MOVING TOWARDS CONVERGENCE
Technology & Business Convergence

INTRODUCTION

Technology convergence refers to both, the ability to perform multiple functions using a device and/or network as well as the availability of multiple methods to perform similar actions. The last two decades have seen an immense amount of innovation in this space – examples include Voice and Fax over Internet Protocol, gaming consoles like Xbox or PlayStation and Apple's iPod. While a handheld device that can be used to make phone calls, play music/videos, click photographs and surf the internet is certainly beneficial to the individual using it; it probably has a far bigger impact on businesses - not only businesses that are involved in the creation, marketing and distribution of these devices but also most other businesses that sell other products and services to this individual. It would not be incorrect to say that technology and rapid enhancements therein have had tremendous impact on the population at large.

This paper discusses the various business disruptions and convergences that technology convergence has made possible. Irrespective of which of the three value disciplines[1] of product leadership, customer intimacy or operational excellence is followed by the firm, the aggressive adoption of and the innovative use of technology enables firms to gain a competitive edge. Few aspects of business are untouched by technology today. The following section investigates how technology convergence has further impacted various business disciplines.

IMPACT OF TECHNOLOGY CONVERGENCE ON DIFFERENT BUSINESS DISCIPLINES

Marketing

Technology provides marketers multiple touch-points with customers and facilitates higher speeds of deployment of marketing activities at much lower costs than ever before. Technology convergence reduces distribution lags and costs, enabling customers to consume information almost as soon as it is produced. Today information is easily 'downloadable' and available at all times.

Consumers increasingly use social networking platforms to exchange information regarding various products/services. The consumer insight that feedback/review from a stranger is often considered more valuable and reliable than that from experts has led many firms to use social media actively to popularize their products. Examples include social media campaigns like 'Gang of Girls (GoG)' and 'Being Girl' by Fast Moving Consumer Goods (FMCG)

> Launched in June 2006, within 36 days of its launch, GoG had 100,000 registered members. By November 2006, GoG had 250,000 registrations and 25,000 gangs. The site had registered almost 200 million hits and got on an average 12-13 million page views per month. By January 2007, the registration base reached 350,000, with 26,000 registered gangs

Note: All footnotes (except footnote 5) are hyperlinks.

[1] HBR Article on customer intimacy and other value disciplines

giants like Hindustan Unilever Limited and Procter & Gamble[2]. Such initiatives also get firms easy access to information on what consumers like and, probably more importantly, what they don't like in the firm's offering.

In a sense, creation, distribution and consumption of product/service information – i.e. the most of the 'what', 'when' & 'where' of marketing[3] is increasingly being decided by the consumer. Marketing models hence have had to change from 'Push' to 'Pull' model.

A new field in marketing called 'Customer Marketing' – communication with the shopper at the store to influence purchase decision at the point of sale has now become necessary for two main reasons. First is because of a change in shopping preferences of consumers regarding where they shop - from 'across the counter' stores to malls. The customer is now able to delay the purchase decision till she is in the store. Retail stores offer the customer an opportunity to compare and contrast among the wide choice of products available before making the purchase decision.

The second reason for the need for Customer Marketing is because technology has made it possible for customers to choose to do away with advertisements that most television shows are interspersed with. For example, advertisements may be skipped by using products like TataSky+ which record television shows for playback later. Video sharing websites like YouTube make a lot of the entertainment content available for free, yet uninterrupted by ads. Five years since its launch, YouTube boasts of 2billion views daily (more than all of the three main U.S. television networks combined) and is the third most heavily trafficked website on the Internet.[4] Hence, marketers are now unable to reach customers, who are increasingly spending more time on websites like YouTube, using the traditional television entertainment route as effectively as in the past.

Supply Chain

Technology convergence has made the traditional 'firm centric' business model irrelevant. Accurate data collection and reliable sales estimation based on analysis of this data are now possible. Portable hand held data collection devices and RFID scanners enable collection of sale data in digital format. This data is easy to store, share, decode and may be used to look for purchase patterns and to understand customers better. Supply chain strategies like 'Vendor Managed Inventory', pioneered by Wal-Mart a few decades ago, may now be employed in a cost-effective manner even by much smaller firms using latest technologies like Software as a Service and other Cloud based applications. Tighter integration across the supply chain has led to competition, not amongst individual firms, but between the most efficient and effective supply chains.

The 'Make to stock' model implies a need for inventory management and consideration of high inventory holding costs and risks of obsolescence. At the same time, this helps prevent stock outs and lost sales. Good knowledge of customer buying patterns as well as an efficient upstream and downstream integration enables the business' move towards the 'Make to order' side of the continuum both possible and profitable. On the flip-side, increased integration makes

[2] IBS Center of Management Research case on Sunsilk Gang of Girls- HLL
[3] Businessweek article on 'The 5 Ws of Marketing'
[4] YouTube performance and 5th year milestones by bizreport

the business vulnerable, to a good measure, due to incompetence of partners. As may be anticipated, this system is just as strong as the weakest link

Organization Management [5]

Use of technology convergence has made it possible for firms to have tighter monitoring and control on the activities and performance of employees. It helps firms set up businesses centered around the more valuable, core 'Hub' (representing the top management of the firm) with the service being delivered by a low/medium quality 'Rim' (representing the low skill, customer facing employees). This is possible by having standardized processes as defined and perfected by the 'Hub' and carried out by the 'Rim'.

An extreme example of this is seen in 'Mrs. Fields Cookies'[6] where, in tandem with the expansion of the stores into new geographies, an Information Technology (IT) system was designed by the firm in order to collect sales data and to use that to predict sales trends. This information was used to provide clear instructions to store managers regarding the time and size of the batches of cookies to be baked in the store. While this is a fairly dated example, it is also an example of early and innovative use of technology in business. With more data, computing power and complex statistical software available, even more automation is now possible. This makes people even more easily replaceable. Businesses built using such systems are less person-dependent and hence more robust. Extensive use of technology makes it possible to recruit people from the bottom (in terms of capabilities) of the talent pool and hence at lower costs. Often such businesses have a clear cost advantage over competitors and can successfully set up operations even in locations where skilled/highly capable labour is not easily available.

Operations

Technology adoption makes the business more agile. Convergence in IT and Communication Technologies (ICT) can enable communication between the silos in a firm to create a more powerful organization. The networks thus formed may be complex, often consisting only of weak ties. However, in the business context, these weak ties are extremely significant – they can be the greatest source of new ideas and even new sales leads.

One example of the role of IT in disruption is the creation of the outsourcing industry. The emergence of this industry made companies nimble as they could shed off a significant, non-core part (IT or any other operation) of their business and have that function performed by a low cost provider, who in turn benefits from economies of scale.

Creation of new services and/or businesses

In addition to the market leading search engine, Google provides many productivity and collaboration tools, including products for word processing, presentations, spreadsheets, email, instant messaging, blogging and video streaming. By providing many free, high quality offerings, Google has captured a significant market share of internet users. They programmatically use the

[5] Most of the material in this section is based on in-class discussions during the 'Marketing Services' course at ISB, conducted by Visiting Faculty, Prof. Piyush Kumar.

[6] HBR article on Managing by Wire & Synopsis of HBR case Mrs Field's Cookies, Inc

content generated by these users (say, in emails) to help other firms direct relevant advertisements to these customers. Google's platform business model brings together the buyers and sellers by subsidizing one (buyers) side while monetizing the other (sellers) side.

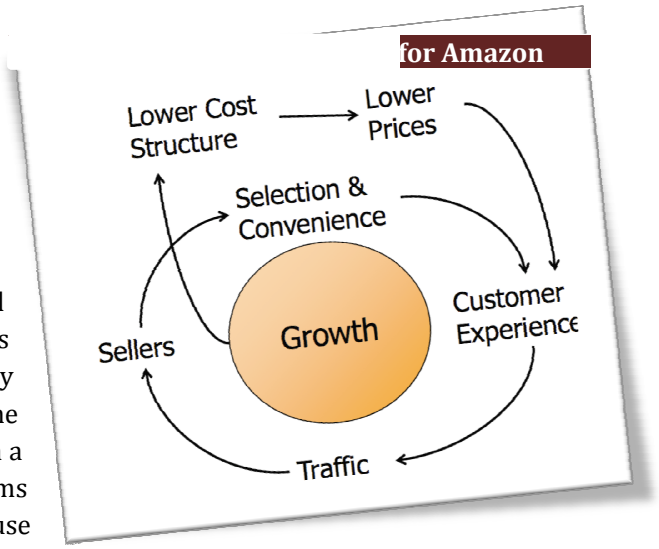
Increased access of buyers to information and increased competition between sellers generally implies more choice of high quality, low price services/products for the buyers. The telecom industry is a good example here. Price wars due to competition have brought the Average Revenue Per User (ARPU) down to the barest minimum. Hence, the telecom firms introduced other value added services to increase their revenues. Again this has been made possible only because of IT convergence – voice and data is transmitted at high speeds on the same network.

Telecom service providers can track the location of mobile phones. This feature, combined with extensive use of the Internet from the mobile, creates an opportunity for location based services. It is possible to provide information on best deals/discounts available in the vicinity of the user. Returns on such targeted promotions are very high as the probability of conversion is much higher here than in the case of a blanket promotional campaign. Converged IT thus orchestrates a win-win situation increasing value for both individuals and businesses.

Customer Data Analysis to increase Customer Delight

IT convergence has significantly decreased the search and transaction costs for individuals. This convenience for the customer also provides a number of benefits to businesses. Search on the Internet is often a precursor to an economic activity. Further, with e-commerce, even financial transactions happen online. This provides businesses the data required to track customer behavior like never before. One can get a sense of the various searches performed by the user, the ads and websites visited and the final destination used to perform the online monetary transaction. Ability to track the online activities performed by the customer 'from the comfort of his/her home', even over a number of days, helps businesses better understand customers and the benefits that they seek. Armed with this knowledge, even if in aggregate, firms can create products/services which are desired by their customers. Similarly, it is now possible to segment customers much better now because both, large amount of data about the customer as well as statistical softwares to perform complex analysis of this data are available.

The telecom industry has utilized this information in order to extract maximum possible customer surplus by pricing close to the willingness to pay. This explains why service providers today offer so many different calling rate plans. The ICT convergence has enabled businesses to create highly customized options by mixing the standard and value added services in different, difficult-to-compare bundles at relatively low costs. This helps firms cater to multiple segments in the market, enhancing the firm's profitability. Even if there were multiple players then, this would not have been possible in the era of landlines as there wasn't enough data to segment customers, there was only a single standard offering (calling rates based on distance maybe) and comparisons between competing offerings was easy and inevitable.



Digitization and online sale of products like books, music and movies enables firms to stock an inventory of goods, much larger than was possible in the limited shelf and warehouse space of the traditional brick and mortar sellers. Moreover the marginal cost of creating these digital products is negligible. So it possible for businesses to sell to the long tail of the customers – i.e. customers who demand products not demanded by many others in the market. Not only does that help the business delight customers who can now obtain a product that was earlier unavailable, but the firms also now witness increased revenues both because these products can be sold at a premium and because with increased availability, the demand for the products also increases. Amazon has nearly perfected this business model (please refer to Jeff Bezos' napkin diagram[7] of the Growth engine above). Amazon benefits from economies of scale as the most preferred[8] e-commerce website. Increased visits to www.amazon.com are triggered by Amazon's focus on this strategy, which in turn works because it is based on the very strong positive cross side effects seen in such platforms.

Competitive Landscape

While Amazon and other platforms like Facebook and Innocentive are examples of 'Winner takes all', IT convergence plays an important role in creating a level playing field for all firms, large and small. Earlier, hardware and most software were too expensive for smaller firms to consider buying them. The 'pay per use' model of the Cloud computing offerings have made it possible for Small and Medium Enterprises (SMEs) to lease hardware and licensed software at a fraction of the costs, converting many services from the 'high CapEx' (Capital Expense) model to the 'low OpEx' (Operating Expense) one. This nearly nullifies a major competitive advantage enjoyed previously by many cash rich firms.

Tele-presence technology makes high quality transmission of audio, video and data possible. Organizations can respond rapidly to changes in the business environment by using technology to bring geographically dispersed teams together for discussions. The travel and hotel industries have had to bear the brunt as technology became a substitute to expensive and time consuming international travel. Thus, technology not only enables firms to beat competition, but also by virtue of its deployment and use, might end up becoming competition to an unrelated business.

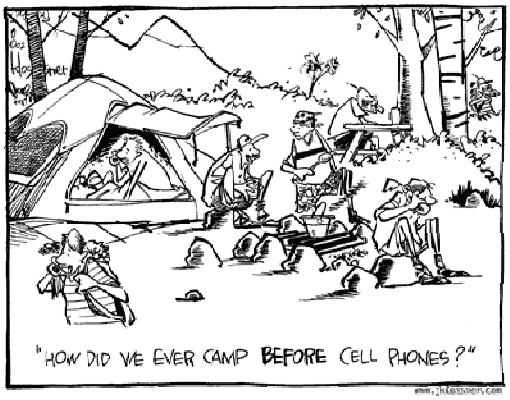
WHAT ICT CONVERGENCE WOULD NOT BE ABLE TO INFLUENCE…

ICT, at best, are enablers or tools that may be used to share information across an organization, help management make informed decisions, speed up computation, increase ease of processing and retrieval of data and improve communication quality. However, a culture of cooperation and a habit of sharing information in the firm is imperative. This is possible only if

[7] Jeff Bezos strategy for Amazon growth at ebaystrategies.blogs.com
[8] Time Digital Archive report on 25 best e-Commerce sites

people are incentivized through either monetary or non-monetary benefits or, at the very least, are convinced that sharing information would not work against them in any way.[9] The main reasons why people choose not to share data include the effort it takes to document tacit knowledge and the fear of becoming easily replaceable. Firms with intensely competitive cultures often find it difficult to encourage people to share information readily.

Increased IT convergence does imply that customers can now be reached more easily and that they can be tracked better. However, it is important to ensure that this is not overdone to the point that the customers do not want to use the latest technologies because the perceived losses outweigh the perceived gains from using the technology.



CONCLUSION: WHERE IS ALL THIS HEADED?

Technology convergence, brought about by rapid development in various ICTs, has enabled many disruptions which have changed businesses dramatically and irreversibly. Advantages it confers are short-lived and are lost when competitors see the benefits of and hence embrace the technology.

One commonality among these disruptions is that they are based on the availability of raw data from a device/network and ability to process data to decode insights. In the last few years, one major difference in the way businesses are run and decisions are made is that there is an increased emphasis and reliance on data. Like W. Edwards Demming stated[10], "*In God we trust, all others bring data*", data is required to back any business decision today. While till the late 1980s most managers would have complained of lack of information, today's manager probably suffers from information overload. Today's business relies less on top management's intuition, based on either experience or gut feel, and instead is highly dependent on people who can process large amounts of information.

Given the amount of data available, it would be interesting to see the kind of patterns that emerge when IT expert systems, with minimal human intervention, are created to work on databases of information collected in/by the converged ICT systems. Such large scale implementation and deployment of expert systems to perform data analytics are likely to detect trends and uncover blind spots that humans were unable to imagine. This can have far-reaching

[9] HBR book on the 'Business Value of IT'
[10] Excerpt of 'Delivering and Measuring Customer Service' by Richard D. Hanks

impact in criminal investigations and crime prevention, in healthcare and in predicting natural calamities.

For example, in the telecom industry, a relatively small percentage of the users contribute to significant percentage of the revenues and profitability. It is quite likely that there is a relationship between such profitable customers in that they either share a social network or have similar social network structures. This could imply a possible exodus from one vendor to another vendor if such key members were to switch. This might be difficult to anticipate and predict by eyeballing the data but if data is mined by expert systems such patterns are likely to emerge. Such insights would be extremely valuable and can be used by businesses to try to attract and retain profitable customers.

Going forward information/intelligence would increasingly reside in the network with simple devices drawing information/intelligence from this network. A pay-per-use model may result leading to growth of two types of devices: dumb devices (purchased and maintained by individuals) and complex ones (maintained by large firms) that deliver services and products on demand. Different firms would focus on optimizing their business processes to play in either of the two ends of this spectrum.