

Artificial Intelligence in Management

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ABSTRACT

Technological development of society, and in particular the universal digitization of the economy, will have a significant impact on the labor market and on the managers job functions. The use of Artificial Intelligence systems and robotics carries with it both tremendous opportunities and threats of changes and even disappearance of certain professions. The ability to re-design the management system in accordance with new opportunities and challenges will be a key factor in adapting organizations to the new conditions in the interests of workers, employers and society. This study includes the analysis of the Artificial Intelligence usage trends and its influence on the labor market and manager's job roles. It also highlights the opportunities which AI provides to business and employees and main challenges of its implementation in the organization's management system.

Keywords: *Artificial Intelligence, AI, digital economy, digital management, smart decisions*

1. INTRODUCTION

In the ceaselessly changing dubious and complex business climate new computerized advances are remaking the scene of the economy, associations attributes and the manners in which we interface with associations (Snow et al., 2017, p.1, 5). The advanced change of business has significant ramifications for our general public, business life, the executives and work market (Brynjolfsson and McAfee, 2014, p. 9). Man-made reasoning (AI) will carry a solid test to association's administration frameworks as it very well may be considered as a fourth modern transformation quickening agent (Brynjolfsson and McAfee, 2014, p. 92). The capacity to guarantee right and ideal evaluation of this test just as capacity to change the board frameworks

as per new conditions and openings could be considered as a key achievement factors for present day associations. All mechanical developments have two kinds of effect on the work market:

- Direct substitution of representatives from their recently performed work assignments;
- Demand expanding for those occupation jobs which emerge due innovation progress.

Today's profound AI innovation advancement prompts worldwide computerization in various fields and canny machines can perform an ever increasing number of non-standard assignments like expanding proficiency of web based business extends or overseeing creation lines in hefty ventures. This pattern prompts the development of sensible worries about complete substitution of individuals by keen machine frameworks in different industry verticals and employment jobs. All things considered, man-made brainpower not just gives incredible occasion to make added esteem, yet in addition presents very unpredictable errands to supervisors. They should audit their central standards of work, which they have clung to so far zeroing in on full participation among human and computerized reasoning. Associations should adjust their preparation framework and methodology to pull in ability, zeroing in on those undertakings that require evaluative judgment aptitudes, for example, coordinated effort, imagination, the capacity to analyze.

2. ARTIFICIAL INTELLIGENCE – DEFINITION AND FUNCTIONS

Artificial Intelligence is considered as a machine being able to emulate cognitive human tasks (Jarrahi, 2018, p. 1), it is used in a different fields, such as finance, healthcare, transport, art etc. (Dejoux & Léon, 2018, p. 190). Figure 1 shows the broad range of functions AI can perform.

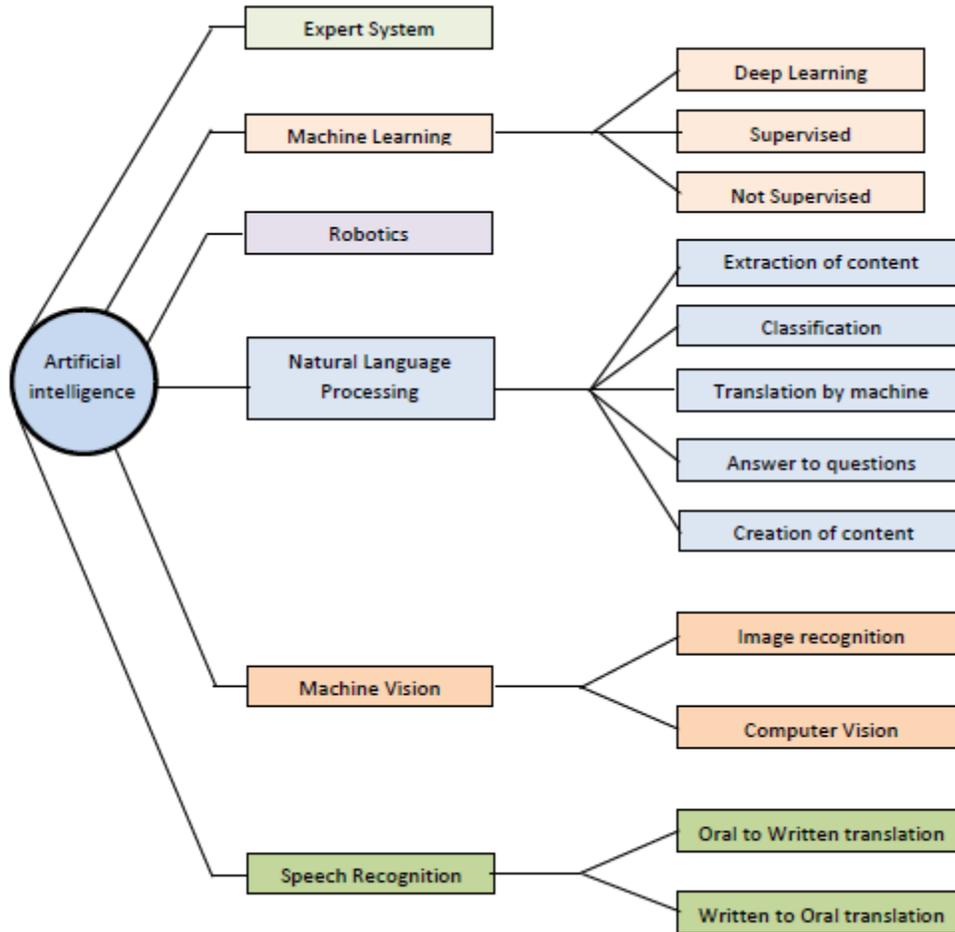


Figure 1: AI Functions (Dejoux, Léon, 2018, p. 188)

The AI which is performing today includes the following types: Expert Systems, designed to simulate the problem-solving behavior of a human, Machine Learning, which is “the ability of a computer to automatically refine its methods and improve its results as it gets more data” (Brynjolfsson & McAfee, 2014, p. 91), Natural Language Processing, designed to understand and analyze language as used by humans and at the same time considered to be the base for the Sepach Recognition AI, and finally Machine Vision which is “algorithmic inspection and analysis of image” (Jarrahi, 2018, p. 2). Coming to the AI which can emulate the main functions of human intelligence – we are still far from it. This type of AI is quite polemical issue which divides specialists’ opinion into three school of thoughts. The first one considers AI as a useful technology being helpful in decision making (Dejoux & Léon, 2018, p. 191) and managers should treat it as a colleague. The second group expect the merge between AI and human in

order to improve humanity (Dejoux & Léon, 2018, p. 191). The third school of thoughts considers strong AI as a threat for humanity because it can take human jobs by automation of their working tasks (Jarrahi, 2018, p. 2). This group insists that AI developers should keep in mind ethical and social issues while creating intelligent machines.

3. RESEARCH METHODOLOGY

For our examination we utilized a blend of essential and optional exploration. In the underlying phase of the examination we gathered information with respect to fundamental patterns of current administration, chiefs work jobs and AI application in administration through the essential exploration utilizing Delphi technique utilizing 3 cycles with Key Industry Participants (KIPs) which are the delegates of framework integrators and market driving organizations in various industry verticals. During the second stage we utilized optional examination gathering the huge monstrous of information from various skilled information sources, for example, specialized diaries, exchange magazines, autonomous investigations and paid information sources. To uncover the effect of AI on administration we have allocated weight to the accompanying elements:

Administrators work jobs patterns

Computer based intelligence application industry patterns

Artificial intelligence market drivers

Weighted average formula is the following:

$$\text{Weighted Avg}x = w_1x_1 + w_2x_2 \dots w_nx_n$$

$w = \text{relative weight}$

$x = \text{value}$

4. FINDINGS

For the AI application in modern management study it is important to discover how managers see their main job tasks and how much time in percent they spent on performing each of them (Table 1)

Table 1: Time spent by managers for their job tasks performance (prepared by authors)

No	Job task	Time spent (%)
1	Coordination & control	21
2	Decision making	19
3	Reporting	14
4	Scheduling & planning	11
5	Problem solving	9
6	Strategy development	9
7	Data analysis	8
8	Allocating resources	5
9	People development & coaching	4

Managers spent 47% of their working time on such routine job tasks as coordination and control, scheduling, planning and reporting. Figure 2 reflects the percentage of managers who are ready to transfer some of their job functions to AI.

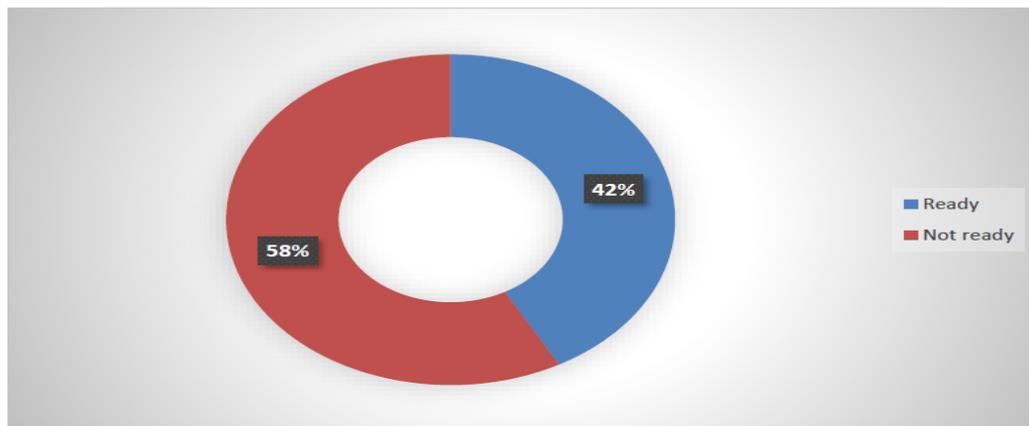


Figure 2: Share of managers who are ready to transfer some of their job functions to AI (prepared by authors)

The share of managers who are ready to transfer some of their job functions to AI in terms of their specific job tasks is shown on Figure 3.

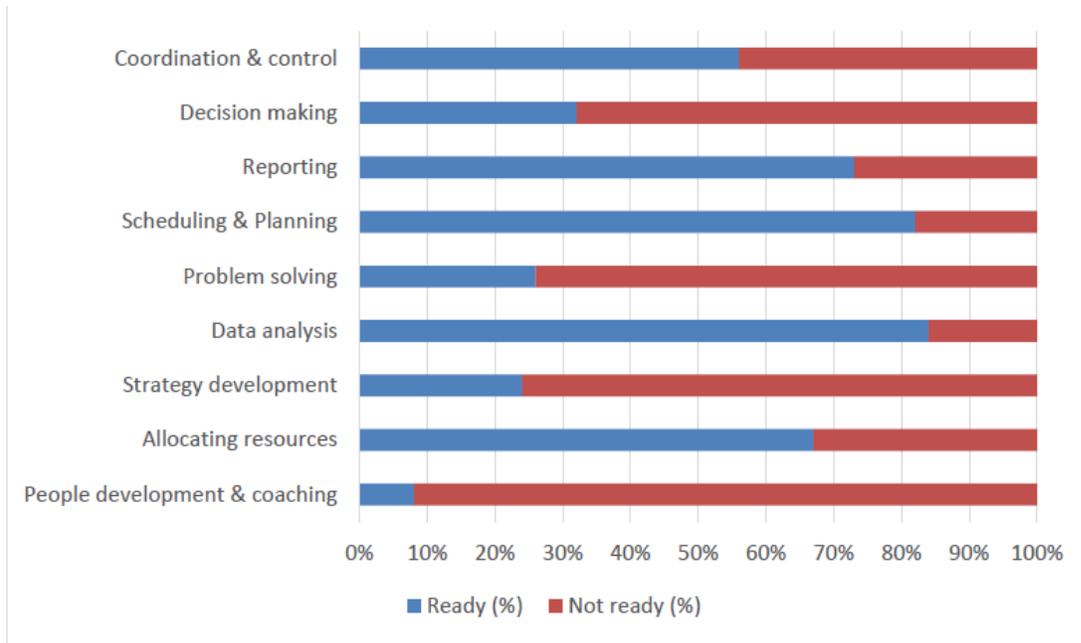


Figure 3: Share of managers who are ready to transfer some of their job functions to AI in terms of their job tasks (prepared by authors)

Only 8% of managers are ready to delegate people development and coaching to AI. 67% are ready to transfer to AI allocating resources, 24% - strategy development, 84% - data analysis, 26% - problem solving, 82% - scheduling and planning, 73% - reporting, 32% - decision making and 56% - coordination and control. Figure 4 shows the ratio of conditions under which managers are ready to transfer some of their job functions to AI.

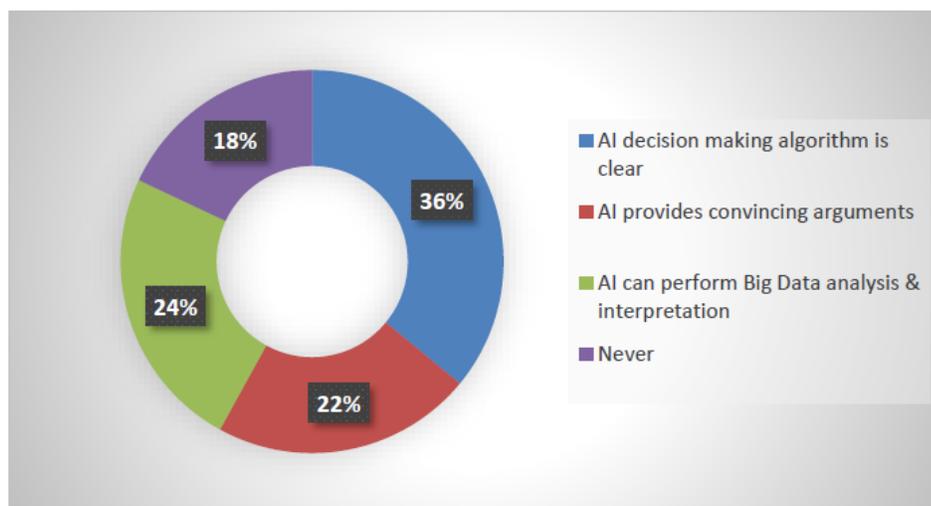


Figure 4: Conditions under which managers are ready to transfer some of their job functions to AI (prepared by authors)

Percentage of managers that selected the given skills as the top 3 skills they will need in the next 10 years is shown in Figure 5.

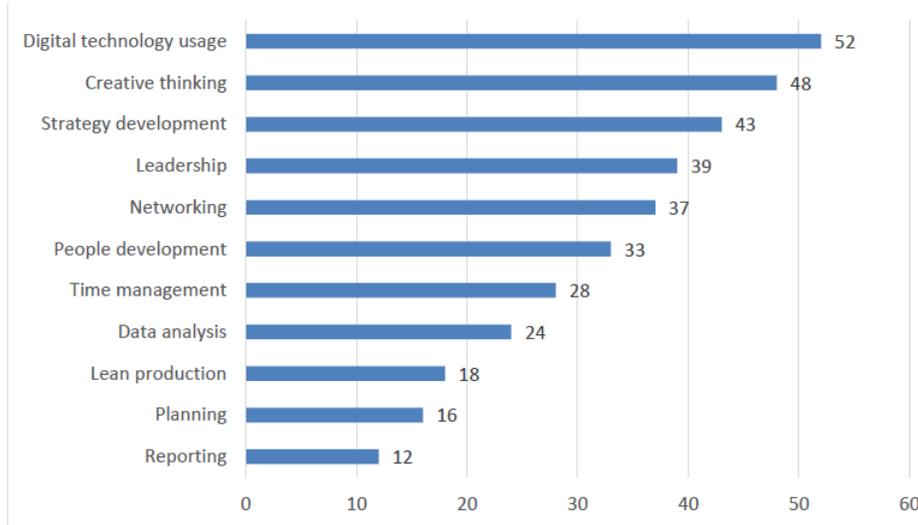


Figure 5: Most requested managerial skills in next 10 years (prepared by authors)

Main ways of making decision are highlighted on the Figure 6. 52% of managers use their own previous experience for making managerial decisions, 26% use their intuition and 22% use decision making techniques.

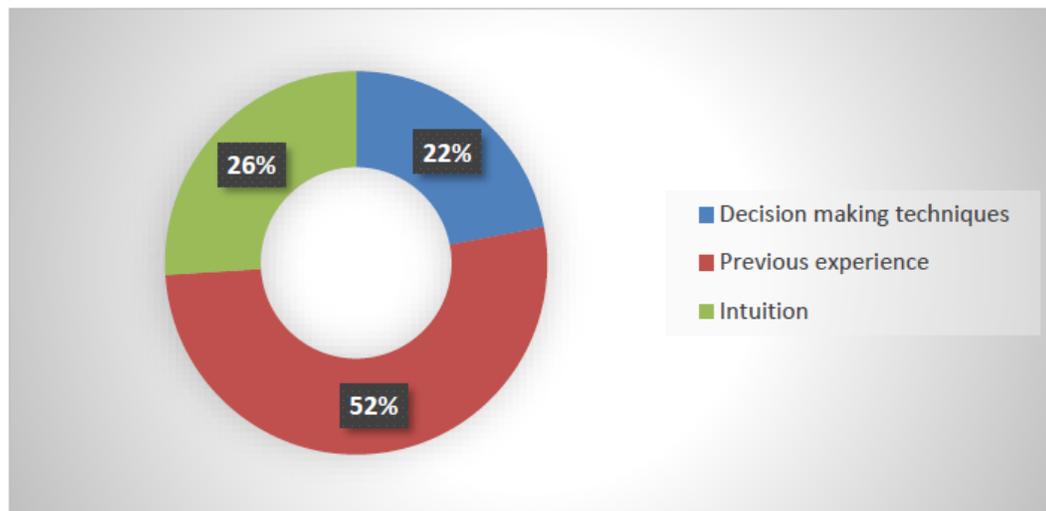


Figure 6: Main ways of managerial decision making (prepared by authors)

Main challenges of business environment which affect the decision making process from the managers' point of view are highlighted on Figure 7.

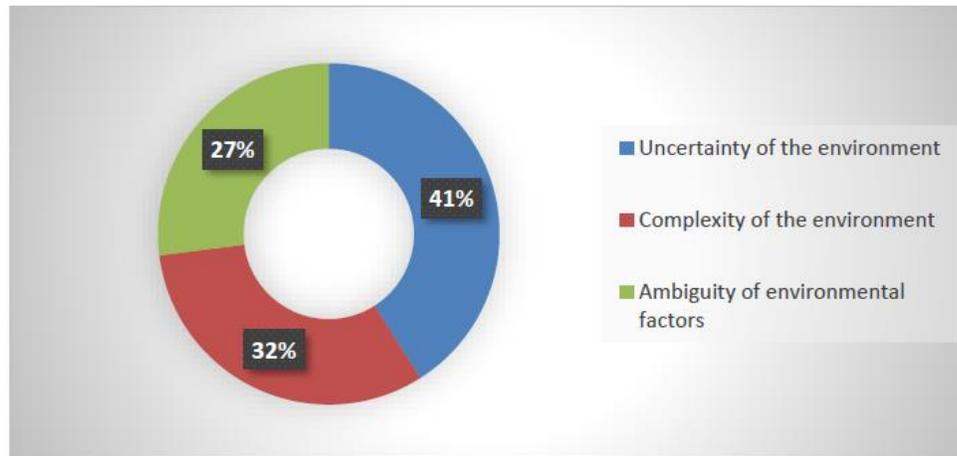


Figure 7: Main challenges of business environment for decision making process (prepared by authors)

5. DISCUSSION AND CONCLUSION

As per Table 1 supervisors invested 47% of their working energy in routine managerial occupation errands. The majority of these errands like planning, detailing, distributing assets, information investigation could be moved to AI in the closest future. What's more, as per Figure 3 supervisors when all is said in done help this exchange. Specifically, 73% of directors are prepared to move their revealing capacities to AI, 82% are prepared to move booking and arranging and 67% are prepared to move apportioning assets. 84 % of supervisors are prepared to move information examination work capacity to AI which appears to be extremely intelligent because of the way that AI can break down enormous measure of information in a generally brief timeframe. Such employment capacities as individuals advancement and instructing, methodology improvement and critical thinking chiefs are not prepared to move to AI – 92, 76 and 74 percent separately despite the fact that actually it can perform them. The explanation is that those capacities need not just capacity to break down Big Data, discover connections and pick choice alternatives yet additionally such aptitude as human judgment which is blend of insight, experience and certain degree of skill in business dynamic. There are three kinds of human judgment:

- Abstract reasoning which could be considered as a capacity to work with ideas past the standard reality. Computer based intelligence can impeccably work regarding existing principles yet can't go past

- the existing casing in arranging, dynamic or creating thoughts. Computer based intelligence can't make carsharing administration in the general public where nearly everybody has an individual vehicle.
- Context examination. On the off chance that human needs more data for dynamic or this data is questionable he can consider recorded, social or relational setting. Artificial intelligence can make an exact appraisal of a possibility for the occupation position regarding his fitness and mental qualities yet the consequences of such evaluation can not consider the expected relational incongruence with different representatives or his inconsistency with the hierarchical culture. Yet, in any event AI could be prepared as far as setting investigation.
- Intuition which could be considered as a capacity to settle on choices without utilizing rationale or objective reasoning. This is sort of judgment that AI can't perform.

With respect to the dynamic employment work which 32% of supervisors are prepared to move to AI it should be referenced that there are 2 different ways of business dynamic – discerning way and natural way. Levelheaded way depends on information examination by methods for consistent calculations and picking options by methods for rule-based techniques. That implies that AI can settle on business choices dependent on along these lines. Natural way could be considered as an enthusiastic judgment dependent on past experience, verifiable learning, inventive reasoning and creative mind. As per Figure 6 supervisors basically utilize their experience and instinct in business dynamic rather than dynamic procedures and strategies due to the way that sound method of business dynamic cycle hushes up complex and tedious for a trough the assistance of an AI is a decent arrangement. As indicated by Figure 7 principle difficulties of business climate for dynamic cycle are:

- Uncertainty which depends on the way that it is difficult to anticipate future with 100% exactness there is consistently an absence of data about the climate (Jarrahi, 2018, p. 4).

- Complexity which depends on a wealth of components or factors of the climate (Jarrahi, 2018, p. 5). Dynamic in complex circumstance needs Big Data examination in a brief timeframe.
- Ambiguity is identified with the presence of a few concurrent yet dissimilar translations of a choice area (Jarrahi, 2018, p. 5).

Regarding vulnerability and uncertainty AI can't settle on right and precise business choice dependent on an objective way, yet as far as unpredictability it can perform well. So as far as business dynamic the best strategy is a cooperation among administrators and AI. Keen machine by methods for balanced method of dynamic can offer a few options in contrast to administrator who has 2 choices – settle on a choice dependent on his experience and instinct or let AI to settle on a choice. Concerning's trust to AI it must be referenced that all in all 58% of chiefs are not prepared to pass a portion of their employment capacities to AI (see Figure 2). This is predominantly because of the absence of comprehension of the calculations of the AI – Figure 4. The most mentioned in the following 10 years administrative abilities could be separated into the accompanying gatherings:

- Individual judgment abilities: inventive reasoning, system advancement, information investigation
- Social abilities: administration, organizing, individuals advancement
- Routine abilities: time the executives, lean creation, arranging, announcing

Computerized innovation use expertise is excluded into this grouping – it is a fundamental ability which is important to work with AI. Routine abilities all in all are important to perform routine occupation assignments which could be moved to AI in the closest future. Summarizing, we can say that the fast improvement of AI will truly change the work market structure, yet it won't have the option to totally supplant an administrator since it is difficult to AI to procure singular judgment abilities and social aptitudes. It won't have the option to settle on choices dependent on instinctive way.

Yet, it will assume control over routine employment capacities from chiefs and will assist them with settling on right choices in time by methods for Big Data examination. This implies that the necessities for directors won't stay unaltered - they should rethink their way to deal with work, thinking and deciding. Considering the way that AI will assume control over routine occupation assignments which 47% of supervisors' working time they should zero in on other employment errands which will need for instance such abilities like innovativeness - chiefs will work more like thoughts makers. Additionally they need to prepare their own judgment abilities to play out their business assignments and settle on right choices in ideal time. Capacity to team up with others, make proficient informal organizations to draw in aggregate judgment for tackling their business undertakings will be important to proceed as a director. Directors ought to likewise have the option to utilize different advanced advances to amass information and decisions of accomplices, clients, outside partners, just as to look for "best practices" in different businesses. Lastly supervisor should have the option to work together with AI and even to regard it as a partner since it can settle on practically ideal judicious business choices which can assist director with packaging when precisely balanced choice is required.

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