

8 STEPS TO INNOVATION

Going from Jugaad to Excellence

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Introduction

'Once your mind stretches to a new level, it never goes back to its original dimension'¹

—A.P.J. Abdul Kalam

ANYONE CAN INNOVATE

- India's new symbol for the rupee was designed by D. Udaya Kumar, an architect-turned designer from Tamil Nadu. Kumar's main interest is in Tamil typography, but his moment of fame came in 2010 when the symbol he designed—integrating the best of international design creativity with a distinctive Indian flavour—was accepted by the Reserve Bank of India.²
- Thiyagarajan Ramaswamy, an engineering student, and son of a Pondicherry-based weaver, reworked the design of commercially available wet-grinders (used to make batter for idlis, a south Indian rice cake) so that his mother could make idlis as soft as the ones made from a traditional hand-ground batter. His design

won him several national awards and was finally adopted by a number of commercial manufacturers.³

- Anandraj Sengupta became the first young Indian to be featured on the cover of the prominent international business magazine *Businessweek* in 2003, as an icon of India's emerging strength in technology and innovation. An employee of General Electric's John F. Welch Technology Centre, the largest multidisciplinary multinational research and development (R&D) centre in India, Anandraj was well known for his system-level innovations, including his contribution to a new method to enhance the effectiveness of rail track inspections using ultrasound transducers, which was awarded a US patent.⁴
- Anand Kumar, then a mathematics student at Patna University, started the Ramanujam School of Mathematics in 1992 to further his love for mathematics. When Anand was unable to take up a scholarship to attend Cambridge University because of his poor financial condition, he used the Ramanujam School to train poor but talented students for competitive examinations. Since 2003, Anand has selected thirty poor and talented students every year and trained them for the joint entrance examination (JEE) to India's prestigious Indian Institutes of Technology (IITs). In the last eight years, 212 of the 240 'Super 30' students have qualified for admission to the IITs.⁵

- Nagaraja, a diploma-holder working at Bharat Electronics Limited, came up with an idea to replace gold-headed transistors with nickel-headed ones, leading to savings of more than Rs 18 crore for his company. In recognition of his efforts, Nagaraja was given the Government of India's Shram Ratna Award for the Year 2008.⁶
- An innovation by factory employees participating in various programmes in the Innovation School of Management at Titan Industries' jewellery manufacturing division has led to deskilling of the mould-setting process, a cumulative savings of Rs 43 crore and the Tata Group's award for the best innovation.⁷

'Everyone can fly,' promised low-cost aviation pioneer Captain Gopinath, and the examples given in the box suggest that there is much more that everyone can do—perhaps anyone can innovate. 'Maybe,' you might be thinking, 'as long as the conditions are right.' Can we create organizations that can provide support for innovation? Are there ways in which organizations can ensure a steady stream of innovations? Is it possible to promote 'systematic innovation'?

An emphatic 'yes' is the answer to all these questions. Read on, to find out how.

JUGAAD VS SYSTEMATIC INNOVATION

In 1959, the Hindustan Machine Tools (HMT) Factory in Bengaluru started the assembly of radial drilling machines mainly out of imported components from Kolb in Cologne, Germany.⁸ Dr S.M. Patil, who would later go on to become the chief executive officer and managing director, was a general manager then. In 1960, when the manufacture of the machines was indigenized, the machines started making jerky noises while ascending and descending.

It was found that a worn-out screw was causing the malfunctioning. A workaround was devised and implemented, which only served to increase the customer complaints. The unit was assigned to expert assemblers yet the defect persisted. In fact, the rate of failure increased and one in five machines started getting stuck. Eventually, an assembly foreman of the same section was sent to Kolb to study the methods followed there. After three weeks the foreman returned, confident that he could fix the problem. The confidence didn't last long as he realized that the problem persisted even after close monitoring of the assembly process.

One day in 1961, Patil was taking a walk through the shop floor when the foreman of the heavy parts planning section—let's call him Rajappa—told him that he had a solution for the problem. Rajappa also requested Patil to allow him to demonstrate his idea through a few prototypes. Patil gave him a chance despite resistance from the section managers. Rajappa designed a simple solution. He made sure that the arm that was carried throughout the assembly was always placed vertically. The simple solution solved the problem permanently. Rajappa was promoted to a deputy manager's position.

A story of this kind usually doesn't make it to any report, let alone an autobiography. In fact, Dr S.M. Patil, who narrates it in his autobiographical account *25 Years with HMT*⁹ writes the story more as a digression. After all, it is a story where nothing earth-shattering happened. No new product or service was created. It didn't reverse a trend of deserting customers. In the 1960s, it is quite likely that even if customers wanted to desert, they wouldn't have been able to since they didn't have too many options.

We consider this story an important early example of innovation because in this case we have an idea and its implementation that resulted in the improvement of an important parameter: product quality.

Let's compare this story with one that happened in a town called Jamshedpur, about a couple of thousand kilometres away from Bengaluru, around the same time as the Rajappa-Patil chance meeting.

P.K. Chakraborty, then charge-man in the Loco Shops at Tata Engines and Locomotives Company (Telco, now Tata Motors) gave a suggestion to the works manager.¹⁰ On 31 May 1957, he suggested a simple milling fixture for milling bolt heads, nuts, pins etc. Until then the work was carried out on costly dividing heads imported from foreign countries. He also attached a sketch of the fixture. A prototype of the machine was made from scrap materials, and it ran satisfactorily, impressing everyone. Operators found it easier to handle because it was lightweight and the chance of any error in indexing was minimized. It saved 25 to 30 per cent time and required less maintenance. Chakraborty received a cash award of Rs 50 from the director-in-charge. He also received a letter from R.H. Broacha, then manager (Loco), which read: 'Your excellent effort in

designing and constructing a milling fixture for the production of hexagonal heads has been greatly appreciated by the management.’¹¹

Rajappa and Chakraborty’s stories reinforce the idea that anyone can innovate. But they differ in an important way. Unlike HMT, Telco went ahead and turned the insight that ideas can come from anybody—even shop-floor workers—into a process called the suggestion box scheme that was rolled out in 1959. Tisco (now Tata Steel) started a suggestion scheme even earlier in 1932 though it was formalized as a suggestion box in 1945.¹²

Through a typical suggestion box scheme, the management invites ideas from employees on how to improve things in the workplace. On a regular basis, say once a month, ideas are evaluated by a committee and some ideas are implemented. A suggestion scheme has an associated incentive scheme where people who submit ideas and/or those whose ideas are implemented get rewarded.

When innovation happens in the organization only through ad hoc means and chance meetings like that between Rajappa and Patil, it seems more like jugaad. The word has its origin in north India where transportation vehicles are made by sourcing locally available parts, including the engine. We can call it ‘ad hoc creative improvisation’ as well. On the other hand, when an organization has a disciplined way of generating, selecting, nurturing and implementing ideas, like the suggestion scheme of Telco, we call it ‘systematic innovation’.

This is a book to help managers steer their organization from jugaad to systematic innovation. Before we explore the other dimensions of systematic innovation, let’s clarify what we mean by ‘innovation’ itself.

WHAT IS INNOVATION?

Innovation happens when an idea is implemented to create an impact. It has three elements: idea, implementation and impact. In a for-profit organization, the impact is typically measured as either cost saving or as an increase in revenues—both resulting in higher profits. We have already seen two examples of cost saving that originated as ideas from Rajappa and Chakraborty. An innovation also happens when a new phone model is launched by a Nokia or an Apple or a Micromax and results in profits.

In a not-for-profit organization where profits are not an important criterion, the impact of innovation could be measured on different parameters. For example, an engineering college pioneering an innovative curriculum may use the quantity and quality of student placements as one of the measures of the effectiveness of its innovation. For a hospital it could be the number of footfalls as compared to its competitor.

Innovation is classified into different types. One useful classification comes from the magazine *Businessweek*, which publishes a list of the most innovative companies every year.¹³ The list also gives the type of innovation the company is known for. The four types of innovations *Businessweek* uses are: process, product, customer experience and business model. Let's look at each category:

Process: Rajappa's innovation belonged to this category because it improved the way the radial drilling machine was being manufactured. Chakraborty's innovation falls in the same category as he devised a new way of milling nuts and bolts. When internal procedures in a bank are automated, it is a process innovation too. Typically, a process innovation results

in improvement of efficiency, thereby reducing the cost of production. Hence, sometimes people refer to it as 'efficiency improvement' and not 'innovation'. However, we look at it as another form of innovation because it also involves an idea, its implementation and an impact in the form of cost reduction.

Product: A new motorcycle like the gearless Jive or hybrid scooter Streak launched by TVS Motor or a prepaid gift card launched by the State Bank of India are classified as product innovations. For many people, innovation is synonymous with product innovations. That is also because products are more tangible and visible as compared to say, a process change inside an organization. Note that a product that is new to a company need not be new to the market. For example, the new autorickshaw launched by TVS called TVS King is a new product for TVS but not to the market. However, we consider it as a product innovation as far as TVS Motor is concerned. A new product often involves setting up new internal processes. Hence, a product innovation often involves process innovations as well.

Product and process innovation can be closely tied together in some industries. For example, the development of new semiconductors with thinner (and even thinner) wafers is limited more by manufacturing processes than by semiconductor design.

Customer experience: When a courier company such as DTDC or the Indian Post Office provides a facility to track your consignment on the internet, it is creating a new customer experience. The basic process of taking the packet from the customer to its destination doesn't change. However, the customer is happier because he can track its progress till it reaches the consignee; he knows that he can virtually control

the packet's movement. Retail stores like Big Bazaar and Crossword keep changing their store layout periodically so that the customer gets a better experience. The product being sold, like vegetables or rice or books, doesn't change but the purchasing experience changes each time. We also put a brand campaign like the ZooZoos of Vodafone in this category.

Business model: The Indian Premier League (IPL) is about playing an old game of cricket in a totally new fashion and with high stakes. For example, in 2010, the IPL made Rs 1,200 crore from official broadcaster Set Max and sponsors and advertisers such as DLF, Pepsi, Hero Honda, Vodafone, Kingfisher Airlines, Citibank, MRF and others.¹⁴ From the central pool of Rs 1,200 crore, 20 per cent (Rs 240 crore) was retained by the Board of Control for Cricket in India (BCCI). The balance of 80 per cent (Rs 960 crore) was earmarked for distribution among the franchisee teams. In short, each of the teams got a minimum of Rs 100 crore from the central pool without lifting a finger. Here, cricket lovers are getting a new value proposition packaged in a different form. When an innovation such as IPL redefines the way a game is played in terms of who the customer is or how to reach him or how to charge the customer, it is called a business model innovation. Note that the IPL business model existed in other parts of the world; for example, the European Premier League (soccer) and National Football League in the US (basketball). However, for the Indian market, the IPL would be considered a business model innovation.

Similarly, at Aravind Eye Hospital headquartered in Madurai, only 30 per cent of its patients pay; in fact, they pay less than what they would elsewhere.¹⁵ The remaining 70 per cent are treated for free or they have to pay a nominal amount. Yet,

Aravind still has a 35 per cent operating profit—and this is a hospital that treats 2.4 million outpatients and conducts 286,000 cataract surgeries every year. Aravind Eye Hospital has pioneered a business model innovation (besides several process innovations as well!).

In today's hyper-competitive world, relying on just one dimension of innovation is often inadequate for commercial success. In fact, some of the most successful innovations—in market terms—incorporate multiple dimensions of innovation. Take Apple's iPod for instance. Though not the first MP3 player in the music market, it incorporated some new features like large storage space as well as easy search of and access to songs that allow us to qualify it as a product innovation. However, many believe that the iPod's success was more due to a business model innovation (the facility to download individual songs from the iTunes store) and the enhancement it provided to the overall customer hearing experience.

On the other hand, what is not an innovation? Let's look at Sheikh Jehangir's idea that reached the masses through a Hindi box-office hit, the Aamir Khan starrer *3 Idiots*. Jehangir is a fifty-year-old carpenter from the small town of Jalgaon, Maharashtra. He can't read or write and has not been trained in any vocational skill. However, Jehangir already has one patent to his name and he has applied for a second one. He has demonstrated that you can create a scooter-powered flourmill. This is the same scooter that is shown in the background when Rancho (Aamir Khan) reunites with his college buddies in *3 Idiots*. Jehangir's flourmill idea has a prototype implementation but it hasn't created an impact because it hasn't gone into production. Hence it is not an innovation yet. In fact, Jehangir has not been able to raise money to work on his idea. But, for all you know, by the time

this book is out in the market, the scooter-powered flourmill may have crossed the barriers to commercialization and can, therefore, be called an innovation.

Jehangir's example highlights the difference between an invention and an innovation. Jehangir is certainly an inventor but he has some way to go before the invention becomes an innovation. Every invention does not result in innovation. Research in the US shows that only about 5 per cent of the inventions covered by patents get either produced or licensed for royalty.¹⁶ Similarly, an inventor need not be the person who creates a product or service out of an invention. For example, Jehangir could very well sell the right to commercialize his invention to someone else. On the flip side, every innovation is not associated with an invention. Remember Rajappa, Chakraborty or even IPL. None of these innovations involved any invention. In this book, we are concerned with all types of innovations, some of which would be based on inventions.

Apart from the fact that each innovation involves an idea, implementation and impact, are there any characteristics common to all types of innovations? And, are there any common misconceptions as to what innovation is about? Let's look at the following story about Jamsetji Tata, one of the founders of Indian industry, to answer these questions.

THREE MYTHS OF INNOVATION

As R.M. Lala relates in the book *For the Love of India: The Life and Times of Jamsetji Tata*, Tata 'launched his real career as a textile magnate' at the age of thirty-five when he established Empress Mills in 1874.¹⁷ James Brooksby was the chief engineer of Empress Mills.

While on leave in Lancashire in 1883, Brooksby came across

ring spindles invented in America. At the time Empress Mills, like all the other mills in India, was using the older technology of mule spinning. On a technical level, the two methods are fundamentally different.¹⁸ The mule spins intermittently, that is to say, it spins approximately five feet of yarn, and then winds that section of yarn onto the spindle before spinning the next five feet. The ring, in contrast, spins and winds in one action, and is thus able to spin continuously. The ring spindle produced more yarn per hour than the mule, but at a cost of treating the raw cotton more harshly. This required the use of a better grade of raw material for any given type of yarn. Mule spindles were operated by relatively highly paid men, and ring spindles by relatively lowly paid women.

Jamsetji bought two ring spindle frames and asked Brooksby to try them out. The stated speed of 6,000 revolutions was soon exceeded and the ring frame produced 9,000 to 12,000 revolutions. Jamsetji requested his supplier, Platts Brothers and Co. Ltd (at that time the world's largest supplier of textile mill equipment), to supply ring spindles. But ring spinning was yet to catch on even in Lancashire, which is why Platts refused to supply ring spindles, preferring to stick to the older technology of mule spinning.

Consequently, Jamsetji changed his supplier to a rival manufacturer, Brooks and Doxey, who was willing to supply ring spindles. To bring about perfection in the technology, every defect was reported to the supplier. By the time Platts adopted the new technology, rivals like Brooks and Doxey had taken the lead.

Before we analyse the story further, let us make sure that it is indeed an innovation we are looking at here. Shifting from mule to ring spindles did involve an idea, its implementation

and finally an impact in terms of improved business productivity. It is a 'process' type of innovation because it changed the way cloth was being made by making use of a newer and more efficient technology. This example highlights three myths associated with the process of innovation. Let's look at each one of them.

Where does innovation begin? When we think of innovation, the first thing that comes to mind is creativity. In fact, it is not uncommon for people to refer to these two terms interchangeably 'creativity and innovation'. It is as though they are inextricably linked since many innovation programmes begin and end with creativity exercises or idea brainstorming. Lots of ideas get generated and everyone goes home thinking, 'I did some innovation today.' We believe this is a very limited notion of what innovation is about.

Instead, let's ask where Brooksby got the idea of using ring spindles. He got it during his Lancashire visit by observing some of the earliest mills that had adopted ring spindles. He must have asked himself a question: 'Can this work in Empress Mills?' He must have become curious about the technology before he got thinking about how it could be useful in the Indian context. Innovation begins with curiosity and not creativity. This doesn't mean that creativity is not important, but the way you identify and define a challenge is perhaps even more important than how you address the problem it throws back and solve it.

This factor has significant implications for systematic innovation because as an organization we need to first check, 'What are we curious about?' It means identifying key areas that the customer is unhappy about. It also means being watchful and taking note of various emerging technologies like stem cell or cloud computing and asking whether any of them could be

useful to our business. This is no different from Brooksby asking the ring spindle question. As we will see in this book, identifying challenges and building a ‘challenge book’ is one of the important first steps in systematic innovation.

The second myth revolves around the question: ‘How does an idea move forward?’ One of us was present at a client meeting where ideas were being assessed and selected for further development, out of which there was an idea that the innovation committee liked. The leader of the committee asked, ‘When can we implement this?’ This question gives an impression that an idea moves in a linear fashion from conception to implementation. We believe that this linear view is inappropriate.

We are certain that Jamsetji didn’t say to Brooksby, ‘Good idea! Let’s implement it.’ What Jamsetji is likely to have said instead is, ‘Good idea! Let’s first experiment with it.’ That is how the idea of buying two ring spindle frames must have come about. The idea of adopting the ring spindle certainly held promise. But there were a number of uncertainties associated with it. To first validate the assumption that the ring spindles indeed improve productivity, his team would have had to set up a couple of frames and actually see how productively they could be operated. This process of validating assumptions associated with an idea is called experimentation. And the speed of experimentation is one of the important levers that determine how fast ideas can move forward.

The third myth about innovation is: ‘Innovation is about risk-taking’. It is common to lament about the Indians’ inability to take risks. After all, wasn’t Jamsetji taking a risk by shifting the technology from mule to ring spindles? Well, perhaps he was, but only partly so. He was not only taking a risk but assessing and mitigating it as well.

A better way to put it would be to say that Jamsetji was managing the risk associated with the ring spindle opportunity. How did he assess the risk? We have already seen one element: experimentation. He would have also assessed the risk while negotiating with Platts, the original supplier. Perhaps he would have asked the prospective supplier other relevant questions, such as who else he supplied. Jamsetji mitigated the risk by making sure that the supplier would support him when defects were reported on the ring spindle. Thus innovation is about risk-taking, assessment and mitigation, three factors put together. People will take a risk if they learn to assess and mitigate it better.

TABLE 1.1: INNOVATION MYTHS VS REALITY

Myth	Reality
Innovation begins with creativity.	Innovation begins with curiosity.
Innovation is a smooth linear process.	Innovation is iterative and the outcome of a series of experiments.
Innovation is about risk-taking.	Effective innovation involves risk-taking, assessment and mitigation.

For every idea like Brooksby's ring spindle that goes from concept to cash, there are several ideas that go from concept to crash. Hence, organizations depict the idea pipeline in the form of a funnel. The objective is to show that many ideas enter the idea funnel but selectively fewer and fewer reach the next stage. And finally, only a few reach the market. Systematic innovation

is basically about managing the idea funnel effectively. The question here is: 'What does it mean to manage an idea funnel?' Let's look at a brief history of systematic innovation next.

THREE GOALS OF IDEA MANAGEMENT SYSTEMS

William Denny's Shipyard

One of the earliest idea management systems was developed by William Denny at his shipyard in Dumbarton, Scotland.¹⁹ This system, which Denny called 'Rules for the awards committee to guide them in rewarding the workmen for inventions and improvements', was started in 1880 and, eventually, was successfully adopted across England. Denny created a two-person committee to select good ideas and recognize innovators. In order to bring fairness to the system, one of the two members of the committee came from outside the company. Alan Robinson and Sam Stern present Denny's pioneering system in their book *Corporate Creativity: How Innovation and Improvement Actually Happens*.²⁰ The rules said that an employee could claim a reward for inventing or improving a machine or a hand tool. Ideas were also welcome for improving a process, reducing cost or improving quality.

Each accepted idea received a cash award from £2 to £15 according to its assessed value by the committee. For a patentable idea, the company not only gave an award of £15 but also paid the expense for patenting the idea in the inventor's name. The company didn't mind the inventor pursuing any other opportunity arising out of the patent so long as it retained the right to use the idea as well. In 1884, a further incentive was added: award money would be doubled for any employee

submitting five or more ideas. By 1887, Denny's idea management system received more than 600 ideas, of which every third idea (196) got accepted and awards of £933 were paid out. The company also built the world's first commercial ship model experiment tank in 1882 known as The Denny Ship Model Experiment tank.

The first thing to notice about Denny's approach is that it created a continuous stream of ideas to be tested and selectively implemented. This stream of ideas is typically called an idea pipeline and building an idea pipeline is an important step common to all idea management systems. In the case of Denny, the scope of ideas was quite broad—it included both inventions and improvements. In all likelihood, Telco's suggestion scheme did not include inventions when it started. But perhaps the most remarkable aspect of Denny's scheme was a more basic assumption that its design had, which was quite radical for the time. It is that workers can actually identify and solve problems. To understand how bold this move was, we should contrast it with what a US Steel executive had famously said, 'I have always had one rule. When a workman sticks up his head, hit it.'²¹

Thomas Edison's Invention Factory

Around the same time Denny was designing his system, Thomas Alva Edison was creating his own unique version of an idea management system as described in the book *Edison on Innovation*. In 1876, Edison founded the first industrial research laboratory in the world called the 'Invention Factory' in Menlo Park, New Jersey.²² This factory was designed to produce a stream of new products and bring about improvements in the existing products. It produced inventions such as the phonograph, the high-

resistance incandescent lamp, the kinetographic camera, the electrical automobile and many improvements in telegraphy. Edison had set himself a goal of producing ‘a minor invention every ten days and a big thing every six months or so’.²³ Edison ended up filing eighteen patents a year over a working lifetime of sixty-one years—not far from his original goal.

Edison made a systematic study of potential new markets, and kept track of products he could improve upon. A friend of Edison and a successful businessman, Henry Ford (founder of Ford Motor Co.), wrote about Edison:²⁴ ‘First he determines the objective, that is exactly what he wants to accomplish. He may start to improve some crude device already in existence, as he did with the telephone, typewriter, dynamo and scores of other bits of apparatus. In any case he gets before him all that is known on the subject.’ On the next step, Edison said, ‘When I am after a result that I have in mind, I may make hundreds or thousands of experiments out of which there may be one that promises results in the right direction. This I follow to its legitimate conclusion, discarding the others, and usually get what I am after.’²⁵

If building an idea pipeline is the first step in managing an idea funnel, then ensuring idea velocity is the second step.²⁶ Edison and his team performed rapid experiments to eliminate various possibilities and selected the most appropriate idea.

Edison’s method can be summarized in three of his quotes:²⁷

1. To have a great idea, have a lot of them.
2. I have not failed. I’ve just found 10,000 ways that won’t work.
3. As soon as I find that something I am investigating does not lead to practical results, I drop it.

Edison systematically went about seeking opportunities,

generating ideas, performing experiments and finally, taking a few promising ideas to the market. The method of innovation Edison adopted had some similarities with Denny's method. Both involved a systematic management of an idea funnel; both involved workers contributing to the process; and both built a laboratory for experimentation. However, the methods differed in one important aspect. While Denny's method involved his team, Edison's method was autocratic in that he was the only one managing the idea funnel.

Let's fast forward to the twenty-first century and ask how systematic innovation is different today. The following story from Procter & Gamble (P&G) highlights the changes over time.²⁸ P&G was able to accelerate Pringles Prints, in which designs were imprinted on the Pringles snacks themselves, from its concept to its launch in less than a year, and at a fraction of what it would have otherwise cost. Here is how it happened.

Procter & Gamble's Connect and Develop

In his book *The Game-changer*, the then P&G chief executive officer (CEO), A.G. Lafley, relates how P&G changed the way it looked at innovation. Early on in the process, in 2002, they faced what seemed to be a simple challenge: how do you make snack foods more exciting?²⁹ One of the team members suggested that different images should be carried on Pringles chips. It was decided to try this idea out, but early experiments using the dough for chips and an ink-jet printer to create the images resulted only in rendering the printer unusable! It became clear that printing would have to take place after the potato chips were fried but were still hot, that every chip would have to be printed individually, that this would have to be done at high

speed but without losing the quality of the image, and that new edible dyes would be required to make this happen. In P&G's traditional method of R&D-driven innovation, this looked like a long-drawn-out innovation process.

However, embracing the new open-innovation platform that Lafley was championing, P&G created a writeup on what problems they were trying to solve, and circulated it across the world to see if they could find someone who had a solution that could be quickly adapted as a solution to the problem at hand. And what did they find? A professor in Bologna in Italy ran a bakery where he printed images on cakes using custom-made equipment. Seizing the opportunity to adopt this method, P&G collaborated with him to modify the process for use with chips, and this innovation became a growth engine for the Pringles business.

When P&G opened the idea funnel for external partnerships right from the front-end, it increased the *capacity* of the innovation engine manifold. Suddenly, there were more people batting and creating partnerships, some hitting fours and sixes. In fact, A.G. Lafley established a simple goal in 2002: for every two ideas that hit the market, one should have a partner outside P&G.³⁰ The ratio achieved was at 15 per cent in 2000; it reached 35 per cent around 2005 and crossed 50 per cent in 2007. A global division called 'Connect and Develop' was created to facilitate the process. The outcome was that for every two products P&G launched in the market, one succeeded. This is the trickiest part of managing the idea funnel. If you decide to play safe and hit only singles then your score can never be high. On the other extreme, if you try to hit a sixer on every ball, again your score may be low. What matters is the batting average, how much impact innovations make on the

company over a given period such as a financial year. We believe that after the idea pipeline and idea velocity, improving the batting average is the third most important goal for managing the idea funnel.

We have identified three goals in managing the idea funnel. One, building and sustaining an idea pipeline; two, improving idea velocity; and three, improving the batting average. How to do this systematically is what this book is about. But before we get to the 'how' part, let's understand some key hurdles.

TWO VILLAINS

We have seen examples of systematic innovation, for example, Denny's shipyard and Edison's invention factory, which are more than a hundred years old. If systematic innovation has been around for such a long time, and has evolved further, why isn't it practised everywhere? Why don't we have active idea management systems like Denny or P&G in many organizations?

There are definitely more P&Gs around. We have Indian companies like Marico, Tata Motors and Titan that have demonstrated a high level of innovation stamina over the last two decades. However, these are more of an exception than the rule. Systematic innovation is certainly not as ubiquitous as, say, quality management. The question is: Why?

Like any good story, our tale has two villains, both of whom have been around for a long time. To understand the first one, we will go back to the HMT story where Rajappa suggested an idea to fix a burning problem related to radial drilling.

The exact conversation between Patil and the manager of the radial drilling machine division is not known. However, we can imagine what might have happened. When Patil suggested to

the manager that Rajappa's idea should be given a shot, the manager would have said, 'Why do we want to waste time? The problem has been tackled by the best engineers we have and we haven't found a solution. Do you think a matriculate can solve the problem?'

What we see in this kind of answer is a huge amount of resistance to the idea. There could be many reasons for this: one could be the deeply ingrained notion that an engineer is a better problem solver than a matriculate; another one could be that since the idea had originated outside the department, the resistance was a manifestation of the common 'not invented here' syndrome.

It is very easy for us to fall in the trap of making the manager the 'villain'. However, history shows otherwise. Practically every idea worth its salt has had to face resistance. And we believe that this 'resistance to change' is the chief villain of our story.

Retail wizard Kishore Biyani, chairman and MD of Future Group, experienced this mindset during his final year in college when he began to visit the office of Bansi Silk Mills in Kalbadevi in Mumbai.³¹ It was a family business run by Kishore's father and his five brothers as well as two older cousins. The business was focused primarily on trading in various kinds of fabrics with the company acting as an intermediary between the textile mills in Mumbai and the garment manufacturers. Margins were low and there was hardly any growth. When Kishore questioned this way of conducting business, he was put in his place by being assigned the job of typing letters for official correspondence. As Kishore observed, 'preserving status quo' was the norm.³² Anything that he tried to change was met with a 'no-no'.

Resistance to change goes beyond the company. When Ratan Tata proposed a partnership with an industry body to create an

Indian car in the 1990s, everybody scoffed at the concept. People said, ‘Why doesn’t Mr Tata produce a car that works before he talks about an Indian car?’³³ Eventually, Tata produced the Indica. Many times, however, the resistance to an idea may not be so visible. It is expressed by just ignoring ideas, let alone giving encouragement or inputs.

Implementing idea funnel management involves, at the very least, openness to ideas, some of which will challenge traditional beliefs. Many managers find this thought intimidating. After all, managers are supposed to be in control of the situation, and experimenting with new ideas would mean inviting uncertainty. What if the idea doesn’t work?

The anxiety is natural and we will soon see how innovative companies overcome it. However, resistance to change isn’t the only villain we need to worry about. There is a co-villain. To understand the second villain, we will go back to the Empress Mills story and put ourselves in the shoes of the manager of Platts, the manufacturer supplying mule spindles to Empress Mills.

When Jamsetji asked him to supply ring spindles, he had to decide whether to start a new product line with a new technology. Now, how would he have come to a decision? If he looked only in the rearview mirror, the answer would have seemed very clear: away with mule spindles. But let’s say, he was a wise guy and he looked through the windshield. What did he see? A hazy picture, showing him that all his customers were still using mule spindles. The best he could have then done was to extrapolate the past into the future and make a prediction: mule or ring spindles? As Nassim Taleb brings out in *The Black Swan*, we can’t predict a winning horse accurately,³⁴ a drawback we call the ‘prediction disability’. But the most interesting part is that we forget that we have a disability.

The Rs 3,300-crore Arvind Mills features among the top three denim companies in the world, with an annual capacity of 110 million metres.³⁵ Sanjay Lalbhai, chairman and MD of the Arvind Group, introduced denim in India in 1988. Looking at the rising demand, Lalbhai went in for massive expansion of the mill's denim capacity, largely funded by loans. Later, when denim prices came crashing down due to excess capacity, it hit Arvind hard, heralding the bad phase that began in 1997 and ended more than half a decade later, when the group started seeing profits again.

When Sanjay was asked why he didn't see it coming, he said, 'If I had seen it coming, I wouldn't have done it. We did all the wrong things. We leveraged on the balance sheet and then everything went wrong.'³⁶ Sanjay admitted that he 'didn't see it coming'. Learning to manage this disability of 'not being able to see things coming', or in other words, prediction disability, is an important aspect of a systematic innovation process.

How deep-rooted are 'resistance to change' and 'prediction disability'? Why can't we find a magic pill that gets rid of these two? Well, it looks like these biases are indeed difficult to uproot. In the last few decades, psychologists have converged on a model of thinking that explains these biases. According to this model, human thinking can be seen as a combination of two distinct systems or processes of thinking at work all the time.³⁷ The first one is intuitive and emotional. It is the part that makes your right foot reach out for the brake when the vehicle in front slows down or makes you nervous when you enter into an annual appraisal meeting with your boss. The second part is the one that deliberates, analyses and looks into the future. It is the part that makes a New Year's resolution to go for a morning walk three times a week.

When you are talking to a friend while driving, both the systems are active at the same time. The automatic part is doing the driving while the conscious one is doing the talking. Sometimes the two systems fight. For example, the planning side sets an alarm for getting up early in order to go for a morning walk, but in reality, when the alarm actually rings it is the instinctive side that presses the snooze button.

Chip and Dan Heath use an analogy in their bestselling book *Switch*, which we find very useful.³⁸ In this analogy, the emotional side is like an elephant and the deliberating side is like a tiny human rider sitting on top of the elephant. The rider feels that he is the leader and things work fine as long as the elephant and the rider agree on where to go. However, anytime there is a conflict between the two, there is no surprise who will win. The elephant has a six-ton advantage and the tiny rider is rendered helpless by the mammoth beast.

‘Resistance to change’ is the case where the elephant sticks to his good old ways and overpowers the rider. On the other hand, ‘prediction disability’ shows where the rider fails to correct the incorrect instinctive verdict given by the elephant, perhaps under emotional euphoria or depression. How do we manage the elephant–rider conflict?

THE ELEPHANT AND RIDER CONFLICT

Idea management in India may be more than half a century old as we saw in the story about Telco’s suggestion box. However, it gained momentum only in the late 1980s. There were two primary drivers: one was the arrival of the total quality management (TQM) movement in India from Japan and the second one was the opening up of the Indian economy, bringing

in competition from foreign players. TQM was the bigger force of the two and hence led to idea management systems with the scope of ideas limited to 'continuous improvement'. Let's look at how this happened in the case of Maruti Suzuki India Ltd, a company that, unlike HMT, successfully transitioned from the licence-permit raj era.

Idea Management at Maruti

Chairman R.C. Bhargava narrates Maruti Udyog's experience in implementing an idea management system in his book *The Maruti Story*.³⁹ Maruti Udyog was set up in the early 1980s by the Government of India in collaboration with Japan's Suzuki Motor Company (SMC) to manufacture small cars. As a successful manufacturer of cars in Japan, SMC was keen to introduce its 'best practices' in Maruti Udyog. One such practice was the employee suggestion scheme, which unfortunately, the Indian managers did not respond to positively. They felt that it was more important to faithfully follow the manufacturing processes followed in Suzuki's Japanese plants. They doubted that Maruti's inexperienced workers would be able to make value-adding suggestions. But, on SMC's insistence, the company went ahead with the suggestion scheme. To attract ideas, initially a small amount was paid for every idea submitted irrespective of its quality or practicality. The result: generation of several useless ideas, in addition to some good ones. But, with time, the quality of the ideas improved, and the company shifted to paying incentives only for those ideas that were implemented.

The company found different ways of recognizing contributors to the suggestion scheme. These ranged from posting the names of employees giving suggestions on the notice board to giving

the top annual idea generators the opportunity to have a meal, along with their family, with the top management of the company.

SMC introduced another ‘best practice’ in Maruti—the quality circle. A quality circle is a team of four to ten workers that understands the methodology of identifying and solving problems and applies this to issues that come up on the shop floor.⁴⁰ But transplanting this practice to Maruti was not easy either—in Japan, quality circles meet after the shift is over, but in India, where employees often live far away from the factory and depend on company transportation to reach home, staying late is difficult. So, this practice was adapted to Indian conditions and quality circle activity was allowed in company time. To encourage this further, a competition was held between quality circles, with the winners getting a trip to the SMC factory in Japan.

In this story, you would have noticed the elephant–rider fight when SMC recommended the suggestion scheme to Indian managers. The managers felt, ‘What could the workers suggest about the process which Japanese engineers have put in place?’ Research in psychology tells us that there is nothing unique about this reaction. It is the elephant side of thinking that is talking, based on past experience. However, the story also brings out various mechanisms that help the rider and the elephant move together in greater harmony.

The introduction of a suggestion scheme is typically associated with awareness and education sessions for the workers. During the training sessions, techniques for identifying and analysing problems are presented; this took place in Maruti Udyog too. Suzuki trainers would have shared examples of suggestions from the Japanese factories and explained the format for the suggestion form to be filled. Essentially, the rider gets a clear

message as to what needs be done. The Heaths call this ‘Directing the Rider’.

For a tiny rider, getting the direction is not sufficient. The elephant needs the motivation as well. That is where incentives in different forms help. The monetary rewards Maruti gave are just one part of the story. Perhaps what is a bigger motivation is to see your name on display on the notice board or an opportunity to have lunch with the managing director. Imagine the effect when a shop-floor worker tells stories of the lunch meeting with the MD to his friends during the lunch break. It is quite possible that there are more in the group who start wondering, ‘If he can do it, why can’t I?’ The Heaths call this ‘Motivating the Elephant’.

Imagine if Maruti had decided not to give the one-hour-a-month time for quality circle activity. Does it mean that the flow of ideas would have stopped? Perhaps not. But this practice makes it that much easier for workers to contribute. The Heaths call this ‘Shaping the Path’. It is similar to your corner grocery shop offering home delivery. You may still shop at the shop even if he doesn’t deliver things home but ‘home delivery’ makes grocery shopping easier. When your bank ATM ensures that you remove your card before it gives you the cash, it is also shaping the path,⁴¹ because it is ensuring that you don’t leave your card in the ATM even by mistake.

In this book we show how other companies in India and abroad are applying the techniques of directing the rider, motivating the elephant and shaping the path in order to overcome the elephant-rider conflict and manage the idea funnel.

The Further Evolution of Idea Management at Maruti

The Indian economy has undergone a sea change since the early days of Maruti. A company that took a decade to launch its second passenger car model Zen now launches many new models every year. Competition has brought its market share down from a near monopolistic 90 per cent to less than 50 per cent yet it is still the undisputed leader with the next car maker making less than half the cars that Maruti does. Maruti is selling at a run rate of 1 lakh cars per month and sold for the first time over a million cars in 2010.⁴² How has all this impacted idea management at Maruti?

The continuous improvement activity has continued to evolve and Maruti consistently features in the benchmark figures published by the Indian National Suggestion Scheme Association (INSSAN).⁴³ The process was made more efficient by automating the logging of ideas. A fulltime programme manager was put in place to track the activity. As a result the savings resulting from employee ideas have gone up from Rs 2 crore in 1990 to Rs 479 crore in 2009. However, the most significant changes in innovation management at Maruti came not from the continuous improvement side but on the new product development side.

In December 2009, the managing director of Maruti Shinzo Nakanishi announced, 'Right now we have eight platforms and we would want to bring that down to three in the future with the Alto, WagonR and Estilo line continuing as our mainstay as it is now.'⁴⁴ A platform is a common architecture for multiple car models that covers design, engineering, production and major components. If we rip an Alto and a WagonR apart we will see the same bone structure underneath. What this means is that Maruti can develop new car models based on the existing

platforms much faster and at a lower cost. Maruti is thinking not only in terms of new products but also in terms of platforms. This has meant building internal capabilities for R&D, market research, industrial design and laboratories for crash testing. It has also meant creating a career path for specialists who get the same benefits as managers.

Not all innovation programme stories are as positive as Maruti's. We got to hear about an innovation programme which started with all the fanfare like any other launch, when a web-based idea tool was put in place. A campaign with a logo was launched and a selection committee was formed to select and fund good ideas. The initial buzz created a flurry of activity on the innovation portal. And then gradually, the flow of ideas slowed down.

Among the few dozen ideas logged in the system in the first few months, only one was considered worthy of further evaluation. The author of this idea was given a business plan template and asked to prepare a business plan, but the poor fellow had no idea about preparing one. He never got back, and news went around that the idea system was 'not for them'. Soon the innovation committee lost interest too. The programme simply failed to motivate the elephant.

In this book, we show you how to run innovation programmes in a robust manner. We would like your innovation programme to progress more like Maruti's than the other one, which died a premature death.

We look at three steps in managing an idea funnel: Build and sustain the idea pipeline, improve the idea velocity and increase the batting average. In each step, we look at several ways in which we can help the rider and the elephant to move together in the right direction.

Key Takeaways

- Innovation happens when an idea is implemented to create an impact.
- Anyone can innovate provided the conditions are right.
- An organization that practises systematic innovation has a disciplined way of generating, selecting, nurturing and implementing ideas.
- There are four key types of innovation: process; product; customer experience; and business model. Some of the most successful innovations incorporate multiple dimensions of innovation.
- Innovation begins with curiosity.
- Innovation is an iterative process rather than a linear one, depending on a series of experiments. Innovation is not just about risk-taking, it's also about assessing and mitigating risks.
- Managing the idea funnel involves pursuing three goals: One, building and sustaining the idea pipeline; two, improving idea velocity; and three, improving the batting average.
- Successful idea management involves two major challenges: overcoming resistance to change and overcoming prediction disability.
- Resistance to change can be easily understood in terms of the conflict between an elephant (tradition, emotions, inertia) and its rider (logic and rationality). Companies can use different methods to direct the rider, motivate the elephant and shape the path in order to overcome the elephant-rider conflict.

Things to do

- Think of one change that you embraced in the last one year. Was there resistance to that change? What made you overcome it?
- List some of your favourite innovations. Classify them into: product; process; customer experience; and business model.
- Think of an innovation in which you played a role. What was the role? Now that you are familiar with the elephant-rider model, what could you have done differently to support the innovation process?