Can proximity technologies impact on organisation business model? An empirical approach

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Abstract: Technology is growing rapidly and bringing new and innovative opportunities into an organisation’s business model. Technologies transform industries by reshaping customers’ engagement, designing new channels and enhancing customer and organisation relationships. It helps organisations to involve customers into their organisations and make them an active part of their companies to improve their product and support their business model. In this paper, we frame how new technologies – such as proximity technologies – can inspire smart organisations to structure a new business model in order to exploit a new stream of knowledge and data by structuring a different relationship between organisation and customers, selecting different channels and eventually addressing an update or new value proposition to a different customer’s segment. We will use canvas model in order to analyse a sample of practical cases and give more consistency to our analysis.

Keywords: business model; channels; canvas model; customer relationship; proximity technology.


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1 Introduction

Living with global instability and uncertainty is fast becoming a new reality for organisations. While some corporations seem to respond reactively and revert to fixed strategies, resisting changing, using high control whilst basing their business on fixed and standard business models, others seem to be more open to accepting and embracing the change. Unfortunately being open, understanding and following changes is not enough, organisations need to do more than increase the number of customers or reduce costs. Not only organisations need to identify which industry rules can be broken to overturn the industry bottleneck and eliminate the frictions inside their business but they also look for possibilities and opportunities that may somehow exist within this chaos and disorder in other industries. Reaching the previous objectives are not easy and organisations need to consider different factors such as a cultural approach (like sharing new ideas, practices and ability as well as creating maintaining and developing a network of value), a new technological approach (such as additive manufacturing, or IOT, nanotechnology, etc…), a new business model (think about Uber, or Google) and of course an innovative strategy and eventually blend them all together. In this study, we start from new technologies used in smart organisations, such as proximity technology, to analyse if their potentiality can push the organisation toward an innovative business model able to create new values for both customers and the organisation itself. We start from the analysis of proximity technologies in different industries combined with other technologies such as mobile devices, social media, cloud computing and data analysis to mirror fundamental changes in the firm’s business model. The rest of this paper is organised as follows: we will identify a theoretical framework and question research and discuss the proximity technology in the next section. The second part will explain our case selection and canvas business model. In this part, a methodological approach and case analysis will be defined. Finally, we will conclude our paper with an expected conclusion.

2 Theoretical framework and proximity technologies

2.1 Theoretical background and research questions

As can be expected by delineating the meaning of the business model in the web economy, the concepts of flow and relationship are significantly stressed. A business model represents the device which is used to design the main flows and the company’s
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web of relationships in order to create benefits for the different participating actors: providers, partners, and customers. In their attempt to extend the business model concept by trying to go beyond the foundation originally centered in e-business, Amit and Zott (2001) define the business model as the content, structure, and governance of transactions designed to create value through the exploitation of business opportunities.

Even in this case, through the term transaction, scholars pinpoint the relational rationale underpinning how the exchange and interactive dynamics prevail in the business model concept. On the other hand, recalling the basic business question advanced by (Magretta, 2002) describes business models as stories that explain how enterprises work. A good business model answers Peter Drucker’s age-old questions: Who is the customer? And what does the customer value? How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost? [Magretta, (2002), p.87]. Here, the concept of the customer, customer value and money making are intended to be constitutive business model elements. Other scholars have grappled with the attempt to split a business model and to identify its various components. According to Osterwalder et al. (2005), a business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore, we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is performed and with which financial consequences.

Osterwalder et al. (2005, p.5), in an initial proposal, identify four main pillars – the product, the customer interface, the infrastructure management and the financial aspects – around which some ‘building blocks’ are identified. In a later release (Osterwalder and Pigneur, 2010), directly proposed a ‘nine building blocks business canvas’ (i.e., value proposition, channels, customer relationships, customer segments, revenue streams, key activities, key resources, key partnership, cost structure). Other scholars have provided a more compact version. Specifically, a business model based on six elements has been depicted where value proposition, customers, internal processes/competencies, external positioning, the economic model and personal investor factors constitute the key elements of the model (Morris et al., 2005). Voelpel et al. (2005) mention three basic components of a BM: value proposition for customers, value network configuration to create that value, and returns ensuring the satisfaction of relevant stakeholders and, thus, the sustainability of the business model. On the other hand, a business model concept based on four typical elements (customer value proposition, profit formula, key resources, and key processes) has been defined (Johnson et al., 2008), pointing out the interlocking logic among the different elements. In every case, the different attempts to identify the components, the transactional and relational dimensions of the business model are depicted as fundamental. The concepts of ‘customer value proposition’, ‘customer value’, ‘customer segments’, ‘key partnership’, and ‘customer relationship’ point out the interactive and relational dimensions of the core of the business model. Literature related to defining the business models and their main building blocks is indeed dense and rich, but the relationship between business model innovation and technologies are still interesting to explore. A primary research strand emphasised how business model innovation is induced by or mainly related to technological innovation. As stated by Teece (2010), “technological innovation often needs to be matched with business model innovation if the innovator is to capture value”. Furthermore, new business models have
been usually connected to new R&D strategies. In ‘open business models’, Chesbrough (2006) affirms: an open business model uses the new division of innovation labour – both in the creation of value and in the capture of a portion of that value. Open models create value by leveraging many more ideas due to their inclusion of a variety of external concepts. Open models can also enable greater value capture, by using a key asset, resource, or position not only in the company’s own business but also in other companies businesses (Chesbrough, 2006). Mainly, in service sectors and in the fast-paced technology industry, different business model innovations have been conceived, reconfiguring the customer’s role in the production process. The dominant innovation directions that have been pursued involve the customer’s role as a collaborative producer (Johnson et al., 2008; Pisano and Verganti, 2008). The advent of a user-generated content movement, the diffusion of social media and Web 2.0 technologies, and the emergence of skilled and well-educated customers have enabled whole crowds or single users to heavily collaborate in the production processes of companies (Rayna and Striukova, 2015). According to this framework, the customer is a company production or co-developing partner that jointly affects the evolution, the costs and the benefits of the business ecosystem. With Apple, iPhone users are free to conceive and hopefully sell their own apps; in the Linux operating system, people take part in writing codes and strings to optimise the functionalities and the performance of the system; with different low-cost airlines, customers are empowered to accomplish check-in activities and most of the luggage handling on their own. The entire literature aligned to this frame serves the limits usually contextualised in the fast-paced technology industry or in service industry (Grocott et al., 2007; Hippel, 2005; Mohanbir et al., 2005; Shneiderman, 2007). Technology helps organisations to change their business model and creates new values and opportunities. Baden-Fuller (2013) explained how technologies influence the way in which a new business model is created. Some authors (CCH, 2012; Chandrasekaran, 2013) have considered mobile technology, social media, cloud computing and data analysis, four key future technologies which have harnessed businesses and made a big revolution in their industries. Cloud Standards Customer Council (2013) explains how the combination of the previous technologies are transforming industries, while organisations are driving competitive advantage through reshaping customers engagement, outdating value propositions redesign customers channel. The author is mentioned to some benefits of coverage these technologies in businesses such as:

- new channels for reaching customers
- deeper customer insight and customer care
- innovative applications due to sensors and context
- enhanced collaboration, customisation
- access to company’s information from anywhere and anytime.

According to Krishna et al. (2013), mobile technologies represent not only a new channel to the market, but also an innovative relationship with customers, more creative ways of interacting with customers and engaging employees, or opportunities to drive cost efficiencies for businesses. Innovative technology gives the organisation the opportunity to have full transparency about how customers use their products and this helps the company develop an entirely new business model. Data flowing to and from products will allow product use and activities across the value chain to be streamlined in countless
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New ways. Sensors in the product and in the environment where customers move with products can identify a need even before costumers’ perceptions, and this can improve product performance and create new possible services around it. Nevertheless, one question remains open and fertile in order to understand what kind of new business model companies are developing by leveraging new customer roles. What are the novel customer roles that affect business model innovation? To find an answer to our question research, we will first describe an organisation sample canvas model and then different types of proximity technology. And finally, we will discuss how the methodology can be applied to some practical cases.

Table 1 Literature review

<table>
<thead>
<tr>
<th>Authors</th>
<th>Focus on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timmers (1998)</td>
<td>Product, service and information flows, business actors</td>
</tr>
<tr>
<td>Weill and Vitale (2001)</td>
<td>Roles and relationships among a firm’s consumers, customers, allies, and suppliers</td>
</tr>
<tr>
<td>Amit and Zott (2001)</td>
<td>Transactions</td>
</tr>
<tr>
<td>Magretta (2002)</td>
<td>Customer value, economic logic, value delivery</td>
</tr>
<tr>
<td>Morris et al. (2005)</td>
<td>Value proposition, customer, internal processes/competencies, external positioning, economic model and personal investor factors</td>
</tr>
<tr>
<td>Osterwalder et al. (2005)</td>
<td>Product, customer interface, the infrastructure management and the financial aspects</td>
</tr>
<tr>
<td>Voelpel et al. (2005)</td>
<td>Value proposition, value network, returns</td>
</tr>
<tr>
<td>Johnson et al. (2008)</td>
<td>Customer value proposition, profit formula, key resources, and key processes</td>
</tr>
<tr>
<td>Osterwalder and Pigneur(2010)</td>
<td>Value proposition, channels, customer relationships, customer segments, revenue streams, key activities, key resources, key partnership, cost structure</td>
</tr>
</tbody>
</table>

2.2 Proximity technology

In the last few years with a high speed growth in location based and proximity services, companies have invested on communication based on user positions. They have leveraged location-based services and proximity technology with the use of mobile devices and delivered personalised and relevant information to customers via mobile app at the right time and right place (Gavalas et al., 2014). This technology has created a new virtual channel in a physical environment which allows organisations get closer to their customers, engage more users and retain them. In addition, users’ roles have been changed and they become more collaborative and a valuable partner in the company’s success. In fact, the combination between proximity technology and other technologies such as big data help organisations to collect new types of information. This data is an important and new asset for the organisation used to exploiting more the internal data coming from different departments and functional units and less the external data coming from an interaction with suppliers, sale interactions, customer service visits and so on. New technologies have an impact not only on improving product and services post sale but also on optimising customer relations. There are some tools that implement proximity technology such as NFC (Dudwadkar et al., 2013), QRcode (Wikipedia, 2015),
Geofencing (Reclus and Drouard, 2009), Beacon (Cavallini, 2013) and Wi-Fi. The difference between all proximity tools and their advantage and disadvantage are explained in Table 2. As this table shows, NFC (Bouverot, 2012) is used for contactless mobile payments, to access contents, view customised rich media and receive offers on the users’ smart phones. For instance, ‘Telecom Italia, Rogers Communications’ has implemented NFC to enable users to make their payments with their phones. “Germany, Austria, Finland, New Zealand, Italy, Iran, and Turkey have trailed NFC ticketing systems for public transport” (Wikipedia, 2012). QRcode (Wikipedia, 2015) provides a way to access brand websites instead of entering a URL and simplify marketing messages, commercial tracking, entertainment, in store labelling, display coupons, connections to social media and download of contact information.

Table 2  Difference between proximity technology tools

<table>
<thead>
<tr>
<th>Technology</th>
<th>Application</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFC</td>
<td>Payment and product information</td>
<td>• Low friction experience</td>
<td>• It does not support iOS Apple</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low cost</td>
<td>• Security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Widespread use in payment</td>
<td>• Short range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Does not require App</td>
<td></td>
</tr>
<tr>
<td>QRcode</td>
<td>Send contact information and URL, product information and offers</td>
<td>• Low cost deployment</td>
<td>• High friction experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Keep a limit amount of information</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Require App</td>
</tr>
<tr>
<td>Geofencing</td>
<td>Send notification to customers outside stores</td>
<td>• Widespread standard</td>
<td>• Drain smart phone battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low cost</td>
<td></td>
</tr>
<tr>
<td>Beacon</td>
<td>Payment</td>
<td>• Fast and simple</td>
<td>• Require App</td>
</tr>
<tr>
<td></td>
<td>Send notifications, offers, discount and promotion to users</td>
<td></td>
<td>• Require new technology investment</td>
</tr>
<tr>
<td></td>
<td>Allow retailers collect data about user behaviour and analysis</td>
<td></td>
<td>• Short life battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Work with certain devices</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>Payment</td>
<td>• Available everywhere</td>
<td>• Require APP</td>
</tr>
<tr>
<td></td>
<td>Send notifications, offers, discount and promotion to users</td>
<td>• Low cost</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allow retailers collect data about user behaviour and analysis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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For example, Frankfurt, Germany, introduced smart posters with QR codes on trains to give passengers information about journeys, events, transport connections, places of interest, as well as offers to travel card holders (Walter, 2013). iBeacon (Cavallini, 2013) and Wi-Fi, an indoor positioning system, and Geofencing (Reclus and Drouard, 2009), an outdoor positioning system, established a new channel around existing physical places to extend the actual experience for its users, offering more value and gaining further value and loyalty from them. In American airlines – Dallas Airport, Beacon could disrupt the airport experience. This technology helps passengers to receive relevant data, navigate the airport better, find information like distance to gates, boarding times and the closest security check lines via mobile app. Many shopping stores such as Walmart have developed Geofencing around their stores to deliver coupons and e-receipts to people.

3 Case selection technique

According to case study methodology, our cases are chosen for theoretical rather than statistical reasons (Glaser and Strauss, 1967; Yin, 2002) with the specific purpose to extend an emerging theory (Eisenhardt, 1989). A multiple case strategy is defined to obtain “a more robust theory because the propositions are more deeply grounded in varied empirical evidence” [Eisenhardt and Graebner, (2007), p.27]. However, choosing right and accurate cases in very small samples is a challenging endeavour (Seawright and Gerring, 2008). In order to justify the choice, the cases have to represent some quite unique and outstanding phenomena or practices in relation to the subject undergoing study (Siggelkow, 2007). Thus, in the theoretical framework of the innovative business model and new proximity technology applications, authors have selected four organisations where best practices based on proximity technology have generated impact on business model innovations. More precisely, from an initial list of organisations in the different industries, we selected 15 particularly interesting for our research in terms of use of proximity technology in the previous years. We collected information using secondary sources about these companies and we selected the final sample with the use of unstructured interviews and meetings with innovation and business model experts in four different universities (University of Torino, Westminster University of London, Athens University of Economics & Business and Politecnico of Milano). Interviews were based on concepts of innovativeness, business model creation and proximity technology use. The output of the interviews was the definition of four cases (Air Travel, BTOC, Museum and Events) considered particularly important as this technology has brought many advantages such as increasing revenue, reducing cost and engaging more customers to these organisation. These companies are recognised in their industry for their ability to create innovative products appreciated by the market and their unique innovation-oriented structures and organisations. As we said, in order to analyse the companies selected we used the Canvas model (Osterwalder and Pigneur, 2010) useful to create a common framework for different business model analysis. In the Canvas model, (Osterwalder and Pigneur, 2010) directly proposed a ‘nine building blocks business canvas’ (i.e., value proposition, channels, customer relationships, customer segments, revenue streams, key activities, key resources, key partnership, and cost structure).
3.1 Case

3.1.1 Airline industry

Airports have been very active to implement proximity technology and impact on passenger experience during the last few years. Major airlines have announced changing their interactions with passengers via iBeacon. For example in American airlines, Dallas Airport and Miami International Airport’s, Beacon could disrupt the airport experience. Ken Buchanan, executive vice president of revenue management at Dallas Airport, reports that the Beacons are providing a positive and more personalised experience that will inspire passengers to come back to Dallas Airport (Bradley, 2014). In fact, this technology helps passengers to receive relevant data, navigate the airport better, find information like the distance to gates, boarding times and the closest security check lines via mobile app. It makes travelling easier by offering passengers timely and relevant information straight onto their mobile devices and improves users’ satisfaction. Passengers can save their time during automatic security check. This technology can monitor airport temperatures and offer passenger loyalty programs (Bradley, 2014). They can receive offers and discounts while they are waiting for their flight. By placing Beacons, airlines can better understand how passengers move inside the airport. ‘This data helps airlines and airports plan retail, dining and entertainment layouts in line with passengers’ interests. These tiny devices can thus provide a precise picture that can further enhance non-aeronautical revenue potential (Mallik, 2014). It is predicted that airports will be able to use information collected by default for a variety of defined purposes, from passenger movement analysis to the revision of business models (Bradley, 2014). Figure 1 shows how proximity technology has changed the airline business model. The differences between old and new models are marked in the traditional airline canvas model with dash line boxes. Customer segments are included in both cases. In the past, in large airports, passengers did not know where they were, they could not find their gate and to have answers to their questions they had to find an information desk in a crowded place. Nowadays, with a virtual channel in a physical environment they are able to find their location. This device sends them where they are supposed to go and answers their questions before they even ask them. These features are added as value propositions into a new canvas model. To deliver these new values, new communication channels are needed. These channels are using mobile apps, web and social networks to send relevant information to people. The traditional airline industries interact with people through travel agencies and the information desk at the airport. This new channel creates a stronger relationship with customers, which offers personalised information to customers so personal assistance is not needed in the new environment. For implementing this new channel, technology developers become a key partner. Providing frequent and reliable flight and customer services and security are fundamental activities for this organisation but in this new structure, developing mobile apps are the main key activities. In traditional airlines, fuel and staff are two main resources while proximity technology has added passenger profile as a key resource which allows airlines analyse passengers’ data and create proper value propositions for them.
The main costs in an airline industry are fuel, airport user charge, staff, taxes and aircraft cost. Although this technology has added technology cost and services to their cost structure, it has increased non-aeronautical revenue in airports. Cost revenues are sales tickets which are included in both old and new business models. New technology developments, emerging and new communication channels, new user expectations and a different relationship with customers are all thrusting new travel patterns that will require innovative business models.

Figure 1  Air travel industry canvas business model (see online version for colours)
3.1.2 Retail industry

The retail sector, one of the first industries to install proximity technology, has always been seen as a particularly fast-paced consumer and business environment. Its success in using this technology in many stores proves firm evidence of how proximity innovations can be beneficial to both retailer and consumer. As Sorescu et al. (2011) explained, in order to create an innovation in a retailing business model, one or more elements of a retailing business model such as retailing formats, activities, and governance should be changed. The retailing format represents a combination of particular levels of each element of the retailing mix, such as product assortment, pricing strategy, location, customer interface, and so forth (Levy and Weitz, 2008). According to this definition, proximity technology is able to change the retailing format by providing customers with specific rewards, discounts, offers, loyalty incentives and by selling perishable products at a low price which can significantly reduce customers’ costs and increase revenue as a result of selling more items. In addition, it creates a virtual channel in a physical store that can engage more customers by sending them relevant information. Retailing activities refer to acquiring, stocking, displaying and exchanging goods and services that fulfil the customer’s experience (Sorescu et al., 2011). Proximity technology has changed retailing activities by expanding activities in-stores. This technology has changed the governance where the customer performs a transaction without the staff’s assistance, automated payment checkout and mass customisations from users’ contents which has strengthened their role in value co-creation and improved customer experience (Sorescu et al., 2011). So this technology has brought significant changes to all three elements of a typical retailing business model and it is necessary for retailers to reshape their business model and generate future developments in their business. For example, Macy’s and Walmart are already taking advantage of this technology to offer personalised content location-based offers, whilst sending notifications when customers are near or inside the store. An app can detect the customers that enter the geo-fences and send them notifications to inform them they are located close to a store where, for example, at that moment a certain offer is available and make them enter the store. This technology is able to change most parts of the canvas business model in Figure 2. We have borrowed some features of the traditional retail business model in Noren (2013) to create a new model with proximity technology. As this figure shows, customer segments are included in both new and traditional retails. In traditional retails offering availability of exactly the right products in the right sizes and colours and solving customers’ problems are two key activities, while with the implementation of proximity technology, developing mobile apps and analysing customers’ data to better understand buying habits and tastes, play key activities. So customer databases and technology developers are two key resources. The traditional retail business model emphasises convenience, low price and quality as the value proposition. Proximity technology has added fundamental changes to value propositions such as customisations, send notifications, offers and discounts, providing product information, loyalty incentives, automated payment checkout by providing retailers with tracking customer movements, and accessing to customer database. For the traditional retailer, customer relationships depend on the style of retailers. The low cost generally focus on self-service or personal assistance, while new retailers emphasise virtual and personalised relationships via mobile phone, social networks, retail page or co-creations. This new relationship needs new channels such as mobile apps, webs, and social networks to deliver customers’ requests. Because of low
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Margins, traditional retailers are really cost-driven. They attempt to create economies of scale to overcome significant fixed costs associated with a large retail footprint (Noren, 2013). Proximity technology and its maintenance have additional costs in the retail industry but it has the ability to grow sales without significantly increasing costs by engaging more customers through new channels. Revenue streams are from the sales of products and services which are included in both new and traditional retail business models.

**Figure 2** BTOC industry canvas business model (see online version for colours)

<table>
<thead>
<tr>
<th>Key partners</th>
<th>Key activities</th>
<th>Value propositions</th>
<th>Customer relationship</th>
<th>Customer segments</th>
</tr>
</thead>
</table>
| - Investment partner  
  - Major Brand  
  - Manufactures  
  - Supplier | - Items availability  
  - Problem solving  
  - Develop mobile App and social network  
  - Analysis customer database  
  - Technology provider | - Giving the best deals and discounts at all times  
  - Quality  
  - Customizations  
  - Send notifications, offers and discounts  
  - Product information  
  - Loyalty incentives  
  - Automated payment checkout  
  - Track customer movements  
  - Access to people profiles | - Personal assistance  
  - Self service  
  - Automated service | - Shoppers  
  - Virtual and personalized relationship via mobile phone, social networks and retail page  
  - Co-creations |

| Key resources | | | | |
|---------------| | | | |
| - Products  
  - Staff  
  - Supply Chain  
  - Brand Recognition  
  - Customer databases  
  - Technology developers | | | | |

| Channels | | | | |
|----------| | | | |
| - TV  
  - Internet  
  - Retail Stores | | | | |

| Mobile App | | | | |
| - Web  
  - Social networks | | | | |

| Cost structure | | | | |
|----------------| | | | |
| - Very cost driven  
  - Economies of scale  
  - Fixes costs | | | | |

| Technology cost  
  - Services and maintenance | | | | |

| Revenue streams | | | | |
|-----------------| | | | |
| Sales their products | | | | |
3.1.3 *Museum industry*

Museums have considerable social significance and play an important cultural role as they manage our cultural heritage and social context and exhibit them to a wide audience. Finding a new way to transfer culture to future generations, enhancing audience experience and increasing knowledge during museum visits in a technology age is very important for each society. The technologies currently employed in this area are recommendation systems and context-aware pervasive systems. The first typology includes tools supporting the choice of destinations through automatic suggestions based on people’s behaviours. The second one supports the visiting experience by improving the people’s perceptions through interactive and enriched information by integrating the
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Physical visit with a large amount of information available on the web (Noguera et al., 2012; Pantano, 2014; Yueh et al., 2007). iBeacon has changed museums and gallery experience during the past years. According to Figure 3, this technology has added many value propositions for visitors and museums. It collects data from visitors’ behaviour to enhance their experience in museums and improve interaction with them. For example, the Metropolitan Museum of Art, the Cleveland Museum of Art and the Solomon R. Guggenheim Museum in New York are some museums that implement Beacon technology to improve visitors’ experiences at exhibitions and enable them to better understand consumer flow and layout to guide the organisation of future content (Samuely, 2015). It means they have presented relevant information based on locations. Beacon technology could provide the visitor with a valuable locative context including supplementary audio and video content, and descriptions of the objects. Beyond the initial supplementary content, the Beacons can be a valuable tool in informing visitors about locations of special exhibitions, libraries, dining venues, and other amenities, as well as alerting visitors about current tours and events happening in their location. This technology helps to facilitate learning, investigating the past, managing cultural heritage, economical benefits and entertainment in a traditional model. Figure 3 shows the changes have been made by proximity technology in museum business model. In new and traditional museums business model, customer segment is the same. Traditional museums are using educational places, internet, posters and TV as their channels, while proximity technology maximises visitors’ experience via smartphones in which the App is installed to interact with the outside world so that the app can exploit these interactions. In a traditional museum industry, personnel or tour guides and automated services inside museums are two main communication ways with people. Proximity technology establishes a virtual relationship with visitors via mobile phone. Revenues are generated with ticket sales, government funding, annual membership fees which are the same in both the new and old business models. Retaining collections is the main cost in museums with old business model. Proximity technologies have added technology, services and maintenance cost but it also has the ability to engage more users to increase the museum’s incomes. In the traditional museum, the key resources are related to the collections and staff, while by implementing proximity technology in museums technology developers are the main resources to provide proper hardware and software and deliver content provided by this technology. Traditional museums give emphasis to accessing their collections and provide information source (audio/video/text) to attract more visitors and improve their knowledge. Proximity technology facilitates these activities by adding mobile technology and apps to the museum industry. So technology developers are becoming an important partner in museums.
3.1.4 Events industry

The events industry – conferences, concerts, ceremonies or meetings – is being disrupted by proximity technology recently. A lot of the traditional business models of conferences, exhibitions or trade shows are challenged today because of cost pressure, business travel constraints, social media and web technologies (Heiple, 2011). Events need to embrace changes by involving a new technology to find revenue streams and expand their value propositions and create a new format of business model. Some of the world’s largest events have begun using iBeacons to engage their attendees and provide an interactive experience. Figure 4 shows how proximity technology could change the events business model. According to this table, exhibitors and sponsors can track down how much time people spend in certain locations, get relevant user behaviour analytics, send event

<table>
<thead>
<tr>
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<th>Key activities</th>
<th>Value propositions</th>
<th>Customer relationship</th>
<th>Customer segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Educational institutions, - Media companies, - Sponsors, - Equipment suppliers</td>
<td>- Create proper content, - Accessibility of content, - Event Management</td>
<td>- Entertainment, - Communication, - Learning, - Content distribution</td>
<td>- Personal assistance, - Automated services</td>
<td>Everyone</td>
</tr>
<tr>
<td>Technology provider</td>
<td></td>
<td>- Networking, - Promotions and advertisements, - Involving people</td>
<td>Virtual relationship via mobile phone or social networks</td>
<td></td>
</tr>
<tr>
<td>Key resources</td>
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<td>- Content</td>
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<td>- Technology developers</td>
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<td>Channels</td>
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<td>- Educational place</td>
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<td>- Internet, - Posters, - TV</td>
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<td>- Mobile App, - Web, - Social networks</td>
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<td>Cost structure</td>
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<td>Revenue streams</td>
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<td>- Content creator, - Equipment, - Staff</td>
<td>- Technology cost, - Service and maintenance</td>
<td>- Ticket sales, - Annual membership fees, - Registration fee</td>
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Can proximity technologies impact on organisation business model?

Information, interact with people in a personalised way and determine the most popular topics by analysing data and adding it to their business model as a value proposition. For example at SXSW, interactive films and music festival, Beacons are placed around venues to send welcoming messages to attendees to encourage them to join discussions via mobile app, and then send them relevant information (Reddy, 2014). A more recent example of implementing this technology took place during the first public conference at the Consumer Electronics Show (CES) 2014. Users were directed to the instructions page after having downloaded the CES2014 mobile app on their phone. The hunt encouraged them to explore the most important exhibits at the show, while collecting badges from each Beacon that they encountered (Defazio, 2014). By a new channel, this technology is able to promote relevant content and interaction via mobile app and create a virtual relationship with attendees, while a few years ago events sponsors used educational places, the internet, posters and TV to communicate with people. These new channels have changed the way these organisations interact with people by providing a personalised way of communication instead of giving them personal assistance and automated services as it happens in a typical event industry. All of the people can be considered a customer segment in both the traditional and the new business model. The key activities in a traditional event industry are creating proper content, accessibility of content and event management. For delivering new value propositions, developing mobile apps and social networks are two fundamental activities. Hence, software and technology developers are two main resources that implement key activities in the new business model. The traditional event business model focuses on contents as a main resource. Content creators, equipment and staff are costly in an event. Although proximity technology has additional costs for implementing technology, services and maintenance in the event industry, it has the ability to engage more people and increase revenue. Ticket sales, annual membership fees and registration fee stream revenue are included in both the new and the old business model.

4 Analysis and conclusions

Our analysis highlights some important changes in companies’ business models with the use of proximity technologies.

1 New customers’ experiences are improved continually

Pine and Gilmore (1998–1999), as pioneers in customer experience, explained that in order to be successful, businesses should provide unforgettable, satisfactory experiences to their customers by adding value to their offerings (Berry et al., 2002). Proximity technology such as Beacon and Geofencing technology combine the location information and other customers’ information and generate a personalised offers and communication to customers which enhance the customer experience. It allows sending customers meaningful messages and advertisements in the right place, and at the right time. In addition, providing exclusive information regarding products and services such as promotions and discounts can improve customer experience in or out stores. This small technology can encourage customers to come inside stores by receiving welcome messages in their mobile phones. In large and busy places such as stores or museums, customers can be lost or discouraged for
looking around or purchasing something. With Beacon technology, customers can always find their location and products in a specific area. Moreover, tracking customer’s behaviour and reaction to a new value proposition organisation, can continuously adjust the offer to customer’s needs creating new value from data.

2 New important key resources for organisations

Proximity technology provides companies with endless opportunities to collect massive amounts of data that can be analysed in real-time to earn from users’ interests and provide them with personalised content, enhance the end user’s experience, predict future performance and improve their marketing strategies (Raorane and Kulkarni, 2011). Proximity technology, data gathering and analytics can help organisations to:

- Carry out a much finer customer segmentation divided into industry, geography and organisational units and even more granular attributes by comparing usage patterns.
- Define a more tailored offer in order to help customers find just what they want, locate the perfect product and, often, suggest additional items the customer had not even thought of (Davenport et al., 2011).
- Define a better pricing strategy by creating a better match between customer segment and value proposition offer.

3 New customer relationship and channel

Since this technology is able to provide many different services to clients, the traditional communication channels are not useful to deliver values to customers so it needs to create new channels. Proximity technology creates virtual channels which are used in a physical place. It means the virtual and physical channels are integrated to create new communication methods. The virtual channels are built on the top of mobile apps, social networks, web, developer tools and API.

Moreover, as customers’ behaviour is transparent to organisations, they can remain connected to the customers and create a new basis for a direct and ongoing dialogue with them. Welcoming messages, giving customers a loyalty card, inviting users to an event, accessing relevant information in real-time, issuing discounts/coupons and sending notifications to customers in a vicinity of companies are some of the strategies implemented by proximity technology to enhance customer engagement. Companies will be able to offer loyalty programs that extend beyond a customer’s typical loyalty/incentive profile and provide a long-term service.

Having full transparency on customers, products and services helps companies to develop a new business model completely centred on their offers and focus more on services and less on products. This model pushes the organisation toward a customer’s need to get the most from products and services. By using proximity technology companies know a lot about customer’s experiences, preference and satisfaction. This shift that goes toward a more service oriented model has led organisations to increase costumer success, tailor their offer, in terms of product post sale services, and act quickly to solve a problem before it happens. To maintain and maximise a business model centred on services and customers, organisations need to develop new capabilities in order to select, capture, secure and analyse data and eventually combine them with the
organisation data to maximise the value of its offering. New expertises are required to design and use the new technologies, as well as manage and store new data. A new culture of integration and cooperation needs to be instilled into organisation functions in order to create a continuous support for their offers. Will organisations be able to exploit these new opportunities?

References


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