

Acquisition of AI knowledge through organisational learning V/S Replacement with Automation: Impact on ROI, Innovation and Resistance

Pragati Yadav¹

¹ Department of Commerce, University of Delhi
Delhi, India

Abstract

Artificial Intelligence dramatically improves our world in many ways, there are notable concerns regarding the forthcoming impact of A.I on employment and the workforce. There are various research papers and literatures available on the web sources and popular journals about the significance of Artificial Intelligence and automation. After going through the sources, it was observed that there are less studies how a collaborative approach can be adopted by the organization to implement the AI enabled systems without replacing the existing employees due to automation. This study will be important to the people in the leadership role to understand how to implement AI technology to ensure increased ROI, increased innovation, and reduced resistance.

Keywords: *Acquisition of Knowledge, Artificial Intelligence, Organisational Learning, Automation, Innovation*

1. Introduction

Artificial intelligence (AI) is growing more popularity than ever before. With AI becoming more integrated into businesses and garnering more attention, there has been a flurry of activity in the industry about how AI, automation, and machine learning are disrupting industries and posing a danger to jobs. Advances in technology have encroached on manual workers, e.g., in manufacturing, for decades now (Bush & Pepitone, 2017). In recent years, advances in artificial intelligence (AI) software have begun to do the same to Financial Intelligence professionals, who are defined as employees that gather information about the financial affairs of entities of interest, to understand their nature and capabilities, and predict

their intentions that require judgement and improvisation (Hagel III, Brown, & Davison, 2010). An example of the worker being replaced by AI software is a customer service agent being replaced by an automated application called a chatbot that responds to customer inquiries. Software test engineers being replaced by rules-based engines, translators being replaced by natural language processing systems, and legal researchers being replaced by AI-powered search systems are other examples. Throughout this study, the approach of replacing the employees with AI software will be called automation.

While automation highlights a threat to employees, it may seem like already opportunity for organizations to increase their return on investment (ROI). This may be the case at times, at least in the short term. Automation has also driven layoffs and, in turn, decreased ROI and innovation in organizations. A review of 20 US-based studies on automation-driven layoffs by companies showed that 9 had profitability declines, 5 were neutral on profitability, and only 6 resulted in profitability (Gupta & Sucher, 2018). Further, as the employees are at the center of organizational innovation, thus commitment decreases in employees with negative impacts on organizational innovation.

The employees remaining after the implementation of automation in other parts of their organizations have also been resistant to automation; because they find their work is more difficult now that a portion of their lower-level work has been automated (Dunlap & Lacity, 2017).

When combined, these instances of automation-driven decreases in ROI and innovation, along with increased resistance from remaining

employees highlight a problem that has only been looked at in pieces up to this point. This study looks at the decision to automate or escalate AI knowledge through organisational learning knowledge, or to do both.

2. Definition of Terms

- Acquisition - The learning or developing of a skill, habit, or quality.
- Artificial Intelligence - AI-related technologies such as robotic process automation (RPA), machine learning, and natural language processing.
- Organisational Learning - Organizational learning is the process of creating, retaining, and transferring knowledge within an organization. Organizational learning is the creation and acquisition of knowledge; the synthesis of that knowledge; the diffusion of that knowledge throughout the organization; and finally, the preservation of that knowledge for future access.
- Automation - Automation describes a wide range of technologies that reduce human intervention in processes. Human intervention is reduced by predetermining decision criteria, subprocess relationships, and related actions and embodying those predeterminations in machines. Replacing the employees with AI software.
- Return on Investment – The benefits of implementing the organisational learning to escalate AI knowledge in the organization and the benefits of
- Innovation - Discovering new products, services, processes, and/or business models; delivering results based on the new idea(s); and developing knowledge worker capabilities in discovery and delivery.
- Resistance - Destructive worker behavior inside an organization ranging from fear and anxiety on up to badmouthing and retaliation.

3. Research Objectives

- To examine the effects of automation on ROI, innovation, and resistance within the organization.
- To examine the effects of acquisition of AI knowledge through Organisational Learning on ROI, innovation, and resistance within the organization.
- To compare the effects of automation and

acquisition of AI knowledge through Organisational Learning on ROI, innovation, and resistance within organizations.

4. Literature Review

In the 21st century, new information technology and the introduction of computers powered by artificial intelligence (AI) have already profoundly affected the working world. Everyday activities are simplified by computers, algorithms and applications, and it's difficult to imagine how any of our lives will be done without them.

4.1 AI Software History and Trends

The name behind the idea of AI is John McCarthy, who began research on the subject in 1955 and assumed that each aspect of learning and other domains of intelligence can be described so precisely that they can be simulated by a machine. (McCarthy, 1955). The US Government Accountability Office (GAO) (2018) credited the start of AI to a 1956 Dartmouth College conference held by John McCarthy. The conference assembled industry experts to explore how computers could be used to mimic human intelligence. The first production-scale application of the AI principles discussed in the McCarthy conference came with the introduction of the IBM S/360 computer series in 1964 (Willcocks & Lacity, 2018).

This technology also formed the foundation of computing needed for the later expansion of knowledge work automation. Intermittent advances have been made in AI technology through the decades such as natural language processing and expanded search capabilities. However, AI technology reached a point that it could effectively automate an array of various worker-level jobs in the mid-2000s with the expanded capability to store and rapidly access large amounts of different kinds of data (Lacity & Willcocks, 2016), i.e., the rise of Big Data.

Even the terms 'artificial intelligence' and 'intelligent human behavior' are not clearly defined. Artificial intelligence describes the work processes of machines that would require intelligence if performed by humans (Mihret, 2020). The term 'artificial intelligence' thus means 'investigating intelligent problem-solving behavior and creating intelligent computer systems.

Another AI trend is the projected growth of its overall market. There are lots of forecasts for its

growth. A common point in the AI forecasting research is that AI has a sizeable market now and is expected to become much bigger (i.e., much more important and impactful) in the years to come. For example, (Willcocks & Lacity, 2018) pointed to the Robotic Process Automation sub-market growing from \$250 million in 2016 to \$2.9 billion in 2021. They also pointed to the Cognitive Automation sub-market growing from \$443 million in 2017 to \$1.2 billion by 2021. The AI market will go from \$419 million in 2014 to \$5.1 billion by 2020, with the US having the largest share of this global forecast (Dandapani, 2017).

4.2 Factors behind the Use of Automation and promoting Acquisition of AI through Organisational Learning

The question arises whether the Artificial Intelligence is a risk or potential for the future of the jobs. With the Industry 4.0 revolution there is a technical integration of computer systems in the production and logistics and the use of internet and services that leads to new creation value. (Wolter, Mönnig, & Hummel, 2016)

The question arises as to which sector these jobs can be modified because, as discussed, due to automation and digitalization jobs are being replaced not only in the manufacturing sector but also, in the service sector. Therefore, unemployment or targeted training of the affected individuals within the service sector would seem the only option to tackle this situation. In recent trend not only the personnel, but also the companies that had little to do with IT and data processing in big data will have to conform to technological advancements. The new labor market with expertise knowledge in IT is growing faster. Big gains can only be made by the organization who first finds, creates or even introduces the latest service concept to the market.

The examples were highlighted such as Xchanging plc, a technology services provider, and O2, a telecommunications services company, both implementing automation with hopes of reducing costs (through reduced headcount) and increasing accuracy and speed (components of efficiency) quickly (Willcocks & Lacity, 2018).

This literature review is done to see the existing wide range of studies conducted that focuses on the impact of AI on work. In most of the studies it is found that the high-routine occupations will be yesterday's job role for example, accountant, clerk or all other desk jobs. The jobs that require less human effort and are straight jacketed they will become obsolete in some decades from now (Goos, Konings,

& Rademakers, 2016). Well-known examples from the field of robotics and AI are the so-called 'smart factories', driverless cars, delivery drones or 3D printers, which, based on an individual template, can produce highly complex things without changes in the production process or human action in any form being necessary. Well-known service models are, for example, networking platforms like Facebook or Amazon Mechanical Turk, the economy-on-demand providers Uber and Airbnb, or sharing services, such as car sharing, Spotify and Netflix. Studies show that merely due to sharing services the turnover of the sector will grow twentyfold within the next ten years. Old industry made progress by using economies of scale in an environment of mass production, but the new information economy lives on networking effects, leading to more monopolies (Kahn, Jeremy, 2016)

The New technology will have a severe impact on the workforce. It would impact both the blue-collar and white-collar jobs. The quicker the labor division process and the more thorough details of the single work or process steps can be made; the better intelligent algorithms can replace employees. In the future, one third of current jobs requiring a bachelor's degree will be carried out by computers or smart apps.

The straight-forward value proposition of automation combined with its implementation in stable processes being readily conceivable for organizations are important aspects as to why automation rose in prominence before augmentation. Automation can be attractive to employees because it can free them from mundane, less challenging tasks. An example of this comes from (Willcocks & Lacity, 2018) who discussed how Associated Press reporters prefer to do creative stories. Having automation do the highly structured, less creative stories allowed the reporters more time for their preferred work, even though this replaced positions for three full-time reporters.

However, automation can also be a burden to employees. A case at Blue Cross Blue Shield North Carolina was outlined where employees in the claims function less desirably found their jobs more challenging because automation had eliminated another function that fed them easier work. This led to a higher portion of the already busy tasks being composed of the most challenging, harder-to-automate tasks (Dunlap & Lacity, 2017).

(Davenport & Ronanki, 2018) leaned towards augmentation. They recommended smaller, progressive steps in changing business processes. They recommended augmenting employees with AI versus replacing them. (Lacity & Willcocks, 2017) noted that augmentation allows the less desirable, more mundane tasks to be done by AI

software and allows employees to focus on higher value activities that are not as easily done by technology. A key difference here versus the earlier Associated Press example is that employees are not replaced.

Organizational learning with AI isn't just machines learning autonomously. Or just humans teaching machines. Or just machines teaching humans. Only 20% of companies achieve significant financial benefits with these fundamentals alone. Getting the basics right and building AI solutions that the business wants and can use improve the odds of obtaining significant financial benefits, but to just 39%. Organizations that use only one of the methods have only about a 6% likelihood of reporting significant financial benefits. More successful organizations combine multiple teaching and learning methods to take advantage of humans' and machines' distinctive strengths and weaknesses. (S. Ransbotham, October 2020).

Aside from avoiding profitability hits and worker resistance, augmentation also has uplifts in business performance. (Malone, 2018) discussed the synergy of combining employees and AI. He outlined how employees can do things like identifying appropriate information to analyze and creatively planning how to address leadership objectives. He also noted how AI can bring capabilities like powerful searches in datasets that are too large and complex for employees to parse. These worker and AI capabilities can combine to drive more advances than employees or AI have achieved alone.

Organizations need to view organizational learning as an integral part of accountability. Without learning mechanisms in place, the organization is doomed to repeat its failures. For this cycle to be broken, accountability that focuses on learning needs to be built around a framework that looks at the scope, or who is being evaluated; the focus of what is being evaluated; and the methods of evaluation. The accountability system needs to look at a particular area with enough intensity so that learning can occur. The principal objective of the evaluative process needs to focus on what can be learned from the incident, not merely if the results met with the requirement.

It is argued that becoming a learning organization is imperative for organizations to confront ever increasing change. This is important for the development of the concept because it helps CEOs, who are focused on the bottom-line; accept the idea of a learning organization.

The benefits to innovation were also supported and focused on the additions that the organisational learning brings. A survey was cited of how 3,000 companies plan to implement AI. Research around this survey suggested that

innovation-focused adopters of AI that are not looking to eliminate employees (i.e., augmentation implementations) will grow their profitability 8 percent per year faster than the average company (Jacques, 2018).

Implementing augmentation requires more consideration than automation. Automation is a clean cut of people and full replacement with AI. (Davenport & Ronanki, 2018) illustrated the higher consideration that augmentation requires with an example of how Vanguard, an investment services firm, had to understand the key capabilities of cognitive technology (an AI variant) and those of their advisers before blending these capabilities to create a more cost-effective form of investment services.

4.3 Effects of Automation and Acquisition of AI through Organisational Learning

Profitability, efficiency, resistance, and innovation are the recurring variables that organizations targeted in automation or AI implementations. Of these four, it is found organizational efficiency to be too dispersed in its meanings across the AI literature. Profitability, in the form of ROI, innovation, and resistance remained as the variables to be used for comparison of automation and acquisition of AI through Organisational Learning.

Innovation was discussed by some sources but an approach for measuring it was not covered in those sources (Jacques, 2018) . As innovation is qualitative therefore, the organisations were evaluated based on the following three-part framework:

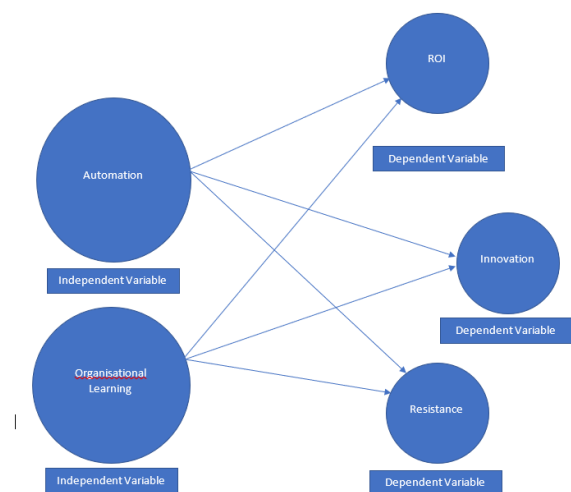
1. People – how their senior executives championed innovation, and how they ensured that innovative employees were hired and placed throughout the organization.
2. Processes – how their processes encouraged workers to question, associate, network, observe, and experiment.
3. Philosophies – how the four philosophies below were followed:
 - i. “Innovation is everyone’s job—not just R&Ds.”
 - ii. “Disruption is part of our innovation portfolio.”
 - iii. “Deploy small properly organized innovation project teams.”
 - iv. “Take smart risks in pursuit of innovation.”

“Automation is not the future, human augmentation is,” the former Oracle director tells Raconteur. Algorithms can’t tell you how you can create value in your business, asking those sorts of questions is an innately human capability. Algorithms rely on humans having done that work first (Thomas, 2019). Also, A 2018 study by the accountancy giant PwC forecasted that machines would create as many new jobs in the UK as they destroyed over the next 20 years – although it said there would be “winners and losers” by industry sector, and many roles were likely to change.

5. Materials and Methods

This research is empirical in nature which aims to examine the effects of automation and organisational learning on Financial Intelligence employees and organisations working in Gurugram, Haryana; by looking at the impact of the two approaches on organizational ROI, innovation, and internal resistance from the existing employees.

5.1 Conceptual Framework



5.2 Data Collection

Both Primary and Secondary sources will be utilized for data collection. The Primary Sources of data will be collected through Questionnaire and Interviews. The Secondary Sources of Information will be collected from Annual Reports from the leading Financial Intelligence firms, Business Manuals, flyers, editorials, Internet resources, books, magazines, guides and Journals.

5.3 Tools used for Data Collection

- First and foremost, a preparation phase will

involve a study through existing literature work on the escalation of AI knowledge through organisational learning and Automation of the tasks. This initial phase will build an essential basis for the rest of the work, as it will provide an overview of different approaches the organizations are opting to deal with the introduction of automation in their operations.

- Questionnaire: Quantitative data will be collected through questionnaires designed to be filled by 300 employees working in different Financial Intelligence organizations in Gurugram. The questionnaire consists of statements to analyse the existing employees’ behavior due to automation.
- Interviews: In order to collect the qualitative data to understand the outlook of the upper-level management towards opting for Automation for profitability and their view on using the organizational learning to escalate AI knowledge within the organization, interviews will be transcribed, and thematic analysis will be conducted. All the results and relevant outcome of the interview will be taken under the notes. Unstructured interviews usually produce results that cannot be generalized beyond the sample group, but they provide a more in-depth understanding of participants’ perceptions, motivations and emotions.

6. Limitations of the Study

There are a lot of limitations to collect the data through surveys and Interviews as the responses are highly subjective. The limitations that can be there in the studies are listed as follows:

- There is a geographical limitation as the research will only be specific to the working professionals in Financial Intelligence organisations in Delhi-NCR region.
- Only the employees working in the Financial Intelligence are covered. Therefore, all industries employees cannot be covered in the research.
- As the research is generic in nature therefore, the study cannot be applicable to all the industries.
- Data errors due to question non-responses may arise.
- Respondents may not be fully aware of their reasons for any given answer because of lack of memory on the subject.

- Customized surveys can run the risk of containing certain types of errors.

7. Conclusions

Even though there is a substantial and expanding body of literature on automation and augmentation, the following gaps can be found, allowing this study to contribute to the conversation.

The focus has been on blue collar job substitution in especially over the years. There is a lesser emphasis on worker complementarities and AI. There are several study studies that focus on the loss of jobs due to automation, yet current trends show that automation can provide a variety of jobs. As a result, the global workforce will need to be retrained for future employment, which will involve time and money. Furthermore, if workers are not upskilled, the risk of losing their jobs would increase.

The research is essential because AI will have an impact on workers and the companies that employ them. Understanding the consequences of automation and organisational learning methodologies will be critical for engineering managers and others deciding how to adopt AI technology to maximise ROI, promote innovation, and reduce opposition.

References

- [1] 2018, U. G. (n.d.). "Report to the Committee on Science, Space, and Technology, House of Representatives. Technology Assessment: Artificial Intelligence: Emerging Opportunities, Challenges, and Implications. Highlights of a Forum.
- [2] Bush, K., & Pepitone, J. (2017). Rethinking Managerial Economics. *Managerial Services*, 61(3): 12-17.
- [3] Dandapani, K. (2017). Electronic Finance – Recent Developments. *Managerial Finance*, 43(5): 614-626.
- [4] Davenport, T. H., & Ronanki, R. (2018, January). Artificial Intelligence for the Real World. *Harvard Business Review*, pp. 1-10.
- [5] Dunlap, R., & Lacity, M. (2017). Resolving tussles in service automation deployments: service automation at Blue Cross Blue Shield North Carolina (BCBSNC). *Journal of Information Technology Teaching Cases*, 29–34.
- [6] Goos, M., Konings, J., & Rademakers, E. (2016). *Yearly report on flexible labor and employment*. University of Utrecht and University of Leuven.
- [7] Gupta, S., & Sucher, S. J. (2018, May 01). Layoffs That Don't Break Your Company. *Harvard Business Review*, pp. 122-129.
- [8] Hagel III, J., Brown, J. S., & Davison, L. (2010, April 05). "Are All Employees Knowledge Workers?". *Harvard Business Review*.
- [9] Jacques, B. (2018). Why AI Isn't the Death of Jobs. *MIT Sloan Management*, 59(4): 41-45.
- [10] Kahn, Jeremy. (2016). Forward Thinking: March of the Machines. *Bloomberg*.
- [11] Lacity, M. C., & Willcocks, L. P. (2017). *Robotic Process Automation and Risk Mitigation: The Definitive Guide*. Warwickshire: SB Publishing.
- [12] Lacity, M., & Willcocks, L. P. (2016). *Service Automation: Robots and the Future of Work*. Warwickshire: SB Publishing.
- [13] Malone, T. W. (2018). How Human-Computer 'Superminds' Are Redefining the Future of Work. *MIT Sloan Management Review*, 59 (4): 34-41.
- [14] McCarthy, J. (1955). *Research Project on Artificial Intelligence*. Computer Based Learning Unit, University of Leeds.
- [15] Mihret, E. T. (2020). Robotics and Artificial Intelligence. *International Journal of Artificial Intelligence and Machine Learning*, 57-78.
- [16] S. Ransbotham, S. K. (October 2020). *Expanding AI's Impact With Organizational Learning*. MIT Sloan Management Review and Boston Consulting Group.
- [17] Thomas, D. (2019, May 13). *Raconteur*. Retrieved from <https://www.raconteur.net/>: <https://www.raconteur.net/technology/artificial-intelligence/ai-human-augmentation/>
- [18] Willcocks, L. P., & Lacity, M. (2018). *Robotic Process and Cognitive Automation: The Next Phase*. SB Publishing.
- [19] Wolter, M. I., Mönnig, A., & Hummel, M. (2016). *Industry 4.0 and the consequences*. Germany: IAB-Forschungsbericht, ISSN 2195-2655.