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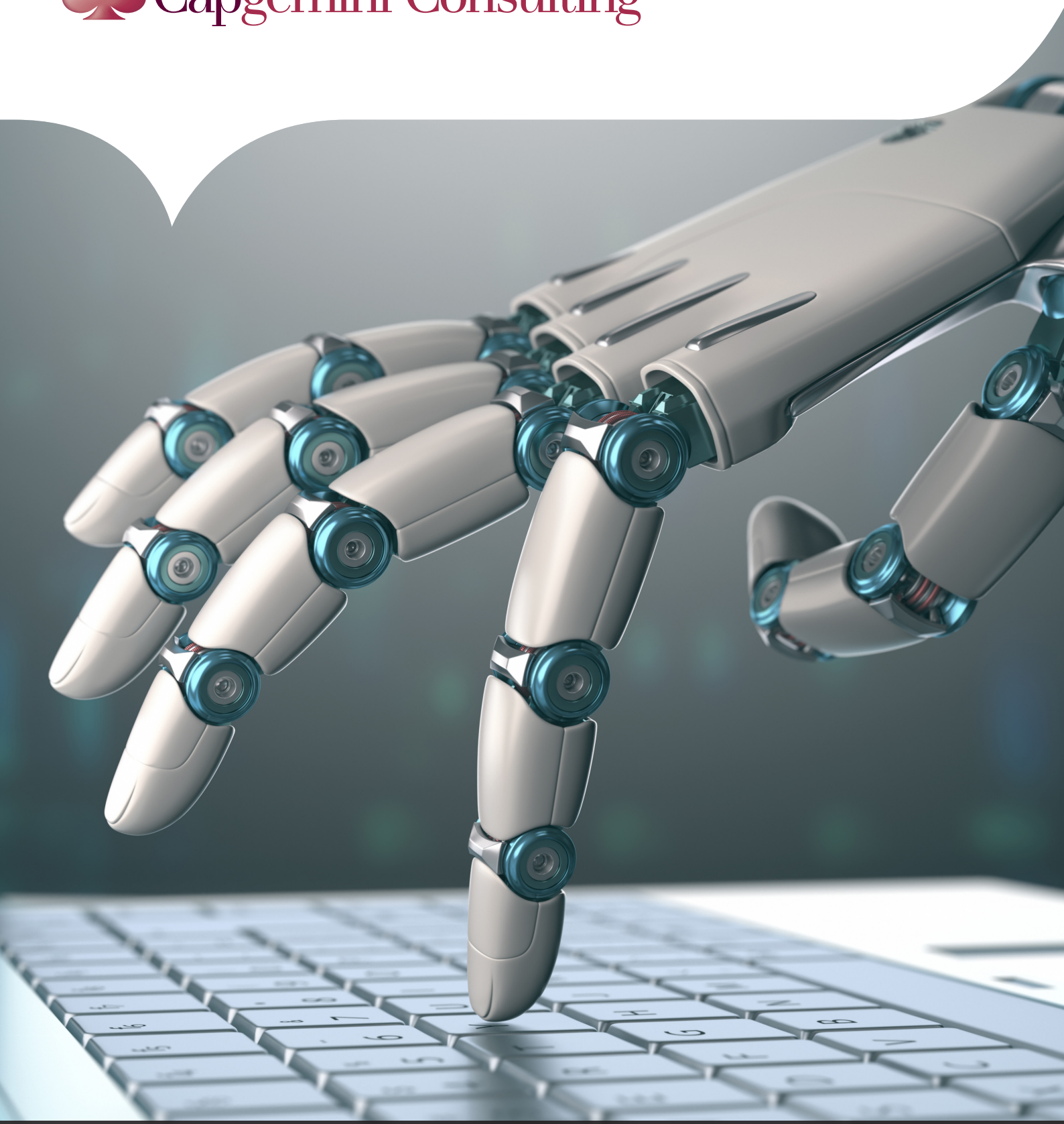

Robotic Process Automation - Robots conquer business processes in back offices

A 2016 study conducted by Capgemini Consulting and Capgemini Business Services

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1 Preface

Robotic Process Automation (RPA) — the automation of complex processes that replaces humans through the implementation of advanced software — is transforming the future of back office processes. Businesses across the board are realizing that RPA is the next significant digital transformation that will enable employees to stop working on repetitive tasks. Robotic Process Automation allows employees to concentrate on more value-adding initiatives, which are imperative for the bottom line of the firm.

Capgemini Consulting and Capgemini Business Services have joined forces to investigate the current understanding of RPA, what perceived advantages it offers, current sourcing and automation strategies, as well as the future outlook and implementation plans for Robotic Process Automation within back office processes.

To ensure the accuracy and applicability of trends identified in Robotic Process Automation, Capgemini Consulting and Capgemini Business Services created and distributed a survey which investigated the following topics:

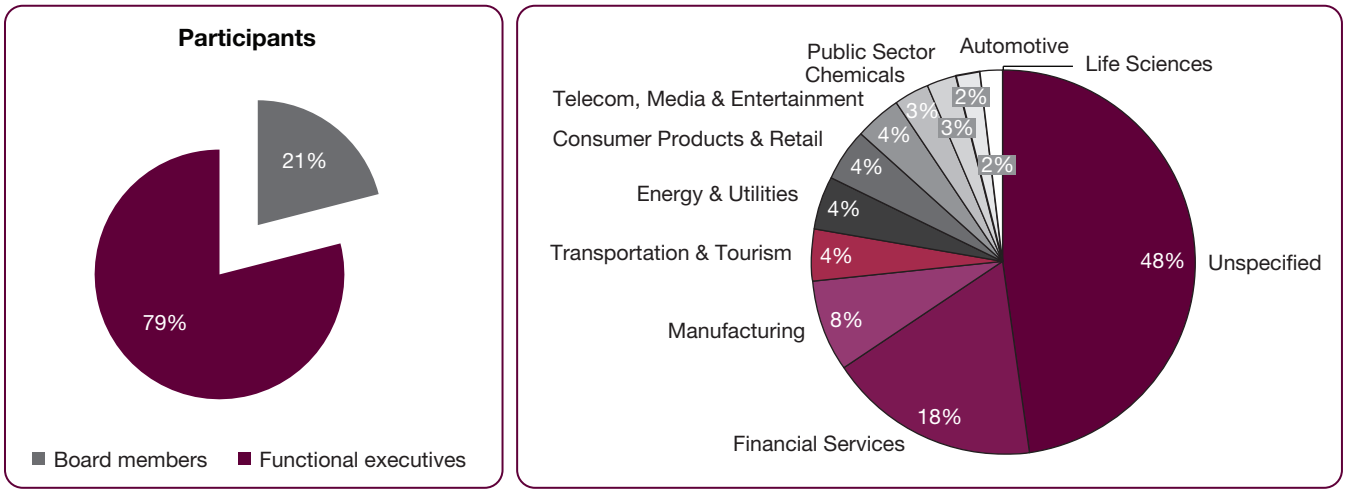
- general thoughts towards RPA;
- implementation statuses in various functions;
- sourcing structures;
- standardization of processes;
- future plans with regard to sourcing and RPA

The participants' answers, in conjunction with selected face-to-face interviews, are analysed throughout this report.

To study this, a questionnaire of 34 questions was conducted. Over 150 executives from companies of different sizes participated in the survey. Nearly half of the participants indicated that their company reports revenues greater than a billion Euros per annum, while about 10% of participants reported revenues of less than half a million.

The scope of the study concentrated on back office processes, i.e Finance & Accounting (F&A), Human Resource Management (HR), Customer Services, Procurement & Warehousing, Sales & Distribution and Production Planning.

Figure 1: Participants by position and industry



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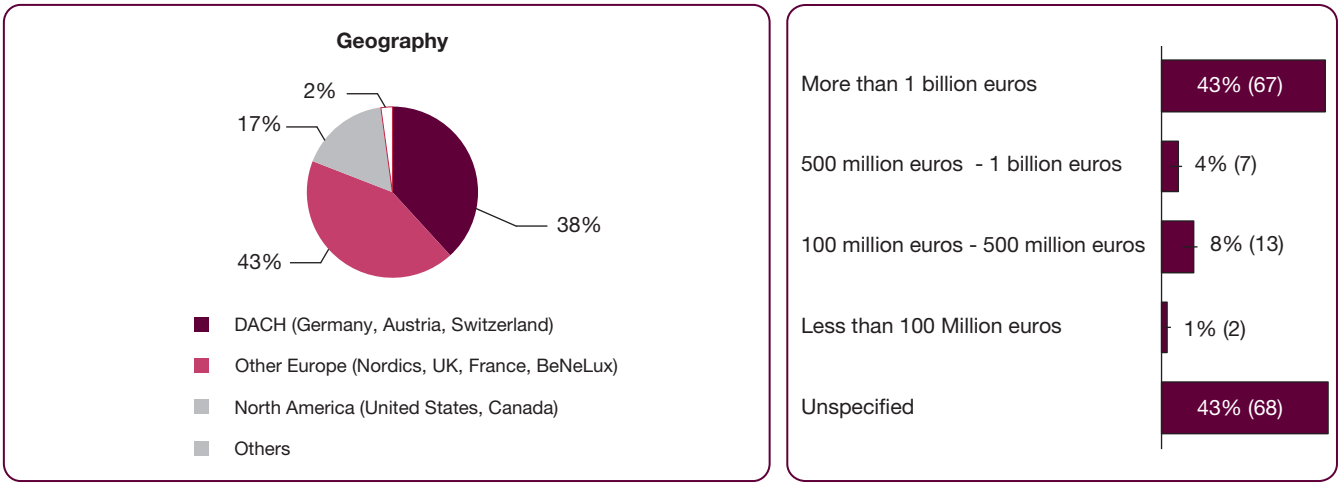
Participants represent businesses in industries across the board, including: Financial Services, Transportation, Tourism, Energy, Utilities, Telecommunications, Media, Entertainment, Consumer Products, Retail, Chemical, Automotive, Life Sciences, the Public Sector, Industrial Automation, Software and Aerospace and Defence. 21% of the participants that answered the survey were members of the board, and the remaining 79% were executives in Finance, HR, IT, Sales and others.

The survey not only represented a multitude of industries, but also represented a geographically diverse group of companies. While 22% of participants have indicated that their firm is headquartered in Germany, Austria, or Switzerland, another 11% specified that their company is headquartered in Scandinavia, which encompasses: Denmark, Finland, Norway, and Sweden. A tenth of the participants have headquarters located in North America followed by France with 9%.

> *„Developing Robotics is like living in the SciFi novels of your youth – Asimov´s visions are becoming alive."*
>
> *Peter Hofbauer, Unicredit Bank AG*

Figure 2: Participants by region and company size



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3 Executive Summary

Capgemini Consulting and Capgemini Business Services have investigated the current and future trends in Robotic Process Automation (RPA) in back office processes. This study describes what RPA in this context is all about, as well as the major findings that were discovered through the distribution and analysis of a survey, specifically created for this study. Capgemini was curious to discover the current thoughts on RPA, whether companies intend to implement it in the next 3-5 years, as well as whether companies intend to implement RPA onshore, in a captive Shared Service Centre, or a Business Process Outsourcer.

Even a quick overview of the survey findings demonstrates the massive potential that RPA offers. The following is just a snapshot of statements that participants indicated they either agree or strongly agree with:

- 86% of participants said that RPA can significantly reduce costs
- 86% of participants felt that RPA can help reduce risk and increase compliance
- 86% believed that RPA improves process effectiveness and efficiency
- 89% of participants believed that RPA can improve the quality of work produced
- 91% said that RPA can save companies time on repetitive tasks

By executing this study, Capgemini was able to decipher the following essential findings:

- Companies of all sizes and across all industries intend to implement RPA in the near future. Companies that earn more than 1 billion Euros per annum intend to implement RPA in F&A and HR processes Whereas companies that have revenues under 1 billion Euro per annum also have Customer Service on their agendas.
- All back office functions will see an increase in RPA usage.
- Essential quantifiable measures of success include cost reductions, improving the quality of work produced, saving time on repetitive tasks, reducing risk and increasing compliance, and improving process effectiveness and efficiency.
- While RPA does not help standardize processes, the processes that are the most standardized are also the processes most likely to see a significant usage of RPA in the near future.

Unlike previous technologies, a massive advantage of RPA is that it is a technological transformation and one doesn't need to switch systems and processes. RPA offers new options for business to close the gaps of missing system interfaces, if any are left open by IT. It can work with and between the systems that are already in place, finding all of the necessary information. Moreover, robotic automation software can pick up processes and steps from their users. On the other hand, it is a collaborative task for both business and IT, to ensure not to work on the symptoms only by introducing RPA, check for other options such as a stable system interface. This could possible be a better option to fix the issue at the source.

When discussing the substantial benefits of Robotic Process Automation, the typical areas affected are: effectiveness, quality, compliance, scalability, risk optimization and workforce performance. Therefore, companies choose to implement RPA for a number of reasons, including cost savings, quality improvements, reductions in headcount, assurances that regulatory requirements will be followed, and increase in the speed of processes. In fact, the increase in the statistics indicates that robots make fewer mistakes and work significantly faster than humans. Robotic automation can cost as little as 1/3rd of the price of an offshore full-time employee (FTE) and as little as 1/5th of the price of an onshore FTE. Robotic Process Automation also frees employees from tedious tasks, enabling employees to instead focus on value-adding initiatives that involve creativity and decision-making, which unlike the creation of an invoice, only humans can complete.

All back office areas have processes that are strong candidates for RPA and companies realize that RPA is not just a piece of coding or another marketing tactic. In fact, based on the processes targeted by companies, all back office areas are worth looking at; however, Finance & Accounting processes are currently the front runners for RPA, followed by Human Resource Management and Customer Service. High volume, repetitive and rule-based transactional processes in Finance & Accounting are the top priorities on companies' agendas. In general, participants believe that HR processes cannot be automated as much as Finance & Accounting tasks. This could be because many tasks in F&A are known to be highly rules-based, whereas some HR processes may require more human intervention.

In general, process standardization is a good indicator of strong potential candidates for RPA. In fact, the survey revealed that current RPA usage in a process is directly related to the degree of standardization in that process. Moreover, processes with a higher degree of standardization such as Accounts Payable, Accounts Receivable, and some Customer Service processes, tend to be the primary processes selected when companies first implement RPA. The degree to which a process is standardized is a strong indicator as to the degree to which a process can be automated by

RPA. It is important to note that introducing robotics will not increase the degree of standardization in itself.

The study results also highlight that RPA acts more as an instrument and enabler of process optimization and less as a trigger to indicate that processes should be standardized. The majority of participants start their process optimization before they implement RPA or adjust their processes during the RPA implementation.

RPA can be vital to the Business Process Management environment, giving transparency to the process flow and indicating further improvement potential. Another revolutionary aspect about robotic automation software is that it does not necessarily require companies to make changes to their strategic processes or existing back office technologies. Companies should prioritize the processes in the order of using RPA and developing a transformation roadmap based on the individual requirements.

The relevance of a task remains important, even if it is executed faster and more accurately by RPA. While companies that have already implemented RPA do not necessarily believe that RPA can be as helpful in reducing costs compared to those who have not yet implemented RPA, 84% of RPA users did indicate that the robots can help significantly reduce costs, compared to 96% of non-users. On the other hand, a potential reduction in process complexity is indicated by 53% of trained executives compared to 44% inexperienced RPA users. Overall, the most important measure that indicates the success of a RPA implementation is cost reduction, which was quoted by 65% of participants as either a very or extremely important measure of success. Over half of RPA users indicated that cost reductions met or exceeded their expectations, and based on the evidence, 20% - 50% cost reduction is achievable. The increased speed of processes was also quoted by 58% of participants as very or extremely important when measuring the success of a RPA implementation.

Based on the data in the survey, it is clear that RPA implementation will continue into other support functions. While RPA currently works with rules-based processes, RPA will push boundaries and eventually be able to work within the all cognitive periphery.

Remarkably, all the people who already implemented RPA in the study agree, that while RPA is going to help in the back offices, employees and RPA must still co-exist. Change Management is a vital aspect to be considered when implementing RPA. It is essential that companies consider all aspects in terms of people, processes and technology. Activities and responsibilities may change and people should be involved according to the corporate culture. Moreover, even though robotic software is a non-intrusive package, it is still an add-in to the IT environment. Once implemented, the robots become a part of the living organization, so the human workforce needs to be prepared—effective Change Management plays a key role in the success of a RPA implementation.

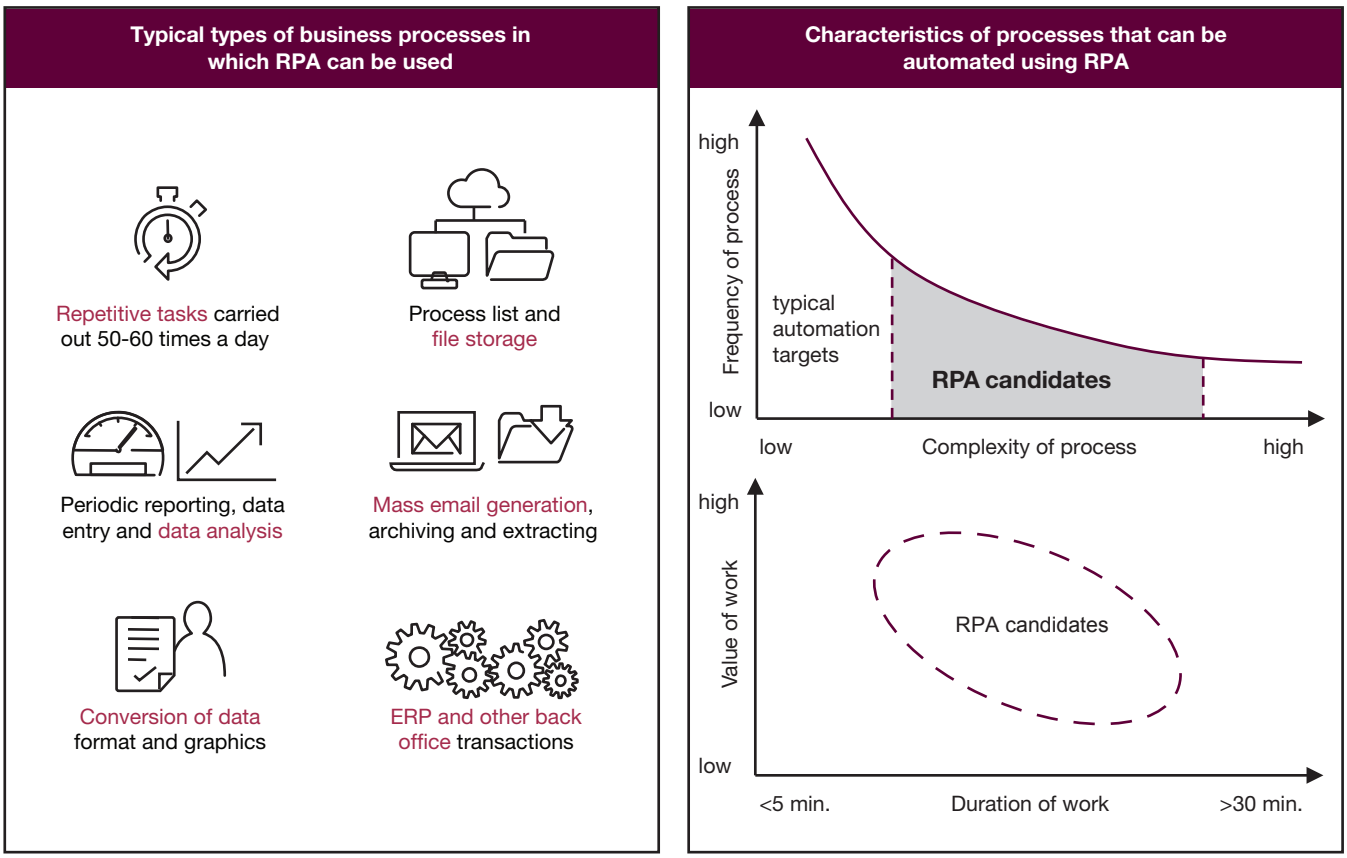
4 What is Robotic Process Automation?

In the 1990's many companies were seeking cost reduction strategies in the form of labour arbitrage and as a result, many tasks were moved to low-cost countries in Asia, Eastern Europe and Latin America. Now that major companies from around the world have reaped the benefits of labour arbitrage, and system harmonization and process standardization has come to a reasonable level, automation of remaining tasks and processes is the new target. Companies take advantage of Robotic Process Automation in their back offices.

RPA enables companies to drastically improve cost effectiveness and quality improvements in their transactional processes.

A key advantage of Robotic Process Automation is that unlike previous IT transformations such as Enterprise Resource Planning (ERP's), RPA does not require a massive upfront investment or a significant change to the current IT systems and processes. In fact, RPA can be implemented relatively quickly when compared to previous digital transformations, as it requires minimal capital or infrastructure. RPA can act as an additional employee that can work between the IT systems and with the back office processes in various functions. Similarly to humans, RPA has the ability of learning from humans and copying their processes, they can eventually perform the tasks at a much faster pace. Robotic Process Automation is going to continue to develop and work with increasingly complex processes and tasks.

Figure 3: Types of business processes in which RPA can be used



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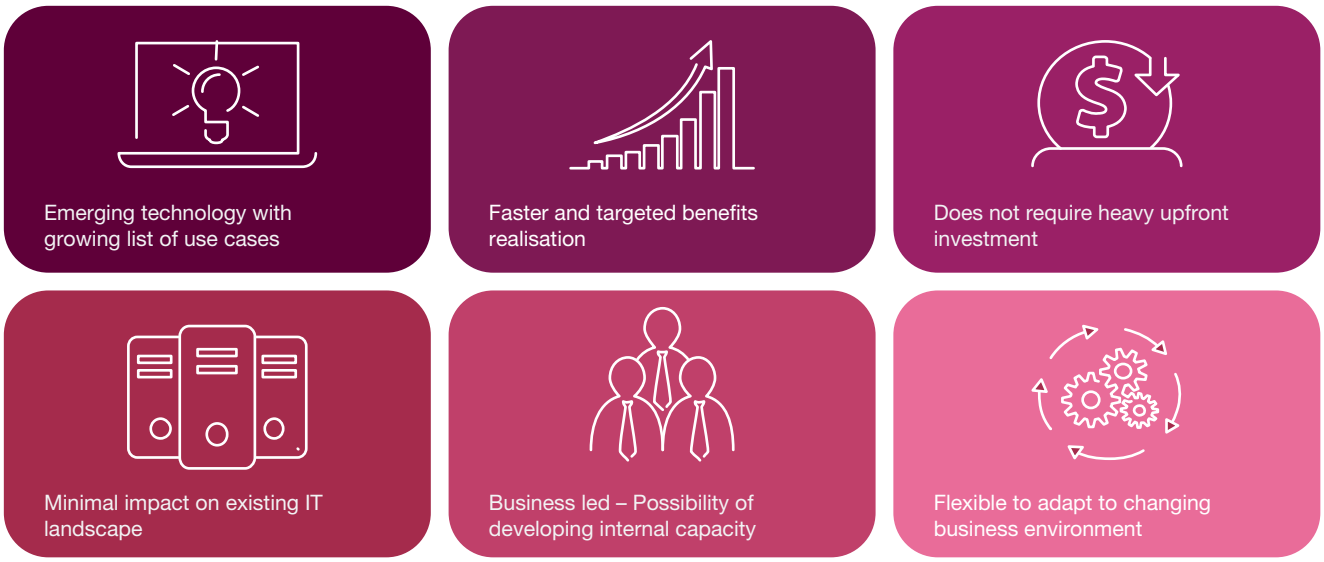
Although Robotic Process Automation and Business Process Management have similarites, they are in fact fundamentally different. BPM works from the top down, standardizing all processes throughout its implementation. In comparison, Robotic Process Automation works from the bottom up, integrating itself with processes. While RPA automates processes, it does not standardize them, nor does it help to standardize processes. BPM standardizes processes, but does not automate them. RPA doesn't standardize processes, but a standardized process is hugely beneficial for RPA.

Robotic Process Automation is undoubtedly the next wave in digital transformation—RPA is a software application that can replicate processes humans would do to move information through and between different technology systems. Robotic automation uses software as a virtual FTE to manipulate existing application software (e.g. ERPs, CRMs, and claims applications) in the same way that a person completes a process.

What is particularly revolutionary about robotic automation software is that it does not necessarily require companies to make changes to their strategic processes or existing back office technologies. Even if companies are separated geographically or have various technological systems implemented, RPA is able to connect systems. Therefore, RPA may function as a quick win solution for process optimization.

While knowledge-based automation tools and cognitive artificial intelligence systems are entering the market, the majority of companies are currently focused on rules-based robotic automation solutions, which means that RPA can work well with complex processes that have a specific set of repetitive rules. Rules-based tasks

Figure 4: Why companies are increasingly interested in RPA



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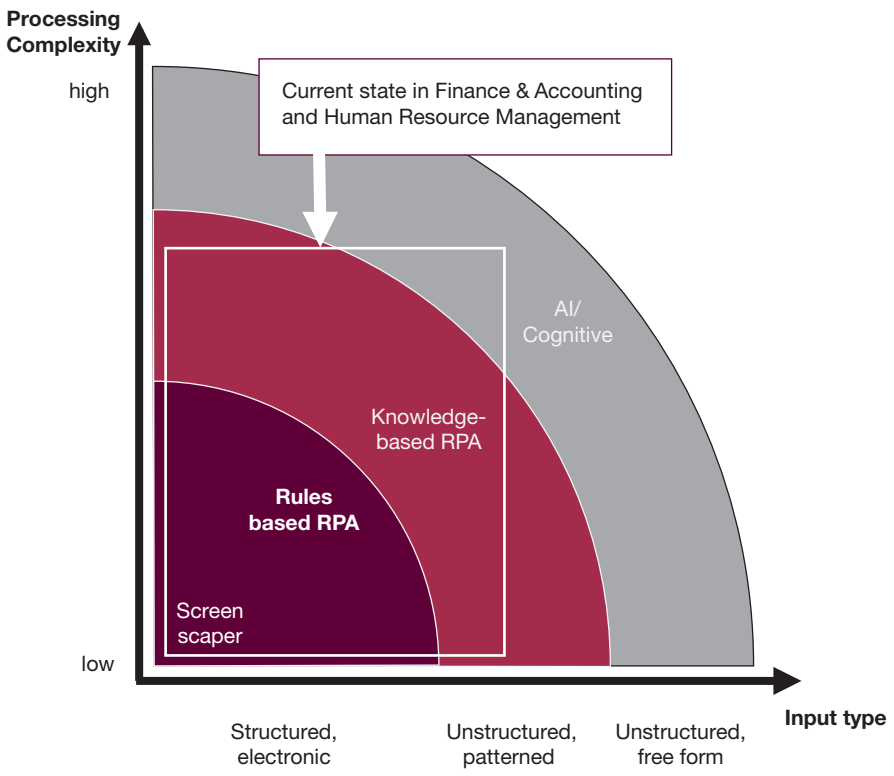
would include tasks in back office processes, such as completing an invoice. As RPA becomes more common, companies will begin to implement knowledge-based automation, enabling robotic automation to work with many more exceptions. A typical example of knowledge-based automation would be in Customer Service functions, searching for information across systems and answering customer emails. Finally, while RPA has not developed into the all-cognitive periphery, experts definitely see potential for RPA to eventually be able to think for itself, working alongside humans on value-adding initiatives that are important to the bottom line of the firm.

Robotic Process Automation is already transforming back office processes in Customer Service, Finance & Accounting, and Human Resource Management for rules-based tasks. As the graph above demonstrates, RPA can currently work with tasks that follow a complex, yet specific and repetitive pattern. As RPA continually improves and develops, the software will be able to move into the outer peripheries and work with knowledge-based and eventually, all cognitive tasks.

RPA is currently a growing trend in Finance, Accounting and HR because these areas have a number of tasks that are tedious and repetitive, yet take away too much time from employees who could instead be working on critical creative and strategic functions which involve important decision-making that can only be completed by humans. RPA has a noteworthy impact on these functions as robotics allows employees to focus on the value-adding activities that are essential for the firm, and frees employees from copying and pasting information in different systems, or other tasks that follow a very specific, repetitive, rule- based process.

Robotic Process Automation is not only advantageous for employees, but also for companies. Tasks can be completed quickly, accurately, and at a lower cost through the implementation of robotic automation solutions. Statistics indicate that robots make fewer mistakes and work significantly faster than humans— a software robot can cost as little as 1/3rd of the price of an offshore full-time employee (FTE) and as little as 1/5th of the price of an onshore FTE. This results in anywhere between 20% to 50% cost savings. Moreover, automation reduces human involvement, therefore reducing human error by up to 20%. Additional robots can start working in a mere 20 minutes to help relieve backlog if needed.

Figure 5: Evolution of RPA technology



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Exemplary Use Case – Invoice Processing

Based on a typical use case that is transacted in BPO centers, invoice processing, the difference between a human's interaction and a robots method to complete a process can be processes, is illustrated beautifully in the graph below for invoice processing.

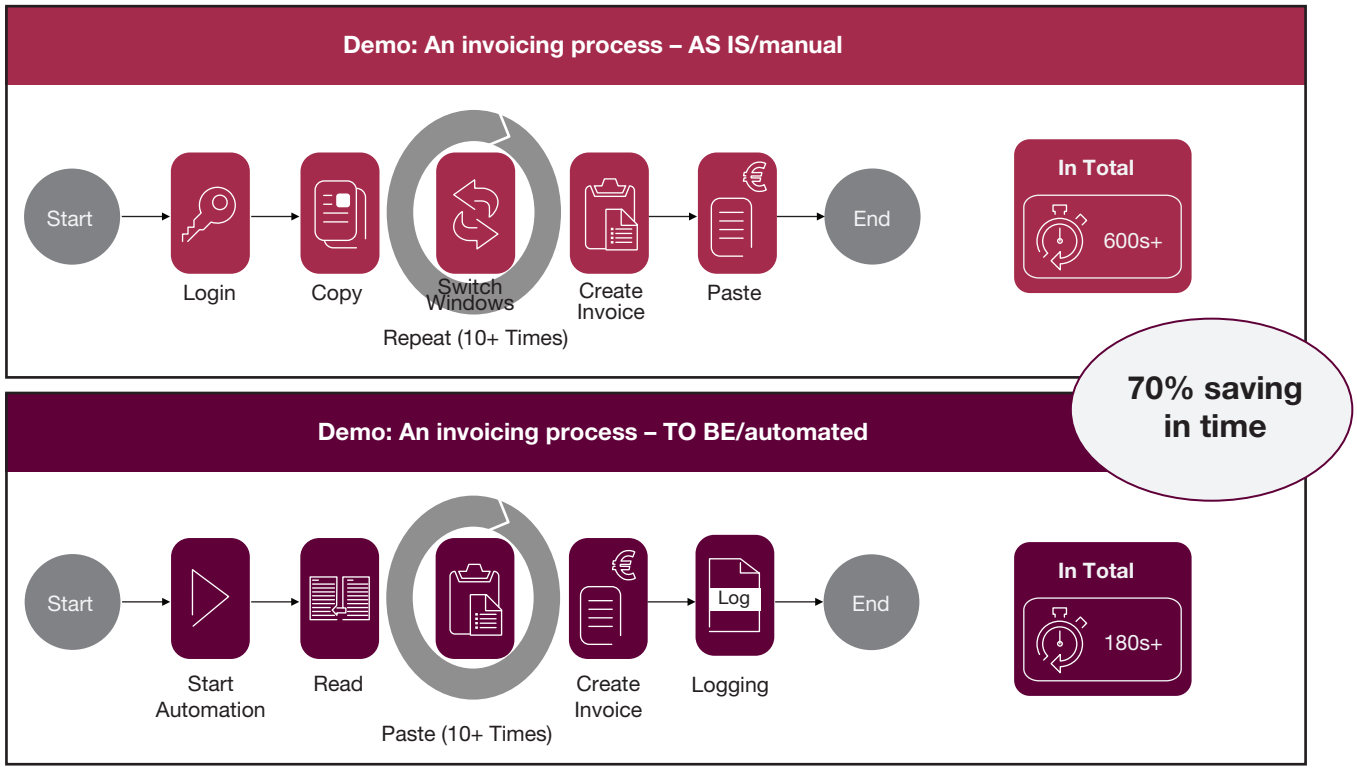
Imagine an employee sitting at their desk and they need to create an invoice with ten invoice items, using basic data from different sources and systems obtainable only via Citrix. The employee begins by logging in, copying the applicable information, switching windows, pasting the information in the other system, and repeats this procedure for each invoice item, finally finishing the creation of an invoice after ten minutes of work. The employee then completes six more invoices, with ten items each, for the next hour.

Not only is this time consuming, error-prone and not particularly interesting for the employee, but it is also a rather poor allocation of a valuable resource. In this same time frame, an employee tasked with this job could have been focusing on value-adding initiatives that involve creativity and decision-making, which unlike the creation of an invoice, only humans can complete.

In comparison, figure 4 also illustrates the same task, but is executed in a fraction of the time by robotic automation software.

The robotic software begins automation, reads the necessary information, pastes the required information into the other system, creates the invoice item, repeats

Figure 6: Comparison of process execution - manual vs. automated



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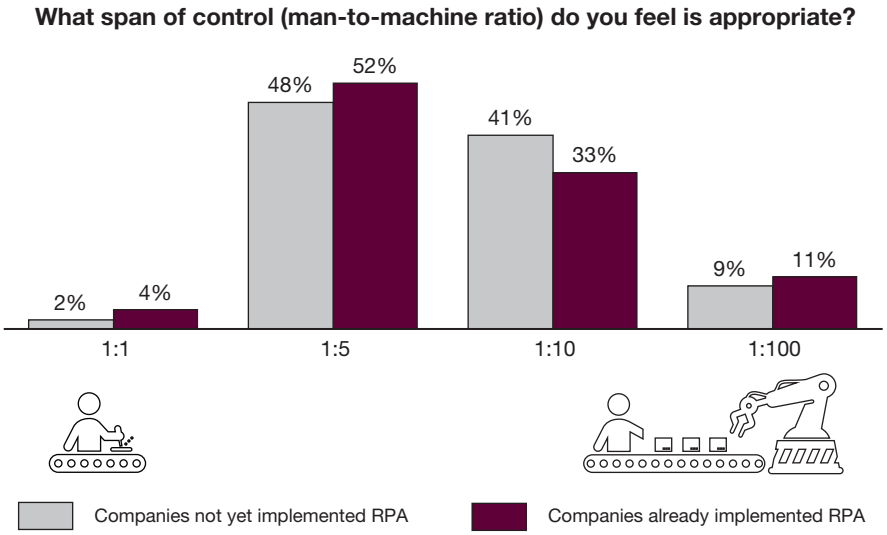
this process for each invoice item, and saves the data of the entire process in a database. The same invoice with ten invoice items is then completed by a robot in a mere three minutes rather than ten minutes. This process is repeated ten times by the robotic software for the next half hour. Obviously, the robot is much faster and by definition, error-free. Productivity levels can soar, as robots do not need breaks or holidays and can run 24/7, meaning a three-shift model. The work that takes around a week for an employee can now be completed in just over twelve hours by utilizing Robotic Process Automation. Assuming a team lead is supervising the work of eight employees in a three-shift scenario, the weekly work of 24 accounting clerks can be accomplished by one and a half robots, monitored by the same three leads.

Further reductions and increases in transaction speed can be achieved if more robots are introduced to fulfil the above mentioned task by implementing a man-to-machine-ratio of one human supervising five robots as assumed by the majority of survey participants.

Figure 8: Man-to-Machine Ratio



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Another noteworthy benefit is that the robotic software saves and stores all information regarding the work that they are doing, which helps increase transparency and ensure that RPA follows regulatory requirements. This is particularly pertinent for companies operating in highly regulated environments.

Despite the facts and scenarios mentioned above, robots can also be utilized in an attending manner. Based on information keyed by a service desk member, a robot may automatically search for and provide additional information of interest to quickly

Figure 7: Example of headcount effect

Potential reduction in headcount when using robotic workstations

A typical GUI automation scenario:

- Assuming three-shift operation for both humans and robotic workstations
- Assuming one or more GUI automation artifacts (e.g. CES invoicing case)
- Assuming batch mode compatibility of the GUI automation artifacts
- Assuming sufficient work item volume for automated (sub) processes to reach a 95%+ utilization of the robotic workstations
- Assuming that operator is able to log into customer systems multiple times simultaneously

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support the decision-making process, e.g. a customer complaint via telephone requires immediate response and action. In other words, what took days and weeks can be decided within seconds, which will likely have a direct and immediate effect on customer satisfaction.

If back office processes meet the following checklist, then it is worth thinking about introducing Robotic Process Automation.

It is important to note that even if processes within an organization are strong candidates for RPA, companies must consider their overall IT strategy and ensure that implementing RPA fits into it. It is a collaborative task for both, business and IT, to ensure not to work on the symptoms only by introducing RPA, if a stable system interface can be the better option to fix the issue at the source.

> *„Robotics is a quick and cheap fixing of insufficient IT investments."*
>
> *Thomas Budny, Commerzbank AG*

Figure 9: Criteria for candidate processes and tasks

	Processes that require access to multiple systems
	Processes prone to human error
	Processes that can be broken down into unambiguous rules
	Process once started, need limited human intervention
	Processes that require limited exception handling
	Processes executed frequently, in large numbers or with significant peaks in workload
	Process has no strategic fit

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5 Key findings

Introduction to key findings

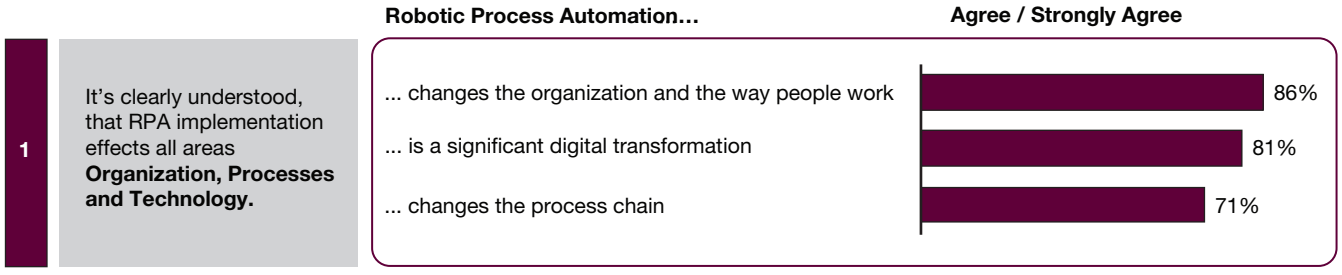
Capgemini Consulting distributed a survey to many large companies and based on the responses, was able to draw the following conclusions:

- Size doesn't matter: Companies of all sizes already use or intend to implement robotics within the next 3 - 5 years.
- Robots march out: Companies take advantage of Robotic Process Automation in their own sphere of influence
- Robot tasks: Process candidates for RPA can be found in all back office areas
- Implementation drivers and expected benefits: When companies think about robotics, cost, quality and better compliance are the main drivers and benefits expected.
- Optimization and standardization: RPA is an enabler of process optimization, not a trigger for process standardization

The first question in the survey presented participants with a series of statements where participants either agreed or disagreed with the statement. This enabled Capgemini Consulting to identify the current understanding of RPA in regard to the advantages that RPA presents and how this technological transformation affects an organization. Hardly any participants believe that RPA is just a piece of coding or that it is just another marketing tactic and companies clearly realize that RPA is not just an IT transformation, but rather an organizational transformation affecting the business as a whole. The graph below demonstrates the percentage of people that agree to strongly agree with each of the statements.

It is clear that RPA is the next digital transformation, affecting organizations, processes, and technology at the same time. Companies realize that RPA dramatically changes the entire organization, including the process chain and the way

Figure 10: Participants' statements about RPA



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in which people work. However, robotics does not transfer responsiblites from the business functions to IT. Rather IT and the business functions must work together. While robots may replace some employees in back office processes, new jobs will be created because employees and robots must co-exist, and 85% of participants agree to strongly agree with this statement.

In a nutshell, Robotic Process Automation has five key functionalities:

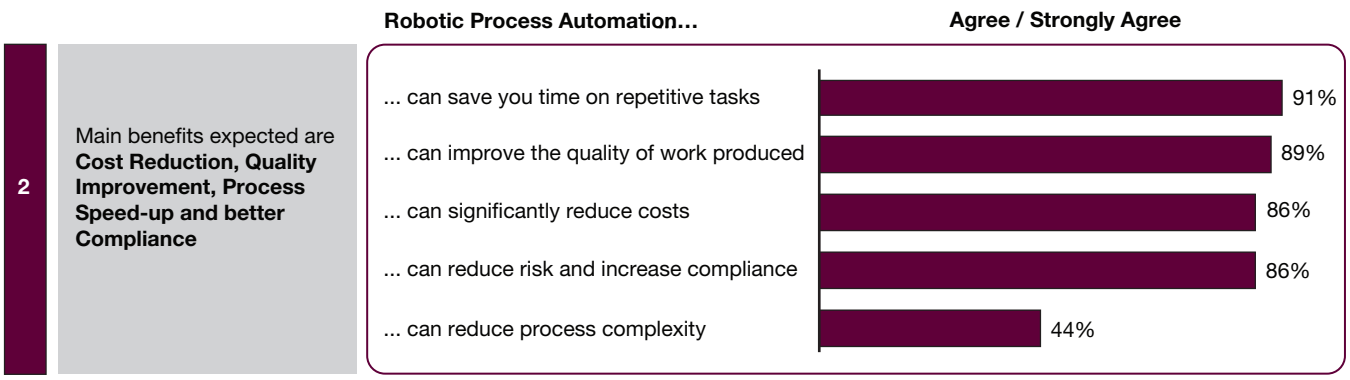
- Non-intrusive business system integration, primarily through the user interface
- Data aggregation that presents a consolidated view from different back-end systems
- Business rule execution based on defined logic and self-learning
- Work item and exception queuing to be processed by a robot or adviser
- Activity monitoring that captures and analyzes data on an adviser's desktop application usage

The main benefits that companies expect to see are cost reduction, improvements in the quality of work produced, reduced time spent on repetitive tasks as well as reduced risk and increased compliance. These benefits are expected because RPA can work faster than a human, and will make fewer mistakes on mundane tasks, where processes are complex, yet highly rules-based, and employees are subject to losing concentration. In fact, 86% of participants agree to strongly agree that RPA will significantly reduce costs and 91% indicate that RPA will save them time on repetitive tasks. However, only 44% of participants expect significant reduction in process complexity.

The following section investigates the present and future of Robotic Process Automation by delving into the six key findings mentioned above.

> *"Robotics is a completely new ball game – none of incumbent vendors on the market and no $$$$-implementation-budgets needed."*
>
> *Tobias Maier, Allianz SE*

Figure 11: Participants' statements about RPA



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Size doesn't matter

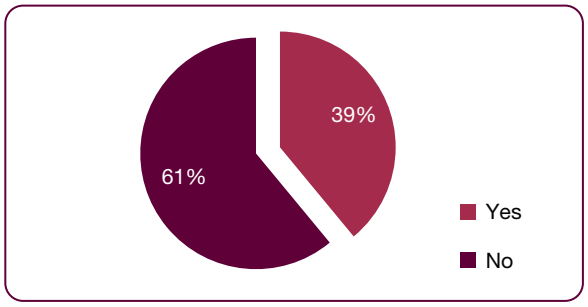
Companies of all sizes already use or intend to implement robotics within the next 3 - 5 years. Regardless of the individual implementation approach, RPA is a major digital transformation for companies and it is picking up momentum.

About 39% of companies that took part in the survey are already using RPA, particularly in Finance & Accounting and Customer Service. A wide range of software has been used by participants in order to benefit from RPA.

Even though Robotic Process Automation is currently used in nearly all outsourcing companies, others just started this kind of process optimization. Moreover, the initiatives are independent of the size of the company, defined by revenues in Euros earned per annum.

Figure 12: Actual use of Robotic Automation

Have you already implemented Robotic Process Automation?



In which functions do you currently use Robotic Process Automation?

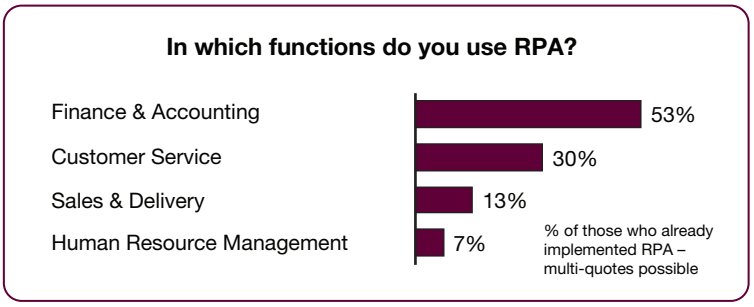


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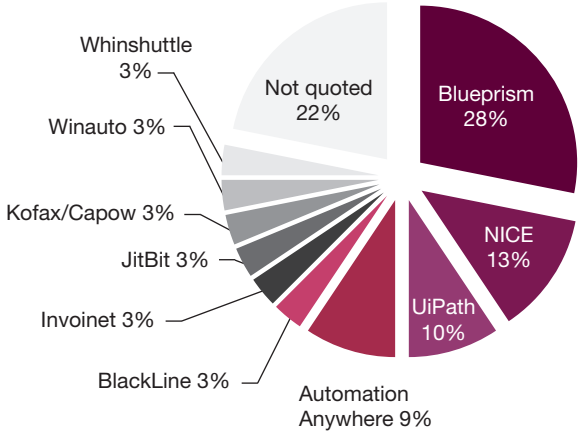
Figure 13: Actual use of Robotic Automation

What is your solution in place?



% of those who already implemented RPA – multi-quotes possible

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Although only 39% of companies are currently using robotic solutions, 77% are planning to implement RPA within the next 3 to 5 years.

When analysing where companies plan to implement RPA the next 3-5 years, it becomes clear that all back office functions will be affected. Finance & Accounting currently seem to be the pacemakers, followed by Human Resource Management and Customer Service. These three functions are the well-known targets for Shared Services and Outsourcing decisions since their wide-spread introduction in the 1990s. However, Procurement, Sales & Delivery and Customer Service will definitely see some changes in the near future. Production Planning is lagging behind, and will not see any significant RPA implementation in the near future.

This illustrates the increasingly important role that robotics plays in companies' process improvement.

Figure 14: RPA usage and plans by company size

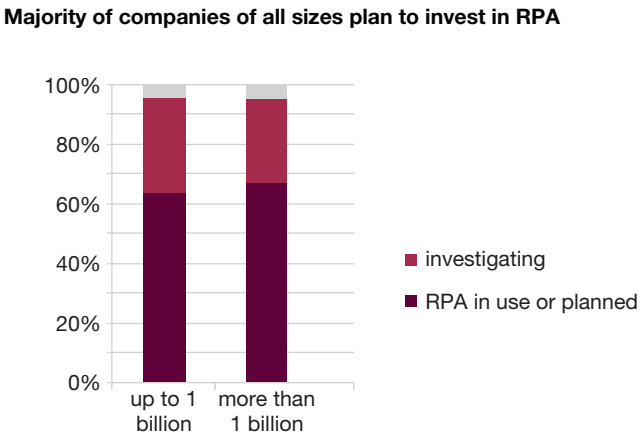

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Figure 15: Increase in RPA usage within the next 3 - 5 years (multiple answers possible)

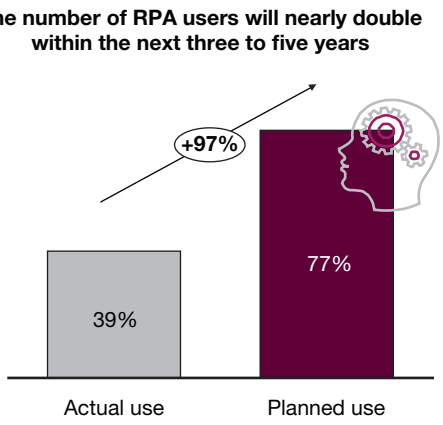

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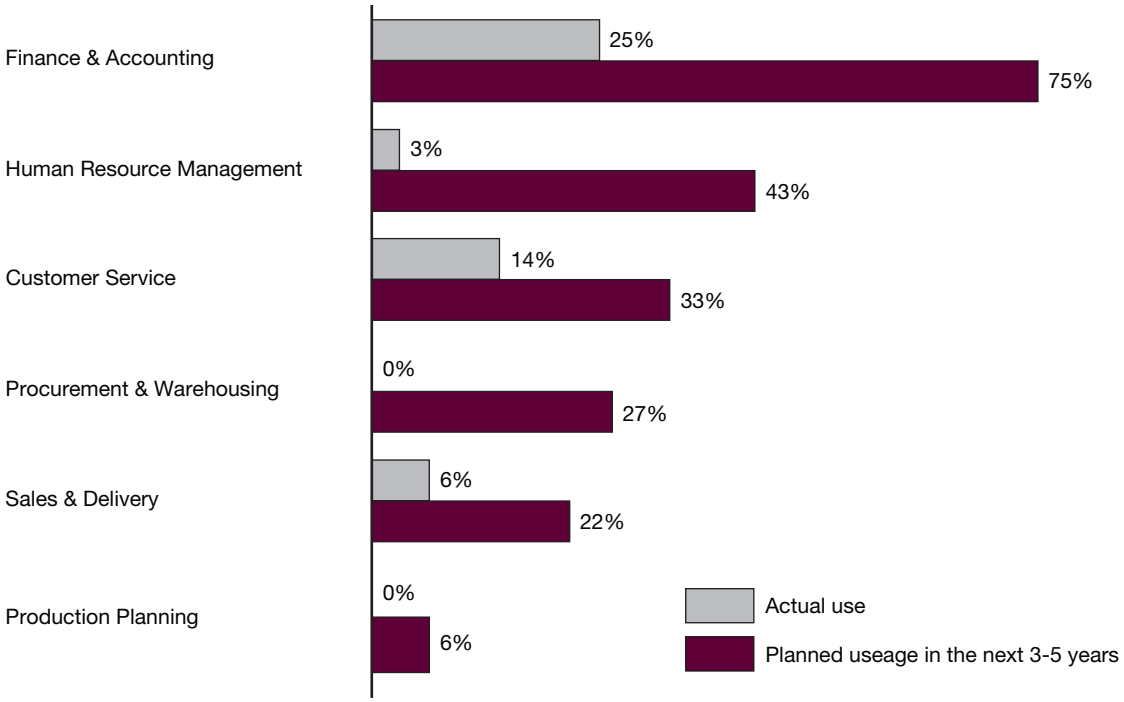
Figure 16: Process areas - where companies plan to use RPA



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Robots march out

Companies take advantage of Robotic Process Automation in their own sphere of influence.

Now that major companies from around the world have reaped the benefits of labour arbitrage, and system harmonization and process standardization has come to a reasonable level, automation of remaining tasks and processes is the new target.

RPA requires neither a full organizational make-over nor a huge IT transformation – it typically comes from the business and is implemented in a very bottom-up driven approach. No bigger back-end IT changes are needed. For attended robotics, standard desktop application software is rolled out, and for unattended robotics, a virtual desktop server is set up or RPA is integrated into given virtual desktop environments such as Citrix. This makes it very easy to implement – the transformation focus should be on enablement, qualification and on the overall RPA governance rather than on the typical IT requirements and developments. So instead of following classic waterfall based approaches, agile methods must be leveraged: the typical implementation is mostly based on small use-cases, which are step-wise iterated to medium-size process changes in few sprints.

Still, this bears the risk of a high operational bottom-up dynamics which can be difficult to control and is very atypical to the classic top-down culture in large companies. To steer (not to control) this, the participants recommend setting-up an a implementation governance that is small, yet has significant control over the implementation process, its benefits and enabling the cultural change. Agile requires cultural change – and RPA does too. It is important to focus on setting up a powerful environment helping high speed pilots to grow further rather than controlling every last bit of the implementation.

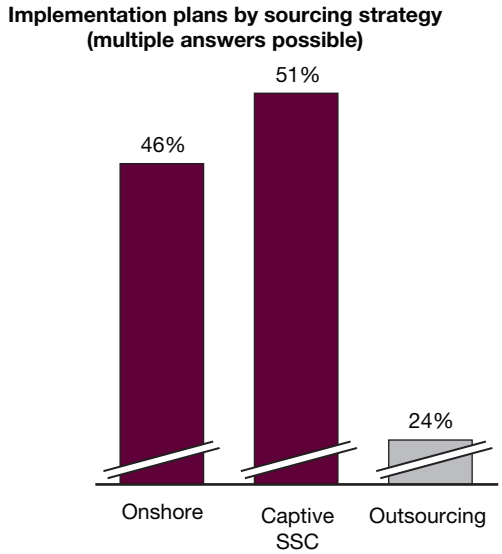
To sum it up, an agile RPA implementation is recommended to be managed in a combination of:

- **Change management, enablement and qualification** for the business – which is sought by the operational business as soon as they learned about the power of RPA and reach their own limits in a rather demand than control driven approach; e.g. by implementation RPA-multiplicator roles in the business
- **Governance** – for use case identification, benefit tracking and support in the agile way of working
- Pure **availability** of powerful and up-to-date RPA software, with a focus on ease of access rather than 100% complete cross-system integration

Allow the change to happen rather than trying to control it to the very last bit of detail.

Those who are willing to install robots tend to focus on their own sphere of influence. In fact, 46% of companies plan to introduce RPA in their own line of business or retained functions, while 51% plans to implement RPA in their captive Shared Service Centres. In addition, 24% of companies expect their outsourcing partners to utilize RPA in order to benefit from cost, speed and quality advantages.

Figure 17: Sourcing area, where companies intend to implement RPA (multiple answers possible)



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Among participants, there is clearly a good understanding as to how Robotic Process Automation can help companies. Robotic Process Automation is no longer a secret weapon used by outsourcing partners, and all companies want to, and intend to, benefit from the advantages. As illustrated in the graph above, companies want to implement RPA for all sourcing partners, but captive Shared Service will see the biggest increase in Robotic Process Automation, closely followed by onshore. The more companies are experienced with the usage of RPA technology, the more they tend to use it onshore. Companies new to RPA are more likely to utilize RPA for their outsourcing partner.

This is a very interesting contradiction and both options offer different benefits to each party. Implementing RPA is definitely a significant transformation for companies; however, companies that choose to implement RPA either onshore or in SSC's will benefit the most. This is because advantages such as reduction in headcount, cost savings and the improved speed of processes will be felt directly by the company. While companies will also experience the advantages by implementing RPA in an outsourcing partner, the benefits will not be as intense compared to companies that undergo an organizational transformation and make the technological investment in RPA themselves.

Nevertheless, utilizing RPA in a BPO partner is beneficial for companies that do not want to undergo a significant transformation, but still want to take advantage of the technology available to them. Companies that choose to implement RPA in a BPO do not have to make a significant investment or be concerned that they have too many processes—these problems are now outsourced. It is clear that those who implement RPA onshore or in a SSC will benefit the most in the long-term.

As companies have seen with other technologies, the speed of the technological revolution is incredible—companies can expect RPA to continually develop, offering further advantages to companies, especially those which made the investment in RPA early on.

Robots tasks

Process candidates for RPA can be found in all back office areas.

It's clearly understood that RPA implementation affects all areas, including: Organizations (86%), Processes (71%) and Technology (81%).

Although robotic software is a non-intrusive package, it is still an add-on to the IT environment. Topics such as local installations on users' desktops, server architecture, connectivity, user and authorization concepts, licence agreements for RPA solution, and called systems and applications are to be investigated. Involving IT departments in this organizational transformation is highly recommended.

From an organizational standpoint, it is worth thinking about different phases. During the concept, design and implementation phases, dedicated people are affected and Centers of Excellence are introduced or enriched through the implementation of RPA tasks. Once implemented, the robots are part of the living organization, so the human workforce needs to be prepared and effective. Change Management will play a key role in a successful implementation. Activities and responsibilities may change and people would be involved according to the corporate culture. The following diagram illustrates an effect that RPA can have on organizations:

If peaks in workload are an issue, robots can easily be ramped up. Once defined, a robot or artifact is started within a short period of time to minimize the stress curve, having a positive effect on both employee satisfaction and health.

Looking at the processes targeted by companies, all back office areas are worth looking into.

Participants have been asked which of the processes are the most suitable for a RPA implementation.

Figure 18: Understanding of RPA's impact

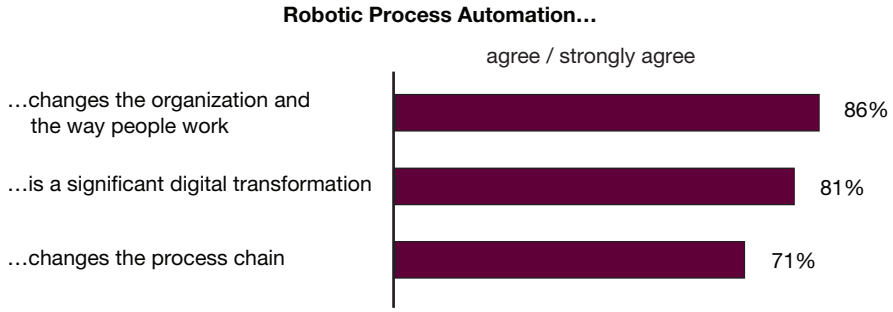

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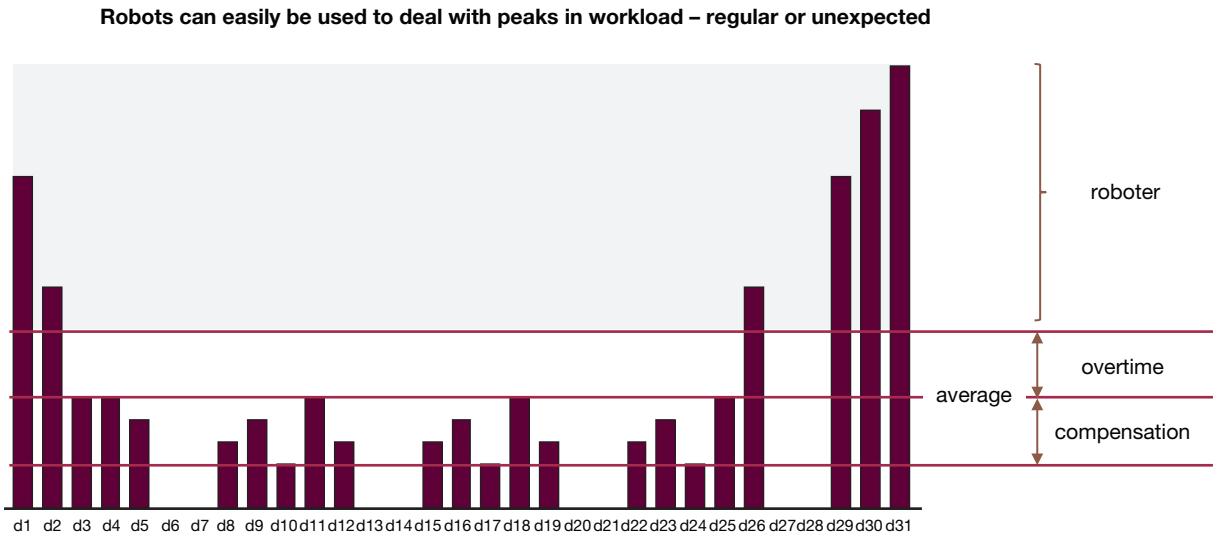
Figure 19: Workforce planning and flexible employment of roboters



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Process potentials and implementation plans in Finance & Accounting

For both the participants that have already implemented RPA as well as for those who have not, Accounts Payable, Accounts Receivable and Travel & Expense Calculation are the processes that both parties indicated as the most suitable for RPA.

In fact, 79% of all participants said that more than 25% of Accounts Payable transactions and sub-processes could be completed by RPA.

In addition to Accounts Payable, three fourths of participants also believe that more than a quarter of all Accounts Receivable processes could be completed by robotic automation.

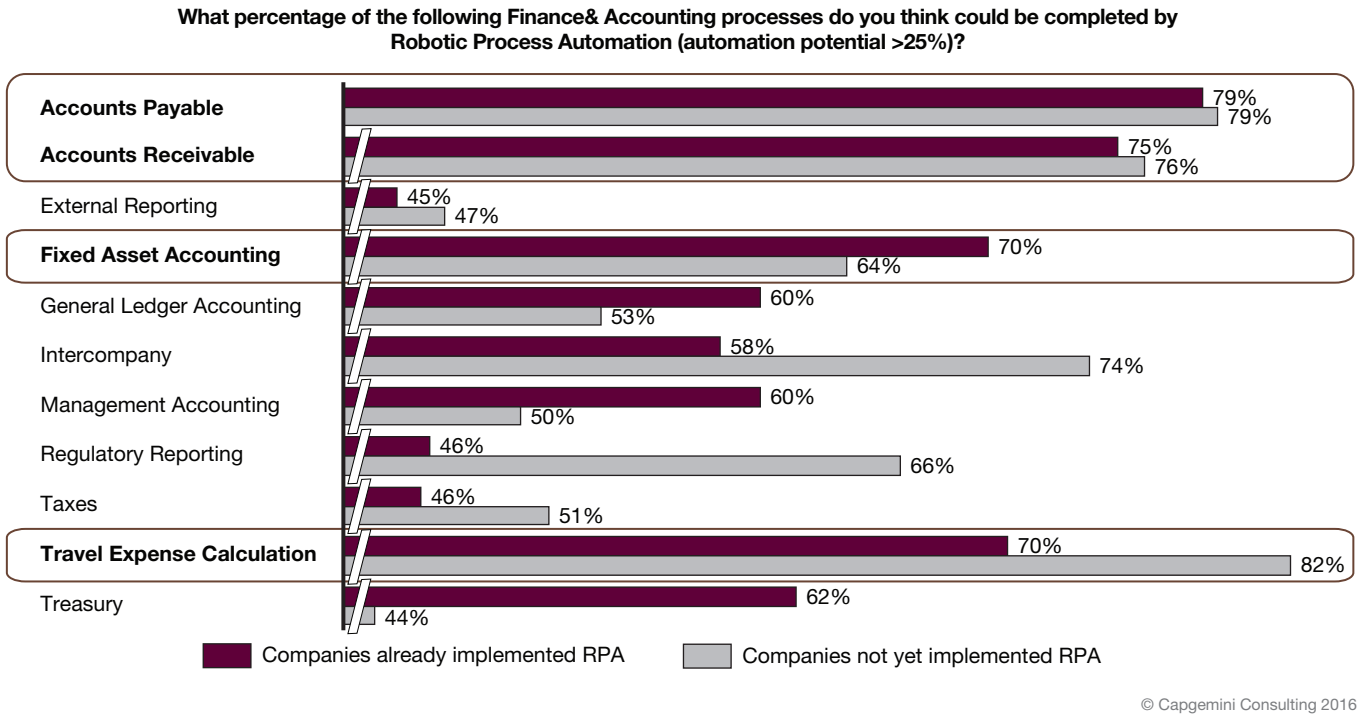
Companies that are more experienced with RPA are sometimes more reluctant to indicate that a significant percentage of tasks in a process could be automated. An example of this is the estimations that were given concerning Intercompany transactions. 74% of participants inexperienced with RPA believe that more than 25% of processes could be automated, but only 58% of experienced companies believe that more than 25% of tasks could be automated by RPA in Intercompany. Hesitations were also indicated by those experienced with RPA when it comes to Taxes, Regulatory Reporting, and Travel Expense Calculation, when compared to those who have not yet implemented RPA.

Understanding the potential leads to actual investment plans into Robotic Process Automation capabilities.

Finance & Accounting currently seem to be the early starters, followed by Human Resource Management and Customer Service (see Figure 16). When delving into more detail, it becomes clear that there are processes that are typically nominated as primary candidates for RPA.

High volume, repetitive and rule-based transactional processes in Finance & Accounting are top priorities on companies' agendas. Some process tasks are heavily investigated for a potential RPA implementation, depending on the individual environment and company specific issues. These include: invoice verification and reductions, penalty claims and credit note handling in Accounts Payable, cash collection and cash allocation or pre-dunning reminders in Accounts Receivable, Master Data Management, OPEX / CAPEX allocation or preparation of stock taking in Fixed Assets Accounting, and journal entries, interface and account reconciliation, as well as account clearing in General Ledger Accounting.

Figure 20: Automation potential in Finance & Accounting



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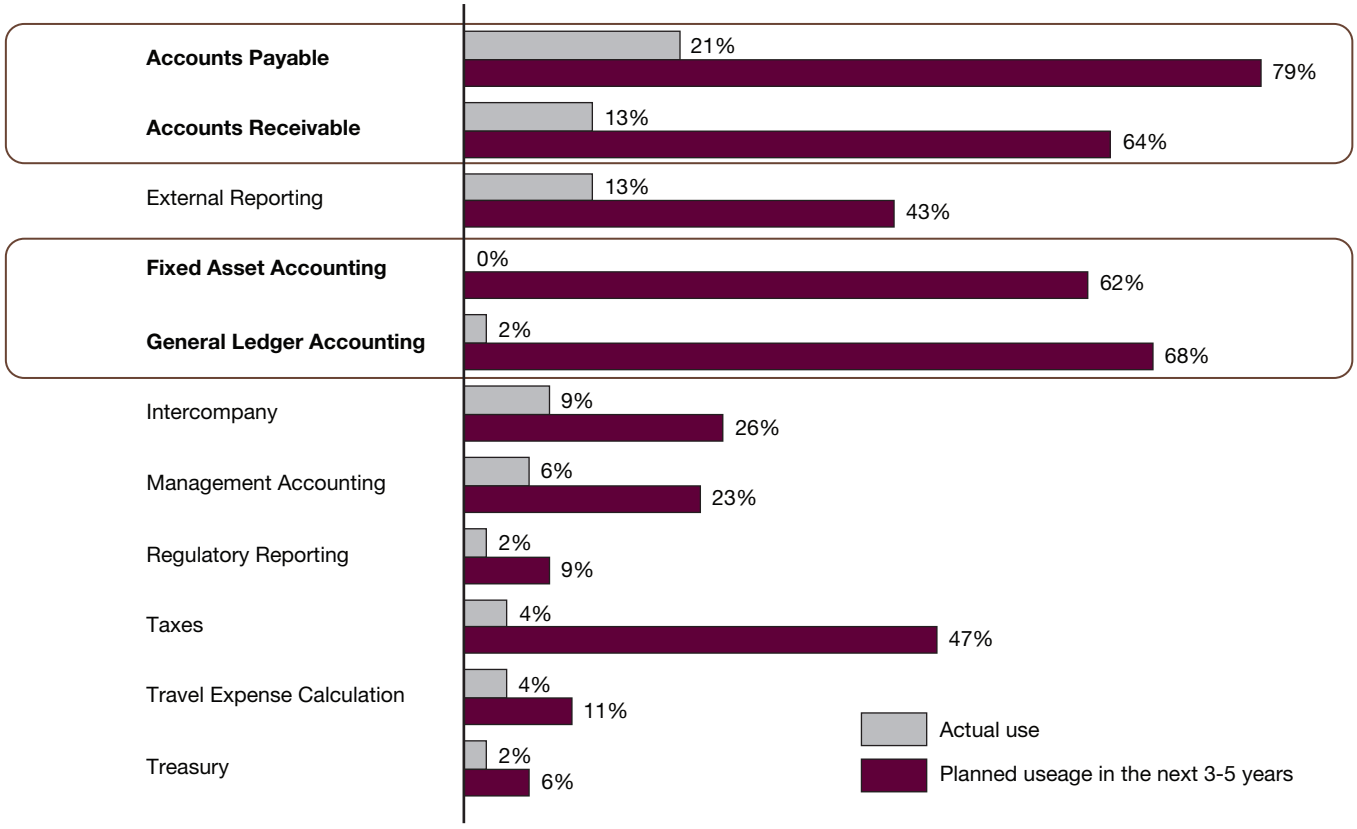
Process potentials and implementation plans in Human Resource Management

In general, participants believe that HR processes cannot be automated to as significant a percent as Finance & Accounting tasks. This could be because many tasks in F&A are known to be highly rules-based, whereas some HR processes may require more human intervention. Nevertheless, RPA can definitely help in HR processes and companies are realizing this.

Master Data Management, Compensation & Benefits, HR Reporting and Operational Management / HR Administration (with its major activity of Payroll Management), are the most frequently mentioned RPA candidates by the HR the most frequently metioned. More than 65% of respondents say that more than 25% of Master Data Management tasks could be automated by robots. Similar quotes apply to HR Reporting, and in addition Operational Management / HR Administration and Compensation & Benefits are regarded as highly suitable by the majority of participants. These processes are currently the leading candidates for RPA in Human Resource Management.

Figure 21: RPA plans for Finance & Accounting



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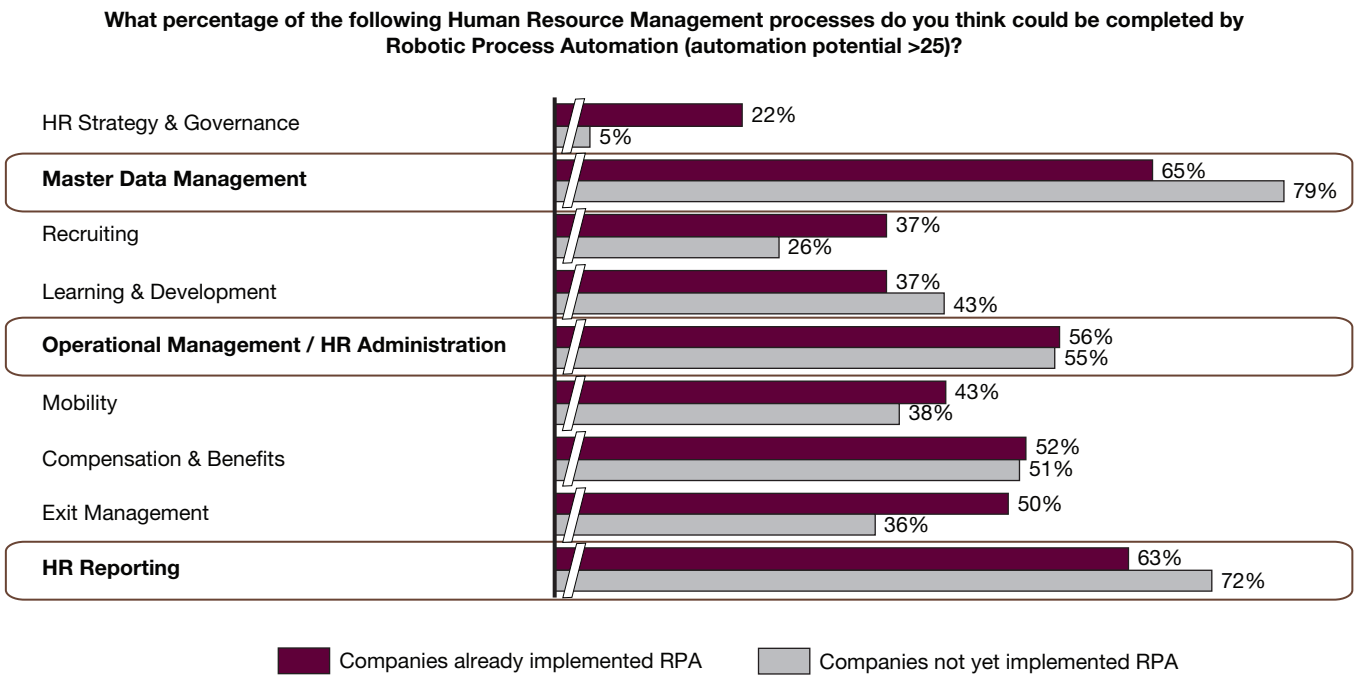
Although HR executives seem to be more reserved compared to Finance, they still plan significant implementations in RPA technology. Processes with regular workload peaks that require access to multiple systems seem to be of current interest among executives. In particular, Cost Centre reallocation of staff and departments, application for leave and workforce planning, payroll administration, salary garnishment and assignment as well as collection of performance appraisal and bonus calculation are mentioned by HR executives.

The significant percentage of people that plan to implement RPA clearly indicate that companies recognize the considerable advantages that RPA can provide. However, the processes and tasks that are selected is higly dependent on companies' specifics, such as the current setup of process as well as the system and application environment. An indepth investigation into the objectives and measures of success for a RPA implementation is highly recommended in order to ensure that the decisions are based on the business case.

Figure 22: Automation potential in Human Resource Management



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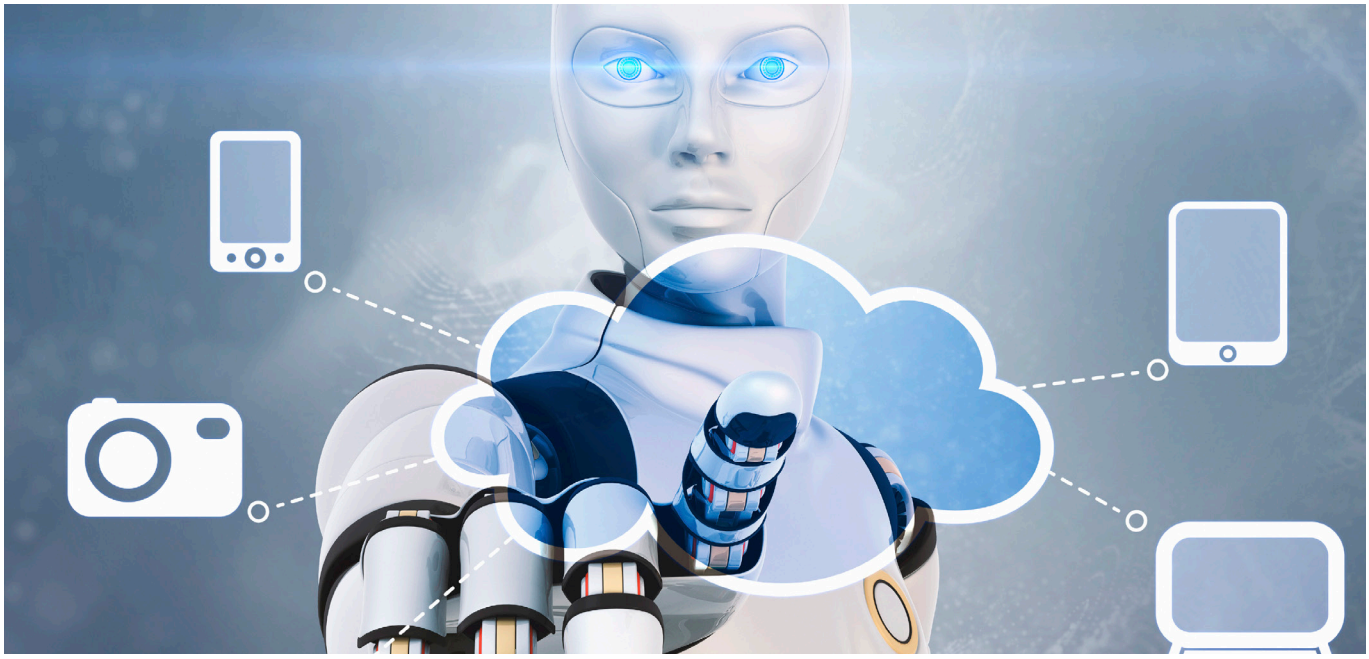
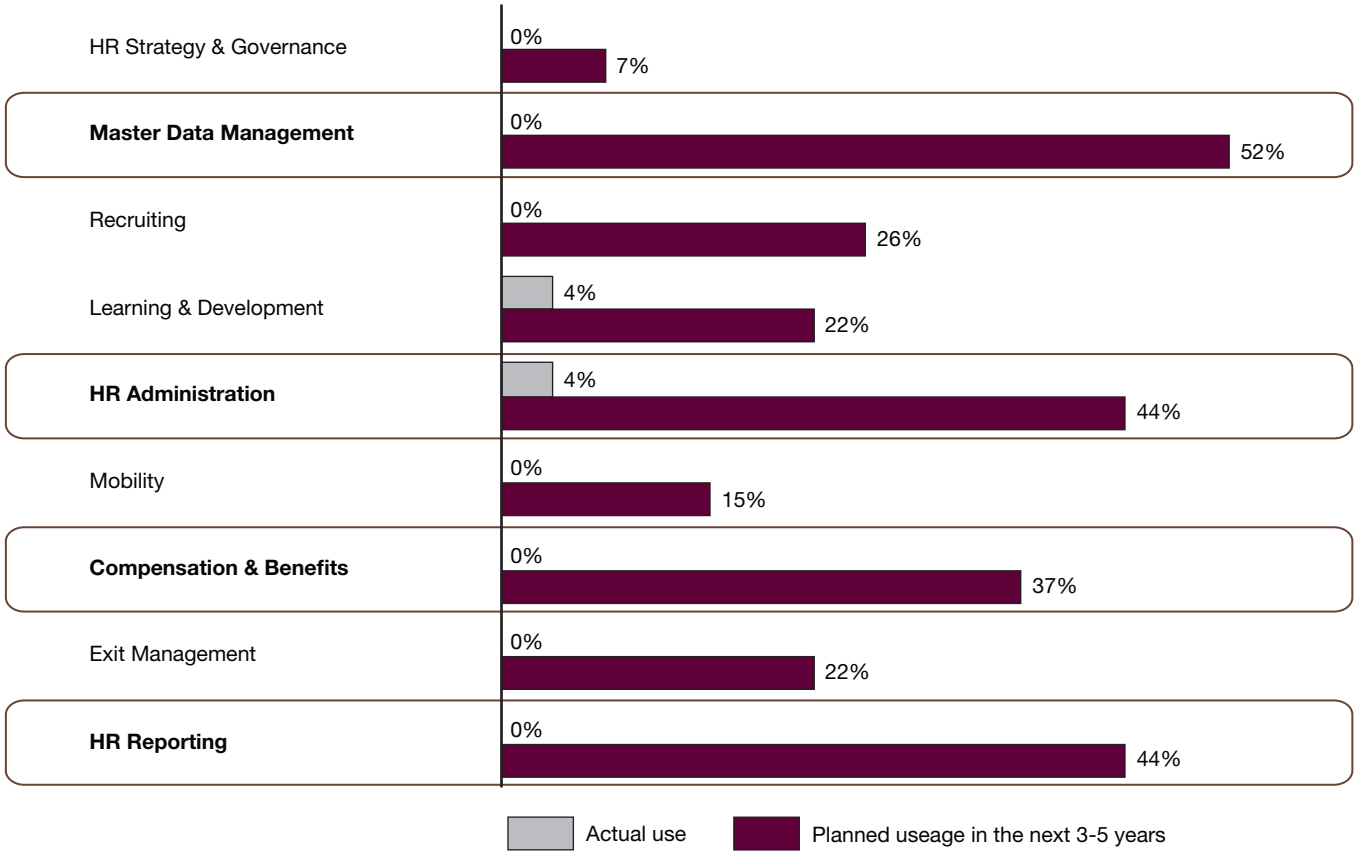


Figure 23: RPA plans for Human Resource Management



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Drivers and expected benefits

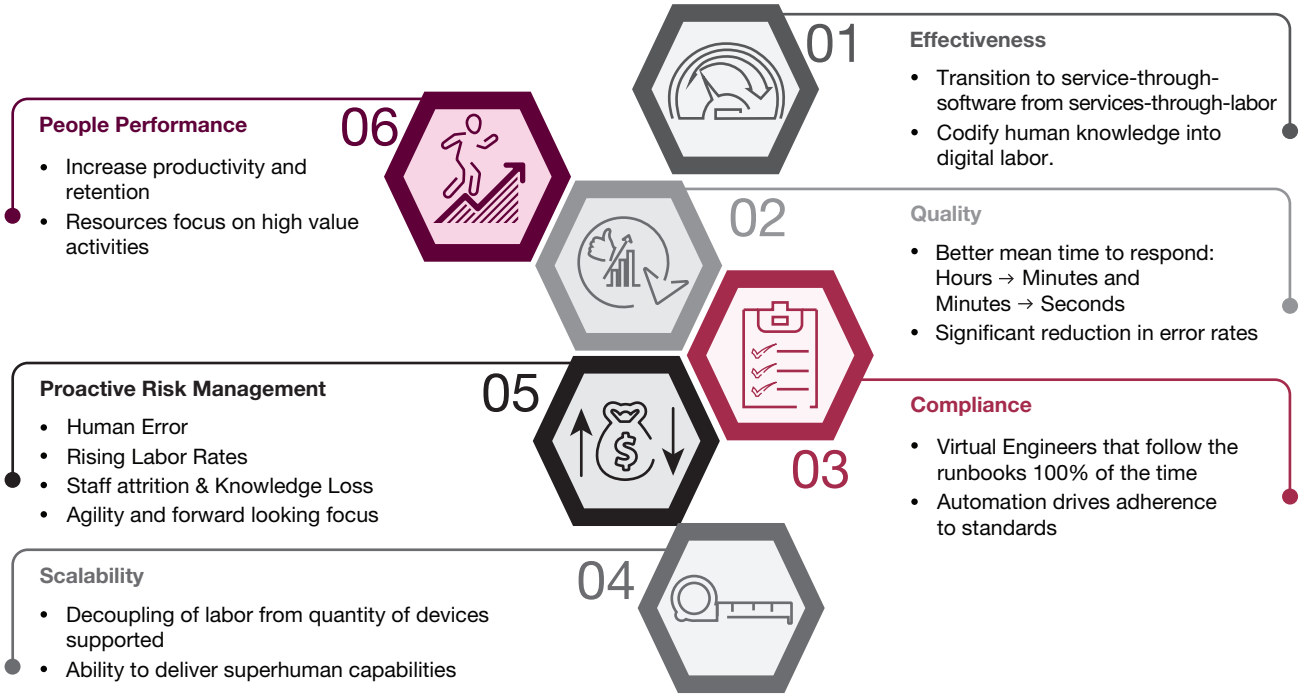
Cost reductions, quality improvements, and better compliance are the main drivers and benefits expected when companies think about implementing robots.

When discussing the substancial benefits of Robotic Process Automation, the typical areas affected are: effectiveness, quality, compliance, scalability, risk optimization and workforce performance.

Company executives clearly see the benefits of introducing RPA in terms of cost reduction, quality improvement and better compliance. Increased speed of process execution and reduced time spent on repetitive tasks also enable the people responsible for the back office processes to improve process effectiveness and efficiency.

> *"Robotics is the great chance to minimize simple and stupid processes for the employees, so it is a great chance for personnel cost reduction."*
>
> *Thomas Budny, Commerzbank AG*

Figure 24: Benefits of RPA



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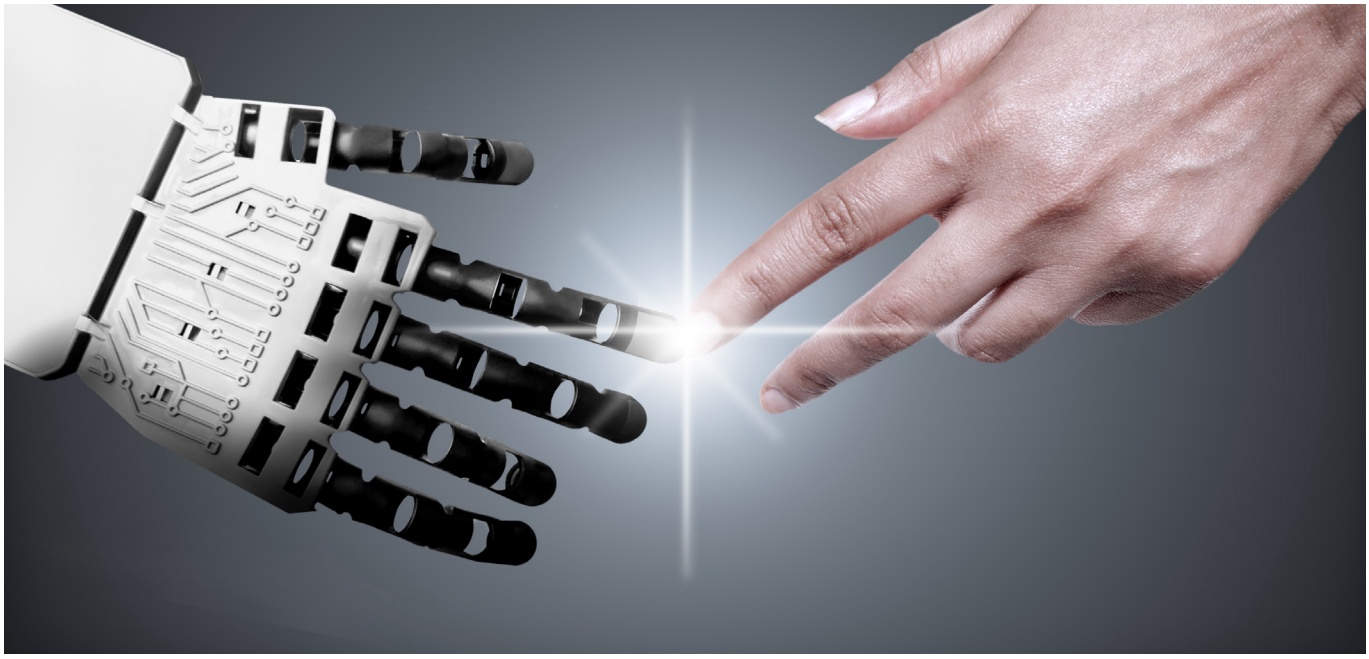
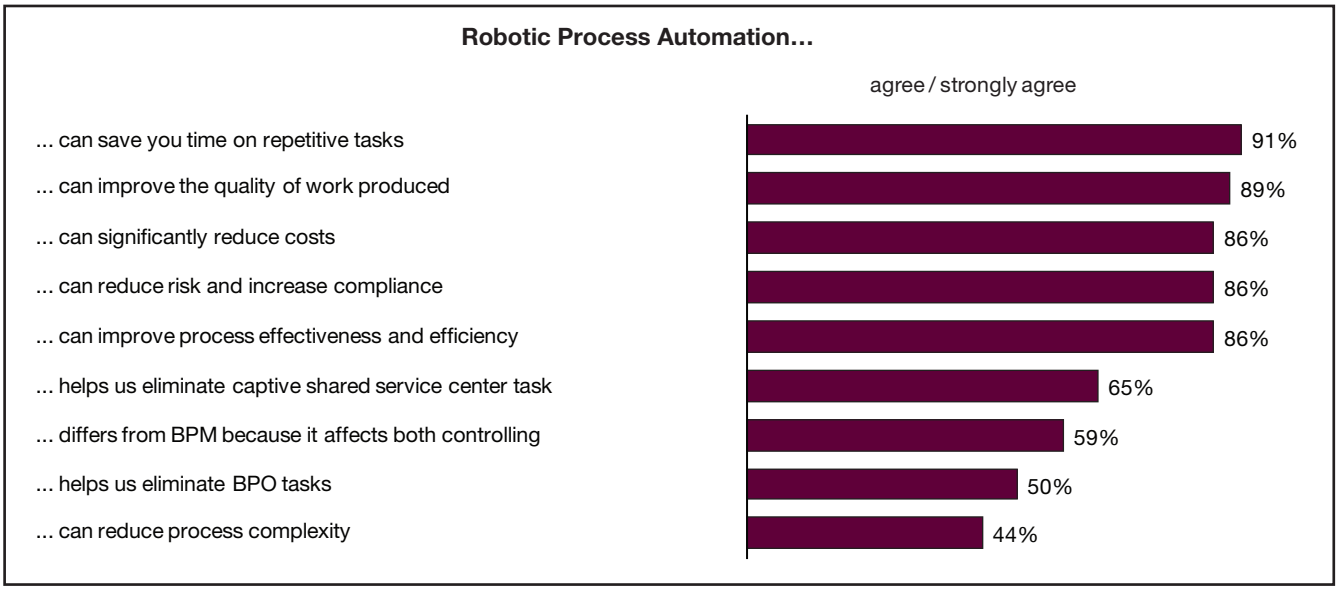


Figure 25: Benefits expected by survey participants



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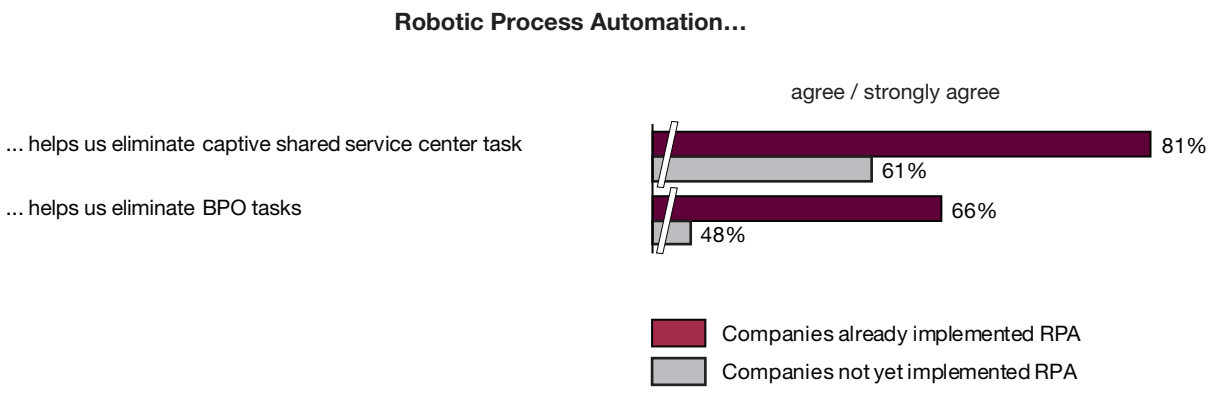
There is not much difference in statements given by companies that already implemented RPA (39%) and those who haven't (61%).

86% of all participants indicated that RPA can significantly reduce costs. While participants clearly understand the benefits that RPA can provide, they do not expect RPA to help reduce process complexity. Nevertheless, companies do expect RPA to work with a higher process complexity, similarly to other technical enablers. If complexity is defined as processes where cause and effect are dynamic and require more thoughtful decision-making, the processes are not likely to be the ideal candidates for RPA. However, if complexity is defined as requiring many interconnected steps and the control of a number of variables, RPA can manage this complexity, since the process is rules-based. As a conclusion, RPA will not make a poor process a better one, it just helps to handle the existing difficulties, accelerates the process execution and can help increase accuracy.

Reducing risk and increasing compliance is also seen as a valuable asset of RPA. This can be analysed from two angles. It is the robot and its artifacts, which is executing specific, repetitive tasks. Once designed, the same routines will be executed daily in a transactional manner without unforeseen activities changing the pattern. Any exceptions to the designed workflow will cause an automatic alert to the supervisor for immediate intervention and result in total robot shut down if required. Moreover, by implementing robotics, no errors caused by loss of concentration will occur as it does with humans doing the same mundane tasks for hours. Robots cannot be accused of any criminal intention, especially if external intervention can be denied based on the existing network security and firewalls. In addition, a robot can also be used to monitor human transactions, prompting alerts for any out of the ordinary activites (in some countries, a workers' council must be consulted before implementations). Think of a robot that can check any purchasing or sales agreements on the fly, as well as sign-offs for invoice differences, cash transfer initiations with predefined patterns and the robot can ring the alarm bell in any odd cases. RPA definitely has the potential to act as a great tool for internal audits.

More remarkable, however, are RPA users' statements, when it comes to the idea that robots can help eliminate Service Centers and outsourced tasks. Among experienced users, the share of those who support this concept is 15 to 18 percentage points higher compared to those who have not yet implemented RPA.

Figure 26: Benefits expected by Companies already implemented RPA vs. Companies not yet implemented RPA



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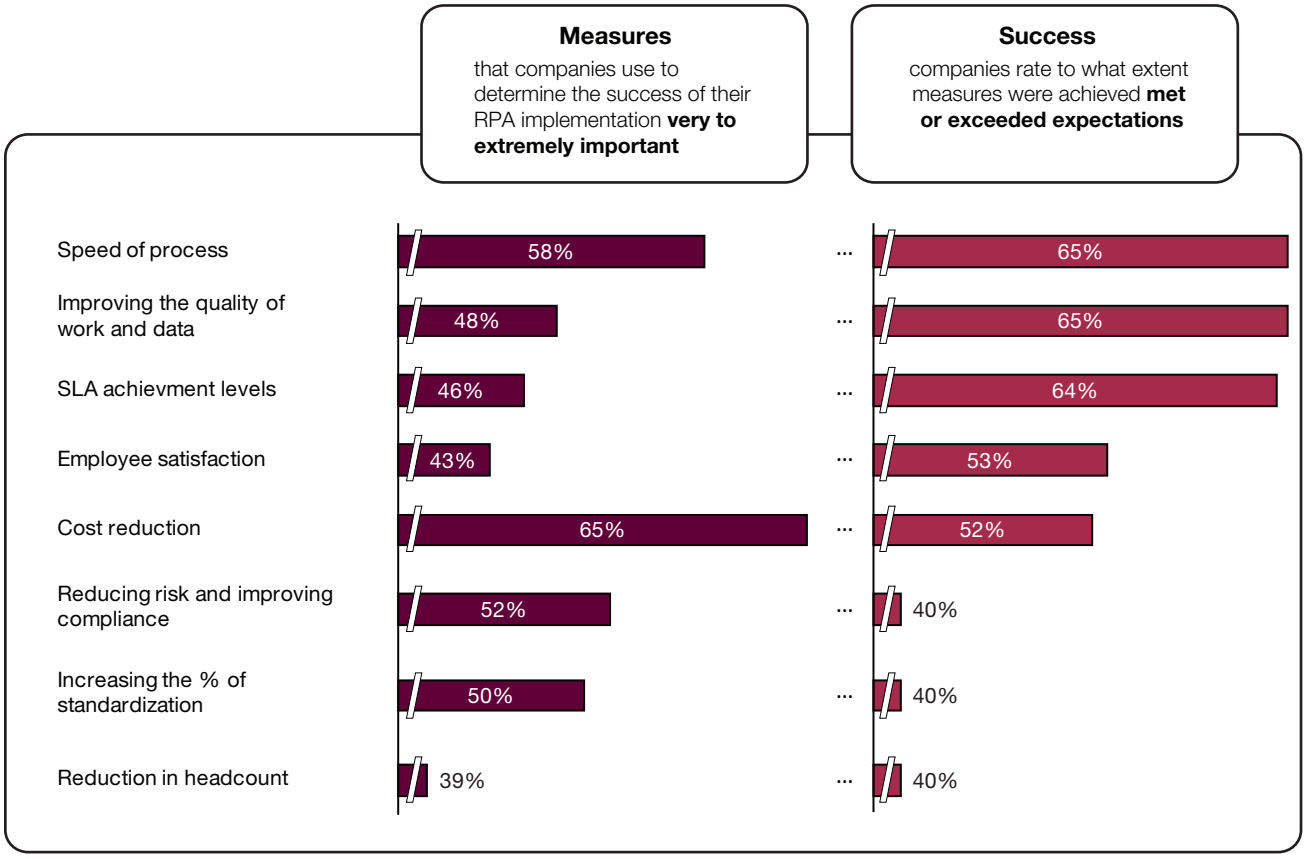
For the ones already experienced with RPA, the most important measures to justify the success of a RPA implementation include cost reduction, named by 65% of participants as very important or extremely important, as well as the speed of processes, with 58% mentioning this to be a very or extremely important quantifiable measure of success. Over a half of those experienced with RPA indicated that they either met or exceeded their cost reduction expectations, and given the evidence, cost reduction potentials between 20% - 50% are achievable. Finally, 2/3rds of users are satisfied with their SLA achievements, increased speed of processes and improved quality of work and data.

> *"Robotics offers the opportunity to relieve human beings from simple, repetitive work and at the same time allows to drive quality in results by leveraging the precision of machines."*
>
> *Thorsten Hieber, Daimler AG*

Figure 27: Quantifiable measures and success reported

How do you classify the following quantifiable measures of success for your last implementation of Robotic Process Automation and to what extent have you achieved your quantifiable measures stated?



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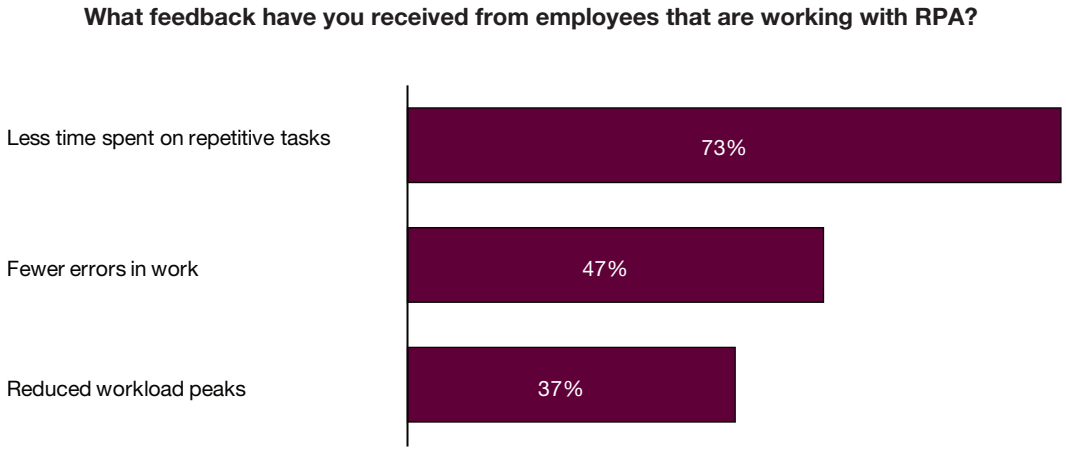
It is also interesting to see what positive improvements with regard to process speed and error avoidance end users indicate, who work with RPA.

The positive results enable companies to continue to introduce more robots and artifacts. More than 80% of those who already implemented RPA in at least one of their processes plan to add more within the next 3 - 5 years. For an additional 13%, their decision was not articulated; however, it can be assumed that many companies will continue on the path towards further RPA implementation.

> *"Robotics is like ASPIRIN®: it cures the symptoms but not the illness."*
>
> *Tobias S. Unger, Siemens AG*

Figure 28: Quantifiable measures and success reported



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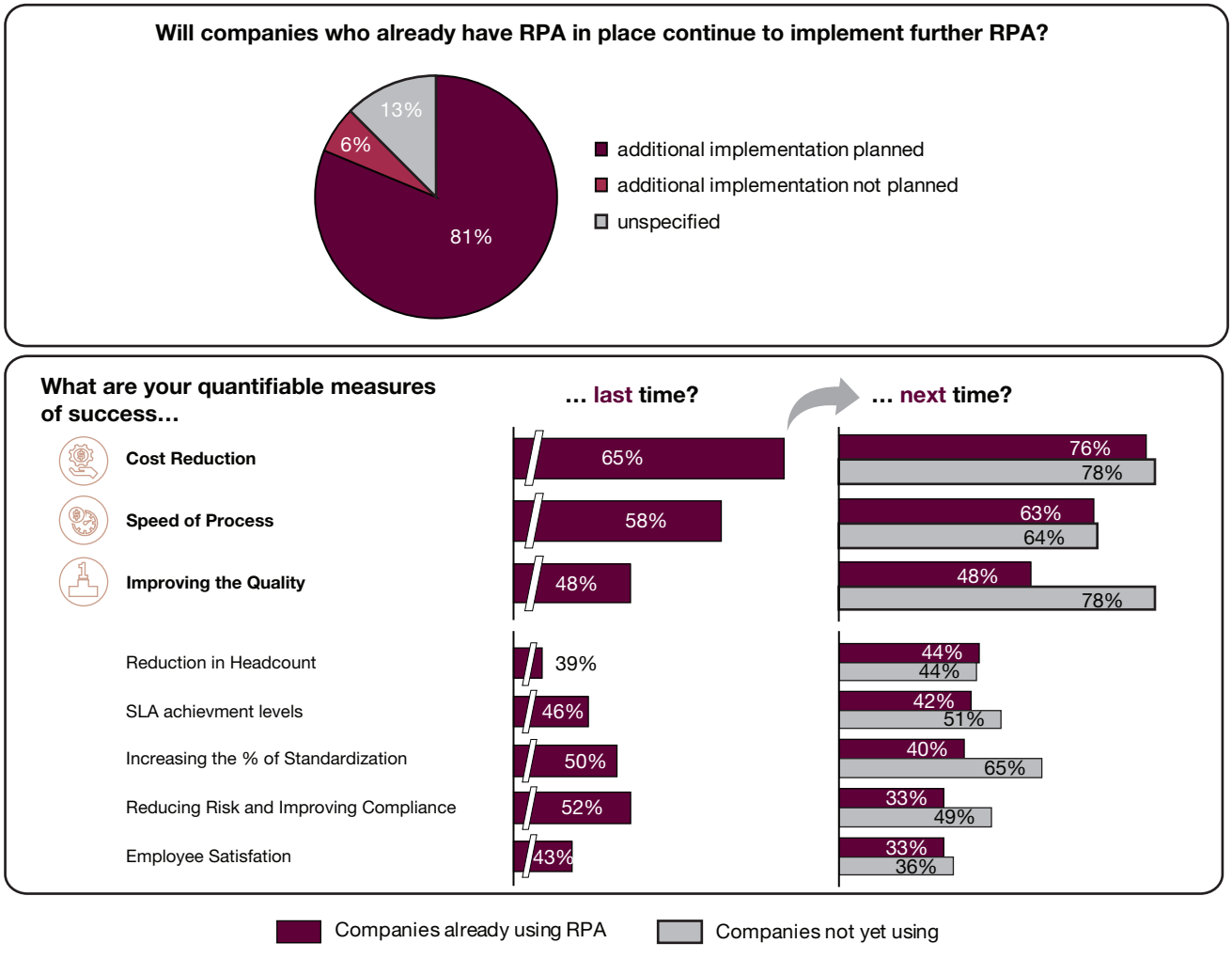
Based on the experiences that companies have had with RPA to date the future quantifiable measures, which indicate the success of a RPA implementation, will slightly change. While companies currently focus more on cost reduction and the speed of processes, standardization aspects and risk and compliance topics have taken a back seat.

In most areas new-joiners' quotes are quite similar to those of early adopters. Cost reduction and the speed of processes are also focus areas for those who have not yet implemented RPA, but intend to do so in the next 3 - 5 years. Moreover, the participants who intend to execute their first RPA implementation in the next 3 – 5 years also believe that their approach will achieve better results in risk and compliance, quality improvements as well as SLA achievement levels. Remarkably 78% of beginners mentioned quality as being either very or extremely important to them, while 65% also named increase in standardization being of greater importance. However, only 40% of companies who already use RPA software believe that increasing standardization is a very or extremely important measure to define the success of a RPA implementation.

Figure 29: Quantifiable measures and success reported



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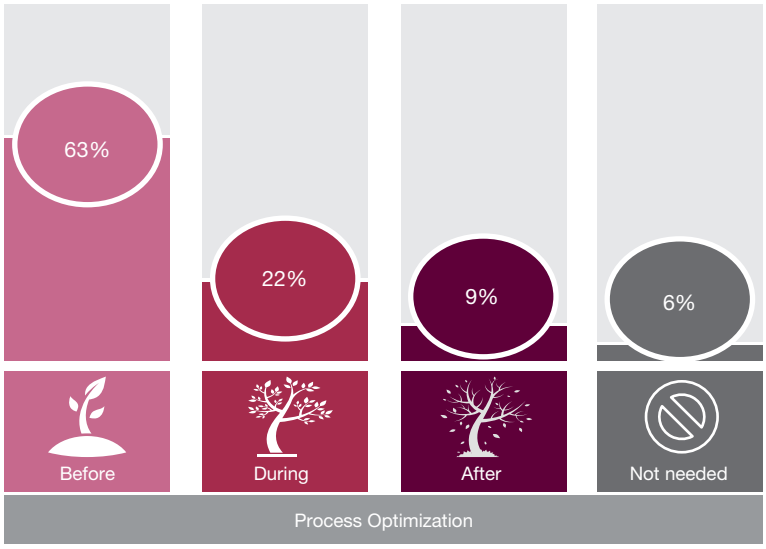
Optimization and standardization

When it comes to implementing RPA, the road to automation acts more as a process optimization enabler, than as a trigger to standardize processes.

More than 70% of the participants stated that from their point of view RPA changes the process chain, offering the chance for processes to be standardized. Yet, only 51% believe that RPA only works on standardized processes, meaning that participants do not see the necessity for process standardization since robots can follow heterogeneous processes that have rules and routines. 86% of companies rated increasing the percentage of processes that are standardized as important or very important, meaning incorporation of robots standardizes remaining human tasks with homogeneous inbound and outbound process steps and data. Nevertheless, only 43% met or exceeded their expectations in increasing the percentage of processes that are standardized. This mismatch of expectations and actual achievements showcases the potentials and the limits of Robotics in back office functions.

Figure 30: When is the right time to optimize processes?



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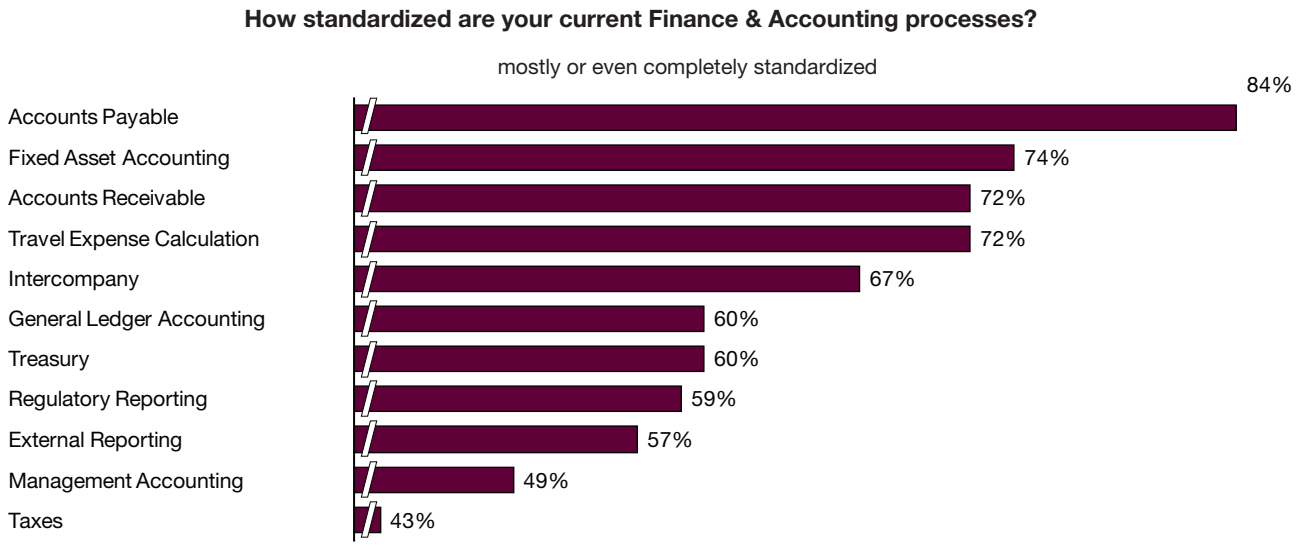
The majority of participants start their process optimization either before or adjust their processes during the RPA implementation phase. In face-to-face interviews some company representatives mentioned bugfixing and improving artifacts as reasons for their late process optimization. Others said – and this seems to be the

Figure 31: Current degree of standardization in Finance & Accounting



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smarter approach – that late optimization was caused by the fact that RPA was used as a quick win solution in the game of process optimization. Business Process Management is the first to suggest improvement potential in certain processes. Heterogeneous system landscapes, cross-system process execution or loops in workflow, to name only a few criteria, let companies look at RPA as a means to non-intrusive solutions for quick wins, rather than going for time-consuming process reengineering within a complex enterprise resource planning (ERP) environment. The robots begin by assisting with smaller activities and process steps, sending precisely defined exception rules and exit notifications to their supervisors. Step by step the robot scope increases by defining work routines for these exceptions. These optimizations can affect both the robot processes themselves, predecessor processes, and input data which is streamlined throughout the process flow.

Consequently, RPA can be a vital part of the Business Process Management environment, giving transparency to the process flow and indicating further improvement potentials.

The degree of standardization indicates strong RPA candidates. Current RPA usage correlates to the current degree of process standardization. Processes with a higher degree of standardization such as Accounts Payable, Accounts Receivable or Customer Service processes are generally the processes selected in the initial RPA implementation phase.

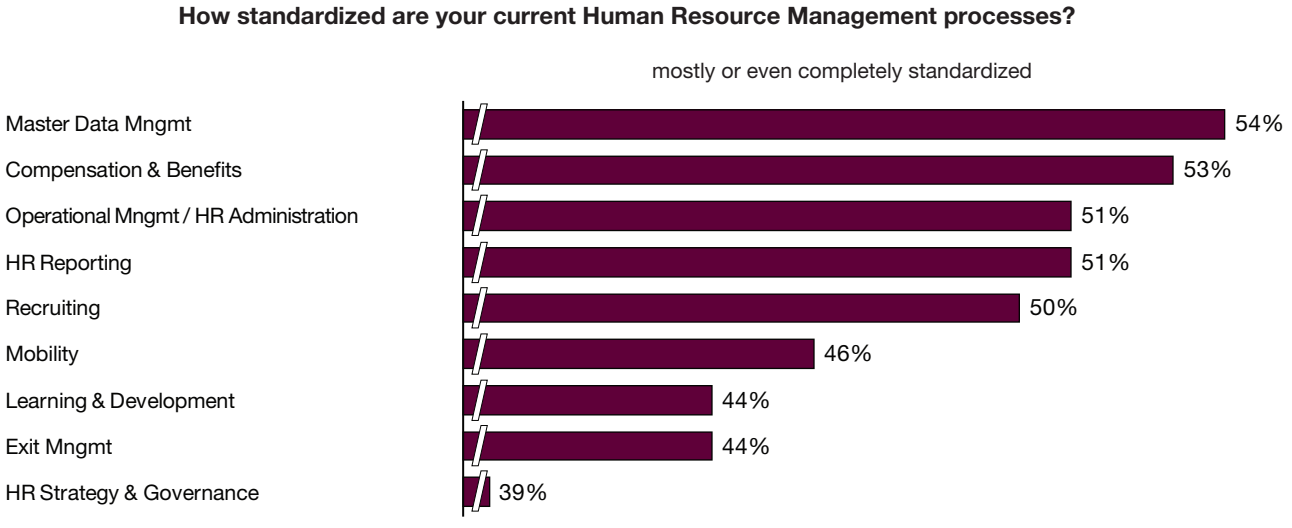
In addition to the above mentioned results on companies' beliefs with regard to process suitability and correlated plans to implement RPA, Capgemini also asked for the current degree of standardization in each of the related processes. Accounts Payable, Accounts Receivable, and Travel Expense Calculation are again are the processes that 72% - 84% of participants described as mostly or even completely standardized. In fact, Accounts Payable and Accounts Receivable are on the top of the list of processes where companies plan to implement RPA.

Results from Human Resource Management point in the same direction. Master Data Management, Compensation & Benefits, HR Reporting and Operational Management / HR Administration with its major activity of Payroll Management are the process with highest degree of standardization.

Once again, these processes are regarded the most suitable for a RPA implementation, according to the participants. Companies intend to invest in RPA in these four areas.

In conclusion, standardization is a strong indicator as to the scope of RPA, but introducing robots will not increase the degree of standardization in itself.

Figure 32: Current degree of Standardization in Human Resource Management



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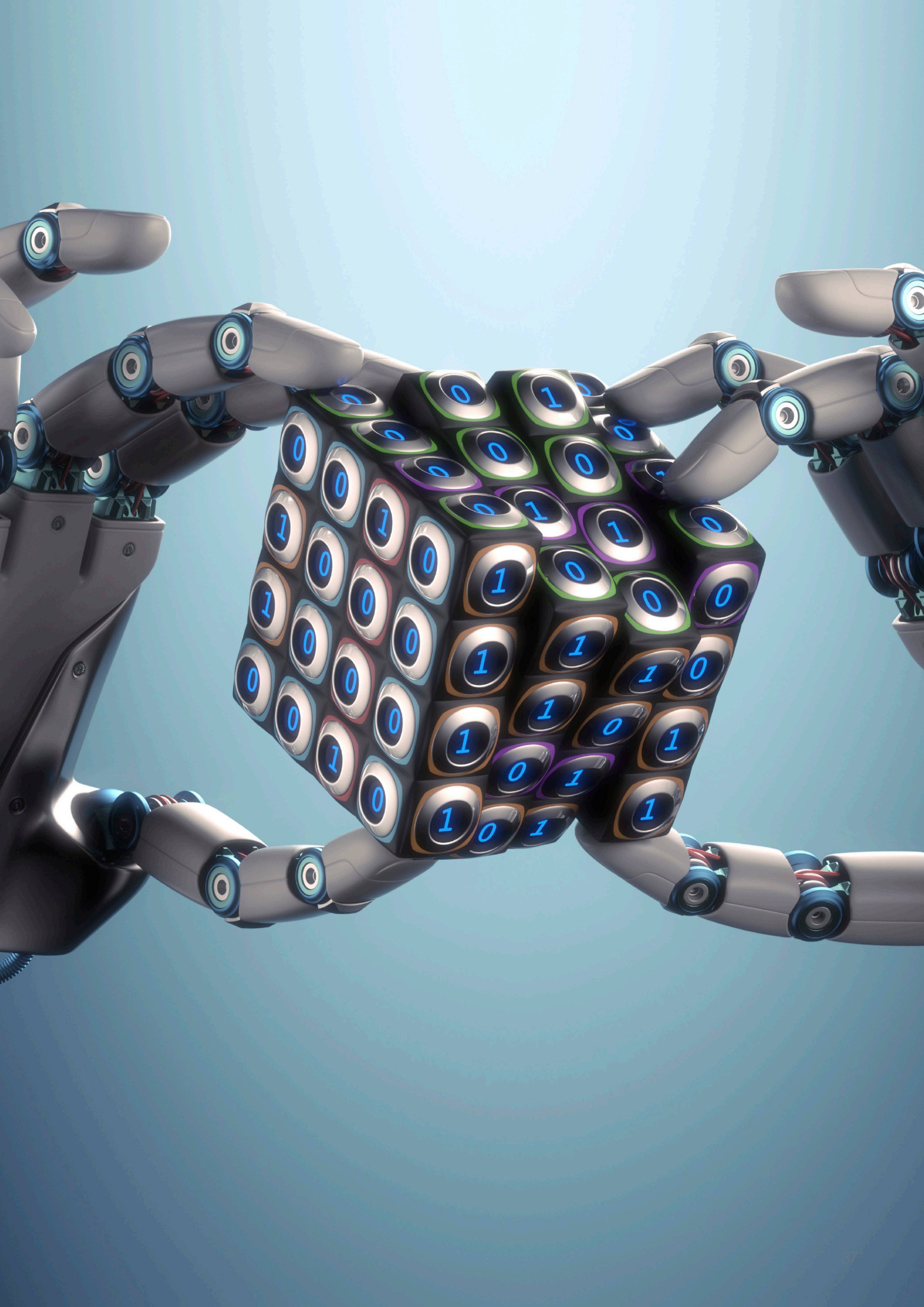
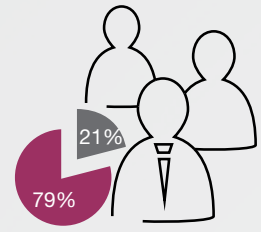
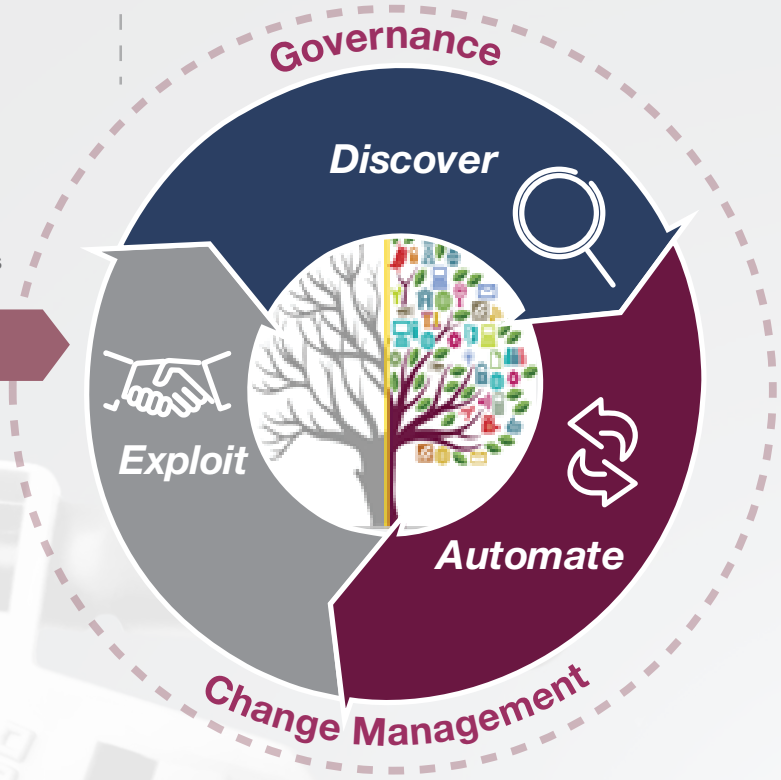


Companies across all industries around the globe will introduce RPA in their back office functions

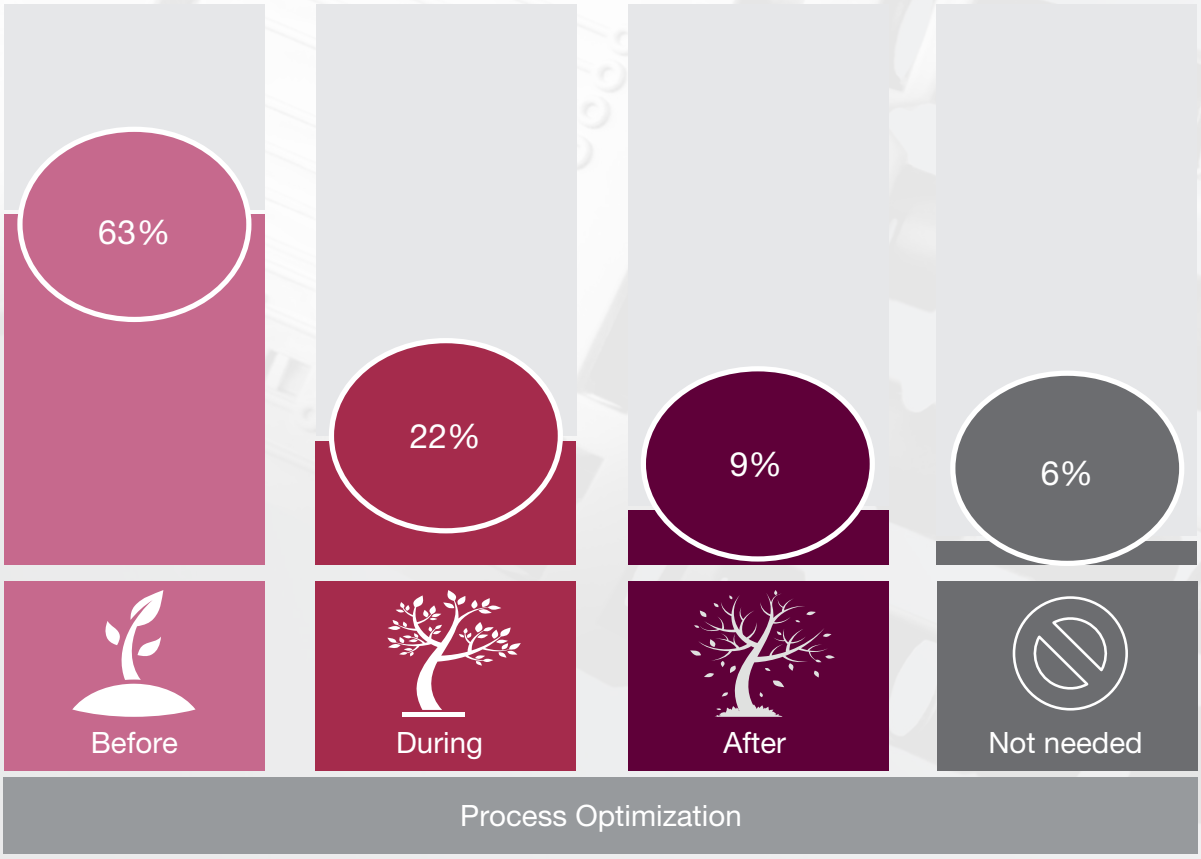
+150 Participants



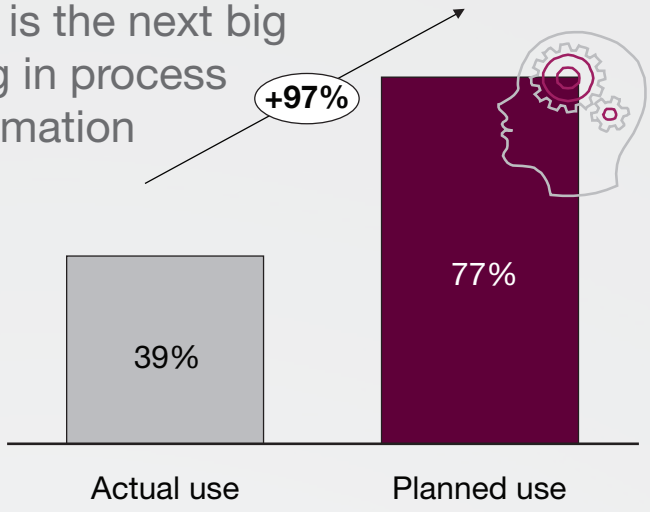
Capgemini Consulting's Implementation Methodology



Process Optimization before the RPA implementation „plants" Sustainable Success



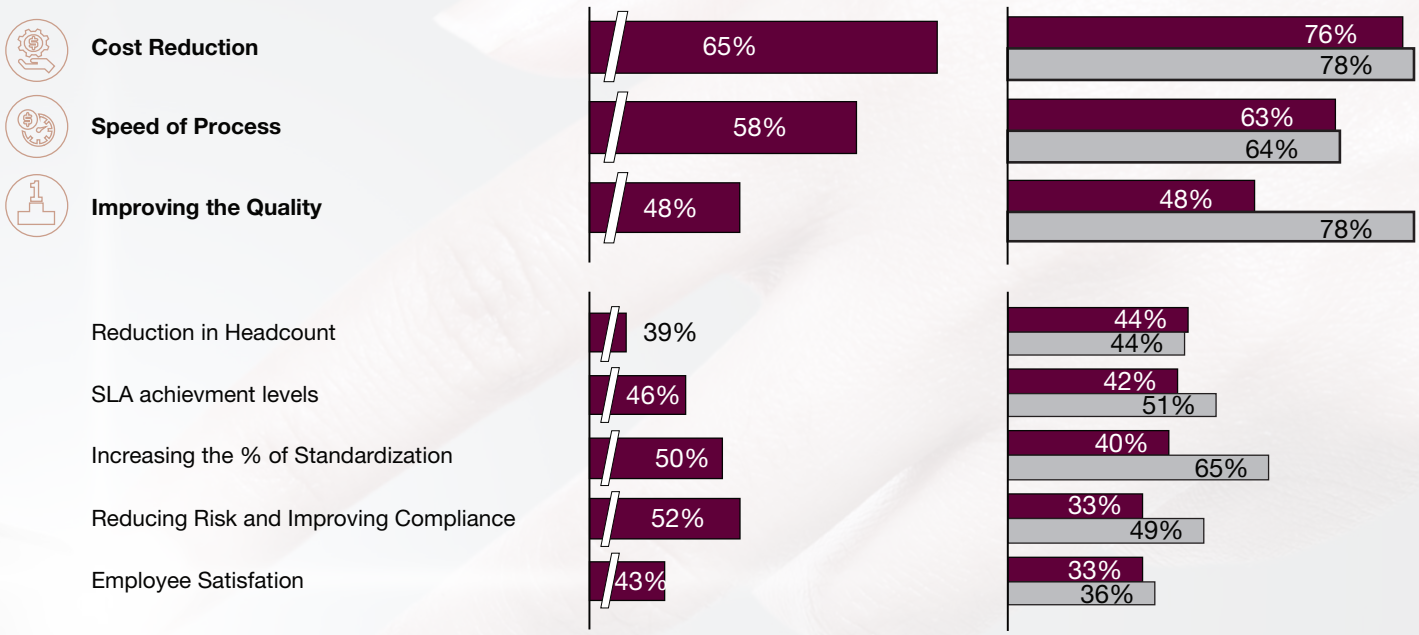
RPA is the next big thing in process automation



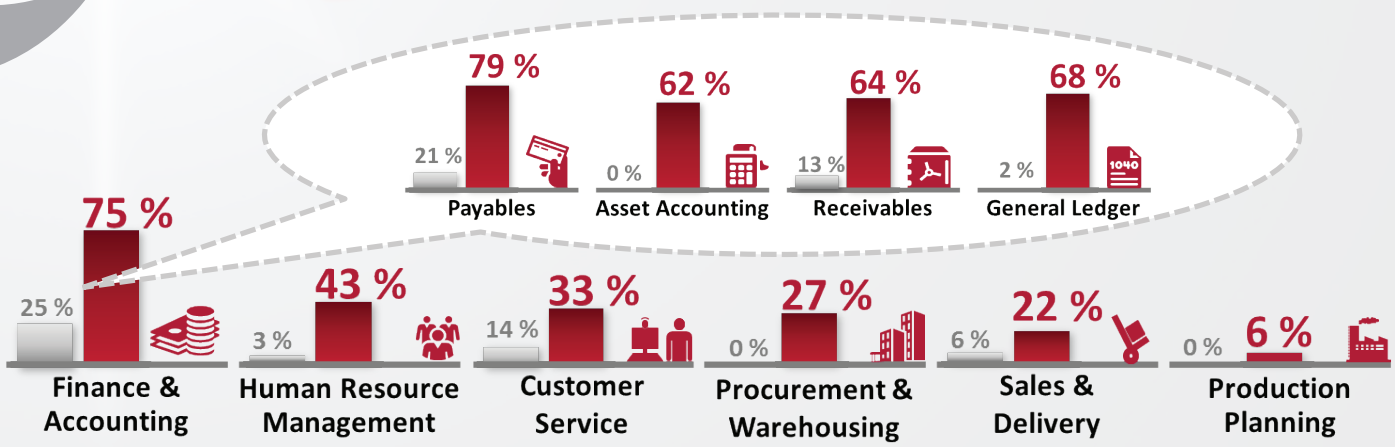
RPA effects all areas Organization, Processes and Technology

Main benefits expected are Process Speed-up, Quality Improvement and Cost Reduction

The leading factors will become even more important



Robots tasks will increase in every function



6 Future Outlook

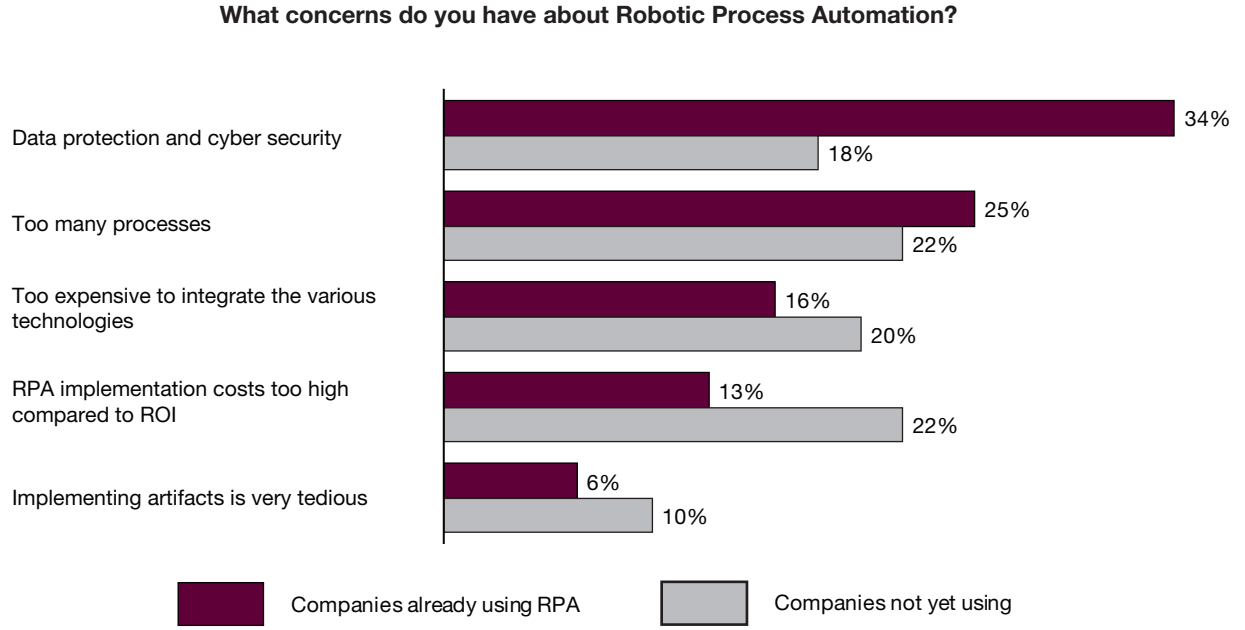
While it is clear that RPA is going to transform back offices, the next question becomes, how can companies drive a successful RPA transformation within their company and ensure a thriving, long-lasting and sustainable strategy?

The Capgemini Robotic Process Automation survey clearly demonstrates the growing trend towards increasing robotic automation within back office processes in all sourcing areas, but particularly onshore and in Shared Service Centers.

Companies, that already use RPA take data protection and cyber security very seriously and in fact, companies that want to start any initiative should not underestimate this topic. Furthermore, companies need to ensure that they prioritize which processes will initially use RPA, and develop a transformation roadmap based on the individual requirements. In general, RPA should be embedded into a greater Business Process Management framework to clearly determine whether RPA is the right answer for current issues in certain process steps, being it a quick win, a short term optimization and / or a long-lasting solution. Remarkably, experienced companies raise fewer concerns about cost and implementation time for artifacts, compared to companies not yet using RPA software. Capgemini also noticed that some companies were concerned about the number of different systems that they currently have in place—however, this is in fact one of the advantages that RPA offers; RPA is able to work across many different systems in a non-intrusive manner. Therefore, companies can expect to see a good return on their RPA investment.

While RPA currently works with rules-based processes, RPA will push boundaries and eventually be able to work within all the cognitive periphery. Undoubtedly, some jobs will be lost, as was seen in the automation of assembly lines. However, organizations and the way people work will change and new opportunities will arise. Remarkably, all the

Figure 33: Current concerns about RPA implementation



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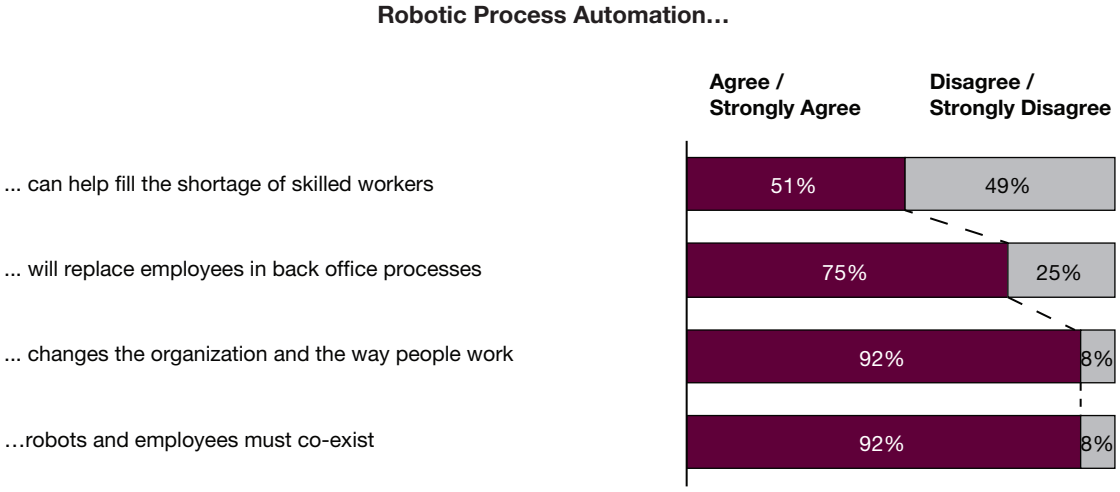
people who already implemented RPA in the study agree that while RPA is going to help in the back offices, employees and RPA must still co-exist. More than ever, Change Management is a vital aspect to be considered in the journey towards a successful RPA implementation.

Companies must ensure that they consider all the aspects of an implementation in terms of people, processes and technology.

As discovered throughout the study, RPA is without a doubt the next digital transformation in back offices and is going to dramatically change the work that is attended to in these functions. The robots are coming in droves and Capgemini is excited to be a part of this transformation.

Figure 34: People impact



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7 Capgemini Consulting's Implementation Offering

While back office processes may not be fundamental to the bottom line of a firm, they still play a fundamental role. Many of these tasks are relatively repetitive, mundane, and follow specific structures and rules. Currently, these tasks are taking time away from personnel who could instead be focusing all of their time and energy on value-adding initiatives. Robotic Process Automation can be massively beneficial in improving process effectiveness, efficiency, the quality of work produced, as well as drastically decrease the amount of time spent on a given task.

Capgemini Consulting is well-prepared to work with clients throughout every implementation process and scenario. We want to support clients to ensure that their organizations have a clear strategic direction that facilitates a smooth implementation process and long term sustainable success.

Capgemini Consulting provides support for every possible implementation scenario:

Scenario 1: Tool Focused RPA Implementation

The client will purchase the rights to RPA software and lead their own implementation, while our experts provide technical and strategic support.

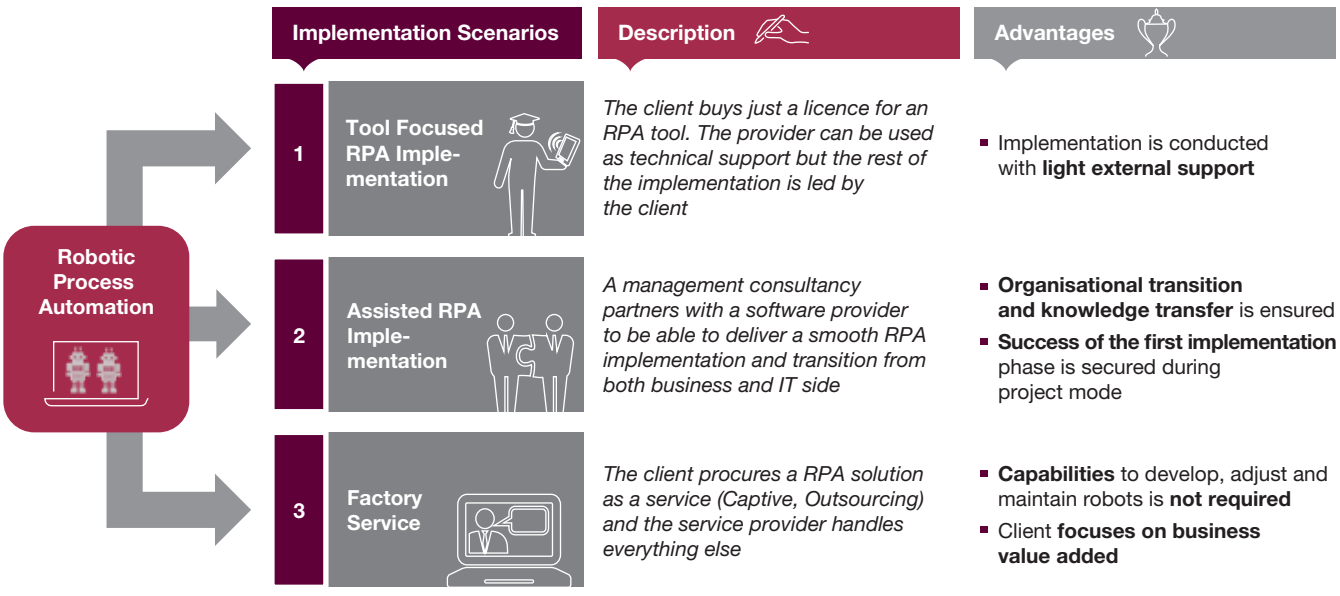
Scenario 2: Assisted RPA Implementation

Our managing consultants will partner directly with a RPA software provider to ensure that our client has a smooth RPA implementation. Moreover, Capgemini Consulting will play a significant role in facilitating the organizational transformation, to ensure that the people, processes, and technology all have a seamless transition. We will support both the business side and the IT side to make sure that there is employee buy-in, a strategic path, and clear communication throughout the organization.

Scenario 3: Factory Service

Capgemini Consulting will work directly with the service provider of the clients' choice. Since this partner already has RPA in place, additional technical support will not be necessary. Instead, we can help companies concentrate on RPA's added business value to ensure that companies get the most out of their RPA implementation. It will be essential to ensure that organizations have clear goals that are communicated throughout the firm, as well as quantifiable measures to determine the success of an implementation. Capgemini also provides full factory service by Capgemini Business Services for clients around the globe.

Figure 35: Capgemini Consulting fosters successful RPA implementations based on three scenarios



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8 Appendix: The participants

Capgemini would like to thank all of the more than 150 individuals from companies of all sizes who participated in the survey.

Board members and executives in various positions completed the survey. Positions that participants hold include: Finance and HR, Head of Robotic Automation Center, Operation Director in Global Business Services, Claims Executive, Senior Director, Purchasing Executive, Strategy Officer, Vice President of Business Process Optimization, and Head of Finance & Accounting Shared Services.

Representative companies come from come from many industries, with the largest sectors being Financial Services and Manufacturing. The individuals that participated in the survey are all well-informed about Robotic Process Automation and represent a mix of multi-national, large, and medium sized companies from all over the world. Ensuring that companies are leaders in their fields provides assurances that these companies are trend setters and early adoptors. Nearly half of the companies surveyed have revenues over €1 billion Euros, making these companies industry leaders and ideal candidates to accurately indicate future trends.

The majority of companies surveyed are headquartered in Germany, Austria, and Switzerland. However, a significant number of companies that participated are headquarterd in Scandinavia and North America. The global presence represented by participants guarantees the accurate representation of global trends within back office processes.

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