A Strategic Look at Robotic Process Automation
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These days we hear a lot about automation of human work, and RPA is a frequent mention. In this article I want to give a brief introduction, and then place the technology in a larger strategic context.

First, what is Robotic Process Automation at a glance

Robotic Process Automation is software robots that are running code / processes, and that for the most part work in the user interface of applications, like humans do. For example, you can map and develop five RPA processes, which you then schedule one or several RPA robots to run at appropriate times. For example; read an email in Outlook and then process the case through a CRM system and a booking system, and finally respond to the customer by email. Process mapping and specification with RPA is at the level of "keystrokes"; e.g. "click there", "press K".

The benefits of the technology are that it makes setting up such processes easy and fast. It thus enables quick wins from rapid implementation of new functionality and integrations that either a human previously did or that did not exist. The challenges center on the fact that automations that lay across the user interface of multiple applications obviously are prone to failure due to changes in the underlying applications. This creates a demand for effective reactive and proactive coordination between the application portfolio lifecycle and the RPA portfolio lifecycle.

What is the criticism?

Critics often focus on the fact that the functionality and integrations provided by RPA is not as robust as when properly embedded into core systems. Those who have worked with RPA for some time agree with this. However, how much of a problem this is depends on how you strategically look at RPA.
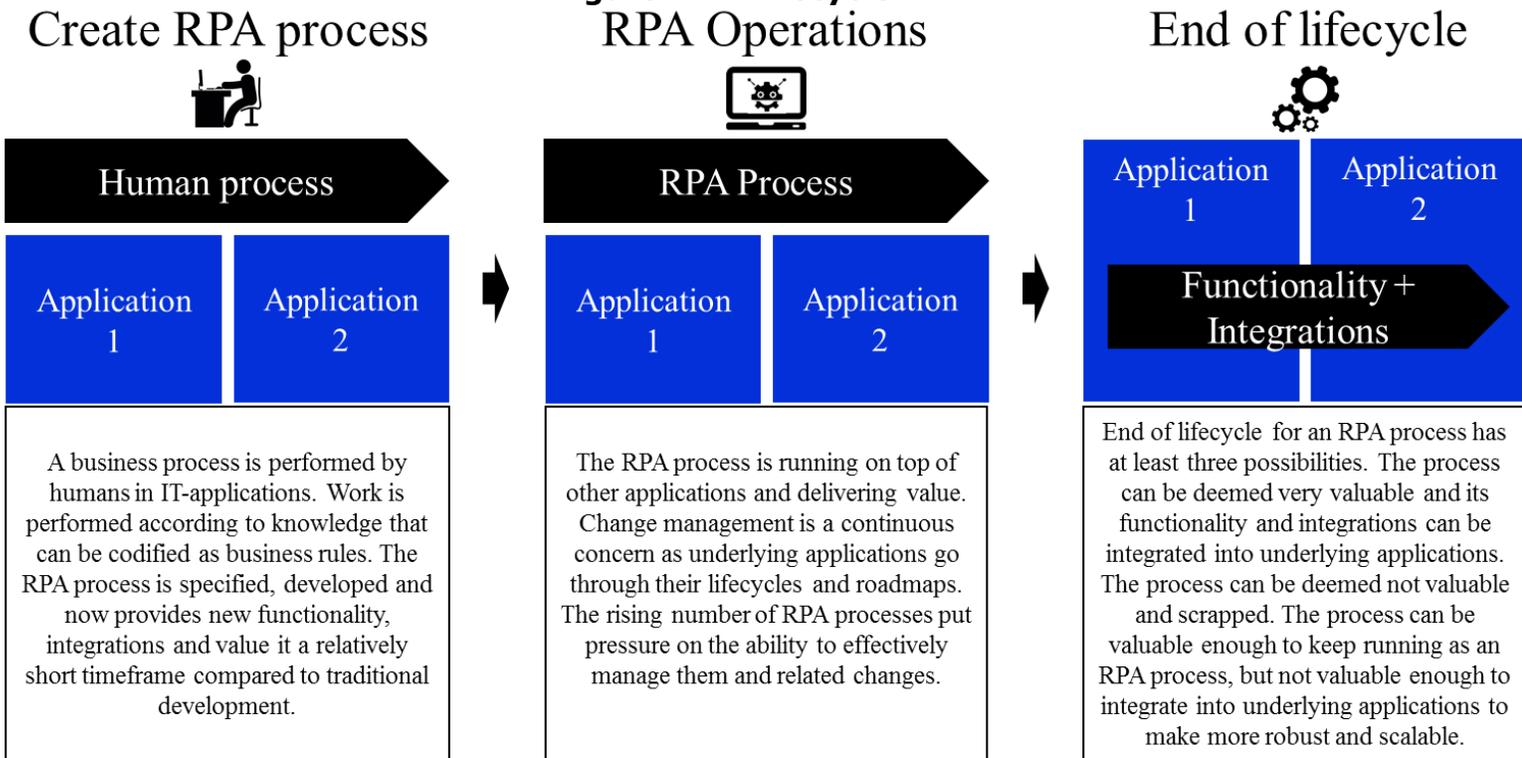
RPA lifecycle

When framing RPA work in a lifecycle for RPA, one gets a better understanding of how one can look at it differently. One way of looking at RPA is as cheap and fast functionality and integrations that can provide solid business cases. However, when you start to think of challenges such as robustness of the processes, and the complexity involved in steering and coordinating very large number of robots and processes, and all their dependencies in terms of underlying applications and environments, - one can get the feeling that there must be a ceiling for what any organization can effectively cope with. Is it robust enough for the longer term?

A complementary way of looking at RPA is as a source of innovation, prototyping, fast iterations and getting up a minimal viable product of sorts. And, as with all innovation, the early prototypes are usually later replaced by better and higher quality iterations and versions. As such, RPA can be viewed as a prototyping tool to let the business side make rapid and agile experiments with what functionality and

integrations that creates the value they seek. If the business case stood the test, then the clock starts ticking on how to best create the higher quality iterations. If not, they failed fast and can learn from it. Higher quality iterations can in practice mean to include the functionality and integrations into the application portfolio roadmap. Some of the functionality and integrations articulated by RPA will only have a business case as long as they stay in "RPA land". Others provide sufficient value that more robust solutions are worth pursuing.

Figure: RPA lifecycle

Create RPA process

Human process

Application 1	Application 2

A business process is performed by humans in IT-applications. Work is performed according to knowledge that can be codified as business rules. The RPA process is specified, developed and now provides new functionality, integrations and value it a relatively short timeframe compared to traditional development.

RPA Operations

RPA Process

Application 1	Application 2

The RPA process is running on top of other applications and delivering value. Change management is a continuous concern as underlying applications go through their lifecycles and roadmaps. The rising number of RPA processes put pressure on the ability to effectively manage them and related changes.

End of lifecycle

Application 1	Application 2

Functionality + Integrations

End of lifecycle for an RPA process has at least three possibilities. The process can be deemed very valuable and its functionality and integrations can be integrated into underlying applications. The process can be deemed not valuable and scrapped. The process can be valuable enough to keep running as an RPA process, but not valuable enough to integrate into underlying applications to make more robust and scalable.

RPA is part of the something more

RPA deals with automating work that previously was done by humans and not done at all. What other technologies fit this description? NLP, Chatbots, image recognition, speech recognition, different types of machine learning and other AI technologies fit the bill. RPA is also related to technologies that enhance, augment and compliment human abilities such as big data, IoT / sensors and mobile devices. In Capgemini we look at these things under the "automation" umbrella and investigate their synergies.

Many of these technologies complement each other. For example, RPA and AI technologies can tackle more complex cases and get them quicker up to speed then each by itself. RPA is dependent on clearly defined rules and structured input data to work with. The AI technology of NLP can provide the RPA processes with structured data from unstructured sources. A more sophisticated variety of this is by letting Chatbots provide input for RPA processes. Furthermore, a process is in reality a bunch of case variants, of which an RPA process can cover a portion of. By letting the RPA process "jump out" to AI solutions for complex problems, and "back in" with

the answer, the combination of RPA and AI can cover a larger portion of case variants.

So when looking and RPA in the organization, it is advisable to think of and organize for broader "intelligent automation" rather than just RPA. Feel free to use another catchphrase, but the point still stands.

Organization of Intelligent Automation

When introducing RPA into the organization, one has to face the question of how to organize the effort. As discussed, it is beneficial to have a broader view then RPA from the start, even though one might only focus on RPA for a time. RPA and related intelligent technologies belong to something that has been labeled "Lightweight IT". This is contrasted with traditional IT, as "Lightweight IT" vs "Heavyweight IT", and whether these types of IT should have a loose or tight coupling (Stople, A., Steinsund, H., Iden, J. and Bygstad, B, 2017).

This discussion has its roots all the way back to the concepts of exploration vs exploitation, which discusses how both modes of operation are important for long-term survival as a business (March, J. (1991, 2)). Exploration deals with innovation of the more radical type, while exploitation deals with effective and efficient delivery of goods and services to existing customers (Benner, M. J., & Tushman, M. L. (2003)). Kodak is often cited as an example of a company that focused too much on exploitation and thus got left behind when digital photography took flight (Benner, M. J., & Tushman, M. (2002)). Management practices, governance, processes, competency and incentives can be quite different for optimizing each mode, and as such the discussion revolves on whether physical separation is wise, or whether some golden middle road or flexible solution can be found.

Heavyweight IT is more focused on effective and efficient operations, exploitation mode. Lightweight IT is more focused on new possibilities, fast pace, rapid change, exploration mode. However, many exiting new inventions and possibilities must be translated over to the exploitation mode in order to be robust and scalable. There is also the fact that Lightweight IT is depended on Heavyweight IT for many things.

Currently, many organizations are working hard to make their IT departments better suited for serving both modes of operation. One of the key areas of focus is an agile architecture that makes Heavyweight IT more modular and platform oriented and thus easier to add and subtract from. At the same time, business needs can seem all over the place, and the IT-Business communication can be challenging. To address this, some companies are trying to establish process / design oriented management systems based on business architecture, - and to make the architecture easy to understand and accessible for all of the company through intranet solutions. This can provide the sorely needed shared actual and mental image of work creates what value and what IT solutions that supports it. The figure below, borrowed from Roger Tregear (2017) shows a good example of the top level of such a process architecture:
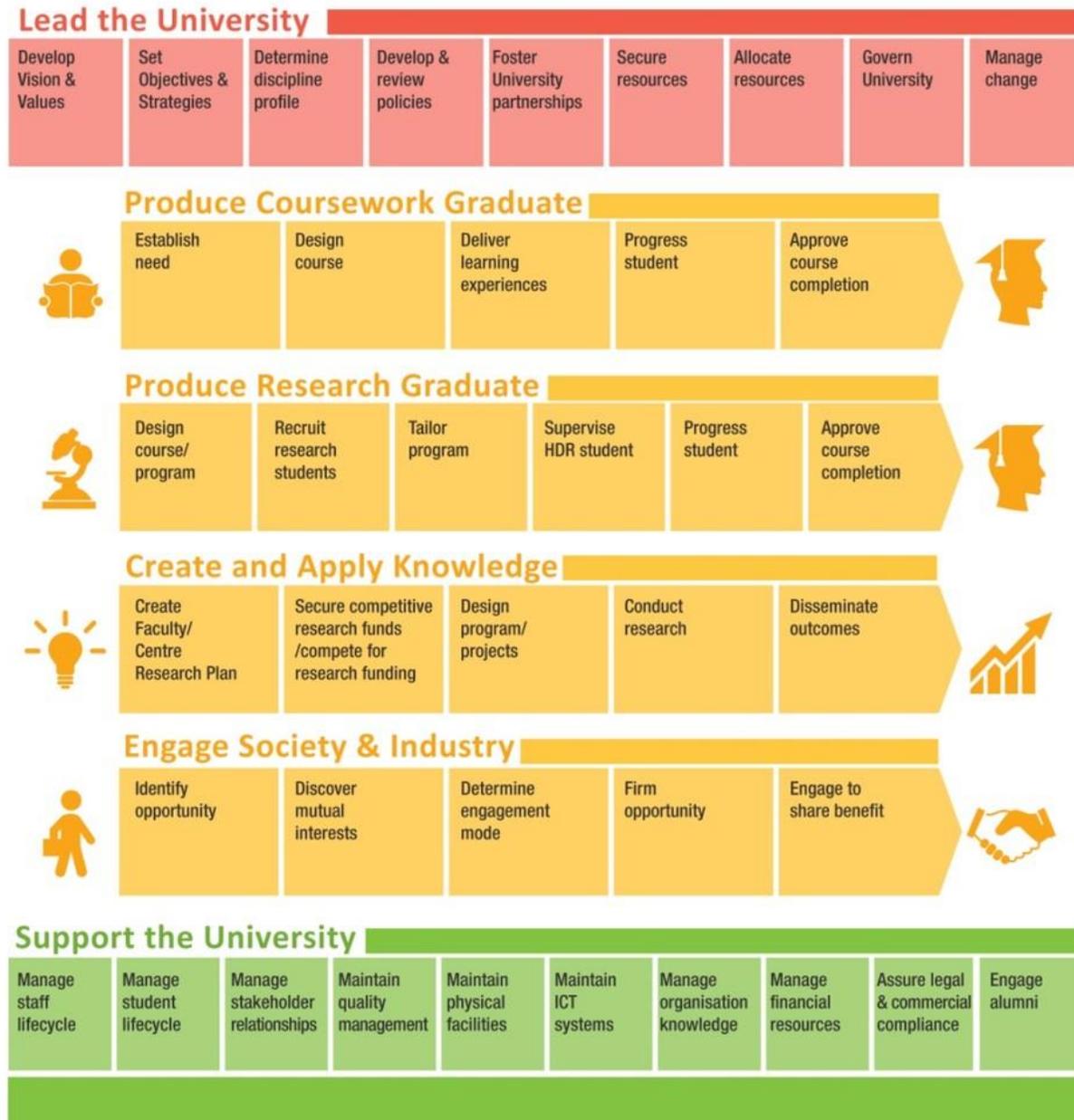
Figure: Example of a Process Architecture – Roger Tregear – used with permission.

While some succeed, the level of discipline needed to practice such process / design oriented management seems to be a barrier for many, and the challenges go all the way back to the incentive structure and goal setting.

In the end, it might be best to allow the business side to experiment with Lightweight IT, so as not to stifle innovation. At the same time, Heavyweight IT should provide basic support, while continuing their journey of agility and modularity. To bridge the gap from Lightweight IT's exploration to Heavyweight IT's exploitation, companies should focus their efforts on creating a world class change process. And as BPTrends readers know, such a change process must be business process oriented.

To sum up:

RPA can be viewed as an exciting tool for fast experimentation with new functionality and integrations, both novel work, and that which humans previously where performing, while delivering solid business cases. In the end, more robust solutions can be spun off from them, they might survive in RPA form, or they might be scrapped. Don't think of RPA as an isolated technology, but as part of a new portfolio of lightweight IT. Finally, be aware of the need for both exploration and exploitation modes of working, and pull this mindset in to the debate on how you organize such initiatives.

What are your thoughts?

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