



What Is Your Global Innovation Strategy?

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IT is an integral component of business strategies—including innovation strategies—in contemporary firms.^{1,2} As the business environment becomes more global and competitive, firms must tailor their strategy for innovating based on their own geographic location and that of their target audience, recognizing the differences in how developing versus developed countries approach innovation. Furthermore, firms must determine how best to deploy IT to support their innovation strategy across geographies. Here, we articulate key dimensions along which innovation approaches differ around the world. Then, we describe a framework that managers can use to develop a comprehensive innovation strategy and tailor their IT systems accordingly.

Understanding Innovation

Innovations are easier to identify than define. For example, Apple's iPhone is an innovative product, but innovation can also occur along other dimensions. It can depend on an organization's perspective and encompasses not only a new product, service, or process but also a new idea, method, brand, business model, offering, customer segment, or delivery and revenue channel. Innovations also vary in terms of outcomes: they can be industry leading, inimitable, and take years to conceptualize. Ultimately, the definition of innovation

is relative to a company's current processes, culture, and goals—what might be characterized as innovative in one context might be commonplace in another.

Since the beginning of the Industrial Revolution, innovation has involved having new technologies or ideas flow from the developed world to developing countries. However, this view is challenged by the notion of reverse innovation, where firms learn from their bottom-of-the-pyramid customers in emerging markets not only how to succeed in such markets but also how to bring some of those innovations back to some segments of developed markets. Consequently, when setting an innovation strategy, it's important to understand how innovation in emerging economies differs from that in the developed world.

Innovation in the Developing vs. Developed World

The embedded contextual differences between the developing and developed world influence how firms conceptualize and approach innovation. The two key factors that separate these regions in terms of their innovation approaches are economic and cultural differences.

Economic Factors

Developing economies with large populations generally face significant resource constraints when

trying to further their innovation agenda. Until recently, businesses in such economies—influenced by the developed world and its higher gross domestic product per capita—viewed innovation as a means for producing new state-of-the-art products or services. This involved huge expenditures that firms in these economies couldn't afford. Realizing their economic and other contextual specificities, innovators in the developing world started searching for fresh ways of providing products and services of comparable quality at affordable prices.

Tata Steel provides a good example. It became the lowest-cost producer of carbon steel in the world by using inferior raw materials, available locally in India, rather than buying superior raw material overseas. For many decades, using foreign exchange wasn't even possible without corresponding earnings from exports. It's this quest for affordable “good enough” but basic products and services that defines the bulk of innovations in the developing world.

In turn, these differences manifest in necessity- versus opportunity-driven solutions in developing and developed economies, respectively.³ For example, in India, the Jaipur Foot prosthetic limb provides the necessary functionalities starting at approximately US\$30. In contrast, in the US, a prosthetic foot costs approximately \$8,000,⁴ and the

sophisticated Deka prosthetic arm costs approximately \$100,000. Even allowing for differences in aesthetics and functionalities, the cost and price differences are substantial.

Similarly, service innovations extensively use IT not only to make the processes more efficient but also to increase the reach of service delivery to increase business volumes aimed at scale and scope economies.⁵ One example is open-heart surgery, which costs approximately \$2,000 at the Narayan Hrudayalaya hospital in India and somewhere between \$20,000 and \$100,000 at most US hospitals. Achieving such an order of magnitude lower costs is not only due to rethinking capital investments and redesigning business processes but also using sophisticated but low-cost and reliable IT systems that provide real-time information to physicians and administrators about all costs and revenues.

Likewise, Tata Steel developed in-house automation and applied insourcing rather than outsourcing in India to help support its processes. The result is that its Indian operations have superior and more integrated IT services, with only 0.3 percent of the revenue invested in IT. On the other hand, insourcing of IT at the company's European operations, where manpower costs are relatively higher, might make outsourcing a viable option for some of the back office services.

Cultural Factors

Most developing countries, particularly India, have a long-standing culture in which collectivism and unending evolution define the way of life. A nonlinear (many different ways) rather than linear (one best way) culture pervades the society—translating into a philosophy of pluralism and

continuous innovation. For example, initial models of Nano, the affordable car from Tata Motors in India, were improved through collective customer feedback, with customers serving as beta testers.⁶ Similarly, firms such as Tata Communications in the US and Infosys in India, are exploring technology-based options for collaborating with members of the ecosystem for co-creating business value through innovation. Thus, the innovation approach focuses on the service required by the individuals. This is in contrast to the manufacturing approach, where the guiding philosophy is to search for appropriate markets after producing “excellent” products and services.

The nonlinear plurality pervading in developing countries also influences the innovation process by not always following a methodized, well-planned, and structured approach to innovation. An example is the operational design of aisles and billing counters at Big Bazaar in India, which resemble flea markets as opposed to stores such as Carrefour or Walmart in the developed world, which are relatively well-organized and streamlined.⁶ Ritu Agarwal and Peter Weill characterize this combination of optimized business processes and information technology laced with emotions and empathy as “softscaling,” which appears to work well in emerging economies.⁷

Often, the innovation process is unstructured and employs intuition and emotions—contingent on the situating context. Additionally, the collectivist culture in these societies influences the innovation process, which Navi Radjou and his colleagues refer to as the “follow your heart” approach—instead of relying on focus groups or formal market research.⁶ Although the basic

approach is altruistic because it's developed for the masses, it isn't necessarily charitable, because it also focuses on self-sustainable solutions.

A Global Innovation Strategy Framework

Here, we propose a framework for identifying and developing an innovation approach. The framework takes into account differences in how innovation is conceptualized in developed and developing countries. Managers can position their current innovation strategy in terms of the framework's two dimensions—*innovation processes* and *innovation goals* (see Figure 1). Then, based on their current innovation approach and an assessment of their competitive landscape and strategic posture, managers can develop an innovation strategy to either align with the required innovation approach or to migrate from one approach to another.

The innovation process describes how the innovation is carried out—varying from a well-planned, structured and methodized approach by firms in developed countries to that of an unstructured, intuition-driven, contingent approach by firms in developing countries. The innovation goal, on the other hand, describes the kind of expected output from the innovation, ranging from opportunity-based solutions in developed countries that focus on augmented products and services to meet latent needs to necessity-based solutions in developing countries that focus on basic or core products and services.

Good-Enough Emergent

This innovation strategy follows an emergent and intuition-driven innovation process focused on having a sufficient, workable solution. This solution is a forte of emerging economy firms. Tata

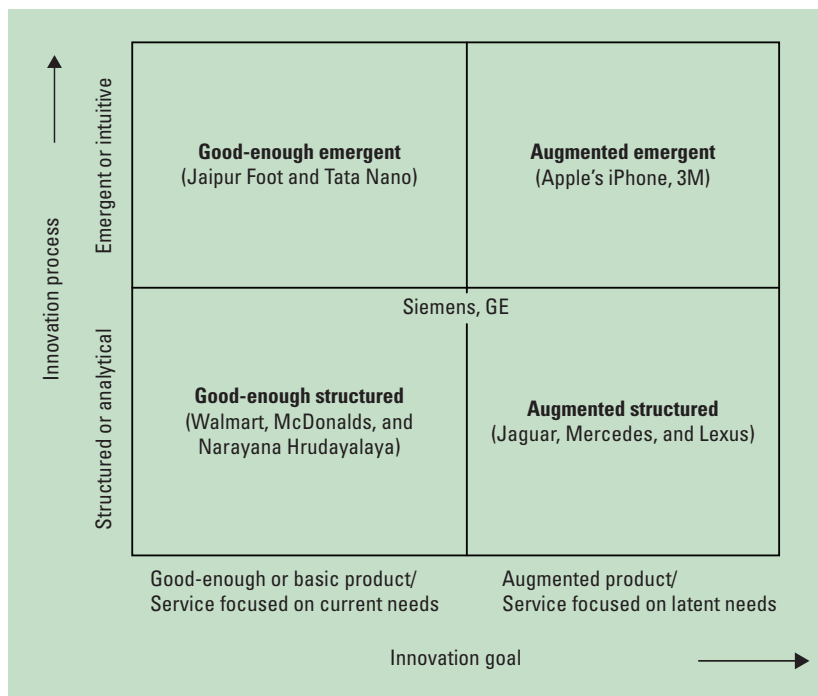


Figure 1. The innovation goal versus process matrix.

Swach (a \$20 water purifier) and Tata Nano (\$2,500 car) exemplify this approach.

However, firms in developed markets are increasingly focusing on such a strategy to tap the market potential in developing economies. For example, P&G's Gillette developed an 11-cent razor blade to compete in the Indian market. Firms with this innovation strategy should have flexible processes and supporting IT architecture focused on a personalization approach for knowledge management. Furthermore, the IT function also needs to work on making the processes more efficient and cost sensitive. The flexible processes should be composed of standardized, cost-effective, and preferably modular components.

Good-Enough Structured

This strategy, which takes a structured approach to produce "good enough" solutions, was initially used by firms in the developed

world to bring down the cost of operations in a standardized way. Retail giants, such as Walmart and Carrefour, or food chains, such as McDonalds, primarily leveraged this approach.

More recently, similar principles have been employed by the service industry in the developing world to bring down costs while offering reasonable quality. For example, Devi Shetty, a cardiac surgeon at Narayana Hrudayalaya, appears to draw inspiration from Ford and Walmart in his effort to design affordable heart surgery for the masses. Similarly, G. Venkataswamy (known as "Dr. V") of Aravind Hospital in India incorporated the McDonald's model to offer cataract surgery for the masses. Basically following the tenets of economies of scale and scope, these organizations are following the developed world in their own context of the service industry, and some of these service innovations can now be brought back to developed countries to serve

their bottom-of-the-pyramid markets. The IT systems in such organizations are geared to provide standardized cost-saving solutions, focused on a codification approach for knowledge management, while leveraging economies of scale and scope.

Augmented Structured

This innovation strategy combines a structured innovation process with the goal of achieving augmented products or services that respond to latent needs of customers. Large, resource-rich companies, capable of investing in long-term structured innovation to produce excellent products, follow this path. Generally, such firms are in the developed world—examples include Jaguar, Mercedes, and BMW.

Although few firms in emerging economies are in this segment, some firms in developing countries are trying to venture into this segment through acquisitions (for example, Tatas Motors acquired England-based Jaguar, India's Mittal Steel acquired Europe's Arcelor, and China's Lenovo acquired US-based IBM). Yet, a big space for such types of innovations is still missing on the agenda for most emerging economy companies. In such companies, IT can be used to create precise sophisticated components. Moreover, IT is also used for structuring and aiding the innovation process through a codification knowledge management approach.

Augmented Emergent

This innovation strategy requires striving for excellence with an emergent and intuition-driven innovation process. This approach often requires large investments, because the firms are looking for high-quality and often revolutionary products. Yet, the firms allow an unstructured innovation

process that supports unbridled creativity. Although the products resulting from such innovation can bring in a high return, they're also prone to high rates of failure.

Google and 3M appear to experiment in an unstructured way to come up with innovative products. In Google, 20 percent of the time can be devoted to noncore work for new development. Google Earth and Google mail emerged from this kind of an innovation strategy. Yet innovators in these firms also know when to abandon a failed project. For example, experiments such as Google Health and Google Powermeter were stopped early on. Most of the firms in this segment are in the developed world, and it seems like an opportunity area in the future for firms from developing countries.

Management of this innovation strategy is by far the most complex and the role of IT in such an innovation is contingent on the requirements of the innovators and leverages a personalization strategy for knowledge management. But certainly, these innovators can afford to experiment with and use the most recent and best (and usually most expensive) IT tools for innovation.

Mixed Approach

In addition to the four clear strategies just described, there are some successful firms that appear to have ambidextrous innovation strategies in that they pursue multiple approaches simultaneously. For example, in Germany, Siemens's SMART initiative was propelled by the good-enough structured approach yet follows an augmented structured approach also. To its credit, Siemens generated approximately 8,600 inventions and 4,300 patents in 2011. Another example comes from General Electric, which has come up with specialized solutions—such

as low-cost x-rays machines and other medical equipment for developing countries—while focusing on the developed world markets.⁶

IT in such organizations must be highly flexible, especially in terms of knowledge management and sharing. Also, the firms must be sensitive to the fact that the same IT systems that work in the developed world might not work in the developing countries. Generally, such firms segregate the


operations based on geographies, but useful knowledge is shared extensively to promote innovation.

Using this framework, global organizations can learn from both the developing and developed world so they can tailor their innovation approaches and consequently their IT strategies. The framework will also help managers and policymakers identify weaknesses and plan their IT and innovation strategies accordingly. For researchers, the framework points to a need to understand the types of managerial interventions that can help achieve desirable innovation outcomes through appropriate changes in direction, support, organizational space and boundaries, risk tolerance, and measurement and incentive systems.^{8,9} Also, there's a need to understand the factors that influence the evolution of innovation strategies.

For senior executives and IT professionals, the framework can help them think about their competitive strategies (differentiation, cost-leadership, or focus),

knowledge management strategies (personalization versus codification), outsourcing strategies, and human-resource strategies (for example, hiring inventors versus implementers). The framework can also help them identify various IT applications (such as IT tools for idea generation, analysis, collaboration, innovation management, measurement, experimentation, sharing, and replication) and an IT innovation platform that the

Some successful firms appear to have ambidextrous innovation strategies in that they pursue multiple approaches simultaneously.

organization should use to govern its digital resources.^{1,10,11} 

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