

DISRUPTIVE INNOVATION

Innovate! Invest!! Grow!!!

Disruption, disruptive technologies, disruptive innovation ... the race seems unending. Disruptions are the engine of growth, but are we doing enough, will it create jobs and growth needed in this country? The feature details various types of innovations and identifies disruptive innovation opportunities in manufacturing



Sanjeev Baitmangalkar
Principal Consultant, Stratmann Consulting
sanbait@yahoo.com



Image courtesy: Shutterstock

The theory of disruption is not a theory about growth. It is a theory about competitive response, about how will my competitors respond? And whether they will run away from me or engage me? The theory of growth comes from the economists. So, what is it that causes managers to invest to grow? Yes, growth comes from innovation, but the link between growth and innovation is investment, and investment in the right type of innovation can spur jobs and the economy. Innovations can be either disruptive market innovations or disruptive technology innovations. Disruptive innovation is a particular type of innovation that an innovator brings to the market that is simple, convenient, accessible, affordable, and one that changes the game. Let us look at the different types of innovations.

Market creating innovation

Innovations that make it possible for more people to have access to products, technology, and support in growth of jobs and economy are called market creating innovations. These innovations create demand and jobs and hence growth; through manufacturing, distribution and service. The computer from its mainframe days of the 1950's to the laptops and smart phones today is an example of how the technology and products that only rich corporations could access earlier is now available to college students and vegetable vendors. By changing the game, cutting out frills and costs, opening up internet ticket booking Air Deccan (India's first low cost airline) made flying accessible and a dream come true for the common man.

A disruptive innovator transforms existing markets and creates new ones by playing the innovation game; changing the business model in a fundamentally different way. Using the thermoelectric or Peltier effect, Godrej has been able to develop low cost coolers that every village store can now

possess to store cool beverages, thus creating demand and therefore jobs in manufacturing, distribution and service. Ford model T is one such early example. The Turnmaster and CNC 500 lathes in the 1990's is another cited example as it created demand (during recession days) and new jobs in the supply chain, distribution and service networks, both in India and export markets. Indian software industry's foray into software development is yet another example. Disruptive innovation will result in major changes, but they do not often rely on technological breakthroughs. The technology many times by itself may be trivial. It is often the business model, the way a company organises itself and acts is innovative.

Sustaining innovation

Innovations that make good products better and help in improving margins, making our markets vibrant and competitive is called sustaining innovation. Sustaining innovations do not create growth because they create products or technologies that are replicative in nature. The character of this type of innovation is that it replaces the predecessor, it does not add. If a car manufacturer convinces us to buy either a hybrid or electric or a fuel cell car, then he will not be able to sell us a petrol car. These new innovations are replicative in nature, they just replace the earlier one. Hence, they do not create growth of jobs. Nevertheless they are important for the economy. Disruptive innovations neither have to come from big ideas nor be a major change in the landscape. The discount retailers like Macy's, Target, Walmart, Best Buy, Costco, Amazon, Flipkart, Snapdeal, Fred Meyer, etc, are not selling goods that are different than their competitors (the smaller retailers); but what they have done is a new way to organise and act that allows them to make money at low price points, thus driving change. So, it's not technology, but the business model.



Making the old products better is seen in most segments of the industry; Machine Tools, Auto, Telecommunication, Electronics, Durables etc

The personal computer, Google's auction model, EBay's online model, P&G's Swiffer, etc are some examples of disruption.

Additive manufacturing is a great disruption happening over the past two decades. 3D printing is not only expected to change the game in many fields of part production, but will change the definition of raw materials too. 3D printing will bring mass customisation and personalisation. So, what type of disruptive innovation is this 3D printing? It is partly market growing innovation for enabling production of body parts, affordable low cost printers that can be installed at homes and class rooms. This will create growth of jobs in machine production, distribution, service, and new raw materials, etc, and partly sustaining innovation for replacing as much of conventional machine tool processes.

Efficiency innovation

The markets have come to be more demanding and manufacturers need to provide more efficient products; if they don't, they will be left out. Making the old products better is seen in most segments of the industry: machine tools, auto, telecommunication, electronics, durables, etc. This third type of innovation is called efficiency innovation, the type of innovation that helps one do more with less. Because of this nature, it typically eliminates jobs, thereby taking out of the economy rather than adding to it. But, because they are

trying to do more with less, they generate free cash flows or profits and hence are important to the economy. Efficiency innovation helps make the product cheaper and thus helps a company to stay afloat in the competition. At a time when the US car companies took sixty days to build a car, Toyota showed them how it could be done in two days reducing 58 days of cost in inventory, WIP, capital, and labour that was unnecessary and freeing up capital that could be invested in disruptive innovation.

So, who in an organisation should be responsible for coming up with ideas for disruptive innovation? I think everybody has the ability to come up with disruptive ideas. Senior management should lead and create appropriate space and environment for disruption to flourish; otherwise the antibodies will take even the best ideas and force it to appear like an idea that has been tried before. Many times I am asked how to identify disruptive innovation opportunities, and my favourite answer is 'keep your mind and eyes open!'

Disruptive opportunities

Here are a few thoughts on how to identify disruptive innovation opportunities. When we had no orders during the recession of 1990's, we conducted a market survey to find out where are the constraints that make it difficult for people to solve problems in their businesses or in their lives (or, why



It is not difficult to find disruptive opportunities. One easy way to begin a conversation with customers is in focus groups

are we not having any orders?) I was trying to find those barriers to consumption so I could see how we could obliterate them. Barriers to consumption come in different forms; skills, accessibility to solution, money, laws, necessity, affordability, service and support, etc. Find out where people have important unsatisfied jobs to be done.

What is the problem that the customer faces and can't find a solution? If you can find that frustrated customer and ease his pain, you have your ticket to disruptive innovation. Once you find that constraint in consumption, target that job to be done, thinking how you can play that innovation game differently. Remember, it's not about doing it better; it's about making it better, simpler, cheaper and more affordable. We put our intuition and judgement out in the market place to see how it works out and both the Turnmaster lathes and the CNC 500 answering those questions during the recession of the 1990's became such a runaway success turning a near BIFR company around to become the market leader.

Remember, customers can rarely articulate the specific things they want or need. The reason why you don't see this so often is because this concept can be scary for managers who are honed to rely on data. Data only relates to the past. Sometimes you need to identify an opportunity and create your own data.

It is not difficult to find disruptive opportunities. One easy way to begin a conversation with customers is in focus groups. Customer observation is another very powerful way. Giving

the customer a very early prototype to co-develop a product is another. A detailed quantitative study to find out where there are more frustrations in the markets and so where there are more opportunities in the market place are some of the ways on how to look at disruption opportunities.

When the three types of innovations we discussed – market creating innovations, sustaining innovations and efficiency innovations - are in balance, the economy seems to do well. That is to say as long as the market creating innovation creates jobs and growth, and efficiency innovation creates the cash flow to invest in the market creating innovations, so that the economy system can stay in balance.

This system seems to have worked well till the early 1980's, and the general evaluation was in whole numbers – turnover, profit, etc. Over the last two or three decades the finance measurements have become different. Focus is on efficient use of money, which means on using it and not on growing it. These measurements are being done using ratios and not whole numbers. It has been questioned whether the people who believe in this doctrine of new finance know whether they are using the money in a good or bad way, and how deeply do their decisions affect growth of jobs and economy.

Innovation investment

For a ratio to look good, managers can now tweak either



The equity investors may put it in more of efficiency innovation for more quick returns, and one can get richer even though it may not create new jobs

the numerator or the denominator. Consider for a moment, the internal rate of return (IRR), using efficiency innovation one can generate more cash flow or profits to enhance the numerator or if innovation becomes difficult, reduce the denominator. So by investing in innovations that pay in the short term the IRR goes up. So, we now make profits from efficiency innovation and the analysts and investors will make the judgement of where to invest it. The equity investors may put it in more of efficiency innovation for more quick returns, and one can get richer even though it may not create new jobs.

Should we use the free cash flow to invest in market creating innovations? Everybody calls this growth. If we invest in that, it takes five to ten years for paybacks, and during this time the IRR goes down! Creating market and creating companies takes putting money into the balance sheet. But to investors today, it seems to be all about taking money out of the balance sheet. So, if growth is important, look what happens to the IRR, it goes down. Using the cash flow in efficiency innovation means quick returns - six months to one or two years, there is no risk as the market is there and it creates more profits, it does not demand investment. When investing only in efficiency innovation becomes a dangerous habit, job creation suffers a threat. Although investors know they must invest in market creating innovations, temptation may get the better of them as finance has given us the matrix by which success will be measured. So, while managers sweat it out on the shop floor

thinking they are in charge, those who really run the show are those, who sit and calculate these metrics by which the managers success will be measured.

One can identify the impact of such thinking even by various country case studies, such as the story of declining growth in USA until recently. Japan was a growth story through 1960's, 70's and 80's because market creating innovations were at their best in the fields of automobiles, motorcycles, electronics, printers, durables, etc, creating jobs and growth. Companies like Toyota, Honda, Cannon, Sony, etc made such products easily available and affordable. It is generally felt that the recession of the 1990's took eighteen months to get out of, while the recession of the 2000's took thirty six months and the world is yet to recover from the crash of 2008!

This is not a small problem and hope it is addressed. I loved the way Prof Christensen summed it up at the Drucker Forum last year "I don't think that God came from heaven to attend a meeting on some mountain to say to managers that I want to measure success by internal rate of return. It was decided upon by somebody, but it was not God. And, therefore, we can choose the way we want to be measured; and if we do, then we can do a lot, because, right now, the most attractive investment is to invest in efficiency innovations, the second most attractive investment is to do nothing, and then the least attractive is to invest and grow." □

> MORE@CLICK EM01529 | www.efficientmanufacturing.in