

An ISG Research Report

# ISG Automation Index™

## April 2017

**\*ISG** Insights™

# Executive Summary

Talk of automation is everywhere. It's hard not to encounter an opinion piece about how automation will fundamentally change the nature of knowledge work. What's missing in the majority of these conversations is what is actually happening today. The ISG Automation Index™ fills that gap. By analyzing ISG-advised IT services contracts and robotic process automation (RPA) adoption trends, the ISG Automation Index™ uses a data-driven approach to look more closely at how automation is changing IT and business services.

In nearly every scenario we analyzed, increased productivity through task automation stands out as the most important change – not job loss. Humans are working alongside software robots, be they virtual agents or engineers, to increase their ability to take more customer calls, resolve more service desk tickets and process more invoices. This improved productivity is seeing important downstream effects: increasing operational speed and

scalability, improving compliance and avoiding future costs. Our data indicates these benefits apply to both enterprises and service providers.

For example, with the application of RPA, enterprises can execute processes such as procure-to-pay, order-to-cash and hire-to-terminate five to ten times faster, with an average of 37 percent fewer people. On the whole, we don't see RPA as the cause for displacing employees. To the contrary – employees in enterprises that are adopting RPA most often are taking on higher-value work or simply taking on more work.

Service providers are becoming more productive as well. Nearly every IT outsourcing vendor is introducing some form of automation into its services. Vendors are doing this most commonly with autonomies software, which automates standard operating procedures and correlates data to improve these procedures over time. Whereas in the past clients could expect a five to ten percent productivity improvement in their outsourcing contracts after two years, we now see examples in which enterprises are realizing 40 to 140 percent improvement over the same time period.

And these findings are not yet taking into account the impact of cognitive technologies – such as those that mine unstructured data found in emails, chat conversations and log files – to identify patterns, trends and probabilities.

The capabilities that power these technologies, like machine learning algorithms, are still nascent in most enterprise support functions, but it is only a matter of time before they hit mainstream.

Once they do, companies will realize even greater levels of productivity as they build out their digital workforces. This new way of working, which creates a partnership between employees and robots, will blur the lines between what was traditionally viewed as the front, middle and back office, and will become a source of competitive advantage for firms over the next decade. But, first, enterprises need to put in place the basic building blocks to digitize business processes in enterprise support functions such as IT, HR and Finance and Accounting.



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## RESEARCH APPROACH

To assess the impact of automation on both the IT services market and on business support functions, we analyzed ISG-advised contracts with an annual contract value (ACV) of more than \$5 million that included a significant automation component as part of the solution, and ISG-advised robotic process automation (RPA) assessments in Finance, Accounting and Human Resources. We then interviewed enterprise buyers, service providers and ISG advisors to enrich the findings.

## KEY FINDINGS

### IT Services

**Service provider productivity is surging.**

Employee productivity is improving across all towers by 24 to 143 percent; this is in contrast to a historical norm of 5 to 10 percent.

**Costs are declining, especially in areas where software is replacing hardware.**

Against ISG market benchmarks, double-digit cost reductions continue, with network and email management services showing the sharpest cost reductions, at 64 and 71 percent, respectively.

**Providers are committing ahead of the curve.**

We believe providers are committing to these productivity improvements and associated cost savings in a forward-looking manner; they are betting that the automation software they are integrating into their delivery models will help them deliver on contractual commitments within two years.

### Business Support Services

**Shared services processes using RPA require an average of 37 percent fewer resources.**

Procure-to-pay, order-to-cash, record-to-report and hire-to-retain processes, as well as a number of vertical-specific processes, such as loan servicing and underwriting, all require significantly fewer resources to execute with the application of RPA than those same processes without RPA.

**Order-to-cash processes are most impacted; hire-to-retain are least impacted.**

Routine processes such as billing, cash application and collections required 43 percent fewer resources to execute with RPA, while hire-to-retain processes, such as benefits, payroll and recruiting, required 32 percent fewer resources.

**RPA is about automating tasks, not roles.**

Robots are good at automating specific, discrete tasks, not a person's entire role. We find the extra capacity generated by automating tasks is being focused on executing more work or higher-value work.

## THE AUTOMATION LANDSCAPE

Automation has been in place in enterprise support functions for years in the form of scripts, macros, runbooks and workflow tools. What's changed? In some cases, it is the technology itself. But in others, it's the way enterprises are applying existing technology to business processes in support functions like IT, HR and Finance and Accounting.

Broadly, these technologies can be classified as Digital Workforce Platforms, or DWPs. A DWP automates work by functioning the same way its human counterpart does (replicating keystrokes, for example) or by mimicking the way humans make decisions (understanding the correlation between two events and taking appropriate action). DWPs create “digital labor” – virtual instantiations of their human counterparts. The difference between digital labor and traditional automation is that digital labor executes processes using the same steps, business rules, best practices and systems a human employee does today.

Digital Workforce Platforms fall into three categories: RPA, automatics and cognitive. The digital labor capabilities of these tools can be applied to a myriad of business support functions. However, as a general rule, the more structured the process and data, the faster and more cost-effectively digital labor can carry them out; the more unstructured the process and data, the more expensive and time consuming it will be to apply digital labor.

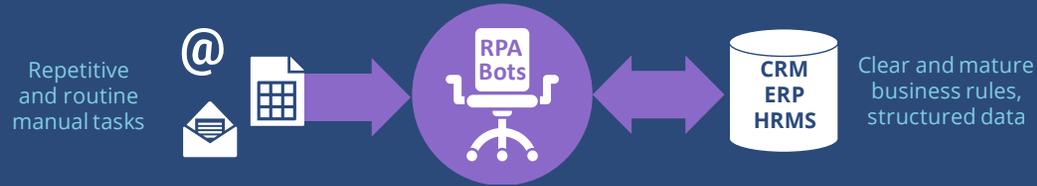
Fig1 Digital Workforce Platform Comparison

	Robotic Process Automation (RPA)	Autonomics	Cognitive
Business goals	Automation of algorithmic processes to reduce cost and enhance speed, accuracy, availability and auditability	Automation of algorithmic processes to reduce cost and enhance speed, accuracy, availability and auditability	Automation of non-standard, heuristic processes that require human interaction to reduce cost, increase speed and develop new insights
Automation targets	Business processes that use structured data and business rules, such as in F&A, HR and Supply Chain	IT processes that use structured and semi-structured data and business rules, such as in DevOps, service desk and end-user computing	Business processes that require voice interaction, image recognition, fuzzy logic and/or involve unstructured data
Value proposition	Automate any process without the need to change the process or the systems	Automate high volume, "commodity" IT processes	Automate human interaction
Works by	Replicating human actions	Using standard operating procedures and correlating patterns in data to improve procedures over time	Understanding the problem space via data to proactively recommend outcomes
Deployment time	4 to 8 weeks	3 to 6 months	6 to 8 months
Relative cost	Low	Medium	High

Source: ISG Insights™ 2017

As can be seen in Figure 1, the three types of Digital Workforce Platforms solve different types of business challenges and vary significantly in how long they take to implement and how much they cost. We see enterprises and services providers piloting and combining all three of these technologies in various ways to accomplish their business goals.

## Fig2 RPA Replicates Human Activities in Swivel-Chair Processes



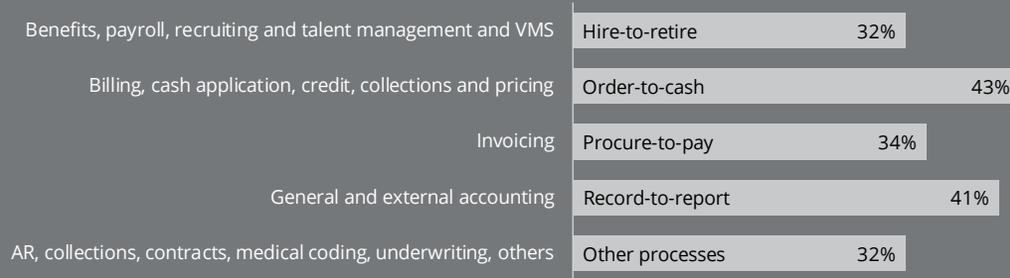
Source: ISG Insights™ 2017

## RPA: CHANGING THE NATURE OF BUSINESS SUPPORT FUNCTIONS

RPA robots automate repetitive, routine tasks using the same steps, business rules and systems a human does. Because RPA bots work at a graphical user interface (GUI) level and can execute nearly any process a human can, deployment requires neither process changes nor specialized interfaces. RPA robots

excel when 1) business rules are clear and mature, and 2) the data they interact with is structured, like the data typically found in enterprise systems of record. Therefore, RPA is most commonly used to automate “swivel chair” processes – back-office processes that have been until now too expensive or too time consuming to automate but that could benefit from increased levels of speed and accuracy.

**Fig3** Average FTE Reduction by Business Process after RPA



Source: ISG Insights™ 2017

By 2019, 46 percent of IT and business leaders will be in production with at least one RPA use case, and another 26 percent will have a proof of concept or pilot under way. Enterprise leaders are piloting and implementing RPA for a number of reasons, including to reduce costs, improve productivity and quality, increase compliance and compress transaction times.

While the business drivers for implementing RPA are varied, we consistently see the business justification for the implementation based on the number of full-time equivalents (FTEs) that the automation could potentially replace once it has been implemented. Figure 3 summarizes the average FTE reductions across the level-one and level-two function processes we analyzed.

While most enterprises initially evaluate RPA based on the assumption of FTE reductions, the reality is that we see FTE reduction occurring only in a small number of cases, primarily because robots automate tasks, not entire roles. When an RPA deployment frees up capacity, we see organizations using the capacity to either 1) increase the volume of work processed or 2) take on more value-added work.

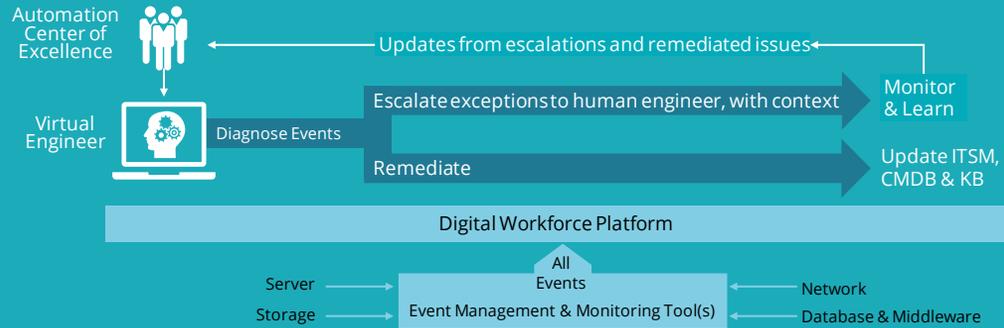
RPA brings a number of non-financial benefits as well, which can be tricky to quantify in a business case but which promise to be the real value of RPA.

Compared to their human counterparts, RPA bots:

<p><b>Work faster.</b> RPA robots are so fast that delays are usually built into them because the underlying systems or tasks they are automating cannot match the speed at which they work. This increase in speed leads to increased productivity and to downstream benefits, such as improved turnaround times for customers.</p>	<p><b>Work longer.</b> Except for scheduled downtime (for infrastructure maintenance and application patching) bots can work 24 hours per day, seven days per week, increasing the volume of work that can be processed within a specific timeframe.</p>	<p><b>Are more flexible.</b> A single robot can be trained against a variety of processes to create a flexible and multi-purpose solution as business needs change.</p>	<p><b>Are more consistent.</b> Robots perform their work against pre-defined business rules. The majority of automation tasks don't perform 100 percent of a process, but they do perform consistently 100 percent of the time.</p>	<p><b>Create valuable data.</b> Bots create data – and a lot of it – that can be used to improve processes. As more data is collected from more deployments and use cases, organizations will begin to leverage this data to further improve and streamline operations.</p>
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Taken in total, these findings reinforce what we find in our broader automation research: enterprises are not implementing RPA to achieve near-term cost reduction based on reducing or transferring FTEs (as it is with outsourcing); rather, they are seeking long-term cost avoidance, increased productivity and improved customer experience.

**Fig4** Automic Systems Use Analytics to Improve Processes



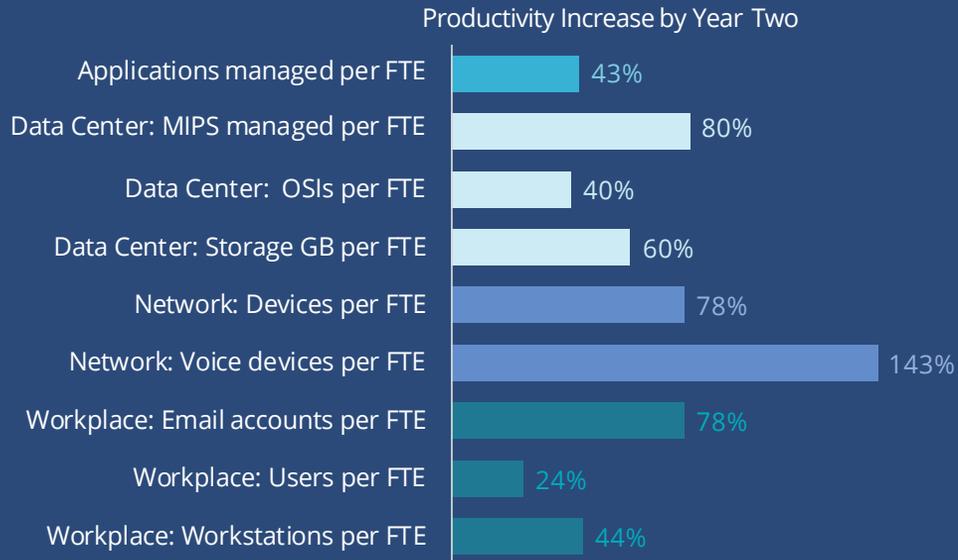
Source: ISG Insights™ 2017

## AUTONOMICS: DRIVING IT PRODUCTIVITY UP, PRICES DOWN

Automic systems are most commonly applied to IT operations, but industry-specific use cases, especially in financial services, are emerging. Automic systems use a knowledge library to store standard operating procedures and a correlation engine to determine which procedures should be applied. These systems receive input from other systems that produce large amounts of data, such as monitoring and event systems. In the most sophisticated

applications, machine learning algorithms are embedded into the automic software to perform complex activities such as workforce planning, root cause identification and preventative maintenance. While automation of deterministic processes is well under way in the market today, operational analytics that use self-healing and self-learning capabilities are still emerging.

Fig5 Average Service Provider Productivity Improvement by Tower



Source: ISG Insights™ 2017

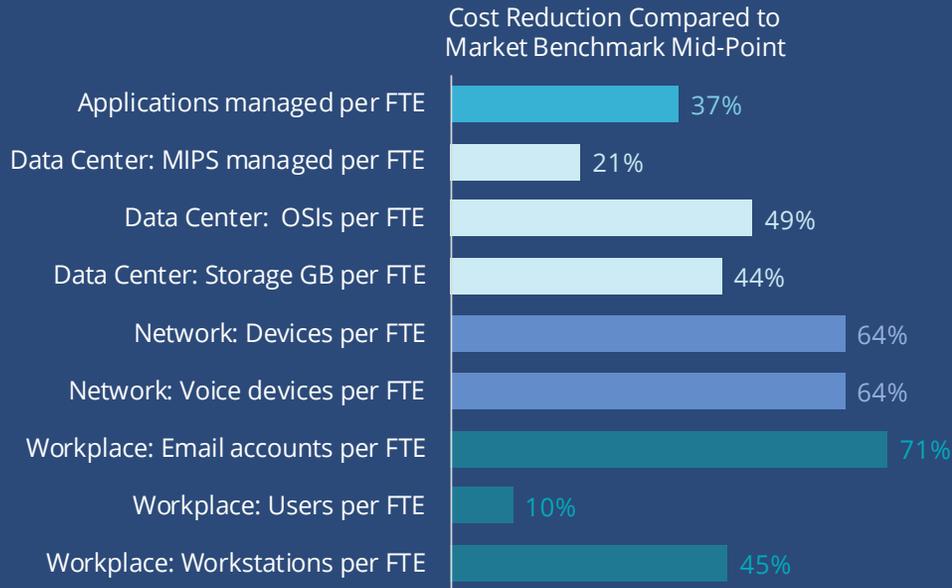
According to ISG’s 2016 Digital Platform Survey, nearly 43 percent of IT leaders indicate that automation of operations will have the biggest impact on their IT spending through 2019. Additionally, according to ISG’s 2017 Automation and AI survey, nearly 68 percent of IT and business leaders feel IT will be the support function most impacted by automation by 2019. Automation is top of mind for IT leaders – and for the providers that service them.

IT services providers are addressing this opportunity (and challenge) with autonomics. Using a combination of standard operating procedures, a correlation engine and, in some cases, machine learning algorithms, providers are attempting to break the long-standing linkage between people and revenue by automating routine tasks. To do this, they need their employees to become more productive. As employees become more productive, they need fewer people to do more work. This drives down cost for buyers and, in many cases, increases the provider’s margin.

To measure the impact of this change, we counted how many items – be they images, devices or employees – each employee can manage. By comparing the average number of items buyers manage prior to and after contract signing, we can determine a productivity improvement. Figure 5 shows the average productivity improvement for the ITO deals we analyzed.

All IT functions show significant productivity improvements by the second year of the contract. Take data center operating system instances (OSIs) for example. If, prior to the contract, the buyer can manage 50 OSIs per employee, providers are committing to manage an average of 70 OSIs per employee by the second year in the contract, a 40 percent improvement. This is compared to traditional productivity improvements of five to ten percent, which was the norm just three years ago.

Fig6 Average Service Provider Cost Reduction by Tower



Source: ISG Insights™ 2017

As productivity improves, costs decrease because fewer people are needed to manage the service. Figure 6 shows the average cost decrease per metric for the contracts we analyzed. Interestingly, all of the metrics are significantly below the mid-point of ISG’s market benchmark, and, in some cases, the reduction is below the market low point, indicating how fast prices for IT services are decreasing.

Productivity improvements, and resulting cost decreases, are especially steep in those areas where software is abstracting away hardware. Networks, like infrastructure, are increasingly becoming digitized – moving from hardware to software. The same can be said for email. Today, most companies have moved or are actively moving to Office 365, Microsoft’s cloud-collaboration platform, and away from on-premises or hosted Microsoft Exchange.

## MARKET IMPACT

As reported in the most recent Global ISG Index™, the as-a-service market is booming, growing 38 percent year over year, while traditional outsourcing was down four percent over the same time period. Buyers are moving away from large, multi-tower and multi-process relationships toward smaller, more focused third- and fourth-generation services contracts. Additionally, buyers are using cloud technology – particularly Software-as-a-Service (SaaS) and Infrastructure-as-a-Service (IaaS) – to transform their operations. This is one of the reasons we saw a 13 percent growth rate in SaaS adoption and a 54 percent growth rate in IaaS adoption between 2015 and 2016.

This movement away from traditional outsourcing and towards as-a-service sourcing is putting tremendous pressure on service providers to redefine their role in a market that puts a premium on technology platforms over human labor. Increased competition is compressing margins, and offshore rates are flat to increasing. Because nearly half of incumbent service providers are losing competitively renegotiated deals, they must quickly decrease costs and increase margins. Using automation, coupled with smarter and more-integrated technology, is the way many leading IT and business process providers plan to separate revenue growth from labor growth.

## IT Services

Productivity at IT services providers is rapidly accelerating, leading to significant double-digit cost reductions for buyers. However, some providers are committing to productivity improvements to win business without full knowledge of how or when their autonomic platforms will deliver on those commitments. This is likely to put significant margin pressure on a number of providers over the next 24 months, a dynamic that may have a downstream effect on buyers in the form of potentially diminished services as providers attempt to recoup their margins.

## Business Services

Interest in low-impact implementations that can quickly and cost-effectively automate business support functions will continue to grow at a rapid pace. Longer term, we believe RPA will have a major impact on not just a single function's processes, but on the enterprise sourcing strategy as well. BPO buyers increasingly will perform an automation assessment prior to engaging the market for managed services, viewing RPA as a new type of delivery model to be evaluated before or alongside traditional outsourcing. As RPA buyers become more sophisticated in digitizing their business processes, service providers will feel additional pressure to offer these same services but at a lower cost, further driving down prices and narrowing short lists of those providers that have proactively integrated RPA and cognitive capabilities into their service delivery model.

## GUIDANCE FOR IT SERVICES BUYERS

**Perform due diligence on the automation technology, not just the services.** For the past three decades, providers have followed the mantra, “people following a process supported by technology.” Today, the mantra is, “technology following a process supported by a human.” Increasingly, the technology will include both the service offering and the method for delivering it. This means enterprises should carefully evaluate the efficacy of the provider’s chosen automation technology to ensure it can live up to its productivity and pricing commitments.

**Beware of unintended consequences.** As providers automate more low-level tasks, service-level compliance will improve because these recurring issues will almost always be resolved on time. However, this approach may not detect the root cause of the problem, so buyers should create automation service levels that address the overall reduction of incidents, not simply their timely resolution.

**Avoid pricing based on configuration items.** Basing pricing on configuration items (CIs) is common but is not the best model to use when pricing for digital labor. Instead, buyers should strive to price based on a transaction model (e.g., \$X every time an event or incident is executed). This creates an alignment between a provider’s revenues, its costs, and both buyer and seller incentives to drive down volumes by addressing root causes.

## GUIDANCE FOR RPA BUYERS

**Focus on organizational change management.** When enterprises deploy RPA, they are starting a new function within the organization. Creating an RPA center of excellence (CoE) can be an effective way to manage the organizational change that will inevitably occur as bots begin to take on more work. For example, robots may need to change when applications they work with change, and people and apps downstream of the bot need to know when the robot's process changes. Bots also need to be monitored and measured. Our experience shows that organizations that use a CoE model experience earlier success in their RPA deployment than those that do not.

**Don't underestimate complexity.** In RPA deployments, enterprises automate current processes, they don't wait to design the perfect process. This is why implementations are generally fast and low cost. However, business processes do need to be clear, reliable and consistent. This means buyers need to understand the process down to the keystroke level. Complicated processes that span the enterprise, have lots of exceptions or lack documentation are unlikely to be good candidates for quick, low-cost RPA implementations.

**Build a partnership with IT.** RPA software vendors will say implementation is easy and that an automation can be built in a week. But it often takes upwards of six weeks to install and credential the software. Don't surprise the IT organization at the last minute with a fast-track RPA implementation. Involve them from the beginning, making them a partner in the successful deployment. It is also important to keep in mind that RPA is not just for shared services. A tool that fills the gaps created by ERP and that can be implemented quickly and cost effectively can be a boon for the forward-thinking CIO.

# Additional Insights



June 2016	<a href="#"><u>7 Characteristics of a Generation-Three Relationship</u></a>
September 2016	<a href="#"><u>The Looming Digital Change for Traditional IT</u></a>
October 2016	<a href="#"><u>10 RPA Implementation Best Practices</u></a>
December 2016	<a href="#"><u>Digital Labor Transforms Business Support Functions</u></a>
January 2017	<a href="#"><u>ISG Index™: As-a-Service Surging</u></a>
February 2017	<a href="#"><u>Digital Labor Will Become the Enterprise Complexity Concierge</u></a>
April 2017	<a href="#"><u>Applying Digital Labor and Digital Intelligence to the Business</u></a>
April 2017	<a href="#"><u>ISG Index™: As-a-Service Growth Signals Shift to Platform-Based Sourcing</u></a>

# Authors



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Stanton helps enterprise businesses and IT leaders rationalize and capitalize on emerging technology opportunities amid the shift to a future dominated by cloud, automation and digital business. He brings extensive knowledge of today's cloud and digital labor ecosystems, as well as other disruptive trends that are helping to shape and define the enterprise operating model of the future. Stanton is a recognized expert and has been quoted in *CIO*, *Forbes* and *The Times of London*.



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