



The State of Automation and AI: C-Suite's Number One Strategic Imperative for Operations

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Executive Summary

HfS conducted the first-of-its kind research involving 400 senior IT and operations executives from enterprise customers¹ to drive a fact-based discussion on the impact and maturity of automation and Artificial Intelligence (AI) on business operations.

Four-fifths of the C-Suite are demanding automation and AI as a critical part of operations strategy. These technologies fundamentally alter the building blocks for every organization's operating model. And yet, the implications of the seismic shift brought on by automation are not yet visible. Operations leaders across business and IT are facing tremendous challenges at the start of their automation journey, with no clearly established playbooks to follow. Automation projects are stalling for many enterprises that lack the proper planning, requisite talent, skillsets, or clear definition of the goals required for deployments. Over the next few years, automation and AI will fundamentally change the way organizations are undertaking business operations.

Our study, supported by **Hexaware**, highlights the early investments and strategies around Intelligent Automation, its key challenges and successes, and lessons learned to help close the gap between leadership ambition and the challenges in execution.

¹ Refer to the appendix for more details on the research methodology and survey demographics



Key Findings:

- » **Automation is the number one strategic priority four-fifths of enterprise C-Suites are placing on their operations.** Enterprises see AI and machine learning (81%) and process automation and robotics (82%) as important C-suite directives toward operations strategy – higher than any priority other than cost reduction.
- » **98% of enterprises have an automation agenda.** Every organization today needs to have an automation strategy and that is reflected in the responses in our survey; only 2% suggest not having a strategy as of now, while 20% are in the process of formulating their strategy. Already, 31% of enterprises are integrating automation into the fabric of their service operations. Others are setting up dedicated CoEs (18%) and working with service providers (13%).
- » **Corporate leadership and IT are most active driving the automation agenda.** Decision making is increasingly being led by the CEO (54%), CIO/IT Director (57%), and CFO/Finance Director (35%). Additionally, a diverse group of automation influencers and stakeholders emerge, notably the finance department (49% consider as influencers), procurement (47%), data center managers (51%) and purchasing managers (48%).
- » **Deployments of RPA as well as AI starting to scale out with varying degrees of maturity.** RPA is seeing rapid adoption and AI will become mainstream in two years. More than 70% of customers are planning to deploy RPA over the next two years and more than 50% believe that AI will be applicable for a broad set of processes within the same timeframe. Therefore, investments, planning, and training of talent around the notion of Intelligent Automation is pivotal for staying competitive.
- » **Many customers are in an automation dichotomy: they want automation to drive long-term quality and agility, but need rapid cost takeout to sell the ROI.** For a significant number of enterprises, their automation strategies are expected to deliver, primarily, better quality of operations (52%), more workforce agility and scalability (49%), and superior data accuracy (48%). Only a minority of respondents are seeking short-term cost savings (21%) or a way to displace employees (12%). However, when you ask what is inhibiting automation adoption, the top criterion is that the “Immediate cost savings are not high enough” (35%), indicating a disconnect in expected benefits and business case.



- » **Satisfaction with initial automation deployments is mixed as customers struggle to define success and execute against it.** Only a little over half the enterprises (58%) that have gone down the RPA path are satisfied with the level of business value and cost savings from their implementations thus far. Enterprises that have yet to explore technologies like RPA point to struggles with establishing business cases (41%), while 30% expect that automation capabilities will be absorbed by enterprise applications in the next five years. In addition, many enterprises struggle with developing an effective centralized governance structure for automation initiatives, citing that projects are too siloed, don't have success milestones established, and lack organized training to use the tools effectively.
- » **Despite the growing pains, RPA is starting to be used effectively in this era of innovation and the current satisfaction results reflect this.** IT operations have the most satisfied clients for both cost savings (70% satisfied) and business value (72% satisfied), followed by marketing (70% satisfied with cost) and procurement (63% satisfied with business value). Regardless of the level of satisfaction on cost and business value as of today, operations leaders are making incremental progress, one process at a time. In the interim time between sawing off broken processes and legacy systems and replacing them with costly new systems and services, RPA seems to be helping enterprises get some level of access to new business value from their current processes.
- » **Automation Centers of Excellence (CoE) proving a major success.** Of organizations with the CoE approach, 88% believe that the automation CoE has been effective in delivering business value (scores of 4 or 5 on a 5-point scale). HfS has been hearing advisors in the RPA arena claim many clients are failing miserably with their CoEs, but this data proves, beyond doubt, these are scare tactics and those customers who are centralizing automation projects into one governance team are already reaping significant benefits.



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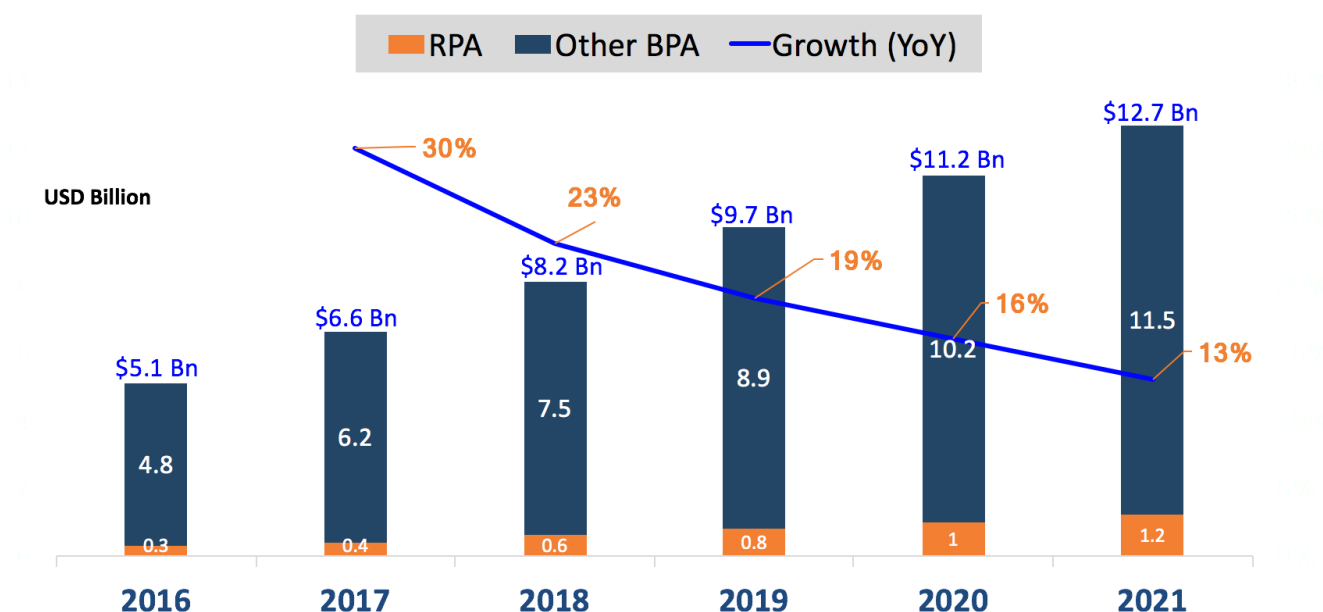
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The Global Automation Market Projects Growth Across Automation Technologies

The business process automation market is growing rapidly, estimated to reach \$12.7 billion by 2021. As a subset of this market, Robotic Process Automation is less than 10% of the worldwide deployments as of today, and will continue its relatively smaller trajectory to other BPA tools. In our estimate, RPA will grow to \$1.2 billion by 2021 at a compound annual growth rate of 36%.

Exhibit 1: Global Business Process Automation Market, 2016-2021



Source: HfS Research, 2017

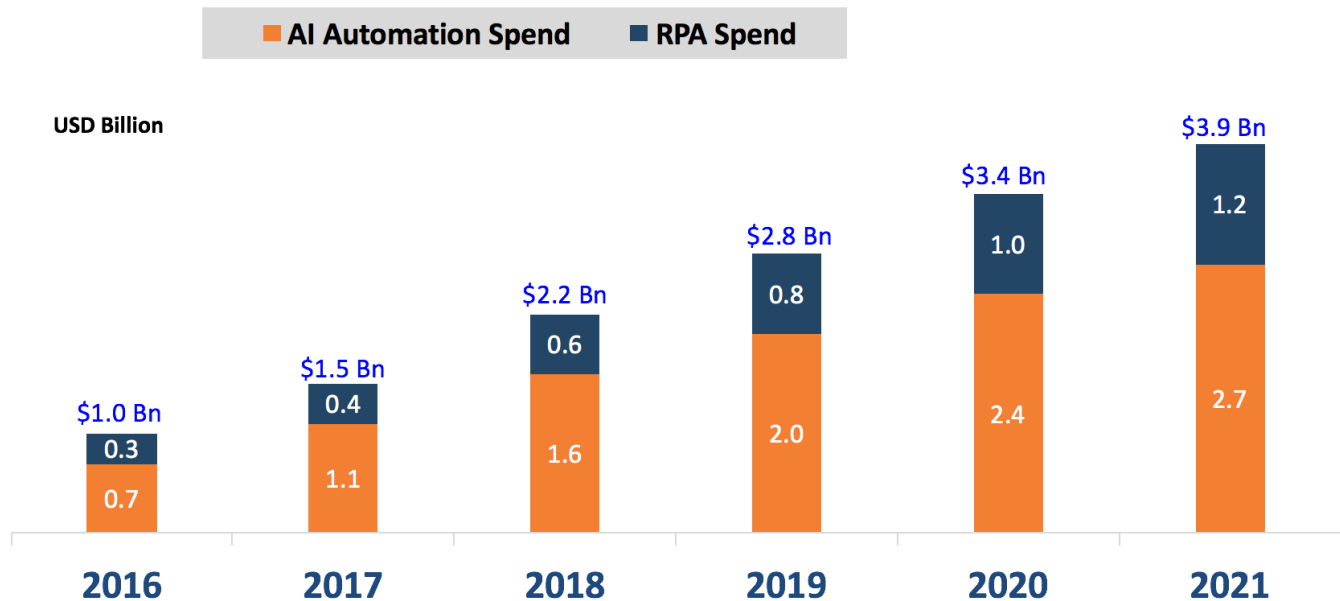
Business Process Automation

Business Process Automation is the use of technology to allow a business function or part of the operation of a process workflow to work automatically. It includes the use of RPA, BPM suites, custom scripting, AI and related technologies.

Organizations simply cannot be effective with a digital strategy without automating processes intelligently. This shift is about making processes run digitally so smart organizations can grow their digital businesses and create new work and opportunities. This is where RPA adds most value today, by providing the building blocks for digitizing rudimentary processes.



Exhibit 2: Global Business Process Automation Market, 2016-2021



Source: HfS Research, 2017

Artificial Intelligence

Artificial Intelligence, in this context, refers to the simulation of human thought processes across enterprise operations, where the system makes autonomous decisions, using high-level policies, constantly monitoring and optimizing its performance, and automatically adapting itself to changing conditions and evolving business rules and dynamics. It involves self-learning systems that use data mining, pattern recognition, and natural language processing to mimic the way the human brain works, without continuous manual intervention.

However, as more processes become digitized, the more value we can glean from cognitive applications that feed off data patterns to help orchestrate more intelligent, broader process chains that link the front to the back office. The broader market for intelligent process automation is more than 10 times the size for RPA, when we take this into account. Putting some quantitative estimates to this view, we expect AI automation spending to greatly surpass RPA by 2021, at \$2.7 billion vs. RPA at \$1.2 billion. In our view, as these solutions mature, we'll see a real convergence of analytics, RPA and cognitive solutions as intelligent data orchestration becomes the true lifeblood – and currency – for organizations.



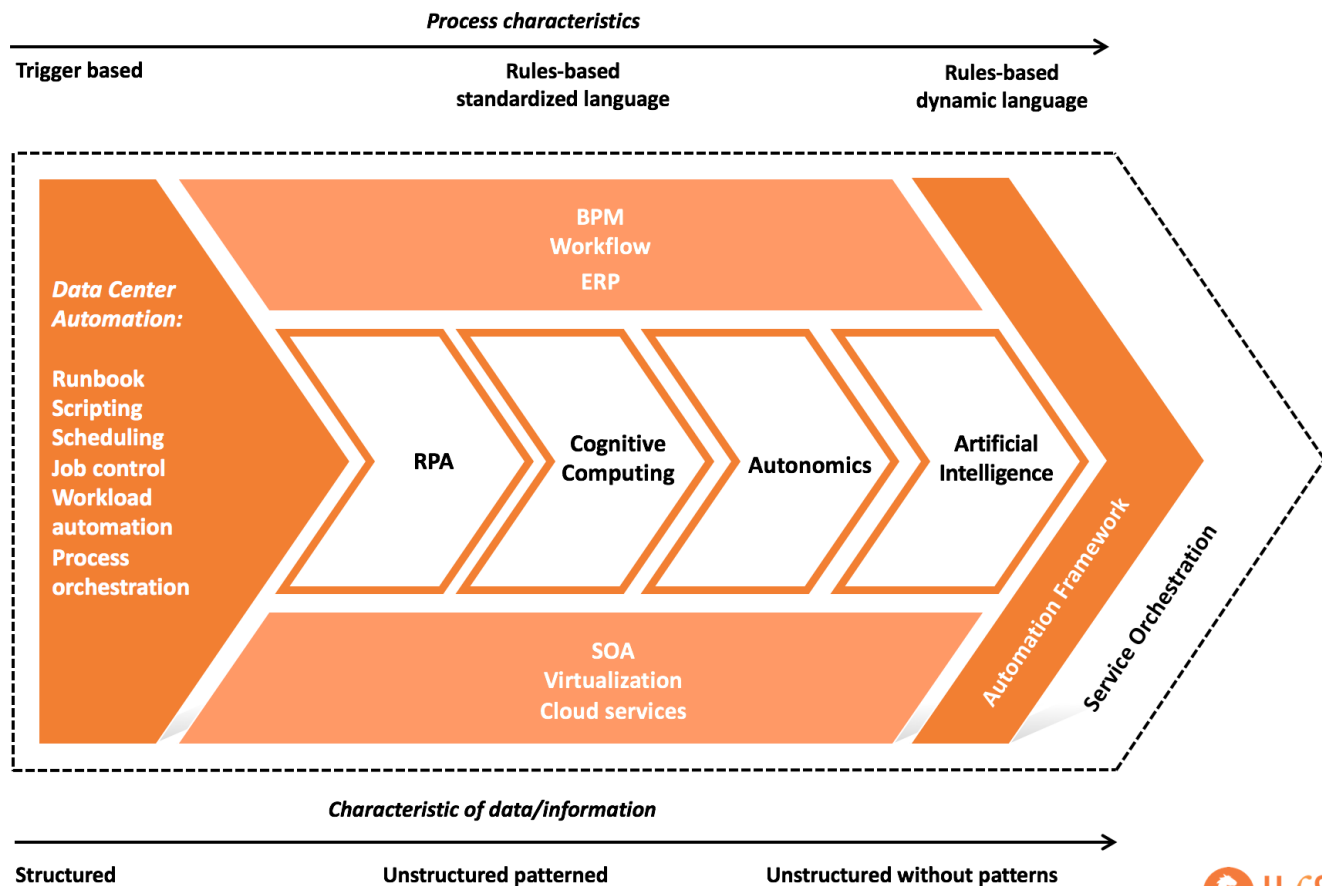
Intelligent Automation Needs to Be Understood as a Continuum

As organizations are progressing toward digital transformation, HfS puts forth the notion of Intelligent Automation in enabling them to overcome process and media breaks to deliver end-to-end processes in real-time. While nothing in the context of automation is commonly defined, the HfS Intelligent Automation Continuum is aiming to provide stakeholders with a point of reference to discuss how innovation around automation is impacting enterprise operations.

In Exhibit 3 we present the way HfS is segmenting the various technologies that can deliver automation. This continuum captures differences in the characteristics of the process being automated and the characteristics of the underlying data to depict the strategic evolution of Intelligent Automation. We begin the segmentation with more traditional automation approaches, such as runbook or scripting. A more comprehensive view of Intelligent Automation will not replace such approaches; rather, it will augment them. Similarly, efforts around BPM, workflow, or SOA need to continue and should be integrated into a broad Intelligent Automation definition and strategy by enterprises as well as the automation technology and services vendors that partner with them. The direction of travel for the evolution of process automation is along the Process Characteristic and Data and Information Characteristic paths. As a result, the next frontier of innovation will be around processes leveraging dynamic languages and largely unstructured data. So, the model is also meant to be forward looking, to help in the positioning of any new technology within this continuum of Intelligent Automation.



Exhibit 3: The HfS Intelligent Automation Continuum



Source: HfS Research, 2017

The fundamental thought process behind the Intelligent Automation Continuum is that all the approaches that you can see on this model, including the traditional approaches such as runbook and scripting in the data center seen on the left side and the innovation in the white chevrons, are at once interdependent and overlapping. Organizations need to manage this complexity when embedding different automation techniques within business functions, making orchestration and integration critical in the long-term. Thus, it is easy to see the necessity both for automation frameworks as well as the approaches for service orchestration enabled by platforms such as ServiceNow, Enate, Atomic, or Cortex.

However, the model is not meant to be used to pigeonhole technology providers, which can have overlapping services and capabilities across disparate segments. Similarly, the model is not to suggest, despite depicting chevrons, that there is logical evolution from left to right and that organizations should start with RPA and then move to cognitive and AI, and so on. Rather, the model shows both the complexity and the key building blocks. The starting point can be anywhere on the model or anywhere in the value chain.

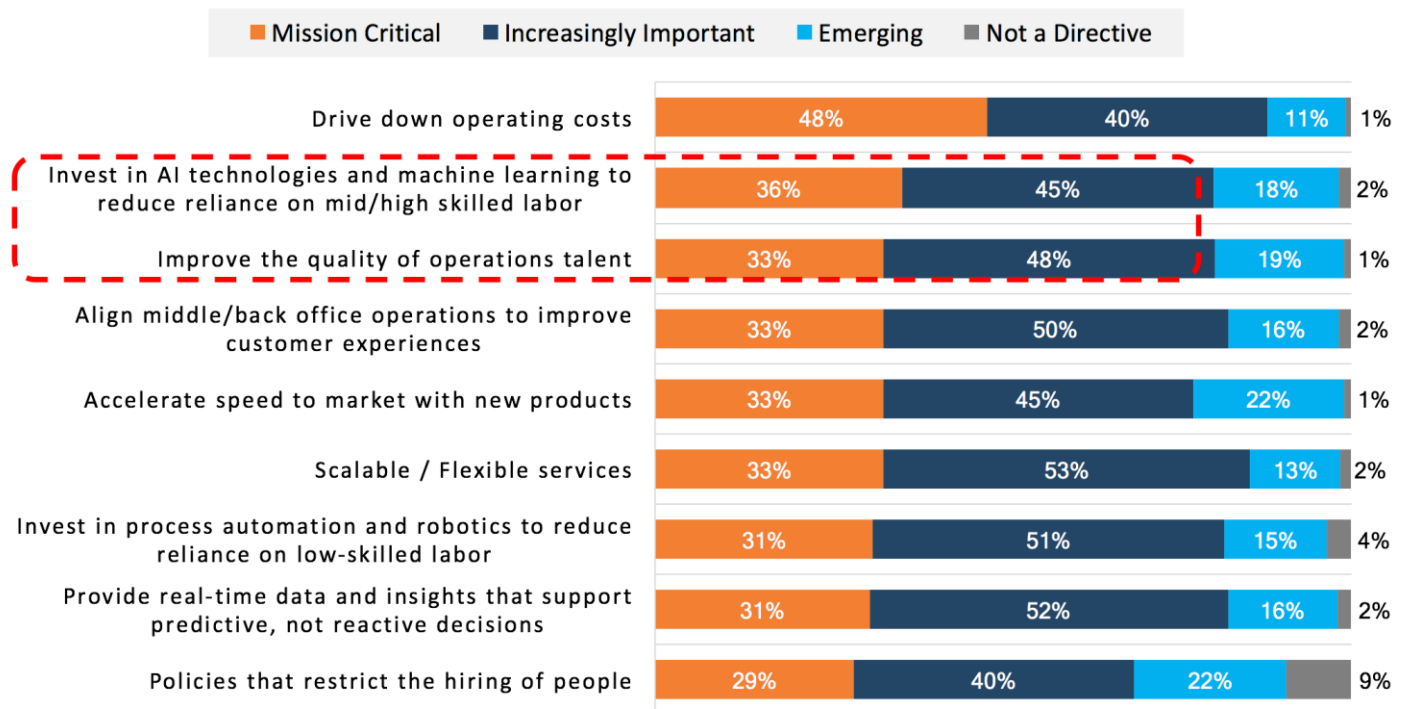


RPA with AI Is the Major C-Suite Role for Operations After Cost Reduction

Automation, RPA, and AI technologies are commanding not just C-suite level attention, but also represent a strategic imperative. In fact, AI and machine learning emerged as second only to driving down costs as a C-level directive (See Exhibit 4).

Exhibit 4: Automation Is Starting to Drive Operations Strategy

How critical are the following C-Suite directives to your operations strategy?



Source: HfS Research, 2017, n= 400 Enterprise Services Customers

- » Most (81%) of enterprises see AI and machine learning as a critical C-suite directive.
- » Most (82%) consider process automation and robotics as an important C-suite directive.
- » Related, 22% are seeing the emerging importance of policies that restrict the hiring of people.

Every organization today needs to have an automation strategy and that is reflected in the responses in our survey; only 2% suggest not having a strategy as of now, while 20% are in the process of formulating their strategy. For the clear majority, automation is past the stage of hypothetical consideration and exploratory ventures. HfS sees operations leaders across industries seriously investigating Intelligent



Automation with an unprecedented intensity. Yet, we have to call out that this is a journey. Organizations have different starting points, different strategic goals, and most importantly different levels of maturity. There are no simple answers as to how to progress on this journey.

As one client outlined their progress, “We are beginning to employ RPA together with cognitive technologies such as speech recognition, natural language processing, and machine learning to automate perceptual and judgment-based tasks once reserved for humans. The integration of cognitive technologies and RPA is extending automation to new areas and can help us become more efficient and agile as we can move down the path of becoming a fully digital business.”

The C-suite (CEO, CIO, CFO) is the primary decision maker for enterprise automation strategy (See Exhibit 5). Additionally, almost every enterprise department/leader is identified as an influencer that wants a seat at the table. Procurement departments, line of business directors, even management boards are starting to influence the introduction of automation capabilities within enterprises. Therefore, the nuanced attention to stakeholder management as part of deployments is a critical success factor of moving from PoC to broader adoption. A good example of this can be found in RPA deployments where IT didn't get involved. All too often those projects ended in failure or hit a brick wall. While the list of stakeholders is growing longer every day, the push for automation needs to come from the top to have the most impact. A client faced this challenge with AI, stating “AI Automation would be more useful and relevant to my organization when we have more upper management and board of director support for the processes.”

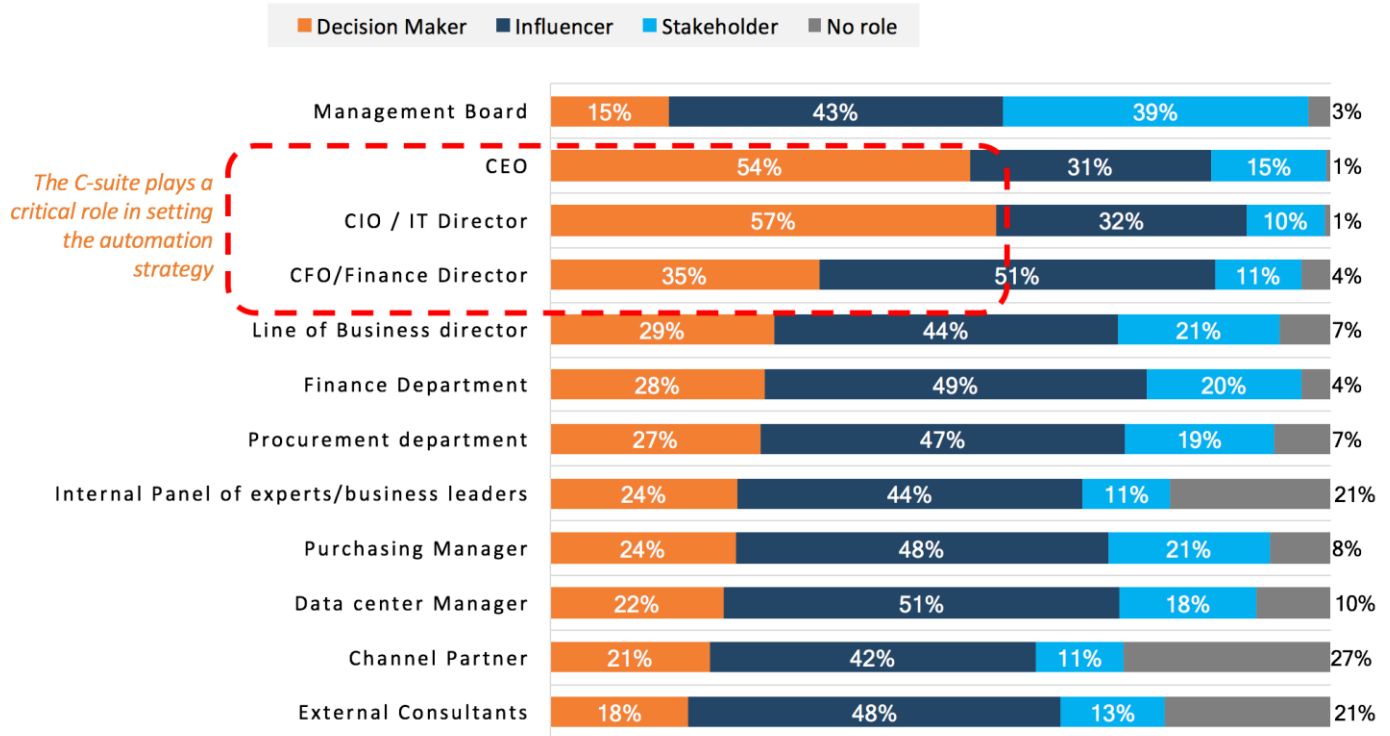
Looking at the decision-making process from a different angle, by depicting which information sources are critically influencing the decision, provides surprising reading. In more traditional market segments such as application management or infrastructure outsourcing, sourcing advisors and external consultants play a significant role. For automation, we instead find industry analysts being seen as the most important source of information. The usual triumvirate of stakeholders – sourcing advisors, Gartner, and a little bit of Forrester – won't necessarily yield the results for automation projects. On the contrary, sourcing advisors (12%) and external consultants (11%) have the lowest rating. The highest ratings are industry analysts (18%), service provider case studies (17%), and internal expertise (16%).

That is not stopping sourcing advisors from getting involved in tools selection, but again we have to keep the data on satisfaction levels in mind. But, you should also take note of the importance of case studies. In a nascent market, organizations want to learn from the early adopters, but in this industry, getting clients agreeing to webinars and case studies for automation remains a thorny issue. Look for peers that are willing to share their war stories offline, and ask your tool and service providers for more connects. These conversations can help you build more realistic expectations and set the right context for your automation agenda.



Exhibit 5: Decision Making For Automation: Broad Set of Stakeholders, Narrow Set of Decision Makers

How is the decision-making process for automation capabilities organized within your enterprise?



Source: HfS Research, 2017, n= 400 Enterprise Services Customers

- » A diverse group of automation influencers and stakeholders emerge, notably the finance department (49% consider as influencers), procurement (47%), data center managers (51%), and purchasing managers (48%).
- » Decision making is increasingly being led by the CEO (54%), CIO/IT Director (57%) and CFO/Finance Director (35%).

“How can we be successful in not just running, but changing the bank with the new [automation] technologies, and what should be our end goal?”

– Global Head, Digitization, US multinational BFS company



Intelligent automation has the potential to disrupt every part of the operating model that enterprises have built over decades fundamentally. The new breed of automation technologies is starting to chip away at different areas of “work life” for the typical services industry worker, including human-machine (e.g., back-office data entry), human-human (e.g., customer service), and machine-machine interactions (e.g., cross-border payments). With a range this broad, it is easy to see how automation in all its forms is impacting not just lower skilled jobs but highly skilled professions as well. From actuaries that determine risk and profitability for your front office, to the most basic of data extraction and entry tasks in the back office, services automation is affecting the entire operations backbone of an enterprise. In the near future, employees, partners, and customers are going to find themselves operating in new environments alongside bots and virtual assistants and agents. We see the need for change management becoming more and more “mission-critical” as you start to pull together the framework and execution plan for more intelligent operations using automation technologies.

In our conversation with the Global Head of Digitization at a US multinational banking and financial services company, he referenced this reorganization of efforts, “[Automation is] changing way you operate and design your business to be competitive in today’s market. In my role, I interact with peers at other banks and they are all looking at their strategy around this. How can we be successful in not just running but changing the bank with the new technologies, and what should be our end goal?” Consequently, Design Thinking and co-ideation projects are becoming increasingly part of not just fixing broken pieces but re-imagining complete processes.

Why a Cost Reduction Approach to Automation Will Fail

Cost reduction has been the long-standing goal for operations leaders, achieved over the last couple decades through process improvement programs, standardization and consolidation efforts, nearshore and offshore outsourcing to third parties and in-house delivery centers, and so on. With that background, these leaders are now grappling with the associated role of automation and AI. Cost reduction remains the overarching C-Suite imperative (See Exhibit 4), but within the narrow context of automation, it slips down the ranking. That doesn’t mean cost is not important anymore. Rather, it is the centerpiece of delivery strategies and automation projects are a conduit to delivering those savings. Additionally, when you ask what is inhibiting automation, the top criterion is “Immediate cost savings not high enough” (35%). There’s a disconnect of what we say we want automation for, and what we actually want it to do (see Exhibit 6). An operations leader in our study brought this up as the key challenge with AI, “The cost of implementation is a bit high, and the benefit would be greater if more personnel could utilize [it] versus a small number.”



Exhibit 6: The Predicament of “Cost Reduction” from Automation

Top 10 Expected Benefits of Automation

1. Better operations quality
2. Workforce agility
3. Superior data accuracy
4. Actionable operational insights
5. Actionable customer insights
6. Visibility and compliance
7. Improve employee motivation
8. Ability to focus on customer
9. Overcome process bottlenecks
- 10. Short-term cost or FTE reduction**

Top 10 Adoption Barriers of Automation

- 1. Immediate cost savings not attractive**
2. IT budget exhausted
3. Underlying platform already sufficient
4. Lack of internal talent
5. Lack of success with past initiatives
6. Lack of understanding
7. No time for IT to implement
8. Not sure where to start
9. Not enough risk or gain sharing
10. Unconvinced on long-term benefits

Cost-reduction is ranked lowest when asked about expected benefits...

...but low cost-savings is ranked highest when asked about lack of adoption

Source: HfS Research, 2017, n= 400 Enterprise Services Customers

One part of the answer might lie in the differences between RPA and AI deployments. The costs of deploying RPA are comparatively low. At the same time, customers are moving beyond trying to draw up a traditional business case as many cost drivers are outside the deployments. Costs occur through change management or impact on broader process chains and workflows. Therefore, mature customers increasingly look for “softer” measurements that are reflected in the answers we have highlighted. Conversely, deploying AI can be expensive. The licensing costs – at least for the big beasts such as IBM Watson or IPsoft Amelia – are immense and usually surpass seven figures. At the same time, customers struggle to make sense of the conceptual diversity around AI, including how to combine different AI techniques into a workable solution that could address their business challenge. As AI is pushing beyond deterministic responses and well-defined processes, customers remain wary of any potential implications that they had considered. Yet, we expect this is a gap in understanding and education that will decrease as the market is starting to shift toward more data-centric models.

As a reflection of this, customers point to issues beyond cost reduction that are influencing the decision making. Consequently, we see the introduction of more business outcomes as critical drivers. For a significant number of enterprises, their automation strategy is expected primarily to deliver better quality of operations (52%), more workforce agility and scalability (49%), and superior data accuracy (48%). Only a minority of respondents are seeking short-term cost savings (21%) or a way to displace employees (12%).



One way of looking at it is to differentiate between RPA and broader projects leveraging AI. In several cases, RPA is code for guaranteed short term cost savings. However, the market is starting to shift and we see many organizations taking a more transformative and end-to-end point of view. With that the goals for the projects are shifting toward.

Those who are looking at primarily driving cost reduction are likely to be stuck in a short-term, project-centric approach. Enterprises that are yet to explore technologies like RPA point to struggles with establishing business cases (41%), while 30% expect that automation capabilities will be absorbed by enterprise applications in the next five years. HfS sees a lack of differentiation as well as guidance on how to measure and approach automation technologies such as RPA and AI. The context within which automation initiatives are viewed and presented within some organizations start with the premise of automation as vehicles of cutting costs. The discussion needs to be reframed around these other business outcomes such as agility, scalability, quality and data accuracy. What is lacking is an articulation of the metrics required to assess the progress toward those outcomes. Enterprises have a long way to go in educating different stakeholders about these benefits, particularly the more they move beyond RPA.

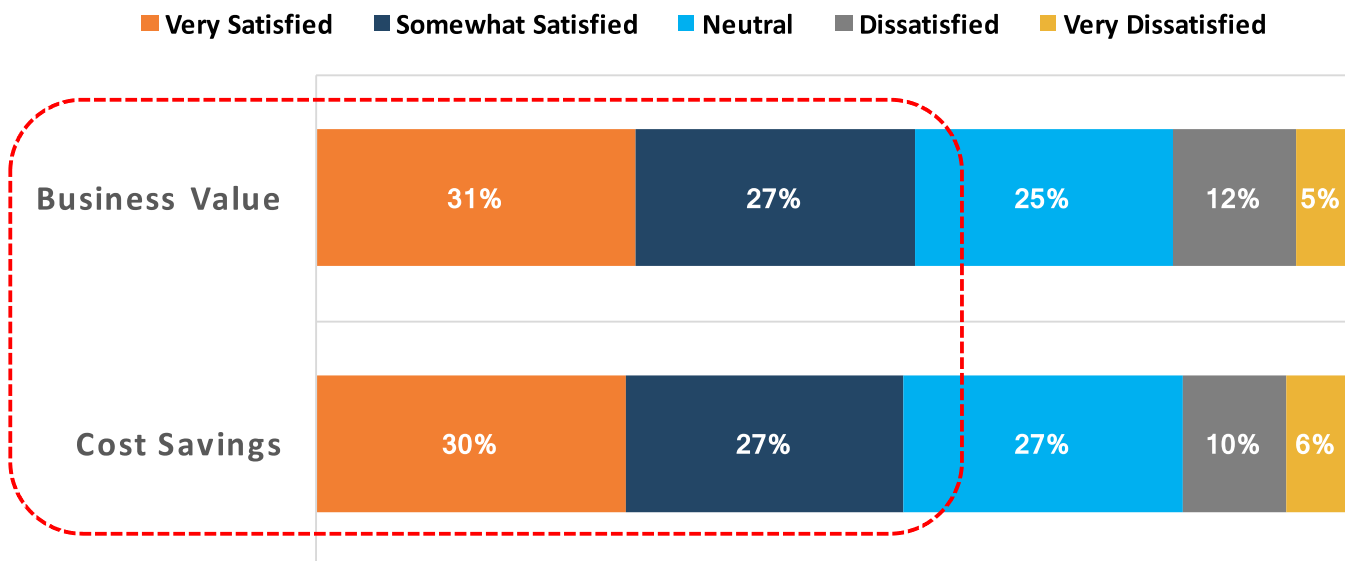
For a significant number of enterprises, their automation strategy is expected to primarily deliver better quality of operations, more workforce agility and scalability and superior data accuracy.

Barely Half the RPA Clients Are Satisfied with Their Implementations. Why Is This?

The promises of RPA are its low-touch integration into existing IT environments and the capability to do high-volume transactional process tasks at a fraction of the cost and time that human operators take. In simple terms, RPA bots are accessing enterprise applications the same way as humans do. RPA has been rising to peak hype for the last two years on the back of these benefits that allow enterprises to get even more mileage out of their legacy systems and processes as a stop-gap measure before eventually modernizing them.



Exhibit 7: How Satisfied Have You Been with RPA's Ability to Drive Cost Savings and Business Value?



Source: HfS Research, 2017, n= 135 Enterprise RPA Customers

Our data shows that a little over half the enterprises (58%) that have gone down the RPA path are satisfied with the level of business value and cost savings from their implementations thus far (see Exhibit 7). With this much potential, market activity, and attention placed on RPA, HfS questioned why the sample of RPA users are still so bifurcated when it comes to getting business value. The reality for a section of practitioners today is different from the reported successes we see in the public domain. HfS proposes three key reasons for this bifurcation:

- » **This is a new area.** First and foremost, Robotic Process Automation is still a nascent market, therefore there are many lessons that need to be learned as organizations get started. At the same time, those levels are a much more realistic depiction of the current market dynamics.
- » **Enterprises rushed into a new technology without external counsel.** There is a lot of anecdotal evidence of failed projects. We believe this to be linked to the high use of internal resources, with 71% of users not engaging third-party implementation partners today, which is surprising for a new technology (see Exhibit 5). An automation lead explained their bottleneck, despite the commitment to RPA and AI, "Overall, digital implementation at an organization-wide level is at the forefront of strategy for my company. RPA and AI are both mission-critical but we are having a difficult time adjusting to agenda-specific models in a long-term protocol." The more the market is moving toward data-centric models and transformational projects with an end-to-end process view, the more external help is required. In particular, in helping to understand the impact of those innovative technologies on process chains and workflows. However, the talent that fill those gaps



is still scarce. Consequently, organizations have to make talent and training the cornerstone of their automation strategies.

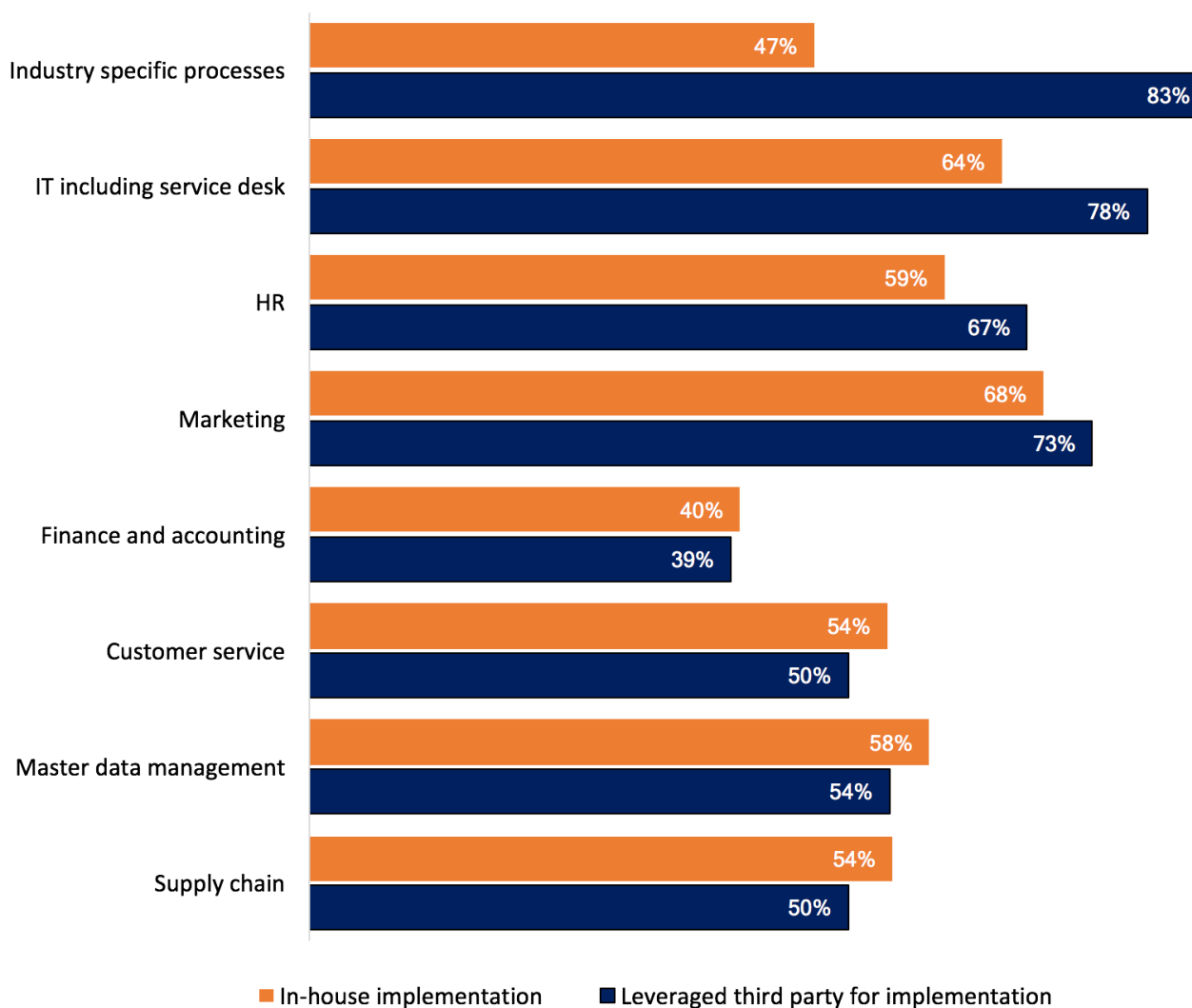
- » **The promises of 40% cost savings fell flat.** For both internally executed and third-party led implementations, the expectations are significantly high – nearly 60% expect 20% to 40% cost savings from RPA projects. These expectations seem a reflection of the marketing of the leading tools provider rather than a reflection of actual deployments. Furthermore, the deployment largely happens on a sub-process level, therefore those savings can't be extrapolated to the end-to-end processes highlighted in the exhibit. When you go from expecting to save 40% down to the more realistic ranges of 5% to 10% for end-to-end processes, despite all the other benefits that you may accrue, the cost delta is fueling the disenchantment with RPA.

“We certainly believe RPA and AI will impact our strategy going forward, but we don't have a blueprint for how to initiate it. We have a lot of processes with lower volumes, and are having to look at different strategies, such as employing RPA to make service experience for customers and employees better, with as much straight-through processing as possible and using other front-end interfaces that tie into our legacy systems.”

– AVP at an insurance carrier (*Enterprise RPA customer*)



Exhibit 8: RPA Client Satisfaction to Drive Cost Reduction by Function



Source: HfS Research, 2017, n= 135 Enterprise RPA Customers

- » Industry-specific processes see a spike in the level of satisfaction when clients use third parties to implement RPA (83% vs. 47% for in-house implementation).
- » Functions such as finance and accounting, supply chain, and MDM, which are more standardized processes, see similar levels of satisfaction.



Digging into the other, “softer” reasons for dissatisfaction, RPA clients brought up problem areas such as being told upfront “how much preparation we have to do before integrating it into all the other systems.” Others brought up advice for upstream and downstream process impacts, such as needing better technology to digitize paper documents that would then be used by RPA tools. The critical and foundational elements for digital readiness are being unearthed as enterprises start to investigate the use of process automation tools in their current environments. As you make more progress on embedding better digitization tools and creating new “straight-through” processes around them, the results from RPA will improve.

Dissatisfaction is also coming from the features available in different kinds of RPA tools themselves. RPA clients today wish for more user-friendly interfaces, more guidance on scheduling deployments at a global scale, and an improvement in the secureness and speed of transactions to undertake processes such as payments. We see a strong need for more proof points and tie-ins with industry and process-specific outcomes. As one user noted, “The benefits of the process improvements should have been more elaborately explained for our industry. However, the vendors had no supportive data for peer industry and, hence, decision making gets hindered.”

“The benefits of the process improvements should have been more elaborately explained for our industry. However, the vendors had no supportive data for peer industry and, hence, decision making gets hindered.”

– Enterprise RPA customer

Diversity in Use Cases for RPA as Well as Satisfaction Levels Across Functions

Finance and accounting (50%), customer service (48%), and HR (40%) lead the top use cases for RPA today, followed by procurement (36%), IT operations (34%), master data management (34%), and industry-specific processes (32%). Across functions, the sub-process use cases for RPA were broad with the top use in data collation and data storage management. However, customer service processes feature prominently with systems aimed at reducing the time to respond to client enquires and better collate data from customers. Additionally, we identified use in more typical process-centric areas like claims handling, billing, and document handling. Although plans to expand RPA are across the process waterfront, more enterprises expect to expand RPA into industry-specific processes (59%) and data management within the next year. To some degree, these data points appear surprising. We haven't really seen deeper strategic investments by customer-centric BPOs. Nor have we come across RPA as a tool set for front office related activities. In all likelihood, this can be explained by the blurred perception around RPA. Respondents are likely to have had either RPA or broader AI tools in mind such as chatbots.



Even when RPA tools are used within customer service, they are finding use for non-customer facing activities, relating to automating basic data handling in various business functions. Clients brought up examples such as bots deployed to collect and retrieve information from various sources to help human agents addressing patients or customers, using RPA to swiftly capture third-party data such as credit reports, appraisals, and tax returns, using RPA to collect customer data and get extra information from other sources to minimize the related credit risks, and an RPA tool for customer data handling.

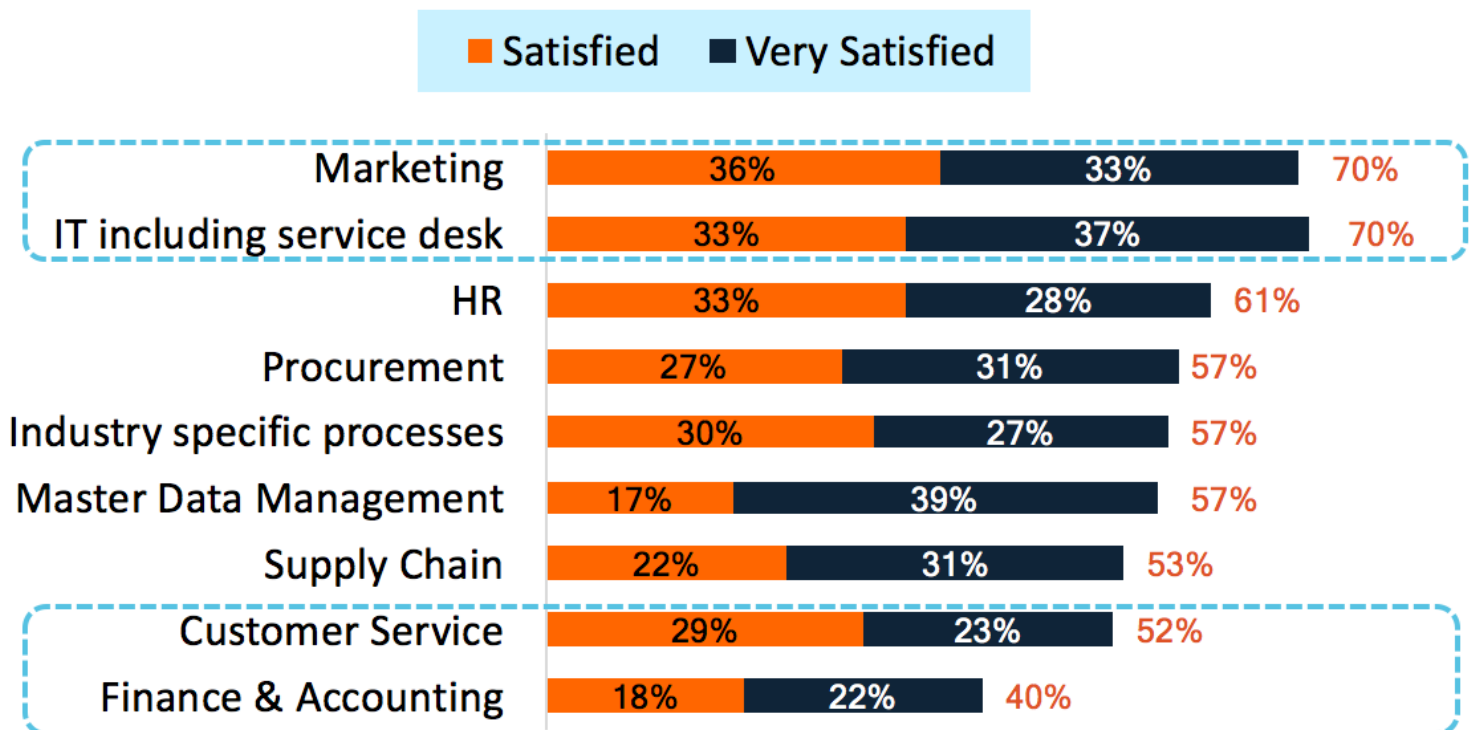
“Although quite a tedious job to start with, the results were amazing”

– Vice President Large European Insurance Company using RPA for data management processing

We also see RPA tools being used in combination with other AI and ML capabilities to get the desired business results for complex processes. Examples include using an RPA system integrated with machine learning and deep learning to calculate efficient claims, an RPA-based account management tool that uses deep learning to handle large bank account transactions for hassle-free customer queries, and an RPA-based invoice processing tool which uses different image processing and machine learning to process invoicing and handling customer credits and payments.

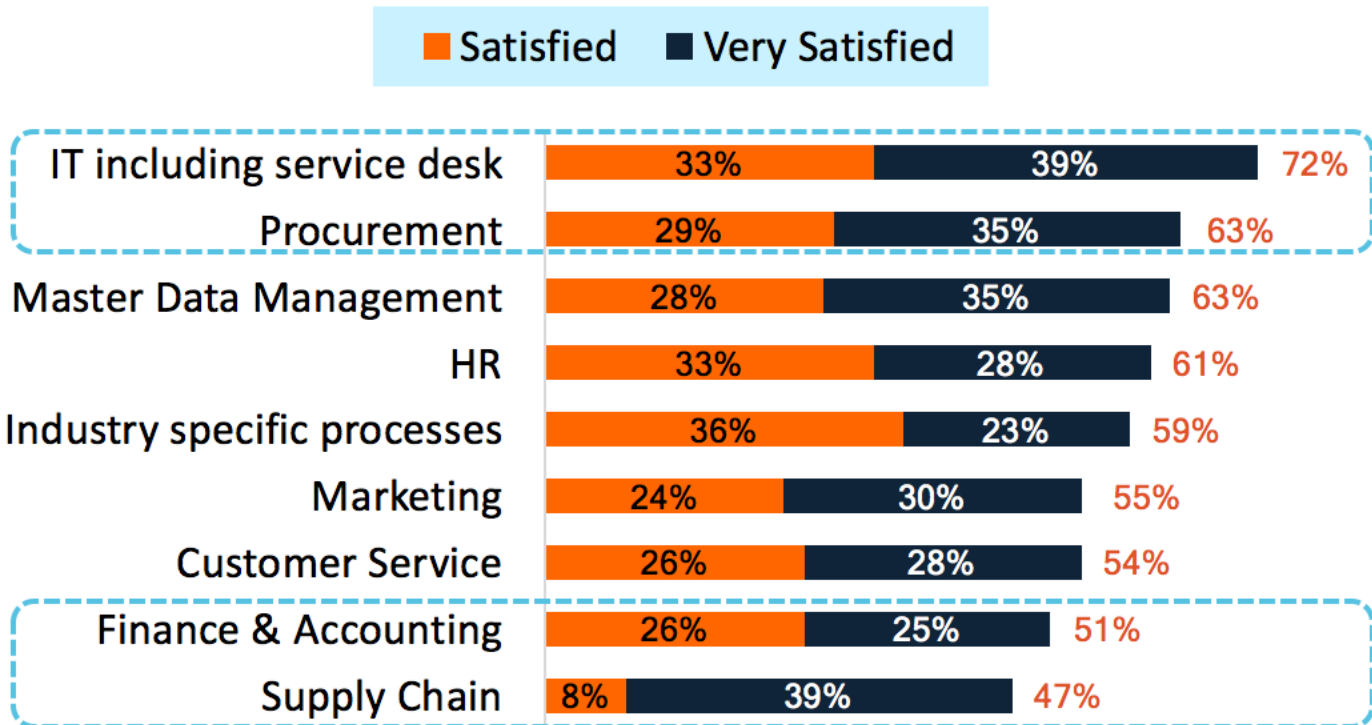
Exhibit 9: IT Operations, Marketing, and Procurement See the Most Successful RPA Deployments Today

How satisfied have you been with its (RPA) ability to drive cost savings?





How satisfied have you been with its (RPA) ability to deliver business value?



Source: HfS Research, 2017, n= 135 Enterprise RPA Customers

- » IT operations have the most satisfied clients for both cost savings (70% satisfied) and business value (72% satisfied), followed by marketing (70% satisfied with cost) and procurement (63% satisfied with business value)
- » Customer service, finance and accounting, and supply chain are the least successful deployments

While the use of RPA is prevalent across different functions, we see some significant differences in the satisfaction levels between them (see Exhibit 9). Despite F&A and customer service leading the number of deployments, clients are the least satisfied with their results from them. On the flipside, only a third of RPA deployments are in IT operations, but they are perceived by clients to be the most impactful. These might be instances where RPA capabilities are being embedded within operations, and more technically savvy IT staff have been able to more effectively deploy the tools. Further, service desk management is included within this category, where a lot of internal-customer data handling tasks are being automated using RPA, as per the sub-process use cases discussed above. Automation is also being heavily leveraged for areas such as testing in IT operations, which the survey respondents may have kept in mind.



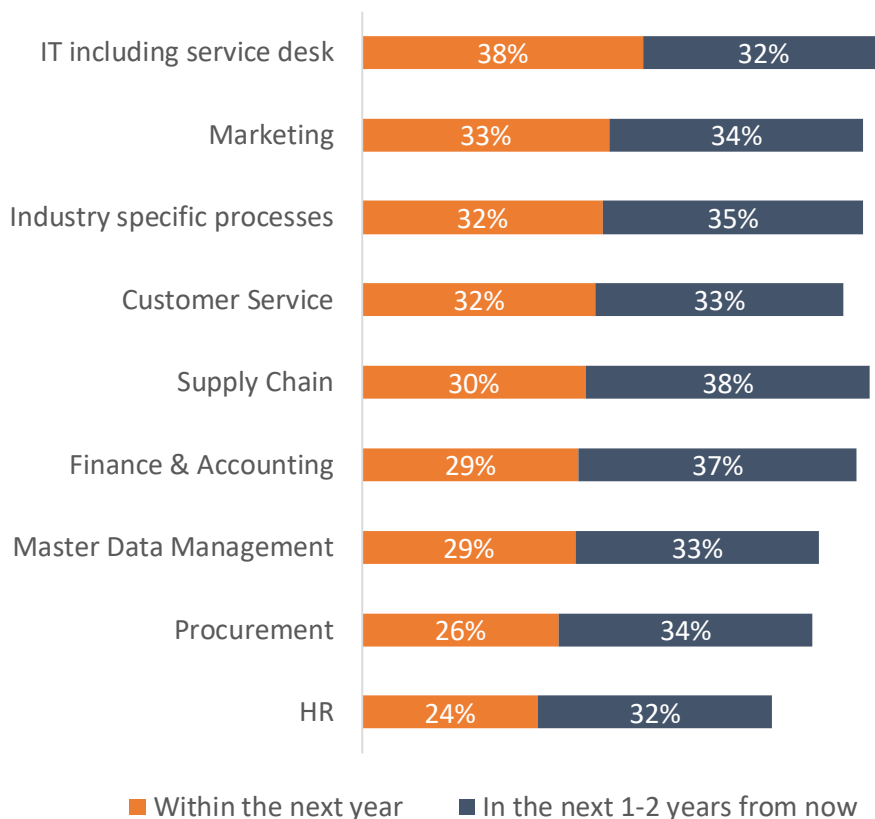
Despite the “growing pains”, our data suggests that RPA is starting to be used effectively in this era of innovation and the current satisfaction results reflect this. Most enterprises rate their RPA COEs either effective (42%), or highly effective (45%) as of today. Regardless of the level of satisfaction on cost and business value as of today, operations leaders are making incremental progress, one process at a time. In the interim time between “sawing off” broken processes and legacy systems and replacing them with costly new systems and services, RPA seems to be helping enterprises get some level of access to new business value from their current processes.

AI Deployments Are Accelerating over the Next Two Years, and Likely to Surpass RPA as It Becomes Mainstream

Almost below the radar screen of the broader industry that is idolizing RPA, enterprise leaders are either already piloting or implementing AI technology in some form, or plan to do so in the next few years. AI is likely to become mainstream across functions in the next two years (see Exhibit 10).

Exhibit 10.1: AI adoption is on a 2-year horizon of 60-70% of clients surveyed

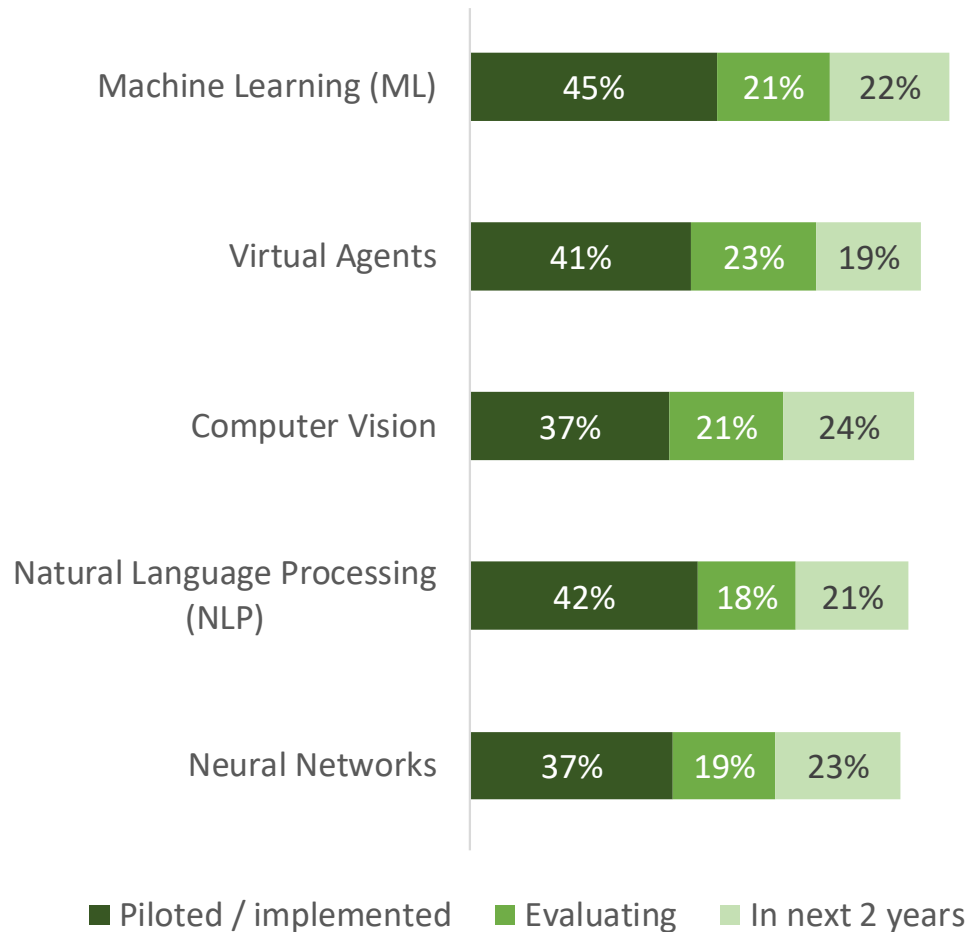
When, if ever, do you believe AI automation to be applicable for you within the following processes?



Source: HfS Research, 2017, n= 135 Enterprise RPA Customers



Exhibit 10.2: All AI technologies are getting evaluated



Source: HfS Research, 2017, n= 135 Enterprise RPA Customers

- » Enterprises are already implementing a mix of automation techniques like machine learning (24%), NLP (24%), and computer vision (19%), and solutions such as virtual agents, Artificial Intelligence (23%), and robotic desktop automation (20%).
- » A two-year horizon emerges for broad-based AI implementations across enterprise functions, leading with IT (70% to implement in next two years), marketing (67%), industry-specific processes (67%), customer service (65%), and supply chain (68%).

AI is not a commonly defined technology. Rather, it should be seen as a set of technologies and building blocks that span a continuum and should be discussed in the context of both service delivery as well as specific uses cases. The notion of a continuum implies that all these approaches are overlapping as well as interdependent. But another point needs to be called out as the industry often gets stuck in RPA discussions. AI is not necessarily the logical or even linear extension of those discussions.



The AI discussions and deployment can start with completely different use cases. Beyond that, we note the AI discussions in the broader market tends to be differentiated between “Narrow AI” that focuses on carrying out specific tasks and “General AI” which can handle tasks from different areas and origins. Thus, it applies experience from one area to another and thus learning faster.

However, from a perspective of service delivery, these distinctions are only mildly helpful. At the same time, in view of the extreme hype in the broader market, AI is bigger, more complex, and more valuable than lower Machine Learning and chatbots. As we have stated repeatedly, automation is in the eye of the beholder as the market lacks commonly accepted definitions. In the case of AI, it is even more challenging as a broad set of technology capabilities gets subsumed on the “AI” moniker in an inflationary fashion.

There are a plethora of companies offering AI capabilities and a majority of those companies are more consumer oriented. However, when we narrow the context to service delivery, despite this heterogeneity, one can think about three clusters that characterize the bulk of the current deployments:

- » **Autonomics.** We refer to this cluster as autonomics, referring to self-learning and self-remediating engines. But those engines are considerably expanding their capabilities. IPsoft and Arago are driving into Machine Reasoning. Major IT service providers with proprietary AI platforms are instead focusing on the complexity of use cases like AML, KYC, and even good-old Batch Management.
- » **Machine Learning and Deep Learning.** In this case, we are not referring to the low-level machine learning examples in the market such as suggesting websites or next best offers to customers. The potential of machine learning and deep thinking is about linking data management on an industrial scale. Machine learning is an AI technique wherein through supervised, unsupervised, and reinforcement learning, algorithms can be trained to sift through data and present targeted outcomes, clusters, or groupings or arrive at certain decisions.
- » **Virtual Agents.** Similar to the other categories, we are expanding the potential far beyond low-level chatbots with virtual agents that can use cognitive intelligence. HfS sees the emergence of virtual agents as a critical evolution in AI technology that is driving these customer-oriented use cases. From Google Voice Assistant to Amazon's Alexa, technology giants continue to invest in AI assistants, and we see a host of investments from service providers to evolve these agents beyond basic chatbots to deliver contextually relevant conversations and transactions with end customers. In our recent paper, [Making Cognitive Real: The Transformation Of Service Agents](#), HfS notes, “Virtual agents are not only automating tasks to support the digitally driven front office but also using cognitive intelligence to have meaningful, secure, and efficient interactions with customers.”



Against this background, while piloting and implementations are already underway, enterprises are divided on the potential benefits of Artificial Intelligence. Our data suggests three types of thinking among operations leaders today:

- » Those that believe that AI will augment knowledge labor and revenues (26%),
- » Those that are looking at AI to replace transactional labor and reduce cost (25%), and
- » Those wanting AI to do complex work to replace knowledge labor and reduce cost (23%).

Not too many believe that AI will create new process and revenues (12%), use data for new insights (8%), or advance towards service integration and orchestration (6%). HfS believes that these are critical long-term benefits from embedding AI into the business. Imagine if as a B2B business, your AI system(s) could help you go direct to customers with new types of tailored offerings based on individual customer needs. Or if your supply chain management function could be run primarily using predictive insights, giving you new abilities to jump on just-in-time opportunities.

Business processes as we know them today will be fundamentally redefined by a combination of automation and other technologies. Similarly, Design Thinking and co-ideation will increasingly move customers from applying RPA as a Band-Aid to fundamentally re-imagining process. Look past the labor displacement arguments that are the here-and-now symptoms and benefits of using AI, and think more holistically about large-scale service orchestration of processes centered around AI technologies. Given that we are still in a nascent phase of market development, it might not be surprising that many AI approaches are “bolt-ons”, or more broadly speaking, are being applied at the edge of the enterprise. However, as the market matures, AI will disrupt enterprise architectures and enterprise software. And with that, all those discussions on RPA will look like kindergarten games.

Design Thinking and co-ideation will increasingly move customers from applying RPA as a Band-Aid to fundamentally re-imagining process.

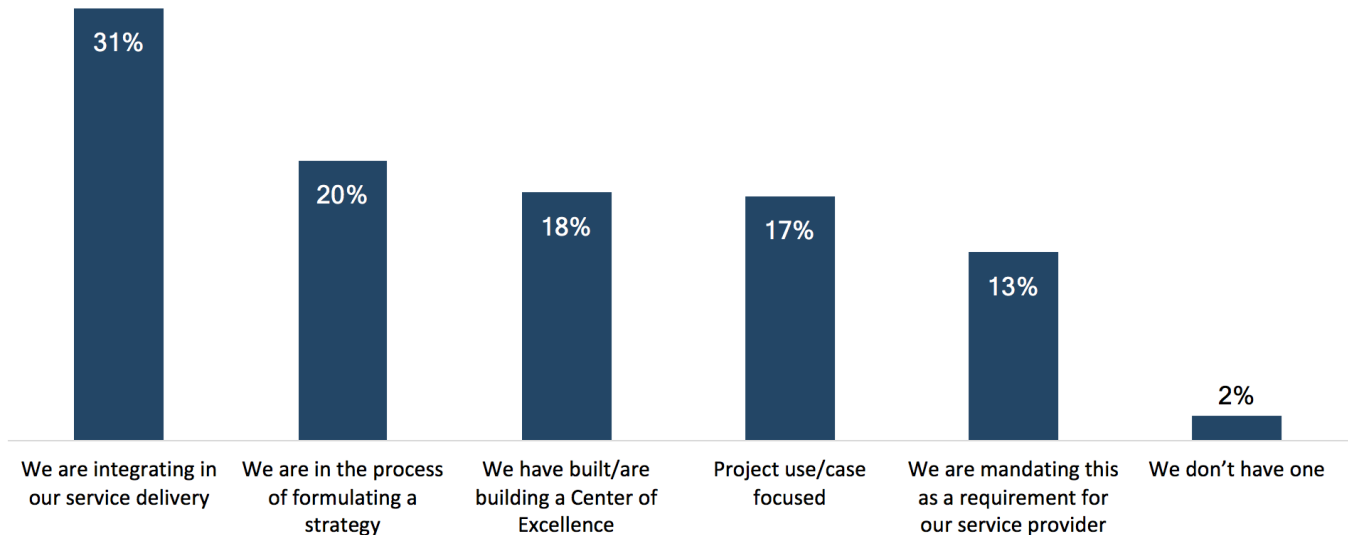


Bottom Line: Integrate Automation with Overall Operations Strategy

The progress of Intelligent Automation is astounding with more than 50% either integrating it into their delivery or building out CoEs. However, broadly speaking, the customer maturity is heterogeneous regardless of sector or geography, with 20% still working on formulating a strategy and 13% abdicating their strategy to their service providers. Furthermore, the more we extrapolate from the sample to the mid-market, maturity is rapidly declining (see Exhibit 11).

Exhibit 11: How Would You Describe Your Organization's Current Automation Strategy?

How would you describe your organizations current Automation strategy?



Source: HfS Research, 2017, n= 400 Enterprise Services Customers

- » Already, 31% of enterprises are integrating automation into the fabric of their service operations.
- » Others are setting up dedicated CoEs (18%) and working with service providers (13%).

Of organizations with the CoE approach, 88% believe that the automation CoE has been effective in delivering business value (scores of 4 or 5 on a 5-point scale). However, when designing your operating model for the future, you must take into account a more holistic notion of automation, as it continues to evolve from a techniques and solutions perspective. We hear examples of how despite more process knowledge in LOBs, some CoEs have already become too siloed to leverage the non-technical expertise in other parts of the organization.



When devising automation strategies and looking for industry benchmarks, HfS' RPA Maturity Model is a useful tool to plan and structure milestones (see Exhibit 12). However, for broader automation projects including AI, those suggested stages need to be adapted slightly. According to this model, the CoE structure can help organizations reach Level 2 (Implement) and perhaps even Level 3 (Institutionalize). But ultimately, the automation CoEs need to integrate with overall operations strategy to reach Level 4 (Integrate). Business problems need integrated solutions and organizations need delivery structures that allow multiple value creation levers to come together holistically. Automation has to be integrated into the overall operations strategy, yet only 30% organizations are taking such an integrated approach.

Exhibit 12: Automation Maturity Model for Enterprises

| Automation maturity | Goal | Impact on current process | Target areas | Deployment model | Scalability focus | Data usage focus | "Bot" lifecycle | Intelligent Automation alignment |
|----------------------------------|--|---------------------------------------|-------------------------------------|---|---------------------------------|-------------------------------------|---|--|
| Level 4: Integrate | + Service delivery synchronization | Re-imagined processes | End-to-end enterprise processes | Integrated "bots" managed independently | End-to-end enterprise processes | Used for solving business problem | "bots" as shared capability across client available on demand | Integrated solutions across RPA and AI |
| Level 3: Institutionalize | + Standardized process delivery | Re-engineered processes | Processes with judgment-based tasks | Shared pool of coordinated "bots" | Across standardized processes | Used to re-engineer process | "bots" as shared capability across client available on demand | Investigating alignment between RPA and Artificial Intelligence (AI) |
| Level 2: Implement | + Process efficiency and effectiveness | Looking for common process components | Processes with unstructured data | Co-ordinated "bots" | Common shared processes | Used for driving process efficiency | Dependent on each client and process | RPA dominates |
| Level 1: Investigate | Cost-reduction | As-is / no-change | Simple rule-based | Individual "bots" | Specific tasks / processes | Used for performance management | Not specified | No alignment |

Source: HfS Research, 2017

Now we have found several new value levers – RPA is already here, AI is coming in the next two years, and blockchain and IoT are getting investigated. Business problems will be solved by intelligently leveraging all these tools, technologies, and frameworks complementarily versus comparatively. The power of AND is significantly greater than the power of OR in the process of reinvention.



Key Takeaways

- » **Clarify your overall RPA objectives.** Why are you implementing RPA? This is the first and most important deliberation that you must have. It is important to do a deep dive and establish what business benefits are sought to be achieved with the program. The short-term and long-term goals need to be set and a complete roadmap with key milestones and turning points defined. This is an important exercise that should be undertaken when the RPA program is being conceptualized and must be properly documented. The objectives – both at the business level and each process level – have to clearly defined, articulated, and conveyed to all stakeholders. It is important that the entire organization is aligned to the objectives and is ready to adopt the robotic automation. Many a times there is a conflict or disagreement between the sponsoring authority and the impacted departments and this can derail successful implementation. Sometimes the decision to adopt such transformational technologies is taken at the business level and the concerns or priorities of the executing departments are not given due consideration. In such cases, the prejudices or misconceptions among employees are fueled and in turn create an atmosphere of apprehension, which is detrimental to the program. A thorough change management program can take care of such issues and organizations would be advised to spend enough time and energies in putting one in place.
- » **Involve the C-Suite in setting the pace and keeping you accountable on what really matters.** The relevancy but also the urgency of automation and AI has definitively reached the board rooms. Automation and AI have applicability across functions, and as operations and IT leaders, your roles in the next few years must all have some level of responsibility and accountability for driving progress. Automation needs an enterprise strategy to address the broader issues and mandate at the highest level. You need the right blend of executive buy-in and decision making from the C-suite to scale out a global automation capability.
- » **Setup and advance an automation COE, with a collaborative approach to execution.** In moving away from siloed projects and functional oversight, HfS sees a CoE approach as the first step in this journey. However, you must first take stock of what organizational capability already exists along the entire Intelligent Automation continuum. Setting up an RPA CoE may be a knee-jerk reaction to the market commentary and hype around this technology. However, it is likely that you will find projects and ideas brewing in other parts of the organization for non-RPA initiatives. For example, is your Chief Data Officer on board and in alignment with how to leverage AI and ML in an integrated manner with the efforts that the RPA CoE is making? Titles and department names are emerging every day, and automation needs new thought and organization with participation from both business and IT. Find ways to create more opportunities for collaborative work within this holistic framework for the future.



- » **Training and repurposing of employees is critical.** RPA offers unique opportunities to free the bandwidth blocked in routine and repetitive tasks and utilize it for better analytical roles. Often the cost of retraining and repurposing the existing employees is lower than hiring new ones. Keeping the organization's growth agenda in mind, it is always beneficial to assess the impact of change, identify the employees who would be available in the talent pool for repurposing and plan for proper retraining. This not only helps in retaining and growing the employees but also boosts loyalty and confidence of the staff across the board. HR departments play a significant role in such scenarios and must be involved early on in the project to ensure proper alignment.
- » **Start with a broad, clean slate when it comes to tools; value lies in the convergence of their capabilities.** Depending on the type of project you are embarking on, you may need to tap into a broad set of automation tools and capabilities. Creating an RPA silo will almost guarantee failure and dissatisfaction. In a lot of cases, the planning phase for each use case is critical, as one client points out, "We have discovered the areas where we can use AI and RPA, but we are trying to search for more areas where we can get better productivity and high rate of efficiency."
- » **Don't dismiss or overestimate any technology or framework based on market perception.** For a market so nascent, perception trumps reality. The disconnect in satisfaction that this study uncovered is a symptom of this issue.
- » **Success lies in connecting the dots.** An operations VP shared a lesson learned, "We are constantly upgrading our work distribution system, but didn't realize the updates we needed to make on it once we put in RPA...it all failed in our test build." In another scenario, a financial institution automated the intake process for applications coming in the door, but then couldn't keep up with the number of underwriters required to bind the policies. Use Design Thinking to envision the broader upstream and downstream implications of using automation.
- » **Ensuring process validation is critical.** Robots would not reinvent your processes. The robotic automation will take your existing processes as baseline and replace human effort with specially designed software. It is important to validate the process and plug any loopholes if they exist. It is advisable to conduct time and motion study of key processes and arrive at a realistic average handling time (AHT) rather than depending on estimations and gesticulations.
- » In the absence of proper process validation RPA program can be severely impacted in following ways:
 - If the processes are not properly validated, chances are the calculation of average handling time for the process would be impacted. This could lead to erroneous calculation of automation benefits.



- The design of as-is and to-be processes is also likely be inaccurate for lack of or invalidated documentation.
 - The robotic automation may also fail to deliver expected results because the process is not conveyed properly to the developers. The robots would be developed as per the details provided to the developers. Many times the businesses are taken by surprise at the simulation stage, when they find that the robots are not working as planned. No, there is nothing wrong with the robots. They deliver what you ask them to. The problem is generally that they were given the wrong specifications for the process in the first place. You would be surprised to know this is the most glaring cause of all RPA implementation problems, something that is easily avoidable.
- » **Integrate automation in the overall service operations strategy.** Business processes as we know them today will be fundamentally redefined by a combination of automation, other innovative technologies and human interaction. Look past the labor displacement arguments that are the here-and-now symptoms and benefits of using AI, and think more holistically about large-scale orchestration of processes centered around automation and AI technologies. The context for all these discussions needs to be around business outcomes, which emerged as the biggest driver for adopting automation.
- » **Above all, communicate – internally, and as much as is permissible – with the broader industry.** With automation, you are fundamentally driving operational change management, which requires consistent communication to the numerous influencers, stakeholders, and partners that are part of your journey. Beyond that, the industry need to hear more practitioner stories on successes, and more importantly, on learning experiences from failure. As an industry, we are in an era when technological needs are complex, and there is no defined rulebook explaining how to develop a holistic data and automation strategy. We are also in an era of discovery and making the most of what we currently have, before we can truly understand what we will need to be successful at some far-flung point in the future. In HfS' view, being "disrupted" is when you don't communicate, collaborate, and explore. Being a disruptor is being forever bold and unafraid, in order to define your own curriculum as this digital future unravels.

We would like to extend special thanks to [Hexaware](#) for their support in this study.



Research Methodology

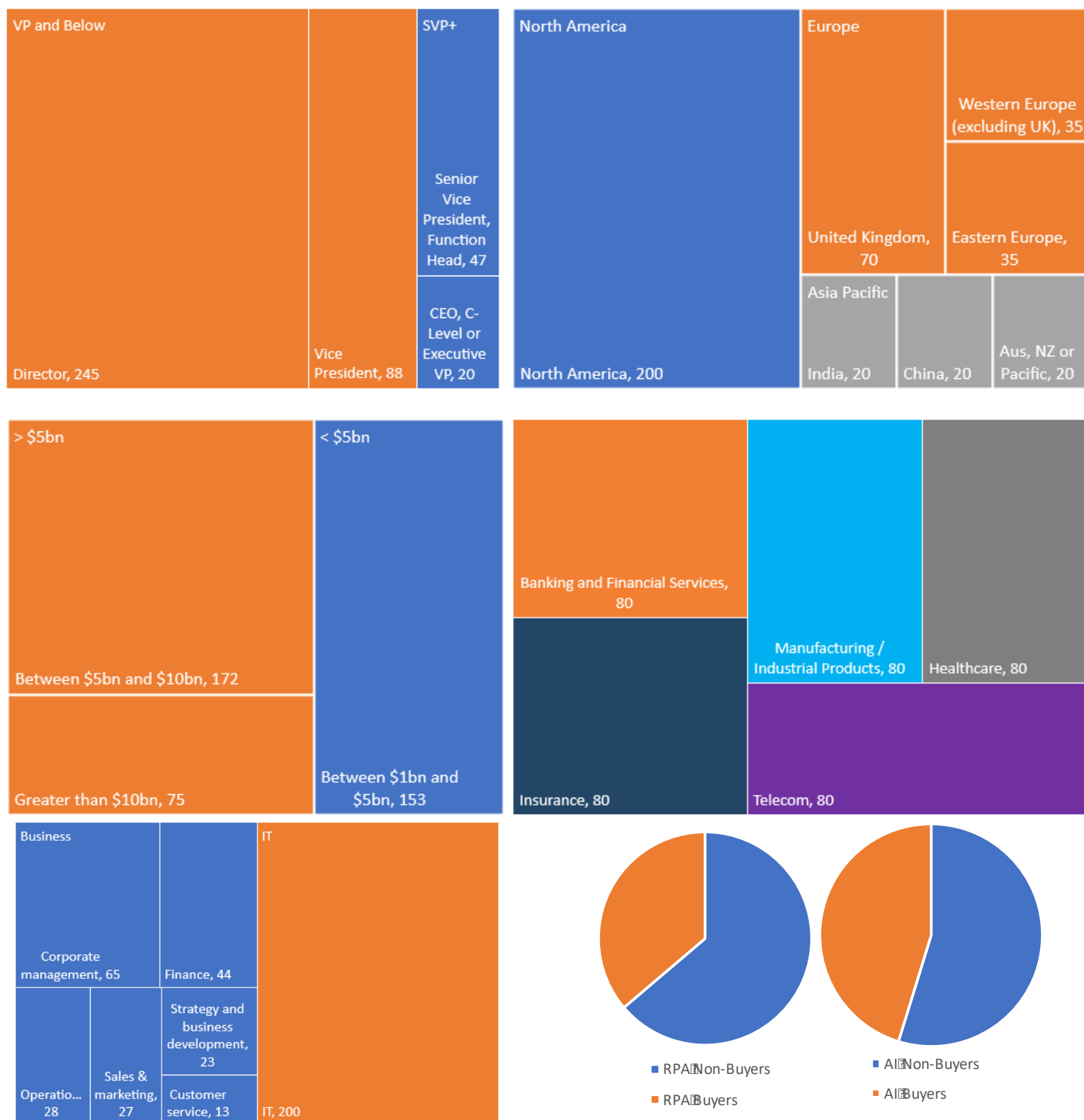
This study is based on the responses of 400 participants that are involved in buying decisions related to technology and services that include automation tools and services used to improve their organizations internal operations and business processes. The interviews were conducted in May and June 2017 with a combination of telephone and online surveys, with telephone interviews included to follow up and ensure better responses to open more in-depth questions. The survey was translated into French, German, and Mandarin, with interviews conducted in these languages where appropriate to improve responses and understanding within these countries and regions.

The specification of the respondents:

- » The respondents work for organizations with more than \$1 billion global annual revenue.
- » The respondents were influential and knowledgeable of their organization's business (200) or IT operations (200) and were part of the decision-making process for any process improvement tools or services being considered.
- » The respondent's qualification for the study was determined by answers to two qualification questions regarding influence and understanding of the subject in addition to the demographic information supplied.
- » The respondents belonged to the following industry groups: banking and financial services (80), insurance (80), manufacturing and industrial products (80), healthcare (80), or telecommunications (80).
- » The respondents were all director level or above.
- » The respondents were from a diverse geographic spread, located in North America (200), Europe (140) or Asia Pacific (60) regions.



Study Demographics





Glossary

How HfS Defines the Building Blocks for Intelligent Automation

Business Process Automation is the use of technology to allow a business function or part of the operation of a process workflow work automatically. It includes the use of RPA, BPM suites, custom scripting, AI and related technologies.

Robotic Process Automation describes a software development toolkit that allows non-engineers to quickly create software robots to automate rules-driven business processes.

For example, digitizing the process of collecting of unpaid invoices, which involves mimicking manual activities in the RPA software, the integration of electronic documents, and the generation of automated emails to ensure the whole collections. The process is run digitally and can be repeated in a high-throughput, high-intensity model.

Cognitive computing is the simulation of human thought processes in an Intelligent Automation process or set of processes. It involves self-learning systems that use data mining, pattern recognition, and natural language processing to mimic the way the human brain works, without continuous manual intervention.

For example, an insurance adjudication system assesses claims based on scanned documents and available data from similar claims and evaluates payment awards.

Autonomics refers to self-learning and self-remediating engines, where the system makes autonomous decisions, using high-level policies, constantly monitoring and optimizing its performance and automatically adapting to changing conditions and evolving business rules and dynamics. There is increasingly minimal human intervention.

For example, a virtual support agent continuously learns to handle queries and creates new rules and exceptions as products evolve and queries change.

Artificial Intelligence refers to Intelligent Automation systems that go beyond routine business and IT process activity to make decisions and orchestrate processes.

For example, an AI system manages a fleet of self-driving cars or drones to deliver goods to clients, manages aftermarket warranties, and continuously improves the supply chain.



About the Authors

Reetika Fleming



Reetika Fleming is Research Director at HfS Research. She currently tracks technology-enabled operations in insurance and banking and financial services. Her research coverage also includes enterprise analytics services and its evolution towards Accessible & Actionable Data within client organizations. She regularly contributes to HfS' research content in the form of HfS Blueprint reports, PoVs and Soundbites. She also supports custom research and strategy projects; analyzing data, supporting client inquiry, conducting regular discussions and briefings with both buyers and service providers, providing consultative, analytical

and expert support to HfS clients.

Prior to HfS, Reetika worked in the sourcing research wing of business research and consulting firm ValueNotes. Her responsibilities as Project Manager included research product design and development, managing custom research engagements, developing thought leadership through targeted content and community interaction, and business development support. She was also responsible for driving the unit's web and social media strategy and presence.

Reetika has completed her Masters in Marketing Management with distinction from Aston University, UK, receiving Beta Gamma Sigma honors. Prior to this, she received her Bachelor's in Business Administration with distinction from Symbiosis International University, India.

On a more personal note, she enjoys reading fantasy series, travelling to world heritage sites and strategy/simulation gaming.

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Phil Fersht



Phil is an acclaimed author, analyst, and visionary in IT Services and BPO, the Digital Transformation of organization operations and cognitive automation strategies. Fersht coined the terms "The As-a-Service Economy" and "Digital OneOffice", which describe HfS Research's vision for the future of global operations and the impact of cognitive automation and disruptive digital business models. Phil was named Analyst of the Year in 2016 (see [link](#)) for the third time by the Institute of Industry Analyst Relations, which voted on 170 other leading IT industry analysts.

Prior to founding HfS in 2010, Phil has held various analyst roles for Gartner (AMR) and IDC and was BPO Marketplace leader for Deloitte Consulting across the United States, UK, and Singapore. Over the past 20 years, Phil has lived and worked in Europe, North-America, and Asia, where he has advised on hundreds of operations strategy, outsourcing, and global business services engagements.

Phil is also the author and creator of the most widely read and acclaimed blog in the global services industry, entitled "Horses for Sources" now entering its eleventh year. He regularly contributes to the Wall St Journal, Business Week, Economist, The Times of India and CIO Magazine and is a regular keynote speaker at major industry events, such as NASSCOM, ANDI, ABSL, Global Sourcing Association, SSON, Sourcing Interests Group and HfS Summits.

He received a Bachelor of Science, with Honors, in European Business and Technology from Coventry University, UK and a Diplôme Universitaire de Technologie in Business and Technology from the University of Grenoble, France. He also has a diploma from the Market Research Society in the UK.



Tom Reuner



Tom Reuner is Senior Vice President, Intelligent Automation and IT Services at HfS. Tom is responsible for driving the HfS research agenda for Intelligent Automation and IT Services. Automation cuts across the whole gamut ranging from RPA to Autonomics to Cognitive Computing and Artificial Intelligence. This includes increasingly the intersections of unstructured data, analytics, and Cognitive Automation while mobilizing the HfS analysts to research Intelligent Automation dynamics across specific industries and business functions. Furthermore, he is supporting HfS' push to disrupt IT Services research by focusing on application

services and testing. A central theme for all his research is the increasing linkages between technological evolution and evolution in the delivery of business processes.

Tom's deep understanding of the dynamics of this market comes from having held senior positions with Gartner, Ovum and KPMG Consulting in the UK and with IDC in Germany where his responsibilities ranged from research and consulting to business development. He has always been involved in advising clients on the formulation of strategies, guiding them through methodologies and analytical data and working with clients to develop impactful and actionable insights. Tom is frequently quoted in the leading business and national press, appeared on TV and is a regular presenter at conferences.

Tom has a PhD in History from the University of Göttingen in Germany.

He lives in London with his wife and in his spare time, he is trying to improve his culinary skills in order to distract him from the straining experience of being a Spurs supporter.



Saurabh Gupta



Saurabh Gupta is Chief Strategy Officer at HfS. He oversees HfS' global research function managing the global team of analysts across US, Europe, and Asia-Pac. He works closely with the CEO to set the strategic research focus and agenda for HfS Research, understanding and predicting the needs of the industry and ensuring that HfS maintains its position as the strongest impact thought leader for business operations and services research.

He is a recognized thought leader and passionate problem solver in the global services industry. With 15+ years of experience across client, provider, advisory, and analyst roles, he brings a uniquely realistic and wide-ranging perspective to our industry's challenges and opportunities. Before joining HfS, Saurabh led strategy for Genpact's CFO and transformation services, helped shape the Business Process Services (BPS) strategy for AbbVie, managed Everest Group's global BPS practice, and worked as a techno-functional consultant at Infosys.

Saurabh advises senior executives on business transformation initiatives with a strategic mindset and execution orientation. He has authored over 125 research reports, is a frequent speaker, and is regularly quoted in industry publications. He is well-known for spotting disruptive trends like As-a-Service, Cloud, Analytics, Robotics and predicting their implications for different stakeholders. He brings to the table a combination of subject matter expertise and structured thinking with effective collaboration and communications.

Saurabh is a Mechanical Engineer from Delhi College of Engineering and MBA from IIT Bombay. He lives in Chicago with his wife and daughter. He is a fan of Indian cricket and European soccer but is still trying to comprehend American football.



Jamie Snowdon



Jamie Snowdon has primary responsibility for overseeing the development of HfS' Quarterly Market Index, in addition to managing and developing the firm's data-centric products and services. He works across the HfS analyst teams to define evolving services markets and create market size estimates and forecasts. He also manages HfS' quantitative survey and benchmark data.

Jamie has over seventeen years' experience in the IT and Business Services industry. In that time he has worked in a variety of roles including sales, marketing, consulting and as an industry analyst. Jamie's analyst career has largely been spent conducting data analysis including market size/forecast models, quantitative/qualitative survey analysis and competitive analysis.

Prior to HfS, Jamie worked for UK-based analyst firm Nelson-Hall as a Research Director, conducting vendor and market analysis within the IT and Business Services community. Prior to Nelson-Hall, Jamie spent seven years at IDC, where he was the European consulting director for IDC's services group, managing all of their bespoke research. Jamie specialised in delivering custom market forecast models and forecasting tools tailored to his client's individual needs. In addition, Jamie ran IDC's European outsourcing research, covering both IT and business process outsourcing. Jamie has wide industry knowledge covering IT consulting, enterprise applications, IT & business process outsourcing, desktop & network services, equipment maintenance, and business continuity.

Earlier in his analyst career, Jamie spent four and a half years at the IT services research specialist INPUT in a mixture of marketing and analysis roles. He left as the UK operations manager having spent two years as a customer services industry analyst. Jamie completed his graduate training at one of the UK's leading electronic and IT distribution companies.

Jamie's passion is learning; he holds university degrees in general science (computing), law and has a post graduate diploma in legal practice. He lives in Twickenham, London, with his wife and two daughters. His other loves include cycling, reading trashy sci-fi, cool technology, and the perfect pint.



About HfS

HfS' mission is to provide visionary insight into the major innovations impacting business operations: automation, artificial intelligence, blockchain, digital business models, and smart analytics.

We focus on the future of operations across key industries. We influence the strategies of enterprise customers, ensuring they develop operational backbones that keep them competitive whilst helping develop the right partnerships with the most capable services providers, technology suppliers, and third-party advisors.

HfS is changing the face of the analyst industry by combining knowledge with impact. Our Analyst 2.0 model is driven by:

- » The HfS ThinkTank model to collaborate with enterprise customers and other industry stakeholders.
- » Three thousand enterprise customer interviews annually across the Global 2000.
- » A highly experienced analyst team.
- » Unrivalled industry summits.
- » Comprehensive data products on the future of operations and IT services across industries.
- » An annual readership of over one million, and growing.

The As-a-Service Economy and Digital OneOffice™ are revolutionising the industry.

Read more about HfS and our initiatives on our [website](#).



About Hexaware

Hexaware is a fast-growing IT, BPO and Consulting company. Its focus is to help customers Shrink IT to eliminate costs and improve delivery of commodity IT, using automation and technology. Transforming customer experience is at the heart of its Grow Digital strategy. Hexaware serves customers in Banking, Financial Services, Capital Markets, Healthcare, Insurance, Manufacturing, Retail, Education, Telecom, Travel, Transportation and Logistics. It delivers highly differentiated services in Rapid Application prototyping, development and deployment; Build, Migrate and Run cloud solutions; Automation-based Application support; Enterprise Solutions for digitizing the back-office; Customer Experience Transformation; Business Intelligence & Analytics; Digital Assurance (Testing); Infrastructure Management Services; and Business Process Services.



Read more about [Hexaware](#).