



Building an ecosystem to catalyze product innovation

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*B*uilding product companies is hard enough. But having been a co-founder and CEO of a successful product company before, it's at least something that I know a little about. This article is however not about building product companies; it's about building an ecosystem in India that would help create product companies.

This is a challenging topic to write about. For one, there are no cookie-cutter prescriptions. Also by their very nature, ecosystems are organic and insubstantial. They exist all around us, and influence our lives and business, but they do so in an intangible yet valuable way.

Historically, clusters and associated ecosystems have underpinned most product successes. I lived in Ohio for a short while and a small town there, called Akron, was the center of the world for tyres in the early 70s. At that time four of the five leading tyre companies were headquartered there, although now, only Goodyear remains both an American and a market leader.

If you go further back in time, the Lancashire textile mills come to mind. More recently, we have seen the rise and fall of Detroit. In the IT industry, Boston's Route 128 was an ecosystem that created the minicomputer and associated technologies including Ethernet.

The gold standard among all ecosystems is however Silicon Valley. It has proven to be, by far, the most resilient. When people talk about creating a



product ecosystem in India, they often talk about replicating the Silicon Valley model in this country.

BASIC ECOSYSTEM PREREQUISITES

Some elements are clearly essential for an entrepreneurial ecosystem. A risk-taking and achievement-oriented culture has to be there to start with. There also has to be a financial structure that hands out large rewards for success but not big punishments for failure. Good bankruptcy laws—those that allow entrepreneurs to learn from their mistakes and try again—are also essential. Clearly, all the supporting infrastructure—the specialised product design or prototyping groups, the venture capital, the marketing services, the legal services—have to be in place as well.

There are a few voices, though muted, that are in favor of the Indian government launching a big national catch-up effort in semiconductors, biotechnology, environmental engineering or nanotechnology along the lines of Alvey in Britain, Esprit in the European Union, Fifth-Generation Computers in Japan, or the Multimedia Super Corridor in Malaysia. These big catch-up efforts in innovation enlist the support of companies, and not individual entrepreneurs, in their programs and help them become global gorillas. The Chinese, Koreans, Japanese and even the French have been successful in using this approach to create national champions.

What is the right approach for India in building out successful product companies? It would be relevant perhaps to mention at this point the recent debate about what is the definition of a product company. Is [salesforce.com](https://www.salesforce.com) (or Google) a product company or a services company? Some ask if it really matters if it is product innovation, process innovation or a business model innovation that we facilitate as an ecosystem. Should there not be just one ecosystem that underpins all innovation in the industry? These are some of the questions that this article will discuss.

STARTUPS AND ESTABLISHED PLAYERS

Discontinuities and innovation are hand-maidens. There are three ways in which this process plays out. In some cases, a collaboration between university laboratories and their business affiliates has an edge. For example, in biotech, competitive advantage often depends on the ability to

commercialise ideas from university research laboratories as quickly as possible.

In other cases, an entrepreneur's garage has an advantage. When there are hundreds or thousands of potential business models that might succeed, the best way to find out which will succeed is to allow each brave or disgruntled genius to try out his own approach. Many fail, but a few will succeed. This is the essence of the Silicon Valley model.

The third way is the Kaizen way of continuous incremental innovation. In this model, an established company enters a new field, and makes products. There may be initially some setbacks, but it learns quickly, iterates, and improves efficiency and quality.

An established company is often better suited for innovation. Not only can it offer its innovators a more reliable source of investment capital, but it also has links to users and can use their feedback quickly to improve the next generation of what it is making. An established company in a new field can afford to make products with initial drawbacks, provided it learns quickly to overcome them.

The Japanese have applied the Kaizen method to get a competitive position in a host of industries. Hybrid cars are a good example. The initial version of Toyota's Prius wasn't that great but their third generation of these cars is already out, while Ford and GM are just getting started. Much of what Toyota and Honda have done with hybrids, Kyocera, Sharp, Sanyo and Mitsubishi Electric are doing, using Kaizen. In this way, they are relentlessly driving prices of solar cells down by 7 percent a year to emerge as market leaders. The Kaizen method has enabled Japan to gain an edge in industries, from semiconductors to LCDs, and to hang on against fierce competition from lower-wage countries.

NOT ONE BUT TWO ECOSYSTEMS

In India we have so far done a terrific job of building or attracting service companies that leverage India for cost-arbitrage. Not only do TCS, Infosys, Wipro and Satyam fall in that category, but also IGS, HP Services and Accenture. Cost-arbitrage however, can be fleeting. After NAFTA, Mexico became a manufacturing hub for toys but eventually ceded its low-cost status (and the associated manufacturing jobs) to China. In IT, it was Ireland that first saw the benefits of a cost-arbitrage driven IT offshoring



boom, but then India took over.

Will the fate of Mexico and Ireland befall India? Or will it manage to reinvent itself like Taiwan did in the early '90s. At one time, Taiwan too was a low-cost manufacturing center for electronic components and systems but managed to grow into an innovation hub after it ceded its low-cost status.

Indian services firms are aware of the challenge. Many of the big players like TCS and Infosys are busy transforming themselves into insight-led solution providers like Accenture and IGS. They are buying or building business consulting practices and are focusing on US\$100 million plus deals. This strategy seems to be working. They are growing well, are maintaining their margins, and are winning market share from their smaller brethren.

The smaller Indian services players are somewhat boxed in. Some of them have vigorously embraced the idea of becoming platform-led solution providers like FiServer or Administaff. This is a difficult transition. Working in their favor is the increased willingness of customers to consume software as a service. This is a new business creation challenge where the Kaizen method is most suitable. Rather than wait for a perfect offering, the best answer is to dive in and then furiously improve the offerings.

Kaizen requires patient capital. In the case of Japan, it also benefits from stable employment and a strong culture of quality ingrained into the workforce since World War II. In many ways, this ecosystem is an antithesis of the Silicon Valley's "creative destruction" model of recycling a company's resources and talent.

Time has come to cleave the Indian IT ecosystem into two parts. Today it is a smorgasbord of Kaizen elements and Silicon Valley elements. This kitsch does not do justice either to entrepreneurial startups or to established service companies entering new fields.

Ecosystems are favorable habitats that create or nurture businesses. We have to recognise that we need two different innovation habitats not one. This is a significant step for the industry.

Ecosystems and their supported clusters sometimes lose the way. Akron, which was America's unquestioned tyre capital, was undermined by buyers' enthusiasm for longer-lasting radial tyres after the 1973 oil shock. The problem was not that Akron's firms did not know how to make radial tyres:

the technology was decades old. What they were unable to do was to adjust their business model, which relied on short-lived tyres.

I am cautiously optimistic that the Indian IT industry will make this transition of creating two co-located but separate ecosystems for Kaizen based business creation and Silicon Valley type business creation. This specialisation is central to the future vitality and growth of India's IT industry.

A CROSS-CONTINENTAL MODEL

"Israel is more similar to the US in these areas than any other country, I have visited... [and the] start-ups here are similar to those in Silicon Valley," Bill Gates said in an interview with the Maariv daily. Indeed, Israel has the largest number of hi-tech product companies listed on NASDAQ after US. It has seen over US\$ 17 billion of M&A activity since 1997.

The Israeli magic is based on an unusual cross-continental model for business creation. Most startups move their headquarters to the US when the products are ready to go to market. The Diaspora plays a key role in integrating these startups into the Silicon Valley ecosystem whether it is for venture capital or talent or other networking.

There is a similar cross-continental model that is developing in India as well. As in the case of Israel, the back-end is in India almost right from inception. And the Diaspora plays a key role making this cross-continental arrangement work.

There are many other similarities between India and Israel. In both countries, MNCs played a role. They brought product know-how into the industry. In India, due to proximity to emerging markets, some MNCs like Symantec, TI, Adobe and Philips, are now starting to do serious new product development activity in their captive R&D centers. This is creating a cadre of product managers and product architects for the whole industry.

Both Israel and India have also benefited from talent infusion. In Israel, there were thousands of Russian émigrés that came in after 1989; India is seeing a reverse brain-drain from the US right now. Both countries are also known for their quality engineering schools.

But all said and done, apart from the cross-continental model that it has



employed for the past 30 years, Israel has also built its own elements for incubating innovation. The country has an enviably strong pool of entrepreneurs and a mature VC community. It also has an excellent public-private partnership on research. The Israeli military works with the private sector for new technology and the government invests in research through the office of the Chief Scientist.

India also needs to develop a product-oriented employment pool. There is a need for product managers, product architects and product release managers. Indian employment is large but lacks depth when it comes to deep domain skills. Some of these deep domain skills can be the difference between success and failure. As Charles Morris and Charles Ferguson argue in their famous Harvard Business Review article, competitive success flows to a company that establishes proprietary open architectural control over a broad, fast moving competitive space.

The cross-continental model can compensate for many of the other gaps—lack of entrepreneurs, immaturity of VCs, and even the absence of public-private partnership for research. But we can't be successful unless there is the right local talent available. So this is one area where an industry effort can pay big dividends.

Building a pool of world-class practitioners is a predictable process. Typically, as a first step, companies hire seed people either globally or from outside the industry. In step two, they create critical mass through training. Finally, in step three, some people bootstrap themselves into a world-class practitioner level. Usually this three-step process has taken five to seven years to work. In the early '90s, the industry developed project management skills. In the late '90s, the focus was on process management skills.

We can accelerate this skill building process for key roles like product managers, product architects and product release managers by having universities get involved in step two and by having industry bodies nurture special communities for practitioners in step three. This industry intervention would materially improve the success of the cross-continental model. Perhaps this is an initiative that NASSCOM and TiE can take up as a joint project.

START LOCAL, GROW GLOBALLY

2005 was a good year for two local software product companies. Tally crossed its millionth customer mark and iFlex crossed an almost billion dollar M&A milestone. Finally, after many false starts, the local market for hi-tech products is starting to grow. This emergence of viable markets is a pre-requisite to the creation of players that start local and then go global. China's Legend (now Lenovo) is a good example of what is possible.

But a lot more than a local market is needed to create successful local-then-global players. Access to venture capital, the breadth of the network of suppliers, excellence of educational facilities and research institutions and M&A activity are also key factors. While progress is being made on several fronts, more needs to be done in two areas.

Firstly, we need to create a public-private partnership with research institutions. An absolutely outstanding example is the ground-breaking work done by Professor Ashok Jhunjhunwala of IIT Madras. He has set up the TeNeT group of 16 faculty members and created the Center of Excellence in Wireless Technology. Their vision is to create a world-class wireless industry in India. They identified the wireless local loop as the primary bottleneck in connecting every village in India, and focused on creating products that would help in doubling the per-capita rural GDP. TeNeT has incubated 14 companies that in total employ 1500 engineers and have a combined revenue of more than Rs.1000 crores.

This kind of public-private partnership needs to be replicated many times over. Stanford did that for the Silicon Valley. MIT and Harvard played that role for Route 128. North Carolina has its Research Triangle Park. Entrepreneurship flourishes in the vicinity of these partnerships. Perhaps NASSCOM can launch a mission to multiply TeNeT type partnerships across the country.

Secondly, we need to seed more local markets. I am not in favor of preferential market access or tariff barriers. Instead standardisation is a way to go. It creates markets in a big way. We should encourage academic institutions, regulatory bodies and government agencies to do this in a thoughtful, strategic fashion. China is using this standardisation mechanism very effectively.

Apart from standardisation, we need to open up defense related technology work for local companies. This requires lobbying which



NASSCOM could take up on behalf of the industry.

This combination of standardisation and opening of defense related work would expand the number of promising markets beyond telecom, financial and pharmaceuticals verticals and the SMB sector.

PROPOSED ACTION PLAN

Talent and capital is flowing in. Software as service may be a discontinuity that plays to India's strengths. There is also the emergence of viable local markets. There are also top management pundits like C.K. Prahalad (Fortune at the Bottom of the Pyramid) and John Hagel (Disruptive management practices from Asia) who are providing the conceptual framework that can enable business to address new local markets.

While there is a reason to be optimistic, there is much that remains to be done. Listed below are top five missions that will be required for building an ecosystem to catalyse product innovation.

- NASSCOM to take leadership to separate out the Kaizen ecosystem from the Silicon Valley ecosystem, so that each may develop and thrive in its own right.
- NASSCOM and TiE to join in a project to grow the number of product managers, product architects and product release managers, by getting universities involved in the process and by nurturing special communities for practitioners.
- NASSCOM to launch a mission to multiply TeNeT type partnerships across the country.
- Industry to collaborate with academic institutions, regulatory bodies and government agencies to create standards for emerging local markets
- NASSCOM lobbies to open up defense related technology work for local companies

In addition to these, there is a need to preserve the supportive government regulations on tax holidays, patents and job-hopping (i.e. keeping "post-employment covenants not to compete" as unenforceable). More can also be done to encourage a Bayh-Dole type act to accelerate commercialisation of technologies from the university. And finally, almost

needless to say, continued focus on infrastructure improvement is clearly necessary.

Does all this create more product-oriented IPOs or M&A deals? Does it create more “gazelles” (i.e. small firms that see their revenues grow by at least 20 percent in each of four years)? Does it re-ignite the growth of the mid-tier services companies? These are good benchmarks to measure success as the industry focuses on improving the ecosystem for product innovation.

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