



# INFOSYS INSIGHTS

TRENDS. PERSPECTIVES. IDEAS.

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3200 BC: Earliest form of writing invented in Sumer, Mesopotamia

508-507 BC: Democracy established in Athens, Greece

960: First circulating currency note issued by the Song Dynasty in China

1450: Johann Gutenberg invents the printing press

1452-1519: Leonardo da Vinci creates plans for self-propelled cart and other vehicles

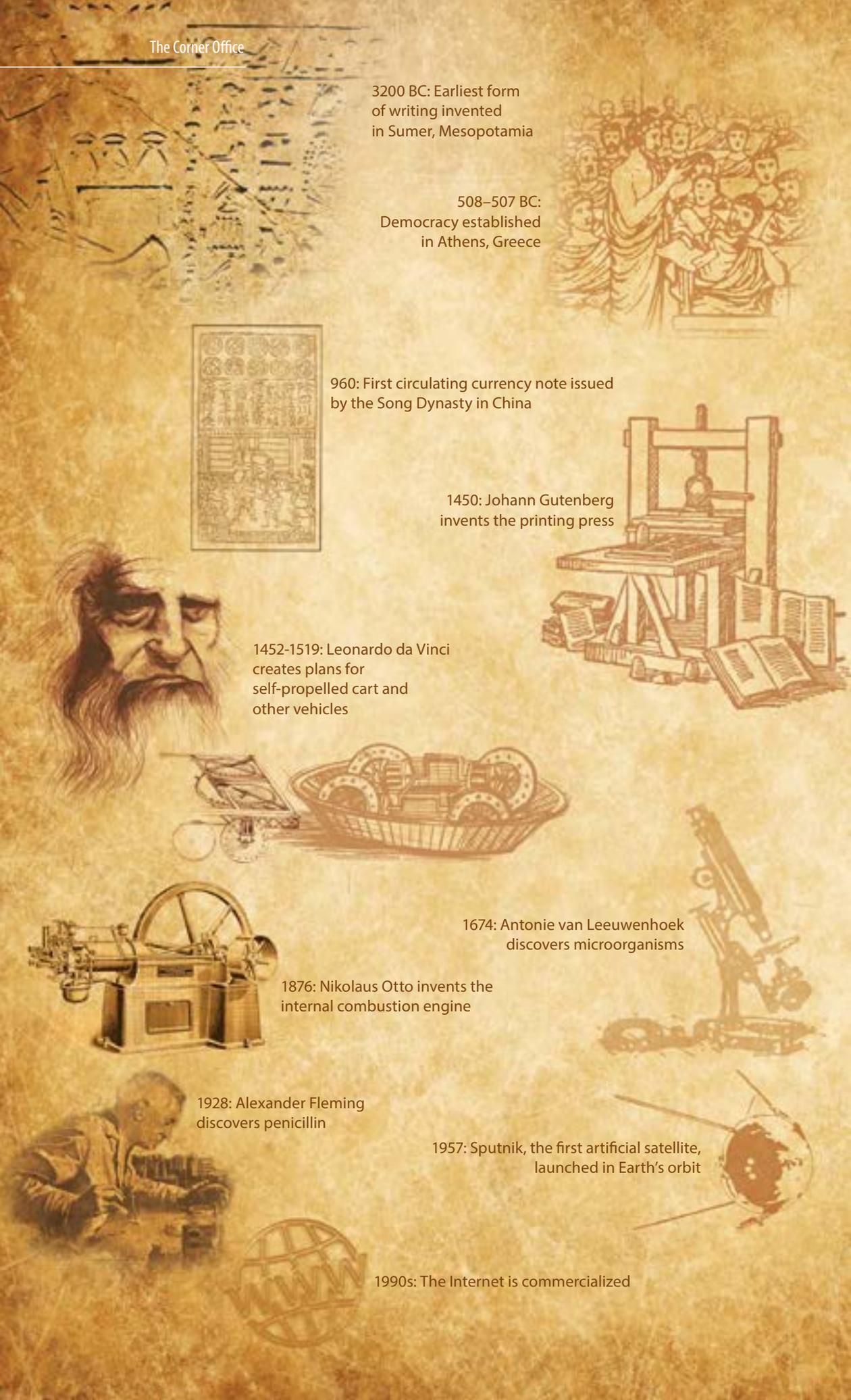
1674: Antonie van Leeuwenhoek discovers microorganisms

1876: Nikolaus Otto invents the internal combustion engine

1928: Alexander Fleming discovers penicillin

1957: Sputnik, the first artificial satellite, launched in Earth's orbit

1990s: The Internet is commercialized



## Power of Context

Leonardo da Vinci – one of the finest geniuses the world has ever known – did not come close to achieving the engineering success of Henry Ford. Not because Ford was smarter. But because humanity's cumulative knowledge over the centuries had given Ford the scientific leaps, progressive ideas, and tools that Da Vinci could only dream of. That's the power of Context.

With the power of imagination, lifetime learning, and a firm conviction, I believe that we are today trying to create a better Context for us all. As my mentor, friend, and brilliant computer scientist Alan Kay said, 'Context is worth 80 IQ points'. I leave you with that, as we prepare for a technology-enabled human revolution, waiting to happen.

Dr. Vishal Sikka



# BEING DIGITAL. BEING HUMAN.

## Embarking on a Human Revolution

Every walk of life is being fundamentally transformed by software, in ways we could have never imagined even a few years ago. In the convergence of a host of powerful new technologies and concepts – from artificial intelligence to design thinking, from deep analytics to ubiquitous authoring – we now

see an amplification of our potential, our intellect, and our collective imagination and creativity. This empowerment is helping us deal with two complementary themes that are the very essence of future opportunities, the first being the renewal of the known – bringing massive,

transformational improvements to existing systems and experiences and bringing more and more innovations through automation, repeatability, and AI to known things, and the second is a simultaneous focusing of our creativity and imagination on the unknown – completely new kinds of next-generation solutions that solve new kinds of problems and create value in new ways. This transformation, from atoms to bits, will continue to grow, create exciting new avenues for new, unprecedented experiences, and empower all of us to look at the world in entirely new ways.

**We see there are three dimensions to our 'Being Digital' – the economics, the engineering, and the experiences.**

When it comes to economics, in the world of atoms, we are accustomed to a natural value chain – that's prevailed over the centuries – connecting the producer to the consumer. At each step, between the producer and the consumer, there are intermediaries that add specific value but also bring in complexity and create partitions within the chain. This leads to a fundamental delay in the matching of supply and demand; in matching the visibility of what-is-needed with what-is-produced. This inevitably also creates an inefficiency in pricing. But in the world of bits where the makers of products and providers of services can reach end customers directly, there is no longer a *raison d'être* for intermediaries, and this has ushered in greater efficiency across industries. Bankers can conduct their business directly with those seeking financial services, without having to sustain branches staffed with a dozen tellers and support staff, musicians and writers are free from the tyranny of publishers, distributors, and even the stores. And several

more such examples abound. Producers can finally reach customers – in the digital world – as easily as they did in the natural value chain but without having to deal with the intermediaries that don't always add enough value. There is a much closer matching of demand and supply, the production of goods is more streamlined – and in the very near future will become instantaneous.

The second dimension – that of engineering – deals with the making and enabling of this disruption. This is largely driven by the hardware revolution governed by Moore's Law, which causes processor speeds, or overall processing power for computers to double every two years. And this incredible improvement in price-performance will continue unabated in the foreseeable future. We can therefore work this incredible and burgeoning computing power into our plans and strategies and work it to our advantage. On the other hand, computer chips and the underlying transistors are shrinking in size, making it increasingly easier for sensors to be embedded into the very environment we operate in. This is making our world pervasively digital.

All this enables us to create and enjoy both immersive and immersed experiences. We can completely rethink almost everything we experience – the way we learn, the way we shop, the way we connect and communicate, the way we consume services. All of this can become immersive – based on pervasive digital technology. New immersed experiences can also be created by digital innovations like the edible sensor which, for example, when consumed as part of prescribed medication can help healthcare professionals track patients' adherence to their medical regime.

**At each step, between the producer and the consumer, there are intermediaries that add specific value but also bring in complexity and create partitions within the chain.**

My sense is that a new economic reality is upon us, where across industries we can see a more agile and responsive connection between production and consumption, enabled by technology, and it is up to us to create this new reality.

**Undoubtedly, the digital revolution has changed our context.**

We can already see that in younger generations, there are now deeply held assumptions and convictions about the ways

in which we work, interact, consume goods and services, and communicate. Let us embrace these changes and in fact surpass these expectations, and bring new kinds of products, services, and consumption models forward. All of you are looking at these trends and these new assumptions amongst your customers, your partners, your end-users, and consumers.

The digital transformation opens our imaginations and creativity in new ways, changing the context for all of us. This new



shared context changes the ecosystems in which we operate and connects us in new ways. I believe that together we can discover and scale these new frontiers, learn in new ways from each other, and create a great shared future. A future where we are both visionaries and beneficiaries, and more relevant than we've ever been. It would be the beginning of a human revolution.

I look forward to learning more about your ideas on digital transformation and how you see this unfolding for your organization.

**Dr. Vishal Sikka**

## Author



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# HOW LARGE ENTERPRISES FIND THEIR ENTREPRENEURIAL DNA

- Entrepreneurship happens only in start-ups
- Entrepreneurship is an innate trait, not something that can be taught or coached
- Entrepreneurship is only about spinning off new companies



Such statements comprise the common lore around entrepreneurship. But these are premised on a fundamental lack of understanding of the term. Entrepreneurship represents the ability to find and solve grand challenges with unwavering commitment and zeal to surmount obstacles. It is not a product or privilege exclusive to start-ups, but a quality that large companies and even individuals can nourish.

Some of the most venerable Fortune 100 companies continue to pride themselves on their cultures of entrepreneurship. Lockheed Martin jealously guards its famous and now eponymous Skunkworks. Corning, founded in the early 19<sup>th</sup> century as a glassmaker, has thoroughly reinvented itself with entrepreneurial thinking and now manufactures technologically advanced fiber optics; Apple continues to woo the market

with new products and experiences, even as pundits argue that the company is at the end of the road of innovation and growth.

In the wake of technology-driven disruption of business models, large organizations the world over are trying to reinvent themselves by invoking the 'can-do' spirit that fills the offices of scrappy start-ups. This involves unearthing the entrepreneurial DNA in established and sometimes stodgy enterprises. But what is this entrepreneurial DNA? How does one find it? How does one establish it and cultivate it in a large organization?

Before finding the answers to these questions, it is important to examine, even if briefly, the different forms of entrepreneurship that exist today and some lessons we can learn from each of them.



## Everyday Entrepreneurship

Everyday or Operational Entrepreneurship is about identifying and exploiting opportunities for value creation. It is not the prerogative of a chosen few in the organization, but needs to be ingrained across the board. Here are a few simple examples of Everyday Entrepreneurship:

- A team of HR professionals coming together to improve the first-day experience of employees
- A group of sales executives collaborating

to design an app that will help improve visibility into store performance metrics

- A software developer who writes scripts to help automate 80% of the system test cases

Needless to say, Everyday Entrepreneurship thrives in a culture that is driven by a spirit of experimentation, a reasonable tolerance for failure, and an earnest desire towards identifying the right problems that need to be solved. And such a culture, like any organizational culture, cannot be limited to pockets.



## Divisional Entrepreneurship – A Focused Venture within an Organization

This is easier said than accomplished. Only a few companies such as IBM, Motorola, and Cargill have successfully established formal organizations within themselves to pursue business interests that lie outside their immediate horizon, and in turn have grown their topline.

To illustrate the case, let's take IBM. In 2000, it started the 'Emerging Business Opportunities' or EBOs to identify and go after business opportunities in the offing, even those that represented completely uncharted waters for the company. Project EBO was started at the behest of top management, in response to IBM's inveterate inability to leverage emerging business trends, sometimes despite having had a head start. The leadership realized that it was essential to establish a systematic approach to identify and focus

on new business opportunities. A rigorous process was put in place and some of the star performers in the company were summoned to execute Project EBO. In order to acquire the status of an EBO, a potential business must fulfill a number of strict criteria: it must closely align to the company's strategy, leverage cross-business opportunities, explore new business models and capabilities, show billion dollar potential revenue within two to three years, hold explicit potential of market leadership, and profitably sustain itself. EBOs worked like a charm and reinstated IBM as a market leader.

Another lesson to note from the IBM success story is that frameworks, tools, and systems, along with senior management intervention are essential to instill a new culture in a short time frame. Corporate Entrepreneurship could very well be the shot in the arm for large organizations, which have become bureaucratic over time.

## Corporate Venturing

Such Entrepreneurship is all about constantly exploring the frontiers of business and technology. America's DARPA – the Defense Advanced Research Projects Agency, which has fostered the creation of everything from the Internet and GPS to night-vision goggles and freeze-dried dinners is the epitome of breakthrough innovations in a sustained manner.

It is widely held that DARPA's success is near impossible to clone in large organizations. Characterized by three coveted tenets – taking on grand challenges, creating world-class “special forces” teams, and maintaining significant autonomy from its parent organization – DARPA's model is challenging to replicate, but certainly not off-limits for large organizations. Motorola has successfully deployed the DARPA model in its Advanced Technology and Projects (ATAP) group – or the “Mad Science” department. Instituted within Motorola in 2012, ATAP's famous inventions include the highly customizable Moto X phone and a modular phone with 3-D printed parts. With murmurs about ATAP diversifying into other areas, including digital tattoos and sensor pills, it is no surprise that Google chose to retain ATAP while selling Motorola Mobility to the Chinese electronics major, Lenovo, early last year.

## Entrepreneurship by Acquisition

The world of technology is filled with brilliant innovators, whose products or services stand to create huge new markets. That is when larger enterprises, sitting on significant cash hoards, swoop in and acquire the innovative start-up – usually with a codicil which dictates that the start-up's autonomy and entrepreneurial culture be preserved at all costs.

The social media giant Facebook, for instance, acquired Oculus Rift for \$2 B. Facebook believed that beyond playing first-person shooters and flying spaceships, the virtual reality device could reinvent meetings, messaging, social events, and more. Facebook was willing to place a big bet and make the acquisition. Likewise, Facebook paid over \$19 B for WhatsApp because they saw immense value in the messaging service.

Facebook is demonstrating that it is willing to pay a premium and take a risk with firms that are sometimes unproven or untested. The value of these acquisitions are based on a vision of the synergies to be realized between the two firms and the time-to-market advantage the acquisition creates. However, these are big bets and could go wrong as well. Success in such acquisitions depends on how well the acquiring company executes on the vision for the product and how smoothly the two companies integrate. In many cases, like in the case of Oculus Rift, the acquirer may let the acquired company retain independent operations.



## A Holistic Approach to Finding the Entrepreneurial DNA

While the existing forms of entrepreneurship discussed so far have achieved various degrees of success, none of them suffices by itself to transform an organization into a truly entrepreneurial one. Everyday Entrepreneurship may, over time, be relegated to incremental innovations; Divisional Entrepreneurship and Corporate Venturing will only create niche success stories, excluding the rest of the organization; acquiring an entrepreneurial venture will also be wrought with similar issues, including inadequate cultural integration between the two companies.

Based on our work across industries, we believe that unleashing the entrepreneurial DNA uniformly across an organization calls for a holistic approach, which span three important aspects.

Based on our work across industries, we believe that unleashing the entrepreneurial DNA uniformly across an organization calls for a holistic approach, which span three important aspects.

### The Right Business Focus

Examining thriving startups and similar ventures reveals that a healthy balance across four key dimensions of business is instrumental to their success. An organization with highly motivated and talented employees can do little if the overall business focus is not balanced across these dimensions:

- **Desirability:** Insatiable curiosity to know what is desirable for one's customer along with a problem-finding mindset, and not merely a problem-solving one, is an important aspect of entrepreneurship. Mark Zuckerberg sensed an individual's innate need of self-expression and provided an enticing platform to fulfil it, in the most creative way. Even after exponential success, he has been

relentlessly pursuing the possibilities of getting even closer to what may be most desirable for his customers.

- **Viability:** While the successful stories of entrepreneurship are celebrated, the ventures that fail are lost to the world. Many of them fail not for dearth of great ideas or inadequate engineering prowess, but for the lack of financial viability of the solution. The supersonic Concorde, considered an engineering marvel, exemplifies this. Pioneering the 'supercruise' capability, among many other technologies, the Concorde traversed flight routes in less than half the time taken by other aircraft. But its operations had to be shut down in 2003 as it became financially unviable. Ironically, the competence of assessing the financial viability of new ideas could become their Achilles heel.

- **Feasibility:** The technical feasibility of realizing an entrepreneurial dream need not be limiting. Establishing the viability of such dreams requires deep competence in the relevant domain. Apple is dreaming up its new car and has already started to hire from the best auto companies to help design it.

- **Leadership:** In the absence of strong leadership, desirability, viability, and feasibility will fall short and may even be at conflict with each other. Tech wizards and Google founders Larry Page and Sergey Brin hired Eric Schmidt, who had the competency to establish a large organization by bringing together these apparently disparate competencies.

As organizations envisage their teams unleashing entrepreneurship, it is critical to ensure that the teams working on key problems leverage the complementing competencies of Desirability, Viability, and Feasibility.





## The Right Environment

- **Networks:** Two decades ago, buoyed by scores of Harvard and MIT engineering graduates, Boston, and its Route 128 corridor, was the poster-child of technological entrepreneurship. Yet, the Silicon Valley has since eclipsed the New England city.

Can you pack the right number of technology companies, graduate students, and adequate venture capital into a square kilometer of fancy office space and – voilà – have an innovation cluster on your hands?

Saudi Arabia is trying to do so: It spent \$10 billion on the new King Abdullah University, which the country's leaders hope will spawn a center of tech-fueled innovation. London created Tech City in 2010 by offering extensive tax breaks to companies and attracting more than \$160 million in venture capital. Even Russia is getting into the act. Skolkovo City also sprung up in 2010 with \$2.5 billion in government funding. It includes a 900-acre technology center and a university designed by staff at MIT. But none of these are on track to beat a Silicon Valley. The

reason is the entrepreneurial network in the Valley. The Silicon Valley has an open network in which people learn and talk about possibilities. It is an environment where people are on a mission to solving complex problems of today. It is also surprising that most organizations also speak to their competitors about game-changing innovations they are working on – without sharing trade secrets. The success of the valley springs from this complex environment of dreaming, learning, sharing, and competing.

- **Excitement:** Entrepreneurs are individuals who are passionate about a mission. Their loyalty lies only with this mission. This is contrary to the traditional view of a corporation where the individual is expected to be loyal to the company. Entrepreneurs yearn for the excitement of a mission, a purpose, and a goal that is dear to them. Large organizations today must focus on creating an environment of excitement for the entrepreneurial employee. This is a knotty task, as the degrees of passion and commitment vary from individual to individual. It is, however, important to recognize this and establish mechanisms to harness the strengths of every individual.



- **Space:** Don't underestimate the role of the physical environment— especially the workspace. The most innovative companies in Silicon Valley are rethinking workspaces to encourage face-to-face interactions. Google's new campus is designed such that chance encounters are frequent. Very recently, Facebook unveiled its new Menlo Park office where nearly 3,000 employees will sit in a single space to work collaboratively. Traditionally hierarchical, Samsung announced earlier this year that it will introduce vast outdoor mingling areas. A couple of years ago, Yahoo mandated, albeit infamously, its mobile workers to station themselves in its offices because, in the words of CEO Marissa Mayer, "(employees) they're more collaborative and innovative when they're together".

Juxtaposing teams of different disciplines is another way to encourage collaborative interactions. Design and consulting firm, IDEO - like several other top notch design firms - has built interdisciplinary work into its DNA; Stanford Design School has shown that open and unfinished project space helps designers, business strategists, and programmers to develop novel ideas and ways of working.

- **Processes:** There is no silver bullet to make a conventional organization entrepreneurial. Only a holistic approach - encompassing leadership interventions, governance and enablement mechanisms, rewards and recognition programs, and an open atmosphere of networking and collaboration - can crystallize it. That's correct, all the way or no way. Any partial approach will only transform pockets in the organization, and may alienate the rest.

But all this needs to be done while ensuring that the regular business, which is the reason for existence, is not compromised. Google, Facebook, and LinkedIn are by no means start-ups. They have long crossed that phase. They are large, global corporations, which

have successfully established mechanisms to meet the duality of constantly renewing the existing businesses, while simultaneously focusing on exploring new areas of growth and disruption.

### **The Right Approach to Finding Problems**

Entrepreneurship is not merely about finding solutions to existing problems, but also about finding the right problems to solve. Design Thinking, which has been leveraged by designers for many years now, provides an empathy-led, customer-centric method for enterprises to discover the real problems facing end-users. Design Thinking is also a methodical approach to increasing the creative confidence of employees who are operating in an environment filled with ambiguity as well as opportunity. Design Thinking introduces tools to break the shackles on imagination, and build conviction by moving quickly in small steps, by learning from failures, and by building on successes. When a person has creative confidence, she is not only able to leverage her domain knowledge, but is also able to articulate a vision, engage rapidly with stakeholders, make quick decisions, and succeed in new opportunities without being discouraged by early failures.

At Infosys we have embarked on a unique journey of embracing Design Thinking as a fundamental way of doing business – every consultant rethinks how she can deliver breakthrough value to customers, every developer rethinks the way she writes code, every employee in finance/accounts rethinks how every interaction with employees can be made delightful. We are also conducting Design Thinking workshops for our clients.

***Based on our work across industries, we believe that every organization needs a unifying approach that helps drive the cultural change, with an underlying energy of excitement and enthusiasm, coupled with leadership commitment towards change.***



## Road to the Entrepreneurial Holy Grail

In the end, finding your organization's entrepreneurial DNA is a journey that is not only about solving the business problems of today but also about ensuring that the firm flourishes amidst business disruptions that are yet to happen. There is no single formula that will work like magic for all - every organization needs to discover the solution for itself. However, this solution must encompass the aforementioned **Right Business Focus, Right Environment, and Right Approach to Finding Problems.**

## Authors



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Kishor has worked with retailers and CPG companies across the value chain, including marketing, sales, supply chain, and finance. At Infosys, he has played an important role in developing innovations and leading go-to-market solutions. He has published several papers on topics relevant to the industry domain, and is a speaker at several industry forums. His passion and area of focus is to help organizations drive their digital transformation agenda.



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# DESIGN THINKING AND THE ENTERPRISE



As a customer-centric organization, my telecom service provider routinely reaches out to me, as they do to other customers, to solicit my feedback on their services. I know they need my feedback, yet, I rarely submit to the process. Put it down to a discomfort of discussing service quality with an impersonal, automated call service, that has been thrust upon me without my permission.

However, it is easy to see the service provider's perspective. Here is a technology that eases the arduous process of extracting customer assessments. Which, incidentally, is much more economical than deploying valuable human resources. It's hard to stand against the compelling proposition of a convenient alternative, which is both technically feasible and commercially viable.

What we have here is just one of a large set of readily available options that the typical enterprise approach of convergent thinking

has delivered. And that is the inherent limitation of taking this particular cognitive path to finding solutions – it is structured to identify a finite set of choices that are deemed to be acceptable, solely because they have been distilled from the tried and tested way of doing things. Convergent thinking, then, is the science of making choices that come pre-validated by convention.

So what enterprises end up with, are some choices that are patently enterprise-worthy, in as much as they tick the all-important boxes of technological feasibility and economic viability. However, like my mobile operator, most enterprises don't factor-in the all-important parameter of user desirability – that is, what does the customer really want?

## Design Thinking and the Enterprise

Should enterprises pause to ask, they would find that customers understandably tend to value their own experience much higher than organizational priorities like feasibility and viability, if they value them at all. With expectations of experience on a constantly rising trajectory, and end consumers becoming more prudent and empowered, enterprises need to switch to a more integrated cognitive approach - that is as much about divergent thinking or the art of creating choices, as it is about convergent thinking, which is the science of making choices. Or to put it more simply, enterprises need to switch to Design Thinking.

Design Thinking emphasizes a more human-centric and empathetic cognitive process that relies on harnessing intuition, inspiration, and emotion to create solutions - all without losing sight of the practical considerations of technological feasibility and business viability. In and of itself, it is not a new paradigm - for years, designers have successfully used this approach to create concepts that effortlessly marry desirability with functionality and profitability. What is new is the effort to extend the concept of Design Thinking into areas and practices beyond the realm of pure design.

Like the enterprise, for example.





## The Imperative for Design Thinking

The typical corporation is built on a bedrock of rational thought, analytical reasoning, and data-driven strategy. And over the years, this model has served as a reliable enabler of value for the enterprise. But in this citadel of reason, the philosophy of intuitive thinking – what Roger Martin, author of *The Design of Business*, calls ‘the art of knowing without reasoning’ – has at best been a peripheral influence thus far. Given this historic context, it is a bit hard to imagine a future where the enterprise model harmoniously amalgamates seemingly irreconcilable concepts such as analytics and intuition, reason and emotion, and data and inspiration.

***And yet, that is exactly the transformation that enterprises will have to achieve in order to survive and thrive in this rapidly evolving marketplace.***

Consider the Experience Economy – from products through services, experience is today the fundamental arbiter of competitive differentiation and economic value. It is about renewing traditional products and services, and exploring new opportunities arising from the economic construct of experience. This completely new paradigm, arguably even more radical than the transition from an agrarian to an industrial economy, compels a new model of enterprise thinking.

Or consider Innovation – no longer the preserve of a few pioneers, innovation is now a prescription for survival for enterprises irrespective of size, sector, or market. Though most conversations about innovation tend to focus on technology, truly sustainable innovations are those that explore beyond the possibilities of technology. In fact, as a cognitive model, Design Thinking has the potential to create solutions in areas where technology has failed to.

## Design Thinking and Creative Confidence

“Infosys has embraced Design Thinking as a core, foundational capability that can be relevant for every single employee of the company. I am often asked to explain what this means – and luckily, the core idea behind Design Thinking is very simple. It is a method for improving the creative confidence of individuals, teams, and organizations to explore areas of significant opportunity which are also complicated by substantial ambiguity. Creative endeavor is, by definition, a risky activity. If we know exactly how to do something – it usually means it has been done before – and hence it is not creative or innovative. We are born learners and explorers, but sometime during our formative years, many of us lose that ability to explore, experiment, and take calculated risks that increase our learning velocity. Design Thinking gives us a scaffolding for such “positive” behaviors – such as developing empathy, effective problem framing, and working in rapid, iterative cycles of prototyping, experimentation, learning, and continuous improvement. Applying these behaviors every single day to the issues we encounter – both internally and during our engagement with clients – can improve our creative confidence, and help us to renew the things we already do, while also enabling us to pursue new opportunities with conviction.”

- Sanjay Rajagopalan

### Key Drivers of Design Thinking

**Human-centric / empathetic:** As a human-centric process, empathy for customers' needs is central to the Design Thinking philosophy. But as opposed to conventional market research techniques, the Design Thinking model emphasizes the need to interview and engage with customers, observe user behavior in context, and to also experience first-hand the customer context. Uncovering the emotional aspects of behavior is critical and the model uses a range of research techniques and design tools to understand customer expectations, motivations, and values, as well as to systematically map the key tasks and stages in a particular process.

**Iterative:** By its very nature, Design Thinking is a dynamic and iterative process, but with an unwavering focus on the expectations and needs of the end user. It creates a fast and, if required, repetitive learning loop that makes it easier and quicker to optimize and refocus. Tim Brown, CEO of IDEO and author of *Change by Design*, defines the

design thinking process as a system of three overlapping, rather than sequential, spaces that can loop back depending on the team's need to refine ideas or change direction.

**Design Think. Design Do:** Design Thinking emphasizes action as part of the problem-solving process. Teams are encouraged to actively create simple experimental prototypes that not only contribute to an enhanced learning experience, but also make ideas more tangible and real. Rapid prototyping, using techniques as simple as storyboards or role-playing, can also help focus ideas, enable discussions about usability and experience, and accelerate feedback.

**Collaborative:** Collaboration is strategic to the success of Design Thinking and is the key to unlocking enterprise creativity. In *Change by Design*, Tim Brown emphasizes the importance of creating “interdisciplinary teams that take collective ownership of, and responsibility for ideas, as opposed to multidisciplinary teams, where each member acts as an advocate for their own specialty”.



## Enterprise-led Social Innovation

Going forward, enterprises will be increasingly compelled to transition from a CSR strategy that is incremental to corporate strategy, to a broader and deeper commitment to Corporate Social Innovation. It is no longer about giving back to society. It is about addressing the challenges that affect the very societies that corporations operate in. Design Thinking has already made some inroads into the practice of social innovation, but it has to be adopted widely, keeping society

and nature at the epicenter while finding and solving societal problems.

As enterprises embrace Design Thinking to address their own problem-solving needs, they also have the huge opportunity to deploy the skills and resources that they build to support and drive social innovation programs of scale. Since empathy and human-centricity will form the common strategic core for both enterprise and social innovation models, it will also probably make it that bit easier to reconcile the focus of both.



**Summing up:** As customer-led innovation rapidly emerges as the only sustainable competitive advantage, Design Thinking offers the most efficient and effective model to harness the creative power and potential of the enterprise. But to be truly successful, enterprises have to ensure that Design Thinking is embedded in the very culture of the organization. While it

may represent a marked departure from the conventional analytical approach to driving enterprise innovation, performance, and profitability, it provides a really powerful tool that puts people at the center of the innovation model, thereby opening up new possibilities to engage productively with both customers and the community.

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# PHARMA'S NEW PHASE



Technological integrators play as crucial a role as banks in Big Pharma's latest M&A boom

## They're back.

Mergers & acquisitions, that is – and in a big way. Wall Street and City of London bankers haven't seen this kind of action since before the onset of the global economic crisis. Indeed, it has been a while since global corporations considered expanding their business lines by acquiring rivals and merging with powerful new players in the industry.

Overall, a number of factors are influencing

this M&A renaissance, not the least of which is the mountains of cash that corporations have on their balance sheets. Among the hottest industries that now enjoy the upsurge in global commerce, lower interest rates, and overall economic confidence is Big Pharma. No sector continues to evolve faster, or more profoundly than pharmaceuticals. Except for – possibly – the ever-complex book publishing business, no other industry even comes close in terms of how its underlying economics have changed.

**The main reasons driving the M&A wave in Pharma are:**

1. As research productivity continues to decline for Big Pharma, they have become more and more sales and marketing companies. Sales and Marketing companies are much more amenable to economies of scale than research outfits, and hence the desire to really become BIG
2. With changing demographics, there are disease-classes that are becoming more prominent and profitable – especially age- and lifestyle-related diseases. There is hence, a need to rejig product portfolios to achieve growth and profitability targets
3. So-called “inversion” deals – in which, an American company domiciles its headquarters in another country to lessen its global tax burden
4. Finally, with several blockbuster drugs coming off-patent – where they lose 90% of their revenues – companies are merging / acquiring to simply bulk-up and recover their top-line



Gold standard names in Life Sciences companies such as Pfizer, J&J, GSK, Novartis, Bristol Myers Squibb, and AstraZeneca are reportedly looking to merge or acquire for a number of strategic reasons. Their M&A strategies might be complex and multidimensional, but the fiercely competitive stalwarts of Big Pharma need IT systems that are streamlined and simple. They're looking for technological synergies at every level, and within tight time frames. That can be a tall order. Manufacturing plants of blockbuster drugs have to be synchronized with equally large plants of the newly acquired company – sometimes a continent away. IT consulting for Big Pharma is not only about delivering on scale and reach, but also about being able to make outcome-based models ready to go, the moment the companies merge. Such expectations position talent on center stage – the right resources, both technical and domain experts, who are able to collaborate to make smart technology work for the stakeholders involved.

Lawyers and investment bankers still focus on how the companies come together on paper.

But global IT consultancies are fast becoming the most vital go-to firms during big mergers of Life Sciences enterprises. That's because enormous corporations with complex strategies and top-secret drug pipelines can't allow mergers to slow down their operations. They need innovative thinking that is tailored to their sector. It is what's known as Day-1 Assurance. Knowing the ins and outs of the Life Sciences industry's radical transformation is what Day-1 is all about.

That's why this time around, as M&A activity picks up, Big Pharma and related industries like Biotech, Life Sciences, and Agrochemicals are facing issues that they've never before had to consider. This new wave of mergers and acquisitions, especially in the Life Sciences arena, has become so technical and specialized, that all companies involved require a strong technology integrator. Not only must the enterprises that merge have the appropriate guidance to make their technological operations as efficient and streamlined as possible, but also need the integrator to display and execute a deep knowledge of the complexities of the Life

Sciences sector. The IT partner must focus on building a core team of technical and domain experts who are clued up in pharma and can be leveraged across projects.

Another of the newer terms that they're using is a mouthful: "Specialization-Based Consolidation." Essentially that means today's change management and compliance alignments are not about simply making sure the lights stay on when two companies come together. These days, parts of companies are sold off before the main merger takes place. Secretive drug R&D programs have to remain purely "need-to-know." So the technological framework around such mergers has to be as innovative and groundbreaking as possible. Technological innovation must ensure discretion during merger processes – quite a challenge when deals involve multiple investment banks, law firms, advisors, and the leadership of the companies involved (often fierce rivals). It's vital to help life sciences companies in the throes of the merger process ensure that all of their IT systems operate seamlessly throughout all stages of the process. Customer Relationship Management solutions, Master Data Management, and massive data migration tools that selectively transfer data are all must-have ingredients of a process that requires corporate information to remain selective and discreet at all times.

There is so much complexity to the technological implementations, yet time is not on our side. This calls for extraordinary project management prowess, on the part of the systems integrator, and the ability to quickly understand the business situation and goals. So much depends on this. Pharmaceutical and Biotech firms operate within tight deadlines – the life

of a patented molecule is only 20 years or so and that includes the time needed for commercialization and clinical trials. Their mergers and acquisitions require that their IT systems enable them to scale up quickly and achieve ambitious outcomes to both the board(s) of directors and shareholders. Billions of dollars are at stake if these enterprises do not use cutting-edge technology to deliver stellar – and fully expected – results. With so much money involved, boards of directors want to hear the sweet sound of success stories as quickly as possible. The executive leadership that proposed and closed these mega-deals certainly doesn't want the first

post-merger reports to be about IT hiccups. Which is why senior management participation in the program – right from the outset – is crucial.

I previously mentioned the new wave of corporate headquarter inversions that figure into the modern M&A process. Because these are multidimensional, cross-border mergers, enterprises must have IT systems that work anywhere on the planet, and are compliant with every nation's tax specifications. Hence, investment banks that pitch the financial benefits of mergers and acquisitions in the first place, always, always make sure to tout their global reach. So, too,

must today's IT consultants establish the fact that no matter what the country, product line, or software platform is, they will ensure that Life Sciences mergers come together seamlessly. Global reach and scale largely define an IT enterprise's full capabilities. No matter where the next life science M&A deal takes place, it is best to be prepared with a centrally mobilized IT workforce that operates and manages more efficiently than its peers.

I enjoy telling our partners that we pick up at the very moment McKinsey leaves. Yet that program prioritization has changed. These days it's not uncommon to be engaged from

Hence, investment banks that pitch the financial benefits of mergers & acquisitions in the first place always, always make sure to tout their global reach.



soup to nuts – from the pre-assessment phase and onward until all the technology of the merged companies are enabled and integrated. Today's IT consultancy typically has a greater overall role in the strategic planning of mergers and divestitures. IT is becoming part of every process – from value analysis to creating a technology roadmap to implementing new frameworks. Teams from the organizations that are being merged as well as teams from the integrator must come up to speed with each other's processes,

systems, and business environments before, during, and after the merger. More importantly, cultural barriers, which are inevitable in trans-continental mergers, must disappear the moment conversations start towards a probable closure.

The life science sector's heightened M&A activities mean we are helping enterprises to renew today, to prepare them to explore new opportunities in the future.

## Author



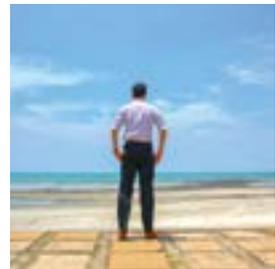
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# BIG DATA ANALYTICS ENTERS A WORLD OF OPEN SOURCE POSSIBILITIES



Connectivity, big data, and the bigger challenge

The concept of a network of smart devices emerged as early as the 1970s. Around 1972 - Prancing Pony - a computer-controlled vending machine selling snack foods on credit at the Stanford Artificial Intelligence Laboratory, became one of the first Internet-connected appliances. There began the saga of pervasive connectivity – where every device is plugged into everything else – creating the defining trend of 2010 to 2020. In fact, the Internet of Things is anticipated to burgeon to about of 26 billion units excluding PCs, smartphones, and tablets by 2020 – and perhaps several categories of these items, that will be connected in 2020, don't even exist at present.

The Internet of Things will cause connectivity to explode, and it will also create value – as much as US\$6.2 trillion in annual revenues by 2025, says a global consulting company. But it will also create massive amounts of data – 40 zettabytes by 2020, according to one estimate. And as we all know, the bulk – over 80% – of big data is unstructured, and in motion, existing in a variety of forms and formats both inside and outside company walls.

Gathering this data is a huge challenge, but one that technology today is capable of. It's what comes next – extracting accurate insights in real time and creating foresight from it – that enterprises are yet to nail.





## To share is to learn

Several industries, such as financial services, telecom, retail, and insurance, are among the leaders in collating, processing, and analyzing big data into reliable findings. Even more importantly, they have the ability to arrive at these insights in very quick, if not real time. In telecom, big data analytics has helped providers mitigate the high rate of churn by predicting which customers are most likely to leave, enabling operators to target promotional offers more accurately, and even scouring social media conversations to spot telltale signs of defection. On the other hand, insurance companies have managed to speed up claims processing, improve risk management, and price products based on predicted behavior (think auto insurance premiums based on driving patterns), and accelerate report generation using analytics. Then there are retailers, who have learned to exploit the vast customer data at their disposal to identify customer behavior, seasonal trends, replenishment cycles, merchandising requirements, and so forth. Financial services firms, on the other hand, leverage data to quantify risk and provide transparency to regulators – which in turn is a great driver of operational efficiency.

***Note how differently each of these industries uses big data. It clearly signals the huge potential for sharing, and cross-pollinating learning between industries, even among those who are analytically progressed.***

## What's your problem?

One of the biggest lessons in big data analytics is that it is what an enterprise 'does' with its data and analytics software that counts. Defining – sometimes even discovering – the problem is the most important part of the insight generation process. Retailing's success with analytics owes much to the nested question, a series of questions that, with each succeeding question, closes in on the problem. Unfortunately, in their impatience for quick resolution, most enterprises cut straight through to finding the answer to a problem they haven't identified in the first place. For them, the outcome in a best-case scenario is symptomatic relief.

This is exactly what new-age "problem finding" concepts like design thinking seek to address. The overarching goal of design thinking is to get to the root of a known problem or identify one that hasn't been recognized – staying as close to business reality as possible. It does this in a succinct, three-step process of establishing (end user) desirability, (technical) feasibility, and (business) viability.

Establishing desirability is all about understanding user need, and what the end user is trying to accomplish. A good indicator of desirability is the extent of empathy one has for the end user – the more empathetic the creator of the solution is, the more desirable the solution.

Feasibility is essentially a matter of mapping problem-resolution to technical capability. The enterprise knows what problem to solve and how to solve it in theory, but must figure out if there's a technology that will do it in practice.

Viability determines whether a problem that is both desirable and feasible to solve, is economically attractive. Here, business metrics, such as measurable business value, cost versus benefit, payback period, and return on investment, come into play.

Design Thinking gives enterprises a mechanism to define the "What". Now remains the challenge of solving the "How".

## A sea of data and a data lake

Proprietary statistical tools have proved to be of limited utility in crunching massive data of the order of millions of records into insights – and foresight thereon. They're sluggish, cost millions of dollars in capital expenditure, and worst of all, are not very amenable to change or expansion of scope. But now, open source technology has given us a very promising alternative. At its foundation is the notion of a data lake – "...a storage repository that holds a vast amount of raw data in its native format until it is needed." It is this absence of rigidity – on data structure, format, and also end purpose – that differentiates the data lake from any method of storage the world has ever known, and also enables it to overcome all the major limitations of proprietary statistical tools of analysis.

Architecturally, the data lake comprises the Hadoop File System (HDFS) that pools in the data from every source. Because it is so accommodating on structure, the data lake is not constrained to support only a predetermined type of analytical problem solving; indeed, it can take on new analytical use cases endlessly, at virtually no additional cost. Unlike data brought into warehouses and marts, the "open" data in a lake needs

no integration effort; using MapReduce and other algorithms, enterprises can quickly be on their way.

Above all, the data lake stores information in a highly granular "microdata" form, unlike licensed off-the-shelf solutions, which aggregate or pre-compute data to expedite analysis but end up compromising fidelity.

In contrast, the data lake has an almost infinite capacity to store data at the finest level, at the "power of one" so to speak, and refine, and add information at will. This data is fed into open source software, which can run through any number of data layers, and indeed any amount of data, in a very short time. The analysis arrives in real-time, is accurate, and keeps improving as the datasets become larger.

When they want to solve a particular problem, enterprises need only pull the required data from the data lake on to a data foundation. This data – which should ideally be of high-quality and granularity to deliver accurate results – is now stored on commodity hardware, such as Amazon Web Servers, Azure, or custom-built commodity servers.

The analytics or data science layer sits atop the data foundation. Using machine learning, data scientists run various mathematical models of statistical analysis, and make that data science available as packaged, open-source software. Finally, the analytics results are presented in business-consumable form by visualization software like Tableau, or open source components like D3.

## Opening up the possibilities

Open source technology has revolutionized data and analytics at every step of the value chain, from data storage to analysis, to visualization. Viewed from a design-thinking perspective, open source makes every aspect desirable, feasible, and viable: enabling sharp insights into problem discovery and solution desirability; making it technically feasible to deliver accurate real-time analysis no matter how big the data; reducing cost of data



storage and processing dramatically to make every project affordable and viable.

As open source throws open immense possibilities, its biggest challenge will be to assure security, access control, and governance of the data lake. There is also the risk that a data lake that is not managed thoughtfully could end up as an aggregate of data silos in one place. Industry watchers caution about the need to train lay users in appreciating key nuances – contextual bias in data capture, incomplete nature of datasets, ways to merge and reconcile different data sources, and so on – which is a Herculean task in every way.

While potential users are quite concerned about these issues, overall they are very excited about the opportunity. Meanwhile, the technology industry is trying to accelerate adoption by making all the open source capabilities discussed here available in a pre-tooled, enterprise-ready, “out of the box” format. A global, office automation firm has deployed such a solution to crunch the time it takes to process two million records to a few seconds, from several dozen minutes earlier. It is now able to make business predictions of 80 percent accuracy. And all of this has come at an investment that is a fraction of the cost of a proprietary statistical analysis tool. Open source technology has enabled it to simply do more with less for more.

## Author



### **Abdul Razack**

In a career that spans over two decades, Abdul has been involved in several engineering and consulting roles at Commerce One, Sybase, KPMG Peat Marwick, and SAP. Abdul holds a Master's Degree in Electrical Engineering from Southern Illinois University, and a Bachelor's Degree in Electronics and Communication Engineering from the University of Mysore, India.

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# THE ART OF CONNECTING MAN AND MACHINE

# THE INTERNET OF THINGS



What does ‘innovation and connectivity’ actually mean? What is happening behind the scenes?

When we think of the word ‘innovation’ and where it is happening in technology right now, we can’t look too far beyond the Internet of Things (IoT). According to the ever-reliable Wikipedia, IoT is ‘used to denote advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications’. Simply put, IoT is a well-connected infrastructure where nearly every type of machine / device has basic inbuilt intelligence, which is used to transfer data and interact with other machines / devices; and through these devices, with people.

IoT has often been referred to as the industrial Internet and aptly so, as it has the potential to herald a transformation in business and society akin to the First Industrial Revolution. According to Gartner, there will be 26 billion devices on IoT by 2020, while ABI research says the number of devices wirelessly connected to it will be close to 30 billion in the same timescale. Given that the world population is currently seven billion and is expected to be around 7.7 billion by 2020 – that is an astonishing number of devices talking to each other and to us.

Numbers are one thing. But what does this innovation and connectivity actually mean?



In the near future, we could be living in a world where temperature in buildings will adjust in line with weather conditions. Fridges could restock themselves based on the dietary regime set by doctors, cars could book in for a service and order the parts they need. These new networked devices will be able to publish data about their status to the Internet and this information could be used in various ways to improve the products and services we consume on a daily basis.

In the near future, we could be living in a world where the temperature in buildings will adjust to weather conditions outside. Fridges could restock themselves based on the dietary regime set by doctors and cars could book in for a service and order the parts they need. These new networked devices would be able to publish data on the Internet and this information could be used in various ways to improve products and services we consume on a daily basis. It will form the basis of smart grids and smart cities, improving energy consumption and usage, traffic flows, and citizen-based services.

Indeed, IoT could help solve multiple problems in two major domains: Energy and Healthcare. Buildings waste more energy than they use effectively. With IoT we will be able to cut this waste down to almost nothing. Healthcare is currently delivered in lumps: Most of us visit the doctor a couple of times a year, and get our blood pressure checked every now and then. IoT will allow us to monitor bodily functions at all times. A couple of sensors discreetly attached to the body will keep us constantly informed about our vital functions.

IoT is also likely to have a major impact on the logistics industry and supply chain as objects become aware of their environment and can be rerouted more easily in case of disruption. Greater use of sensing technologies and connected devices will be in asset management – the BT LDAT multi-sensor platform, something that Gartner refers to as Operational Technology (OT), is likely to expand the remit of CIOs from IT to broader asset management.

The potential is astonishing. But as with any huge technological change, there is a lot of hard work to be done behind the scenes to make these transformations to everyday life a reality. And this is where companies like BT are working tirelessly to ensure that the underlying infrastructure and connections are capable of sustaining the IoT.

At BT, we are making sure the underlying infrastructure is reliable and that we are able to sustain this huge expansion of the Internet and the demands, both as wired and wireless connections. The more interconnected the world becomes, the more dependent we are on networks. We also need to work on ensuring that the right regulations are in place and that we are abiding by them at all times. And finally, there are privacy and security issues at all levels. The technology will allow companies and governments to collect unprecedented amounts of data and everyone involved will have to be vigilant and adaptable to make sure the data remains safe.

For us, IoT is all about the art of connecting in action. This art of connecting is our vision for networking that is not just about technology; but also about imagination, know-how, and insight. It's as much an art as a science, and the recognition of the need to balance technology and creativity. CIOs have become creators who bring their vision for the networked world to life.

Whether it is about delivering great network performance, realizing possibilities in the cloud, or working anywhere in harmony, deploying latest mobility and collaboration solutions, the art of connecting is about the unparalleled experience and insight BT brings to a connected world.

Innovation is one percent inspiration and 99 percent perspiration – or so says a popular adage. In the context of IoT, we could say 99 percent is about machines and the connecting infrastructure that supports them. But having things connected would mean nothing without the intelligence to make those connections matter, to transform the world around us, and make it a better place to live and work. And it is that one percent of 'art,' which will help develop the Internet of Things into the Internet of something.

## The connected car: Making sure you have an e-seatbelt

One fascinating aspect of IoT is that the cars we drive are rapidly becoming 'smart- phones on wheels.' Most new models now have a tablet (or tablet-like) device attached to the



dashboard to allow you to run a range of apps, download content, find a parking space, or even join an eco-driving game. If you misplace your keys, you can use an app on your phone to unlock the car and drive it away. What could be more convenient? New cars will soon have at least one embedded SIM card and multiple Wi-Fi hot spots, so they are the ultimate connected device.

The problem is that cars were never designed to be connected. A connected car has multiple infection points. Many smartphones contain malware – so what happens if you sync it with your car, or you plug in a USB device, which you thought only had music files? Or somebody takes over the Wi-Fi used by your tyre pressure sensors, or you get an over-the-air software fix that has somehow been compromised?

So what is BT doing about all this? Well, we are following the hackers' trail. We are using the tools and skills, from the traditional IT world, and engaging them in the brave new world of IoT to defeat the hackers. We are working on an ethical hacking module for car manufacturers, so they can better understand their vulnerabilities. Building on this is a managed service to protect cars as they do not have the resources to protect themselves. If you have a tablet, you will replace it every few years with a more advanced and more secure version, but a car has a lifetime of over 10 years, with fixed computing resources. Finally, we are also working on a secure gateway in the car network that will manage security updates and watch out for those files that shouldn't be there.

## Author



### Ashish Gupta

President – BT Global Services, UK Corporate

Ashish Gupta is responsible for implementing network and IT strategy globally. As head of BT Advise, he also leads the development of BT's global professional services capabilities that complement core propositions. With extensive experience across BT, Ashish has held several positions including being the managing director of BT Global Platforms and deputy CIO of BT Wholesale. Before joining BT in 2004, Ashish spent nine years with Tech Mahindra in various roles, including IT Delivery Director, responsible for Tech Mahindra's CRM practice. He holds a Master of Business Administration Degree from the London Business School.

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# WHAT ENTERPRISES WANT



## BIG EXPECTATIONS FROM TECHNOLOGY SERVICE PROVIDERS

There have been several Information Technology revolutions, heralded by breakthroughs ranging from the first computing machine to the mainframe to the personal computer, and then the Internet and the mobile. Each of these revolutions, aimed to create a new paradigm of efficiency, automation, productivity, or agility, has left an indelible imprint on the way we do business and lead our lives. But for the first time in its history, technology – the digital revolution to be precise – is poised to fulfill a great destiny. One that will enable ordinary people to transcend their limitations, and examine their creative selves to do extraordinary things. Technologies and concepts such as Artificial Intelligence, Deep Analytics, and Design Thinking, will converge to amplify our potential and our ability to deliver purposeful, unprecedented solutions.

As enterprises take stock of the magnitude of what this revolution might mean for all of us, they are turning to the experts in technology for answers to questions, such as: What is the way forward? How can we strategically leverage the transformation from a world

of atoms to bits? How should an enterprise deal with such massive change? How does an enterprise transform into an organization fit for the digital age? The ask enterprises have is, for providers of technology to partner with them strategically, to help manage change and create value in new ways in this new world.

To assess the mood among enterprises and understand their expectations from the technology industry, Infosys undertook a global survey. The study covered over 3,000 respondents from 500+ companies across industries and geographies. Its findings offer valuable inputs about global business' key expectations from IT service providers, potential opportunities for partnership, and the direction that these enterprises would like the technology industry to take. But the overarching message is that enterprises, across the world, want to see the technology industry evolve from mere executors of projects and solutions to thought leaders, change drivers, value creators, and strategic partners. Here are the top takeaways from this global survey:

A close-up photograph of a man and a woman in business attire. The man, on the left, has a beard and is wearing glasses and a dark suit with a blue shirt and tie. He is smiling and looking down at a document. The woman, on the right, has blonde hair and is also looking down at the document. The background is bright and out of focus, suggesting an office environment.

## Beyond Execution

The role of technology companies as useful enablers of business cannot be overstated, nor undermined. However, most enterprises believe that the average provider of technology services is a diligent doer; proficient at basic delivery – application development and maintenance, legacy modernization, process improvement, and the like – but is yet to fulfill the potential for sparking fundamental shifts and assuming a thought leadership-led role offering strategic advice, insights into leading-edge innovation, and cross-industry best practices.

This is also part of a larger brief for providers of technology services. Enterprises reinforced through this survey that they are often disappointed when they expect their bid-winning technology partners to come to the implementation table with proactive and strategic advice around new concepts and solutions. Here is an example

of a strategic partnership that Infosys has with one of the world's top pharmaceutical companies seeking to fight counterfeit pharmaceuticals and improve visibility into and management of the distribution of their products. The global serialization track and trace system they co-created with Infosys and SAP integrates into their existing technology landscape and enables third party distribution partners anywhere in the world to check the validity of medicines using an app downloaded onto an Android or iOS smartphone. This single global system will now help this pharma giant meet product security requirements and comply with current and foreseeable legislative requirements for serialization and product traceability in over 10 countries. Co-creation and co-innovation is being rapidly embraced by enterprises and often offers a great opportunity for technology companies to elevate their partnership status within the enterprises they serve.

## Managing Transformation in Business Terms

The technology services industry and the technology it deals with are constantly in a state of flux. But here's the irony. Despite being surrounded and driven by change, the industry is yet to master the science of leading change within the organizations it serves. Enterprises keenly seek advice on how to elementally transform their businesses – leveraging digital tools – to deal with and benefit from the change around them. This demands the technology industry to fundamentally rethink the effort and success metrics for technology projects. Often, technology service providers visualize project deliverables and success in terms of pure IT metrics – number of tickets closed, processes rationalized, bugs fixed, cost incurred per FTE, and so on, whereas their client enterprises are eyeing the bigger prize of shareholder returns, customer acquisition, service and engagement, revenue growth, regulatory compliance, risk management, and competitive differentiation. The differing perspectives lead enterprises to hire agencies, such as advisory firms, to reshape, redirect, and sharpen business focus in what are essentially technology implementation programs.

Let me share an experience of a transformational project with one of the biggest and best-known retail chains in the United States. The retailer, along with Infosys, embarked on a program to transform their supply chain and fulfillment capabilities to beat new competition, especially from digital ecommerce giants. Infosys played a strategic role by defining and designing the solution, besides implementing it. In less than a year of going live at nearly 130 stores, the solution has made its mark by lowering fulfillment cost and offering more channel choices, to the great delight of customers.

Enterprises keenly seek advice on how to elementally transform their businesses – leveraging digital tools – to deal with and benefit from the change around them.

## From the Periphery to the Core

And that is really the nub of the matter. Today, if enterprises are hiring external management consultants to participate in their technology transformation initiatives, it is because their technology partners are not rising to the challenge. As part of the global survey, enterprises echo in one voice their experience of technology service providers' inability to assume end-to-end ownership of large, complex, strategically important programs. And their inability to drive consensus among key stakeholders. Enterprises believe that most providers are unwilling to exit their comfort zone of modernization and process improvement projects to explore edgier, more business-value-driven strategic territory. This means that they end up playing at the fringes of any engagement – even the most transformational ones.

## Raising the Bar on Communication

Often, technology providers servicing enterprises do not take an integrated communications approach to their projects, even concurrent ones. This means that there is no – or at best, there is inadequate – sharing of knowledge, experiences, and practices among different implementation teams serving the same client organization. As a result, enterprises don't receive the full benefit of accumulated wisdom, and also end up spending more time and effort than they would like to, in communicating with technology project silos. Often all it takes is a bit of imagination and innovation, tempered with adequate viability checks, to fix the problem. At one of our strategic engagements, the program team set about implementing an innovative, agile, open-source architecture for content delivery for a leading digital entertainment service provider. They ensured that all participants from the business and technology side



worked cohesively as one team, which helped to build an environment of mutual trust and alignment, and was a major factor in the project's success.

While indeed there is a certain gap between what enterprises expect and what providers of technology are largely delivering, this view is not so much an adverse pronouncement as it is an expression of the hopes that enterprises have from the exciting new developments in technology and their expectations from a partner that can help them succeed in this shifting landscape.

Technology providers must shift gears from not only implementing technology systems, but also leading technology thought. That calls for pioneering the use of concepts such as Design Thinking while visualizing systems and applications, cross-pollinating learning from across verticals, and continuously improving known best practices.

There's also a need for greater strategic business orientation in any technology endeavor. That not only means gauging technology transformation in terms of business metrics, but also securing commitment to such initiatives by building consensus within the client organization. It's

taking the broader and deeper view of how technology can help businesses evolve in sync with new realities and stay relevant.

It is up to the providers of technology and technology services to lead the change that is imperative for enterprises to succeed in the digital revolution. That means making changes to existing systems – renewing them to perform faster, better, cheaper, because even today cost optimization and system modernization rank as top organizational priorities – as well as creating new innovations that are absolutely unprecedented in scale, impact, vision, and ambition. This can happen by harnessing every opportunity to accelerate the adoption of Cloud, leveraging Artificial Intelligence, Automation, and Analytics within their own and client enterprises. The fine balance between renewing the old and uncovering value from the new can enable the technology services industry to create the value that enterprises seek so ardently.

***That would then be a fulfillment of the industry's responsibility towards catalyzing the benefits we all are destined to gain from the digital revolution unfolding around us.***

## Author



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Sumit heads marketing at Infosys and is responsible for realizing the Infosys brand ambitions globally. He joined Infosys in 2004 and has since held multiple strategic positions including the Head of Infosys Products & Platforms marketing as well as the Global Head of Corporate marketing. He champions marketing effectiveness and enjoys the challenge of building strong connects between marketing metrics and business outcomes. Sumit comes with over 19 years of experience in international marketing. Prior to joining Infosys, he has worked with Polaris Software and the Tata Group where he acquired his specialist skills in brand development, marketing communications, and demand generation.

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