

Role of Digital Innovation in Creating Competitive Edge for an Organization

Author's Details: F. Ali¹, M. Shahid² Supervised by Dr. F. Zafar

Abstract—this article describes how keen are the businesses to accept the digital infrastructure and how digital innovation has helped them in gaining competitive edge and market leadership. We analyze it through case studies of market leaders who have gained competitive edge by being digital and providing their customers what they need. SWOT analysis was done to study them.

Index Terms—digital, innovation, market leadership, competitive edge, SWOT analysis.

1.0 Introduction

Through the advent of internet in society in early 1950's has begun a new era of communication. Today communicating with anyone in the world is just a click away. Man has become so much dependent upon the new technology that even a simple task is now performed with the help of it. It's an era of global communication and technology. People are more aware about everything as compared to their ancestors. Today everyone wants change and unique products / services everyday which make their life easy. Whether it is creation of fire in Stone Age era or an invention of wheel in earlier days or an development of a computer, for anything till today human race has survived through innovation. As the knowledge has advanced from generation to generation the one who were capable enough to communicate survived and others diminish. Innovators are there who are managing to deliver and survive best in this global village where competition is increasing every second.

Clients are well aware of the new-fangled technologies and they want new and innovative products and services which make their life effortless. Businesses are well aware of the fact that today survival is not only based on aged conventional management styles. Therefore, enormous efforts are being done to stay and flourish in the market whether it's national or international.

1.1 Digital Innovation

Digital innovation is the application of digital tools and techniques to give enhanced and unique product/services according to customer demand and aspirations. Every business understands its importance and is eager to make its organizations environment innovation and technology friendly. Everyone today is aware of the fact that today innovation is a core element "a must have aspect" of any organization who wants a competitive edge. [1]

2.0 Literature Review

In twenty first century, where man is striving to achieve the best and making life easy. Businesses are adopting digital tools and techniques to gain profit and customer satisfaction. Different business innovation models have been adopted for this purpose. [2] From the literature review done till year 2007 shows that how companies use diverse innovation strategies to create their products and take them to market. Practically every organization, we analyzed, followed one of three primary innovation strategies:

- Need Seekers
- Market Readers
- Technology Drivers [3]

Top Management is keen to make new strategies, business models which promotes innovation and helps in gaining competitive edge. [4] Concept of 'Digital Economy' is also there. People believe that if digital tools and techniques are implemented in every sector of national economy competitive edge in the world can be gained. For this purpose, Asian, African countries are specifically more concerned in adopting digital innovation in a better way. [5]

IT Integration, as a tool for gaining the competitive advantage

According to YuongWon Park, Takahiro Fujimoto and Paul Hung, in their article,

“Product architecture, Organisational capabilities and IT integration for Competitive advantage”, when IT is integrated effectively and strategically in organisation’s product designing and the processes, leads to the competitive advantage. As almost 80% of the product formation cost is ascertained from concept development to the production process, and an IT tool called 3D Computer aided design, which was being used only as a tool for product designing, became of strategic importance for gaining the competitive advantage. 3D CAD tool helps providing us the diverse product information; it enhances the communication scope of an organisation; helps in accomplishing the synchronized product formation operations which in turn reduces the cost of production. So, if an organisation is capable of effective implementation of this tool and it uses to innovate its processes accordingly; can reap the potential value of IT. It is evident in the case study analysis used in the article that the organisation with better IT integration, is competitively stronger than the other two firms.^[6]

Digital technologies as a tool for creative idea generation

These are the creative ideas which are the key to growth of the organizations well as the innovation. Three main conditions which have been identified as necessary for the generation of creative ideas are 1) access to a variety of new information 2) involvement with the work 3) active support and what is required for the implementation of these ideas, is some kind of financial assistance.

Digital computer technologies and tools available to the firms have great potential to add a real value to such creative ideas by aiding all such necessary conditions stated above. Talking about the computing tools we mean tools for communication like email, fax, and messaging, Digital tools for conference like data, voice, video conferencing and conversation forums, software for management and social networks like facebook, twitter e.t.c. it is discussed in next paragraphs how these computer technologies and tools act as a catalyst for above mentioned three necessary conditions help in coming up with ideas which are more creative.

Access to a variety of new information

If a company has internet facility in its vicinity, it allows the employees to gather information of almost of any kind which obviously contributes towards the generation of creative ideas. New information and knowledge is directly available to the employees with these computer technologies. They have access to firms’ own database they can send request for required information using emails and they can also take advice from the experts over internet by using discussion forums and as these devices allow them to connect with anyone in the world, they can take ideas from non-experts as well, because sometimes, these people may provide us with a very important clue towards creativity. Hence a bulk of information through a lot of resources is available; these computer technologies clearly enhance the level of creativity of new ideas.

Involvement with work

It is stated that, employees who are more involved with their work are more likely to bring the new ideas. Hence the part, of which digital computer technologies enhance the involvement of the employees to their work, is the contribution towards the making of new and creative ideas. These digital computing technologies contribute towards employee-work involvement by providing him self-sufficiency and independence while working as he has access to what is required and to offer him alternatives and more flexible framework. For example, Telecommuting allows employees to work outside the organisation’s premises; it provides the employees more independence and work freedom which in turn facilitates their involvement with the work.

Digital computer devices and technologies allow more feedback as compared to the traditional system because it allows more formal and informal communication. And when a person receives more feedback of his work, he gets more involved in his work.

Active support

Active support from the insider as well as outsiders is necessary for the employees for getting more interested in the development of ideas so by making them enable to connect with the people from outside and inside of the organisation, computer technologies can

enhance the creativity among ideas of the employees.^[7]

Digital marketplaces

When it comes to competition, digital marketplaces play an important role for gaining the competitive edge. Companies who use digital markets have access to larger number of potential buyers and seller. Operating in a digital world provides more business opportunities, reduces the cost of transactions, allows comparisons, price setting becomes more transparent hence allow the business growth. These markets allow the organisations to reach the potential buyers which would otherwise be impossible.

How and where a trade should happens, effects the cost of purchase and it has the competitive impact. Digital platforms greatly help in reduction of such costs.

New business relations can be enhanced with the help of these digital communities. Organisation can also enhance their knowledge about different projects and for strategies making.

Knowledge is considered as a strategic tool which contributes towards gaining the competitive edge. Digital markets play a vital role for this attribute of strategy. Organisations which use these digital forums may develop the knowledge sharing communities. As These digital markets allow consistent and uninterrupted communication and interaction so there is always a room for fresh knowledge which can be proved very helpful for the companies in taking new decisions.^[8]

E-commerce

As IT has developed the very vast and effective framework for business, many organisations have shifted towards IT and internet integrations. They started focusing on redesigning its business processes as suited with IT in order to maintain or generate a competitive advantage.

E-business

E-business is the one in which all the transactions are made through electronic means i.e with the use of computers and

internet. There is no face to face dealing or conversation or so.

E-Business has been of great value that it was said to be the decisive for the success of organisations. Andy Grove, which was the chairman of the Intel, said in 1998 “ within five years, all companies will be internet companies or they would not be companies”.^[9]

Internet defined:

As stated by S. Mustafa and Beamont, internet is defined as, “Internet is the network of networks whereby messages and data can be interchanged”

Different impacts of business through internet/E-Commerce

It eliminates the time and distance barriers

It is the attribute of the internet that it greatly reduces the time and eliminates the distance barriers. It reduces the cost of transactions; it increases the likely hood of the potential buyers to find the product of interest.

Supply chain

Internet has the capacity that can redesign the relationships among the people and partners involved in supply chain in a positive manner, as it facilitates the information sharing between vendors, organisations and buyers.

Manufacturing process acceleration

In production process, Internet allows a degree of automation it reduces the manufacturing cycle time, shrivel the stock and simplify the operations.

Helps in marketing

Internet provides very cheap and easy marking. One can place its banner on a web site where people can find the product of their interest and place an order thereof.

Competitive advantage

According to Bakos and Treacy (1986), if a firm is able to produce goods at low cost and deliver them at low cost than the competitors, we can say that the firm is competitively

efficient. Competitive advantage in combination with the power of bargaining results in competitive advantage. As E-Commerce allows companies to buy from multiple suppliers, the firm will definitely possess the more bargaining power as compared to individual supplier. Also the electronic mechanisms help reducing the cost; they lead a firm towards gaining the competitive edge. There is another contribution by the E-Commerce that it allows the small firms to enhance the scope of their business geographically which is another key of gaining competitive edge. There are almost no barriers in entering or becoming the part of the electronic markets so, organisations can also gain competitive edge by expanding their business.

Summing up potential of E-Commerce,

E-commerce can,

- Eliminate geo- graphic and time constraints,
- Can speed up the business processes,
- Can assist changes in supply chain management,
- Can improve communication with customers, suppliers and employees
- Generate new promotional mechanisms
- It can help in creating the databases and histories of customers^[10]

3.0 Analysis of Case Study

Penguin's digital journey presented by Nathan Hull at Digital Innovation August 2013. As a company built around stories printed in paper Penguin understand the need to bring technology into their business. Nathan Hull discussed some of the things Penguin are currently doing and how they are trying to introduce new innovative concepts into their company. Penguin is the biggest publisher of children's books in the world. Story telling is at the heart of everything they do. They are now on a journey exploring innovative ways of bringing technology to their customers .Penguin have transitioned away from just

producing books and now create: Apps, Games, TV Shows, Virtual Worlds, CGI stories, Websites, Social Media, etc.[11]

3.1 SWOT Analysis

Following is the SWOT analysis of Penguin Publishers.

STRENGTHS

- Penguin publishers are the global billion-dollar business. And is part of the Pearson Group.
- It caters to the needs of everyone from a small baby to a grandparent, books for everyone is published by them.
- They have become digitally active and provide many online facilities which attract consumers.
- Basic digital integration has included merging photos and videos into stories. Where possible even creating 3d models and creating pop ups within physical books.[11]
- Develop an application which suggests books for you to read based on the length of time you input. Allowing you to read the full story during your journey.[11]
- They are not a typical book publisher and provide many other facilities like e-books, apps, etc.
- To keep producing great digital products Penguin launched Penguin Ventures to work alongside people with great ideas.[11]

WEAKNESS

- People are not willing to go at book stores and buy the books.
- Counting too much on a particular book for revenue is not good for profits. [12]
- It has limited global penetration as compared to its buyers.
- Weaker demand of college text books esp. in north America division will lower their profits.[13]

OPPORTUNITIES

- Penguin has moved into “self-publishing” which provides more opportunities to the authors to publish their work online and get feedback.[14]
- New applications which can be used in any gadget can be made which makes reading easy.

THREATS

- Being digitally involved means coming up with better applications, providing better opportunities very early as technology becomes obsolete.
- Other competitors are also making similar apps, games, websites so it's difficult to cope up and to be a market leader.

4.0 Information Technology, Strategy and Firm

Owrlikoski and Gash (1992: 2) defined IT as

“any form of computer based information system, including mainframe as well as microcomputer applications,” [15]

The influence of these digital systems is wide and effective in business applications. For example:

- “Xerox provides master production schedules online to suppliers to facilitate just-in-time deliveries, reduced inventory costs, and improved supplier relationships”. [15]
- Federal Express drivers use hand-held computers and a sophisticated data management system that improve service and reduce costs, making overnight delivery services profitable and affordable to customers”

4.1 Digital Innovation as competitive Advantage

Since digital innovation has emerged in almost all of the leading sectors of economy, it has been said that digital innovation or IT has a direct effect on the organization strategies of the firms implementing IT strategies. They try to merge the organizational strategies with the digital innovation concepts, and align the concepts in different functional areas of the organization.

“Rackoff et al. (1985) concluded that IT should support competitive thrusts such as cost leadership, differentiation, innovation, growth and external alliances; and Rockart and Short (1989) argued that IT serves primarily to manage organizational interdependence; i.e., to solve coordination problems among departments and strategic business units.” [15]

4.2 Innovation in Management

Innovation is known to be very important and vital factor for today's organizations. Companies should focus more on being innovated and the profit will automatically follow.

It has been said that innovation is very important for organizations to gain competitive advantage in the marketplace. Organization has to innovate new ideas continually in order to meet and exceed customer's requirements, needs and wants. The role of digital innovation is fundamental to today's business and entrepreneur world that is why it is essential for companies to understand this fact and adapt the digital innovation to gain competitive advantage.

It is very necessary for the supplier companies to get prepared for upcoming things, because the future brings colossal competition and increased pressure from the market. Nowadays, the business environment provides opportunities for organizations to gain competitive advantage and to tackle with the market pressures, and also giving them a chance to regenerate themselves to manage with the ever increasing demands of customers. The ever changing market environment gives caution to the managers and organizations that there is no time to waste now. They have to change themselves towards

innovation to compete in the marketplace. It is important for them to get themselves adapted to digital innovation if they wish to survive. Change and digital innovation has now become one of the key to survival for organizations in today's entrepreneur world.

4.3 Designing Innovation

“Drucker (1985) describes innovation as “the specific instrument of entrepreneurship” that also poses as the most critical success factor in most firms.” [16]

Besides this, there is another factor of great importance that has to be noticed here. This factor is named as “newness in innovation”. The innovation applied in different functional areas of an organization can be applied with changes according to the requirements. This will bring not only change but also newness in the organization and that can also benefit in a far better way than the typical innovation.

“Christiansen (2000) emphasises that specific innovation management systems such as idea generation methods, funding systems and project management methods also have a profound impact on the performance of innovation and innovative ideas, including the impact due to final intervention of the senior management in specific projects and overall service delivery.”

5.0 Does digital innovation meet resource based criteria for sustained competitive advantage?

“In a resource-based conceptual analysis of digital innovation and firm performance, Clemons and Row advanced a commodity view of digital innovation, arguing that competitive imitation eventually erodes most IT based advantages, that non-imitators are eliminated, and that above-normal returns to the IT eventually vanish.” [15]

The idea that IT is not becoming able to gain the competitive advantage or the sustainable performance advantage as it was perceived to do so; this fact has eventually created a perception called the “strategic necessity hypothesis.” There are two propositions in this hypothesis:

1. Digital innovation becomes the source of organization's increased value by increasing the internal and external coordination efficiencies, and if the organizations will not adopt them, they will have high cost structures as well as high competitive disadvantage.
2. Despite (1), organizations can not expect to gain the sustainable competitive advantage because most of the digital innovation technologies are voluntarily obtainable to all organizations- buyers, suppliers, competitors, potential new entrants- in competitive markets.

The “strategic necessity hypothesis” is to some extent bare than the other theories or concepts of this approximation of the sustainability of the innovation derived performance advantages. This hypothesis views digital innovation more as a threat than as an opportunity, as the hypothesis argued that investments should be done to evade competitive turn down and a chance of getting sustainable competitive advantage.

This concept leaves only three choices for the organizations adapting to innovation-based competitive advantage.

1. Modify the innovation-based advantages continuously through the use of revolutionary Digital innovation technologies and techniques.
2. Be the first to adapt to the innovation to gain first mover competitive advantage.
3. Apply the innovation-based techniques in organizations in such a way to add value.

The first two options are very risky and unsteady as regards to their implementation.

5.1 Global Internet Adoption

According to the recent condition of innovation, people do not focus on the fact that there are still a huge percentage of people who have not even got the reliable access to the internet.

As Google's executive chairman, Eric Schmidt, has said, “For every person online, there are two who are not.” [17]

“Large segments of Africa, Latin America, and Asia still have just 0 to 50 percent Internet adoption (defined as access to the Internet), compared with developed economies like the United States, where 71 percent of the population accesses the Internet at least once a month and more than 95 percent has Internet access. Even booming economies like Mexico have lower Internet access rates than one might expect. In 2011, only 36 percent of the people in Mexico had access to the Internet.” [17]

Many of the technology experts however have argued that till the end of this decade the whole world will get the internet access. But to achieve this objective many things are needed, for example: “increased wealth, telecommunications infrastructure, political stability”, but still there is room for more and more innovation as the need for internet is increasing at a rapid pace globally.

5.2 The Rise of the Platform

As the digital innovation is advancing day by day, it is also influencing directly the way through which products are designed and created. Both these concepts are empowered by the ever-changing and fast growing digital innovation technologies. Companies are focusing to develop new and innovative tools and techniques to decentralize innovation and to involve people from outside the organization boundaries.

Instead of creating products for their organizations, companies are now developing platforms where others can come and build innovative products. This objective of this concept is to speed up the process of innovation and decrease the cost.

With the creation of this type of open platform, although the organization creating the platform has to bear all the expense of creating the platform but the third parties involved afterwards become the stakeholders in the success of such platforms. Therefore, these types of platforms let the organizations influence the efforts of others involved in this process of innovation production.

This concept of shared interest in the performance of the platform becomes

intensely important as the knowledge; skills and capabilities are all shared and do not belong to any single organization. The platforms thus become the prolific propagation basis for “business ecosystems”, the concept that is becoming more important nowadays.

5.3 The increasing pressure to Innovate

The fast growing industry of digital innovation is becoming a source of immense pressure on organization to innovate.

“For example, since the advent of the microchip, the tople rate—the rate at which companies switch leadership positions in a sector—has increased 39 percent. A higher tople rate means that companies are finding it more difficult to maintain their competitive advantage and stay in the top tier of performance.”[17]

The justification to this could be that, while the digital innovation is in a process of continuous advancement and improvement, the people and organizations could not kept pace with it. They have not got the skills to fully use the capabilities of such fast growing digital innovation. This ever increasing gap between rapidly growing innovation and human productivity improvement is presenting a whole new concept of innovating opportunities in business. This gap has lead to the concept that innovation should be done not only in the creation and development of products but also human skills should also be improved and innovated to keep pace with the rapidly growing digital innovation. Their skills should be built to get to work with the ever changing and advancing digital innovation.

6.0 Conclusion:

In this twenty first century era, Technological and digital Innovation will be a driver of strategic growth and only the ones which adapt and bring in these change will survive in the market. Because consumers want their life easy, relaxing and tech savy. Therefore, we had to strive hard to achieve new everyday whether it is an owner of big social media site like facebook or a mobile company like Samsung all will maintain and gain more competitive edge if they find ways to digitally innovate.

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