

The Market Intelligence and Open Innovation interface: a case in the automotive industry

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Abstract:

Although Open Innovation (OI) makes use of external market-based sources to gather knowledge and insights, relatively little is known about the relationship between marketing and OI. This paper explores the link between marketing and OI and specifically how OI utilizes Market Intelligence (MI) during the new product development (NPD) process. After examining the process used in an automotive company to develop a brand-new product, we find that having a strong market orientation (MO) through MI enables the process by providing key market insights to several decision makers. Tactical and strategic MI has the main role at the beginning of the process, but is used during all other phases as well. The findings also reveal that there are two working modes employed by marketing, R&D and other teams involved in NPD when acquiring and using MI. In addition, MI contributes to an increase in social capital related to innovation. Our findings suggest that companies should adopt a strong MO in OI by embedding MI in their innovation operation to increase NPD efficiency. Theoretical and practical implications are also discussed.

Keywords: Open Innovation, New product development, Market Orientation, Market Intelligence; Automotive industry

Track: Innovation Management & New Product Development

1. Introduction of Paper

It is generally agreed that marketing and innovation are two functions which are mutually important in an organization. Several studies have linked marketing with innovation directly (Han et al., 1998; Hauser et al., 2006; Griffin et al., 2013; Pantano et al., 2019), and indirectly by using market based resources as a key asset for open innovation. As such, MI is a central strategic concept for companies across sectors and regions. While our knowledge about various organizational attributes of open innovation is increasing, we know relatively little about marketing aspects of OI.

First, this paper will outline the linkages between OI and MI, describing these under the construct of MO and new product development. Secondly, gaps in the literature are identified, following which research questions are stated and methodologies are described. Thirdly, results from the case are presented and discussed, prior to conclusions and recommendations.

2. Open Innovation and Marketing Intelligence

OI is defined as the flow of inbound and outbound knowledge through pecuniary and non-pecuniary mechanisms (Chesbrough, 2003). In the context of this work, it is important to highlight the importance of having an inbound flow of information focused on understanding market trends, competition and customers, among other factors. Specifically, customers, suppliers and competitors are important resources of knowledge for the firm's innovation process (e.g., Cassiman & Veugelers, 2006; Enkel & Gassmann, 2008; Ili et al., 2010), regardless of whether this information is provided by science or market specialists (Du et al., 2014).

There is a general consensus that MI can provide this information by scanning and analyzing the environment. Although MI was primarily intended as a collection of information (e.g., Kelley, 1965), it gradually became a sophisticated tool under the Market Orientation (MO) construct (Day, 1990; Naver and Slater, 1990; Kohli and Jaworski, 1990, 1993). According to Kohli and Jaworski (1993), MO is based on three fundamental pillars: (1) intelligence generation, (2) intelligence dissemination and (3) responsiveness. Adopting MO is beneficial for the firm (Hedaa & Ritter, 2005; Carbonell & Rodríguez Escudero, 2010), although some criticisms have been raised if its success depends solely on marketing and ignores a possible role for innovation (Han et al., 1998).

MO plays a key role in NPD (e.g., Hise et al., 1990; Cooper, 2001; Lamore et al., 2013). Because MI captures external information for the organization, it is particularly relevant for

new product development (Griffin et al., 2013). MI involves a wide range of information collection about stakeholders and factors that affect customer needs and preferences, just as the seminal work of Aguilar (1969) suggests scanning the environment, in search of ideas to use in R&D (Lambin, 2000). It is important to consider that MI involves very sophisticated activities and therefore it should not be viewed solely as a collection activity limited to a certain number of sources or sourcing (e.g., Laursen & Salter, 2006). It is not surprising that market research, which is part of market intelligence, is the second most important of the six critical factors in NPD (Kahn et al., 2012).

The link between marketing activities and OI becomes clear to see when firms need to obtain new ideas. Specifically, clients represent the most important knowledge source for innovation (Enkel & Gassmann, 2008). Customers provide a valuable source of information about their preferences (Reychav & Weisberg, 2009) and a customer-oriented firm leads to better product performance (Gatignon & Xuereb, 1997). Such a firm can also be actively involved in the NPD process as a co-creator of products or services (von Hippel, 2005), which might be suitable for radical innovation, as suggested by Bogers et al. (2010, p.868). Market based information is also necessary during the entire NPD process. According to Kohli et al. (1993), the company "periodically reviews the product development efforts to ensure that they are in line with what customers want". However, special attention may be required when customers are used as a principal source of innovation. According to Von Hippel (1988), customers are not aware of all product trends and technology changes in the market, and therefore they may not be able to express what they want.

Innovation can be radical or incremental. Subsequently, it is important that the process of MI is adapted to the need for knowledge in both radical and incremental product development processes. Barczak et al. (2009) observed that "for radical projects, marketing and R&D are equally likely to be the function that owns the project".

3. Links between OI and Market Intelligence and research gaps

Several studies have linked marketing with innovation directly (Han et al., 1998; Hauser et al., 2006; Barczak et al., 2009; Griffin et al., 2013; Pantano et al., 2019; Leenders & Wierenga, 2002), and indirectly by using market based resources as a key asset for OI. The seminal work by Chesbrough (2003, p.43) highlighted the need to gather knowledge and ideas from outside, as well as the importance of opening up R&D departments. In this context, marketing can play an important role by providing external information and knowledge.

Although a number of studies have discussed the MO construct in relation to OI (Arrigo, 2018; Cheng et al., 2014) or measured its positive effect on innovation (Atuahene-Gima, 1996; Jimenez-Jimez et al., 2008), or analyzed the contribution of MO using external suppliers in radical or incremental innovation projects (Song & Thieme, 2009), the role of market intelligence (MI) is unclear, despite it being a fundamental pillar of MO. Pantano et al. (2019) addressed the contribution of technology and innovation to marketing, but the opposite relationship remains unaddressed. On the other hand, despite the number of studies focused on the different stakeholders that are involved in NPD (e.g., Olson et al., 2001), it is not clear to what extent these stakeholders utilize the MO framework, especially when it comes to gathering and sharing MI.

We therefore want to gain more insight into how and to what extent MI is used in the different innovation stages. West and Bogers (2014) observed that it “remains unclear how external innovations travel from the outside to a commercial product through the firm’s business model and to what extent it requires distinct innovation strategies”. This motivates us to seek a better understanding of how MI is an integrated OI process using NPD with market orientation as the main theoretical foundation. Thus, the research questions we wish to address are:

1. How is MI utilized in the company during the NPD stage?
2. How closely do R&D and Marketing teams work together?
3. What aspects affect the relationship between MI and OI?

4. Methodology

A single case study is provided to illustrate the process, describing how MI is integrated into the innovation funnel during the development phase (Chesbrough et al., 2006, p.3). Given the established importance of studying how OI is used in the automotive sector (Gassmann et al., 2010; Wilhelm & Dolfsma, 2018; Ili et al., 2010), we explore the case of the Piaggio Group to shed light on how MI is utilized and integrated in OI projects.

The use of qualitative research allows us to gain a better understanding of the different points within a specific context (Bryman & Bell, 2011). Case description has been demonstrated to be effective in OI literature where single cases (e.g., Dodgson et al., 2006) and multicases (e.g., Mortara et al., 2009; De Massis et al., 2012) were utilized. In addition, a case represents empirical evidence which may contribute to the innovation models that were

not utilized very much in the past (Mahajan & Wind, 1992). Therefore, an interview with key personnel from the company would be most appropriate to provide the knowledge required for this study.

In order to answer our research questions, we have identified key directors in Piaggio who were willing to participate in our study through an in-depth interview related to the following activities: R&D, Strategic innovation and Marketing Intelligence. These areas represent highly specialized functions within Piaggio and all of them have an active role in NPD.

5. Findings and discussion

The interviews with the R&D manager were conducted in June 2021, which allowed us to draw up the different stages of NPD in Piaggio Group, as well as details of the roles described in Figure 1. However, the interview conducted with Strategic Innovation (SI) took place in May 2022. The study yields three main findings:

The first finding is that MI is used across all stages. However, the role of MI in terms of resources and participation differs between stages. In the first stage, where the objective is to search for and define opportunities, MI and SI have the main role and R&D is practically absent. SI and MI teams define the trends and customer preferences, respectively. The information provided is necessary for building the vehicle definition (Phase 2) and the business plan (Phase 3). According to the SI managers “this macro phase sets Piaggio apart from other motorbike manufacturers which, in most cases, are pushing new models to the market”. On the other hand, during the development phase, known as “vehicle engineering” (Phase 4), MI plays a minor role, as this phase focuses on technical aspects of the product. The findings are partially consistent with the study of Song and Thieme (2009), but our results show that MI is more extensively used in all phases, rather than only focused on the pre-design and commercialization of the product.

The second finding is that two working modes are developed: close working relationships and independent endeavor. In the first mode, MI and R&D staff work closely together and assume a primary role. This is the interface in which work is carried out in collaboration. In the second mode, departments work separately, usually assuming a secondary role. In each phase, the relative importance of the MI team and the R&D team varies. For example, before the go-kill gate (Phase 3), Product Marketing and R&D work together to provide an opinion on feasibility and an estimation of costs/timing with respect to the scooter or motorbike. However, in this phase other teams participate, such as the Accounting/Financial Control team. This innovation engagement model focuses on reducing risk in the decision making

process and ensures the best possible success for the new product. During these stages, a stronger connection between different teams increases social capital (APQC, 2003, p.10), which results in better performance and efficiency among teams involved in the innovation process.

The third finding is that there are several aspects that influence MI and OI. First, there is the management style and its role in NPD. Before Piaggio acquired the Aprilia brand, NPD in the company was mainly driven by its CEO, who might be subject to cognitive biases related to the market. Secondly, the size of the company and the financial resources available might help to overcome mistakes. Thirdly, a public company as opposed to a private one needs to respond to various stakeholders, and therefore strong fact based justification is needed when making large investments such as developing a new vehicle. Finally, the cost involved in NPD also has an influence. The finding is consistent with Avlonitis and Gounaris (1999), who suggest that those “companies wishing to reorientate themselves and develop a Marketing Orientation are obliged to direct their efforts towards changing both their attitude and behaviour”.

Lastly, the automotive sector has undergone several important changes. According to the VP of global digital marketing, one of the drivers that has significantly contributed to the adoption of a customer centric orientation has been the digitalization of marketing. Like other companies in the automotive sector, Piaggio employed a B2B business model in which the dealer was the client. However, through access to digital media Piaggio was able to become customer centric and gain a better understanding of customer preference in both product and service. In this context, MI has become more important than ever in delivering precise product specification based on customer preferences.

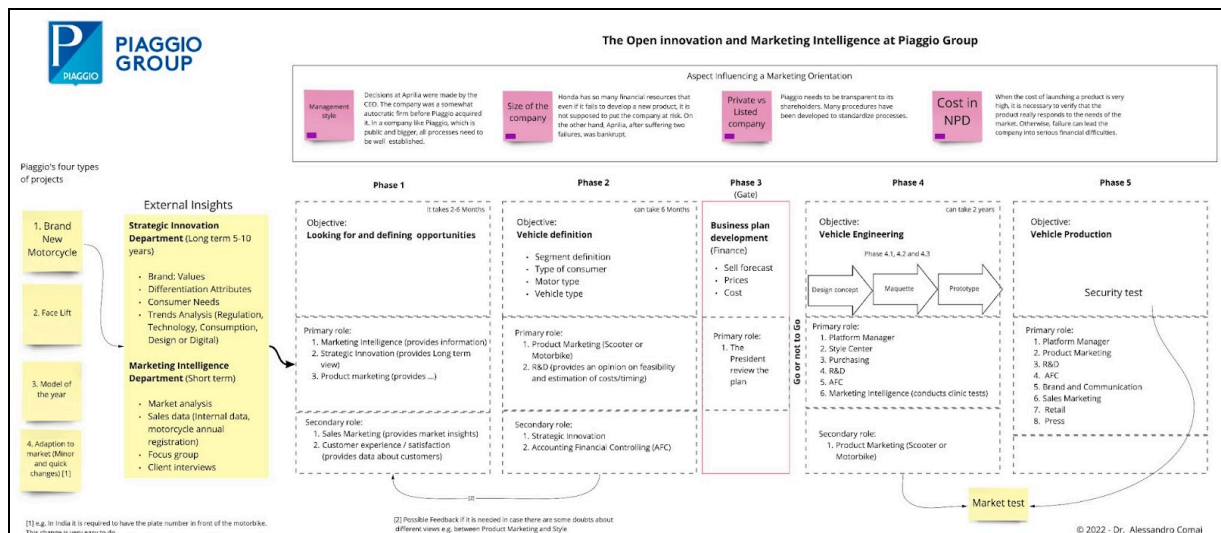


Figure 1. Roles of MI and Strategic Innovation in each of the NPD stages in Piaggio Group

6. Conclusions

The research reveals the underlying reasons for embedding MI into the OI framework. Practitioners can gain a better understanding of the benefits of MO, specifically when MI is used for innovation. This can promote the implementation of MI and provide reliable knowledge about the market and the environment for R&D teams. We consider this study is relevant for R&D directors, as well as for executives who wish to improve new product development (NPD) by exploiting MI, in order to make their companies more market oriented and ultimately achieve better results.

Moreover, studying the role of MI in OI can present new research opportunities, as well as encourage further discussion on studies focused on sourcing (e.g., Laursen and Salter, 2006). In this respect, the research highlights the fact that a market oriented company can have very sophisticated MI which involves long and short term analysis in different teams. In addition to this, other teams such as the R&D team can make a significant contribution to MO and the related intelligence. Indeed, according to the definition suggested by Kohli and Jaworski (1993), the MO focus is not limited to customers, but includes a wide range of stakeholder and environmental factors, extending the focus beyond customers. Thus, we believe that an OI oriented company can easily utilize the MO framework to provide the specific intelligence needed for the innovation department. Perhaps the most important consideration is to involve the R&D department in the activities of MO in order to achieve a collective intelligence process. For instance, Veugelers et al. (2010) asserted that technology intelligence can also be used by other departments in the company including the marketing department. Therefore, a possible field of study is how these different intelligence activities

are used among the different departments and how these departments cooperate in terms of adjusting and sharing, which may help shed light on how OI is used internally between different departments.

On the other hand, the study demonstrates the possibility of building a close working relationship between several teams involved in radical or incremental innovation (or NPD). In this respect, a better understanding of the interaction between the parties may be needed. In order to have a successful MO, several stakeholders are needed to execute the MI activities. Generating and distribution can be performed by the marketing and/or innovation team. However, in the case of responsiveness, another decision maker can have the main role. At Piaggio, this can be observed on many occasions during the company's NPD. Since several studies failed to delve into these aspects, we consider there is a future opportunity for research here in both OI and Marketing fields.

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