The Role of Open Innovation to Improve Customer Experience in Emerging Market Telecoms

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ABSTRACT: This research paper presents a qualitative case study exploring the relationship between open innovation and customer experience within a global telecom operator in Egypt. Using in-depth interviews with 35 employees across various departments and extensive secondary data, the study investigates how service innovations are created to address local market needs and enhance customer experience. Findings reveal that the telecom operator leverages customer-centric open innovation to introduce both incremental and radical service innovations, such as interactive voice responses tailored to high illiteracy rates, micro-recharge cards, and mobile transfer applications. These innovations provide value-for-money, convenience, and differentiated services, significantly improving customer experience and loyalty in the emerging market context. The study underscores the importance of integrating external and internal knowledge and agile innovation processes to sustain competitive advantage in the dynamic telecommunications sector in Egypt.

KEYWORDS: open innovation, service innovation, customer experience, emerging markets.

1   INTRODUCTION

Open innovation is recognized as a paradigm that encourages organizations to leverage both internal and external ideas and resources, aiming for greater innovation outcomes and competitive advantage. Originally conceptualized by Chesbrough (2003), open innovation emphasizes collaboration, partnerships, and knowledge sharing as pivotal tools for organizational adaptation and growth in an increasingly complex business landscape. Recent literature presents open innovation not merely as a method for sourcing technology or knowledge but as a transformational strategy deeply embedded in organizational culture, structures, and processes. This shift requires companies to move beyond closed R&D practices toward engaging a broader ecosystem that includes customers, startups, universities, and even competitors [1], [2], [56].

2   LITERATURE REVIEW

2.1   OPEN INNOVATION

Open innovation has been widely addressed as a transformative paradigm and strategic approach that leverages external and internal knowledge flows to accelerate and sustain innovation and enhance organizational performance. Its impact on customer experience has gained considerable attention, particularly because customer involvement can drive value co-creation and market-oriented innovation [1], [3], [4], [5]. However, the body of research reveals significant theoretical and practical challenges that requires further research on the relationship between open innovation and customer experience [56].

Service firms are currently facing the challenges of rapidly developing technologies, customer needs, and intense competition [6]. Thus, the importance of service innovation has increased for organisations. However, in today's competitive business environments, service organisations cannot generate innovations only with their internal knowledge and experience. Externally acquired knowledge allows them to produce more innovations with value-added services. Therefore, open innovation plays an important role in service innovation. However, previous studies on open innovation focused mainly on the

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product or technological innovation in the manufacturing sector [7], and its impact on service innovation is rarely highlighted [6].

Organisations increasingly adopt open innovation to collaborate and exchange knowledge with external stakeholders to leverage innovation capability [8], [56]. Despite that researchers have been focusing attention to the study of open innovation, there is a lack of common knowledge of what constitutes open innovation and its theoretical underpinnings [8], [53]. Open innovation was initially conceptualised as a way for organisations to open up their boundaries to enhance inflows and outflows of knowledge, so as to internally boost and externally exploit innovation [1]. Open innovation business models enable organisations to exploit valuable opportunities and maximise profits from innovation [9], [10]. Organisations are able to capture valuable ideas by making better use of both internal and external sources [1]. Previous research has tended to adopt a firm-driven approach to investigate how a firm adopts open innovation, factors that enables this adoption, and how open innovation impacts organisational performance [11], [12]. However, there is a lack of focus on investigating open innovation networks and the role of users and communities as external sources of innovation [8].

An open innovation approach involves different strategies. Chesbrough and Crowther (2006) proposes two types of open innovation strategies that an organisation may adopt, namely: inbound open innovation and outbound innovation. Inbound innovation is when an organisation monitors its internal environment to generate ideas and develop in-house R&D. In the case of outbound open innovation, instead, it searches for external innovative ideas. The organisation can obtain external knowledge from universities, research centres, other organisations, etc., as well as it may provide its knowledge to external environments. Within the same vein, Gassmann and Enkel (2004) identify three open innovation key processes:

1. Outside-in process (outside to inside) that empowers an organisation to enrich its internal knowledge with external knowledge to leverage the internal innovation process.
2. Inside out process (inside to outside) in which internal ideas are exploited outside the organisation, in different markets.
3. Bi-directional process, that is bi-directional way of exchanging knowledge (information flows) and creates a synergy and partnerships with other organisations.

Previous research highlights the various external knowledge sourcing modes ranging from technology purchasing, joint development, and joint venture to technological acquisition [6], [7]. The external knowledge sourcing strategies are categorised into cooperation and buy [14]. Cooperation for external knowledge sourcing refers to the activities to procure the knowledge of partners, co-create new knowledge, and establish a common objective through cooperation. This includes joint development, joint venture, and technological alliances among others [6]. Buy in the context of external knowledge sourcing refers to the activities that acquire external knowledge by paying the costs of the knowledge. These include technology purchasing and acquisitions of other organisations for knowledge sourcing.

Perkmann and Walsh (2007) provide insight into open innovation approach on the context of university-industry relationships. Their study investigated various types of university-industry relationships, such as collaborative research, university-industry research centres, contract research, and academic consulting [15]. Chesbrough and Appleyard (2007) 's study highlights how open innovation influences organisations to re-evaluate and reform their leadership strategies [16]. They pinpoint that organisations are bound to create new business models to harness innovation based on open innovation approach. Chesbrough (2011) extended the open innovation approach by introducing the concept of open innovation service [17]. He established a framework for the open service innovation concept that consists of four fundamental activities. The four activities include thinking of the business as an open service business, co-creating innovations, using open innovation to leverage and enhance service innovations, and transforming the whole business model based on the open service innovation approach [17].

Organisational culture plays a crucial role in enabling an organisation to adopt open innovation [18]. Cultural changes are essential to successfully adopt innovation from external sources and collaborate with external stakeholders [19]. Such changes can shift the focus from not invented here to an outlook that encourages adoption of innovation from external sources and entrepreneurial risk-taking [20].

2.2 OPEN INNOVATION AND CUSTOMER EXPERIENCE

Recent empirical research underscores the multifaceted role of open innovation in enhancing customer experience through personalized, immersive, and technology-enabled interactions [21], [22], [55]. For instance, advancements in artificial intelligence (AI) and human-robot interactions are reshaping service delivery at touchpoints, enabling firms to offer more autonomous and tailored experiences to customers [23], [24], [55]. These innovations foster dynamic customer engagement, providing value co-creation opportunities and continuous feedback loops that improve service relevance and satisfaction [25], [54], [57].

Nevertheless, the successful enactment of open innovation faces critical organizational challenges that constrain its ability to consistently enhance customer experience [57]. A growing body of literature reveals that strategic misalignment and lack of managerial capacities often impede effective open innovation implementation [26], [27], [54], [57]. Organizations struggle to balance openness with protecting intellectual property, coordinating diverse external collaborators, and harmonizing innovation goals with customer-centric strategies [20], [5]. These challenges may lead to fragmented innovation efforts, which hamper seamless customer journey experiences and degrade value co-creation potential [28], [57].

The literature points to inherent limits in extensive customer involvement within open innovation. While customer inputs enrich ideation, issues of feasibility and integration complexity persist, forcing firms to invest heavily in internal filtering and development processes before innovations translate into improved experiences [29], [30]. Delays and coordination difficulties itroduced by managing broad ecosystems can undermine speed to market—an essential factor impacting positive customer perceptions in competitive sectors [11], [20].

Moreover, studies caution against overlooking the differential impact of inbound versus outbound open innovation, with empirical evidence suggesting that inbound activities (acquiring external knowledge) more directly drive innovation performance and customer experience improvements compared to outbound activities such as external commercialization [31], [32]. This distinction invites further exploration into how internal organizational capabilities modulate open innovation's effects on customer-centric outcomes.

2.3 THEORETICAL PERSPECTIVE

In order to develop a framework to describe the relationship between open innovation, organisation innovativeness, and customer experience, the current study employs the resource-based view (RBV) theory as a guiding theory. The resource-based view posits that sustainable competitive advantage is derived from an organisation's specific combination of resources that are valuable, rare and difficult to imitate [33]. The main assumption underlying the RBV is that organisations with certain resources and capabilities with special characteristics will achieve competitive advantage and, thus, superior performance [33]. In this vein, each organisation can be conceptualised as a unique bundle of tangible and intangible resources and capabilities [34]. Resources are organisations' assets including financial, physical, human, commercial, technological, and other assets, that are used to develop and deliver products and services to its customers [33]. Resources can be classified as tangible (financial and physical) and intangible (employees' knowledge, experiences and skills, the organisation's reputation, brand name, and organisational procedures). Capabilities, in contrast, refer to an organisation's capacity to deploy and coordinate different resources using organisational processes to affect a desired end [35]. They are information-based, intangible processes that are organisation-specific and are developed over time [36].

The RBV theory indicates that an organisation's cultural resources, such as open innovation strategy, can be an important source of competitive advantage [33]. Open innovation is an important antecedent that can drive organisation's performance in the context of product or service innovations [37], [38]. The theoretical framework of RBV provides clear analysis of innovation and its relationship with organisational performance [39], [40], [41]. Innovation is identified as one of the most important sources of competitive advantage [42]. The current study suggests that open innovation and organisation innovativeness are innovation-related resources that are unique and inimitable that can enable the organisation to achieve a competitive advantage and, thus, superior customer experience.

2.4 RESEARCH AIM & SIGNIFICANCE

The overall aim of this research is to investigate the relationship between open innovation, organisation innovativeness, and customer experience in a major telecommunications organisation in Egypt. Open innovation plays a crucial role in the innovation of an organisation. Yet very few studies have investigated the relationship between open innovation, organisation innovativeness, and customer experience. Therefore, this research aims to close this gap and investigate the relationship between open innovation, organisation innovativeness, and customer experience.

3 METHODOLOGY

This study adopts qualitative research methods using a single case study approach. A qualitative approach was adopted for this study for several compelling reasons. In general, qualitative research is used to help the researcher understand how people feel and why they feel as they do. For the current study, the researcher aims to investigate the relationship between open innovation, organisation innovativeness and customer experience. Following the review of innovation management and customer experience literature, gaps in the current body of knowledge are evident and provide opportunities for further

research. Given the interpretive position adopted in this study, the case study methodology is considered the most appropriate approach to employ because it provides a systematic way to collect data, analyse information, and report the results. Among qualitative methods, case studies represent one of the most adopted qualitative methods in organisational studies [43], [44]. They are acknowledged as an approach to generating and testing theory that has provided the management field with significant insights [45].

The selected company is the largest telecom operator in Egypt and the Middle East in terms of active subscribers and one of the largest telecom organisations worldwide [46]. The organisation became the market leader in terms of market share with the largest customer base [46]. This research adopts a *non-probability* sampling strategy using a *purposive technique* to enable the researcher to select participants that would serve the purpose of the study and research question. A purposive sampling is well suited to in-depth qualitative studies [47]. Purposeful sampling takes place when the researcher selects a sample from which the most can be learned [48]. The sampling units are chosen because they have particular features or characteristics which will enable detailed exploration and understanding of the constructs under the study and research questions. Members of the sample are chosen with a 'purpose' to represent their relationship to the research key constructs, such as employees from different levels from the Consumer Marketing department, Enterprise marketing department, Human Resources department, Internal Communications department, Strategy and Innovation department, Customer Experience departments, Enterprise Business department, Technology department and International Services department. Additionally, within the context of this study, *snowballing sampling* is also used. This involves asking interviewees to identify other people they know who fit the selection criteria [49], [50]. For the purpose of this study, snowballing sampling is used to identify participants who would be able to generate more data and information relevant to the study.

The study conducted thirty-five employees across different functional departments in the organization. The interview guide entailed a flexible structure of questions covering detailed description of open innovation practices in the organisation, service innovations that came out of these practices and enhanced the customer experience. Interviews typically lasted between 60-120 minutes, were digitally recorded and transcribed verbatim. We gathered secondary data to support and complement the interviews' data. This would ensure convergence in findings across data sets and reduce potential biases that may be present in the interviews. The study took into consideration the content of company documents to capture different innovation's launches and their success in terms of customer experience. The data from all sources was analyzed inductively during and after the data collection process. The analysis followed various steps Miles and Huberman (1994). NVivo software was used for data analysis to enhance the validity of the research and strengthen the rigour of the study [51], [52].

This study uses company documents, such as annual reports, mission statements, company culture values, press releases, newspaper clippings, and the company web site. Further, the researcher obtained a document about the innovation week event held by the organisation including details of the event's aims, workshops, activities, and exhibitors. Such documents are of great value to augment and strengthen the evidence collected from other sources and to enrich the researcher's knowledge about the constructs under study within the context of the organisation. These documents were collected to corroborate the findings from the interviews and enhance ethe study's dependability.

4   FINDINGS & DISCUSSION

This section addresses the most successful innovations in terms of customer experience introduced by the organisation under study that came out of open innovation practices. Successful innovations in this study are defined as innovations that achieved high net promoter scores, generated revenue streams, new to the market, and adopted by customers, thus ultimately leveraging the customer experience.

The interview results reported the organisation does not depend only on employees as a source of creative and innovative ideas, which is referred to as open innovation. Employees mentioned that the organisation uses external sources to increase the efficiency and effectiveness of the innovation process, to get new technologies and gain access to new and creative ideas from outside the organisation. Employees perceived open innovation practices positively and it was mentioned by the thirty-five employees as an important practice to enhance organisation innovativeness that would ultimately leverage the customer experience. The organisation launched a ventures incubator, which aims to develop small technology companies to expand the scope of their business, support youth entrepreneurship, and encourage innovation and creativity. Employees indicated that the incubator aims to stimulate and support innovation and develop new services and technologies that deliver value-added benefits to the customers: "...I am responsible for Ventures, which is outsourcing innovation rather than inventing in-house. I go to a company and acquire it or buy some of its shares and sponsor whatever they are innovating... we sponsor their innovations and help them to build their innovations up and make them grow." (Head, Joint Ventures)

Interviews also reported that the organisation uses external sources for ideas, such as university students, academics, partners, and customers to come up with product and service innovations. The results showed that the organisation established platforms for joint knowledge creation with partners including suppliers and vendors, university academics and researchers, university students' projects, the organisation's international markets and customers. An employee in the marketing unit mentioned that the organisation built an online portal to allow the developers of USSD and SMS services to develop new service innovations. It is a platform where each developer logs on and creates his own account, and creates a new service to the customers, such as an application, that can guide the customer about the location of the nearest retail store. The organisation provides the developers with access to its network infrastructure to create service innovations and handle its processes to ensure a smooth customer experience. Interviews revealed that open innovation practices have a positive effect on customer experience: "...the team works to produce innovative products and services, and when we don't get ideas from employees only, we go and search external sources such as universities... we get new ideas from internal and external sources and all this supports customer experience in an indirect way." (Head, Innovation and Strategy).

Employees confirmed that several service innovations that enhanced the customer experience came from open innovation practices, for example, creating an online platform for developers outside the organisation to innovate new services that would enhance the customers' experience: '...so, we build an online portal to let the developers of USSD and SMS services develop new service innovations. Each developer logs on and creates his own account, and creates a new service to the customers, such as an app that can guide the customer about the location of the nearest company store. We use our network infrastructure to create such services. Then the developer gets a percentage from the revenue generated by the service. It saved us time and resources and was very convenient for the customer. So, basically, we give developers access to our network infrastructure, limited access of course for security issues, and they create the services and handle its processes to ensure smooth customer experience' (Junior, Consumer Marketing).

One of the most successful innovations is the Balance Transfer services platform that was created to serve customers who run out of credit. This platform allows the customer to borrow credit from the organisation, pursue a call even when the credit runs out, send template messages to others to call back when the credit runs out, or transfer the balance to other customers. Employees posited that this platform is one of the organisation's top innovations that was successful in the market. Twenty-nine employees mentioned that this service innovation yielded a significant positive customer experience. The Retail Director mentioned that the balance transfer services innovation witnessed three million transactions per day. The underlying rationale behind this success is that this service innovation addressed an existing customer need when they run out of balance, thus adding value to customers. Fifteen employees mentioned that this innovation increased the net promoter score. This was evident in quotes such as: "it made huge customer satisfaction and positive customer experience, it is of a very relative need to the customer and leads to great customer experience. The whole portfolio is great and made huge revenues, which proves its success in terms of customer experience". Reviewing company documents and archival records, 89% of customers' comments were positive and reported great customer experiences with the Balance Transfer services portfolio innovation, while 11% of customers reported a negative experience. Nearly 70% of customers' comments indicated a positive experience in the variety of services offered in this portfolio and user-friendliness.

Interview results indicated that the Money Transfer application is another radical service innovation provided by the organisation that came out of open innovation practices. The application is basically an online wallet that allows the customer to pay at any store through their mobiles rather than using credit cards or cash, as well as transfer and receive money from anywhere in Egypt. Twenty-six employees stated that this is one of the organisation's top innovations that aims at enhancing the customer experience. Interview results revealed that the application offered customers convenience, accessibility and differentiation in several dimensions. First, Egyptian customers usually make their money transfers through banks who operate for only a few hours a day and are not available in all cities, especially rural areas. In contrast, the application provided by the organisation enables customers to transfer at any time of day through simply pressing a button. Also, there are 10 million bank accounts in Egypt versus 100 million mobile users, 41 million of which are customers of the organisation under study. Further, banks in Egypt require a minimum amount to have a bank account, while there is no minimum amount to be deposited to open an account to use the organisation's money transfer application. Therefore, the Money Transfer application has facilitated money transfers for Egyptian customers. The number of customers who adopted this service has exceeded one million in one year. This service innovation emerged from a gap in the banking industry in Egypt, thus enabling the organisation under study to differentiate its offerings in the market and enhance the customer experience.

The current findings support Steiber and Alänge (2013) study, which shows that Google is following an open innovation strategy through acquisitions, cooperating with leading researchers at universities and establishing its own venture business unit. Their study concludes that Google's innovation future will continue to rely on both internally and externally generated ideas. Other researchers emphasise the importance of using open innovation to access external knowledge from suppliers, partners, academics and researchers, and customers to compete effectively in the market and meet changing customer needs

[59], [60], [61], [18]. Within the telecommunications industry, Bigliardi, Ivo Dormio and Galati (2012) argue that open innovation provides significant advantages to the organisation, ranging from improved service quality, service innovation customisation, to cost reduction. Their study indicates that the three telecommunications organisations who adopted open innovation practices reported positive customer satisfaction. Thus, confirming the results of previous research, this study postulates that open innovation is a significant practice that enhances organisation innovativeness. Nonetheless, open innovation was not included in prior climate for innovation frameworks and its relationship with organisation innovativeness was examined separately. Hence, this study identifies open innovation as a main dimension of climate for innovation.

5 CONCLUSION

Telecommunications operators around the globe are faced with a number of threats affecting or threatening their revenues and growth. Telecommunications operators must discover new innovative products and services to enhance the customer experience and generate new revenue streams. Organisations can enhance their product and service quality, attract new customers and markets, and improve their market position through innovation. Drawing on previous research findings, the current study suggests that product and service innovations that meet customer needs are highly related to superior customer experience. To provide customers with a superior experience, an organisation should be constantly adapting to changing customer needs by being innovative. A service organisation can enhance the customer experience through open innovation practices. As mentioned earlier, there is a lack of studies investigating the relationship between open innovation between organisation innovativeness and customer experience. The study proposes a strong relationship between open innovation practices, organisation innovativeness and customer experience. The current study argues that external collaboration with partners and sources outside the organisation can generate innovations that enhance the customer experience. The innovations discussed in this study came from open innovation practices. They came out from collaboration with external stakeholders such as venture units, partners in global markets and customers. Therefore, it is crucial for an organisation to use external sources to innovate products and services that would enhance the customer experience.

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