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*be more*

# HUMAN AMPLIFICATION IN THE ENTERPRISE

## AUTOMATION. INNOVATION. LEARNING

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**HUMAN AMPLIFICATION IN THE ENTERPRISE**
AUTOMATION. INNOVATION. LEARNING.

# INTRODUCTION

Every business is exploring ways to increase efficiency and agility by achieving greater operational excellence, while simultaneously seeking to create unprecedented customer experiences that grow revenue and revitalize business. The understanding, that this reinvention of their processes, infrastructure, solutions and even cultures must be driven by a digital transformation, is pervasive, with 96% of respondents citing they are already in the midst of or preparing to begin their transformation journey. However, this undertaking differs significantly from one organization to another.

Infosys commissioned a study to develop a research methodology and get insights into the current nature of digital transformation that enterprises undergo. The study sought to understand a) the specific drivers of digital transformation for enterprises, b) the various facets of this transformation, c) expected and ensuing outcomes, and d) the role of Artificial Intelligence (AI)-supported activities through the transformation journey.

What the study unveiled is that pervasive automation, targeting efficiency and productivity outcomes, is a big driver of transformation. However, enterprises that understand the true potential of transformation invest the resulting capacity created by automation into higher order activities and innovation. The foundation for this, in these companies, is a strong focus on lifelong learning for their employees.

The impact is far reaching for enterprises that undertake full-cycle digital transformation (with equal focus on automation, innovation and learning). People, in these enterprises, see components of their day-to-day tasks being reshaped, or even eliminated altogether. This leads to an increase in productivity and a freeing of time that has potential to be carefully redirected to drive proactive business change versus reacting to business issues. With problem-solving being dealt with by intelligent automation, in increasing measure, the people-force in these enterprises focuses more on identifying problems and innovating with ideas around how to provide solutions. However, this is pronounced only in those enterprises that base their automation-innovation efforts in a culture that rewards and values education and learning as a continuous process.

The study also brought to light the dramatic positive influence that the role of AI-supported activities has on the outcomes of full-cycle digital transformation.

This then leads us to an important insight: If an enterprise's digital transformation is to indeed become an accelerator of business, it needs to be an amplifier of its people. That's why, we must work to give everyone access to fundamental knowledge and skills in problem-finding relevant in these times. We must remove the elitism around advanced technology and enable all employees – both senior and junior – to build with digital tools, so they might play a meaningful part in a future that promises to be increasingly digital. And this learning must continue throughout their lives — well beyond the traditional classroom — furthered at workplaces by enterprises and employers who invest in continuous reskilling and right-skilling to create and nurture the legions of creators, who can work alongside machines, to move the enterprise forward.

# SUMMARY OF KEY FINDINGS

**96%** 96% of the respondents agree that achieving pervasive automation is key to their digital transformation. Yet nearly three in four say their organizations have not automated all the tasks they believe should be automated.
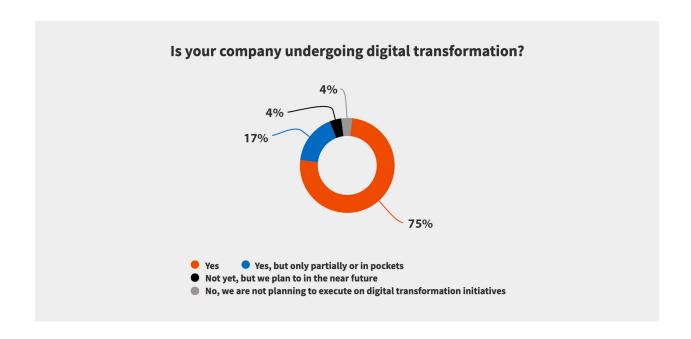
**63%** 63% of the respondents who have achieved their automation mandate, say their organizations developed 20 or more valuable innovations in the past 12 months; with the average being 1-4 innovations for the respondents who have not achieved their automation goals.

**29%** Only 29% of the respondents who score low on their innovation mandate, rate lifelong learning as extremely important. 77% of the respondents who score high on their innovation mandate state that lifelong learning improves their ability to fit into new roles.

**89%** Of the surveyed enterprises that are growing significantly, 89% are currently undergoing full-cycle digital transformation encompassing automation and innovation grounded in a foundation of reskilling and learning.

**98%** 98% of all the respondents who used AI-supported activities to power their digital transformation indicate that it generated additional revenue for their organizations.

# THE DIGITAL TRANSFORMATION JOURNEY

Enterprises are undergoing unprecedented change from within as they look to transform themselves by leveraging new technologies that promise to make their operations more efficient and to create landscapes that are more conducive for continuous and ubiquitous innovation. This also entails significant investments in reskilling their people and supporting their effective transition through the journey. The impact is nearly universal, as 96% of the individuals surveyed indicate that their organizations are already implementing digital transformation programs, or will do so in the near future, to invigorate their core business functions and to better equip themselves – and their people – to pursue new avenues of value creation through innovation.

## AUTOMATION OF TASKS OTHERWISE EXECUTED BY PEOPLE

All business functions and types of activities within organizations are being impacted by changes brought in by digital technologies. However, the tasks that organizations are automating vary, with the top three being curating and storing data, garnering of enterprise knowledge and insights from data (including unstructured data like emails) and managing voluminous and complex documents (like contracts). Achieving greater people productivity is the primary motivation to automate these tasks but it is followed closely by a desire for reducing costs of manual operations and minimizing human errors.
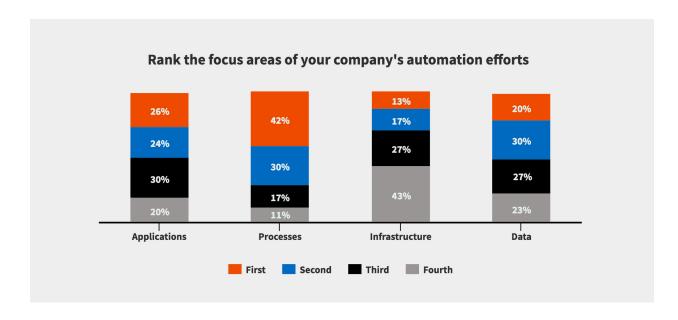
## Is your company undergoing digital transformation?

4%
4%
17%
75%

- Yes
- Yes, but only partially or in pockets
- Not yet, but we plan to in the near future
- No, we are not planning to execute on digital transformation initiatives

*"The whole concept of digitization is going to be part and parcel of simply being a business. It's going to just be a way you do everything."*
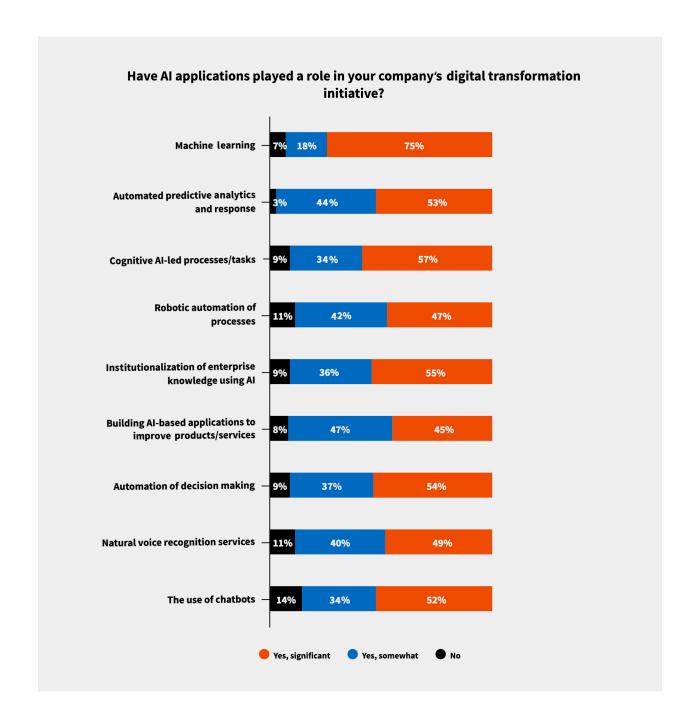
When asked about the focus of their company's current automation efforts, 96% of the respondents agree that achieving pervasive automation is key to their digital transformation. 42% of the respondents highlight processes as the main focus when asked to rank the importance of automation in relation to applications, processes, infrastructure and data in their organizations. Applications and data were the second and third most mentioned with 26% and 20% of the respondents selecting them first, respectively. Infrastructure was universally the lowest priority as only 13% of the respondents cite it as the main focus; it garnered the least amount of second place mentions in the answers provided.

Three in four respondents indicate that their organizations have been unable to automate all the tasks they think should be automated. Some of the reasons given for this are inadequate focus on streamlining and automating wide-spanning, deeply interconnected operational activities, especially if these are currently adequate to support the immediate mandates of business as usual. Another reason for the want of enthusiasm to pervasively automate is the sheer magnitude and complexity of the legacy operational landscape, even as broader business management concerns continue to demand leadership focus. 44% of the respondents highlight that there is a lack of adequate focus from senior leaders to achieve complete automation. Over half of the respondents (57%) blame the slow rate of automation on the lack of business and IT alignment.

**Rank the focus areas of your company's automation efforts**

| | First | Second | Third | Fourth |
|---|---|---|---|---|
| Applications | 26% | 24% | 30% | 20% |
| Processes | 42% | 30% | 17% | 11% |
| Infrastructure | 13% | 17% | 27% | 43% |
| Data | 20% | 30% | 27% | 23% |

Despite the growing focus on automation, there is a huge untapped opportunity within the enterprise to bring to the business the benefits of automation-led simplification, real-time efficiencies, greater people productivity and potential to uncover new value.

At the center of this shift to greater efficiency, and building the foundation to grow innovations faster, are activities and processes that are driven by AI. Of the list of AI-supported activities and developments presented to the respondents, at least 86% say that each played some role in their organizations' digital transformation.

## Have AI applications played a role in your company's digital transformation initiative?

| Category | No | Yes, somewhat | Yes, significant |
|---|---|---|---|
| Machine learning | 7% | 18% | 75% |
| Automated predictive analytics and response | 3% | 44% | 53% |
| Cognitive AI-led processes/tasks | 9% | 34% | 57% |
| Robotic automation of processes | 11% | 42% | 47% |
| Institutionalization of enterprise knowledge using AI | 9% | 36% | 55% |
| Building AI-based applications to improve products/services | 8% | 47% | 45% |
| Automation of decision making | 9% | 37% | 54% |
| Natural voice recognition services | 11% | 40% | 49% |
| The use of chatbots | 14% | 34% | 52% |

● Yes, significant   ● Yes, somewhat   ● No

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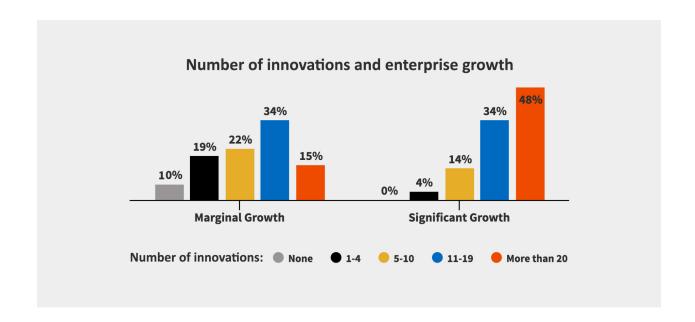*"For me, pervasive automation is all about the 'power of once'. If my people execute a task once, they shouldn't have to execute the same task, in the exact same way, a second time. That task is better executed by software while my people take on the next thing to find and solve."*

Machine learning has had the largest impact as 75% of the respondents indicate that it plays a significant role in their organizations' digital transformation program, allowing software programs to intelligently automate tasks that otherwise require human intervention for execution.

## INNOVATION FUELED BY GREATER PEOPLE PRODUCTIVITY AND ADVANCED TECHNOLOGY

While the research confirms that automation of tasks is a core component of the enterprise's digital transformation journey, the desired outcomes are not just about achieving operational efficiencies and greater productivity. Enterprises see the potential to redirect the human effort saved through automation towards innovation, and to leverage emerging technologies to shape these innovations.
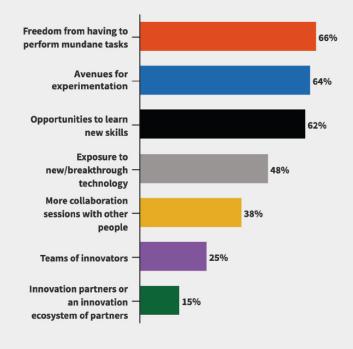
Organizations that reinvest their people productivity gains into innovation efforts also tend to be more successful. 63% of the respondents, who say their organizations are automating most of the tasks on their agenda, also mention that their companies were able to develop 20 or more valuable innovations in the past 12 months.

### Number of innovations and enterprise growth

| | Marginal Growth | Significant Growth |
|---|---|---|
| None | 10% | 0% |
| 1-4 | 19% | 4% |
| 5-10 | 22% | 14% |
| 11-19 | 34% | 34% |
| More than 20 | 15% | 48% |

Number of innovations: ● None ● 1-4 ● 5-10 ● 11-19 ● More than 20

These innovations ranged from new or improved products and services to more disintermediated processes and even new business models. This leads us to conclude that automation at enterprises plays a big part in creating greater bandwidth for their people to apply themselves to projects of a more innovative nature. 48% of these respondents are also from companies that reported significant growth during the same period.

This finding is consistent with what the respondents say they need by way of empowerment to be more innovative. 66% selected freedom from having to perform mundane tasks and 64% selected avenues for experimentation from a list of options provided. Both of these aspects are positively impacted by automation technologies that free people from repetitive tasks and bring agility to the landscape, allowing people to create changes to the setup quickly with greater ease and lower risk.

## What do you need to be more innovative?

| Option | Percentage |
|---|---|
| Freedom from having to perform mundane tasks | 66% |
| Avenues for experimentation | 64% |
| Opportunities to learn new skills | 62% |
| Exposure to new/breakthrough technology | 48% |
| More collaboration sessions with other people | 38% |
| Teams of innovators | 25% |
| Innovation partners or an innovation ecosystem of partners | 15% |

"People have traditionally executed these tasks for decades. And not everybody thinks that it should be a priority to change that as long as work goes on unhindered. But we also have a group of people that are very pro – into the analytical and the machine learning. They know that software can do a better job of most of our routine, repetitive tasks, especially after it has been defined well. Also, when we don't spend our time on things that software can anyway do, we can then use that time to apply ourselves to activities that require more critical, analytical thinking."

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*"The point of automation is not as much about productivity as it is about channeling that productivity into truly productive activity by investing human energy into making something new."*

Looking specifically at the AI-supported activities, 96% of the respondents cite that these significantly improve their efficiency by providing support for decision-making and by making recommendations for ensuing action. When asked to select from a list of AI-supported activities that impact their companies' efforts to bring more innovation, 85% of the respondents indicate that at least one of the activities have an impact. Two of the AI-supported activities, predictive modeling and machine learning, had nine in 10 respondents say they played a role in their organizations' efforts to create innovations that generate new value, in new ways, for the company.

## LIFELONG LEARNING TO WORK WITH MACHINES

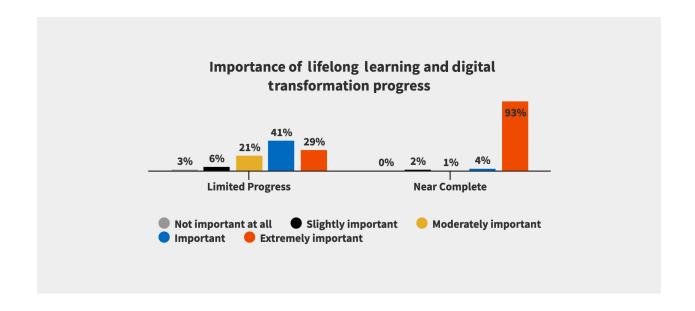For organizations to achieve the full potential of digital transformation, automating tasks that provide the time and resources for greater innovation isn't enough. The radical shift that digital transformation ushers in also brings with it the need to change the way human capital must be managed. Enterprises need to invest in reskilling and training their employees or the full promise of a more effective business will struggle to be realized. After all, making the right decisions around what to automate, prioritization for automation, extent of automation, and decisions about people whose roles are impacted by automation still rest within the human domain. And learning can impact these decisions positively.

That's why transformation is most fruitful when based in a culture of lifelong learning that ensures people remain relevant even in a vastly changed, increasingly digital landscape. This way we can ensure that people are not stranded on the wrong side of the disruption.

*"We sometimes begin to think that innovation is the domain of an exclusive set of smarter-than-us people. But everybody can innovate, if their context and time-bandwidth is supportive."*

*"Most of us have come to think of our jobs as problem-solvers and decision-makers. But with software and digital agents taking on these tasks, our roles must change too – into problem-finders and innovators."*

The shift away from operational responsibility to innovation responsibility is also creating the need for enterprises to focus more time and resources on training and reskilling their employees. While 61% of the respondents in enterprises say lifelong learning is extremely important, there is great disparity dependent upon where the organization is in its digital transformation journey. Only 29% of business and IT leaders in enterprises that have made limited progress in their digital transformation initiatives say that lifelong learning is extremely important compared to 93% in enterprises that are nearing completion of their digital transformation journey.

The reason lifelong learning is important for enterprises also differs greatly depending upon their current digital transformation status. For organizations that have made limited progress on their digital transformation initiatives, the main reasons identified for the importance of lifelong learning is spread fairly evenly across improving productivity (33%), improving the ability to fit into new roles and jobs (30%) and preventing skill loss when highly skilled employees retire or switch jobs (23%). For organizations that are nearly complete with the digital transformation process, it is almost unanimous (89%) that improving the ability to fit into new roles and jobs is the main factor behind the importance of lifelong employee learning.
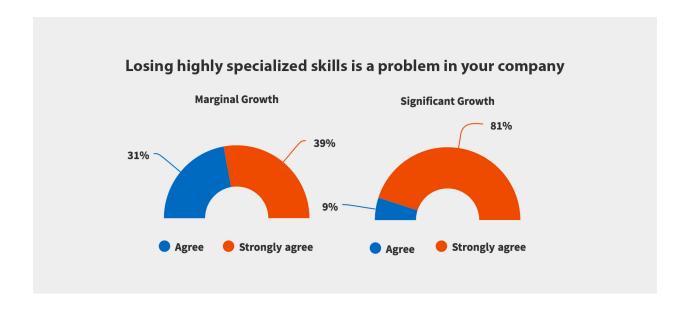
### Importance of lifelong learning and digital transformation progress



Limited Progress: 3%, 6%, 21%, 41%, 29%
Near Complete: 0%, 2%, 1%, 4%, 93%

- ● Not important at all
- ● Slightly important
- ● Moderately important
- ● Important
- ● Extremely important

*"While we've always known that advanced technologies – especially AI technologies – can help us achieve greater automation, better customer engagement, stronger competitive differentiation, and even aid us in curating knowledge that lies in various pockets of our enterprise, I don't believe we have the skills in-house to run these projects. That's why, if we don't invest in skilling our people for an increasingly digital future now we'd be severely risking not just their careers, but our own business success as well."*

Organizations are also at risk of losing highly specialized skills as individuals retire or switch jobs, as 84% of the respondents agree that this is an issue within their organizations. The issue is magnified for the most profitable enterprises, as 81% of the respondents from enterprises with significant growth strongly agree it is a problem in their organizations compared to 39% from organizations with only marginal growth.

However, steps are being taken by enterprises to avoid the risks of skills loss as they go through digital transformation. Most organizations (88%) expect senior staff to train junior staff to avoid skills loss, and 82% have a formal process in place to try and prevent the skills loss that occurs when highly skilled individuals retire or switch jobs. AI also plays a role in this process, as 83% of the respondents indicate their organizations use machine learning to curate and nurture enterprise knowledge that then amplifies their people's skillsets through generations of churn and change.

**Losing highly specialized skills is a problem in your company**

**Marginal Growth**

31%  39%

● Agree  ● Strongly agree

**Significant Growth**

81%  9%

● Agree  ● Strongly agree

*"If you were to try and implement AI on your own premise these days, the deterrent is you don't have the people with the knowledge to do something with it. Obviously, there's something of a skills gap there that could slow down the adoption of everything."*

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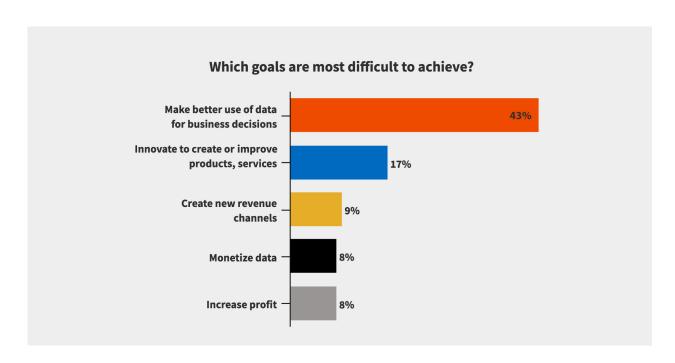# MAXIMIZING THE OUTCOMES OF DIGITAL TRANSFORMATION

● ● ●

## AUTOMATE. INNOVATE. LEARN. TO MEET THE GROWTH CHALLENGE

This research also took a look into what enterprises mandate for their senior leadership to achieve to be able to meet their organizations' 12-month growth plans. The list of top asks, emerging from the survey responses, are:

- Create or improve products and services (59%)
- Make data-led insights available on demand for business decisions (57%)
- Monetize data better (34%)

- Increase profits (31%)
- Create new revenue channels (29%)
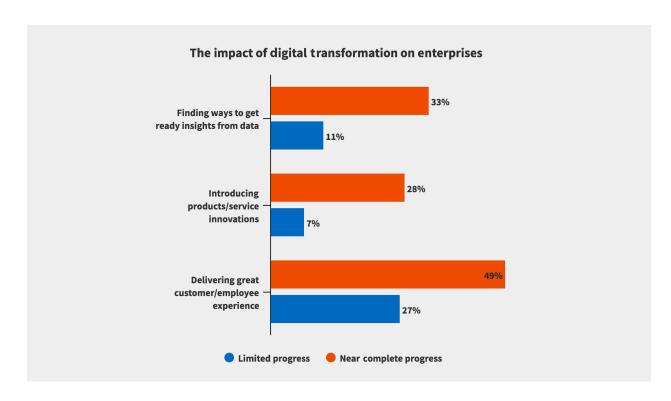- Improve processes and make these real time (26%)

Of these asks, the two that were also highlighted as the most difficult to achieve by the respondents are: Making data-led insights available on demand for business decisions (43%) and creating or improving products and services (17%). Lack of automated access to data (60%), lack of time/bandwidth to invest in innovation (45%) and not having in-house skills in the right technologies (41%) are the top reasons that make it difficult for the respondents to achieve these mandates.

### Which goals are most difficult to achieve?

| Goal | Percentage |
|------|-----------|
| Make better use of data for business decisions | 43% |
| Innovate to create or improve products, services | 17% |
| Create new revenue channels | 9% |
| Monetize data | 8% |
| Increase profit | 8% |

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*"Capitalizing on data reserves to use both internally and externally can have a huge impact on our company's bottom line. But with our legacy systems and manual practices, this is easier said than done."*

It's not difficult to see how full-cycle digital transformation – spanning the complete cycle of automation-innovation-learning – can make these tasks easier to complete. Automating all that can be automated – data, applications, processes and infrastructure, creating the automation-led productivity savings to invest into innovation, building the technology competence to bring these innovations to life and continuously reskilling people to be able to build with newer technologies – will empower leaders to deal with the 12-month challenge effectively.

Data from this survey reinforces this conclusion. Of organizations that have made limited progress on digital transformation goals, 33% were focused on finding ways to get ready insights from data, 28% focused on introducing product/service innovations and 49% were focused on delivering great customer or employee experience. This compares to just 11%, 7% and 27% respectively for the respondents from companies that have completed their digital transformation initiatives. That's over a 20-percentage point decrease for each, indicating that significant progress has been made on all these parameters.

### The impact of digital transformation on enterprises

| Category | Limited progress | Near complete progress |
|---|---|---|
| Finding ways to get ready insights from data | 11% | 33% |
| Introducing products/service innovations | 7% | 28% |
| Delivering great customer/employee experience | 27% | 49% |

● Limited progress  ● Near complete progress

The inability to deliver on the enterprise's 12-month growth plan can be directly connected to organizations who are not currently undergoing full-cycle digital transformation. Of the surveyed enterprises that are growing significantly, 89% are currently undergoing full-cycle digital transformation encompassing automation and innovation, grounded in a foundation of reskilling and learning. However of enterprises that are experiencing marginal growth, only 65% of respondents indicate that their organizations are currently undergoing full-cycle digital transformation.

*"In our line of business, the engines we make outlast the engineers that make them – by a whole generation. We therefore understand how critical it is to keep that engineering knowledge inside the company."*

# AMPLIFYING THE OUTCOMES WITH PURPOSEFUL AI

### MORE EFFICIENCIES

AI, when integral to the digital transformation journey, greatly amplifies the outcomes of transformation. Most respondents (91%) concur that AI helps their organizations make processes real time and more efficient, 88% agree that AI-led automation efforts free up time for them to focus on more creative activities, 85% identify AI implementations as the biggest driver of productivity increases in their organizations and 84% cite that AI simplifies their work.

## Role of AI

**91%**

**AI has helped my organization make processes more real time and efficient.**

**88%**

**AI-led automation efforts undertaken by my organization have freed up some of my time to focus on more creative activities.**

**85%**

**My organization's AI implementations are the biggest driver of productivity increases that we experience.**

**84%**

**AI filling in the gaps in my tribal knowledge of the enterprise makes my work easier.**

*"With chatbots to respond to customers' queries, call agents are evolving into brand new roles, those that go through and train the AI bots."*

## MORE GROWTH

98% of all the respondents, who have made significant progress in their digital transformation by using AI-supported activities, indicate that it generated additional revenue for their organizations. When segmenting companies by their growth characteristics, the direct monetary impact of AI applications becomes even more apparent. We find 56% of the respondents from enterprises with significant growth indicate that their organizations made more than $10 million directly from AI applications compared to only 7% of the respondents from companies with marginal growth.

## MORE PEOPLE EMPOWERMENT

What's perhaps even more valuable is the unprecedented impact of AI on employees' daily work. The average amount of time managers spent executing day-to-day activities in the organization at the end of an AI-supported digital transformation was 84% less than for individuals at organizations beginning their digital transformation. The additional time that those individuals have in organizations that are nearly finished with an AI-led digital transformation is being spent on experimenting in new technologies and new business ideas (80% increase) and learning a new skill (75% increase).

# CONCLUSION

From the research, we see that the role of people in the digitally transforming enterprise cannot be understated. To recognize the full benefits of automating tasks and to drive their innovations agenda predictably and consistently, enterprises need to continue to invest in lifelong learning programs for their employees. Employees, across ranks, must have the skills and knowledge necessary to deliver against the needs of the future. Their shift from problem solvers to problem-finders and innovators will be fundamental to the overall success of enterprises.

An overwhelming majority of organizations are already undergoing full-cycle digital transformation with the automation of tasks at the center of their collective initiatives. This means that, in the future, an organization's competitiveness will be measured in terms of how well its employees are able to do those tasks that automatons cannot do – the tasks that involve human curiosity, creativity and hunger to learn and grow. This also means those enterprises that are highly invested in lifelong learning for their employees – to nurture all that is uniquely human in them – will be the ones that have a workforce better suited to capitalize on the future of business.

## SCOPE OF RESEARCH/METHODOLOGY

Infosys commissioned LEWIS Research to undertake the research upon which this report is based. 1,070 IT and business decision-makers were interviewed between 27th March and 18th April 2017. All are from organizations of more than 1,000 employees, with $500 million or more annual revenue and from a range of sectors, in the United States. The majority of interviews were conducted using online interviewing with a small number of follow-up telephone in-depth interviews. All were undertaken using a rigorous multilevel screening process to ensure that only suitable candidates were given the opportunity to participate. Unless otherwise indicated, the results discussed are based on the total sample. The overall margin of error is +/- 2.91% at a 95% confidence interval.
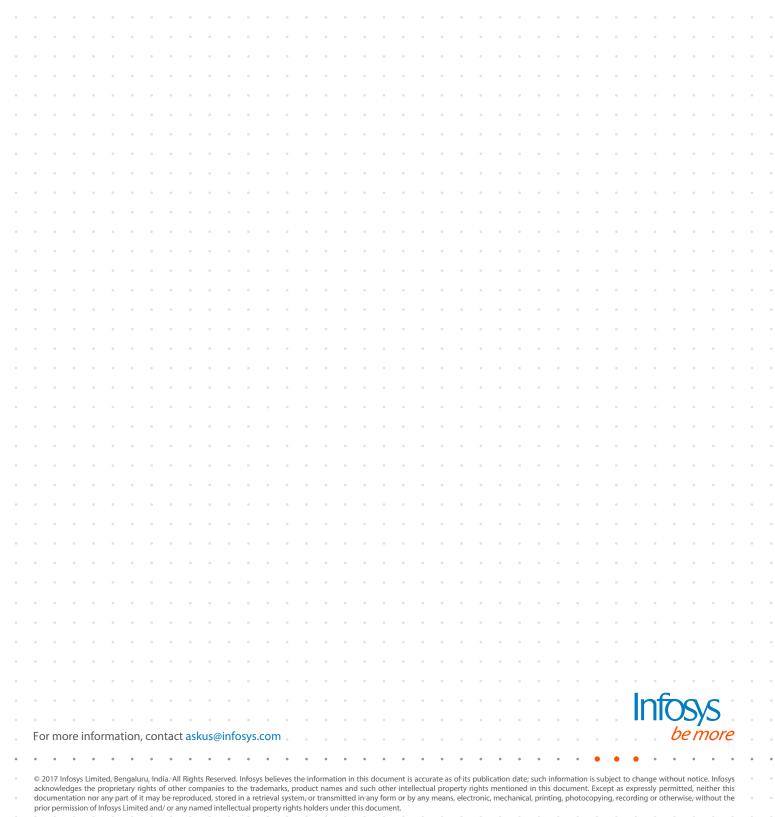
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