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## Understanding the strategy-innovation link in an era of disruptions

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**Abstract:** Whereas innovation and strategy traditionally are treated as two separate fields of expertise and research, this conceptual paper aims to identify how strategy theory can be linked to recent developments within the innovation field. Innovation research seeks to explain the process of creating new products and services. Strategy research, in turn, intends to explain how businesses create lasting competitive advantages. In recent years, research in strategy has shifted towards explaining how organizational capabilities and environmental turbulence are related, increasingly recognizing that it is difficult to retain sustainable competitive advantages, unless market dynamics and business renewal is addressed. To establish a systematic integration and analysis we present the result of an extensive literature review of 1268 research articles published during 2007-2017 to address the question: To what degree, and how, have strategy and innovation been linked in leading management journals? Our analysis reveal that research addressing both strategy and innovation is limited, but highly cited. Moreover, we identify 5 main themes, which in turn reflected 12 subsidiary themes addressed in extant research. These themes gives important insight about what has been done and what is likely to be needed going forward.

**Keywords:** Conceptual research, disruption, organizational capabilities, structured literature review, strategy-innovation link.

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### 1 Introduction

The essential role of innovation and entrepreneurship in the sustainability of a firm's competitiveness was pointed out by Schumpeter (1939, 1942). However, it remains conceptually unclear how extant strategy frameworks explicitly integrate and build on a Schumpeterian paradigm. Despite several calls for an improved understanding of how strategy and innovation theory can be integrated (e.g. Ramanujam and Mensch, 1985), strategy theory has to a limited degree been fused with ideas from innovation theory. In a

contemporary business environment where the biggest and most valuable technology firms (i.e. FAANG: Facebook, Apple, Amazon, Netflix, and Google) are distinguished by their innovation capacity and capability, it is problematic that innovation activities predominantly remains outside the strategy theory domain.

To fill this void, we offer the results from a structured literature search in the Web of Science and EBESCO databases that integrate strategy and innovation research. In particular, we review the highest ranked journals in the area of innovation and strategy from 2007-2017 and map to what degree and how innovation and strategy have been treated together in prior research. We identify themes covered in this research and reveal that the papers that link these research areas are extensively cited. Still, a lot of work remains to be done, and fusing core properties of strategy theory with recent ideas from innovation literature is both obtainable and prudent.

The structure of this paper can be described as follows: First, we present extant strategy and innovation management theory to highlight similarities and differences across these two bodies of research, and pose our research question. Second, we explain the method applied in the search, review and analysis of the reviewed papers. Third, we present the findings from our analysis of the extant body of literature addressing strategy and innovation, and, finally, we offer a concluding discussion with implications on the future development for research and practice.

## **2 Theoretical background**

Going back to Schumpeter (Schumpeter, 1949) and the notion of creative destruction, the need for innovation and entrepreneurship is recognized in most firms to guarantee their sustained competitiveness. However, innovation and strategy have traditionally been treated as two separate fields of expertise and research. Innovation research seeks to explain the process of creating new products and services (Burns and Stalkers, 1961). Innovation is largely regarded as a social process consisting of three core activities (Newell et al., 2009, p. 188). The first activity is the generation of new solutions, also referred to as the invention. Then the activity diffusion follows, which denotes the process of spreading the new solution to other individuals so that they also get an understanding of it. Finally, the innovation process depends on implementation, that is, other individuals also start using the new solution. Innovation strategy refers to the articulation of the role of innovation in achieving the organizational aims (Cooper, 2001) by aligning the overall business strategy with innovation decisions (Menor and Roth, 2007). Indeed, recent innovation management research have documented how firms utilize their resources and capabilities for the development of innovations, such as new products, services or processes (Hill et al., 2015), and explicitly linking resources and processes to the innovation success also for service innovations (Froehle and Roth, 2007, Aas et al., 2015). Furthermore, that there is a positive relationship between the implementation of innovation activities and future performance (Bowen et al., 2010, Rubera and Kirca, 2012). Indeed, several authors (e.g. Johne and Storey, 1998, Easingwood, 1990) stress that it is important to set clear goals for the innovation program as a whole, and empirical studies suggest that leading firms are likely to have an explicit innovation strategy (Cooper et al., 2002). In the recent past, the focus of research on innovation management has primarily been concerned with innovations related to physical products (e.g. Droege et al., 2009), and limited work has been done to

systematically review and categorize the different attempts to create a more explicit strategy-innovation link.

In contrast, strategy research aims to explain how businesses create lasting competitive advantages (Porter, 1985). The field of strategic management is fragmented and overlaps with a number of theoretical fields, such as economics, sociology, marketing, finance, and psychology (Nag et al., 2007). In the late 1970s, the field was in its infancy and re-labelled from ‘business policy’ (Schendel and Hofer, 1979). Due to the diversity of the field, a coherent established definition of strategic management has been lacking (Mintzberg et al., 1998). Based on a major survey of scholars researchers (Nag et al., 2007) have defined strategic management as ‘intended and emergent initiatives, taken by managers or on behalf of the owners, involving utilization of resources, to enhance the performance of firms in their external environment’.

Strategic management research was in its early days largely rooted in what is referred to as the Structure–Conduct–Performance tradition. It is most notably captured in Porter’s influential contributions (Porter, 1980, Porter, 1985), in which competitive advantage is assumed to be based on industry or strategic group and to a limited degree linked to innovation. In parallel, Mintzberg and colleagues (Mintzberg and Waters, 1985, Mintzberg and McHugh, 1985, Mintzberg, 1978) argued for an alternative view on strategic management, proposing that not all formal strategies are implemented as intended, and that many realized strategies emerge outside of the scope of ex ante analyses and plans. Innovation was not a key orientation of these theories on strategy.

More recently, research in strategy has shifted towards explaining how organizational capabilities and environmental turbulence are related, increasingly recognizing that it is difficult to retain sustainable competitive advantages unless market dynamics and business renewal are considered (Teece et al., 1997). Given rapid market changes and innovation pressure caused e.g. by digitalization, an explication of how strategy relates to innovation is needed. To succeed in a globalized business environment characterized by hyper-velocity (Crossan and Apaydin, 2010, Francis and Bessant, 2005), it has been claimed that organizations need to manage change in increasingly volatile and complex service eco-systems (Yoo and Kim, 2015). Under such conditions, dynamic capabilities possessed by firms have been linked to the sustained competitiveness of firms (Eisenhardt, 2004) and claimed to be central to innovation (Tidd, 2012). However, the ability to replicate dynamic capabilities and innovation success over time has not been firmly established in extant research.

In the early 2000s, the entrepreneurial perspective on strategy gained ground, emphasizing value creation rather than appropriation (Hitt et al., 2001). The multiplicity and complexity of strategic management—and the need to consider balances and paradoxes—have also been recognized in recent strategy research. For example, dealing with ambidexterity (Birkinshaw and Gibson, 2004, Tushman and O’Reilly, 1996) by balancing exploration (i.e. innovation) and exploitation (i.e. the productivity of existing solutions and products), and managing paradoxes (Eisenhardt, 2000). Still, strategy theory have to a limited degree been fused with ideas from innovation theory (Lightfoot and Gebauer, 2011, Markides, 2006, Teece et al., 2016, Pisano, 2015). Blue ocean strategy (Kim and Mauborgne, 2004), business model innovation (Teece, 2010, Zott et al., 2011, Foss and Saebi, 2017, Osterwalder and Pigneur, 2010, Christensen and Johnson, 2009), dynamic capabilities (Teece et al., 1997, Eisenhardt and Martin, 2000, Barnett et al., 1994, Kogut and Zander, 1992, Helfat and Peteraf, 2003) and disruption

theory (Markides, 2006, Christensen, 1997, O'Reilly III and Tushman, 2016, Manyika et al., 2013) are notable exceptions.

### 3 Methodology

The aim of this study is to review research that aims to bridge strategy and innovation in highly ranked journals. In doing this, an inductive approach was taken and qualitative and quantitative analysis used. This approach has enabled us to develop a solid understanding of the areas where strategy and innovation has been interlinked. It has also enabled us to tease out dominant themes in this research, as well as potential avenues for future research.

#### 3.1 Data collection and compilation

In doing a systematic literature review, you typically go through three main phases: *planning*, which involves the identification of the research question and defining boundaries; *conducting*, which involves search and analysis of relevant literature; and *reporting*, i.e. formalizing the findings and developing implications (Ashby et al., 2012, Tranfield et al., 2003). The first two phases will be described here, while the third phase, reporting, is described in the Findings section.

In the planning phase, we first formulated our research question. We then defined the boundaries of our study to include academic articles published in the period 2007-2017 in the eight top strategy and innovation journals globally as listed by 2015 Association of Business Schools academic journal guide (ABS list) (Harvey, 2012). The ABS-list has separate categories for both innovation and strategy and four top journals at level 4 in each field. These journals are for strategy: *Strategic Management Journal*, *Global Strategy Journal*, *Long Range Planning* and *Strategic Organization*; and for innovation *Journal of Product Innovation Management*, *Research Policy*, *R & D Management*, and *Technovation*.

The ABS list is the most comprehensive and frequently used ranking list among business research scholars when choosing publication outlets. It is the dominant source used to evaluate business research across Europe and the US. Thus, limiting the scope of journals to the ABS list suggests that the research included in the literature review is of high quality and reliability.

After having identified the research question and the scope of the study, we continued to the conducting phase. In this phase was important to develop a database of articles that integrates innovation and strategy. In doing so, we used The Web of Science Social Sciences Citation Index (SSCI). Due to different search categories and search methods, we had to use different search terms across databases. We used the search terms *innovati\* strateg\**, where the asteric means all words that include this start – allowing strategic and strategy as well as innovative and innovation to be included in the search. The search covered a search term in Web of Science referred to as Topic, which includes abstract, author keywords, and Keywords Plus, which are index terms created by the database managers based on frequently occurring words in the titles of references cited in an article. Thus, the search basically covered all relevant available information in Web of Science, as full text searches are not possible.

The search resulted in a total of 1268 hits. To limit the scope of the qualitative analysis and to ensure relevance of the included papers, only papers with both strategy

and innovation in the abstract among these papers were compiled into a separate dataset of 381 papers. This was done through the use of the EBESCO database which allows for specific searches in the abstract – a function not available in Web of Science.

### *3.2 Data analysis*

The data analysis included both quantitative and qualitative components. In particular, the analysis was conducted in two main phases: 1) familiarization and description of the data based on quantitative methods, and 2) identification and analysis of key research themes based on qualitative methods and descriptive quantitative analysis of the identified themes. The two phases will be presented in the following.

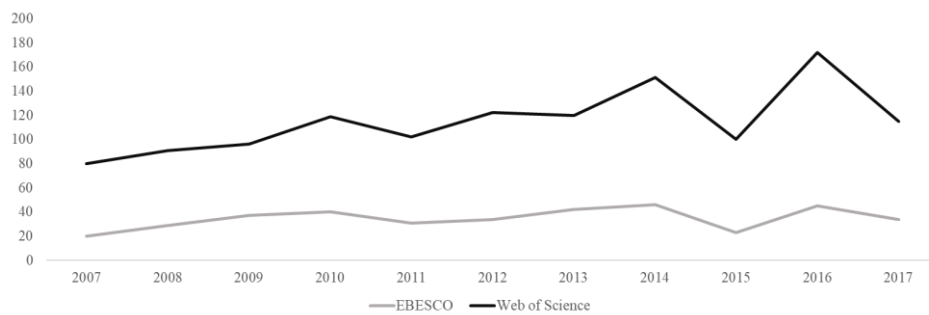
In the familiarization phase, we developed an overview of the research that include both innovation and strategy. In particular, the following variables was mapped: 1) number of papers over time, 2) emphasis across journals, and 3) citations. These could be directly mapped from the results of the search. In addition, we did qualitative analysis in order to classify the different papers. This was done based on a classification of the content of the abstract. In particular, each abstract was first classified inductively and based on a research centric orientation, following Gioia et al. (2013). In turn, these classifications were further compared to research based themes and classified at a more aggregate level for comparison. To the degree that the abstract mentioned theory and methodology used in the paper, it was included in the classification of the paper and added to the database.

## **4 Findings**

The findings will be presented in the two main parts: (1) A descriptive overview of number of papers, journals and citations over time, and (2) The main themes covered in the research, including count.

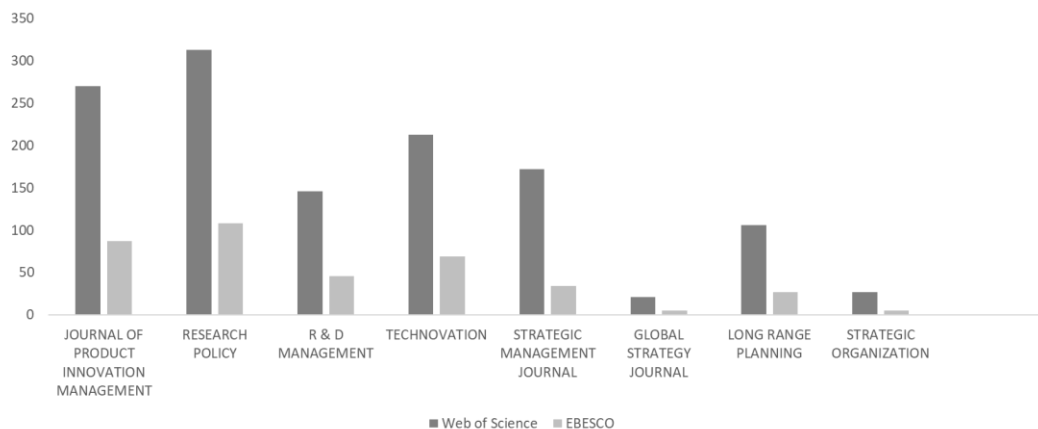
### *4.1 Descriptive overview of paper*

The number of papers in this area has been relatively stable over time, with some fluctuation over the last 4 years. The general trend is a slight increase, but no significant trend. This is among other caused by the limited number of journals covered, in which only so many papers are published every year. Please see figure 1 for a general overview of the data over time. In the figure, the Web of Science search as explained above covers the 1268 papers, while the EBESCO search only incorporate the 381 papers with innovation and strategy in the abstract. The trend of the more elaborate and the database with only innovation and strategy in the abstract is following a very similar trend.



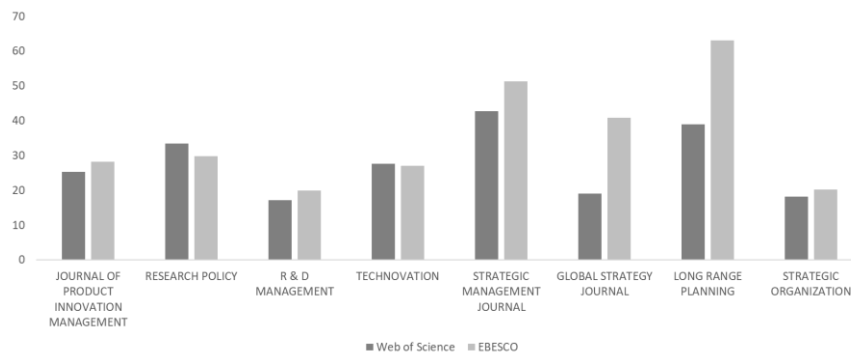
**Figure 1:** Overview of selected publications over time

In terms of the types of journals covered in the search, the top journals within the innovation discipline seemed to consider this to be an important area of research. In contrast, primarily two of the top strategy journals have papers that link strategy and innovation, but the interest within the field of strategy is much more limited. Please see figure 2 for an overview of the outlets of the identified publications.



**Figure 2:** Overview of selected publications per journal

When one looks at the impact of the research that has been done that deals with both concepts, the average citation rate in all the journals is very high. Thus, other scholars have great interest in the work that is being done in this area.

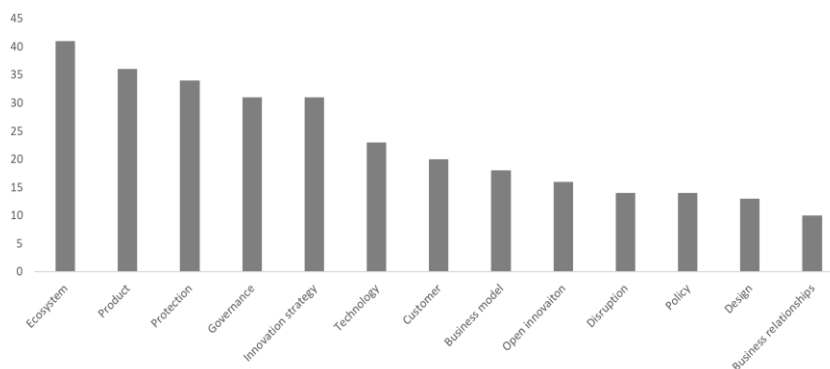


**Figure 3:** Overview of selected publications measured in citations (March 2018)

Figure 3 shows that the average number of citation per paper is extremely high for papers covering both areas. As the selection of papers gets more narrow - as in the case where only papers with the concepts of innovation and strategy in the abstract is included – the number of citations in 6 out of 8 journals increase. Further, the number of citations in the strategy journals is considerably higher than in the innovation journals.

#### 4.2 The main themes covered in the research

Through a tedious classification process explained under that data analysis section above, the 381 papers were reduced into 5 main themes, which in turn reflected 12 subsidiary themes. Of these 5 themes 3 of them was primarily oriented towards innovation and marketing with a more limited relevance to strategy. These were: Conditions in terms of ecosystem, business relationships and policies, fundamentals in terms of governance and technology and value creation in terms of design, product and customer. Additionally, two areas were identified that illustrated the bridge between strategy and innovation as opposed to emphasizing primarily one: value appropriation in terms of the choice of an open versus protected approach to innovation, and the strategy innovation link, which includes business models, innovation strategy and disruption.



**Figure 4:** Overview of identified themes

#### *4.3 The strategy-innovation link*

The research where strategy and innovation have been linked concern 3 main areas: Business models, disruption and innovation strategy. Business models had the highest total number of citations, with an average of 79 citations per publication. Of the 18 publications, a conceptual paper by Teece (2010) was cited 1047 times and is largely driving this number as it is a seminal paper on business models. For the rest of the papers, the average number of citations was 21. Many of these papers are relatively recent and all the papers are published during 2010-2017. In particular, different papers deal with the concept of a business model (DaSilva and Trkman, 2014, Baden-Fuller and Morgan, 2010, Teece, 2010) and different ways of making innovations in the business model e.g. based on pricing and payment models and resources (Winterhalter et al., 2017, Denicolai et al., 2014, Corrocher and Zirulia, 2010) As some of the later contributions, (Cortimiglia et al., 2016, Spieth et al., 2014) talk of the interlinkage between business models and strategy making.

In addition to business models, innovation strategy is mentioned as a key area. This area emphasizes a number of different strategic decisions that companies need to make in their innovation efforts. In particular, it concerns short and long term decisions in R&D (Artés, 2009, Flammer and Bansal, 2017), the decision to exploit versus explore knowledge (Bauer and Leker, 2013, Enkel et al., 2017, Hernández-Espallardo et al., 2011, Piao and Zajac, 2016), internal versus external R&D resources (Hagedoorn and Wang, 2012) and whether to offshore the R&D activities (Rodríguez and Nieto, 2012, Nieto and Rodríguez, 2011, Steinberg et al., 2017).

Finally, disruption deals with how existing industries deal with disruptive business model or technology innovation. A lot of what has been written with regards to strategy and innovation in this area deals with incumbent reactions (Awate et al., 2012, Huesig et al., 2014) and the role of the government (Ruan et al., 2014).

#### *4.4 Value appropriation*

In addition to the direct link between strategy and innovation in existing research, the literature points to value appropriation as an essential area of research where these fields are integrated. In particular, it deals with the strategic difference in organization when it comes to choice of openness and protectionism – which seems rooted in the dichotomy of a relational and transactional orientation in organization. In particular, two main areas have gained interest, patents and IPS versus open innovation, which stands in strong contrast in most cases and represents an important strategic choice in the area of innovation strategy.

With regards to open innovation, a number of areas have been studied such as motivations (Appleyard and Chesbrough, 2017) and trade-offs between openness and protection (Raasch et al., 2009, Knudsen and Mortensen, 2011). In the area of protection, papers have dealt with how organizations make the protection decisions (Gallié and Legros, 2012), the use of licensing (Gallié and Legros, 2012, Großmann et al., 2016), standard catch up collection and use of patents (Jell et al., 2017, Schmidt, 2013).



## 5 Concluding discussion

Most contemporary organizations face challenges related to achieving sustained and even contemporary advantages in periods of market change. This is particularly salient in times of digital disruption and at the face of the 4th industrial revolution. These changes demand innovation to be integrated as a central part of the strategy in organizations. In this study we have conducted a structured literature review to assess to what degree strategy and innovation has been linked in leading management journals. The analysis shows that the link between the two main concepts have been done at three different levels of analysis: 1) at the societal level, 2) the organizational level, and finally 3) at the value creation and appropriation level, and 4) the theoretical link between the two concept in business models, disruption and strategy innovation. In addressing the societal level, a key emphasis has been put on ecosystems and value networks with extensive research focusing on the innovation context beyond the organization – such as within cross-organizational collaboration and caused by particular policies and regulation. At this level, the main focus is on innovation theory, which few links to strategy theory. At the organizational level, business strategy are increasingly merging with core properties of innovation theory, to obtain scalability and differentiation into “blue ocean strategies” and how visionary and transformative leadership styles are merging with ideas from entrepreneurship research addressing creativity and values. At the value creation and appropriation level, the core issue relates to protection of innovation advantages – where open source innovation and a proprietary approach stands in strong contrast. This tradition is also largely rooted in the innovation theory tradition. Finally, the core of the strategy-innovation link incorporates the combination of theories directly looking at business models, disruption and innovation. Future research should use this different levels to further develop an understanding of how innovation can be transformed into and integrated with firms strategy.

By discussing how innovation and market characteristics affect business strategy, the paper contributes to knowledge on the strategy-innovation link. The conclusions reported in the paper provide considerable assistance to managers searching for better ways to develop strategy and manage their organizations, while increasing their innovative ability. By pointing to different theoretical positions, managers get a sense of theoretical perspectives to consider in their efforts to develop their organizations into the future. While strategy in many organizations have used analysis in the form of five forces, the BCG-matrix, the resource based view of the firm etc., managers in the future should think differently in terms of the types of theories they build their strategy work on – if a key objective is value creation and innovation as opposed to value appropriation. The paper suggests that as innovation to a larger degree becomes a key objective in many saturated organizations under conditions of change, business model theory, disruption theory and innovation strategy should also take place as core theoretical perspectives in organizations in their strategy processes.

Nevertheless, the conceptual nature of the study has limitations and further empirical research is needed to explore and test if the conclusions of the discussion beyond the provided conceptual categories.

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