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Next generation automation
Transform your business processes with robotic and intelligent automation

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Introduction

Moore's law and advances in technology are impacting the world and the way we work. Self-driving vehicles, speaking robots and artificial intelligence are no longer a vision of the future but are a reality today. These advances are not only being developed in Silicon Valley labs but also right here in Switzerland.
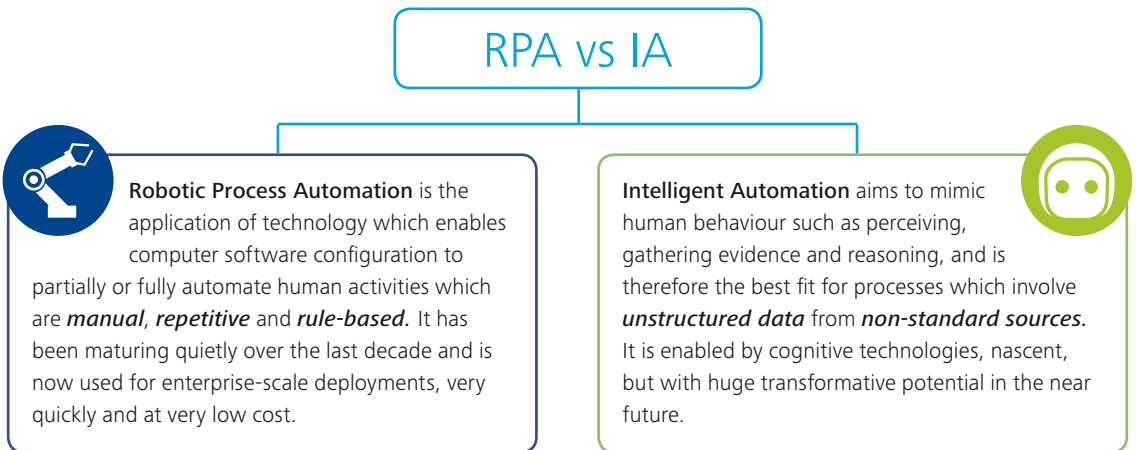
There has been a buzz around how robots have been transforming business processes for years, but we are now on the verge of seeing robots that replicate the human brain. Just as machines have transformed manufacturing, new "virtual" robots or robot-led automation has the potential to change today's workplace as dramatically as the machines of the Industrial Revolution changed the factory floor. Core business skills such as process knowledge, technology integration, and insightful analytics could be delivered through a leveraged model at a lower cost. The capability and demand already exist for this technology, and is enabled by abundant computing power and software solutions that can be packaged and downloaded as "apps."

Why do we need robots to run business processes?

- Many business processes are not as intelligent or automated as they could be and some of them cut across various IT systems that do not communicate with each other.

- Others are just too time consuming and therefore expensive for humans to perform.

- Implementing smarter processes can be expensive, involving massive IT transformation such as an Enterprise Resource Planning (ERP), or a toolset such as a business process management system (BPMS).

- Other processes rely on insights based on human reasoning that computers cannot replicate.

Emerging technologies within the robot-led automation realm could be the solution for today's business challenges. However, the hype around these solutions taking over the workplace obscures the reality.

It is important to highlight the two separate types of automation tools emerging, both with the potential to streamline processes in very different ways.

RPA vs IA

Robotic Process Automation is the application of technology which enables computer software configuration to partially or fully automate human activities which are *manual*, *repetitive* and *rule-based.* It has been maturing quietly over the last decade and is now used for enterprise-scale deployments, very quickly and at very low cost.

Intelligent Automation aims to mimic human behaviour such as perceiving, gathering evidence and reasoning, and is therefore the best fit for processes which involve *unstructured data* from *non-standard sources.* It is enabled by cognitive technologies, nascent, but with huge transformative potential in the near future.

We liken the current state of the robotic tools landscape to the transitional years of ERP tools. Just as capabilities of the ERP tools exploded as successive releases leapfrogged each other and customer support become increasingly user friendly, we see similar capability trends in the robotic spa.

This report will talk more about the differences between these two robot-led automation tools and also help us to understand when we should use either of them.

Process automation with robotics and AI explained

Different means to the same end

Process automation is nothing new – organisations have always looked for ways to achieve greater operating efficiencies and growth. Process automation at scale arguably began more than two centuries ago in the textiles industry, when factory machines were used for labour-intensive tasks such as weaving, stitching, and spinning cotton. Such physical tasks are now widely automated across various industries, and robotic developments continue to reduce costs and expand capabilities of automation. As the nature of work has changed, so too has the method of automation.

The chief enabler of automation has traditionally been information technology (IT). Many organisations have applied technology to business processes through the use of ERP and other applications. However, some still have a patchwork of less-than-optimal business processes and applications that do not talk to each other and rarely ease the workload of generating meaningful insights – translating into increased costs, high-cycle times, inconsistent quality, and impaired agility.

One possible explanation for this predicament is growth – few companies manage business growth systematically. Even organic growth often results in expedient solutions to problems, inadequate attention to scalability of processes and technologies, and 'siloed' applications. Inorganic growth typically presents an even larger problem – bringing two disjointed organisations together and combining multiple sets of operations is difficult to achieve.

To date, organisations have responded to these challenges in various ways, including:

• **Investing in newer or better-integrated enterprise applications.** On paper, this typically represents the "right" approach, but such projects are expensive and many fail. Even the projects that prove to be successful may take years to implement – and any effort to shorten project time can increase risk of failure.

Running costs may still be high after completion, and the long deployment times can limit agility.

• **By optimising processes with the aid of a BPMS** – a software application that supports the process improvement life cycle, and facilitates integration between enterprise applications to increase the amount of "straight-through processing" possible within a process. Effectively, this is a similar approach to that of an IT transformation, but with a smaller scope than ERP. They are generally less costly and lower risk to deliver, but can offer reduced benefits.

• **By developing shared services and/or outsourcing processes to a third-party Business Process Outsourcing provider (BPO).** This is often a one-time labour arbitrage benefit, and many organisations have already realised these efficiencies, effectively hitting a 'ceiling' beyond which cost and performance can be further improved only through doing things differently.

Each of these options has its limitations. In the ongoing quest for operational efficiency, business leaders may keep asking how they can:

• Avoid or defer the high investment of large technology transformation programs whilst achieving their objectives.

• Support business growth without the proportional increase in operating costs.

• Derive greater value from already-outsourced operations.

• Support product, process, and business model innovation, and test ideas without costly new technology.

There are two types of automation tools that can help businesses achieve their objectives: RPA and IA.

RPA: Bringing automation benefits to small-scale processes

RPA tools can help businesses improve the efficiency of processes and the effectiveness of services. Classic process candidates that can benefit from RPA typically have repeatable and predictable interactions with IT applications, including those that may require toggling between multiple applications (swivel chair). Rather than requiring fundamental process redesign associated with IT-driven transformation, RPA software "robots" are able to perform such routine business processes by mimicking the way that people interact with applications through a user interface and also by following simple rules to make decisions.

An example of a routine business process would be the retrieval of information from one system and entering the same information into another system or activating another system function.

RPA tools evolved quietly over the last decade, but have now reached a level of maturity where process automation is possible at a significant scale. Entire end-to-end processes can be performed by software robots with very little human interaction.

RPA software robots are not necessarily relevant to a particular business function or industry: any methodical, standardised, repetitive process that follows consistent rules and is wholly executed through a human-machine interaction is likely to be a good candidate.

With a license for a software robot likely to cost less than an onshore or offshore staff member, the commercial attractiveness of this approach is self-evident. There are non-financial benefits too, as robot-based process performance is designed to be more predictable, consistent, and less prone to errors compared to a human process. Moreover, a robot workforce can typically be deployed in a matter of weeks. Once in place, new processes can often be assigned to them in days, if not hours. Thus, RPA solutions generally have lower implementation cost, require shorter implementation time, and carry lower risk than large IT transformations. However, it is important to find the right processes and apply RPA judiciously.

In most organisations, there are many routine processes performed manually that lack the scale or value to warrant automation via IT transformation, but for which macros and other such desktop automation tools are too limited to effectively address. RPA can help address this gap, reducing the 'minimum viable scale' of process automation compared to other traditional options. **See Figure 1**.

Figure 1. RPA compared to traditional process transformation approaches
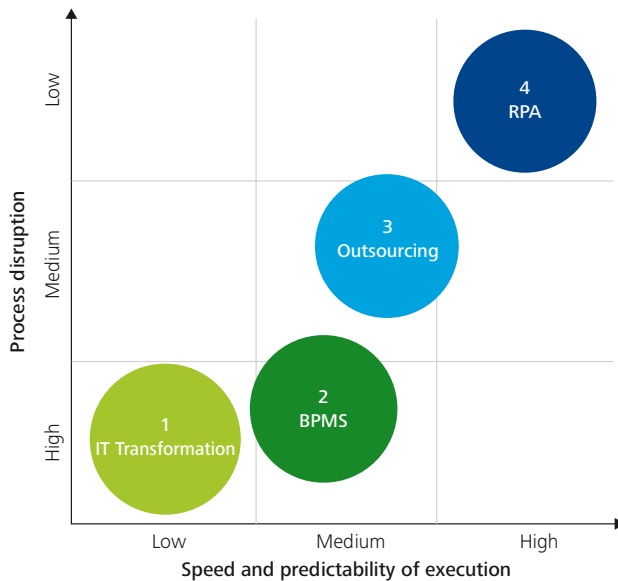
Organisations using RPA solutions typically experience benefits beyond cost reduction:

Decreased cycle times	Software robots are designed to perform tasks faster than a person can and do not require sleep – making 24x7 operations possible.
Flexibility and scalability	Once a process has been defined, many software robots can be quickly instructed to execute it at a specific time. Equally, robots can be quickly reassigned when other more important processes arise.
Improved accuracy	Robots are programmed to follow rules and robots do not make typos.
Improved employee morale	The tasks and processes most suitable for automation are typically the most onerous and least enjoyed and employees relieved of them can be refocused on more rewarding and higher value activities.
Detailed data capture	The tasks performed by a software robot can be monitored and recorded at every step, producing valuable data, plus an audit trail that can support further process improvement and help with regulatory compliance.

IA: raises the bar

Applied alone, RPA has great potential for automating routine tasks – those that are methodical, repetitive, and rule-based. By contrast, non-routine tasks – those involving intuition, judgment, creativity, persuasion, or problem solving – would appear to be very difficult to automate. But the decreasing costs of data storage and processing power are enabling rapid developments in the field of Artificial Intelligence, and creating a new breed of cognitive technologies with human-like capabilities, such as recognising handwriting, identifying images, and natural language processing. When combined with robotic automation and powerful analytics, these cognitive technologies can form "IA" solutions that can either directly assist people in the performance of non-routine tasks or even automate those tasks entirely.

The market for IA is still nascent. It was less than five years ago that IBM's Watson first broke on the scene, winning a highly publicised game of Jeopardy.[2] Since then, the marketplace has begun to develop, and pioneering enterprises are leveraging IA for assorted purposes:

• Wealth Management firms are using IA to review and analyse portfolio data, determine meaningful metrics, and to generate natural-language reports for their customers on the performance of each of their funds.

• Global banks are leveraging IA to improve the regulatory compliance processes by monitoring all electronic communications of employees for indicators of noncompliant activities.

• Insurers are using IA to answer the queries of potential customers in real time, and to increase sales conversion rates.

The uses of IA are potentially limitless, but solutions take longer to implement and are more expensive. Unlike RPA tools, which are very broad in their applicability, IA solutions require more extensive configuration and machine learning that is specific to a much narrower business purpose and the complex scenarios it may encounter. Also, IA solutions often take longer to implement.

A high-level summary comparison

• IA tools: While RPA tools can be used only for rule-based, routine tasks, IA tools can drive value by improving non-routine tasks requiring judgment.

• IA tools are typically used to provide leverage to existing functions, focusing on increasing value rather than reducing cost. In the Wealth Management example, the organisation may not have been able to produce natural language reporting across all of its customers and funds without a vast expansion of its workforce. Now, fund managers can focus on communicating with their clients rather than reporting to them. The compliance analysts at the global bank could not possibly monitor all electronic communications without the aid of IA, and the insurer may not be able to answer individual customer queries as quickly.

In all these cases, IA tools have helped these businesses to extend their services, potentially improving the value they deliver to their customers. RPA tools on the other hand allow businesses to execute the same services at a lower cost and at a higher level of quality. While this distinction may not always hold true, it does help to broadly categorise the applicability and the value delivered by these two distinct technologies.

• RPA tools can be implemented much faster than IA tools and typically require lower investment.

• The RPA supply market is rapidly maturing and there are several products in the market that have demonstrated their effectiveness. IA tools are rapidly improving in capability, but overall are still in a nascent stage of development.

Case Study #1
Large online retailer – Process automation to achieve improvements in back-office processes

The Challenge:
Regularly introducing innovative new products to the market is part of the group's programme to stay competitive and generate new revenue streams. The client needed to quickly support the launch of a new anti-theft insurance product on the online store. The operational challenge faced by the client was the ability to predict the level of ongoing support:

• Forecasting the number of applications received and the peaks and troughs of workflow
• Determining the number of staff to be recruited and trained and identifying the exact process to be followed to complete an application
• Changing corporate systems quickly enough to react and the lengthy process of recruiting and training staff

The Solution:
Software automatically sets up the new product against the customer's account.
The software handles each new insurance application and applies the monthly charge to the account, processing 47,000 transactions per month. Without RPA, the process would have required 22 full-time staff.

The Benefits:
• Easy to use and quick to implement – process automated staff in a matter of days
• Rapid and predictable ROI – project payback was achieved in less than one month
• Aids staff planning – no need to recruit temps or divert staff recruitment and training
• Reduced operational costs – cost of 22 staff eliminated on set up of just 1 product
• No need to change existing systems and reduced pressure on stretched IT resources
• Project delivered on time and within budget

The Swiss context

Robotics in the Swiss market

A number of factors make the use of automation using RPA and IA solutions very attractive in Switzerland. Among these factors driving automation are data protection, high labour costs, high levels of education and an innovative and progressive mind-set.

Data protection

Switzerland has very high standards and requirements when it comes to data protection. These standards and requirements can make it rather difficult to move data and related jobs to near- or offshore locations such as Eastern Europe and Asia, to increase efficiency. Modern automation solutions such as RPA can offer huge benefits as costs can be decreased, control and quality increased, whilst retaining all data in Switzerland.

High labour costs

Switzerland has one of the most expensive workforces in the world. Despite this fact, it has remained one of the most attractive locations to conduct business. RPA and IA can help to increase efficiencies and save costs.

High levels of education

Related to the previous point the highly paid workforce in Switzerland is also highly educated. Therefore RPA and AI can help to free up resources and time. Employees can focus their time and effort on high value and stimulating activities. This increases employee morale and makes best use of the human brain.

Innovative and progressive mind-set

Switzerland is home to some of the best and most innovative universities, research labs and companies. This innovative and progressive mind-set has helped Switzerland to stay ahead economically and provide a strong business environment. Therefore it should only come natural to a lot of companies to embrace these new modern automation technologies and take the next step in a competitive environment.

Data protection

Innovative and
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High labour costs

High levels of education
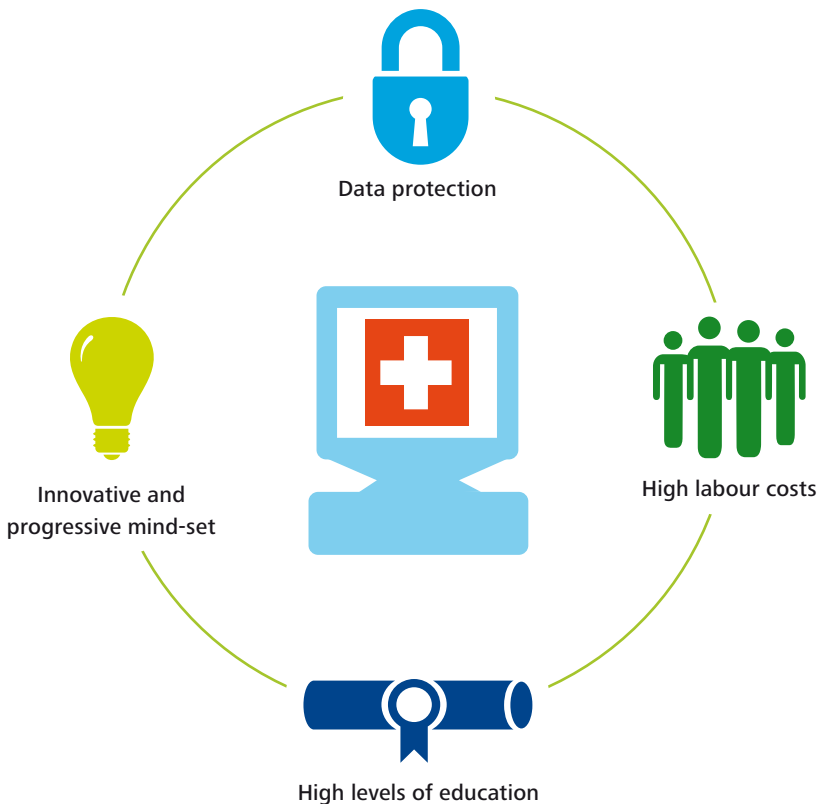
Six myths about robotics and IA

Through our research and discussions with vendors of both RPA and IA solutions, as well as organisations that have deployed them, we have noted six common misconceptions.

Myth 1: You need an army of robots to make RPA worthwhile

One of the main attractions of RPA is the ability to automate the "long-tail" of low-volume or low-value processes that would not be economical to address via other means. However, there is still a minimum scale required to realise both the return on the upfront investment of establishing an automation capability, and the ongoing overhead of running one. It is also common for vendors to specify a minimum number of licenses to purchase. Such minimums are usually not prohibitive, though tools that are more squarely aimed at the "enterprise automation" portion of the market may not be cost-effective in smaller implementations (though less expensive tools may not scale up as effectively in an enterprise-wide deployment). It is quite possible in today's market to see positive results with the deployment of a few robots.

Myth 2: Robots will take our jobs

In 1930, John Maynard Keynes predicted that the future held mass unemployment, as developments in technology would replace jobs faster than new jobs would be created. While this may not have played out as quickly as he expected, recent years have seen yet more dire forecasts relating to the potential of computers to replace human workers. The impact of automation on the workforce is already visible in Switzerland. Jobs with a low risk of being replaced by automation have grown significantly over the last 25 years, while jobs with a high risk have grown less vigorously or have even decreased.

However, more jobs have been created in the past 25 years than have been lost. Therefore it is reasonable to expect that automation will continue to offer more opportunities in the future. Our review of organisations that have deployed automation suggests that the majority of organisations we studied are focused on increasing the efficiency and effectiveness of their workforce rather than eliminating it, and the people relieved of routine tasks are re-focused toward more valuable or rewarding activities. Furthermore, with more advanced and complex automation comes not only increased efficiency, but also an increased dependency on the accuracy and skill of the human operators involved. By freeing up a person's time, employees can now focus on more advanced and engaging tasks, and over time organisations could see lower turnover, higher morale, and increased internal innovation.

Myth 3: Robots can now think like humans

Neither RPA nor IA solutions replicate human reasoning. RPA software robots mimic the behaviour of humans in the way they can interact with application user interfaces, but they must follow highly methodical instructions and simple conditional logic. IA solutions are underpinned by cognitive technologies, which are increasingly capable of human abilities such as understanding natural language and recognising images, and can learn from observing humans. Even so, IA still requires training from humans and cannot yet fully replicate human reasoning. For a deeper understanding of cognitive technologies, we direct the reader to Demystifying artificial intelligence: What business leaders need to know about cognitive technologies (Deloitte University Press, November 4, 2015).

Myth 4: BPOs are doomed

RPA tools add to the traditional process transformation options, rather than replacing them. In fact, BPO providers could benefit greatly, and many are actively exploring (if not already using) RPA tools, either to lower their cost of delivery, or to join new specialist service-providers in offering "robots-as-a-service." BPO firms that successfully integrate automation often seek to substantially improve their profit margins, even if revenue growth slows.

However, growth of RPA as a transformation option should affect your outsourcing strategy, whether you are considering outsourcing or already have an outsourcing partner. In the latter case, you should discuss automation with your BPO to understand where it presents a mutually beneficial opportunity.

Myth 5: Robots are infallible

While software robots may follow rules without deviation, do not need sleep or take vacations, and will not make typos, they are prone to their own sources of failure. Like any machine, reliability is not 100%. Poor quality input data can cause exceptions, and whilst the ways in which robots recognise the elements of application user interfaces are quite robust, they are not completely impervious to system changes – particularly when interacting with remote environments.

In addition, robots have no "common sense," so if a flaw in your organisation's robot management process allows an obvious error to creep into the instructions provided to your robots, they will still follow those instructions to the letter – and replicate the error hundreds or thousands of times until someone spots it.

Myth 6: RPA will significantly reduce the importance of your IT Department

RPA can be used to automate processes across business applications in a "non-invasive" manner, which can reduce reliance on IT for deployment. But while some subset of roles in IT may be reduced, others may increase and overall the reliance on IT is far from eliminated. In the same way that you would expect your human workforce to comply with policies and procedures relating to sensitive or customer data, you must confirm that any "virtual workforce" accessing that data is also compliant. IT typically takes responsibility for systems infrastructure, security, resilience/recovery, and governance, and these functions are as important as ever – so IT should be involved from the outset. In addition, if an automated process experiences any problems, the users' first call is still likely to be to IT.

Deploying RPA without keeping IT informed can lead to unexpected challenges, as one organisation found when their robots were so efficient at executing the processes that the rapid activity triggered security alerts. Eventually, the IT team came to see the value of RPA. Hence, it is better to include IT and other affected functions in the RPA program to enable a stable rollout. Furthermore, although software robots may be able to interact with business applications via the user interface alone, in many cases they can be more effective when integrated 'behind the scenes' using more robust system APIs – often made easier with the support of IT. In fact, in some organisations, proactive IT functions are the buyers of RPA solutions, looking for cost-effective means to better support and enhance the experience of their business partners.

What to consider when embarking on the automation journey

Many organisations can benefit from RPA, and you should now be considering the opportunities within your business. There are typically five steps to developing an automation strategy:

WHAT?

Assess for automation opportunities
- Which processes are good candidates for automation?
- Which processes would be suitable to pilot?
- How should the process owners be engaged to try automation?
- What are the impacts of proceeding with the pilot?

WHY?

Build your business case
- Why does automation support your business needs?
- What are the benefits?
- What are the pain points being alleviated?
- What are the metrics to determine whether automation is valuable?
- What is the strategy for re-deploying existing resources after automation?

HOW?

Determine the optimal operating model
- Which operating model works best for your organisation?
- Do you have the right team to support the solution and carry out responsibilities (e.g., assessing new processes for automation and testing the automated jobs)?
- Who will manage and monitor the software robot?

WHO?

Identify your automation partner(s)
- Who are the main vendors in the RPA space?
- Who are the providers who cater to your business needs the most?
- Which sourcing option do you want?
- How should you compare the pricing models in order to understand what you are paying for?

WHEN?

Plan the automation roadmap
- How long should your pilot be?
- What are the stages after the pilot?
- What is your strategy for scale?
- How will you ensure impacted stakeholders understand the what, why, and how of automation?

Case Study #2
Retail and Commercial bank – Achieving 80% saving in processing costs

The Challenge:
The excess queue procedure of the client is carried out daily to accept, reject and return direct debits, cheques and standing orders as a result of the customer having insufficient funds to meet payments. Overnight BACS processing results in a daily 'queue' of customers and a nine-strong team in the bank have the daily responsibility of manually reviewing the 2,500 or so higher risk accounts. They would then make a decision to either return or process the payments depending on the account profile of each customer.

The Solution:
The Financial Services of the client completed the automation project using operational agility software. This enabled non-technical users to integrate and orchestrate systems and processes non-invasively and without change to the bank's core systems. The automation of the process provided the bank with a 'virtual' team of 20 people completing the tasks by 11am, instead of a team of employees working to meet a 3pm deadline.

The Benefits:
- Redeployment of employees into proactive customer account management roles
- 80% of process now automated
- Increased inbound customer service call levels
- RPA software significantly improved consistencies around customer account management
- Speeding up processes to meet earlier deadlines each day.

Conclusion

RPA technology generates a lot of attention in the market. Many companies try to understand what robotics can offer and how it can benefit their organisation. Leaders responsible for transformation activities now more often than ever consider RPA as an important element of their future strategic set up, next to the BPO or Shared Service proposition.

At the same time BPO vendors already use robots for automation of selected processes which are then provided as a service to their clients. In addition the scope of processes which can be automated is growing as the RPA solution providers add new capabilities to their existing offering and explore the opportunities to merge robotics with cognitive tools.

These market dynamics lead to the conclusion that we can expect to see 3 significant changes in the area of RPA:

1. Increased deployment of the existing RPA technology

2. Development of advanced RPA tools

3. Extension of process scope with the RPA support

Increased deployment of the existing RPA technology
Organisations are increasing their awareness about the benefits which can be generated through implementation of robotics. Process automation brings process quality improvement and helps to reduce human involvement in repetitive non-value added tasks. It generates cost reductions and facilitates better utilisation of employee talent. These are just some of the reasons which will support the increased deployment of the existing RPA technology.

Development of advanced RPA tools
The key limitation of RPA software is their inability to work with unstructured data. RPA software providers realise this is a major preventing factor for applying robotic solutions to more advanced processes. To close the gap between increasing client expectations towards robotics and the current RPA capabilities, IT developers are aiming to equip RPA tools with cognitive functionalities. Elements such as speech recognition or identification of non-standard fragmented information start to be added to the existing RPA tool-sets.

Extension of process scope with the RPA support
Strong focus on enhancement of the existing RPA solutions will enable robotics to move to the next level. Combining robotics with artificial intelligence will open up the gates to implementation of RPA in the areas where it is currently not possible. Recognition of unstructured data, automated analytics or voice-driven interaction between robots and humans are all the big hopes for the future world of automation.

What does it all mean for organisations and their employees?
The visible growth in process automation is definitely a viable opportunity both for organisations and their employees. We should not be worried that RPA will eliminate people from the workplace. We can expect however, that robotics will significantly change the work environment as we know it – and this will be a positive change.

Repetitive and non-value added tasks will be handed over to virtual robots who can perform them faster than humans and with less error risk. It will free up capacity of the work teams and re-direct their efforts into the areas which are far more interesting from the job content perspective and much more critical from the organisation point of view.

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