



Job Impact on Automation in Accounting: What Will Happen to Job Availability?

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Abstract

The accounting profession, specifically fields such as bookkeeping and auditing, are unique in that they are so heavily data driven they are one of the professions most at risk of automation. This article examines the impact that automation has had, and might potentially have, on the field of accounting and which specific fields of accounting might be impacted the greatest. It will examine the possibility, if any, of a specific field of accounting being completely replaced by automation programs and software. Furthermore, the article will look at what specific aspects of an accountant's job role has already been automated. Finally, the article will look at solutions and suggestions that can help accountants prevent themselves from being displaced from the job field.

Introduction

The accounting profession is very heavily data driven and, like many office jobs since the start of the 21st century, particularly dependent on usage of the personal computer. Converting a job field that used to be so manual and done by hand to databases and programs has made the accounting profession very reliant on the use of technology (Ghasemi, Shafeiepour, Aslani, Barvayeh, 2011). Because of this reliance, accounting is one of the professions that is highest risk of becoming automated according to a study by Frey and Osborne (2013). According to their findings, accountants and auditors are the second highest at risk field of job automation, coming in only behind telemarketers.

Jobs	Probability
Recreational therapists	0.003
Dentists	0.004
Athletic trainers	0.007
Clergy	0.008
Chemical engineers	0.02
Editors	0.06
Firefighters	0.17
Actors	0.37
Health technologists	0.40
Economists	0.43
Commercial pilots	0.55
Machinists	0.65
Word processors and typists	0.81
Real estate sales agents	0.86
Technical writers	0.89
Retail salesperson	0.92
Accountants and auditors	0.94
Telemarketers	0.99

Table 1. Jobs Susceptible to Automation.

Adapted from: Frey, C.B. & Osborne, M. (2013). The Future of Employment: How Susceptible are Jobs to Computerisation? Published by the Oxford Martin Programme on Technology and Employment. <https://www.oxfordmartin.ox.ac.uk/publications/the-future-of-employment/>.

Frey and Osborne anticipate this change to happen very rapidly, within the next two decades even. One thing to note however, and something that will be examined in greater detail in the article, is that not all accounting fields are at the same risk of automation as others. The research by Frey and Osborne (2013), included data from a Deloitte (a

member of the “big 4” accounting firms) who looked to see which subsets of accounting were most at risk. Overall, roles that do not have a part in strategic analysis or planning, such as general ledger accountants, payroll accountants, and accounts payable teams, are most at risk of having their positions automated to some degree, while management positions have the lowest risk.

In the Deloitte insight report, “The Robots are Coming” (Horton, 2015), they outline the benefits of automation and the “strategic value to the profession”. In fact, Deloitte ranks automation as the number two strategic priority behind process improvement, and believes that 56% of finance roles could have a high possibility for automation (Nagarajah, 2016). This article will examine those benefits in further detail later.

By examining automation within the accounting field, this article hopes to educate members of the accounting field on the risks to job security and growth and will also offer suggestions on how to prevent obsolescence by the growing automation trend. The first section of this paper examines the type of automation being implemented by companies and the benefits of it. The second section of this paper will evaluate the accounting fields most at risk of being replaced by automation or the most displaced and why. And finally, the third section will offer suggestions for accountants on how they can limit or prevent job displacement from occurring by automation.

What is and what are the benefits of automation?

There are many types of automation in the world today, but the type of automation experts believe apply most in the accounting professions is Robotic Process Automation (RPA). This process is defined by the Institute of Electrical and Electronics Engineers (IEEE) as “A preconfigured software instance that uses business rules and predefined activity choreography to complete the autonomous execution of a combination of processes, activities, transactions, and tasks in one or more unrelated software systems to deliver a result or service with human exception management” (Moffitt, Rozario, Vasarhelyi, 2018). This type of automation differs from other forms of technology, such as AI, in that it is not technology that will learn to do task on its own. Rather, it is similar to a Macro in excel (Moffitt, Rozario, & Vasarhelyi, 2018). The RPA’s primary purpose is to mimic the actions of a user by mimicking the task that was completed. By recording a user completing an action an RPA can complete jobs such as sorting emails, opening and compiling data from spreadsheets in to a pre-determined data set, sending monthly emails, etc. As you can see the benefit of automating tasks like this will remove the need to complete repetitive tasks such as this on a daily, weekly, or monthly basis.

The benefits that companies see from this and other types of automation are endless, particularly when it comes to the accounting field. When looking at auditing specifically, tasks such as reconciliations, internal control testing, and detail testing can be automated (Moffitt, Rozario, & Vasarhelyi, 2018). Furthermore, identifying and flagging anomalies will be easier which can then be reviewed by employees in great detail. Automating other minor responsibilities will allow them to perform more detailed audits, strengthening the

process for their clients. In a case study of Saudi businesses, it was found that the level of performance and quality of reports produced were increased thanks to automation (Rkein, Issa, Awada, & Hejase, 2019).

A second benefit that is identified across all industries, but is particularly relevant to accounting, is the increase in productivity and the cutting of costs. In some cases, efficiency of tasks increased by as much as 10-fold (Anagnoste, 2017). This is important in the accounting profession because it is a service industry in that they provide data to their own internal accounting departments, and/or to external clients (external audits, tax professionals, personal accountants, etc.). Therefore, increased productivity directly benefits all stakeholders (Wilson & Sangster 1992). While cost can be an initial barrier to implementing technology, accountants should be ready to see implementation piece by piece, primarily in low level roles (Nagarajah, 2016). By investing in technology, companies typically can increase productivity (despite employing less people) and will save money over time.

On a global scale, according to TEAM International a large, multi-cultural organization can have up to 75,000 suppliers, all with different credit and payment rules, and different forms of currency to consider. The use of RPA for the many repetitive tasks required in these situations shows automation can handle 80% of these tasks, with nearly 100% accuracy (<https://www.teaminternational.com/top-8-use-cases-rpa-finance-accounting/>).

Which Roles are most at risk and are they truly at risk?

As mentioned previously, accounting and auditing were amongst the most likely to have job roles automated in the future. When looking at the accounting profession, it is quite cyclical in nature with repeated tasks monthly and quarterly no matter which field you are in. This makes the entire profession a good candidate for automation. Moffitt, Rozario, & Vasarhelyi (2018) identify three things that make automation in accounting likely, and why it is a good candidate.

First, they say to look for “well-defined processes” as these are more automatable. Robots currently still need precise instructions in order to successfully complete tasks, so tasks with significant ambiguity are not typically candidates for automation. Second, high volume, repetitive tasks benefit from automation. Tasks associated with payroll, accounts payable, and accounts receivable are often mundane and recurring, making them good candidates. Finally, mature tasks, with more predictable outcomes and known costs are easier to automate (Moffitt, Rozario, & Vasarhelyi 2018).

However, when delving into the research further, the researchers found that no one entire field can be fully automated. While they do expect job loss, they anticipate the structure of an organization to stay the same with automation integrated within it. This is demonstrated by the figure below:

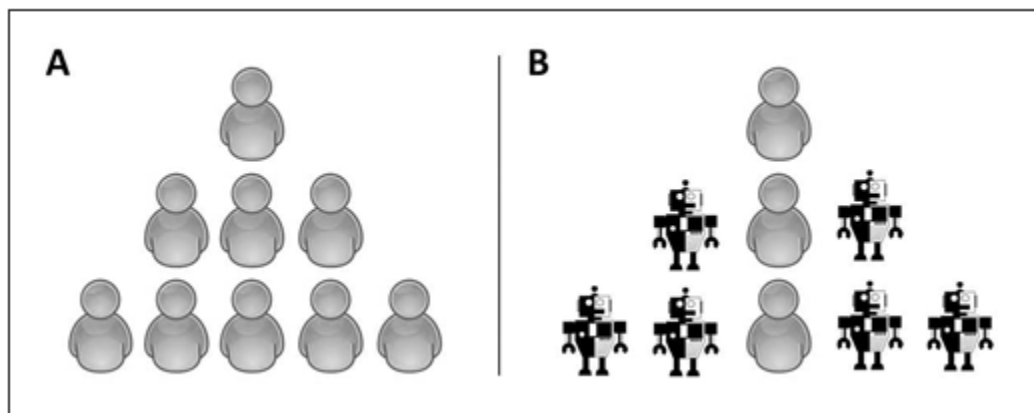


Figure 2. Adapted from Moffitt, Rozario, Vasarhelyi, 2018. This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License.

This figure demonstrates their main findings in that automation will not be an outright replacement for people, but instead a tool to help humans in their jobs.

Further reinforcing this idea of a partial replacement of jobs and not an outright replacement is the idea that accountants should be skilling upwards to negate the risks of obsolescence. As technology becomes increasingly ubiquitous in all aspects of business, accounting professionals should be making the shift towards more strategic and analytical roles (Nagarajah, 2016). This means that accountants need to be able to work hand in hand with technology since the automation of lower-level tasks will free up the accountant to perform higher-level strategy and planning work (Goh, Seow, Pan 2017).

The general consensus seems to be that automation is impacting the accounting job availability, but the US. Bureau of Labor and Statistics (BLS) disagrees. In a forecast of job growth from 2018, the BLS actually expects job growth in the industry to increase over the next 10 years (2018-2028) at a slightly faster rate than the rest of the job market (BLS updated 2020).

The BLS also notes, however, that they believe the job growth is tied directly to the health of the economy. As globalization continues to occur, higher level accounting knowledge and expertise will be needed to handle international reporting requirements and mergers/acquisitions (BLS, updated 2020). So, while growth overall in the accounting field is possible, it still shows that lower level positions are at risk.

Very similar findings are coming out of studies on international growth, as the area of Global Accounting Services (GAS) is also expecting labor changes. One study cites that since RPA technology has significant impacts on individuals and organizations, resulting in the change and reduction of work, it thereby will reduce the number of employees. And, while the RPA technology could solve issues involving humans such as disciplinary problems, employee productivity, and human resource shortages, again, high level of

analytical work could not be completely replaced by robots and can only be done by humans (Fernandez & Amand, 2018). Additionally, the authors warn that even planning for automation may negatively impact employee motivation, emotions, and productivity.

This is significant as a report from McKinsey Global International (2020) predicts that 44% of international companies are using RPA already, and alerts us to the fact that automated accounting processes lead the way for organizations to further automate their organizations. Some of the other benefits of automation in global organizations are noted to be the 365 day/24 hour working cycle, and a return of investment on the equipment of less than one year (CiGen, 2020).

How to Combat Automation

While there is no preventing automation in the field of accounting, there are ways to adapt to it and employ it to help you. The best way to combat automation of your job is offering a strength that the software cannot. Typically, this is developing your skills when it comes to higher level analysis, knowledge of the program, and also presenting the data to the intended audience who may need help interpreting it. This is something a program is not able to do! What finance professionals will need to do is keep abreast of technology to maintain a competitive edge in the market, and develop their digital skills which employers will increasingly be in search of (Nagarajah, 2016).

An additional thought is that humans and technology should not be competing and that, without humans, a program would be unable to perform the job itself. Human expertise needs to be fostered to allow the human to bring unique capability to decision environments, not to compete with AI, but to complement AI in a collaborative human-computer decision process (Sutton, Arnold, & Holt, 2018).

Conclusion

While automation is already occurring and will continue to be implemented in to the future, that does not specifically mean a decline in jobs over all in the profession, but could lead to the creation of more, higher level jobs. Adaptation is key, but accountants can take solace in the fact that in the views of many companies the human element is irreplaceable. Technology will never replace human beings who can strategize, influence, and work with stakeholders to improve organizational performance (Nagarajah, 2016).

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