

Spring 2019: The Business Value Issue

Workflow Quarterly

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and enterprise journalism on workflow digitization.



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IN THIS ISSUE

The Business Value of Digital Workflows

Do you know how to drive better results in your business? A new global study shows that changing the employee, client and IT experience with automation technologies that digitize workflows makes work better.

BY THOMAS H. DAVENPORT

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01

Digital workflows address business complexity



Many executives today feel that their business has become increasingly **complex and challenging**, and that they need to do more or grow faster with the same or even fewer resources.

They want to turn mindless, repetitive tasks over to machines, and allow humans to do more meaningful work. To drive productivity and innovation, they want to digitize their workflows and employ greater automation. But it can be difficult to determine which technology is best for which kind of work, how to effectively pair humans and machines as colleagues, and how to achieve the maximum level of value from these complex collaborations.

It's no trivial matter. Productivity has been lagging in most advanced economies. Companies can achieve billions in aggregate savings from widespread implementation of digital workflows while improving the quality of work life for employees.

Accenture, for example, is adopting digital workflows in many areas of its business. Tom Parisi, Managing Director of Digital Transformation and ServiceNow at Accenture, commented on the breadth of projects in an interview:

“We are very focused on automation across a lot of different dimensions. There are different levels of autonomy; if you’re getting your Windows machine upgraded, you start the process and it all just happens without help from local support. There is also user-initiated automation, which involves automating tasks that previously involved a third-party manual transaction. We’ve also automated ticket resolution, generation of an invoice—both through ServiceNow. We view it as a horizontal capability across all of our functional pillars.”

Accenture’s primary goal in digitizing and automating workflows is, in Parisi’s words, “to make life better and easier for our client teams.” If a consultant sells a project to a client, approvals happen automatically, and digital workflows handle contract setup, capturing all needed data from Accenture’s systems. The contract terms are entered into SAP automatically. Invoicing once required three to four days; now it requires seven to ten minutes. The company hopes to use digital workflows to cut costs, make disruptive improvements in core business processes, and eliminate busywork for its employees, but the most important objective is to improve the quality of work life for Accenture’s people.

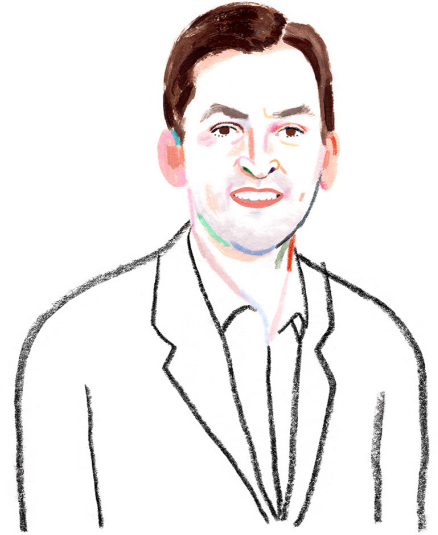
In addition to back-office technology and financial tasks, Accenture is automating many human resources activities, including application for a leave of absence. Parisi notes:

“Applying for a leave can be a challenging life moment, and there is often a high level of emotion involved. When our people see how easy it is to apply for and get a leave as well as have a guided workflow from time of application through date of return, the response has been overwhelmingly positive.”

Parisi feels that there has been some economic benefit to digital workflows, but the key measures are subjective:

“We can track something like an 80% reduction in service tickets for some workflows, but the greatest impact is in employee satisfaction. We survey employees using Net Promoter Scores on their interaction with key internal processes, and we’ve seen a big uptick since we started automating them.”

Most companies today are on the journey to successfully align technology with work. In the unlikely event that there is an end to the journey, we’ll discover the perfect blend of productivity, profitability and human fulfillment. In the meantime, there is much exploration of technologies, work arrangements, business models and strategies, and human capabilities to be undertaken.



Tom Parisi, Managing Director of Digital Transformation and ServiceNow at Accenture

What do we call this?

Although the term “automation” has been employed for almost 75 years, it keeps taking on new meanings. Today it is most commonly associated with the impact of artificial intelligence. One consistent connotation involves the replacement of human labor by machine labor, but even that meaning is problematic. Certainly much of what is happening in the current technology environment involves automation of tasks and processes, but humans remain an important component. Virtually every company I research or consult with—at least outside of robot-enabled manufacturing—says that they have not replaced humans with machines on a large scale.

As an alternative or supplement to “automation,” the term “digital workflows” allows for the possibility of both augmentation—smart humans working alongside smart machines—and the movement of human workers from menial and repetitive tasks to more creative and data-based analytical ones. I’ll employ the term automation at times just because it’s so familiar, but will interchange it with “digital workflows” to suggest a future for work that includes high-value human labor.

Whatever we call it, multiple forms of automation are being widely pursued in business, and increasing numbers and types of technologies are making them possible. Therefore, it is critically important to understand automation’s business value, how far along its adoption is in contemporary business, how to overcome key challenges in deploying it, and how to get started or move forward with the use of digital workflows. While not the focus of this article, it is also critical for governments and other organizations to continually monitor the impact on the workforce, the society, and the economy of these technologies, and to create policies and programs to address their impact.

Because automation impacts multiple stakeholders and can be evaluated from various perspectives, the research presented in this article is multi-faceted. The research has never been analyzed or presented before, and sheds new light on how companies are pursuing automation and digital workflows. The data and insights from it may be useful to companies in planning, implementing and evaluating their own initiatives with these technologies.

ABOUT THE RESEARCH

Survey respondents rated the degree of automation in their company and its implications. Interview subjects shared in-depth experiences on the adoption of automation technologies and how they are advancing organizations.

01

Online survey of 6477 full-time employees in Australia, Canada, France, Germany, Hong Kong, India, Japan, Mexico, Netherlands, Singapore, the U.K. and U.S. who regularly use a computer, laptop, smartphone, or tablet in their jobs between August 1 and August 24, 2018

02

Online survey of 812 U.S.-based IT executives familiar with the level of automaton of work processes in their company between October 15, 2018 and January 20, 2019

03

Telephone interviews with 23 IT leaders, including 14 ServiceNow customers between August and November 2018

02

The business value of digital workflows



It is clearly important to understand the business value of a technology before adopting it broadly. However, many companies don't do a great job of assessing the business value of any technology, despite trillions spent on IT globally over the past few decades.

They justify investments in technology prior to implementation—before they can really understand its value—in order to be granted investment funds. They may generate some projected ROIs to get their money, but most never go back and check what value was really delivered.

However, surveys of workers who use automation and digital workflows in their jobs and technologists who have already

invested in and experienced these technologies can shed a lot of light on the value they offer. The surveys of global workers and U.S. technology executives demonstrate that more automation yields more value to both employee and employers. This is clear in both the individual's and company's perspectives.

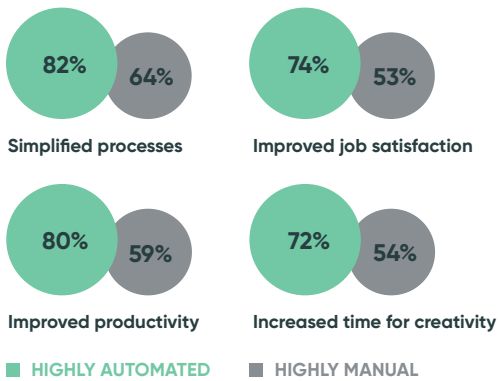
Individual perspective

In ServiceNow’s surveys of global workers, researchers gauged the impact of digitizing workflows by asking the employees who work with them every workday. Their response? Most are pleased with how much easier and better work becomes. About 8 out of 10 employees say higher automation simplifies work processes, enhances efficiency, and boosts productivity. Moreover, about 7 out of 10 employees say higher levels of automation improve job satisfaction, and increases both time available for creativity and opportunities for advancement. 32%—and 56% in the most automated firms—said that automation had created jobs in their companies, rather than eliminating them.

More automation benefits employees more

Q: In your experience, does workplace automation offer you and/or your organization the following benefits?

Responses from the employee survey shown.



Employees are also bullish on the future of digitizing workflows. The global worker survey found that automation at any level tended to offer benefits—including simplified work processes, greater opportunities for advancement, and less worker turnover—but the most automated processes were associated with the most benefits. For example, 82% of those working with “highly automated” processes reported that workplace automation had delivered simplified processes, but only 64% of respondents whose work process was “highly manual” reported that benefit for themselves and their organizations from automation.

IT managers confirm in a separate survey the positive impact on jobs. Nine out of 10 IT executives say automation reduces repetitive tasks and 85% say it fosters team collaboration. Meanwhile, 85% say process automation improves job satisfaction and 87% say it increases time available for creativity.

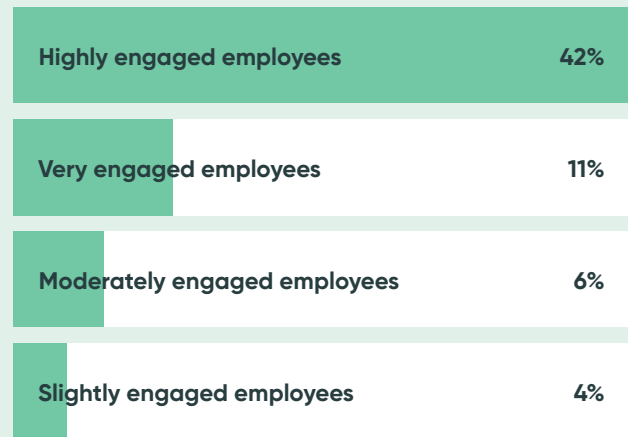
EMPLOYEE CULTURE

Employee experience drives success of digitization

Employee experience is critical to successful implementation of digital workflows. When employees are emotionally committed to their organization’s goals and values, motivated to contribute to their organization’s success, and enthusiastic about their job and the future of their organization, they are much more likely to welcome the automation of work processes and tasks. When business executives create the right work culture, driving productivity through process automation becomes easier.

Highly engaged employees are almost five times more likely to say adapting to automated work processes are very easy

Q: How easy is it for you to adapt to work processes that have been automated or partially automated?
“Very easy” responses from the employee survey shown.

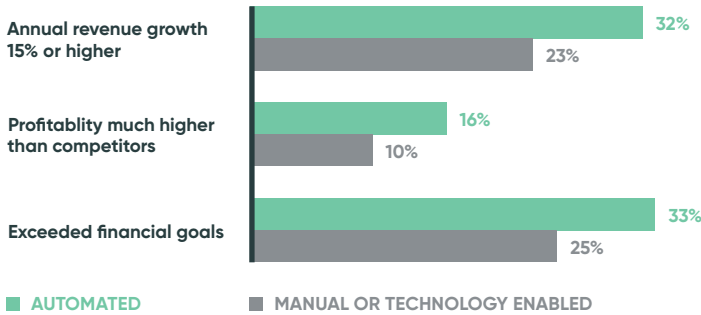


Company perspective

Workers with jobs in “highly automated” or “automated” processes also reported that their organizations achieved strong financial performance. They were over 30% more likely than those with less automated processes to report that their firms had high revenue growth, exceeded financial goals, and were much more profitable than competitors.

Digital workflows also give employees greater confidence in their company’s capability to succeed. In fact, employees polled in automated companies are 32% more likely to say their employers exceed financial goals than employees polled in manual companies. They similarly report expectations of higher profitability than competitors.

Highly automated companies outperform peers, say employees



IT executives, who have a broader view of how automation and digitization are impacting the organization, report significant firm-level benefits as well.

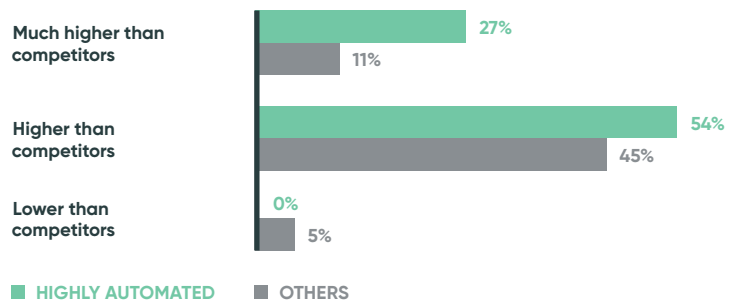
- More than 94% report that process automation has had a positive impact on productivity
- 88% say process automation increases customer satisfaction
- 80% say automation reduces employee turnover
- 90% say automation frees up employees to focus on more strategic work
- 72% say workplace automation creates jobs

The scope of adoption of digital workflows matters too. In the IT executive survey, companies were assigned an overall automation score and divided into quartiles based on the score. Respondents in the top quartile of automation scores were more likely to report higher revenue growth, better profitability than competitors, and higher achievement of financial goals than those in the three lower automation quartiles.

In fact, respondents from the most automated companies were 2.5 times more likely to have higher revenue growth relative to their competitors. They were also 37% more likely than other companies to report exceeding financial goals.

IT executives: automation linked to higher revenue growth

Q: How did your organization’s revenue growth in the past year compare to that of your main competitors?



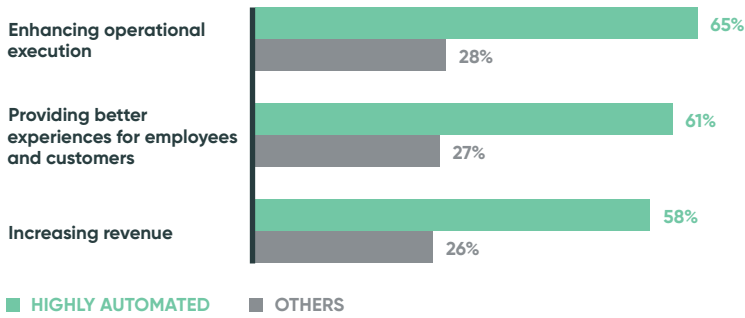
The benefits of automation extend to specific processes as well. More than half of those with top quartile scores rated their process for invoicing and collecting payments as “very efficient,” while only 21% in the other three quartiles did. Similarly, in IT processes, 49% in the top automation quartile said their new business application development process was very efficient, compared with only 20% of the others. In HR, the process of “accessing HR information” was rated very efficient by 44% of the top quartile, and by 17% of others. Other processes exhibited the same pattern.

More broadly, in terms of advancing their company’s operational goals, the respondents from highly automated firms in the IT executive survey were far more likely to rate their companies as extremely effective compared to other quartiles. Three areas that the highly automated companies win out include “enhancing operational execution” (65% top quartile vs. 28% others), “providing a better experience for employees and customers” (61% vs. 27%), and “increasing revenue” (58% vs. 26%).

Highly automated companies are more likely to be “extremely effective” at achieving corporate objectives

Q: How effective has your organization been in using automation to advance the following goals?

Extremely effective responses shown.



In short, there seem to be many reasons for and benefits from adopting digital workflows, and none—at least in these surveys—for not doing so. From both the individual and company perspectives, for both workers and IT executives, and on every question and issue, automation yields more satisfaction, more benefits, and better performance. **It's rare in my experience as a researcher to see such consensus on any type of intervention in business organizations.**

The findings offer a set of criteria that companies might use in assessing their own investments in digital workflows, both before and after implementation. Are workers concerned about their jobs before implementation, and do those concerns fade or disappear after they actually work with the technology? What issues concern them, and what benefits do they see? After implementation, how does automation impact individual processes as well as overall company financial performance? As with any new technology, to understand the value of digital workflows requires extensive measurement.

03

We're just getting started



The survey results on the business value of automation and digital workflows are impressive, but the future is **even more promising** than the present.

The reason for my optimism is that we are just getting started in the application of automation technologies to business, and there is plenty of running room for the future.

Boeing, the world's largest aerospace company, is on this journey. After more than 100 years in business, it has launched a "Second Century Enterprise Systems" program. The enterprise-wide initiative seeks a total digital transformation. Rob Muszkiewicz, senior manager of Operations Transformation in Boeing's IT organization, told me in an interview:

"We are on a journey with ServiceNow—some capabilities are in production—and we have also done a lot with RPA. We have already eliminated hundreds of thousands of work hours in areas like invoicing reconciliation, for example. But Second Century is first and foremost a business process transformation, including a consolidation into single systems in engineering, manufacturing, and even HR to support processes in those areas. We will be looking at the potential for automating cross-functional workflows throughout the company."



Rob Muszkiewicz, Senior Manager of Operations Transformation, Boeing's IT

When business processes are simplified, work becomes easier.

“We need to become much more efficient and remove manual toil, so that people can do higher-value work,” said Muszkiewicz.

Today most automated processes are based on highly structured and back-office tasks. But there is little use of automation to date in collaborative and knowledge work processes, such as management decision-making, strategy or campaign development, new product or service development, or content creation. Digital workflows can enhance collaboration, process cycle time and costs, and the quality of outcomes.

The global worker survey, in particular, suggests that most work processes are not yet automated to a significant degree. Workers in that survey reported that only 27% of the processes with which they worked were highly automated or automated, leaving almost three quarters of work processes with substantial manual activity. This finding prevailed regardless of company size.

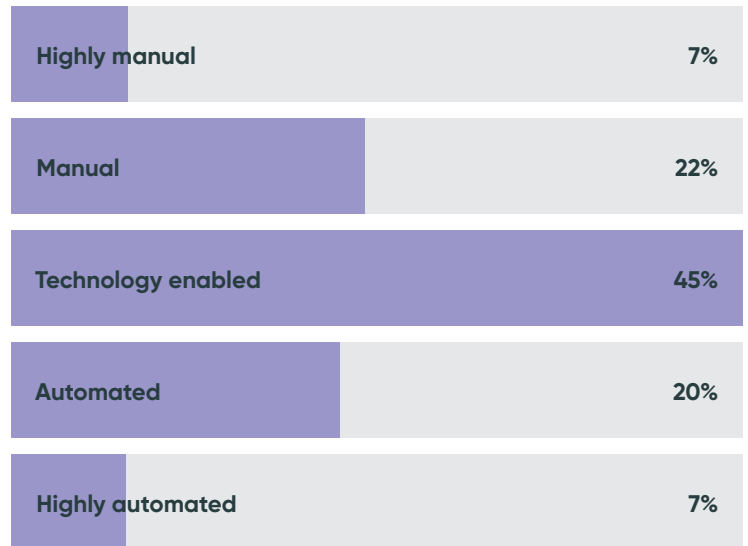
The IT executives surveyed reported a somewhat higher level of automation, but this is likely due to the fact that IT executives have more awareness of the level of automation in their companies. Still, even in this group, there is still plenty of room to grow. In that survey, 24% described their company’s average level of automation as “highly automated,” and another 40% “automated.” Only 9% said their processes were “manual” or “highly manual.”

Both surveys also provide insights on which processes are automated, and how that varies by the overall level of automation in the company. Companies with relatively low levels of automation typically focus on back-office processes like supplier setup, office supply ordering, invoice tracking, and contract/purchase order implementation. Companies that are “highly automated” focus on processes like internal data analysis (for example, of IT log files), invoice tracking, tech support and password reset requests, and requests for HR information.

Among all companies in the global workers survey, the most automated processes thus far are those with the greatest degree of structure and predictability, or those involving IT. These include installing software, password setup, and invoice tracking. About a third of all firms in the survey had automated these. Resolving customer issues and onboarding new employees were the least likely processes to be automated by any company, with fewer than 20% of firms saying these processes were automated or highly automated. As these activities are critical to customer and employee satisfaction, they should receive more focus in the future.

Fewer than 1 out of 10 companies are highly automated

Q: How would you describe the average automation level of the processes you use to perform your work?
Responses from the employee survey shown.



GLOBAL AND INDUSTRY ANALYSIS

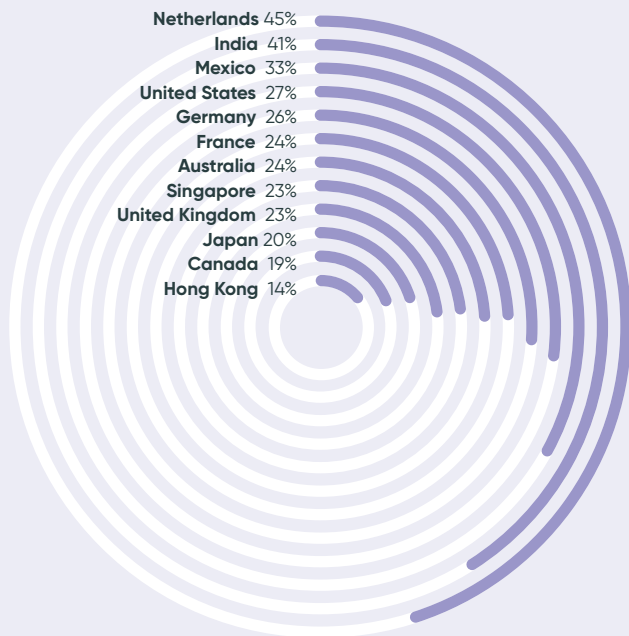
Digital workflows by geography

Of the 12 countries represented in the global worker survey, respondents in the Netherlands and India have the highest levels of process automation: 45% and 41%, respectively, reported that the processes they use to do their work are “automated” or “highly automated.” More than half of workers said that automation had been introduced to their jobs over the past three years overall, but introduction was higher in India (89%), Mexico (80%), and Singapore (70%).

The highest incidence of “manual or highly manual” processes are in Japan (39%), Hong Kong (37%), the United Kingdom (35%) and Australia (35%). Workers in Japan also reported the lowest rate of introduction of automation.

Employees in the Netherlands and India report the highest levels of process automation

Q: How would you describe the average automation level of the processes you use to perform your work?
Automated and highly automated answers from the employee survey shown.

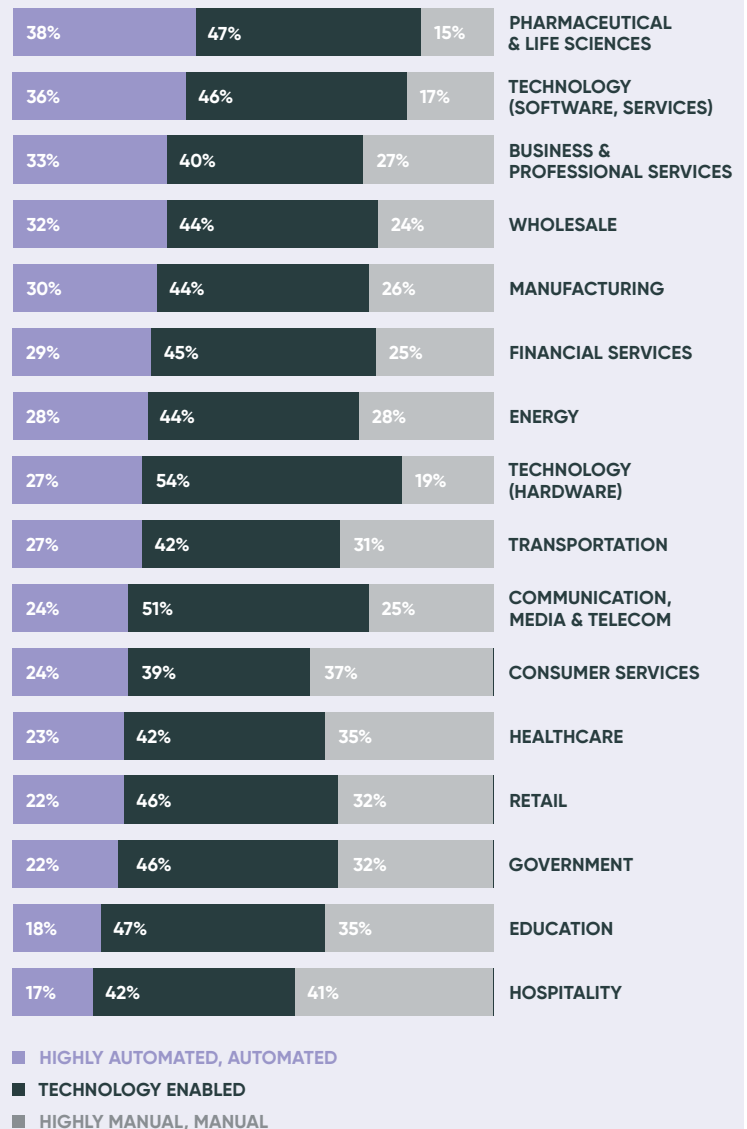


Digital workflows by industry

The global industries with the most automated processes are the pharmaceutical and tech/software industries. The most manual processes were found in the labor-intensive industries of hospitality, education, government, and consumer services.

Average level of automation by industry

Q: How would you describe the average automation level of the processes you use to perform your work?
Responses from the employee survey shown.



04

Overcoming the challenges to digitize workflows



Although employees and employers are highly positive about the business value of digital workflows, that **doesn't mean the value is always easy to achieve.**

Particularly in the interviews I conducted with technology leaders, common challenges were apparent. There are **technology, people, and process barriers** that can stand in the way of successful implementations.

Automation technologies

While I heard no complaints from technology leaders that digital workflow technologies don't work as promised, IT leaders did raise several challenges in architecting and implementing broad automation platforms. One key challenge is to deploy the right automation technology for a given problem. There are many alternative automation technologies available today, and they are rapidly evolving and combining.

To address this issue, some firms have developed typologies of automation technologies with guidelines about the tasks to which they are most applicable. Firms without this level of sophistication in the technologies and the structure of work activities, however, may struggle to identify and integrate the best solutions for their tasks and processes. One multinational consumer products firm, for example, created these classifications (and some of the technologies that support each objective):

- Content recognition (OCR, image recognition, audio)
- Decision making (AI and machine learning)
- Process control (workflow/BPM/case management, rules engines, some AI)
- Task automation (scripts, robotic process automation)
- Application interaction (APIs, enterprise application integration, enterprise service buses)
- Process monitoring/organization (process optimization, process data visualization, process data repositories)

An IT executive at the consumer products firm said in an interview:

“We are classifying tasks within key processes for which each technology is relevant and useful. But it's challenging because vendors of these tools are increasingly combining and crossing these categories. In addition to the categories of automation technologies, we developed a methodology for how to break down work processes, decompose tasks, document exceptions and actions, and piece some of the technologies together to support the process.”

Integration of diverse automation elements is a particular challenge. Chris Bedi, CIO of ServiceNow, told me in an interview:

“All the building blocks for broad automation platforms are available—digital workflows, process mining, machine learning, and so forth. The trick is how you bring all the elements together, and choose the right mode of delivery—mobile, chatbots, etc.—to meet employees where they are.”



Chris Bedi, CIO, ServiceNow

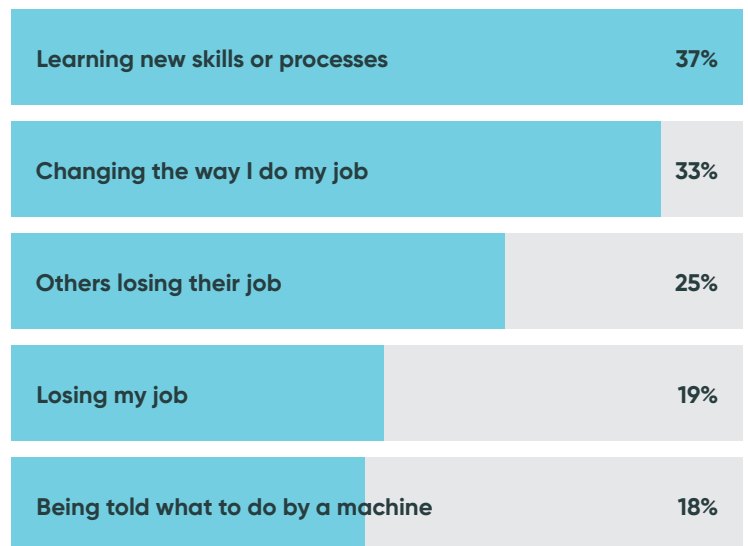
People and machines

Business executives, in my experience, often believe that the biggest issue for their employees with automation technologies and digital workflows is the possibility of job loss. If the global survey of workers is accurate, however, that is not the primary issue. While 77% of respondents had one or more concerns about workplace automation, the top concerns were “having to learn new skills or processes” (with 37% expressed concern) and “having to change the way I do my job” (33%). Only 19% were worried about “losing my job.”

Training for the new skills required for workers in jobs with some automation is also an important issue. 70% of the global workers say they are either very or extremely interested in learning new job skills. Another 23% is “somewhat interested.”

Employees worry more about change than machines

Q: What concerns, if any, do you have about workplace automation? Responses from the employee survey shown.

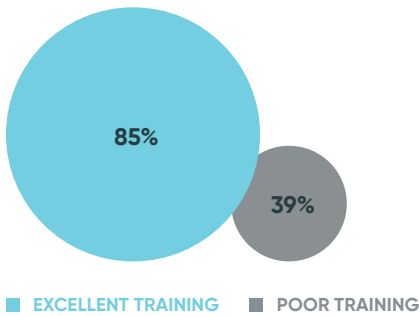


Yet many companies aren't doing a great job of training for and inculcating new skills. About a third of respondents say their organizations have done only a fair or poor job in training for new skills from automation, explaining the goals and reasons behind the new system, describing how work processes will be different with the new system in place, and other activities to ease the introduction. One exception recently reported on in *The Wall Street Journal* is Bank of America, which is evolving its operations environment to one in which AI and chatbots perform many tasks for customers. To prepare for this change, the bank's Technology and Operations function has developed a series of training programs to reorient and reskill the bank's employees for the new environment.

In the global worker survey, training made a difference in helping employees adapt to automation-enabled jobs. 47% of employees who rated the automation training they received as "excellent" said it was "very easy" to adapt to automated work processes; only 8% who said their employer did a poor job of training felt adaptation was easy. **Training is clearly not an area to skimp on in implementing digital workflows.**

"Excellent" training leads to "very easy" adjustment to automated work processes

Q: How easy is it for you to adapt to work process automation? Very easy responses from the employee survey shown.



Of course, working with automation technologies creates a need for digital skills in particular. 38% of workers in automated companies strongly agree that they already have the digital skills they need to advance in their careers; 22% in more manual firms have them. Among the digital skills most desired by workers are data analysis, programming, and web design. Nontechnical skills are desired too: problem-solving, people management, and creativity, for example.

Somewhat predictably, IT executives who have helped to introduce automation into their companies think more highly of their implementation approaches than workers do. For example, 48% of executives said their firms did an "excellent" job of explaining the goals behind the system, whereas 24% of workers did. Similar differences existed in other implementation activities such as training employees effectively and describing the differences between the old and new process. As a classic line from the movie *Cool Hand Luke* puts it, "What we've got here is failure to communicate."

Process management and process improvement

One other prerequisite for implementing digital workflows effectively is a strong process orientation. Companies that succeed in this endeavor need to know their processes, have measures for them, use approaches to improve them, and be skilled at employing technologies to enable new process flows. Otherwise, they will end up automating bad process designs, will improve processes episodically rather than continuously, and will not know the impact of digital workflows on process performance improvement.

For example, Srinu Koushik, CIO of health care company Magellan Health, focuses on improving work processes before optimizing them with automation:

"We first reimagine the process, then apply technology. If we find, for example, that we have three separate approval steps in a process, we eliminate a couple of them before automating the process. ServiceNow is an important component of our automation strategy, but we apply lean principles first."

My research and that of others on business process orientation suggests that it requires a sustained commitment over time and can't be implemented overnight. David Brain and I have described, for example, the value of improving processes before automating them with robotic process automation in an article published by Harvard Business Review, "Before Automating Your Company's Processes, Find Ways to Improve Them."



Srinu Koushik, CIO of Magellan Health

05

Taking action now, getting value quickly



Given the high degree of business value that employees and executives have found after implementing digital workflows, the most obvious recommendation I could make is to join them and **move ahead quickly in order to achieve similar value.**

Companies wanting to get full value out of automation initiatives should employ a multi-faceted change initiative. Some of the specific factors to keep in mind while moving ahead with these technologies include:

The more automation, the more value

A consistent finding throughout both surveys is that companies with higher degrees of automation reported more value, more employee and customer satisfaction, more productivity, and so forth. That suggests an ambitious program to implement digital workflow technologies widely across the organization as quickly as possible. **If your organization doesn't do it your competitors probably will.**

Let a thousand technology flowers bloom

Leading firms are adopting not just one automation-oriented technology, but multiple ones. **Identify the key tasks and processes** to be performed by the technology, and identify which specific types of tools are best suited to the job.

Move beyond the back office and IT

Companies may be tempted to choose the most structured or the most IT-focused processes to automate. But there is **plenty of value in less structured activities** outside of the IT function. Don't just pick the low-hanging fruit.

Think process

It's hard to automate processes effectively without a strong process orientation. Before large-scale adoption of digital workflows, **make sure you know the steps in your processes**, the time and cost of performing them today, and how they might be improved even before automating them.

Establish a Center of Excellence

In my interviews, **the most effective firms at managing digital workflows had established Centers of Excellence** in automation or related topics. They included representatives from all across their organizations, and they addressed multiple technologies and process types.

Don't automatically cut heads

Use headcount reduction sparingly. Think about higher-value tasks that your workers can perform. **Seek their cooperation** in implementing the technology, and reward them with job security.

Train, train, train

Don't be one of those many companies that does a poor job of introducing automation technologies into the organization. Communicate the purpose and objectives of the system, describe the vision for the new process, and describe what new skills are necessary. And **never stop training**. Enlist your HR organization as a partner in the deployment process.

Establish your own business value

I hope you are convinced from the surveys and interviews described in this article that digital workflows provide substantial business value to other firms. But if you want to persuade executives within your company to invest in them, you need to **develop a business case that is specific to your organization and its particular strategies and objectives**. And don't just declare an ROI before implementation; measure processes, performance, and worker attitudes before and after you deploy automation technologies.

Digital workflows are not only the future of business, but the present as well. **It is time to move on them.**

ABOUT THE AUTHOR

Thomas H. Davenport

Tom Davenport is the President's Distinguished Professor of Information Technology and Management at Babson College, cofounder of the International Institute for Analytics, Fellow at the MIT Initiative on the Digital Economy, and Senior Advisor to Deloitte Analytics. He teaches analytics/big data and artificial intelligence courses in executive programs at Babson, Harvard Business School and School of Public Health, and MIT Sloan School.

Davenport pioneered the concept of “competing on analytics” with his best-selling 2006 *Harvard Business Review* article and 2007 book. His most recent book is *The AI Advantage: How to Put the Artificial Intelligence Revolution to Work* from MIT Press. He wrote or edited nineteen other books and over 200 articles for *Harvard Business Review*, *Sloan Management Review*, *The Financial Times*, and many other publications. He is a regular contributor to *The Wall Street Journal* and *Forbes*. He has been named one of the top 25 consultants by Consulting News, one of the 100 most influential people in the IT industry by Ziff-Davis, and one of the world's top fifty business school professors by *Fortune* magazine. He is the most often cited researcher in the business information systems field in the world. He was also a “Top Voice” on LinkedIn in 2016 in the education industry and in 2018 for technology.



SUMMER 2019: THE LEADERSHIP ISSUE

What is a CIO's job?

This issue will draw from a survey of 500 CIOs to explore the expanding set of CIO responsibilities. Culture-breaker, tastemaker, innovator, thought leader—the job description is no longer just about IT. We will illustrate what it takes to be a world-class CIO who can advance the impact of digital workflows.

AUTUMN 2019: THE STRATEGY ISSUE

How can CIOs shape the future of work?

This issue will map out the journey for CIOs to make work better in their organization. It will define a vision for how digital workflows can transform various business lines, including customer service, human resources and information security.