interview round 1 (*June-Aug 2011*) with the entrepreneur (n = 2) and his founding partner (n = 1) to discuss the development and history of each venture and its business activities.	Chronological reconstruction of the growth of the portfolio. Developing an understanding of the entrepreneurial processes driving the formation of new ventures and the interdependencies between ventures.
	Interview round 2 (*March-Sept 2012*) with the entrepreneur (n = 1) and his business partners (n = 2) to discuss the use and transfer of knowledge and capabilities across the portfolio and over time.	Identification and visual mapping of knowledge and capability flows across the portfolio. Compare and integrate interviewees' accounts to improve our understanding of the entrepreneurial learning processes related to the use and transfer of knowledge and capabilities across the portfolio and over time.
	Interview round 3 (*Aug-Sept 2013*) with the entrepreneur (n = 1), his founding partner (n = 1), and his business partners (n = 2) to discuss the deployment of resources and capabilities across the portfolio and the entrepreneur's understanding of such deployment across the portfolio.	Develop an understanding of resource orchestration processes occurring across the portfolio and over time. Identification of the role of the entrepreneur in creating resource synergies across the portfolio. Compare and integrate interviewees' accounts to improve our understanding of the entrepreneur's ability to orchestrate resources.

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interviews pointed us to Digiwiz and its founding entrepreneur, who we did not know personally in advance.

The primary data collection method involved semi-structured interviews with the entrepreneur and his three business partners, conducted in three interview rounds from early 2011 to mid-2013. All interviews were conducted by at least two individuals, increasing confidence in the reliability of interpretation. The interviews lasted approximately 1 to 2.5 hours and were recorded and subsequently transcribed verbatim.

In the first interview round, mid-2011, we conducted a semi-structured interview with the entrepreneur, during which we asked for factual information, such as the composition of the entrepreneurial team, the development and history of the ventures in the entrepreneur's portfolio, and each venture's business model and activity system in use. We presented the same questions to his founding partner during a semi-structured follow-up interview, allowing us to alleviate concerns of source and recall bias. This information was complemented with secondary data from company reports, blogs, financial accounting data, press articles, company presentations, and websites of each venture. For instance, we triangulated factual information with a number of blogs by the entrepreneur about the development of his ventures. The Digiwiz company blog dates from 2003 and consists of approximately 1,200 blogposts, while the entrepreneur's personal blog dates from 2006 and has 1,250 blogposts. Venture-related blogs, such as the Talk and Monitor blogs, were also available from start-up and contain fewer blogposts (e.g., Talk, 2008, 60 posts). Further, the entrepreneur produced numerous writings (e.g., trend reports) that are archived chronologically on the internet, which enabled triangulation.

Using this information, two researchers independently mapped the evolution of the business activities inside Digiwiz and the entrepreneur's other portfolio ventures. Having contrasted and discussed these two sets of chronological maps, we created a preliminary timeline of the development of the entrepreneur's portfolio of ventures, which served as support for subsequent interviews. Finally, we conducted a follow-up interview with the entrepreneur to focus in more detail on the formation of new ventures over time and the interdependencies between the different ventures. We used the timeline of the different business activities and ventures developed in the previous data collection stage as a backbone to the interview.

In the second interview round, early and mid-2012, we gathered more refined data on specific experiences described by the entrepreneur in previous interviews. This included experiences related to the set up and management of new activities and ventures and the genesis of certain organizing processes. Such data allowed us to infer how resources and capabilities related to venture setup and growth were developed across the entrepreneur's portfolio. We first interviewed the entrepreneur. Subsequently, to triangulate the obtained data, we conducted two semi-structured interviews with business partners of the entrepreneur, i.e., the CEO of Talk and the product champion behind the online KPI monitoring instrument launched by Newton. These face-to-face interviews focused on the entrepreneur's use and transfer of acquired knowledge and capabilities across ventures in his portfolio.

In the third interview round, mid-2013, we gathered fine-grained data on specific resource and capability orchestration processes across ventures that had emerged from the data. During interviews with the entrepreneur, his founding partner, and the two business partners previously identified, we gained more insights on the deployment of resources and capabilities and the role of the entrepreneur as an orchestrator of such resources and capabilities. We also updated the status of the entrepreneur's portfolio and triangulated certain pieces of information at this point.

Data analysis

Moving back and forth in an iterative fashion between the qualitative data and relevant theoretical arguments, we gradually developed a data structure and translated these structured insights into a theoretical model (Locke, 2001). Using Nvivo to code the interview transcripts, the analysis was conducted in three major steps following the guidelines by Gioia *et al.* (2013).

Step 1: creating categories and first-order codes

We identified statements regarding resource and capability development and diffusion across the portfolio of businesses via open coding (Locke, 2001). We followed Autio, George, and Alexy (2011) and adopted a working definition of a *capability* as a combination or sequence of processes and its enabling resource commitments. We started by labeling these capabilities and resources (e.g.,

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'new project manager,' 'search engine optimization skills,' 'remuneration policy') and their orchestration within and across ventures (e.g., 'aligning team structure with company size,' 'reassigning a search engine optimization expert,' 'copying recruitment tools'). Next, following multiple re-readings of the data, we gradually combined the initial labels that were similar in essence into preliminary categories. Whenever data did not fit well into a preliminary category, we reviewed the category. This enabled us to group the initial labels into first-order codes (e.g., 'aligning corporate structure and processes with growth,' 'exchanging customer portfolios,' 'diffusing working processes and tools').

In parallel, we started tracking new knowledge and capability development that resulted from the resource orchestration activities across ventures. In particular, we tracked new, enhanced, modified, and repurposed pieces of knowledge and capabilities across the portfolio of ventures. We created visual maps[2] illustrating knowledge flows and capability diffusion processes (Miles and Huberman, 1984). These visualizations allowed us to detect and gain a better understanding of the knowledge flows and capability diffusion processes across the venture portfolio.

Step 2: integrating first-order codes and creating second-order constructs

At this stage, we focused on depicting resource orchestration processes occurring across ventures, as opposed to the within-venture processes already identified in the literature (e.g., Sirmon *et al*., 2007). As such, using axial coding, we tentatively combined first-order codes into fewer, theoretically relevant second-order constructs related to resource orchestration across ventures (Strauss and Corbin, 1990). We engaged in systematic comparison of our emerging second-order constructs with case data and with existing constructs in the literature to assess fit and adjust the labels of these constructs accordingly (Gioia *et al*., 2013). We went back and forth between theory on resource orchestration to identify the differences and similarities between the processes we identified that occur *across* ventures (e.g., aligning, complementing, incubating) and the orchestration processes previously identified by Sirmon *et al*. (2007) *within* ventures (e.g., mobilizing, accumulating, coordinating). To avoid errors arising from halo effects, confirmatory biases, and other interpretation biases (Strauss and Corbin, 1998), the third author acted as a critical reviewer and interrogator of the first two authors throughout the process. This ensured the validity of the emerging second-order constructs. Our data structure in Fig. 1 illustrates our first-order constructs, second-order constructs, and aggregated theoretical dimensions. As such, it shows the process we followed when moving from raw case data to theoretically grounded concepts on resource orchestration. **F1**

Step 3: building a grounded theoretical framework

Once the second-order constructs relating to the eight distinct resource orchestration subprocesses across ventures had emerged from the analysis, we searched for interrelationships among these constructs in an attempt to understand how they would fit together into a coherent framework (Pratt, Rockmann, and Kaufmann, 2006). For example, we observed that some processes were related to the development of capability configurations, while others were linked to the exploitation of such capability configurations. We returned to the literature on resource orchestration to compare our observations to theoretical dimensions that had been identified previously (e.g., Sirmon *et al*., 2007; Sirmon *et al*., 2011). As such, we searched for similarities with existing theory to relate the processes we identified to the more general resource orchestration constructs of structuring, bundling, and leveraging (Sirmon *et al*., 2007). Building on this previous literature, we produced a grounded model of how resource orchestration processes unfold across ventures, incorporating our understanding of the differences between resource orchestration processes *within* and *across* ventures. To increase the reliability of our interpretations, we presented the emerging framework to the entrepreneur and his partners at multiple stages of the analysis. The conceptual model in Fig. 2 illustrates how we integrated our second-order constructs and their aggregated theoretical dimensions into the theoretically grounded framework that emerged from our analysis (as elaborated later). **F2**

FINDINGS

As we explored the processes underlying resource orchestration and capability development *across* a portfolio of ventures, we identified eight resource

[2] The visual maps depicting knowledge flows and the diffusion of capabilities across the portfolio are not included here due to space constraints, but are available on request.

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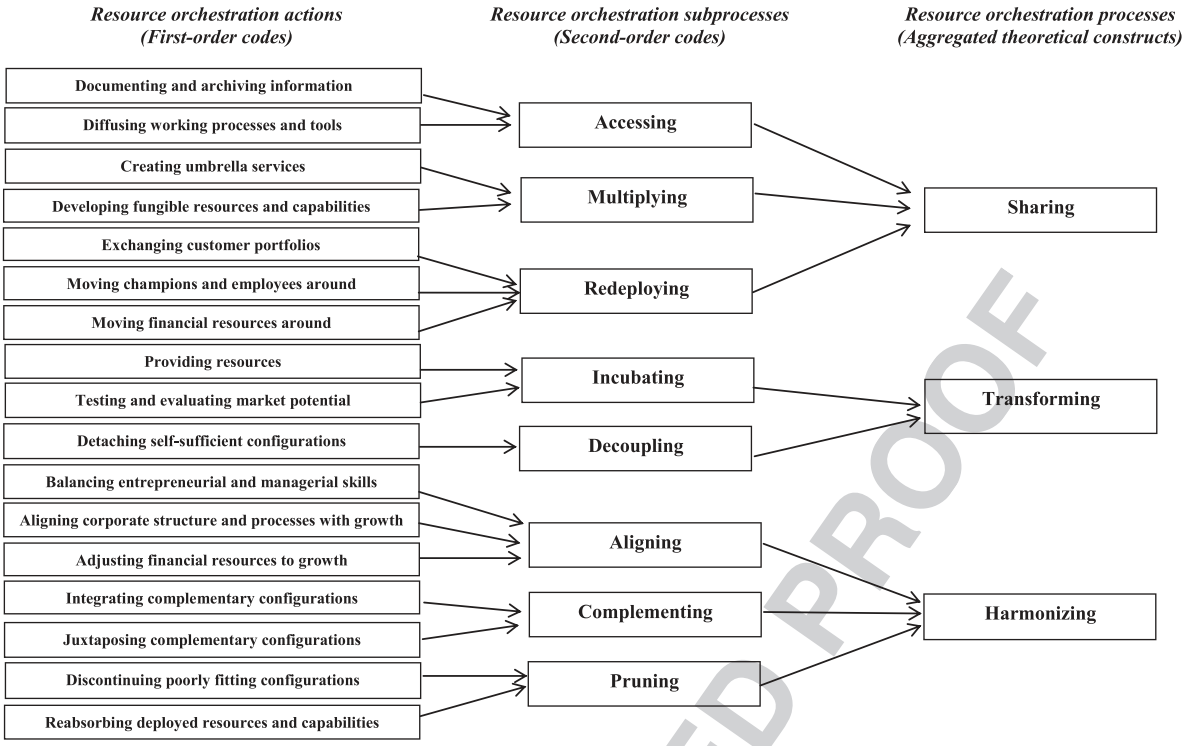

Figure 1. Data structure

orchestration subprocesses (*accessing*, *multiplying*, *redeploying*, *incubating*, *decoupling*, *aligning*, *complementing*, and *pruning*) that are distinct, yet complementary, to the resource orchestration subprocesses (*acquiring*, *accumulating*, *divesting*, *stabilizing*, *enriching*, *pioneering*, *mobilizing*, *coordinating*, and *deploying*) discussed in prior literature on value creation through resource management (Sirmon *et al*., 2007; Sirmon *et al*., 2011). Because of a lack of fit between these subprocesses and existing theoretical constructs on resource orchestration, we grouped them into three aggregate dimensions or general resource orchestration processes that are new to resource orchestration theory (*sharing*, *transforming*, and *harmonizing*).

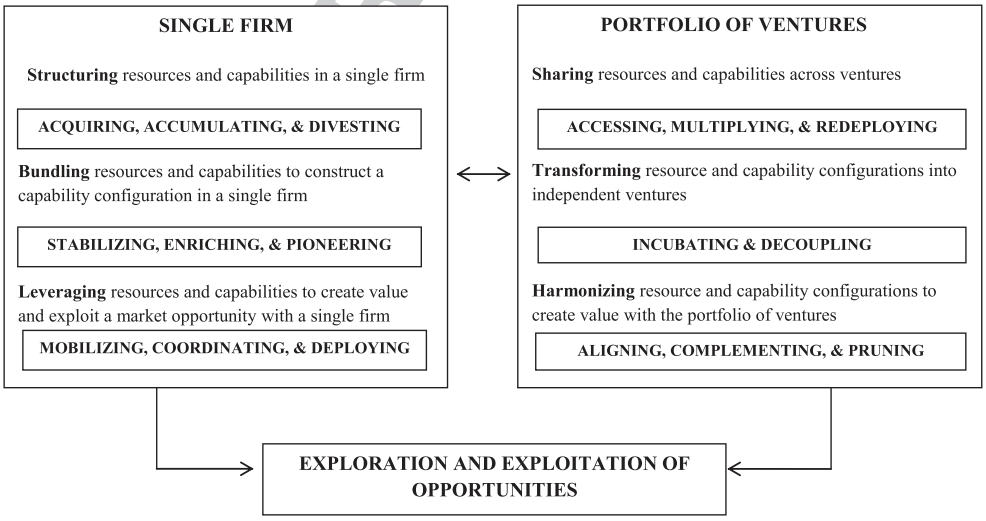

Figure 2. A theoretical model of resource orchestration across a portfolio of ventures

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In addition to the novel resource orchestration processes we identified across firms, we also observed all single-firm resource orchestration subprocesses previously identified by Sirmon *et al.* (2007), thus confirming extant theory presented in Sirmon *et al.*'s conceptualization of resource orchestration. However, we sought to focus on our core contribution, which is resource orchestration across firms within a portfolio. As such, we next concentrate on each of the eight across-portfolio resource orchestration subprocesses and the three new aggregate resource orchestration processes in which they can be organized. An overview of these processes and subprocesses and their definitions can be found in Table 3, alongside the processes occurring in a single firm. In what follows, we compare and contrast each across-portfolio process with the relevant single-firm process. Tables 4, 5, and 6 extensively focus on across-portfolio resource orchestration and illustrate how we moved from our raw data to our new theoretical constructs.

T3

T6 T5 T4

Sharing resources and capabilities

Our analysis showed that three of the across-portfolio subprocesses identified refer to *sharing* existing resources and capabilities across the portfolio. By sharing resources and capabilities, the entrepreneur brings about synergies across the portfolio of ventures when setting up new business activities. Specifically, the entrepreneur engages in *accessing*, *multiplying*, and *redeploying* resources and capabilities across ventures. Representative examples of these subprocesses are illustrated in Table 4.

First, when sharing resources and capabilities, the entrepreneur engages in the subprocess of *accessing* a pool of existing resources and capabilities across the portfolio. This process occurs by documenting and archiving information with the intent to share such information across the portfolio of ventures. It also occurs through the diffusion of fungible working processes and tools. For instance, some working rules, performance and evaluation systems, and inbound marketing strategies were developed with the intent to integrate these routines across the entire portfolio, as opposed to a single firm. As the portfolio entrepreneur we interviewed stated:

> 'We have developed an entire remuneration policy. It took six months to work it out in Digiwiz. We rolled it out in Talk in six weeks.'

Second, in order to be able to diffuse resources and capabilities across his portfolio, the entrepreneur engages in a subprocess of *multiplying*, i.e., creating fungible resources and capabilities. The entrepreneur develops resources or capabilities so they can be accessed by multiple ventures. As such, he develops a set of fungible resources or capabilities, thereby enhancing the potential for synergies across his portfolio of ventures.

We observe the subprocess of multiplying resources and capabilities in two ways. First, the entrepreneur creates an umbrella of support services. As such, different ventures in the entrepreneur's portfolio are able to share the same HR manager, payroll officer, accountants, and office managers. The entrepreneur develops a flexible base of human resources consisting of employees who work for all companies in the portfolio at the same time. As each specialist brings in knowledge of a specific domain, these flexible human resources facilitate the transfer of practices across the portfolio of ventures and support capability development at the individual venture level. Second, by developing fungible resources and capabilities, the entrepreneur is able to reproduce and transfer resources and capabilities to make them accessible across the portfolio. For example, when the entrepreneur developed the performance and evaluation system, he developed it with the intent to reproduce it across ventures, and he made sure it could be transferred from one venture to another.

To engage in the subprocess of multiplying, the entrepreneur made sure that the resources and capabilities he wished to diffuse across his portfolio could actually be repurposed from one venture to another. In some cases, the entrepreneur was not able to diffuse practices because he could not adequately multiply resources or capabilities. For instance, certain software tools—and, thus, technological capabilities—developed in one venture could not easily be reinterpreted or repurposed in other ventures, since each company in the portfolio has its own business focus. As a business partner says:

> 'The nature of the different parts [ventures] of the ecosystem is not that similar that we can just move any type of software tool from one to the other.'

Next, our data shows that when sharing the resource and capability set available across his portfolio, the entrepreneur engages in the subprocess

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Table 3. Definitions resource orchestration processes

Resource orchestration (sub)processes in PORTFOLIO CONTEXT		Resource orchestration (sub)processes in SINGLE-FIRM CONTEXT	
SHARING	Refers to sharing resources and capabilities across the portfolio	STRUCTURING	Refers to the management of the resource and capability portfolio within a single firm**
Accessing	The process of making resources and capabilities available across the portfolio	Acquiring	The process of purchasing resources from strategic factor markets*
		Accumulating	The process of developing resources internally within a single firm*
Multiplying	The process of creating fungible resources and capabilities	Divesting	The process of shedding firm-controlled resources to the strategic factor markets*
Redeploying	The process of reallocating a specific resource or capability from one venture to another in the portfolio		
TRANSFORMING	Refers to nurturing and converting self-sufficient resource and capability configurations into independent ventures	BUNDLING	Refers to combining resources and capabilities to construct or alter capabilities within a single firm**
Incubating	The process of supporting and testing heterogeneous resources and capabilities from across the portfolio to explore opportunities in the market	Stabilizing	The process of making minor incremental improvements to existing capabilities*
		Enriching	The process of extending current capabilities, thereby moving beyond keeping skills up-to-date*
Decoupling	The process of decoupling self-sufficient resource and capability configurations into independent ventures	Pioneering	The process of creating new capabilities with which to address a firm's competitive context*
HARMONIZING	Refers to balancing specific resource and capability	LEVERAGING	Refers to the application of resources and capabilities within a single firm

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Table 3. *(Continued)*

Resource orchestration (sub)processes in PORTFOLIO CONTEXT			Resource orchestration (sub)processes in SINGLE-FIRM CONTEXT
	configurations across the portfolio		to create value for customers and wealth for owners**
Aligning	The process of gradually adjusting capability and resource configurations to nurture new venture growth based on resources and capabilities from across the portfolio at that stage of development	Mobilizing	The process of identifying the capabilities needed to support a capability configuration necessary to exploit an opportunity in the market*
		Coordinating	The process of integrating identified capabilities into an effective yet efficient capability configuration*
Complementing	The process of developing value-creating synergies across the portfolio using complementary capability configurations	Deploying	The process of physically using a capability configuration to support a chosen leveraging strategy*
Pruning	The process of disentangling poorly fitting resource and capability configurations, thereby recovering resources and capabilities across the portfolio		

* Sirmon *et al.*, 2007
** Adjusted from Sirmon *et al.*, 2007

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Table 4. Sharing resources and capabilities across ventures (second-order codes, first-order codes, definition, and representative quotes)

ACCESSING	**Documenting and archiving information**	**The process of documenting and archiving information with the intent to share such information across the portfolio of ventures** '*The things I learn unconsciously, by telling others about those things, whether verbally or in a blog or in a presentation, it forces me to shape it all, to make it explicit. If I would not do that, I would not repeat the same mistake, but I would not be able to share it with someone else in the network. By rendering it explicitly, you make it physical, transposable.*' '*Again, that is my ambition—to develop as many learnings from Digiwiz into blueprints for across the ventures.*'
	Diffusing working processes and tools	**The process of diffusing existing working processes and tools across the portfolio of ventures** '*A simple example. Scrum methodology. Agile development…This is how they work at NetDesign and Newton…I am now introducing this in Digiwiz. To make Digiwiz more agile. Again, that is my ambition—to develop as many learnings from Digiwiz into blueprints for across the ventures.*' '*We often organize knowledge-sharing sessions across the ventures.*'
MULTIPLYING	**Setting up umbrella services**	**The process of developing an umbrella of support services** '*Each of these companies will have its own CEO in charge of the strategic direction. And as a support, we are going to set up a service model to back up management in terms of HR services, administration, IT, funding.*' '*Eventually, we want to develop an ecosystem consisting of independent units that each have their own specialization, supported by a holding or portfolio company that provides the necessary resources*: [*a portfolio company*] *that can recycle certain resources in one venture and exchange them with another venture.*'
	Developing fungible resources and capabilities	**The process of developing resources and capabilities with the potential to reproduce across ventures** '*Here at Digiwiz, we invested a lot of time and effort in the development of work regulations and worked out a performance and evaluation system in detail. But we developed it with the idea that it should exceed, transcend Digiwiz. So we are now implementing it here* [*Adviz*]. *It has already been implemented here and here* [*in other companies*]. *So that time does not have to be invested again here* [*in other companies*].' '*I am currently translating this* [*the ability to offer strategic advice to customers*] *into a structured process to implement across the other* [*ventures*], *so that it develops into a scalable and consistent story.*'
REDEPLOYING	**Exchanging customer portfolios**	**The process of transferring customer portfolios to enable the exploitation of the opportunities these customers represent**

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Table 4. *(Continued)*

	'*It was the combination of vision and opportunity. It is always like that. Peter and Frank were starting up* [*EasyNet*]. *I said 'I have the feeling that we are moving up with Digiwiz, that I am losing some of my former* [*smaller*] *customers, which is a pity.' They said 'we explicitly want to target them.' Perfect. There were champions, there was a market, I wanted to do it and provide a part of the inflow.*'
	'*Robin wanted to get out of consultancy without leaving his customers. So he basically* transferred his customers to Talk.'
Moving champions and employees around	**The process of reallocating human resources and their inherent capabilities**
	'*We are trying to gain advantages from our portfolio. If someone wants another challenge, there are other possibilities* [*in the portfolio*]. *Of course, it concerns employees that have added value, champions as you say. Those champions, we are aware of it, we take good care of them.*'
	'*It happens through collaborations…In the Paradise group, you have Jason, Sven, and Bert, who are all flying goalies. They are not linked to one specific company—they are at a group level. For instance, Bert is someone who drops by on an irregular basis, joins us* [*Talk*], *advices us for difficult projects, digital projects, especially in the presales stage, in the pitch stage.*'
Moving financial resources around	**The process of reallocating financial resources**
	'*When Talk was going through something of a rough patch and they needed cash, we sent it through from Digiwiz. And now, now that things are going much better again, we pulled it out and it went back to Digiwiz.*'
	'*You can perfectly imagine a system in which you can shuffle around financial means, if one of them* [*ventures*] *is experiencing difficulties. I do not need to tell you that. It happens regularly.*'

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Table 5. Transforming resources and capabilities across ventures (second-order codes, first-order codes, definition, and representative quotes)

INCUBATING	**Providing resources**	**The process of providing the resources and capabilities needed to support the transformation of a business idea into a new venture** '*When someone has an idea, it is in phase A, and he can work on it during his spare time…I help them strengthen the idea, develop a business plan…If they make it through the pitch, they are going to phase B…They also receive some resources, some money to produce a sort of proof of concept. And if that is successful, they go to a spin-out, their own company, with proper funding.*' '*In the start-up phase,* [*we offer new ventures*] *a building where they can do their own thing. A space, does not need to be much, where they can do their own thing—develop their own identity, letting it grow. Preferably not too far away, so that we can offer them advice based on our expertise.*'
	Testing and evaluating market potential	**The process of testing and evaluating the market potential of new resource and capability configurations** '*What I first do is try and detect traction. Will there be a client who will pay for it? And if so, then I am going to invest sufficient resources. Is it an idea that will attract customers, and is there a person who can run that company? Those two together, if I have that, then I am going to invest sufficient resources in order to set it up as a fully independent…*' '*Newton, I believe in it, but it must first prove itself as a business inside Talk, its incubator. Then it can become independent and we can invest more money into it.*'
DECOUPLING	**Decoupling self-sufficient configurations**	**The process of decoupling self-sufficient resource and capability configurations into independent ventures** '[*X*] *started in Talk, developed Newton there. First after his normal hours. Then, he developed a first prototype, with limited budget and a few days' time per week. He found his first customers, which made us realize 'this will get market response.' We invested €200,000, and Newton Analytics was set up as a separate company.*' '*I have tried that internally* [*in Digiwiz*] *with the iPad app. But I am going to decouple it…The reason why it does not fit is because of opposite processes. The iPad app is a product, Digiwiz is a service. Different price setting, different level of maintenance…*'

of *redeploying* certain resources or capabilities across ventures depending on the specific needs of these ventures. In particular, our case reveals three types of resource orchestration actions through which redeployment takes place, i.e., exchanging customer portfolios, moving champions and employees around and moving financial resources around. For instance, to successfully start and manage ventures, the entrepreneur equips a venture with the right capabilities by moving specific human resources from one venture to another. As he developed an understanding of the importance of having a champion in each venture, the entrepreneur moved Rose, an employee in Digiwiz with the necessary skills to set up structured processes, to Adviz and let her manage the company. By redeploying a human resource, the entrepreneur enables the development of the necessary management capabilities at the venture level in Adviz, as illustrated by this quote:

> 'And that is also what is happening at Adviz. Rose, someone here at Digiwiz, has management capabilities. And I made sure to include her in the management team there [at Adviz]…That

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Table 6. Harmonizing resources and capabilities across ventures (second-order codes, first-order codes, definition, and representative quotes)

ALIGNING	**Balancing entrepreneurial and managerial skills**	**The process of infusing the necessary managerial capabilities as a venture grows beyond the start-up phase** '*There comes a time when there needs to be someone who can manage… In the sense of bringing stability and focus instead of constant change. And that is when I leave*.' '*Last year, we appointed Linda there* [*Talk*] *as a managing director. While Sophia is very structured and people oriented, Linda is very performance and customer centered. And since then, it is moving forward again. I have also seen this in other companies. NetDesign, same path. Valentina, the creative director, lifted the company to a certain height, and then it was over. And then Tom joined, who is more of a managing partner, and it started to move forward again*.'
	Aligning structure and growth	**The process of altering corporate structures and processes to align with venture growth phases** '*Digiwiz was transformed into a larger structure, where we are not next to everyone anymore, where we do not know anymore what everyone is doing exactly. But where we have to rely on middle managers*.' '*Then you notice that certain processes are linked to the size and evolution of a company. And you cannot go any faster than that*.'
	Adjusting fin. resources and growth	**The process of infusing the necessary financial resources to align with venture growth phases** '*Bart said 'if you need money, then we do it. Then we put more into it. It is no problem: just step on the gas now,' because he saw that it worked. More than he had expected. It* [*Newton*] *was very much on track*.' '*Based on the results and a comparison with the original business plan, we said 'we will allocate this amount of additional resources*.' *And we developed a new business plan* [*for Newton*] *in which we took that into account. A good decision because now we see clear changes in terms of results and KPI achievement*.'
COMPLEMENTING	**Integrating complementary configurations**	**The process of integrating complementary capability configurations from across the portfolio on temporary basis to explore and exploit complex market opportunities** '*Leads and prospects are shared with each other. And very quickly the reflex develops. You need that 'okay, I am going to make this' and then it is up to the other ventures to develop the remaining requests*.' '*We* [*Digiwiz*] *often got the question 'you built the site, can you bring in visitors now?'…In terms of SEO, we were technically very strong, but all the rest, like copywriting, link building, analytics, we did not do. However, we noticed that the market demanded an integrated approach. It used to be possible to work with a web builder and an SEO company. But these days, there are so many expertises that a customer cannot coordinate it all by himself. There was an increasing demand for a one-stop*.'
	Juxtaposing complementary configurations	**The process of juxtaposing complementary capability configurations across the portfolio to explore and exploit multiple market opportunities simultaneously** '*Different companies that grow separately offer more shareholder value in total…At first, Talk was being absorbed in Digiwiz.*

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Table 6. *(Continued)*

		And then the question popped up 'should it be absorbed?' And you start to do the math, taking into account EBITDA and real shareholder value. And you see that value would be destroyed.'
		'An ecosystem has its advantages because I can make my army as large as I want. Hermès is a customer who prefers to work with unknown artists who live in a basement but create incredibly artistic things…I have that. Belgacom does not want the unknown artist; they need 75 people with five managers… I can do that as well.'
PRUNING	**Discontinuing configurations**	**The process of dissolving poorly fitting resource and capability configurations**
		'DVDXC was only recently shut down…In my mind, discontinuing it means 'okay, I am not going to do this anymore.' If you would have asked me earlier…I would have said 'maybe it is too soon; maybe I can still do something with it.' While now I say 'no.' What has changed is…I know that next month something else will come along.'
		'Too little time…But even if we had invested enough time, even then… Bad management, no clear goals, no transparent arrangements… We made the calculations on a napkin in a restaurant, 'hiring one mathematician to develop the algorithms will cost us this amount, so let's start with this amount'…It [Monitor] ended in failure.'
	Reabsorbing	**The process of reabsorbing resources and capabilities from failed ventures back into the portfolio**
		'I always try to recuperate those things [failed business ideas] as positioning, as marketing. To show 'we are doing innovative things.'
		'Monitor, we took out the remaining money. And emptied the firm… The technology, it is still somewhere on a CD.'

champion has to be in there. She is the one who is going to solve my concern regarding Mark and Elie's inability to delegate…Okay, Rose, your job is to set up a structure and processes that are scalable and repeatable.'

Other representative examples of the entrepreneur's efforts to redeploy resources and capabilities across the portfolio are shown in Table 4 . However, not every resource can be redeployed effectively. For instance, simply redeploying an employee looking for a new challenge to another venture can result in a mismatch between employee and venture. The entrepreneur experienced this problem, as each portfolio company has its own distinct culture.

In sum, by *accessing*, *multiplying*, and *redeploying* resources and capabilities across his portfolio, the entrepreneur engages in the process of sharing resources and capabilities. These three across-portfolio subprocesses differ from the previously identified subprocesses of acquiring, accumulating, and divesting resources, which refer to a single firm's efforts to purchase or shed resources on the market or develop them internally when needed to exploit an opportunity, as compared in Table 3 (Garbuio, King, and Lovallo, 2011; Sirmon *et al*., 2007). Accessing, multiplying, and redeploying represent subprocesses through which the entrepreneur aims to realize synergies across his portfolio; they allow him to make optimal use of the resources and capabilities in the portfolio by using them multiple times or by inserting them in those ventures where they can have the largest impact.

The subprocesses can be linked to both exploration and exploitation. While the subprocesses are clearly used to engage in exploitation, for instance by rolling out a remuneration process in the accessing subprocess or creating umbrella services to increase efficiency in a venture in the multiplying subprocess, they can also entail the orchestration of existing resources and capabilities to effectively explore new opportunities. For instance, the exchange of customer portfolios or existing technology from one venture to

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another in the redeploying subprocess can potentially aid a venture in moving into a new market.

Transforming resources and capabilities

Two of the eight resource orchestration subprocesses, *incubating* and *decoupling*, refer to nurturing resource and capability configurations to prepare for the exploration of new market opportunities. As such, the entrepreneur engages in the process of *transforming* heterogeneous resources and capabilities from across the portfolio into independent, self-sufficient ventures. Representative examples of these subprocesses are illustrated in Table 5.

Our analysis shows that to explore new venture opportunities, the entrepreneur first engages in a process of supporting and testing configurations of heterogeneous resources and capabilities from across the portfolio, i.e., the subprocess of *incubating* a new venture. We observe multiple resource orchestration actions through which incubation occurs. For instance, after having selected a new business idea that emerged from within his ventures, the entrepreneur infuses the necessary knowledge and allocates the necessary resources and capabilities to support its transformation in a new venture. This enables testing of the new capability configuration to prove its potential to become a new venture by independently generating revenues. As such, the champion developing the new activity receives resources involving support processes and structures from the entrepreneur at the portfolio level. As illustrated by the quotes in Table 5, the new champion can focus fully on developing the core capabilities needed to launch the venture.

> '*He* [*the entrepreneur*] *also said* '*I am looking for intrapreneurs. I have an idea, but I need people to execute it. I cannot work out all my ideas by myself. I look for people, I assemble them, and I make sure they do not need to worry about some things in the beginning.*'*…He makes sure that there is a place where, during the first two years, you do not need to think about which accountant you need, how much money you need, what material, an office you need to clean…No, you are at headquarters for two years, where you can focus on the most important thing—how to move from an idea toward a business. And from a business toward a company.*'

Second, after having allocated resources and capabilities to support a new venture, the entrepreneur finally evaluates the potential of the resource and capability configuration after a preset time period. When the entrepreneur feels he has found a profitable resource and capability configuration to exploit a new market opportunity, he *decouples* such a self-sufficient configuration from its supporting firm, i.e., its incubator. Subsequently, the entrepreneur invests additional resources so the venture can independently develop its core capabilities to fully exploit the market. For example, after the entrepreneur had incubated Talk within Digiwiz, he decided to spin-out the activity, as the culture and activities of the two were blending into each other and hampering the development of Talk. After separating the two ventures, Talk started focusing even more on its core capability, i.e., the development of social media strategies, as this quote illustrates:

> 'You felt that people from Talk started to engage in other things than social media because of the interaction [with Digiwiz]. With the risk of losing their focus on the social media niche. After they moved, they rebuilt their own corporate culture and concentrated even more on social media.'

To summarize, by *incubating* and *decoupling* resources and capabilities, the entrepreneur engages in the process of transforming resource and capability configurations into new ventures. As such, these processes can be linked to the exploration of new opportunities. We extend prior resource orchestration theory by showing that the subprocess of incubating represents a particular form of bundling resources and capabilities from across the portfolio to explore opportunities to form new capability configurations. In that respect, incubating complements the previously identified process of pioneering (Sirmon *et al*., 2007) a new capability within a single firm, as incubation allows a new venture to develop its core capability. However, whereas pioneering entails the development of a specific capability in a single-firm context, incubating refers to the development of an entire configuration to tackle a market opportunity, using heterogeneous resources and capabilities from across the portfolio. Also, decoupling represents an essential part of incubating, although it is different from the divesting process identified by Sirmon *et al*. (2007), as the newly developed capability

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configuration remains part of the portfolio and, ultimately, has the potential to strengthen the competitive positioning of the overall portfolio.

Harmonizing resource and capability configurations

Finally, we identified a resource orchestration process that helps balance resource and capability configurations across the portfolio of ventures in order to create value for customers and owners, i.e., the process of *harmonizing* configurations across the portfolio. Through three specific subprocesses, *aligning*, *complementing*, and *pruning*, the entrepreneur is able to design a value-creating portfolio of resource and capability configurations. Representative examples of these subprocesses are illustrated in Table 6.

First, the entrepreneur engages in the subprocess of *aligning*, i.e., adjusting configurations using the resources and capabilities available from elsewhere in his portfolio according to the needs of particular growing ventures at different stages of their development (in line with his experience of what other ventures required at that stage). As some ventures in the portfolio are further ahead in their life cycles, younger firms benefit from the processes and capabilities that have been built previously in other ventures. As such, the entrepreneur creates synergies and facilitates the transfer of knowledge and practices in a timely manner.

In particular, our fine-grained analysis reveals three types of resource orchestration actions through which *aligning* takes place: (1) balancing entrepreneurial and managerial capabilities; (2) aligning corporate structures and processes with growth; and (3) adjusting financial resources to growth. As such, aligning is linked to the entrepreneur's attempts to exploit ventures in an efficient manner. An example of aligning processes with growth relates to the need for more sophisticated HR processes as a venture grows. Based on his experience with other ventures, the entrepreneur understands in what growth stage of a new venture he can transfer and implement systems, such as remuneration systems or project management systems. As a business partner states:

> 'That remuneration policy is a nice example of what is not possible in Newton, but what is possible in Talk. And I am now going to see whether I can also implement it in NetDesign and Star, who employ 10 people. But in Illustrat there are only three people. There is no point. As they grow, there will be a need to use it.'

The *aligning* process extends current theory on resource orchestration by showing how a portfolio entrepreneur can realize synergies across the portfolio by readjusting the capability configurations within a specific venture in line with his/her experience of the configurations available in ventures elsewhere in the portfolio that are ahead in the growth curve. As such, growing ventures can benefit from being aligned with the resources and capabilities appropriate for their stage of development possessed by more mature ventures in the portfolio when they were at the same stage of development.

Second, our data reveals that as the entrepreneur harmonizes configurations of resources and capabilities across the portfolio to explore and exploit market opportunities, he engages in the subprocess of *complementing*. The exploitation of such complementarities holds more value than the mere sum of the exploitation of the individual configurations, i.e., the individual ventures. As such, the subprocess of complementing entails the exploitation of value-creating synergies across the portfolio using complementary capability configurations. In fact, in some instances, such an exploitation of synergies allows for the exploration of new opportunities.

Our evidence indicates that the subprocess of complementing resource and capability configurations is especially important with regard to the complexity and sort of market opportunities that can be handled by the portfolio of ventures. Specifically, we observe two types of resource orchestration actions through which complementing occurs.

On the one hand, the entrepreneur integrates complementary capability configurations from across the portfolio on a temporary basis to explore and exploit complex market opportunities. To pursue such complex projects, the entrepreneur's central liaison position in the portfolio is crucial. For instance, to meet the high demands of an important customer of Digiwiz and tackle a challenging project, the entrepreneur developed a complex offering by leveraging different capability configurations from across his portfolio, including the resource and capability configurations of Digiwiz, Newton, Talk, and the Paradise group. As a result, Digiwiz was able to deliver a broader offer beyond its in-house

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capabilities, thus delivering greater value for the customer and reaping the benefits of doing so. As a business partner states:

> 'We are currently developing a strategy for an important customer in the financial industry, which actually consists of a set of deliverables that require more than what Digiwiz or Newton or Talk do…But there are people in the Paradise group that have that experience. We can leverage the broadening of the offer directly to a specific project for a specific customer, under the supervision of Digiwiz.'

On the other hand, in terms of the sort of projects that can be tackled by the different ventures, our case shows that although integrating configurations on a project basis has its benefits, in the long term, the juxtaposition of complementary capability configurations across the portfolio also leads to value creation. Doing so allows the entrepreneur to explore and exploit more and different market opportunities simultaneously. For example, Digiwiz offers social media services as part of an integrated package of online marketing services, while Talk offers specialized social media services without any additions. Consequently, by keeping these two capability configurations apart, the ventures are able to tackle different customer segments using their own value propositions. Exploiting these configurations through multiple ventures, the entrepreneur is able to address additional parts of the market, thus engaging in exploration, as the following quote illustrates:

> 'And that is how you reach two customer segments. Because that is always the question. Digiwiz versus Talk. Digiwiz also does social media. But we target a different kind of customer. Digiwiz looks for a customer who wants to go broad and integrated and work with one partner. Talk customers are looking for niche players. Maybe that is also the answer to the question on value creation.'

Additionally, by juxtaposing different capability configurations within different ventures, the entrepreneur creates agile organizations that have the potential to quickly adjust to new market conditions and focus in order to strengthen their competitive advantage.

Whereas the previously identified subprocess of coordinating resources entails the integration of resources and capabilities to develop a value-creating capability configuration within a single firm (Sirmon *et al*., 2007), complementing represents a distinctive process to explore and exploit resources and capabilities across a single firm's boundaries. Complementing consists of leveraging multiple configurations simultaneously to create value across the portfolio through synergies. It allows the entrepreneur to effectively and flexibly pursue an entrepreneurial strategy by responding to multiple market opportunities using the same resources and capability configurations available to him.

Third, our case data reveals that an important element of the entrepreneur's efforts to harmonize configurations of resources and capabilities across the portfolio consists of *pruning* resources and capabilities. Such a pruning subprocess consists of disentangling poorly fitting resource and capability configurations, with the aim of recovering resources and capabilities across the portfolio. The entrepreneur engages in two specific resource orchestration actions. First, when a specific resource and capability configuration displays a lack of fit, the entrepreneur can decide to discontinue the venture, as was the case with Monitor and Tagger. Based on the poor performance of each of these ventures, the entrepreneur decided to no longer invest any resources of capabilities, but instead dissolved the ventures. Once discontinued, specific resources and capabilities (technology, human resources, financial resources, etc.) from a failed venture can be reabsorbed into the portfolio, with the aim of making use of them elsewhere, as this quote reflects:

> '*With Tagger*, *it was just the same*, [*but*] *a bit more complex because there were debts involved…The technology is also on a CD. Well*, *something better than that. And now we are looking around*, *keeping our eyes open to see whether we can do something with it.*'

Important to note is that whereas the previously identified subprocess of divesting resources and capabilities entails shedding resources and capabilities to the strategic markets (Sirmon *et al*., 2007), pruning also includes a further distinctive subprocess that occurs across the portfolio. This additional subprocess consists of releasing capabilities and resources tied up in a venture back into the portfolio of firms, with the intent to reuse

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them and create value across the portfolio. As such, whereas the divesting aspect of pruning consists of the irreversible liquidation of a resource or capability from the firm (and, hence, the portfolio), the second aspect of pruning refers to the extraction of resources and capabilities from failed ventures with the aim of recuperating them as much as possible elsewhere in the portfolio.

The theoretical model presented in Fig. 2 summarizes our findings. Overall, our case suggests that resource orchestration processes across a portfolio of ventures help create synergies when exploring and exploiting new opportunities.

DISCUSSION AND CONCLUSION

We sought to extend previous research on enduring entrepreneurship by examining specific resource orchestration processes that help portfolio entrepreneurs realize synergies across a portfolio of businesses when exploring and exploiting new opportunities. To do so, we explored a longitudinal single case of a portfolio entrepreneur. In answering our research question, we identified eight specific resource orchestration subprocesses across ventures —*accessing*, *multiplying*, *redeploying*, *incubating*, *decoupling*, *aligning*, *pruning*, and *complementing*— that enable the portfolio entrepreneur to more effectively explore and exploit new venture opportunities in his portfolio of ventures. These subprocesses were grouped into three aggregate theoretical constructs—namely *sharing*, *transforming*, and *harmonizing*—that occur across the portfolio.

Our research contributes to theory in three ways. First, by building theory on how resource orchestration operates across a portfolio of ventures, we add to our understanding of the process of enduring entrepreneurship. The resource orchestration processes we have identified provide new insights that enduring entrepreneurship requires the continuing generation of entrepreneurial opportunities to be complemented by the development of synergies across the portfolio of ventures for those new opportunities to be explored and exploited. Our research shows that across-portfolio processes are linked to both the exploration and the exploitation of opportunities in different ways. The subprocesses within the *sharing* process can facilitate both the exploration and exploitation of opportunities. In contrast, the subprocesses within the *transforming* process are solely linked to the exploration of opportunities. In turn, our case indicates that within the *harmonizing* process, the subprocess of aligning is linked to the efficient exploitation of ventures, while complementing resource and capability configurations allows for both exploration and exploitation.

Second, we contribute to theory on resource orchestration by responding to the general call by Sirmon *et al.* (2011) for more empirical research on orchestrating a resource portfolio. Prior research has not explored whether resource orchestration theory can simply be extended to an across-firms/portfolio context. In other words, there seems to be a need to explore boundary conditions of existing resource orchestration theory. Our findings suggest that simply extending existing resource orchestration theory to across-firms/portfolio entrepreneurship contexts would miss important distinctive mechanisms in the resource orchestration process. As such, we extend theory beyond resource orchestration *within* firms by identifying eight subprocesses that we group into three aggregate resource orchestration processes new to resource orchestration theory (*sharing*, *transforming*, and *harmonizing*) that occur *across* firms and which lead to the development of synergies among the existing resources and capabilities available in an entire venture portfolio. These synergies are important in sustaining enduring entrepreneurship because the new markets that the portfolio entrepreneur (in our case) is entering are characterized by uncertainty. He attempts to address this uncertainty in the new venture-creation process more efficiently by drawing on the resources and capabilities from his previous ventures.

Third, we respond to the recent call of Autio *et al.* (2011) to look at the role of individuals and the imprints they may leave in firms and how these, in turn, affect capability emergence. Specifically, our results highlight the central role of the portfolio entrepreneur in diffusing resources and capabilities across a portfolio of ventures. As a portfolio entrepreneur's ability to steer resource orchestration evolves, he/she may develop an ability to identify, create, and facilitate the diffusion of knowledge and capabilities; this can be regarded as a form of meta-learning or dynamic capability (Lei, Hitt, and Bettis, 1996). He/she learns how to recombine and reconfigure resources and routines in new and existing ventures to support enduring entrepreneurship through adjusting to new developments in the

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industry, which might be especially valuable to survive and grow in a dynamic environment (Zahra, Sapienza, and Davidsson, 2006). The ability to steer resource orchestration processes across ventures may, therefore, be viewed as a critical boundary condition to explain the successful exploitation of a portfolio of ventures and, hence, might be an important factor in explaining organizational outcomes (Wales *et al*., 2013).

Our findings regarding the distinctive research orchestration processes across a portfolio of ventures have implications for research in other organizational contexts involving coordination across activities. First, further research might usefully explore the nature of sharing, transforming, and harmonizing processes across strategic partnerships and alliances, as well as in relation to the integration of mergers and acquisitions. Similarly, resource orchestration may involve coordination across different stakeholders in the value chain. To what extent does the nature of these processes differ across these contexts? How do these resource orchestration processes evolve between strategic partners that engage in repeated working together? How do they differ between firms that engage in repeated acquisition activity compared to those that do not? Such research might also explore whether additional resource orchestration processes can be identified as being specific to these other contexts. While we have focused on the evolving role of the portfolio entrepreneur in steering the resource orchestration process, further research might usefully explore how this coordination operates between the strategic partners in the context of alliances, particularly where there may be differences between the relative power and knowledge of the partners. To what extent are these complementary or conflictual?

Second, we have attempted to tie the resource orchestration subprocesses we identify to extant strategic entrepreneurship theory on exploration and exploitation. While our findings hint toward specific relationships between specific subprocesses and either exploration, exploitation, or both concepts, they also raise interesting questions. To what extent do such relationships exist in other types of portfolios, such as portfolios of venture capitalists or multidivisional firms? Can a fine-grained analysis of these relationships reveal clear classifications involving subprocesses, exploration, and exploitation of market opportunities? What are the boundary conditions related to the presence of such relations, and what are the performance implications?

Our study has a number of limitations that offer opportunities for further research. First, because our research setting is a revelatory case, our conclusions must be tentative and might not be generalizable to other settings. We have attempted to create 'local' knowledge that provides fine-grained, contextualized, and processual accounts (Steyaert, 1997). The resulting model represents various intermediary conceptualizing steps between raw case data and theory, which can lead to further understanding of the researched phenomenon (Eisenhardt and Graebner, 2007). Our intention was to provide a preliminary map of resource orchestration in the context of portfolio entrepreneurship. Our data, while generating insights on how to move theory forward, did not allow us to identify the optimal size and the optimal scope of a portfolio of ventures. These issues provide fertile ground for further work on resource orchestration across ventures.

Second, in seeking to understand the development and diffusion of knowledge and capabilities across a portfolio of ventures, our research did not overly focus on outcomes. Further research is needed to empirically determine and quantify the economic benefits of resource orchestration across firms in dynamic environments. For example, our data hinted at the possibility that portfolio entrepreneurs might be especially effective in leveraging organizing processes that facilitate and support growing ventures. Also, a portfolio of ventures might, under certain circumstances, offer advantages as compared to more traditional organizational forms. Such advantages could arise from the increased agility of individual ventures. However, when leveraging resources and capabilities across ventures, there might be more uncertainty regarding resource fit, which might lead to failed orchestrations. Further research is needed to examine the drivers of successful versus unsuccessful orchestrations.

Third, we have focused on resource orchestration in the context of portfolio entrepreneurship. A key question that arises is the extent to which our insights apply to larger business groups. Whereas the addition of new ventures in the context of portfolio entrepreneurship appears to be mainly the result of an entrepreneurial process (Rosa, 1998), business group formation in large multinational companies has predominantly been explained by agency theory in which managers pursue their own objectives at the expense of shareholders. Entrepreneurial firms present two main differences from managerial firms: ownership concentration and the direct involvement

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of the entrepreneur in the effective control of the firm (a company or a group) (Iacobucci and Rosa, 2005). As a result, lack of co-location between decision makers and owners of information in large business groups can mean there is no comprehensive view of the orchestration process across businesses. Given the differences between business groups and portfolio entrepreneurship, future research might fruitfully examine how resource orchestration actions supporting enduring entrepreneurship might be different. Additionally, future research could investigate which resource orchestration actions help support different types of corporate-level strategies that seek different type of synergies.

Finally, this study contributes to practice by improving entrepreneurs' understanding of the relevance of a portfolio of firms to continuously explore and exploit new business opportunities. In particular, our results point entrepreneurs toward the value of a portfolio for learning how to efficiently and successfully manage growing ventures in order to support enduring entrepreneurship. We hope our analysis has laid the foundations to stimulate a further theoretical and empirical research agenda in this crucial aspect of entrepreneurship.

ACKNOWLEDGEMENTS

We would like to thank Professor Walter Van Dyck (Vlerick Business School) for his valuable comments during the development of this study. We also thank the Intercollegiate Center for Management Science, Brussels, for its financial support.

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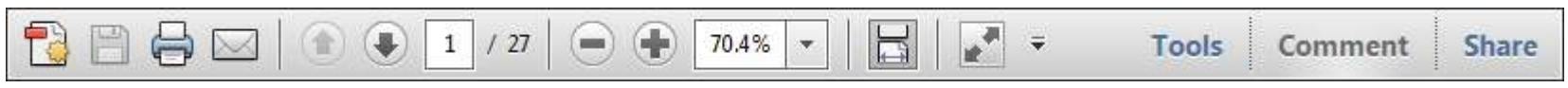

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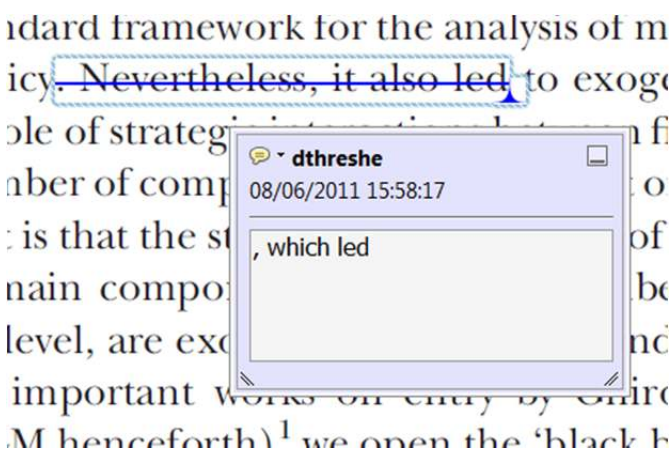

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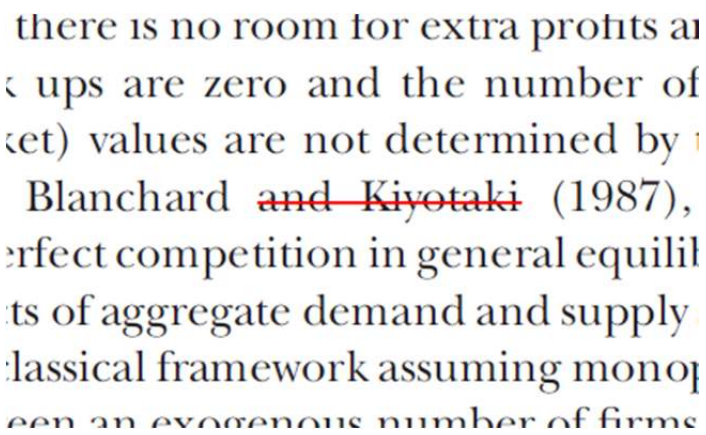

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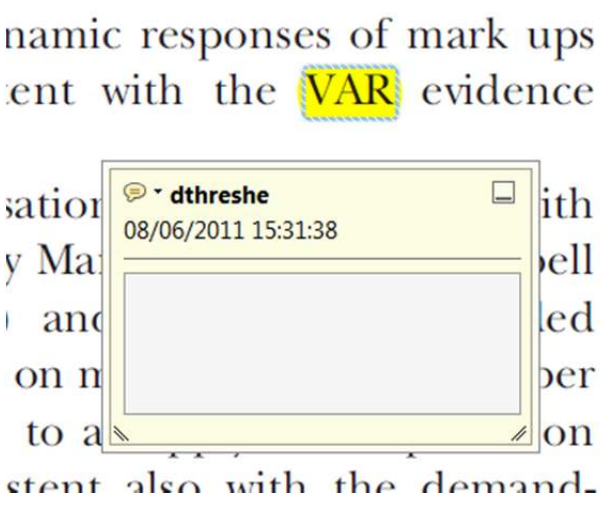

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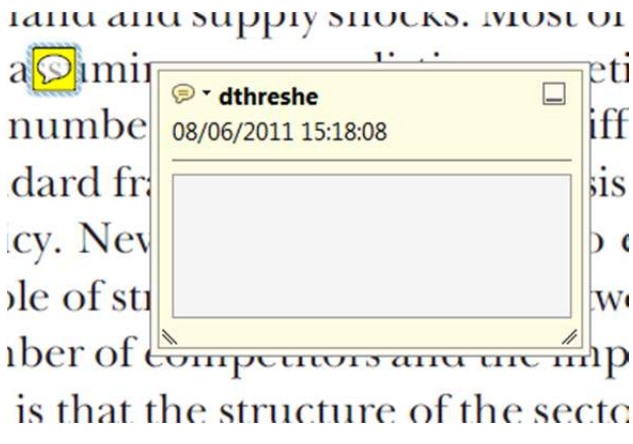

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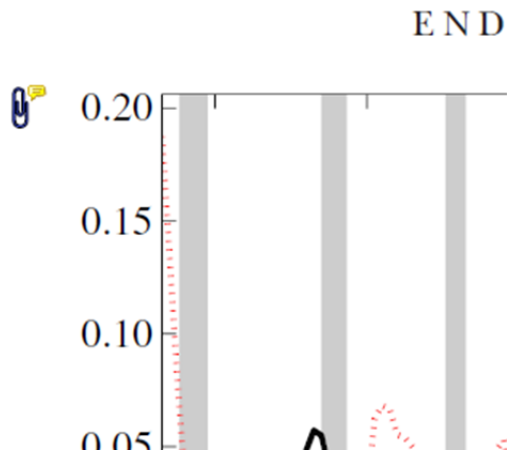

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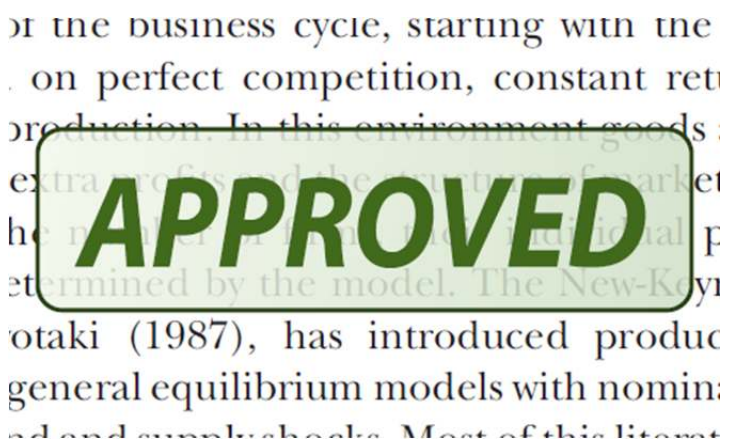

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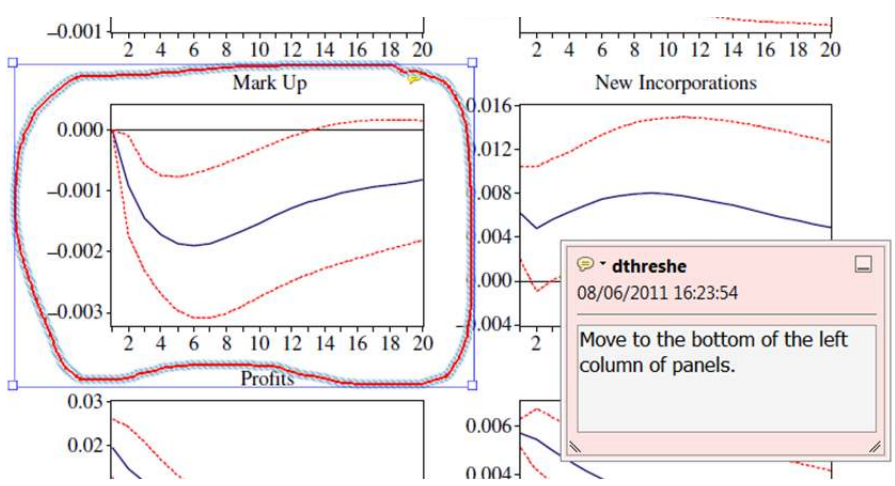

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