Understanding and Overcoming Barriers to Technology Adoption Among India’s Micro, Small and Medium Enterprises: Building a Roadmap to Bridge the Digital Divide

An Intuit study in collaboration with the Government of India’s Ministry of Micro, Small and Medium Enterprises, the National Institute of Entrepreneurship and Small Business Development and the National Small Industries Corporation

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Executive Summary

Technology adoption is a catalyst not only for growth among India’s micro, small and medium enterprises (MSMEs), but for the growth of the Indian economy as a whole. Many stakeholders, including the Government of India, technology companies and MSME leaders, recognise that roadblocks relating to infrastructure, technology and skilled labour must be eliminated to sustain the growth of MSMEs and ensure their continued contribution to India’s industrial production, economic growth and employment.

In India, medium-sized and large businesses are adopting technology in major ways, even ahead of their counterparts in Western markets, particularly with respect to mobile technology. India’s widespread adoption of mobile solutions create a major opportunity for other countries to learn from the India experience and find new ways to “leapfrog” traditional communication means and use the mobile channel to reach huge populations on key issues of social and economic importance.

Despite India’s global technology “case study” and best practices, today small business in India is simply not realising the full potential technology can bring as a game-changer to the old ways of doing things in their businesses. Although technology adoption considerably increased during the implementation of the Government of India’s 11th Five Year Plan – with its focus on creating a technology infrastructure and rolling out technology-driven services – the use of technology in MSMEs remains limited. As a result, there is a clear and deeply-felt need to accelerate the pace of technology adoption in the small business community and disseminate technology across the bottom of the pyramid – and among India’s MSMEs specifically – dramatically during the implementation phase of the 12th Five Year Plan.

In collaboration with the Government of India’s Ministry of Micro, Small and Medium Enterprises (MSMEs), the National Institute of Entrepreneurship and Small Business Development (NIESBUD), and the National Small Industries Corporation (NSIC), Intuit, a technology company serving small businesses around the world, wanted to gain a comprehensive understanding of the barriers to technology adoption among micro and small business in India. The overall objective was to apply deep learnings around barriers to adoption to develop a set of recommended multi-stakeholder solutions to address these obstacles.

Together those involved in the research collaboration decided upon a two-phased approach to truly understand the breadth and depth of the challenges micro and small businesses faced with technology use in their business. The findings resulted from an extensive, primary research methodology that included interviews with 748
micro and small businesses across 12 cities in India. The first phase of the research was a qualitative analysis in four cities of 20 micro and small businesses with 50 employees or less to assess how technology is used and outline some possible barriers to technology adoption. These in-depth conversations leveraged Intuit’s Follow Me Home customer research methodology that combines a mix of both observation and conversation to understand the true nature of small business challenges. This was followed by a quantitative survey in eight cities among 728 micro and small businesses with less than 100 employees to test these barriers and explore existing and future solutions. All participating businesses had a turnover of no more than Rs. 2-5 crores. Medium-sized businesses were not part of the survey pool as the focus of this study was focused specifically on micro and small businesses.

The findings revealed that the majority of micro and small businesses had a low awareness of and engagement with technology. Three business types emerged during the qualitative sessions: “tech non-adopters”, “tech aspirers”, and “moderate tech adopters”.

Tech non-adopters – or “technology laggards” – do not employ technology to any great extent and rely mostly on manual methods. They tend to be older manufacturing, established businesses who practice “old school” business development and management. Tech aspirers represent a mix of service and manufacturing units but tend to be on the smaller size. The business attitude among this group is “ambitious but cautious”, as this group is usually comprised of new entrepreneurs with younger, more inexperienced management. While tech aspirers have a much higher awareness of the benefits of technology than non-adopters, they also exhibit low engagement and only adopt technology solutions when they are tried and tested by others. The final group – moderate tech adopters – is the most technology-savvy of the sampling and uses technology to keep ahead of trends and interact with clients in various aspects of their business, although not always consistently and without struggle. These businesses are mostly found in the services sector. Moderate tech adopters have an evolved understanding and use of technology but this clearly remains at the nascent stage.

Although all three types acknowledge the benefits of using technology, most businesses appear to be applying technology to a limited extent in business operations. Free and guided associations of technology remain in the “functional realm” where technology is viewed as a means to save time and effort. Software usage is basic and dependent on popular products and established brands. Internet and mobile telephone solutions, while used for personal purposes, are surprisingly not employed equally across the business as they are in business owners’ personal lives. Moreover, there is little customisation of solutions to meet specific business needs.
### Top Barriers to Technology Adoption Among India’s Micro and Small Business

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<tr>
<td>1</td>
<td>Cost</td>
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<td>2</td>
<td>Lack of Skilled Manpower</td>
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<tr>
<td>3</td>
<td>Low Awareness of the Benefits of Technology</td>
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<tr>
<td>4</td>
<td>Security and Privacy</td>
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<tr>
<td>5</td>
<td>Poor Infrastructure</td>
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Applying the findings from the qualitative stage of the research, the research’s quantitative assessment into the reluctance to invest in and adopt technology uncovered five top barriers: (i) cost, (ii) lack of skilled manpower, (iii) low awareness of the benefits of technology, (iv) security and privacy, and (v) poor infrastructure.

The two-phased research among 748 micro and small businesses across 12 cities in India led to the following key conclusions:

**Cost is the top barrier:**

Micro and small businesses are not yet convinced about the return on investment in technology adoption. Forty-five percent of respondents highlighted cost as the biggest obstacle. Demonstrating the value add for the business is critical and should be done using cost–benefit analyses and simple comparisons of growth between traditional operations versus IT-based approaches.

**Government and other institutional schemes are benefitting small businesses, but there is a broad lack of awareness of existing resources:**

Businesses who utilised the numerous government and other stakeholder schemes benefited extremely well from them. At the same time, there appears to be a very low awareness of these programmes among small businesses. Recognition of specific programmes was as low as 1–4 % among the sample interviewed and only as high as 32 %. All stakeholders, including the Government of India, training institutions and the private sector, must work together to assess why existing communications about available resources are not reaching the end-user and develop new ways to promote the existing programmes among small business owners.

**Case studies and testimonials are incredibly important in communicating the benefit of technology adoption:**

Other small businesses have tremendous influence in helping reluctant business owners “get over the hump” and invest in technology. Specifically, 68 % say they adopted technology solutions only after seeing other businesses using it to their benefit. Furthermore, 36 % of all survey respondents said that hearing from other small businesses about their experiences with technology would be helpful. Government, small business organisations and even private sector communities need to roll out engaging case studies and tap into relevant “influencers” when communicating the value of technology adoption. One way to do this is to generate real small business “success stories” to communicate in local communities.
Share best practices and engage the community:
Small business kiosks, incubators, hubs, clusters, business associations, and support centres, such as the country-wide network of Development Institutes, established by the Ministry of Micro, Small and Medium Enterprises, could be more active in bringing small business together to leverage skills, ensure resources are user-friendly and help answer IT questions throughout the growth cycle of micro and small businesses.

Timing is important:
Moderate tech adopters tended to embrace technology either in beginning stages of forming a company (60%) or when starting to expand (20%). Supporting organisations must “meet the business at its comfort level” – that is, when and where they are mentally and financially open to adopting and investing in technology. Intuit has some additional ideas on specific solutions for both government and private sector that could leverage the open “entry points” for small businesses.

Technology adoption must be easier, more affordable, and implemented from a local perspective:
Just less than 40% of moderate tech adopters went forward with IT plans because a credit or upgrade made the implementation affordable. Affordable solutions such as easy installments, credit options, and pay-as-you-go options can provide sustainable solutions toward addressing cost concerns. Additionally, software should be easy to use and offered in local languages to breakdown the perceived complexity of IT.

Provide long-term support:
It is essential to offer sustained IT support that meets the needs of the end-user, from a variety of sources including in-person support. Coupling these with user-friendly solutions and baseline IT training will go a long way in helping small business overcome the hurdles to technology adoption.

The cloud’s potential is tremendous but customers are not yet convinced of its benefits – and that may be because it is not well-defined among India’s micro and small businesses or those who are providing the solutions:
While many businesses are aware of the benefits of cloud computing – almost 80% of IT users would consider embracing “software as a service” (SaaS) – they are hesitant to do so until issues relating to security and reliability are addressed and communicated. Concerns today may outweigh benefits if those benefits are not well-defined by providers and policymakers, or experienced first-hand by the end user.
The case for technology is clear – the reasons to adopt technology are consistent with MSMEs’ top challenges:

All businesses aim to be more efficient, more responsive, have better control over finances, better access to accurate data, and better ways to acquire customers. Technology can facilitate these outcomes, thus underscoring the importance of communicating – and demonstrating – how technology provides MSMEs with better control over their financial future.

Ultimately, together a set of collaborative stakeholders must better demonstrate the benefits of technology to India’s micro and small businesses so they can succeed in today’s ever-changing business environment. Furthermore, together we must increase micro and small businesses’ access to technology by making it affordable, easy-to-use and ensuring there is the core infrastructure (both physical and skills-based) to facilitate its use. Through innovative programmes, better communication around those technology solutions that work today and a willingness to solve the most challenging problems facing micro and small businesses every day, together we can transform India’s MSME sector.

We hope this study will help develop and implement more effective policy measures, impactful training, and other innovative resources to enable technology adoption among India’s critical MSME sector. Intuit looks forward to continued collaboration with the Government of India’s Micro, Small and Medium Enterprises, training institutions, the private sector and technology industry, and most importantly, India’s MSMEs, to further develop the recommendations set out in this paper and explore opportunities to bridge to the digital divide among India’s micro and small businesses.
Executive Summary
Chapter One: Bridging the Digital Divide in India: Seeking Collaborative Solutions

India’s rapid ascent to one of the world’s most technologically-advanced countries has been particularly fuelled by two factors: (i) the country’s massive economic growth over the past decade and (ii) a spirit of entrepreneurship supported by world-class innovators, engineers, business leaders, and public policy officials working toward increased economic liberalisation. India’s leading technology companies have in many ways changed the global marketplace overnight, improving the way global multinationals do business and challenging the traditional labour market and business processing systems. As a result, both private and public sectors have been forced to rethink how innovation can facilitate massive economic growth and create long-term benefits for multiple levels of society.

India’s technology sector, which today is characterised by large Indian companies that are very much multinational players, has revolutionised the way business is conducted all over the world. Yet the adoption of technology – and importantly, the benefits adoption creates – has not filtered throughout India’s multiple economic and social divides. One of those important sectors is the 26-million-strong micro, small and medium-sized enterprises (MSMEs) – this group comprises one of the most critical sectors in India’s growth story and will play a pivotal role in the country’s economic future. While a portion of the MSME sector contributes to India’s technology industry, MSME manufacturing and service sectors on the whole have not adopted technology to improve their day-to-day business practices – including interactions with customers and employees, marketing and sales functions, or financial management – so that they can further grow their business and compete in an increasingly global marketplace.

Given the massive impact India’s MSMEs have on the country’s overall economy and political, cultural, and social development, this sector cannot be left behind. Currently the sector is growing at a rate of 12–13% annually and significantly contributes to India’s overall production, producing 40% of the country’s exports. It also serves as the backbone of the overall economy, comprising key sectors including defense, manufacturing, technology, transportation and health care. Therefore, the impact of growth in the MSME sector has a massive “multiplier effect” on India’s overall economy. To meet India’s growth targets and its aggressive economic goals, significant support, training and resources must reach the critical MSME community. Technology is the means to this end.
It has not been for a lack of resources or support. Despite a government that has committed its support, and a community of training institutions, education organisations, and a private sector serving the market, India’s MSMEs have not – for the most part – adopted technology in their business operations. Changing this equation will require the Indian government, the private sector, training organisations and other key stakeholders to increase efforts to understand the barriers to technology adoption.

Intuit, a global provider of financial and business management solutions for small businesses, is committed to helping small businesses in India and around the world access the tools they need to start, grow and thrive. As part of the company’s commitment to customer-driven innovation and its deep empathy for the challenges facing small businesses, Intuit wanted to explore the specific barriers to technology adoption facing this critical sector in the Indian economy. As part of its deep engagement with Indian MSMEs, Intuit partnered with other small business experts: government, training organisations, small business organisations and those they serve.

Together, the Government of India and Intuit engaged in a dialogue about barriers to technology adoption and how different stakeholders who are invested in the growth of India’s small businesses could collaborate to create new solutions to old problems that stimulate a meaningful impact.

A mutual goal emerged from Intuit’s ongoing discussions with senior leadership of India’s Ministry of Micro, Small and Medium Enterprises: ensuring India’s MSMEs have access to the technology they need to grow and thrive. Recognition of this clear, shared goal led to further discussions about the complexities of the challenge. This reinforced the need for a deep understanding of the barriers as a foundation of future solutions.

Further, the National Institute of Entrepreneurship and Small Business Development (NIESBUD) and the National Small Industries Corporation (NSIC), two autonomous development and training organisations under the Ministry of Micro, Small and Medium Enterprises, are focused on empowering India’s entrepreneurs to develop skills and training, gain market access and other competitive tools they need to grow. Both NIESBUD and NSIC were similarly interested in better understanding the barriers to technology adoption among India’s MSMEs so that they could continue to innovate their services and delivery of support to small businesses.
Together, the Ministry, NIESBUD, NSIC and Intuit committed to explore the barriers of technology adoption in-depth, across multiple subsections, diverse geographies and across the spectrum of technology adoption. Specifically, we sought:

- To come to a comprehensive understanding of the barriers to technology adoption among micro and small businesses in India.
- To understand these barriers as they relate to the small business ecosystem and the broader, systemic challenges that may prevent growth in the sector.
- To understand why the micro and small business community in India is not widely adopting technology, and identify which policy and business-driven solutions could work to accelerate adoption and, in turn, stimulate economic growth.
- To use this knowledge to develop a set of recommendations that will empower policy, business and the development community to collaborate on new, impactful solutions to empower the MSME economy.

**Approach and methodology: how did we do the research?**

Not surprisingly, many of the barriers to technology adoption were readily apparent; it was important for the collaborators in this research to avoid simply restating the obvious. Thus, we attempted to capture the existing deep insights throughout the Ministry, NIESBUD and NSIC at every stage. We combined their expertise with Intuit’s deep understanding of small businesses globally and the company’s innovation practices and commitment to customer-driven innovation to develop hypotheses based on the existing base of knowledge. We then tested these hypotheses throughout a targeted, yet representative research sample from across the country, and used the results to develop a set of potential solutions that government, the private sector, training and development organisations and small business organisations could advance together.

After developing a set of detailed hypotheses, including structural and psychological barriers, we agreed to focus on the “micro” and “small” businesses in this sector. To understand the various levels of barriers, and still develop a representative baseline from which conclusions could be drawn, we agreed on a two-phased strategy based on both qualitative and quantitative methodologies.

The MSME sector is typically defined using various characteristics, ranging from size of investment, to number of employees, to geographic reach. For this research exercise, we applied the two most common factors to screen our respondents: size of investment and number of employees. We surveyed a mix of manufacturing and services businesses, all with a turnover of no more than Rs. 2-5 crores. In our qualitative research, we surveyed businesses with no more than 50 employees, including regular employees, contractors and consultants. In our quantitative research, we focused the majority of the interviews on businesses with 50 or fewer employees (80% of respondents). In addition, we included a smaller, yet still statistically significant sample size (20% of respondents) of businesses with employees, including contractors, fewer
than 100 employees (including regular contractors/consultants) to account for the fact that manufacturing-based businesses often have more employees.

Given the opportunities present in both manufacturing and services, we agreed to look at both sections to ensure we explored the entire spectrum of technology adoption. This includes both users and non-users and those in the middle: technology-aspirers, technology-agnostic and all points in between. In addition, we identified a specific set of cities to ensure we had a geographical representation with a mix of both first- and second-tier cities across India.

The qualitative first phase of the research took a “free form response” – or conversational – approach, which involved observing and probing a number of micro and small businesses in their natural day-to-day environments to learn more about their choices with respect to technology. This stage of the research was conducted in Mohali, Bangalore, Ahmedabad, Pune – places where enterprises are more likely to be more receptive to technology adoption and participate in an energetic entrepreneurial movement. Spending significant time with 20 businesses across these four cities, we took an in-depth look at technology usage across different businesses to understand the different barriers they face both today and in the past. The 20 businesses we spoke to included the following sectors: manufacturing (furniture, spare parts, etc.), pharmacists, technology/software, chemicals, medical equipment, advertising and design, real estate, among others.

We employed Intuit’s “Follow Me Home” customer research methodology. In this process, researchers observe business owners in their day-to-day activities, probing to better understand business pain points, business goals, everyday challenges in management, customer interactions and working with employees, as well as future growth plans.

The quantitative second phase, focused expanding further beyond the first phase qualitative results to test our findings. This allowed us to test the learnings from Phase I in a broader, quantitative way, and also importantly test the impact of existing solutions that are aimed at helping small businesses adopt and use technology to understand their efficacy. We utilised a single questionnaire that was shared with 728 small businesses in a quantitative-based survey in the cities listed in yellow on the map.

The 728 respondents in the quantitative stage represented businesses from the following sectors: technology, exporters, food and hospitality services, jewelry, leather manufacturing, accounting, health care providers, textiles, transportation, and personal services such as beauty and pet care services, among others.
How is this report organised?
This report begins by exploring the MSME landscape, with a specific focus on the technology adoption profiles across the sector. It is narrowly focused on the important topic of technology adoption and is not intended to present a comprehensive look at the wide array of barriers that face the MSME sector. We have included information on the profiles of the sector, and the opportunities and challenges it faces, to provide a foundation to examine the use of technology today, its potential impact, and the specific solutions to achieve progress on technology adoption.

Once we establish the “case for technology”, we reveal the findings of our original research and explore existing research on the topic. Next we look at the current efforts being provided in the market today by government, development and training organisations, financial institutions, technology companies and other key stakeholders.

Applying our findings to understand the impact of specific existing solutions, we discuss what has worked and why, and go on to recommend specific solutions, both new ones and improvements to existing practices that can accelerate technology adoption among India’s MSMEs, empower the growth of India’s entrepreneurs and its citizens at home and in the global economy, and contribute to India’s overall economic growth.

Generating a conversation
This research is not meant to be conclusive or decisive. It is meant to start a conversation where all those who are committed to the growth of India’s MSMEs have a voice and are welcome to be a part of the solution.
Chapter Two: Understanding the Micro, Small and Medium Enterprise Landscape

The MSME sector in India is impressive in its sheer size and diversity of industries and services. The Indian Ministry of MSMEs describes it as “a nursery of entrepreneurship” and the “gateway to global growth”. The sector makes up almost 9% of India’s GDP, 95% of its industrial units, 45% of its manufactured production and 40% of its exports. MSMEs, which are growing at a rapid rate of 9.5 million per year (13% on average compared to the national industrial rate of 8.5%), are responsible for 69 million jobs across more than 26 million businesses. This is second only to the agriculture sector. In addition, almost 50% of MSMEs are owned by disadvantaged groups, including multiple minority groups and women, underlining the inclusiveness of the sector.¹

MSMEs are diverse in terms of size, products and services offered, turnover and technology adoption. The spectrum is broad. On one end are high-growth enterprises in developed sectors, such as textiles and garments, auto components, health care, education and telecom equipment. At the other end are sub-contractors and the more slow-growing informal, small retail and unorganised sector, such as village and cottage industrial units. Remarkably, more than 24.5 million (94%) of MSMEs are unregistered.² Thus many of the facts we know about the sector come from a small number of the players, and the true effect of efforts to increase the competitiveness of the sector are much more far reaching than what is “on the record”.

What defines a MSME?

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<th>Profile</th>
<th>Manufacturing sector (invests in plant &amp; machinery)</th>
<th>Service sector (invests in equipment)</th>
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<tr>
<td>Micro</td>
<td>≤25 lakh</td>
<td>≤10 lakh</td>
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<tr>
<td>Small</td>
<td>&gt;Rs 25 lakh ≤5 crore</td>
<td>&gt;Rs 2 lakh ≤2 crore</td>
</tr>
<tr>
<td>Medium</td>
<td>&gt;Rs 5 crore ≤10 crore</td>
<td>&gt;Rs 2 crore ≤5 crore</td>
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Because many MSMEs act as suppliers to larger enterprises, they contribute to the greater Indian growth story. This situation will only become more entrenched as India increasingly opens its borders and big business, especially foreign enterprises, look for ways to partner with small local businesses in the supply chain. As the Indian economy opens to global competition, MSMEs must find ways to innovate to succeed in this business environment. To remain profitable, it is therefore imperative that MSMEs use economic, government and private sector support to take advantage of trainings and resources to modernise their technology. Nurturing competitiveness among MSMEs by helping them to adopt new technologies will improve productivity, particularly across manufacturing, up and down the value chain (thus resulting in multiplier benefits) and create a more forward-thinking sector capable of sustaining government’s growth projections. If the MSME sector grows as predicted, the manufacturing MSME sector’s share of GDP should increase to 25% over the next 10 years, adding 100 million jobs to the Indian economy.

**MSME output forecast scenario.**
Understandably, this sector is a priority in the Government of India’s growth agenda and is considered a critical component in the country’s development strategy. Since 1938, MSMEs have featured in the National Planning Committee documents and have remained a priority with numerous policy initiatives purporting to engender their growth.

A decade-and-a-half through India’s celebrated liberalisation, privatisation and globalisation periods, the Government recognised the segments in this space through the MSME Development Act (October 2006) with its targeted focus on “competitiveness” of this sector. The perspective changed over the 11th Plan (2007-2012) with the Government acknowledging its failure to recognise the distinctions within this sector. This oversight had led to discrepancies and even neglect of what was the most critical segment of the Indian manufacturing/services space. In short, the Act provided a legal framework recognising the concept of “enterprise” (comprising both manufacturing and service entities), defining medium enterprises, and integrating the three tiers of these enterprises (micro, small and medium). The 11th Plan went further to categorising the micro and small enterprises as a special category to be supported by infrastructure, credit and policy support. A 2009 Prime Minister-led task force on MSMEs recommended addressing the challenges facing the sector, the bulk of which now comprise the Report of the Working Group on MSME Growth for the 12th Five Year Plan (2012–2017).

Recently published, the Working Group report requests a five-fold increase in budgetary support for MSMEs over the next five years. The MSME ministry has asked for Rs. 64,790 crore, up from Rs. 11,500 crore allocated in the 11th Plan which concludes in March.\(^5\) In developing the plan, 11 subgroups were established to conduct studies on key focal areas to identify the bottlenecks facing MSME growth. The report argues that government facilitation is needed on several fronts to:

- reduce transaction costs of technology upgrades,
- reduce the risk for venture capital and banks who may invest in small start-ups and others in the MSME sector,
- improve market penetration, and
- modernise infrastructure.

The Working Group sets out detailed recommendations on the following thematic verticals: finance (including credit), infrastructure, technology, marketing and procurement, skill development and training, and institutional structure. It emphasizes the need for skilled manpower and the urgency of linking skill development and training with industry’s requirements. The report also focuses on the importance of information communication technology (ICT) penetration “to enhance the overall competitiveness of the sector as well as the quality of governance” and recognises the pivotal role of innovation in growth creation.\(^5\) Specifically, the document focuses on using the technology platform to drive good governance, manufacturing competitiveness, public health, universal education, right to food, and right to information amongst others.
Yet, as the country raises the bar of industrial sophistication, it is clear that large parts of this sector have not quite made the grade in terms of participating in the India development story. Bluntly put: a majority of micro and small businesses do not reflect The 21st-Century India, in a digital age with its high-tech needs.

There are reasons for this. Most MSMEs have a low capital base and management functions often rest with only one or two people. In most cases, they remain rooted to more traditional approaches to business with little to no exposure to the state-of-the-art in Indian or international business. MSMEs are generally marked by low to zero R&D, and there are inconsistent levels of professionalism across the sector. This reduces their ability to adapt to changing trends and take risks. In addition to the overall lack of modern management practices, these firms have poor access to a trained workforce, technological information or support. Therefore, they concentrate on reducing costs within existing business systems and structures without benefiting from cutting-edge tools to help even the smallest of businesses. The fact that they are spread throughout the country with little or no access to centres of excellence or technology hubs makes technology adoption more difficult.

Technology profile of small business
Our collaborative original research exploring the evolution of technology and mapping future opportunities in India sheds further light on the micro and small enterprise segment and its awareness and adoption of technology. A qualitative examination of 20 businesses in the manufacturing and service industries across four first- and second-tier cities reveals three broad profiles, ranging from very low to medium technology awareness.

Majority of the Businesses Found to be Faring Low-Medium on Technology Awareness and Engagement
• Tech non-adopters: tech trailers or dormant tech followers.
• Tech aspirers: later adopters or active tech followers.
• Moderate tech adopters: tech adopters but at a nascent stage.

The research showed that the more advanced regions of industrial production had greater numbers of tech aspirers in a range of industries. These ranged from manufacturing to pharmaceuticals, automotive ancillaries to services in the travel, advertising/design and real estate space. However, we found varying degrees of technology adoption even within the same region. Mindsets vary with geographies in India and location is important. In addition to being a factor in the urban-rural digital divide, location can effect specific rural and urban areas, depending on the regional spirit of enterprise, along with other demographics, such as the age of the entrepreneurs and their education. In India some regions are culturally rich but lacking resources to support entrepreneurship; with others, it is the reverse.

The research provided for some interesting surprises on location-based findings. For example, although states like Gujarat and Punjab are leaders in entrepreneurship and have favorable environments for business (such as relatively low bureaucracy and transparent processes), the technology adoption of the two states is not encouraging, based on the findings. In this research, Bangalore shows greater tech adoption among small businesses, which could be due in part to IT hubs present throughout its metropolitan region.

Mobile broadband and the rapidly decreasing costs of Internet-enabled devices are expanding the reach of services in India. Mobile phone networks, globally the largest delivery channel for services, are being upgraded to offer 3G and 4G broadband connections. In addition, more affordable Internet-enabled mobile devices are providing greater access to more people. However, the high number of mobile phone users in India (73% of the population according to one source) has not translated into wider use of mobile technology in small business applications beyond basic phone calling and simple texting. This is in sharp contrast to the availability of easy-to-use mobile apps for utilising the basic SMS platform, and more complex applications in the case of more advanced devices like smartphones and tablets. The Indian MSME community has yet to tap into the market potential for such tools. A mix of greater communication, training and availability of more widely used applications combined with India’s massive mobile phone penetration presents an intriguing opportunity for growth.

**Tech non-adopters or Tech trailers**

At the bottom of the adoption spectrum, so-called “tech trailers” exhibit low awareness of and engagement with technology. They are mainly older manufacturing and medium-scale businesses with fewer than 100 employees and established client bases. Not surprisingly, they are satisfied with the status quo and adhere to “old
school” business development practices. For example, they remain relatively inactive in seeking out new clients and are happy with their current volume of customers. They also rely heavily on personal references and face-to-face interactions in growing the business.

This group uses mobile phones, but rarely email, and has a small number of computers. They employ accountants to manage the books, which are literally “books” where cash flow and other financial data are handwritten, and keep manual files of all company records. They pay salaries in cash and, for the most part, record employee attendance manually. In general, they do not use technology to recruit or train employees, although identification and retention of staff is a key issue for all MSMEs. Quite simply, they use technology to perform very basic communications.

When we looked at a broader sample of small businesses in the quantitative survey, we found that overall, 41% of all respondents identified cost as the top barrier for technology adoption. Among the tech non-adopters group, the two key drivers limiting technology adoption were low customer use of IT (40%) and satisfaction with manual methods (29%). There is a definite sense of inertia among this group, which we describe later in this report.

**Tech aspirers**

“Tech aspirers” represent a mix of manufacturing and service units but comprise more micro and small than medium-sized businesses. Their attitude tends to be ambitious but cautious as this profile comprises new businesses, first-generation entrepreneurs and young management. Like tech non-adopters, tech aspirers also intrinsically believe in building personal contacts with clients. However, they actively reach out to new customers and tend to rely on mobile and email exchange to build the client base and grow the business. They seek customer feedback to improve performance and meet client expectations, although this is not necessarily done using technology. Human resources is a non-differentiating factor for this profile as, like tech non-adopters, there is little or no technological management of employee relations. In addition to facilitating smooth business operations, they view technology as a means to advance business opportunities. In other words, while there is a much higher awareness of the benefits of technology, this group still exhibits low-tech engagement and only adopts technology where it is tried, tested and adopted (i.e., they are tech followers).

“I have two desktops, three laptops, a printer and a wireless router that no one knows how to connect. I have people who can supply me the equipment but they are small operations so they can’t help service it. (We’re) too small to get someone full time and can’t get help from larger companies. The big guys won’t work for me” — Quote from a “Tech Aspirer”
Moderate Tech Adopters

While more technology savvy than the other profiles, the “tech adopters” interviewed in the qualitative survey were still in the early stages of technology adoption. Research found moderate tech adopters mostly in the service sector and comprised a mix of small - and medium-sized businesses with fewer than 100 employees. Ambitious like tech aspirers, this segment tends to be more willing to experiment and understands the role of technology in managing a company efficiently and effectively. They use technology as a means to keep abreast of trends and to interact with clients, especially given the intangible nature of most service providers. Once shown the value of technology from a cost-benefit analysis, they are eager to use IT to differentiate against competitors. They also use technology more than trailers and aspirers to managing the business and employees.

The quantitative original research found that tech adopters tend to embrace technology either in the beginning stages of establishing a company (60% of respondents) or as they were starting to expand (20%). This suggests new ways in which stakeholders can reach this community, which will be discussed later in the paper.

How technology is perceived and used

Across all three profiles, we found that free and guided associations of technology remain primarily in the “functional realm”. In other words, technology is viewed as a means to save time and effort, as well as stay updated, but only tech adopters credit technology with providing a competitive edge and a path toward business innovation. They associate more strongly with hardware/technology products such as gadgets, devices and durables, than they do with technology as a service, which they view as the Internet, email and other services such as filing taxes. Unsurprisingly, tech non-adopters and aspirers were less developed in their use of IT infrastructure, such as using computers only on the supervisory level and relied more heavily on mobile phones.

Tech adopters also use mobile phones, but at a much more evolved stage – staying connected to work, accessing information and improving client responsiveness. Likewise they use software in the same basic ways as non-adopters and aspirers, limiting it to accounting and designing, and depending on popular products with little or no customisation. For example, small businesses widely use basic software for accounting and designing documents like invoices and orders. But using software for business intelligence or other specific solutions remains at a nascent stage. Similarly a majority of small businesses report low Internet usage, limiting it to email, search functions and entertainment. Only a small number of tech aspirers use the Internet to promote their activities, via portals such as Sulekha.com, a digital commerce platform of marketplaces anchored around multiple consumer needs, or directories like Just Dial, a local search engine provides key information on B2B and B2C products and services, and conduct ecommerce or social networking activities. Tech adopters report some increasing trends in this area, but using the Internet as a platform for promoting business is presently low.
Diverse profiles, common challenges

Given the fragmented nature of the sector, challenges differ from one enterprise to the next, driven by differences in size, location, nature of product/service. Despite their diversity, all three types of micro and small businesses share many of the same emerging challenges that limit their ability to compete with larger and more-established players in the market. These issues often overwhelm, leaving enterprises with little or no time for perspective development or medium- to long-term business planning, much less considering technology adoption throughout their enterprises. These well-known challenges centre around:

- Credit hurdles (lack of availability, high cost, collateral requirements, slow response times, poor access to equity capital).
- Longer government decision-making process.
- Lack of access to government contracts/procurement.
- Lack of access to global markets.
- High cost of raw materials.
- Poor infrastructure (basic and advanced).
- Slow adoption of technology and ability to keep up with the dynamic nature of technology (low awareness of solutions, maintaining technology infrastructure, optimise current technology infrastructure).
- Access to and retention of skilled labour.
- Regulatory compliance.
- Financial imbalance, including rising costs and long payment cycles.
- Weak data management (storing & accessing information, monitoring trends).
- Marketing support, including reaching customers, brand-building capacity and expanding the client base.
- Lack of awareness of the availability of programmes to support and assist MSMEs in technology adoption.

Technology can play a role in helping to address some, but not all, of these challenges. One of the most important initial hurdles is demonstrating to MSMEs that technology and its adoption can help grow their business. Streamlining processes and reducing costs through the implementation of technology can also enable small businesses to level the playing field against larger players but more importantly, as the Confederation of Indian Industry (CII) points out, “Effective technology will sort out most process roadblocks and allow companies to concentrate on their core business of innovation”. In other words, when a business innovates it has more ammunition in the fight against competition, creating new value for the customers, expanding opportunities for India’s labour force, and growing the bottom line."
Chapter Three: Technology Adoption: The Immediate Imperative

Technology adoption is a key differentiator in the MSME space. Policymakers acknowledge it as an important plank in India’s bid to emerge at the top of the competitive global economy. As the Small and Medium Business Development Chamber of India points out, MSMEs have spawned several innovations in manufacturing and service sectors. In fact, 17% of MSMEs have developed “new-to-the-world innovations”. They are “genetically capable” of meeting the challenge of being exposed to greater expansion and diversification opportunities across the sectors. Understanding and creating the “case for technology” among India’s entrepreneurs is critical to enabling growth.

Economic impact – the multiplier effect

The importance of enhancing growth of the MSME sector cannot be overstated. The sector is the major base of manufacturing in India, responsible for more than 45% of industrial output. MSMEs are the backbone of India’s economy, and their future is the future of India. To increase overall economic growth, the Government believes that the growth rate of the MSME sector must increase substantially from the existing level of 12–13% annually; technology adoption is a key factor in this vision.

The government’s comprehensive moves toward e-governance will transform the technology landscape over the 12th Five Year Plan. At the same time, MSMEs have the opportunity to adopt exciting technology options to create dramatic change in their own business ecosystems and influence the bigger picture with their “multiplier effect”. Almost 900 million Indians use mobile phones, creating an opportunity to bridge the gap between high mobile technology penetration in the consumer market and poor adoption for business purposes. With wireless subscriptions expected to reach 97% of the country by 2014, the future for integrating mobile into different aspects of business management presents a hopeful opportunity.
Businesses pay a price for low levels of technology engagement – more labour-intensive work, resulting in greater inefficiencies and higher costs. A market analysis by management consulting and market research firm Zinnov, commissioned by Intuit, shows that disorganised businesses work hard to make ends meet, but manage mostly with pen and paper, outsourcing the more complex tasks. Technology can change this giving management more effective and efficient control over key aspects of the business. According to a World Bank study, firms that effectively use ICT improve sales growth and profitability by 3.4 and 5.1 percent, respectively.11

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Non IT Users</th>
<th>IT Users</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Growth</td>
<td>0.4%</td>
<td>3.8%</td>
<td>+750%</td>
</tr>
<tr>
<td>Employment Growth</td>
<td>4.5%</td>
<td>5.6%</td>
<td>+24%</td>
</tr>
<tr>
<td>Profitability</td>
<td>4.2%</td>
<td>9.3%</td>
<td>+113%</td>
</tr>
<tr>
<td>Labour productivity (value added per worker)</td>
<td>$5,288</td>
<td>$8,712</td>
<td>+65%</td>
</tr>
</tbody>
</table>


This collaborative research clearly supports the case for technology. Efficiently adopted, technology can help small businesses become more efficient and grow leveraging emerging trends, among other benefits like saving time.

An IDC study (Waiting to Connect, 2008) on IT adoption in the manufacturing sector, provided strong empirical evidence that IT usage by Indian businesses would lead to greater profitability and employment and established that manufacturing businesses relying on IT revealed better performance indicators in terms of profitability and labour productivity than those that did not use technology. IT also contributed to about 32% change in value add and is the second largest contributor to increasing operating profits after plant and machinery and before transportation equipment.
The quantitative survey found the following benefits among those who have adopted technology.

**Survey respondents: key benefits of technology**

- Easier Remote Access: 31%
- Efficient Human Resource Management: 31%
- More Informed Decision-making: 32%
- Easier Customer Acquisition: 35%
- Improved Customer Service: 35%
- Better Tracking of Business Performance: 36%
- Improved Quality of Deliverables: 38%
- Improved Internal Communications: 38%
- More Financial Savings: 39%
- Increased Competitiveness: 40%
- Increased Professionalism: 40%
- Increased Accuracy: 43%
- Better Control of Finances: 45%
- Speed: Faster Than Manual: 51%
- Increased Efficiency: 51%

Only 3% of respondents felt there were no perceived benefits. IT users also recognised the benefits shown in figure above, but to a lesser degree, likely because of their general low awareness of how IT can improve business. Here are some ways technology has helped tech adopters improve operations.

IT usage by MSMEs raises productivity of the sector in particular and the economy in general. An all-India survey across 8 cities was conducted among 1,000 B2B sell-side suppliers to see how MSMEs are adopting online B2B marketplaces. The study showed:

- All B2B suppliers today use Internet for communication purposes.
- 73% of the B2B suppliers surveyed use the Internet to run their own website.
- 55% of B2B suppliers use the Internet to promote their products/services online.
- The penetration rates for online B2B marketplaces is 45–50% among MSMEs in India; this will further increase to around 80% in the next 4–5 years.

Source: ICT adoption among MSMEs in India: A survey with special focus on Online B2B marketplaces by Internet and Mobile Association of India (IAMAI) and eStasIndia.com.
Marketing

Marketing and customer acquisition is expensive and time consuming as it is usually based on referrals and not a structured activity defined by a specific process. Technology, beyond the use of emails alone, has helped move some businesses past the word-of-mouth and traditional print advertising approaches by introducing social networking platforms, e-commerce tools, customer relationship management techniques and other Internet-based activities that help spread the word about the business, thus enhancing reach and online visibility. Overall, 64% of IT adopters employ technology in marketing and sales operations, but only 34% of those surveyed used technology in their management of customer relations. And just 26% use IT to acquire new customers.

Tasks for which technology is used

<table>
<thead>
<tr>
<th>IT User (597)</th>
<th>IT Non-User (131)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Efficiency</td>
<td>51%</td>
</tr>
<tr>
<td>Faster than manual methods</td>
<td>50%</td>
</tr>
<tr>
<td>Better control of finances</td>
<td>64%</td>
</tr>
<tr>
<td>Increased Accuracy</td>
<td>62%</td>
</tr>
<tr>
<td>Helps us to look more professional</td>
<td>40%</td>
</tr>
<tr>
<td>Helps us to be more competitive</td>
<td>69%</td>
</tr>
<tr>
<td>Better internal communication</td>
<td>38%</td>
</tr>
<tr>
<td>Helps us to save money</td>
<td>38%</td>
</tr>
<tr>
<td>Better quality of deliverables</td>
<td>37%</td>
</tr>
<tr>
<td>Easier to acquire customers</td>
<td>36%</td>
</tr>
<tr>
<td>Better tracking of business performance</td>
<td>36%</td>
</tr>
<tr>
<td>Helps us provide better customer service</td>
<td>33%</td>
</tr>
<tr>
<td>Easier to manage employee hiring and payroll</td>
<td>31%</td>
</tr>
<tr>
<td>Helps us make better informed business decisions</td>
<td>31%</td>
</tr>
<tr>
<td>Ability to work from outside office/ access</td>
<td>31%</td>
</tr>
<tr>
<td>No advantage</td>
<td>3%</td>
</tr>
</tbody>
</table>

Financial management

Business transactions in cash are highly inconvenient although our research shows that the majority of all MSMEs follow this practice, even most tech adopters. Many MSMEs use basic accounting software, requiring them to solve issues manually or outsource book keeping to external accountants. This has three drawbacks:

- Difficulty tracking sales and ensuring orders are delivered on time,
- Potential errors and delays in payment, and
- Poor control over expenses and increased likelihood of cashflow problems.

Overall, manual solutions, or software that is not user-friendly or customisable, leaves small business unable to plan and make better decisions based on anticipated needs. Of the IT adopters surveyed, those who had transitioned to electronic solutions and customised accounting and management software (less than 50%) did so to help manage clients, invoicing, payments and tracking funds coming in and out of the business.
“For me technology is involved in everything I do…right from calling clients, to machines for production, surfing Internet…it saves a lot of time.” – Quote from a Tech Adopter

Managing employees
For the most part, human resource management is also conducted manually. The qualitative research found that businesses frequently pay employees in cash (a majority of the staff have no bank accounts), record attendance manually and recruit employees via referrals. In our quantitative findings, only 24% of IT adopters surveyed said they used technology to process payroll, and only 14% use it for employee recruitment and supervision.

Adopting the cloud
More so than their larger competitors who have already leveraged the benefits of the cloud, MSMEs will be greatly impacted by adoption of cloud technology. Although “the cloud” is little understood today by many of those surveyed in the quantitative survey, almost 80% of IT users would consider embracing “software as a service” (SaaS) if concerns related to cost, reliability, security and privacy and Internet access could be addressed.

Perceived benefits of “the cloud”
Current tech adopters are willing to embrace SaaS. The cost-related benefits fit well with general concerns they’ve had in the past around adopting technology. To get more of these businesses over the hurdle, issues around reliability and security need to be addressed.

Only 16% of respondents preferred to have software installed on their desktop. Global consulting firm Access Markets International additionally points out that, for “infrastructure as a service” (IaaS) to succeed, “experience, infrastructure and user-friendly approach of the service provider are critical.”12
The cloud has tremendous potential to enable MSMEs to overcome hurdles relating to the high cost of using IT. Because cloud services provide access on a usage-based pricing model, they can reduce costs of desktop software and specialised manpower. The cloud also minimises the need for investing in new or updated software. Other benefits such as scalability, flexibility and ability to access information from virtually anywhere with a connection, are a highly attractive proposition for MSMEs. These facts do not go unnoticed by IT adopters. Our survey found the following prioritisation of cloud benefits among respondents:

- Lower cost than computer software (68%)
- Ability to pay monthly (52%)
- Remote access (35%)
- Multiple employee access (25%)
- Avoids technical obsolescence/ automatically updates (18%)
- No onsite implementation needed (7%)

The manufacturing businesses approached in the qualitative interviews rely heavily on CDs and external drives to store data. But moving to a cloud-based model can reduce hardware costs by 33–70% and maintenance costs by 50%. Support costs can drop by 33% and floor space requirements by 33–50%.

These significant cost savings, if effectively communicated and implemented, will fuel the explosive growth of the cloud over the next few years. In addition, MSMEs will instinctively move in that direction once infrastructure and connectivity improve and they see their peers benefiting from cloud technology. The following research findings reveal cloud technology adoption trends in the Indian market:

- SME spending in India on SaaS was anticipated to increase by a sizable 43% in 2011.

- India is the fastest-growing market for SaaS in the Asia Pacific region. The Indian SaaS market is estimated to reach $352 million by 2012 up from $105 million in 2009.

- The Indian cloud computing market is going to experience a tenfold growth by 2015, according to Zinnov.

- Today’s cloud computing market in India is valued at approximately $110 million, of which $66 million comes from SaaS, a market that’s dominated by applications such as collaborative applications, CRM and ERP.

Also worth noting is that, in conjunction with CII, the Ministry of MSME is currently conducting Project Baadal, a survey on cloud computing, to better understand MSMEs’ perspectives on cloud technology. The goal is to design better policies and programmes to increase cloud adoption.
Chapter Four: Unmet Potential: Barriers to Technology Adoption

The benefits of technology are undisputed and yet MSMEs in vast numbers are not adopting it to the extent needed. This section focuses on understanding the barriers that prevent micro and small businesses from adopting technology and offers possible solutions to overcome these obstacles. Five clear addressable barriers to technology adoption emerged from our quantitative original research:

**Top barriers to technology adoption**

- **High cost**
- The primary collaborative research found that the number one barrier to the adoption of technology is cost. The quantitative survey did not reference price points so when respondents were probed about the so-called cost of technology, the information provided was not explicit. There is, therefore, an inherent assumption that technology is both dynamic and expensive, which means high frequency of obsolescence and repeated costs of acquisition. Cost concerns are exacerbated by low awareness of devices and solutions, such as software, systems and processes. As a result, micro and small businesses have little faith in their return on investment. Small business owners believe they need help to maintain current technology infrastructure – this includes assistance with everything from renewing licenses of software and services to installing new hardware and syncing with current infrastructure. Such perceptions lead to greater reservations around technology adoption.
“Buying technology items or process is an expensive affair… I had rather invest that money in my business as it would give me better returns” — small business respondent

Across the board, nearly half of all respondents highlighted the prohibitively expensive cost of IT. Among IT users, 35% cited the high cost of hardware as the most important hurdle they had to overcome before taking on new technology. Similarly 41% of non-IT adopters say this is a barrier. Expensive software and IT services were viewed as equally problematic (33% among IT users and 22% among non-adopters). The bottom line is that a majority of tech adopters are open to embracing cloud technology (79% would consider it), but 45% said cost is preventing them from doing so.

The cost of technology adoption is compounded by micro and small businesses’ inability to access credit. Although bank credit to the sector has significantly increased, MSME share of the credit has actually declined. We discuss institutional efforts to address this later in the paper.

MSMEs’ share of credit.

Lacked of skilled manpower
Lack of skilled manpower remains a huge hurdle for MSMEs both as an everyday business challenge and a roadblock to technology adoption. The National Skill Development Council of India predicts there could be an incremental shortfall of 240–250 million people by 2022 in 20 high-growth sectors in India. Today, more than 30 million people are needed every year in 90 skill categories.17

MSMEs across segments struggle with finding, retaining and managing skilled and unskilled labour. When business owners hire talented employees, managers tend to fear they cannot compete with other companies that may try to poach their employees with higher salaries and other benefits. A few try to retain employees and encourage engagement through salary or added benefits such as training programmes, but eventually employees move on, more so in the MSME sector than other sectors. For specialised functions such as modern accounting or marketing, most enterprises
depend on expensive consultants. IT trade association NASSCOM’s 2020 report on manpower requirements for industry at large explains this challenge while underscoring the opportunity for job creation:

- Total manpower requirement: 12.3 million by 2020 (from the current level of 2.5 million of the employment).
- Projected shortage: 2.3 million by 2020 (0.8 million for domestic outsourcing and 1.5 for global sourcing market).

Additional requirements: 1.2 million for innovation-driven scenarios (a shortage of high calibre talent pool of 3 million by 2020).

“I will have to employ a dedicated staff for using such software…I will have to pay him a hefty salary, plus I will become dependant on him and he might quit my business for better pay or job” — Quote from a small business respondent

Business owners’ fear of poor access to skilled employees may be amplified by the assumption that technology solutions must be highly complex, requiring specific skills resulting from years of specialised training. This translates into an ecosystem that believes it requires an understanding of sophisticated technology and systems but has no manpower to do so. In fact, skilled labour to handle such technologies is expected to be developed over the duration of 12th Five Year Plan. But our collaborative research shows enterprises fear becoming over-dependent on skills that are not within their current reach, leading to a possible dilution in control over business.

“These days technology keeps changing every day…what if I buy it today and one year from now it becomes obsolete…I would neither like to bear loss nor buy a new solution post one year or so…” — Quote from a small business respondent

When implementing technology in the business, 26% of IT adopters and 21% of IT non-user cited the lack of technology-skilled manpower as an important hurdle that must be overcome. A lack of education and training on how to set up and use new technologies and a lack of on-going technical support were also mentioned by 21% and 20% of IT adopters, respectively. Therefore, small business owners are reluctant to take on new technologies when they are unsure whether employees can support the new system, particularly if they themselves are technology novices. Considering that most MSME employees learn on the job, there seems to be little scope for technology training or improving technical knowledge in the current environment.

As a result, technology solutions must be intuitive and user-friendly so that the managers can easily integrate them into operations and feel confident about the employees’ ability to take advantage of the solution. This is a recommendation we look at in more detail later in this paper.
Lack of awareness
A remarkably low level of awareness of the benefits of technology and supporting software, systems and processes is one of the fundamental but easier-to-address barriers that emerged in the quantitative survey. When asked what comes to mind when thinking of IT, survey respondents mostly recalled devices. Therefore, technology is viewed more as a product rather than a way of facilitating and improving operations. It simply is not seen as being “core to business” and is viewed more as a time-consuming distraction from the day-to-day running of the business. Small business owners are particularly worried about the dynamic nature of technology. They fear hardware and software may become obsolete too soon and therefore not worth the investment. In addition, they do not know what products are available or where to find them. Because of the aforementioned scarcity of skilled manpower, MSMEs must rely on outside service providers who often do not offer enough customer service support in setting up and maintaining systems. Some 24% of IT adopters cited lack of support from services providers as an obstacle to technology adoption. Cloud technology is one means to overcome this hurdle. But less than 50% of non-IT adopters in our collaborative survey would consider moving in this direction, despite the fact that they appear to be aware of the benefits. In the survey, 48% appreciated the lower costs involved and 45% the ability to pay on a monthly basis.

“I am busy throughout the day at work…I have to look into various things…is production taking place as per schedule, is raw material available, etc…I hardly get time to do other things…” — Quote from a small business respondent

From a psychological perspective, many managers are “scared” of technology. They find it too complex and prefer the status quo; 25% of tech adopters and 20% of IT non-users were concerned the technology would be too difficult to learn and use. In many cases, the decision-making power to make important business choices, including adoption of technology solutions, lies in the hand of older, change-averse management or family members. This point emerged in the quantitative research where 20% of IT non-users mentioned the failure of others in the business to not see the value of technology was a major deterrent to technology adoption. Typically, we see that younger generation leaders – the so-called “tech aspirers” in the qualitative findings – are more willing to apply the technology they use in their personal lives to their business operations.

A fundamental barrier for IT non-users is that their customers and others in their sphere of influence do not use technology. A total of 40% of respondents to the quantitative survey cited customer non-use of IT as a key reason for staying with the low- or no-tech status quo; 23% said they were unaware of other businesses in the area that had benefited from the use of IT. To facilitate technology adoption, awareness programmes need to focus on detailed cost-benefit analysis (pre- and post-adoption) with specific reference to the industry/business concerned. We address awareness-raising solutions later in this paper.
Privacy and data security
In addition to low awareness around technology, there are large concerns over security and data management. Among IT users, 28% of respondents cited privacy and security as key barriers to tech adoption. IT non-users considered this less of an issue, but nevertheless 18% of those surveyed still raised it. IT users worry about storing sensitive data, such as invoices, bills and client documents, on certain technology platforms without knowing how the information will be used. Yet they want to be able to access information about client-specific data such as sales, expenses, order frequency and order types. Service units are particularly concerned about data back-up and therefore predominately store everything on CDs or external hard drives, exposing them to the risk of damage and subsequent loss of data. This also means the data is not being analysed to make good business decisions based on trends and customer needs. While email is also considered a good option to store data, retrieval is perceived as a problem.

Worries about who will have access to corporate information and what they will do with it – including the government – also appeared on the radar for 21% of IT adopters. Looking more closely at cloud technology, security and privacy ranked as the third and fourth concerns among the six barriers mentioned. Addressing connectivity concerns in addition to privacy and security issues will be imperative to communicating the value of the cloud to small businesses in the future.

Infrastructure
The lack of technology adoption among India’s MSMEs in the past decade, despite strong support from the Indian government and India’s leading IT and telecommunications providers, is not surprising considering certain infrastructural shortcomings present in the country. While small businesses continue to face physical infrastructure challenges, a lack of broadband connectivity and continual power outages in many first- and second-tier cities, in addition to rural areas, reinforce the mindset that traditional, manual working methods are more reliable. For example, when asked about their willingness to adopt cloud technology, IT users cited “broadband and connectivity reliability” as the number two concern behind cost (42% of respondents). Internet access speeds were also high on the list and a worry for 16% of IT users. This must be addressed if SaaS and cloud solutions are to widely overcome some of the infrastructural barriers to IT adoption. Needless to say, over the next five years or so, access to broadband is expected to increase exponentially in India, demonstrating that the importance the Indian government places on this issue.
“We have slow servers – we spent two months trying to run this software successfully. There is no reliable solution, no time to explore (alternatives)...”

— Quote from a small business respondent

Many of those surveyed in this research use mobile technology and view the mobile phone as a critical device for everyday life. However, the survey found that very few employ it for email, e-commerce or other purposes due to the slow surfing speed, the small screen and frequently dropped connections. While many respondents were comfortable using mobile phones for personal use, such as text messaging, they are not utilising smartphones or even basic mobile phones for business purposes. Within two to three years, close to 100% of the Indian population will own a mobile phone, and mobile phones will overtake computers as the most common means to access the Internet globally.18 The current underutilisation of technology is an untenable situation that must be addressed if small business is to harness the market potential. Mobile platform solutions being driven by large technology companies, start-ups and innovative developers in India are certainly encouraging. However, we have yet to fully realise the immense opportunity of this technology to help small businesses grow.
Chapter Five: Current State-of-Play: Stakeholder Initiatives

Multiple initiatives driven by multiple stakeholders currently focus on overcoming the aforementioned critical barriers to adoption of technology among MSMEs. In general, a collaborative ecosystem approach, where all stakeholders have a participatory role, works well in addressing such complex problems. One of the main objectives of this paper is to highlight the need for thoughtful, collaborative solutions, with the goal of convening relevant players to find effective solutions for the end user – India’s MSMEs.

To promote growth and development of the sector, the Ministry of MSME is committed to several initiatives:

- Engendering an entrepreneurial culture among India’s youth
- Facilitating credit flow to MSMEs
- Promoting the cluster-based approach
- Providing marketing support
- Creating new micro enterprises through the Employment Generation Programme

The stated strategic focus of the Ministry centres around five factors: skill development, markets, technology, infrastructure and credit availability. Following are some key examples of initiatives in these areas, however this section by no means represents an exhaustive overview of existing efforts.

Skills and training development

The Government of India has placed a large emphasis on addressing skills shortage and has established a comprehensive institutional structure for skill development via the National Council on Skill Development. Several programmes have been initiated, including entrepreneurship development training, skill development training, entrepreneurship-cum-skill development training and training-the-trainers. The goal is to establish a Centre for Excellence – a virtual university – at the national level to standardise the training curriculum and train 500 million people by 2022. Recommendations for the 12th Five Year Plan have called for a portal to host the data on training curricula, trainer/faculty and the process of training. Although, nearly 1,400 industrial training initiatives in public/private partnerships have been upgraded the Working Group recommendations on the 12th Five Year Plan call for a continued focus on scaling up training capacity through public-private partnerships.
Key stakeholders driving the adoption of technology among MSMEs:

- Government
- Large enterprises (as procurer of goods and services)
- NIESBUD
- NSIC
- MSME management
- Banks and financial institutions
- Private/public sector solution providers (PPP model)
- Clusters, small industry associations, stock exchanges
- Training companies (PPP model)
- Media
- Multilateral institutions

To encourage the development of an entrepreneurial culture among young entrepreneurs, the Ministry established three national Entrepreneurship Development Institutes: the National Institute for Entrepreneurship and Small Business Development (NIESBUD), the National Institute for Micro, Small and Medium Enterprises (NIMSM) and the Indian Institute of Entrepreneurship (IIE) at Guwahati. All three autonomous organisations are developing training modules, conducting research and training, and providing consultancy services for entrepreneurship development and the overall promotion of MSMEs.

In addition to reaching out to young entrepreneurs, the Government acknowledges the need to upgrade skills of MSME chief executives and owners. There is clearly a need to target this group among tech non-adopting/tech aspiring MSMEs where the qualitative research found low support for technology investment due to a poor understanding at the management level of the benefits to the business.

Over the course of the 12th Five Year Plan, the Government has recommended a total budget of Rs. 3600 crore for various skill development and training schemes.

Market access

As the Indian economy opens, MSMEs face immense competitive pressure from big players and foreign business. As a result, the sector must be better equipped to address this competition and meet the market’s needs. Adopting technology can help small businesses achieve this goal and also enables wider benefits beyond the MSME sector to include increasing India’s overall economic output and employment rate. Technology adoption helps ensure balanced and inclusive growth, increasing the amount of skilled labour and raising the level of innovation in the country.
In providing marketing support and improved market access, the Ministry has promoted a business-to-business portal in the National Small Industries Corporation (NSIC) and increased equity support of NSIC’s efforts to create market for products. The NSIC’s goal is to facilitate the commercial growth of MSMEs by providing support services for raw material procurement, product marketing, credit rating, technology adoption and promoting modern management practices.

Several marketing support schemes and programmes have been developed over the year and will receive increased funding during the 12th Five Year Plan. For example, the MSE Marketing Development Assistance (MDA) Scheme supports participation in overseas fairs, exhibitions and study tours. Under the National Manufacturing Competitiveness Programme (NMCP) – which focuses on growing the MSME share of the manufacturing sector (see box). It offers two programmes specifically targeted at facilitated marketing of MSME products, namely assistance for adoption of bar code technology and packaging and skill upgrades. In addition, two new schemes recommended in the 12th Five Year Plan provide support for (i) using ICT to create cluster-, state and national level B2B portals with connectivity to international markets and (ii) marketing infrastructure such as testing facilities, information dissemination centres and display-cum exhibition centres.

Moreover, the Ministry’s cluster development scheme will be extended to cover both soft and hard interventions (see more on clustering below). For example, marketing organisations will be established in clusters in a public-private partnership to support e-marketing, branding, advertising, bar coding, and participation in trade fairs.

Although the Indian exports are on the rise and contribute to the country’s growing economic output, MSMEs export an extremely low share of manufactured goods. The Working Group therefore recommends that a dedicated scheme comprising Rs. 1000 crore be set aside under the 12th Five Year Plan’s marketing vertical to enable MSMEs to achieve a greater global footprint. To gain a larger share of the domestic market, a public procurement policy for MSMEs has been established and will be enhanced under the 12th Five Year Plan to support product marketing and develop long-term relationships with the public sector.

Over the 12th Five Year Plan, Rs. 2110 crore has been recommended for various marketing interventions.
Ten innovative schemes under the National Manufacturing Competitiveness Programme (NMCP)

1. Marketing Support/Assistance to MSMEs (Bar Code)
2. Support for Entrepreneurial and Managerial Development of SMEs through Incubators
3. Enabling Manufacturing Sector to be competitive through Quality Management Standard & Quality Technology Tools (QMS/QTT)
4. Building Awareness on Intellectual Property Rights (IPR) for MSME
5. Lean Manufacturing Competitiveness Scheme for MSMEs
6. Mini Tool Rooms (MTR)
7. Design Clinic Scheme for design expertise to MSMEs Manufacturing sector (DESIGN)
8. Marketing Assistance & Technology Upgradation Scheme in MSMEs
9. Technology and Quality Upgradation Support to MSMEs
10. Promotion of ICT in MSME Manufacturing Sector (ICT)

Source: Ministry of MSME Strategic paper

Technology
Due to its importance as a platform for enhancing the global competitiveness of the MSME sector, technology has been designated a key vertical under the Indian government’s Five Year Plans. As stated, there is widespread recognition that poor technology adoption in this sector is a serious challenge. The most urgent focus has been to develop appropriate technologies for manufacturing processes to reduce costs, enhance labour productivity, reduce material consumption and minimise energy consumption. These technologies can be developed through partnerships with R&D institutions, academia and big business, among others. Therefore, recommendations for the 12th Five Year Plan focus on a multi-tier support system with the collaboration of government, industry clusters, industry associations and private R&D institutions. Collaboration between public-private R&D institutions and cluster/industry associations can deliver appropriate technologies with defined objectives, deliverables, cost and time lines.

Government assistance will vary depending upon the level of the technology and the transaction cost involved. The Working Group on the 12th Five Year Plan proposed to launch the Technology Acquisition and Support scheme to assist MSMEs to develop or acquire technology. The Government has also recommended merging the Credit-Linked Capital Subsidy Scheme (CLCSS) for technology upgradation and relevant technology aspects of the NMCP with the new Technology Acquisition and Development scheme offered within the cluster framework. Further, to support the growth of
high-tech start-ups, the Government is considering reducing risk to venture capitalists and banks interested in helping these start-ups invest in technology and the capital to grow.

A budget of Rs. 9500 crore has been recommended by the Working Group on Micro, Small and Medium Enterprises’ Growth for various schemes under the 12th Five Year Plan’s technology platform.

**Infrastructure**

The Government of India and the private sector have a crucial role to play in addressing infrastructure. The Government recognises that inadequate infrastructure drives up small businesses’ operating costs against goods produced under more favourable conditions. Infrastructural constraints, notably the power outages, affect MSMEs much more than the larger enterprises. Although some states in India offer power subsidies in favour of MSMEs, the real deficiency is the quality and quantity of power supply. The 11th Five Year Plan made a detailed assessment of MSME infrastructure needs especially around electricity, along with common large-scale generation facilities with dedicated feeder lines – roads, transport and water. At the moment, two major central government programmes address infrastructure challenges affecting the MSME sector – the Industrial Infrastructure Upgradation Scheme (IIUS) of the Department of Industrial Policy and Promotion and the Integrated Infrastructure Development (IID) scheme, which currently falls under the Micro & Small Enterprises Cluster Development Programme (MSE-CDP) (see clustering section for more detail).

Under the 12th Five Year Plan, the Government proposes to allocate Rs. 11360 crore to the enhancement of its various infrastructure schemes, including tool rooms, technology development centres and testing centres.

As of June 2011, there were 12.32 million active broadband connections in India. The Government clearly realises telecom and broadband connectivity is a fundamental engine of economic growth and therefore has established an ambitious and far-reaching National Telecom Policy (NTP). To this end NTP-2011 envisages to upgrade broadband download speed (from 256 Kbps to 512 Kbps). In 2015, the goal is 2 Mbps increasing exponentially to more than 100 Mbps in the future. In addition, the aim is to have 175 million broadband connections by 2017 and 600 million by 2020, including in village panchayats and progressively to all villages and habitations. The Government has also budgeted INR 30,000 crore to lay a fibre optic cable network across India. Implementation of these goals remains to be seen, and there are questions regarding how the telecommunications infrastructure goals can be met with domestic-content requirements that restrict collaboration with the global economy. Yet, it is critical that the Government focus on the dissemination of technology and broadband to critical at-need communities, including India’s MSMEs.
Micro-lending, credit schemes

The Government realises that the policy response to the evolving needs of the MSME sector must change dramatically to provide financing for technology adoption through financial intermediation. Indian MSMEs are at a disadvantage when it comes to interest costs, borrowing at 13–15% compared to the interest rates offered in other developing economies (average 6–8%).23 In addition to the CLCSS technology upgradation fund mentioned above, the Credit Guarantee Fund Scheme for Micro and Small Enterprises (CGTMSE) is a collateral-free credit to the micro and small business sector. The Ministry of MSME and Small Industries Development Bank of India (SIDBI) have established the Credit Guarantee Fund Trust for MSEs to implement the scheme. Term loans and a working capital facility of up to Rs. 100 lakh per borrowing unit are covered under the scheme. These can be extended without any collateral security or third-party guarantee to a new or existing micro and small enterprise.24 Under the 12th Five Year Plan, the Working Group proposes to strengthen the CGTMSE budget with a Rs. 10,750 crore provision, allowing it to make Rs. 180,000 crore of credit guarantee available to small business.25

The Small Industries Development Bank of India was directed to draw up an action plan to ensure effective implementation of the Credit Guarantee Fund Scheme (July 2011). Its outstanding credit to the MSME sector increased by 22% to Rs 46 331 crores in the financial year 2010 - 2011. The bank aims to grow this segment by another 35% in the current fiscal year. The RBI had announced certain enabling measures to augment credit flows to MSEs sector such as allocation of 60% of MSEs advances to the micro enterprises to be achieved in different stages (50% in 2010-11, 55% in 2011-12 and 60% in 2012 - 2013). Indeed, the 11th Plan was looking at a projected need for Rs. 2,96,400 crores as the working capital and term loans for MSEs.26

Government has instructed banks to pay greater attention to small business and ensure lending grows at a decent pace – target of 10% priority sector lending– increasing credit to micro and small business by 55% of total SME financing in 2012 and 60% the following year.27 A recommendation for the 12th Five Year Plan notes that scheduled commercial banks may be directed to maintain minimum 22% in their outstanding credit growth to the MSME sector between 2012 and 2014, increasing to 25% thereafter.

To address the equity gap, the Working Group on the 12th Five Year Plan recommended introducing a new scheme to supplement “Promoter’s Contribution,” allocating equity support of Rs. 5000 crore. In addition, it proposed to allocate Rs. 2500 crore to promote venture capital and Rs.100 crore to raise awareness of the SME Exchange. The Exchange is modelled on the Bombay and National Stock Exchanges, and helps MSMEs raise funds for further expansion. Eight SMEs were scheduled to list in January alone, each raising Rs. 5–50 crores from the primary market. A healthy growth of this bourse will go a long way in supporting the capital base of India’s small businesses.
Overall, the Working Group recommended a total budget support of Rs. 19450 crore for various credit schemes during 12th Five Year Plan.

**Networking, clustering and collaboration**

India has successfully promoted clustering and networking to boost competitiveness of the MSME sector. This systematic approach examines links and interdependencies among organisations, targeting the weakest and most critical parts of the chain for intervention. This is important where financial resources are limited and players can come together to collaborate, collectivise concerns, bargain for better benefits and training, and leverage each others’ strengths to find affordable solutions (for example, in terms of advertising and customer acquisition). Clustering has played an important role in enhancing infrastructure, technology transfer and sharing of skills among MSMEs in India. According to the Ministry of MSME, leveraging the benefit of public-private partnership approach in a cluster is an effective instrument for policy intervention.

In 1998, the Government launched a scheme called Integrated Technology Upgradation and Management Programme (UPTECH) that was renamed the Small Industry Clusters Development Programme (SICDP) in 2003. SICDP took a broad approach and adopted soft interventions, such as technology, marketing, skill development, and hard interventions, such as the establishment of Common Facility Centres that provide multiple services (e.g., testing, training, raw material depot, effluent treatment, complementing production processes, etc). In 2006, SICDP was renamed the Micro and Small Enterprises Cluster Development Programme (MSE-CDP). MSE-CDP addresses issues such as improvement of technology, skills and quality, market access and access to capital. It also encourages common supportive action through self help groups, consortia and upgradation of associations. MSE-CDP creates or upgrades infrastructural facilities in new or existing industrial areas and clusters of MSEs.

Recommendations from the 12th Five Year Plan call for the MSE-CDP to be “pursued more vigorously” to cover as many as possible clusters across India. The Ministry has undertaken cluster development initiatives in more than 470 clusters across 28 states and one Union Territory (Delhi) in the country under the MSE-CDP scheme.

**Partnering with Large Private Sector Organisations**

MSMEs have emerged as the ideal candidate for technology upgradation through co-operation with larger firms, R&D and academic institutions, and centres of technology development. Public-private partnerships have been established in areas of technology R&D such as nanotechnology, micro-electronics, high-performance computing and open-source software to name just a few. Many private sector measures have driven technology adoption and a great deal of change has resulted from MSME collaboration with “big business”. Companies such as Dell, IBM, Intuit and TCS are developing solutions specifically designed for the MSME space. Technology incubators, science and technology parks and innovation centres continue to grow and play a critical role.
in enhancing how institutions and large enterprises collaborate with entrepreneurs, developers and micro and small businesses to bridge the digital divide.

Some countries have taken the collaborative concept one step further and created what the World Bank refers to as open innovation forums or “Living Labs”. In these environments, start-ups and small firms work in cooperation with other “innovation actors” to evaluate concepts and develop prototypes in real-life settings with real users. Living Labs are successfully used in Europe, China, Latin America and Africa. In India, we see examples of small technology start-ups and entrepreneurs developing SMS and mobile applications on platforms created by large technology companies—a sign that this collaborative environment is slowly taking shape in the country.

**Reality on the ground: little awareness of existing resources**

Despite these laudable efforts, there is extremely low awareness—even among tech adopters—of many of these initiatives.

**Awareness of programmes and schemes**

This is alarming, given the resources the Government and training organisations have dedicated to the growth of the MSME sector. On the positive side, our research findings show that these resources are quite effective when small businesses recognize and take advantage of them. In examining the level of awareness of current solutions and resources for helping small businesses access and adopt technology, our study found that awareness of specific programmes and schemes was as low as 1–4% among the sample interviewed and no higher than 32%. Echoing this finding, S. M. Jamkhandi, the director of MSME Development Institute, notes although the government offers “a slew of schemes and sops for SMEs”, a majority do not take advantage of them because they simply do not know they exist: “If Indian SMEs had realised that the government is at their disposal to support them even in tough times, they would have seized the opportunity.”
Of the government organizations and specific government efforts highlighted in the quantitative study, respondents recognised very few by name. Only 32% of both IT users and non-users had heard of NSIC. Of those who knew NSIC, 25% had taken a training course most of which (86%) was focused on technology. Just 22% recognised the Small Industries Development Organisation (SIDO) – an apex body for formulating policy for the development of Small Scale Industries under the auspices of the Ministry of MSME. This despite the fact that it has just under 70 field offices and various training and production centres and specialised institutes spread across the country. Approximately 20% of those who knew SIDO had taken a course offered by the organisation or received some form of support, but the samples sizes were too small to show satisfaction rates. District Industries Centres (DICs), which the Ministry of MSME is strengthening to improve service delivery at the field level, scored a low 13% recognition rate among respondents and only 19% of those who have heard of DICs had taken a course. This barely surpassed NIESBUD, of which an average of only 10% of respondents were aware. Of this 10%, 34% had taken a NIESBUD training course. On par with NIESBUD, the Indian Institute of Entrepreneurship in Guwahati, which promotes training, research and consultancy activities in small and micro enterprises focusing on entrepreneurship development, was known by only 10% of respondents. Ironically more non-IT than IT users recognised it (56% versus 30%).

The situation was similar for schemes targeted at MSMEs. Just over one quarter of all respondents had heard of the Ministry’s Credit-linked Capital Subsidy Scheme for Technology Upgradation, although 63% of these had applied and were virtually all awarded a subsidy. A surprisingly low number (20%) of both IT users and non-users were aware of micro-lending by NGOs. Of these, just 27% had applied for a loan, with 73% being granted the money. Similarly, only 15% knew of micro-finance institutions (MFI) and only 18% of these ever applied for a MFI loan. Only 16% of respondents were aware of the widely championed MSE-CDP, a linchpin of the government’s plant to drive competitiveness among the sector, with only 36% applying for involvement. These results align with a study by global consulting firm Grant Thornton on MSME borrowing which found that 40% of respondents had never heard of the Credit Guarantee Fund Trust.

**Positive results despite low involvement**

While widespread awareness of resources is quite low, satisfaction with the organisations and schemes is rated as outstanding by those who have actually utilized them.
Among Those Aware of the Schemes, Benefit is High When Accessed

Few of the schemes intended to help MSMEs are being utilized.

Credit Linked Capital Subsidy Scheme for Technology Upgradation
- Applied? 63%
- Beneficial? 99%

Micro-loan from NGO
- Applied? 27%
- Beneficial? 73%

*Micro and Small Enterprises Cluster Development Program
- Applied? 36%

*Micro finance institutions (MFI)
- Applied? 18%

*Direct Industries Centers
- Applied? 20%

Survey question: Have you ever applied for this scheme?
- If yes, was the scheme beneficial for your business?
* Indicates sample size too small to assess benefit

Base: 728

Satisfaction with training/support

While participation is low, overall satisfaction of the various services available to MSMEs is extremely high – suggesting an opportunity to build awareness and get businesses to engage with these options.

Survey question: Please tell us how satisfied you are with the training experience/support.
* For all of these, with the exception of banks, sample size is too small to assess interaction/level of benefit

For example, 98% of NSIC training participants found the training helpful. Of the 30% of respondents who had received engineering or technical training from vocational institutes, 100% were satisfied with the results. Support and training offered by village panchayats – although not widely accessed – were also well perceived, scoring
a 98% satisfaction rate. Support from business incubators and local MSE clusters, limited in take up, was nonetheless considered highly effective (97% and 94%, respectively).

The pervasive notion that the Government of India is not providing adequate policy support to the MSMEs is simply false. There are comprehensive plans, policies and schemes devoted to these objectives. The problem is not a lack of initiatives but rather how to most effectively get the message out to end-users about the value of using these resources. Efforts must be made, therefore, to reimagine, or develop in some cases, strategies and tactics for better communication at the grassroots level that will help MSMEs learn about and engage support and resources available to them. Fortunately, the Working Group on MSME Growth for 12th Five Year Plan recognises this and recommends increasing the communications budget of virtually every intervention in all five verticals.
Chapter Six: The Way Forward: Recommended Solutions to Address Top Barriers

As indicated in the previous chapter, there are a number of initiatives that aim to address the lack of technology adoption among India’s small business community. And yet a digital divide persists: Small business is not utilising the full potential of technology to create efficiencies, save cost and improve their bottom line.

The five key barriers described in the previous chapter include: cost, lack of skilled manpower, lack of awareness, privacy and security concerns, and infrastructure. Most of these obstacles may appear self-evident and in fact many of the hypotheses initially developed before we surveyed the micro and small businesses were proven true. However, the knowledge we gained can help us understand why some existing solutions may not be as effective as intended and how a multi-stakeholder approach to new solutions can lay a stronger groundwork for helping India’s MSMEs adopt technology and improve their future business success. This chapter applies the knowledge gained from the research and recommends solutions for the way forward.

Recommended Solutions to Address the Cost Barrier:

- Communicate cost vs. benefit and ROI of technology adoption
- Provide easy access to government resources, for example, clear instructions on how to apply for government subsidies
- Encourage affordable solutions, such as easy installments, credit options, pay-as-you-go, collective sourcing
- Transform local Development Institutes (DIs) into One-Stop-Shops for MSMEs
- Increase access to credit

Cost

As the top barrier to technology adoption, cost must be addressed as an imperative. Therefore, there is a need for a multi-stakeholder approach, involving government, training institutions, NGOs and the private sector to collaborate to ensure affordable solutions for the end user and to raise awareness of the financial value of technology to drive business success (the return on investment).
Communicate the Benefits and Return on Investment
As part of a communications effort described in the following section, cost-benefit analyses must be conducted and communicated to help small business owners understand the specific and measurable return on investment in technology. This will be particularly important when targeting non-IT adopters: 20% of respondents cited lack of information on investment return as a key barrier.

Make it affordable, easy and fair
Subsidy programmes, either from the Government, NGOs or other organisations and institutions, can be a driving factor of technology adoption among MSMEs. Just less than 40% of tech adopters said they chose to implement IT plans because a credit or subsidy made the upgrade affordable, while 44% of IT non-users said they would be more likely to adopt technology if subsidies were available. Considering the low awareness of the availability of existing subsidy and credit schemes outlined above, there is an opportunity for vast improvement in public awareness in this respect.

Subsidies, however, are often short-term fixes rather than long-term market-driven solutions. Affordable alternatives, such as easy instalments, credit options, pay-as-you-go, easy payment options and “freemiums” (basic product is free, but customers pay for additional benefits or functionalities) should be designed and implemented as a sustainable way to address cost concerns. Paying on a monthly basis and getting software initially in free trials or at a significant discount was mentioned by 32% of both IT users and non-users as beneficial. Non-users leaned more strongly toward the subsidy while the IT users were more willing to take on the cost as long as it could be flexibly managed. Generally, solutions should be based on the scale of the business and turnover. Free trials appeal to 14% of respondents while collectivised purchase of technology for a group was also viewed as a good value proposition. The cluster infrastructure could help facilitate collective sourcing. For example, cluster members should work together to invest in technologies that benefit the entire group, and also work as a collective to obtain government incentives for investing in IT infrastructure, such as Wi-Fi spots.

Sharing the burden
One way to lighten the burden of technology investment costs is to revamp the 30 Ministry-run Development Institutes (DIs). These DIs could be expanded to become more like One-Stop-Shop models where MSMEs could have access to information (e.g. on available government schemes and incentive programs) and shared resources. DIs could create reseller, recycling and rental programs where refurbished hardware could rotate through the institutes, making them more affordable. DIs could also host centralised cloud-based software solutions that MSMEs could access as was done in Tirupur’s ERP subscription-based programme. Government could pool and expand resources by inviting global brands to invest in the shared infrastructure.

As highlighted above, cloud computing has tremendous potential to keep costs down
but once again solutions must be accompanied by effective communication that allays fears around security, privacy and ease of use. This issue is addressed later in this chapter.

Enhanced bank involvement

In a study of micro and small enterprises, Grant Thornton found that a majority of respondents obtained 50% of their credit needs from “alternative sources” such as family, friends and trade credit. Criticisms of bank funding were numerous: too much emphasis on collateral, the large amount of paperwork involved, a non-standardised project appraisal system, cumbersome procedures for sanctions, delays in disbursement when the credit is approved, high interest rates, a lack of personalised service and little justification for denial of finance. Indeed, entrepreneurs widely believe that it is very difficult to get bank loans at the start-up stage, although this becomes comparatively easier at the growth stage.

Lenders must address these perceptions and understand there will be failures as well as successes in business. They must strengthen their risk assessment and management capacities, and provide for these failures. Private equity investments should also be encouraged and technology must become integrated into the lending process. Other valuable ideas worth considering are using cluster financing to reduce transaction costs and getting business and trade associations to facilitate relationships between the lender and the credit applicant.

The recent 12th Five Year Plan’s MSME Working Group report recommended that government help reduce the risk exposure banks and lenders, including venture capitalists, may face by providing guarantee schemes. In addition, the Government provides a 75% subsidy for the Performance and Credit scheme where rating companies such as FITCH, S&P, and Dunn and Bradstreet are working with the Ministry of MSMEs to rate SMEs in their first year. The scheme has proven relatively successful as 50% of participating small business owners have opted for second-year subscriptions. These are all important solutions to examine further, as financing of first-time entrepreneurs is essential to fostering inclusive growth in the country.

In return, small businesses and entrepreneurs must be prepared to meet the bankers halfway. They need to modernise their operations, learning the “ins and outs” of financial management and be prepared to demonstrate transparency, sound business goals and well-developed business plans. They must demonstrate a level of confidence around financial soundness to lenders as appropriate. Technology solutions, including those that assist small businesses with financial management tools and other business functions such as customer relationship management, can be extremely useful in these efforts.
Recommended Solutions to Address Lack of Skilled Manpower:

- Work with local DIAs to design and implement baseline and more advanced training programmes
- Establish technology support mechanisms, including online, phone and in-person assistance
- Create a “labour exchange” by pooling tech-trained employees to create a cadre of shared resources for local firms
- Promote the development and use of easy-to-use, intuitive solutions
- Develop network of small business kiosks, local association incubators, and hubs to bring small businesses together to share best practices and resources
- Encourage more professional human resources management amongst MSMEs

Lack of skilled manpower

Training is an important factor spurring IT adopters to use technology. Our collaborative research found that 19% went ahead with an upgrade because a training programme was available to help integrate IT into the business. Respondents cited two levels of concerns: (i) the lack of adequate skills needed to implement and maintain the IT system or technology process and (ii) dependence on employees to control a vital aspect of management will lead to a weakening of management oversight. This highlights the need to make management comfortable with technology through support and awareness programmes on the one hand and increase the supply of trained manpower on the other.

In addition to some of the recommendations below, baseline technology training must be incorporated into small business training courses, including business and financial management courses. This will create a more tech-literate workforce across sectors and geographies to support India’s labour needs.

If DIAs are revamped as proposed, they would be the ideal location to offer targeted training programmes covering a wide range of topics, including cloud solutions. In practice, such course-driven training programmes would be most effective under a multi-stakeholder approach, in which the Government, industry and training organisations (like NIESBUD) collaborate to design certifiable curriculums, and to pool the necessary resources including trainers, speakers and infrastructure. Importantly, a train the trainer programme should be part and parcel of this initiative to ensure of its long-term sustainability.

Provide support and build capacity

The quantitative research clearly found that investment in technology would increase if certain support mechanisms were in place, ranging from online and phone assistance to an in-person expert to help navigate the installation process. These lessons
apply not only to IT product vendors but also training institutions and local associations focused on sharing of best practice and technology transfer across the country [e.g., Faridabad Small Industries Association (FSIA), Federation of Andhra Pradesh Small Industries (FAPSIA), and Consortium of Electronic Industries of Karnataka (CLIK)]. For example, 40% of IT non-users would find an IT help desk located in a local business or trade association office to be of great value, while 37% of tech adopters would welcome online training from polytechnics and industrial training institutes. Again, clusters have an important role to play here as a central support mechanism for those in the network.

Support options that would increase investment

But there is a role for others as well. For example, regional and local labor/employment consulting companies could develop a “labour exchange” by pooling tech-trained employees to create a cadre of shared resources for local firms. The labour exchange would offer technology skills training and provide rotational capacity across the 30 DIs and other support centres, meeting technology needs on a seasonal or semi-regular basis. This would essentially be a shared labour exchange that helps to combat the common worry: “what if my employee gets trained and then leaves me?” In addition, it maximises economies of scale to provide support to MSMEs when they need it and incentivises trained employees to earn extra income by participating in the labour exchange. This consortium of consultancies could be housed under the DI framework or equally be integrated into the NIESBUD or NSIC platforms. The private sector could contribute by building certification programmes for software and technology solutions, designing and funding trainings, and raising awareness to customer bases.
Breakdown the complexity
Introducing MSMEs to easy-to-use products is another way to increase investment in technology. Close to 60% of both IT adopters and non-adopters would welcome easy-to-use software (such as financial management software to generate statements) that can be used by any employee with basic computer knowledge. Further, in certain industries where local languages are the primary means of communication, providing these and other tools, such as manuals, in regional or local languages would help dissolve apprehensions pertaining to software usage and lack of control over business operations. Ultimately, intuitive solutions will break down the psychological barrier, allowing MSMEs to not only quickly adopt these solutions but also to appreciate their ROI over traditional, manual methods.

Reducing cost as a barrier, responses on what works

Support should take the form of hybrid solutions: a mix of online and offline tools including the human element that is so highly valued by owners of micro and small businesses. Indeed, it is important to remember that face-to-face communication continues to be essential and should be a fundamental aspect of any support function.

Share best practice and leverage the community
In addition to these solutions, 38% of respondents would welcome small business kiosks, local associations (such as FSIA, FAPSIA and CLIK), incubators, and hubs to bring MSMEs together to leverage skills and help answer questions around IT issues and concerns. In other countries, including the United States, the United Kingdom, and entrepreneurship hubs like Berlin and Sao Paolo, incubators, shared office kiosks and innovation labs have been able to create a community of like-minded small businesses owners who are readily willing to share technology resources and office space.
These communities have created new jobs and fostered an overall culture of innovation. If all of India’s MSMEs could have access to best practices based on knowledge already available in India, economic output would increase fivefold. Therefore helping the informal sector absorb existing knowledge is essential and increasing finance for technology absorption by MSMEs needs to be a central pillar of this goal.

In its favour, India already has a small business network to build upon: the cluster system. The remarkable progress made by enterprises in many clusters has been inspirational. These should be better showcased to demonstrate how collaboration and the multiple-stakeholder approach raises the bar for everyone in the cluster when each link is wedded to the same goal. Additionally, as recommended by the Working Group on Science and Technology for MSMEs for the 11th Five Year Plan, engineering and technical colleges and vocational schools should be encouraged and incentivised to interact with local MSMEs over a gamut of issues. These institutions should have:

- Specific research development design and engineering programmes for technology inputs and upgradation.
- Internship opportunities (in-plant training) for undergraduate students.
- B. Tech. projects to be carried out in the MSME environment on process/ products improvement, engineering research and new product development.
- Consultancy and visits by faculty to MSMEs.
- Awards and incentives, such as enterprise contests.

**MSMEs must do their part**

For their part, MSMEs must become more professional in managing human resources and increasing skills through training. Performance-based assessment and recognition and positive-reinforcement systems are necessary if investment in human resources is to be vigorously improved. A Grant Thornton study on Indian market attrition and retention found that only 1% of total corporate revenue had been allocated across engineering, manufacturing, media and services, pharmaceuticals and IT for training purposes. Indian MSME management must realise that keeping good people requires them to manage more professionally, share their vision with employees, train them and offer effective career planning. This will help reduce the likelihood of losing trained employees to competitors.
**Lack of awareness**

**Recommended Solutions to Address Lack of Awareness:**

- Identify and target the “right” audience and identify local-level advocates
- Share local success stories and testimonials
- Encourage adoption of technology early in the business cycle
- Communicate cost-benefit analyses for different technology platforms
- Implement targeted communications campaigns to raise awareness of the benefits of technology, and the national schemes and other programmes available to small businesses

**Target the right audience through the best channels**

Clearly targeting all 26 million MSMEs in India would be inefficient and distract resources from where they could have the greatest impact. Therefore, an “addressable audience” needs to be identified. According to the qualitative research, this community comprises the current moderate tech adopters and the tech aspirers, both of whom are open to change and new ideas. Unsurprisingly, many of these businesses are found across India’s most-populous and tech-savvy urban hubs and are expected to grow faster than the national average. Located particularly in professional services and the education sector, this addressable community is prime for cloud technology (79% of IT adopters in the quantitative research were open to moving to the cloud versus 45% of non adopters).

Going out and talking to the businesses and exploring partnerships are the way forward for outreach programmes. This approach can even work for more traditional sectors, such as education, as long as there is a high level of flexibility in the approach and peer groups/partners are used as “influencers”. Local variables make or break any initiative to change things so the focus should always be on the places and people that have the highest chance of success. The quantitative research found that 68% of IT users adopted technology solutions after seeing other businesses using the technology to their benefit. The study also found that both IT users and non-users are influenced by testimonials from other small companies. In particular, 38% of IT non-users rely on the value others place on IT benefits. The solution: Recruit people with local influence or successful business leaders to preach the benefits of technology.

**Share success stories**

This presents a great opportunity for the government, small business organisations, local associations, and even private sector players to work together to leverage case studies in order to better communicate about the value of technology adoption. There is a need to develop user testimonials and to generate awareness of how local firms have benefitted from government schemes focused on technology upgradation and communicate real success stories demonstrating the return on investment of
technology adoption.

Sources for learning about technology

Introducing MSMEs to easy-to-use products would be a big step in overcoming hesitation to adopt technology. Infrastructure reliability also can play an important role.

For example, a case study of a small business or even an industry cluster that has experienced a higher degree of success because of technology adoption could be developed and shared with small business owners. The case study would feature information about why they are successful (what are the attributes, the critical success factors) and what would it take to achieve even greater success. The story could be widely shared through the media and other government platforms, including marketing materials. The Government of India could also consider utilising success stories as content for public service announcements to further spread the word about the benefits of technology adoption. There would be a clear incentive for small businesses to take part in this communication effort to share best practices as it would inherently help promote the small business’ success.

Triggers for technology adoption
Chapter Six: The Way Forward: Recommended Solutions to Address Top Barriers

The time is ripe...

The collaborative research shows that technology is adopted:

- usually in the early stages of the business lifecycle;
- when there is an openness to change among the target group;
- if there is visible success and zero uncertainty about its advantage;
- when recommended by trusted sources (“influencers”);
- if it is affordable;
- if it is easy to absorb; and
- when the expense is mentally justified and the benefits understood.

It is vital to get MSMEs to embrace technology early. Intuit has found this to be true throughout the world. Timing is vital; 60% of IT adopters began using technology at the earliest stages of the business cycle and 20% used it when manpower started to expand. Consequently, the more established, traditional businesses – tech non-adopters – will likely prove to be a group that is more reluctant to adopt technology. Conversely, tech aspirers and moderate tech adopters are a good target as their more progressive thinking makes them more open to change.
Chapter Six: The Way Forward: Recommended Solutions to Address Top Barriers

Ways to increase adoption of technology among small business

Introducing MSMEs to easy-to-use products would be a big step in overcoming hesitation to adopt technology. Infrastructure reliability also can play an important role.

Thus, it is important to be prepared to capture even modest interest in technology and have the learning opportunities in place to respond immediately (to curiosity, questions, frustrations with status quo). The challenge is to seize the opportunity to demonstrate government’s capability to meet the small businesses “where they are” at the “time of need”. Some potential solutions for the Government to consider include:

- Reach out to hesitant entrepreneurs filing for incorporation of their enterprises with an introductory kit on the benefits of introducing technology early in the business’ growth stages.
- Promote technology adoption to help MSMEs prepare to be listed on the newly-launched SME Exchange.
- Use the growth of the SME Exchange to develop a SME journal for all members, with a special focus on the importance of technology; in conjunction, establish a 1-800-SME-INFO hotline to provide on-demand information for listed exchange members regarding schemes, promotions and incentives.
- Consider requiring counselling from trained experts to inform newly-listed firms about what they can do to access training and financial support and how other stakeholders can help them.
- Offer training, in partnership with a national bank, technology companies and/or training organisations, to provide technology solutions that would facilitate the listing process for SMEs. Focus on financial management and business process improvement for listed companies and those preparing for listing.
Break it down, make it real, and target the need

Generally speaking, there needs to be more improvements in explaining how services and tools can help grow the business through improved processes and more efficient management of time, leading to a better bottom line. As mentioned in the cost section above, cost-benefit analyses are key in this respect. Through such analyses, MSMEs can be encouraged to increase spending on the cloud through a simple comparison of the costs of using traditional methods versus leveraging cloud computing. For example, a recent study found that small businesses using SaaS-based enterprise resource planning (ERP) saved Rs. 37,000 annually compared to counterparts applying traditional ERP.34 Sharing this kind of data with small business is a simple way to communicate technology’s positive return on investment. Similarly, it will help address the apprehension amongst business owners about the risk of losing control by relying too heavily on outside service providers or a small number of key staff members.

Additionally, the low adoption rates of customised software should be addressed through such efforts. Currently most MSMEs use basic Excel spreadsheets for accounting and customer management. They are not aware of how customisable software or user-friendly solutions that require minimal input can actually provide much better analysis, and therefore higher efficiencies. These solutions help business owners better predict the flow of goods and understand customer trends to better manage the company’s financial life. IT product vendors have an opportunity to expose MSMEs to various kinds of software and services that help analyse their needs, such as acquiring more customers, and offer solutions (CRM tools) as a good entry point. The effort should be targeted at owners and managers who are responsible for IT procurement decisions but driven by customers, accountants or consultants and also peer group companies.35

Overcoming the psychological “fear factor” technology presents will be more difficult but achievable. By offering easy-to-use solutions that do not require costly, burdensome updates – and can be freely maintained and updated – IT companies can facilitate a stress-free adoption of technology while ensuring its future usage. In the Indian MSME sector, a hybrid approach, combining human interaction with IT solutions both in terms of IT systems management and CRM will meet the needs of India’s small business community.

Assess, revise and revisit

MSMEs need more information on many of the national schemes mentioned in the previous section; when they are used, they are deemed highly beneficial. Organisations should carefully review why communications outreach has failed, identify communication barriers, examine the local social and political context, assess the priorities of the local communities and enterprises from urban and rural perspectives, and identify potential partners to breach the communications barrier. Under the 12th Five Year Plan, the Ministry of MSME is seeking a large increase in spending to target the
communications effort around these initiatives and schemes. The best private sector communicators need to be brought in to help with this mission and re-launch outreach efforts. Effective communications need to be focused on the ‘customer’ target audiences in ways that will reach them in their communities and in the ways they live, in the manner and modes that they receive and process information, with messages that are meaningful and result in engagement of the target audience.

The quantitative research identified the various sources small businesses use to learn about technology. Print media and television scored highly among both IT users and non-users: 85–88% and 76–94%, respectively. Interestingly, almost half of IT non-users rely on family members for the latest technology advice. These findings should be helpful when identifying the best channels to convey the message about government and other stakeholder-driven schemes for MSMEs.

Go big

Over the years, consumer demand drove technology adoption. When customers have demanded technology-driven, quality products, the advent of state-of-the-art large industry has changed the MSME landscape in states such as Maharashtra, Andhra Pradesh, Gujarat and Tamil Nadu. Where such industrial growth has not occurred, technology adoption has taken a back seat.

Considering that low customer engagement of IT is viewed as a key obstacle to technology adoption among 40% of IT non-users, a broad mass communications outreach strategy is needed to raise awareness among the masses about the benefits of technology and the various services and tools which are currently available. Mass communications can be very expensive but the government-negotiated Directorate of Advertising and Visual Publicity (DAVP) rate can be used as appropriate to publish case studies and success stories in national or regional media and related journals.

Mobile technology should be a particular focus considering its almost-total market penetration in India. Case studies of other countries that have successfully pushed mobile and other technologies to the public would be useful in this respect. The World Bank’s ICT group, for example, highlights how developing countries use mobile technology for a diverse number of purposes ranging from learning the best place to fish and transferring money back home, to online schooling and remotely turning on and off irrigation pumps.36 India, too, is beginning to see a number of innovative companies and NGOs drive solutions based on the mobile platform. In addition, the Government is beginning to recognise the importance of using mobile to communicate with hard-to-reach communities, including rural-based MSMEs.
Privacy and data security
Recommended Solutions to Address Privacy and Data Security Concerns:

- Communicate the importance of the cloud as a secure, cost-effective and convenient way to help MSMEs grow
- Complement existing industry capacity building programmes, by designing training modules focused specifically on the cloud
- Underscore the Government’s and industry’s commitment to privacy and data security

The cloud, specifically SaaS, can offer a great, highly cost-effective alternative to physical storage, back-up, virus protection and spam filtering. Importantly for many of India’s entrepreneurs and MSME business owners, business is not always conducted in one place or even one office. Business is on the move, literally. Cloud-based solutions offer greater flexibility in accessing critical business information from virtually anywhere, provided the employee has a connected device. According to Access Markets International, small business is looking more closely at SaaS for security solutions: “Though nascent, the SaaS market in India is gathering steam. The time is right for vendors and partners to invest in educating India SMBs on the role and usage of cloud services.”

The perceived downside of cloud technology is that, while users can rely on it to offset infrastructure and software costs and lost data risks, they will not adopt it in great numbers until issues of broadband availability and reliability, and concerns around privacy and data security are addressed (two of the five concerns mentioned as key barriers to the adoption of cloud services and infrastructure in the quantitative survey).

Further, MSMEs must be made aware of the opportunities and solutions offered by the cloud. Importantly, the cloud, including how it works and its benefits, needs to be better communicated to MSMEs; currently there is a clear lack of understanding of what the cloud actually is and the benefits it offers to users.

Once again, a multi-stakeholder approach should be utilised to address this issue. The Government should promote the importance of cloud computing as a secure, cost-effective and convenient way to help MSMEs compete and grow. In addition, industry and training organisations should develop their own training modules and data storage solutions workshops with participation from constituency platforms and industry experts leveraging three existing industry programmes:

- MSME and NSIC cloud survey initiative
- NSIC Technology Business Incubators (TBIs)
- NIESBUD’s Management Development Programme (MDP)
The private sector should lend experts to the cause to help communicate cloud benefits, advise on communications around privacy and security, and help spread awareness about cloud adoption. There should be a strong focus on communicating what the cloud is, and what benefits it brings to MSMEs.

**Infrastructure**

Recommended Solutions to Address Infrastructure Challenges:

- Address current connectivity challenges with cost- and energy-efficient solutions
- Further develop and expand clusters to help overcome infrastructural roadblocks

As previously stated, poor infrastructure is a fundamental barrier to technology adoption. IT users and non-users alike cited reliable Internet and mobile phone connectivity as a facilitator of IT adoption. Addressing infrastructure issues is essential for adopting cloud technology, which in itself can help overcome some of the other IT adoption barriers. Via the NTP plan, the Government of India aims to ensure MSMEs have access to reliable connectivity.

While enabling MSMEs to leverage skilled manpower and reduce costs, clustering also helps businesses to overcome infrastructural roadblocks. As CII points out, clustering often occurs along transport corridors and near ports, providing access to good basic infrastructure. This brings small businesses together to address common issues such as skills, market access, funding and of course improvements in technology. However, as pointed out earlier, awareness about and access to clusters needs to be developed. The Ministry of Communication and Information Technology’s Common Services Centres (CSCs), a cornerstone of the National eGovernance Plan, is another effort to expand the dissemination of technology to small businesses. CSCs aim to use technology to assist citizens in the areas of education, health, business and governance, however scalability of this effort remains to be seen. Ensuring their consistent implementation across India is critical to helping small businesses access the technology infrastructure they need to grow their business.
Conclusion

Micro, small and medium enterprises (MSMEs) play a vital role in India’s economy and are an integral component of the country’s growth strategy. Recognising the importance of this sector, the Government of India has expressed facilitating the development of small businesses as a key policy priority. Indeed, the Government has designed and executed very forward-looking and impactful programmes and schemes to help small businesses succeed in an increasingly competitive global economy. Nevertheless, there remain a number of challenges that stand in the way of the growth of this sector, including barriers to technology adoption. This challenge creates an opportunity for multi-stakeholder solutions where the Government is a leader but also one of many key expert participants in the solution.

A leading global provider of business and financial management solutions for small businesses, Intuit understands the power of technology to help small businesses start, grow and thrive, and through such growth to contribute to the overall health of economies. This research initiative – a collaborative effort with the Ministry of Micro, Small and Medium Enterprises, the National Institute for Entrepreneurship and Small Business Development, and the National Small Industries Corporation – is an important foundational effort of our commitment to helping small businesses in India seize the growth potential created through technology adoption. We recognise that in order to identify and implement impactful solutions, a collaborative approach with dedicated drivers and contributors is needed.

Ultimately, we believe that a multi-stakeholder approach – a collective effort between the government, private sector, industry groups, training organisations and MSMEs themselves – is the most effective way to tackle the significant barriers identified through the research, namely: cost, lack of skilled manpower, lack of awareness, privacy and security concerns, and infrastructure. Indeed, only through this approach can India truly bridge the digital divide in a sector that is arguably the most critical to India’s long-term prosperity and sustained economic growth.
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