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**TECH
CONNECT**
IMPACT OF TECHNOLOGY
ON MANAGEMENT



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STRATEGY | *Rishikesh T Krishnan*

MARKETING | *Ambi Parameswaran* | *Rishi Jaitly*

ANALYSIS | *Sushil Saluja*

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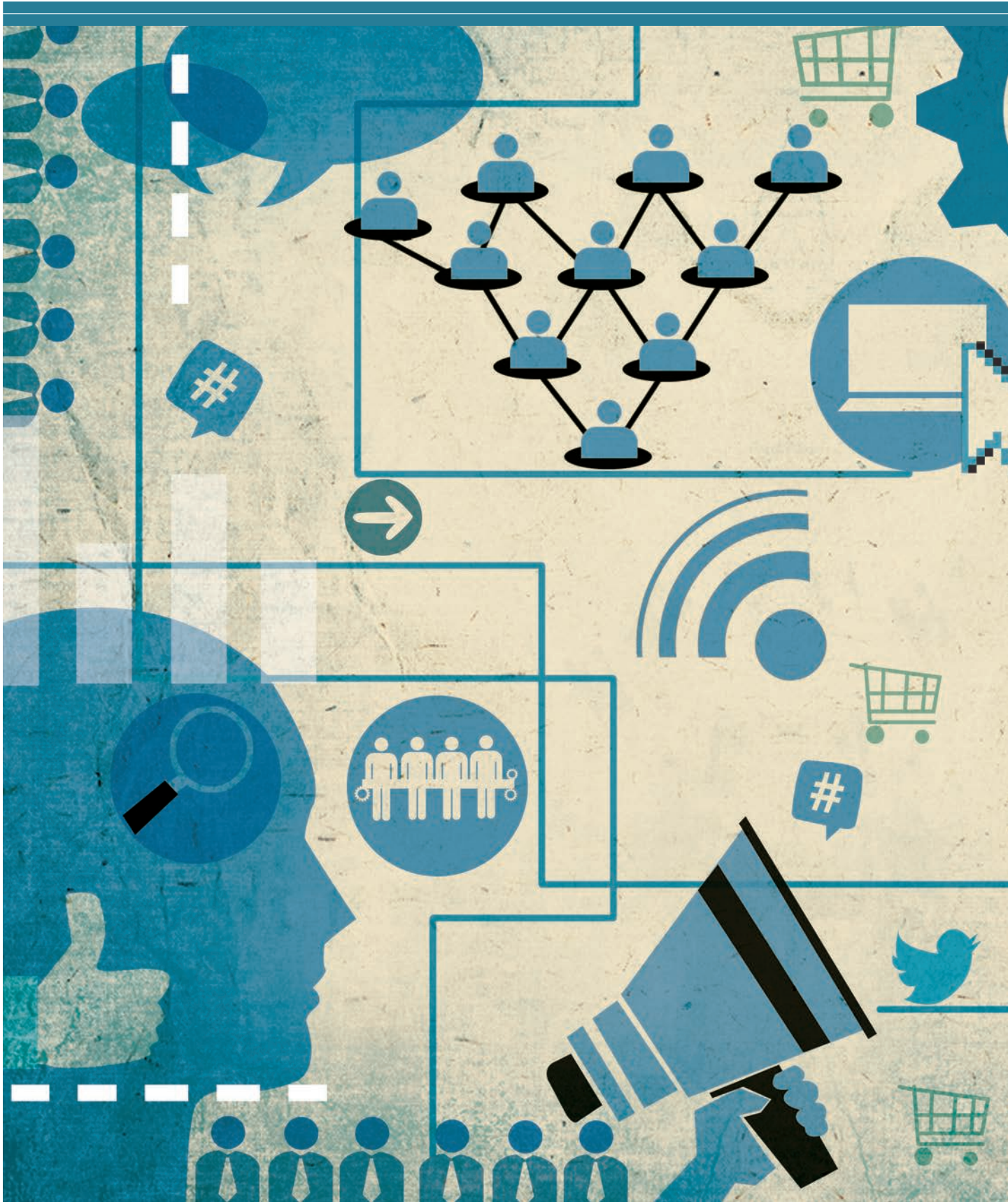


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THE TECH CONNECT

Advances in technology are redefining the contours of communication and management across the world. Six industry experts talk about how new business paradigms are taking shape in a more collaborative, connected and fluid world.

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RISHIKESHA T KRISHNAN

IS PROFESSOR OF STRATEGY,
AND DIRECTOR OF INDIAN INSTITUTE
OF MANAGEMENT INDORE.

leveraging IT

“Ten to 20 years from now, we may look back on the present as the dawn of the Smart Era: a time when rapid and continuous innovation changed almost everything about the way we live.” This observation by Patrick A Hyek, Ernst & Young’s Global Technology Leader, shows how the expansion of smart technology has created new opportunities in the business world¹. Technology is dissolving the boundaries within and across industries, and laying down new rules of conduct and competition—the CEOs of today face a strategic challenge.



Without competition, there would be no need for strategy. And technology has changed competitive dynamics across industries. In *Competitive Strategy*, Michael Porter introduced the notion of extended competition—competition is not just the direct rivalry between different players in an industry; it also arises from new entrants, buyers, suppliers, and substitutes that have the potential to appropriate or extract value created by players in a particular industry. Technology has modified the power of

all four of these, often to the detriment of existing players in an industry.

Technological change has led to making global sourcing easy, which means new players can enter an industry even when they don’t have core expertise in the product technology as Nokia learnt painfully from Micromax and Karbonn in the Indian market. Internet technologies have allowed travel portals to aggregate airline ticket availability and pricing information so that retail buyers can choose a ticket based on price at a negligible search cost. This has

put further pricing pressure on the already commoditized airline industry. Technological change has made integration with suppliers easier, but has put more pressure on companies to manage their supply chain efficiently—in many industries such as apparel and automobiles, competition is now between supplier networks rather than firms themselves. New technologies have always posed threats in the form of substitutes—plastics replaced steel, carbon fiber replaced aluminum alloys, and LCD panels replaced cathode ray tubes. In all these cases, whole swathes of industries were changed irrevocably.

when impact peaks

Perhaps, the most significant impact of technology on strategy has been in those industries where the product itself is digitizable. Music and books are the best examples. In developed markets, the music retail industry (for example, Tower Records) disappeared in short order, and the book retail industry (Barnes & Noble, Borders) is on its last legs. Though Barnes & Noble recognized the threat posed by the internet (initially in the form of more efficient delivery of physical books, and later in the form of ebooks), it was never able to come up with a strategy good enough to counter an ecommerce-centric retailer such as Amazon. The owners of the content—the music labels and publishers—have not remained unscathed either with the cost of entry into their industries plummeting, thanks to the shift to digital content.

Digital delivery has led to new opportunities as well. One of the main barriers to companies from India addressing the international market for software products was distribution. But now, with even delivery and installation of a software product possible online, companies such as visualization specialist FusionCharts have become global players from a physical base in India.

technology, richness and reach

In India, the ability to scale is often critical to success, particularly in consumer-focused businesses. Without scale, unit costs remain high and reach is limited. Clearly, technology plays a key role in allowing a company to scale, be it at the back end of a retail chain or the



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New technologies are leading to the generation and potential use of a whole lot of data on consumer preferences, purchase behavior, and channel performance. A new analytics industry is taking shape to help companies derive useful insights from this data.

order fulfillment of an insurance company. Web-based technologies have the power to bridge the trade-off between richness and reach, as companies such as Amazon and Charles Schwab have shown convincingly.

New technologies are leading to the generation and potential use of a whole lot of data on consumer preferences, purchase behavior, and channel performance. A new analytics industry is taking shape to help companies derive useful insights from this data. However, Indian companies have so far underutilized the potential of such technologies, and I find only a few Indian companies using past purchase patterns or other data available with them to make intelligent suggestions to customers or cross-sell relevant products. This is particularly surprising in travel-related industries such as airlines and hotels, where companies are sitting on huge amounts of relevant data, but not using it even when faced with challenges to their sustainability.

Similarly, social media allow for more targeted advertising and promotion, and companies that continue to follow the old 'spray and pray' strategies are likely to face competitive penalties.

pace of change

The pace of technological change affects strategic choices. The pharmaceutical industry is a good contemporary example of this. With relatively easy-to-develop families of drugs already in the market, new drug development timelines have become longer. Increased complexity of drugs is leading to longer timeframes for regulatory clearances, and this is compounded by greater safety

concerns. As a result, the costs of new drug development have increased, and the probability of coming up with a blockbuster has declined. Just as one imagined that the industry had stabilized, a new wave of consolidation has started in recent weeks with GlaxoSmithKline, Eli Lilly, AstraZeneca, and Novartis all in the news.

Technological change, particularly the adoption of radical technologies, poses significant strategic risks. In the intercontinental air transport business, Boeing believed that passengers are looking for point-to-point travel rather than waiting for long hours at international hubs. So, they needed to design a plane of medium size that was both comfortable to passengers and attractive to the airlines—the result was the Dreamliner (Boeing 787). To make the plane offer significantly better performance than existing alternatives, Boeing adopted new technologies such as a carbon fiber frame and lithium ion battery-powered electrical systems. Problems with the former delayed the launch of the aircraft by several months, and safety concerns posed by the latter have not been completely dispelled even after the aircraft was grounded for a few months to make changes to the battery safety systems.

A related challenge is convergence, which allows new competitors to emerge from related, yet different industries. It's difficult to imagine today that it's only seven years since the Apple iPhone was launched, leading to a redefinition of the smartphone industry, and the eventual decline of both Nokia and BlackBerry, powerful players in their own right at one point of time.

Rapid technological change has led to shorter product life cycles and the need for strategies that deliver quick



results. Customer preferences shifted rapidly from the security of the BlackBerry to the user-friendliness of the iPhone and the smooth net integration of the Android platform. Not only does this often mean you have to get the strategy right the first time, but also that quick adaptation and flexibility become critical.

competitive advantage

One important debate has been whether IT can deliver sustainable competitive advantage. What is clear is that poor or inadequate IT can place firms at a competitive disadvantage. After a couple of bad experiences of buying travel insurance through a leading general insurance company's travel portal, you can be sure that I will not be using that company's services again! Many people believe that we are now in an 'experience economy' and an ecommerce or order fulfillment process that lacks integrity is unlikely to survive for long.

Technology has caused major changes to strategy in the financial services industry too. On Wall Street (or Dalal Street, for that matter), large investment banks now make automated trades using more and more sophisticated algorithms. The quality of these algorithms has become as

important as (if not more than) the quality of fundamental analysis. Interestingly, stock exchanges have had to change their strategies too—in a recent talk, I heard the CEO of Bombay Stock Exchange explain how its response time and volume of transactions far exceeds that of Twitter.

pure play strategies

Notwithstanding these interesting twists, pure play technology strategies still have their place, particularly if you can solve the 'right' problems. Consider the example of India's leading bioindustrial company, Praj Industries. The company started by adapting an imported batch process for the fermentation of sugarcane molasses [and switched] to a continuous process capable of handling the 'dirty' molasses generated by Indian sugar mills. Today, Praj has moved far ahead to understand the molecular mechanisms involved in the conversion of different kinds of waste into biofuels with the aim of creating sustainable and eco-friendly processes for such recovery from waste. Given its proven commercialization skills, Praj is also open to in-licensing complementary technologies that will allow it to provide comprehensive solutions to customers.

Vigyanlabs, a young Mysore-based company, shows the potential of a technology-based strategy in a different industry. With the migration of several large applications to the cloud, large data centers are the order of the day; but these data centers consume huge amounts of power and are increasingly being targeted by environmentalists because of their contribution to greenhouse gases. Vigyanlabs has developed a system to reduce power consumption in data centers by up to 30%; the core model is covered by a US patent. Vigyanlabs recently identified a new revenue stream—its algorithms are now available in a retail product that allows you to reduce power consumption in an Android-based smartphone! ■