MANAGING DIGITAL TRANSFORMATION

Per Andersson, Staffan Movin,
Magnus Mähring, Robin Teigland,
and Karl Wennberg (eds.)

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Karyn McGettigan, Language Editor

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STIFTELSEN MARKNADSTEKNISKT CENTRUM

In his central role at the Wallenberg Foundations,
Peter Wallenberg Jr has furthered a broad range of important research and research-led education initiatives at the Stockholm School of Economics (SSE) and its Institute for Research (SIR). This indispensable work has also helped create a fertile ground for research on digital innovation and transformation: a phenomenon currently experienced, shaped, and managed in and between organisations and throughout society.

This is the topic of this book, which we dedicate to him.

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Every year since 1992, the Stockholm School of Economics Institute for Research (SIR) has published an Annual Research Anthology, and this year SIR is publishing the book in cooperation with MTC (Stiftelsen Marknadstekniskt Centrum). The purpose of the SIR Annual Research publication is to enable managers and practitioners better understand and address strategically important challenges by showcasing SSE research on a selected topic of importance for both business and society.

This year's book, *Managing Digital Transformation,* features authors from academic areas across SSE together with representatives outside the institution. The book's eighteen chapters show the strength and breadth of SSE's research within the area of digitalization and reflect the importance that SSE places upon closely linking research to practice and on investigating the leadership challenges and their implications in order to support value creation in society.

Participating in the many ongoing research projects at SSE and the multitude of aspects of digital transformation addressed in the various chapters has been very rewarding for the editors. We would like to thank all the authors for their hard work and cooperation throughout the project. In finalising this book, we have relied upon the expert work of Karyn McGettigan for language editing, Petra Lundin for layout and graphic design, and Marie Wahlström for digital access to the book. We are, indeed, most grateful for their excellent and diligent work.

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Finally, we would like to thank all the companies and organisations for sharing their challenges and engaging in dialogue and research collaborations with us so that we can produce more solid and relevant research to help better our society.

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Stockholm, January 2018
Per Andersson, Staffan Movin, Magnus Mähring, Robin Teigland, Karl Wennberg

Introduction

One of the hottest research topics lately is digitalization. Many research projects are focusing upon different perspectives. Gone are the days when digitalization or business implications of ICT were just about increasing efficiency. Instead, the ripple effect of digital development can now be felt wider and deeper than ever before. The way in which business is conducted and how it creates value, as well as how corporations can become more efficient and sustainable, are all implications of digitalization. Adapting to new demands and taking advantage of the plethora of possibilities, however, is not always easy.

Managing digitalization and the transformation of business always involves new challenges. The novelty and complexity of the digital age has led to an increased academic interest in the area of digital transformation and a call from companies that seek support in this process.

We take a look at digitalization from the perspective of business research. This creates a better understanding of the challenges that today's businesses are facing. We believe this anthology will serve as a tool to help businesses better understand the force that is digitalization and support these corporations in their digital transformation.

The idea behind this anthology grew as Marknadstekniskt Centrum was taking part in several interesting research projects. Companies were asking MTC to facilitate contact with scholars and supply them with academic insight. Vinnova came on board, by supporting the project *Progressiv digital utveckling förutsättningar för framgång (Progressive Digital Development: Pre-Requisites for Success)* of which this book is a part: its aim to stimulate business to become more progressive in digital change. At last, this book and the website www.digitalchange.com have become a reality.

This joint venture between Marknadstekniskt Centrum and The Stockholm School of Economics Institute for Research follows the SIR tradition of publishing an annual yearbook to showcase its vital research contributions. The book begins with an overview of digitalization, then moves to understanding the new digital customer, and ends by exploring re-organisational effects, business models, and ecosystems. We hope this year's anthology will be useful for managers by facilitating their digitalization processes.

PART 1: DIGITALIZATION – DIFFERENT PERSPECTIVES

The role of digital technology in business and society is rapidly shifting from being a driver of marginal efficiency to an enabler of fundamental innovation and disruption in many industrial sectors, such as media, information and communication industries, and many more. The economic, societal, and business implications of digitalization are contested and raise serious questions about the wider impact of digital transformation. Digitalization affects all private and public operations, as well as the internal and external workings of any operation. Digitalization is the major driving force behind sweeping large-scale transformations in a multitude of industries. Part 1 includes various perspectives on digitalization and digital transformation.

PART 2: THE NEW DIGITAL CUSTOMER

Digitalization has resulted in more user-centric business and user-centric systems. The changing behaviour of the digital consumer/customer is discussed here as it connects to new forms of customer involvement and engagement, as well as analysis models of what creates customer value in this digital context.

PART 3: THE RE-ORGANISATION IN ORDER TO CONNECT WITH THE DIGITAL CUSTOMER

How can companies connect with digitalized consumers and non-digitalized customers? This is a central issue in managing digital transformation, as it draws attention to the emerging intra-organisational, marketing, and customer interaction challenges associated with digitalization: for both the consumer and the supplier. Another aspect of this is the internal handling of new forms of organizational ambidexterity; that is to say, companies and organizations engaged in digitalization processes often require an internal re-organisation in order to handle the demands that digitalization brings, and to explore new digital opportunities while promoting their existing business and operations.

PART 4: BUSINESS MODELS AND ECOSYSTEMS

How do companies change, adapt, and innovate their business models? Given that digitalization leads to a convergence of previously unconnected or loosely connected markets, the digitalizing company and organisation is analysed in its systemic and dynamic context. This part draws attention to business models

and business model innovation. Incumbent firms need to adapt and change business models while competing with digital start-ups based upon new scalable business models, accessible ventures, and rapid processes of intermediating. These chapters discuss completely new co-operative business models: processes that need to be developed as companies shift from products to digitally based services.

The Ecosystem places digitalizing organisations and companies into their broader and systemic context. This includes discussions on digital disruption, industrial convergence processes, and shifting patterns of competition and cooperation. Digital technologies cause markets to converge in many new and sometimes unexpected ways. The result is the emergence of new roles and market positions of technical platforms.

Staffan Movin, Stiftelsen Marknadstekniskt Centrum

Robotisation of Accounting in Multi-National Companies: Early Challenges and Links to Strategy

MARTIN CARLSSON-WALL AND TORKEL STRÖMSTEN

Introduction

Multi-national companies are complex organisations (Busco et al, 2008; Bartlett and Ghoshal, 2002). This complexity comes in many different forms. A central aspect is that operations take place in different geographical locations, which leads to challenges when it comes to controlling at a distance. The ways in which activities and behaviour are controlled also differ between companies. Some organisations rely largely upon calculative numbers and control, while others use a norm-based control regime. In this chapter, we are interested in exploring how the finance functions in multi-national companies use digital robots, more commonly referred to as robot process automation.

Robot Process Automation (RPA) is a software that performs administrative tasks and activities that otherwise humans and knowledge workers (such as business controllers) would perform. The reasons why RPA is often referred to as "robots" is because it can take over relatively simple and routine tasks such as moving data from one system to another. As Lacity and Wilcocks (2015, p.2) write:

> "Knowledge workers consistently tell us they want to be liberated from such highly-structured, routine, and dreary tasks to focus on more interesting work. Some are actually getting that wish, thanks to a new approach known as Robot Process Automation (RPA)".

As of the autumn of 2017, many companies experiment with various forms of RPAs. The hopes for robotisation are high since one "robot" (often equal to one software license) can do work that normally takes several individuals.

Still, fear also exists that skilled jobs will be replaced by RPAs. This might start with help doing dull high-routine work; however, as the RPAs get better, we do not know what the future will hold.

Despite the interest in RPAs, there has been surprisingly little discussion about the pros and cons of robotisation in administrative tasks (Isaksson and Wennberg, 2016). The invisible activities of book keeping and paying bills are seldom given much attention when researchers and practitioners discuss digital transformation. To remedy this, we have conducted an exploratory case study of three multi-national companies and how they invest in RPAs within the finance function[1].

Even if the results are preliminary, our empirics indicate that investments in RPA technologies are related to the companies' choice of internationalisation strategy and the challenges that different types of strategies create.

This chapter is organised in the following way: First, we briefly review the literature on accounting and digital transformation. Even though the term *digital transformation* is rather new, it will be shown that current research challenges can be linked to earlier research on accounting and ERP systems and accounting and functional IT. Secondly, focusing upon multi-national companies, we introduce a framework that discusses three types of internationalisation strategies: ethnocentric, polycentric, and geocentric (Perlmutter, 1969; Hedlund, 1986). These strategies differ depending upon the scope and scale of internationalisation and we will use them to explore how the choice of internationalisation strategy is linked to the investment in RPA technologies. We then present three illustrative case studies. Through these cases, we propose some tentative propositions and patterns for how RPAs have been introduced in the finance function. We end the chapter with a discussion and concluding remarks.

Accounting and Digital Transformation: Three Distinct Phases

One can distinguish between three distinct phases when reviewing the literature on accounting and digital transformation. Beginning in the 1970s, we had a first phase called "accounting and functional IT": where the digital

1 In line with an exploratory study, the research process has been highly iterative. Both authors have had formal and informal discussions with CFOs, controllers, and IT-experts around digital transformation for a long period of time. The topic of RPAs started to emerge during the spring of 2016. However, it was not until one year later, in 2017, that we started to do more systematic interviews. This chapter is based upon < total of 30 structured interviews and informal discussions with individuals from telecom, manufacturing, IT, bank, airline, hotel and forestry industries.

transformation focused upon developing specific IT programs to keep track of accounting transactions or to improve the profitability calculations (Newman and Westrup, 2005). This phase gave the accountants a relatively large autonomy, since systems were developed and used within the finance function. As a consequence, there were few tensions and battles with the IT department (Newman and Westrup, 2005).

Tensions with the IT department grew stronger during the second phase, which began during the mid 1990s. This was the era of the ERP systems. These *Enterprise Resource Planning* systems brought a new type of digital transformation to the foreground: integration (Hyvönen et al, 2008). To remedy the large archipelago of functional islands, ERP systems focused upon the integration of different functions within the company to promote a more process-oriented and cross-functional culture (Quattrone and Hopper, 2005). Since the era of the ERP systems occurred at the same time, there was a strong corporate trend toward a shareholder value orientation, and the finance function became a powerful player. In a sense, one can say that many Chief Financial Officers (CFOs) became "captains of the ship" and controlled both the design of the ERP system as well how it should be implemented. In many stock listed companies, it was not unusual that the IT-function became a sub-function within global financial organisations.

Table 8.1: The Accounting Literature on Digital Transformation

	Accounting and Functional IT	**Accounting and ERP Systems**	**Accounting and Digitalization**
Primary Time Period	1970s to mid 1990s	From mid 1990s to 2010	2010–present
Type of Digital Transformation	Digitalize specific accounting tasks within the finance function	Develop large ERP systems	Integration of ERP systems with digital robots, artificial intelligence, and customised CRM systems
Main Accounting Function	Keep track of accounting transactions and do internal calculations	Integrate accounting information with other functional systems to leverage synergies	Integrate accounting information with both internal and external data to leverage synergies, as well as question business model
Power Battle With IT	Limited accounting and IT lived separate lives	Strong; however, accounting strengthened its role since the CFO often became responsible for the ERP system	Potentially strong, where IT could be the winner since many accounting tasks could be automated

During the past years, we have seen the emergence of a third phase of digital transformation (Schäffer and Weber, 2016). This can be seen in the terminology. Instead of talking about accounting and IT, we now talk about *accounting and digitalization* to highlight how this third phase is even broader: focusing upon both front-office digitalization targeting customers and new business models, as well as back-office digitalization with a more traditional focus upon automation and robotisation. From a finance perspective, this third phase entails both opportunities and risks (Quattrone, 2016). On the one hand, line managers have strong needs for controllers to become "trusted business partners" in order to make sense of big data and use new IT tools. On the other hand, with new robots and artificial intelligence, there is a large risk that the finance function will be considerably smaller, in terms of headcounts. Some IT directors to whom we have spoken even foresee that "finance will most likely be there, but they will be part of (my) organisation in the future". Thus, recent developments are very interesting because we do not know what the future finance function will look like, what competences it will have, and where in the organisational hierarchy it will be located.

With this historical background, it is now time to dig deeper into the strategies of multi-national companies. As we highlighted in the introduction, this is important since we have discovered a pattern where the type of robotisation implementation seems to connect to the internationalisation strategy.

Internationalisation: Three Strategies for Multi-National Companies

According to the literature on multi-national companies, there are three fundamental strategies for internationalisation: ethnocentric strategy, polycentric strategy, and geocentric strategy. Howard Perlmutter (1969) coined these concepts, and conducted research on how multi-national companies organise them and how the company headquarters controlled the subsidiaries. In a later article, Gunnar Hedlund (1986) developed the concepts and added a fourth type: *the heterachichal organisation*. We will briefly discuss this type in our concluding section.

Ethnocentric companies are companies with a strong and clear home base. All companies have first started in a home market and then gradually moved into new markets to explore and exploit its specific advantages. The relationship

between headquarters and the subsidiaries in ethnocentric companies can be characterised as a hierarchical one. Subsidiaries' role is to implement the strategy formulated by the headquarters. Following from this, the interdependencies that can be identified in these types of companies are typically sequential. Often production is conducted in the "home country" and then shipped to the subsidiary that is responsible for sales activities. The forms of control used in these companies are characterised by a control that is strongly linked to the parent or home country unit. Since the company originates from a home base, the control is often classified as normative or cultural based. Basically, the company is managed by "home country people". In addition, the technologies in these companies allow for a more calculative and diagnostic type of control.

Polycentric companies are characterised by their independence. These companies have subsidiaries in many foreign markets and, due to the distance as well their operations, will be independent in relation to other parts of the company. Hence, the term multi-national: there are multiple units that independent from each other; therefore not much interaction or transactions takes place between the units. To a large extent, the role of the headquarter will be to create a sense of an organisational belonging. The issue of keeping some activities standardised to draw upon the potential economies of scale will be important; however, the units will continuously challenge this, as they strive for even more independence as long as they do not see the value in standardisation and centralisation.

Lastly, *geocentric companies* are more complex than both ethnocentric and polycentric companies. These companies try to combine the local intimacy with global presence, which means the relationship between headquarters and subsidiaries will be more complex. An important idea with geocentric companies is to develop "centres of excellence" that take advantage of the scale, so less double work is conducted in the group. Hence, there will be, or can be, many centres as well as internal transactions in these types of companies. The forms of control that are exercised in the geocentric companies are often normative and coercive controls.

In the next section, we present our illustrative cases. The focus will be to describe how companies with different internationalisation strategies engage with investment in RPA technologies.

Illustrative Cases

FORESTCO: ROBOTISATION FOCUSING UPON KEEPING TRACK OF SALARIES

Our first case company is ForestCo. During the past years, ForestCo's finance function has received new requirements to become more efficient; "more lean", as one of the interviewees put it. ForestCo has five production units in Sweden and multiple sales units around the world. The company ships products internationally to the different units, where sales offices are located. Technical problems in printing facilities or converting processes can arise in the forest and pulp and paper industries. When this happens, it is appreciated if the supplier can assist. The organisational backdrop in this case is that headquarters decides and the subsidiary follows.

ForestCo has decided to do a pilot with RPAs for two administrative processes within the finance function. The first is foreign payment. This process is administrative-heavy and requires detailed information to be accurate. Hence, ForestCo wants to robotise the task of getting the bank account right and the right IBAN number.

The second process relates to salaries. Both the actual payment as well as the automatised process should create information that shows deviations that management can identify and act upon easier than before. The subsidiaries are often sales offices where administrative processes with customers are handled. Salaries are the main cost element in the subsidiaries. To prevent un-authorised employment and/or unplanned cost increases, the automatisation of salaries will make this process even more transparent than before.

The IT organisation was the department that had the initial say in this robotisation process. They soon realised, however, that this required new thinking and problem solving. For example, one issue that emerged was access to the IT systems. Who should have access? Suddenly, outside partners had access to ForestCo's internal IT system. As soon as this was identified, security issues started to be discussed in the company. The need to identify and define new areas of accountability was also something that came out of the process. As one employee said: "The IT organisation needs an internal counterpart that is not present today. Just like there are systems for HR and production, there is a need for a finance system that IT can speak to and where questions are channelled."

Another consequence of the robotisation of accounting within ForestCo was the identification of new roles and professions. ForestCo had centralised its transactional accounting to a shared service centre. However, it became clear during the robotisation project that there was a need for someone who was responsible for robotisation or *"someone who owned the question"*, as an interviewee described it.

Another challenge that emerged was that employees felt uneasy about becoming redundant. Management had to spend time explaining that this was of no concern to them; no one would be laid off due to the robotisation project. One director said: "What will this lead to? In the end, I am not sure that we will be fewer people working here. But I am rather sure that we will have to replace people, we will need other types of competences."

In relation to the process to implement robotisation in ForestCo, the general impression from the company is that this is a project that has taken longer time than expected. The main reason has been that ForestCo has not specified the processes that it wanted to automatise. "Our processes were not described specific enough", one ForestCo manager said. The implementation of RPAs, therefore, has started to problematise the processes rather than just make them more efficient, which was the initial ambition when the pilot projects began.

MANUCO: ROBOTISATION FOCUSING UPON ACCOUNTS PAYABLE

ManuCo is our second case company. ManuCo has operations in 170 countries and is organised in separate divisions, each with its own financial responsibility and independence. Due to the strong decentralisation and independence, there are very few internal transactions between the different divisions. Headquarters provide some infrastructure for the divisions: such as Global HR, finance, and marketing.

ManuCo has initiated a RPA pilot project that is located in one of the company's units in Warzaw, Poland. This project takes place on the corporate level within ManuCo. The project background is organisational. ManuCo initiated a Shared Service solution in 2000 within the company. All units that were conducting transactional accounting services were then centralised into the Shared Service Center in Warzaw. The operations were later outsourced to a third party in India.

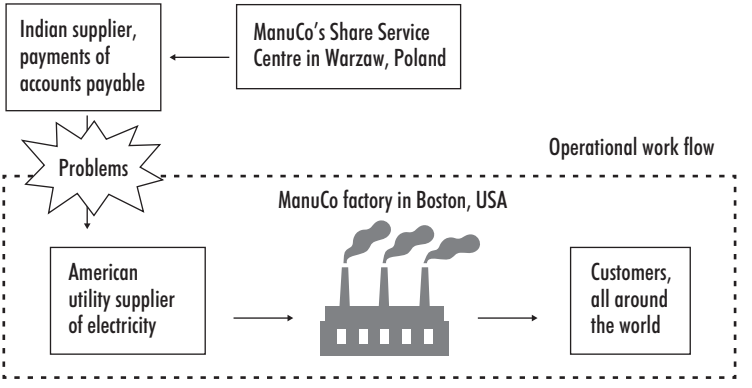

Figure 8.1: Illustration of problems with Indian supplier and American factory.

The robotisation of the accounting transactions focuses upon the company's accounts payable. This might seem like an easy and non-strategic activity; however, ManuCo's experience with the outsourced Shared Service operation in India ended in situation that turned out to be very strategic. One day when management in Boston came to the production facility, it was closed and no lights were on. Nothing worked and the facilities looked abandoned. The Shared Service supplier in India had ultimately failed to pay the bills to the electricity company and had not done so even when the utility company repeatedly had tried to make ManuCo pay the bills.

In the end, electricity was shut down and ManuCo's unit could not run its operations.

The robotisation project of the accounts payable should be seen in the light of this. The plan is now to bring the outsourced transaction services in-house again. Even "simple" transactions could be "strategic"; therefore, the accounts payable will probably follow the decentralised structure of the company and be performed in the different divisions and subsidiaries. This makes this case interesting; not even very standardised transactions can be handed over to the outsourced party since, if they are badly managed, far-reaching and strategic consequences can result.

Furthermore, ManuCo runs a very decentralised business where the divisions make decisions independently and with a strong financial accountability. Hence, the idea with the RPAs is to bring them back into the divisions, so that decentralisation also concerns the transactional accounting activities.

Therefore, the introduction of RPAs seems to facilitate the idea with decentralised decision-making and accountability in ManuCo.

GLOBAL: ROBOTISATION FOCUSING UPON INTER-COMPANY TRANSACTIONS

Global is one of Sweden's largest companies with operation all over the world. The company is active in an industry that was once heavily regulated; however, a wave of deregulation since the 1990s has changed the business landscape for Global and the way its business is conducted.

Global's focus when it comes to RPA implementation has been what is known as "inter-company processes". Since there are significant interdependences between the different units within Global, the internal transactions must be handled with care. The internal transactions amount to over 10 million transactions on an annual basis, which can and, in fact often do, create a headache for management. The reason for this is that there are often mismatches between what an internal unit book as sales and what an internal buyer books as purchased items. For example, the seller invoice can state that goods for 100 items have been shipped. The buyer, on the other hand, receives goods for 80, thus, creating a variance of 20. This happens because of different systems in the buying and selling units, which creates unbalances in Global's accounting system. The local unit's balance sheet and income statement differ in relation to Global's financial reports. Solving these unbalances takes a lot of time and energy. The solution is a robot that looks at the purchasing order that is sent to the other local unit(s) within Global. The purchasing order is cleared in relation to the selling order and ensures that the same amount is ordered and shipped. This will lead to no variances and the orders are cleared on the appropriate level. Payment is accurate and the balance sheet and income statement make sense.

The challenges so far are that Global's local units use different ERP systems, even if the main ERP supplier is the same in the whole company. All the local units have different codes and, in effect, different ERP systems. Another challenge is to give the robot access to the local units' accounting system. When this works, the amount of manual work in the local units will significantly decrease. Head count will decrease as will the risk for errors. For example, sales and the cost of sales will be accounted for in the same year: something that previously was far from clear.

Problems can also occur due to local tax legislation. In some cases, countries have very strict laws and regulation in relation to cross-country payments, especially when the goods that have been bought are an IT-related service. This happens on a regular basis since Global's units in the different countries are dependent upon IT services from another country.

Global has had two Shared Service organisations: one unit has been responsible for accounts payable and another unit for accounts receivables. These units have been working with the financial accounting for external stakeholders; however, the internal accounting has had the same type of organisation. As a consequence of the robotisation, the internal accounts payable and receivables will be moved to the same unit. The external accounting does not have to match in the same way, as the internal transactions need to do, hence, the merger of these transactions.

Discussion and Concluding Remarks

This chapter has explored the use of Robot Process Automation (RPA) in the finance function of multi-national companies. The motive behind the chapter is the relatively silent role that digital robots play in the administrative processes of multi-national companies. During the interviews that we conducted, a pattern emerged that indicated the internationalisation strategy of the company influenced the initial projects that the companies had pursued in relation to robotisation.

First, ForestCo illustrated a company with an *ethnocentric strategy*. Ethnocentric companies often have a clear home base and internally sell their products to sales organisations around different geographical markets. In the case, it was possible to see how ForestCo's finance organisation prioritised to automate salary process in order to streamline this process. A complementary reason was also to keep track of how salaries develop over time and to identify deviations in the subsidiaries early on. Therefore, the control of subsidiaries increased with RPAs; it will be easier to take action if salaries increase for some reason. This control goes hand in hand with the way ethnocentric companies are controlled through a hierarchical governance mode, which also can be classified as coercive.

In our second case, ManuCo illustrated a company with a *polycentric strategy*. In this case, the accounts payable RPA pilot was initiated on a corporate level, yet concentrated on shared activities and resources. Initially, accounts payable

was seen as non-strategic and was outsourced to external parties. However, even a seemingly simple activity created problems. More specifically, due to inadequate control, the Indian supplier did not pay the bills for the factory in Boston. After repeated calls from the utility company, the electricity was shut down and a costly production grinded to a halt. To handle this problem, ManuCo wanted to regain control and in-sourced the accounts payable. However, it decided to experiment with RPAs to ensure a cost-efficient process. This was also a robotisation initiative that made sense from the perspective that ManuCo's divisions were responsible for driving its own digitalization projects. Those projects where the corporate level is involved must be related to less strategic issues for the divisions. As the outsourcing also showed, however, even less important activities – such as account payables – might interrupt and harm important activities, thus, creating problems in critical customer relationships.

Table 8.2: Summary of Illustrative Cases

	ForestCo	ManuCo	Global
Internationalisation Strategy	Ethnocentric	Polycentric	Geocentric
Type of Accounting Function Being Robotised	Keeping track of salaries	Accounts payable	Inter-company transactions
Problem/Solution	Quickly identifying deviation in salaries in order to maintain the headquarter-subsidiary control	From centralised to decentralised handling of accounts payable is facilitated by the use of robots	Managing the internal market through robots in a more efficient way

The Global case shows how a multi-national company with a *geocentric strategy* needs to manage inter-company processes. The amounts of internal transactions make this a natural first step for Global, and the amount of money and energy of the employees that can be saved are substantial. In this case, we could see that the RPAs reinforce this organisational structure and make the structure run much more smoothly with less tension than before.

To conclude, these illustrative cases have shown that the organisational strategy of multi-national companies tends to influence their RPA initiatives. In ethnocentric companies, such as ForestCo, we can see that the robotisation enforces the hierarchical control over the subsidiaries, while in the ManuCo

case, the corporate level initiative to run the accounts payable through a robot will lead in the end to every division having a robot that can be independently used in relation to the specific needs of that division. Lastly, geocentric companies, where Global is a very good example, must handle internal transactions in a smooth way. Here, robots will play a key role in order to create an efficient internal market.

If we go beyond the issue of the robotisation of accounting, it is interesting to return to Table 8.1 and the third phase of "accounting and digitalization". As we described, when digitalization focuses upon both front-end and back-end digitalization, it is unclear how the finance function will develop in the future. On the one hand, an optimistic scenario can be that accountants and controllers will become trusted partners in a world of big data. In this scenario, robots and artificial intelligence are important tools to complement the necessary judgment that most likely is needed to make reasonable business decisions. As was illustrated with the ManuCo case, one never knows when a seemingly standardised activity becomes strategic. On the other hand, we can also see a pessimistic scenario where robots and artificial intelligence becomes substitutes for accountants and controllers. In this scenario, IT directors or perhaps "the Corporate Digital Office" becomes the king/queen. Our talks with IT directors have shown that many seem to believe it is now possible to regain the power that was lost during the ERP-system era. However, the cases – especially the ForestCo case – seem to indicate that some potential organisational tensions arise between the IT department and the finance function. RPA is unchartered territory in some multi-nationals, and it is not clear where the responsibility of the processes will reside.

For us, as scholars in accounting and financial management, an interesting path to follow is certainly the role of the business controller in this new era. What role will the controller play in the digital world? Schäffer and Weber (2016) point out some interesting and potential important areas to follow. The controller community has long aimed to be more of business partners, rather than only "bean counters". In order to be a business partner in the new digital landscape, the digital business model must be translated so it corresponds to the business model of the company; otherwise, the controller risks supporting the wrong processes and, in the end, supporting the wrong decisions as a function will also become obsolete. More than that, Schäffer and Weber point out that controllers need to integrate analytics and, thereby, also need to gain

new knowledge and skills (such as statistics) in order to become valuable for the business.

Still, the limits of systems can be problematised. For example, Professor Paolo Quattrone recently offered a critical view of digitalization in the field of accounting research, remarking upon the consequence it can have, if we are not careful (Quattrone, 2016, p.120):

> *The digital revolution has the opportunity to challenge the tyranny of transparency and this modern divide because the entire edifice of measurement could potentially be disrupted by a tweet or an internal e-mail…. If I had to bet on what big data will do for decision-making, I would say that it will make people take wrong decisions much more quickly than before, with even less room for the exercise of wisdom beyond the increasing compliance that affects various realms of decision-making, from finance to risk management.*

Quattrone pictures a somewhat dark future. We acknowledge that the information will be available to more functions and individuals in large multi-national companies than ever before that will perhaps lead to issues we cannot foresee today. One potential path is that digitalization will create even new organisational forms about which we have little knowledge. One such organisational form could well be the heterarchy that Hedlund (1986) sketched out in an analytical and conceptual article in 1986, where he argued that there would be no clear centre in hierarchies and that the organisation would be comprised with nodes creating a network. In fact, we can see that the digitalization and the RPAs that we have encountered in this chapter might well create the opportunities to go in a heterarchical path. As we could see in one of our cases, is not clear cut that the transactional activities should be centralised to a centre and that the processed information will be sent out to a the organisational periphery (Robson 1992). Instead, digitalization and RPAs will allow for an organisational structure that resembles heterarchies: where power and information (knowledge) can be found more than ever before on the periphery of large multi-national companies.

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