

The Role of Artificial Intelligence in Individual Decision Making

J.Sunil Gavaskar^{1*}, S. Swetha²

¹Assistant Professor, Lord Jegannath College of Engineering & Technology, Ramanathichenputhur, Tamil Nadu, India.

²Assistant Professor, EEE Department, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, Tamil Nadu, India.

*Corresponding Author Email: ¹ sun.gavas@gmail.com

Abstract

By the partial blast in large facts and the constant obligation for growth, AI is cutting available a better advert in our common community. Over the situation terminal based abilities, it transmits additional opportunities to switch numerous problems inside suggestions. It additionally raises new difficulties about its utilization and cutoff points. This theory expects to offer a higher ability of the occupation of people and AI in the hierarchical Decision-Making method. An examination centres on information serious firms. The fundamental exploration question that directs our examination is the accompanying one: In what capacity can AI re-plan and build up the procedure of authoritative Decision-Making inside information serious firms?

We defined three increasingly point by point inquiries to direct us: (1) what are the jobs of people and AI in the Decision-Making procedure? (2) How can authoritative structure boost the Decision-Making procedure using Artificial Intelligence? (3) How can AI help to defeat the difficulties experienced by leaders inside information concentrated firms and what are the new difficulties that emerge from the utilization of AI in the Decision-Making procedure?

Keywords

Artificial Intelligence, Decision makers, Decision making process, Knowledge-concentrated firms, Organizational structure, Organizational test, Smart decisions.

INTRODUCTION

AI has just advanced into numerous product and projects that organizations have just received. It can help make organizations increasingly effective, accumulate better information, and offer brief assistance. In any case, can AI truly issue explain and decide? It can learn, however would it be able to practice the imagination and even the nature business pioneers some of the time approach for their significant choices?

AI in business Decision-Making will probably be a piece of things to come. What will it resemble? Would businesses be able to join their assets and utilize man-made consciousness and individual Decision-Making to cooperate, or will people just be supplanted?

It's critical to take a gander at AI Decision-Making in setting. At this moment, there are sure zones where AI settles on sense as the leader – principally where a lot of information should be accumulated and examined. Computer based intelligence can process a larger number of information than any individual can, and in this manner can improve forecasts and make them quicker. There is far less inclination with regards to machines deciding – they are basically determined by information. Another explanation that AI is more qualified for choices than certain individuals is the capacity to spot designs. Individuals are inclined to burnout and can without much of a stretch miss things that a machine can see. With the capacities of Artificial Intelligence, including the speed and precision of information collection and investigation, there is

absolutely a convincing case for utilizing it in business Decision-Making.

Numerous organizations have adjusted to an "Data driven" approach for operational Decision-Making. Information can improve choices, however it requires the correct processor to maximize it. Numerous individuals accept that processor is individual. The expression "information driven" even suggests that information is curated by—and summed up for—individuals to process. Yet, to completely use the worth contained in information, organizations need to bring AI (AI) into their work processes and, in some cases, move us people. We have to advance from information headed to AI-driven work processes. Recognizing "Data driven" and "AI driven" isn't simply semantics. Each term reflects various resources, the previous concentrating on information and the last handling capacity. Information holds the bits of knowledge that can empower better choices; preparing is the best approach to extricate those bits of knowledge and take activities. People and AI are the two processors, with totally different capacities. To see how best to use every its accommodating to survey our own organic advancement and how Decision-Making has developed in industry.

Only fifty to seventy five years prior individual decision was the focal workstation of business Decision-Making. Experts depended on their exceptionally tuned instincts, created from long stretches of understanding (and a moderately smidgen of information) in their space, to, state, pick the privilege innovative for an advertisement battle, decide the correct stock levels to stock, or endorse the

privilege money related speculations. Experience and gut sense were the greater part of what was accessible to observe great from awful, high from low, and unsafe versus safe.

It was, maybe, very individual. Our instincts are a long way from perfect Decision-Making instruments. Our minds are caused with numerous psychological inclinations that hinder our judgment in unsurprising manners. This is the consequence of countless long periods of advancement where, as early tracker finders, we built up an arrangement of thinking that depends on basic heuristics — alternate routes or general guidelines that dodge the significant expense of preparing a ton of data. This empowered brisk, practically oblivious choices to get us out of possibly risky circumstances. Be that as it may, 'speedy and practically oblivious' didn't generally mean ideal or even exact. Envision a gathering of our agrarian progenitors clustered around an open air fire when a close by hedge out of nowhere stirs. A choice of the 'brisk and practically oblivious' sort should be made: presume that the rusting is a hazardous predator and escape, or, ask to assemble more data to check whether it is likely prey – state, a bunny, that can give rich supplements. Our increasingly hasty progenitors those that chose to escape made due at a higher rate than their progressively curious friends. The expense of flight and losing on a bunny was far lower than the expense of staying and gambling losing life to a predator. With such asymmetry in results, advancement favors the quality that prompts less expensive outcomes, even at the penance of exactness. Along these lines, the attribute for increasingly incautious Decision-Making and less data preparing gets pervasive in the relative populace.

In current setting, endurance heuristics become horde intellectual predispositions preloaded in our acquired minds. These predispositions impact our judgment and Decision-Making in manners that leave from reasonable objectivity. We give more weight than we ought to distinctive or on going occasions. We coarsely group subjects introduction expansive generalizations that don't adequately clarify their disparities. We grapple on related knowledge in any event, when it is totally superfluous. We will in general invoke probable clarifications for occasions that are extremely simply irregular clam or. These are only a couple of the many ways psychological inclination plagues individual judgment and for a long time, it was the focal processor of business Decision-Making. We know now that depending exclusively on individual instinct is wasteful, fanciful, and questionable and limits the capacity of the association.

THEORETICAL BACKGROUND

The contemporary of AI, McCarthy, categorised the AI matter as "that of causing a device to transmit arranged in behaviours that might be entitled as perception like uncertainty an individual were so performing" [43], 2006). By the finished of the day, AI remains a mechanism equipped to acquire and to yield on a related mind set as an individual; AI can replicate psychological people errands ([30], 2018)

([2], 2014). By and via, AI remains anextensivearena of study that has developed laternearlyperiod.

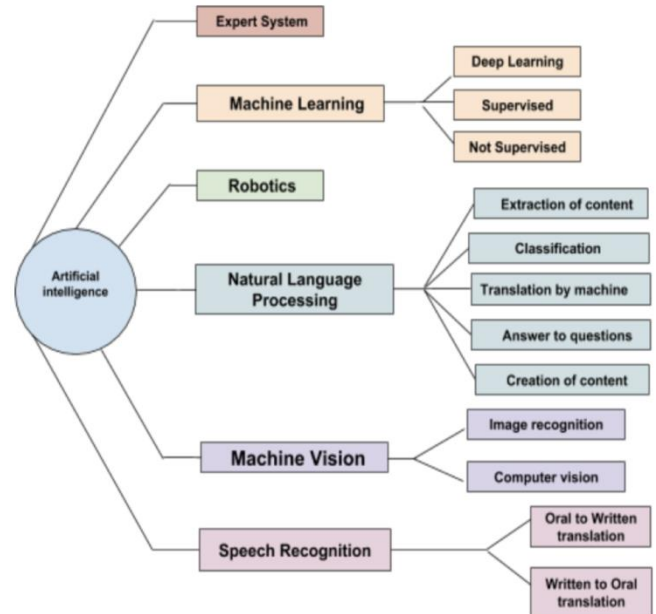


Figure 1: AI applications & Techniques ([11], p. 188)

A ground-breaking and valued AI has risen those earlier hardly any ages on description of powered improvement in assuming, the discharge of formed evidence and recombinant progress—"the blend of present beliefs - and more over as of speculations, for example, GAFAM's, BATX's and IBM that have put a ton of resources in investigation"([2], 2014)(Espín-León et al., 2019). "Simulated intellect can achieve psychological activities and AI abilities presently spread various pitches that used to be people's properties, for example, difficult correspondence and image response"([2], 2014). "Processor based intellect can recreate individual thinking in a quicker and faultless manner"(Espín-León et al., 2019). "Simulated aptitude applications spread wide areas, for example, wellbeing, fund, law, broadcasting, workmanship, passage, language, and so on"(Espín-León et al., 2019). "For instance; popular banks, for example, Orange Bank or the elective banking application Revolute use chat bots, AI composed objects for the Washington Post, the Google vehicle is independent, Sony made a melody by AI in 2016"(Espín-León et al., 2019).

There are dualistic forms of AI, the "susceptible" one & the "solid" one ([62], 2017). This typology of AI, frail and stable, has been set up through most people, researchers, and rationalists. The frail one is to be had within the normal daily lifestyles of people and it carries professional structures (ES), device studying (ML), herbal Language Processing (NLP), system vision, and Speech acknowledgment (Espín-León et al., 2019). One of the number one fields of the usage of AI in quite some time is ES, and ([11], 1986) classified ES as "a pc structure proposed to re-enact the critical philosophy way of an individual who remains chief in a restrained area". ML is "the capability of a pc to consequently improve its techniques and expand its effects as it develops brought material" ([2],

2014). NLP stays labelled as "the technique via which technologies can recognize and separate language as consumed in public" ([30], 2018). The cope with acknowledgment strategy is laid organized by way of definition with appreciate to NLP guidelines. Device vision is "algorithmic examination and research of the photograph"([30], 2018).

RESEARCH & METHODOLOGY

The examination methodology can receive one of the two principle draws near: logical (deductive) or illogical (inductive). From one perspective, the deductive methodology depends on the improvement of a calculated structure based upon hypotheses (*Business Research - Jill Collis/Roger Hussey - Macmillan International Higher Education*, n.d.). The applied system speaking to the connections between factors is then tried with experimental perceptions by means of suppositions (*Business Research - Jill Collis/Roger Hussey - Macmillan International Higher Education*, n.d.). Those presumptions must be affirmed or dismissed toward the finish of the investigation. Deductivism gathers explicit information of the factors. Deductivism is a technique that changes commencing the common to the definite. Then over, inductivism is something contrary to deductivism, in other words inductivism is a method going from the definite to the common. Thusly, inductivism depends continuously observational certainty as a beginning stage that prompts speculation(*Business Research - Jill Collis/Roger Hussey - Macmillan International Higher Education*, n.d.).

We have chosen to receive an inductivist see as our beginning stage was a perception that AI is a key strategy to use Decision-Making since AI can investigate a great deal of information and in a quick and perfect manner. Simulated intelligence in Decision-Making has been utilized to help the choice with proposals. The AI is recoloured both by the general public's dread of AI engaged with the pulverization of occupations and the possibility ventures find in AI. We distinguished GAFAM and BATX as KIFs that have seen how they can profit by AI in Decision-Making. We additionally connected KIFs with a particular authoritative design as they are known for their lithe administration and information on the board. We have special dependable hotspots for the postulation as suggested by Collis and Hussey, for example, books, logical articles, databases, reports, proficient diaries, discovered gratitude to Umeå library search, Google Scholar and Elsevier strikingly. "The vast majority of the writing was found on the web and in two foundation books, the first by" (Espín-León et al., 2019) and the other one by([2], 2014). Nonetheless, when to mention our exact objective facts we have utilized corporate sites of KIFs, essentially IBM and Atos. We utilized for the most part the catchphrases introduced in the theoretical of our theory to discover important sources.

DECISION MAKER: INDIVIDUAL AND AI

In the wake of introducing the two primary methodologies embroiled into the Decision-Making and the three hierarchical difficulties originating from Decision-Making inside KIFs. The various procedures engaged with the Decision-Making identified with the kind of leader present in KIFs - people and AI - . We have presented instinct and sanity as the two principle approaches in Decision-Making. We are working to create a connection amongst these two methodologies and the Decision-Making procedure utilized by the two sorts of leaders. We will consider three circumstances portraying three Decision-Making procedures. In the first place, individual Decision-Making procedures identified with the two methodologies, at that point AI Decision-Making procedures related mostly to judiciousness, lastly the connection among AI and individual Decision-Making procedures thinking about the two methodologies.

Individuals in Decision-Making:

The two principle sorts of Decision-Making methodologies and we will harp on the Decision-Making procedure explicitly applied to people. Inside KIFs, entertainers are leaders and we are going to introduce their procedures when settling on a choice as per instinct and reasonability. With regards to Decision-Making, people are not generally objective, they can likewise be natural. Instinct and sanity in Decision-Making are viewed as double procedures since they seem to be "equal frameworks of knowing" ([55], 2004). Nobel prize-champ Daniel Kahneman introduced the two procedures of individual Decision-Making, instinct and thinking, as we show in Figure 2 ([33], 2003) ([31], 2017). On the plan, we can recognize two frameworks, instinct and thinking that are the two unique procedures in the Decision-Making. We can see on the plan that instinct is combined with observation as discernment assists with building instinct. "Kahneman has depicted both of the frameworks by allotting them descriptive words identified with their procedures".

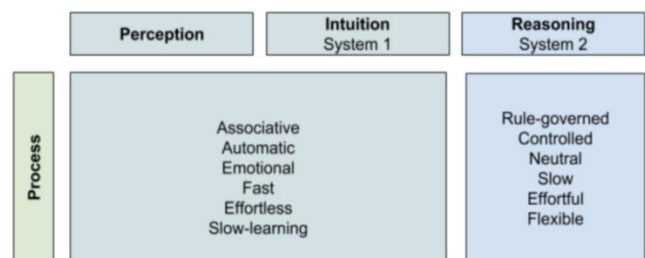


Figure 2: Process in Two Cognitive Systems: Intuition versus Rationality([33], 2003)

To begin with, we will depict the procedure of the principal framework, instinct. As indicated by Kahneman, instinct is connected to feelings and automatisms learned through encounters; it is a moderate learning process as this procedure is capacity of encounters lived and delayed practices; it is additionally an easy and quick procedure as

people normally have instinct ([33], 2003). Kahneman connected the idea of instinct alongside the thought of discernment and as indicated by him, instinct is a procedure originated from programmed tasks of observation ([33], 2003) Those two ideas are viewed as normal appraisals and they are helpful in the judgment about what is positive or negative as indicated by the specific circumstance ([33], 2003). More or less, we can sum up the principal framework as "programmed, comprehensive, fundamentally non-verbal, and related with feeling and feeling" ([55], 2004). Second, we will depict the procedure of the subsequent framework, thinking likewise called judiciousness. Reasonability is associated with knowledge, in view of the requirement for insight and related to measurable thinking([33], 2003). To summarize, the subsequent framework can be depicted as "purposeful, explanatory, basically verbal, and generally feeling free"([55], 2004). On the off chance that the framework 2 - objectivity - comes after framework 1 - instinct - in the Figure 1 it is on the grounds that framework 2 has a checking job in Decision-Making procedure; yet it can likewise comprise a procedure without anyone else without instinct([33], 2003). For instance, when individuals settle on a fast choice on the spot, they can begin their procedure with instinct and it is then supported by discernment or they can legitimately depend on soundness if no natural drive happened ([33], 2003).

We are creating balanced procedures utilized by people so as to make equal further in the writing with AI normal procedure. Utility hypothesis has risen up out of financial matters, insights, arithmetic, brain research and the administration science . It depends on the aphoristic methodology: the chief "advances a lot of adages or conditions for inclinations ([16], 1984), which are presumptions that will assist him with setting up a casing so as to break down and take a choice. This structure, along with a particular numerical model associated with the last that is picked by the specific circumstance, expects to help the chief to look at the issue and ideally take the best choice as indicated by his present information on the circumstance ([16], 1984). As indicated by ([16], 1990)"the principal hypothesis of utility has to do with aphorisms for inclinations which ensure, in a formal scientific sense, the capacity to allocate a number (utility) to every other option so that, for any two other options, one is wanted to the next if and just if the utility of the first is more noteworthy than the utility of the second". Along these lines, the utility of an elective alludes to its incentive for the leader. Utility hypothesis proposes a system so as to think about other options and take a level headed choice. For instance of utility hypothesis and to delineate the procedure of Decision-Making for a voyager, Pomerol utilized the case of a choice tree to manufacture a probabilistic system of situations to settle on the most ideal decision ([54], 1997). Figure 3. Decision-Making Model Based on Individual Judgement.

The plan in the Figure 2 is speaking to the individual Decision-Making procedure. It assists with comprehension

how much AI can be a help to normal Decision-Making, the framework 2. To be sure, the procedure of sound Decision-Making (framework 2) can be imitated by AI through calculations as soundness is a standard represented, controlled and unbiased procedure([33], 2003). Besides, discernment is a moderate and effortful procedure for people that can be taken care of in a quick and simple manner by AI ([33], 2003) ([30], 2018). Along these lines, AI can without much of a stretch become master in an unmistakable field on account of ML, however AI can't thoroughly consider of this particular field and receive an instinctive, innovative perspective neither coordinate a cross over perspective on the circumstance as discernment can't achieve what instinct empowers (Espín-León et al., 2019)([55], 2004). The instinct procedure is something that can't be taken care of by the frail AI since instinct is a procedure connected to feeling and past encounters through a delayed practice that are individual qualities (Espín-León et al., 2019)([33], 2003). In addition, when sound procedures, for example Simulated intelligence, are not proper to the states of the Decision-Making quite in view of vagueness and vulnerability; instinct empowers to adapt to these difficulties; undoubtedly "a deliberately made natural information, comprehension, and expertise may enrich officials with the limit with respect to understanding, speed of reaction, and the capacity to take care of issues and settle on choices in all the more fulfilling and innovative ways." ([55], 2004).

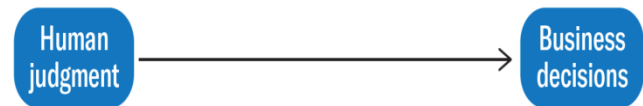


Figure 3: Decision-Making Model Based on Individual Judgement

AI in Decision-Making:

“Together by the enhancement of AI methods and uses, suggestions are analysing the effect of AI on individual jobs”([30], 2018). “Elon Musk measured AI as a troublesome invention that will succeed individual in an extensive possibility of employments”. Along these lines, AI might be seen as the mainmotive for a remarkable influx of robotization([30], 2018). “Some investingators applause the rise of machineries as a replacement of individual Decision-Making mean while persons are extremely one-sided and nonsensical”([52], 2016b). “The amount of Processors to dissect immense processes of data - Big Data - , their impartiality and their procedures dependent on rules empower them to settle on choices dependent on grounded realities and models”([52], 2016a). AI based Decision-Making frameworks are liberated from individual previously established inclinations and present a superior portrayal of the truth ([52], 2016b). “AI can choose in a self-ruling, unprejudiced and detachedtrack on account of ML and designs”(Espín-León et al., 2019). “Choices are now prepared by machineries when to study high reappearancetrading”(Espín-León et al., 2019). “In

anundertaking subsidize named Bridgewater, a CEO selected to place an AI at his condition to run the effort”(Espín-León et al., 2019).

Inside KIFs, house (particularly information lodge) and PPI - stages with procedures and PC workers - can possibly help and supplant the individual leader particularly when they embrace a reasonable procedure. An illustration of lodge and PPI for the Decision-Making is spoken to by Decision Support Systems, DSS. ([1], 2015)characterized DDS as "well known apparatuses that help Decision-Making in an association" and as indicated by Courtney, DSS are utilized as information basis or approaches to interface leaders by a few foundations. That is the reason ([1], 2015) joins DSS to information the executives as information the board helps the Decision-Making procedure in associations. Figure 4 speaks to the Decision-Making procedure of DSS. DSS start the procedure with the difficult acknowledgment and definition. At that point, succeeding an anthropological stable Decision-Making procedure portrayed in segment, DSS produce options with a model advancement so as to pick the most ideal choice and actualize it.

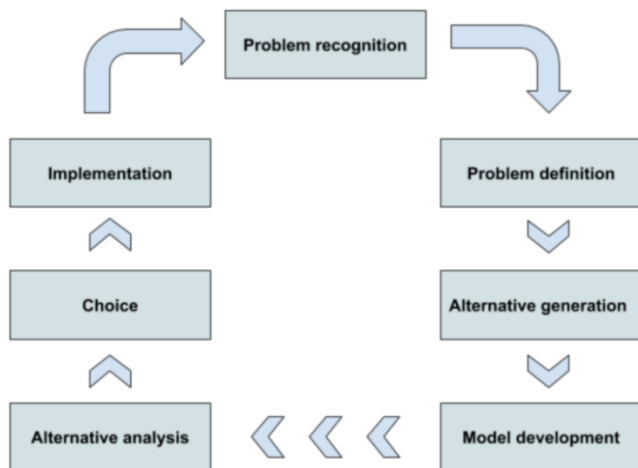


Figure 4: Example of DSS Decision-Making procedure

The supreme commonly recognized request in break down for framework supportive Decision-Making is Group Support System (GSS) or Group Decision Support System (GDSS) which is the union of DSS and information the executives ([1], 2015). Undoubtedly, inside the collection of the brand new a long time, with the improvement of AI and ES, GDSS has established to "offer to intellectualize, assumed calculation and correspondences workplaces to help group acute wondering", as an example, GDSS bring to the leader a brilliant help. "To make sure, ([52], 2016b) be successful GDSS as decision-Making approaches that undertaking to mirror man or woman perception". GDSS are portrayed as frameworks that "[combine] correspondence, processing, and preference assist advancements to inspire detailing and association of unstructured troubles by a gathering" like IBM's Watson ([52], 2016b). GDSS embraces a reasonably sound decision-Making manner dependent on statistics and unstructured facts. As indicated by Parry, AI is applied in ventures to manage "routine operational choice procedures

which can be honestly very lots prepared" yet similarly "As of overdue, in any case, there were symptoms that automatic selection-Making is beginning to be applied in non-ordinary choice methods which are very unstructured" due to huge records, layout acknowledgment and the objectivity of the gadget ([52], 2016b). In reality, AI can total and investigate a more number of records than human beings do. As AI depends on policies and codes, AI can distinguish alternatives like people do in application speculation or in with choice bushes but in a regularly genuine manner ([30], 2018). Via and by means of, as we've visible it in the presentation, levels like IBM's Watson can settle on a preference in unmistakable fields, as an example, higher than specialists do within the clinical field. We've created one unique manual to reveal how AI can get hold of a sane selection-Making system inside KIFs by the usage of a collective preference emotionally supportive network, we present it in parent 5 (GDSS) (Parry et al., 2016b).

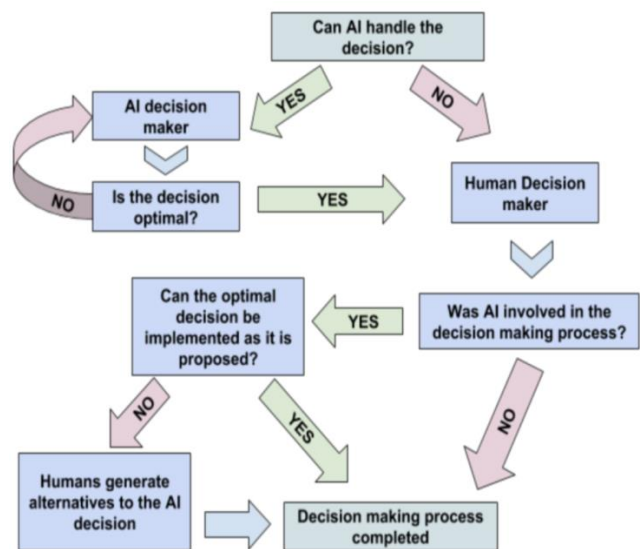


Figure 5: Flow outline of authority Decision-Making appointment to AI frameworks with veto ([52], 2016b)

Figure 5 grants an AI-based choice framework and characterizes the job of AI in the Decision-Making procedure so as to handle the problem of a project to AI. The figure 8 beginnings by probing as to whether the optimal can be assumed to an appliance. By that argument, there are two possible ways: it is whether yes or no. For the situation that it is a truly, the machine will produce an answer and evaluate in the event that it is an ideal arrangement or not. On the off chance that it's anything but an ideal choice, the machine will scan for the ideal choice. At the point when the arrangement is ideal, the choice will be proposed to people. At that point, people will evaluate if the AI-framework is associated with the choice. In the event that it isn't included, the procedure of Decision-Making is finished. On the off chance that the AI-framework is engaged with the proposed choice, people will assess if the choice can be actualized for what it's worth. In the event that the arrangement can be executed straightforwardly, the procedure of Decision-Making is

finished. Something else, people will practice a veto to discover and execute another option in contrast to the AI-framework choice and the procedure of Decision-Making will be finished.

AI and moral contemplations:

When ([2], 2014) said in The Next machine stage "Invention isn't prearrangement. We outline our outcome." they wanted to connect that invention will attain a ton of modifications and unbelievable exposed doors for people and the general public, yet we ought to know that we are still ace within recent memory and we should ponder the difficulties carried via novel progressions. Compelling the way of an AI-based framework can be risky as AI doesn't consolidate good and morals esteems([52], 2016b). That remains the motive, in the field of AI, a progress containing trans individualists like Stephen Hawking, and scientists, reflect AI requests that are gradually generous and applause the unambiguous job of individuals in Decision-Making([52], 2016b). "Though philosophy nearby the society among Individuals and AI, a limited problems arise". (Espín-León et al., 2019) have integrated those new difficulties, in four classifications: the primary is concerned about ethics, the successive one is approximately laws and guidelines, the third one refers to faith and greeting from culture and the last one is recognised with the region of responsibility and power. "For each tutorial,(Espín-León et al., 2019) have detailed unanswered inquiries to tolerate at the top of the priority list".

"As to, one should scrutinize the force that we can provide for machines as to the idea of what is correct or wrong: how much have machineries remained implicit to integrate ethics and qualities"(Espín-León et al., 2019)? People fabricate their qualities upon skills, a process that AI can't do since they don't have a cognizant. Be that as it may, one can make AI to explicitly follow a few qualities, 'great and insidiousness' for example ([23], 2016). It must be focused on that full of feeling registering "frameworks that can recognize and communicate feelings" - is gaining ground as Big information and AI take off ([62], 2017). As per(Olsher, 2015), AI accumulates and shows complex and socially-nuanced information so as to assist people with settling clashes, for example with the cogSolv venture: "In synopsis, cog Solv's AI capacities give chiefs basic devices for settling on socially-nuanced last chance choices." However, ([62], 2017) accept that as able as machines may become, "full of feeling figuring isn't arriving at any sort of level.". In addition, respectively ethos has its own judgment above whatever is normally right, wrong and what are the acknowledged social principles in a general public, that is the reason training a machine morals is difficult to achieve on the off chance that we, people, don't concede to morals. That thus, during the time spent Decision-Making, people ought to be an official conclusion creator as people can relate their matrix of qualities to survey if the choices assumed by machineries are correct ([52], 2016a)(Espín-León et al., 2019).

Towards force and obligation, one ought to know that "The innovations we are making give endlessly more capacity to change the world, yet with that force comes more prominent duty" ([2], 2014). Truth be told, (Espín-León et al., 2019) question who ought to be capable to unplug and stop the activities of the machine? In what capacity would individuals be able to impart the ability to machine? Which kind of the board ought to be embraced to deal with a group of people and machine? The capacity of AI to gain from its own understanding, through ML for example, prompts free and self-ruling Decision-Making that are qualities of legitimate character ([3], 2015). Therefore, AI can't be treated as an item any longer. In this manner, in spite of the fact that this subject is certifiably not a major issue for feeble AI, it is turning into a significant issue with the premises of solid AI.

With respect to law, "we might be living in the beginning of the time of AI today. Thus, the legitimate scene encompassing our lives will require reconsidering, as the case was with each large jump in innovation" ([23], 2016). Therefore, one should scrutinize the juridical status of the machine associating with people in the work environment and in the general public and furthermore question the rights and obligations of a machine particularly if the machine settles on an off-base choice (Espín-León et al., 2019). The main worldwide guideline for the time being is the overall standard in article 12 of the United Nations Convention on the Usage of Electronic Communications in International Contracts that states that messages made by machineries ought to be the duty of persons for whose sake it was customized ([3], 2015). ([69], 2015) underlined that "simulated intelligence empowered equipment and programming frameworks, as they're implanted in the cutting edge cultural texture, are beginning to challenge the present lawful and moral frameworks." To fill the void, we will in general allude to crafted by Isaac Asimov, the Three Laws of Robotics: "(1) A robotic may not damage a person or, thru state of no activity, permit a character to come to hurt; (2) a robot need to comply with the requests given to it through individuals, aside from where such requests could battle with the primary regulation; (three) a robot needs to secure its own reality so long as such coverage doesn't strife with the first or 2nd laws." ([2], 2014). In addition, with the ascent of enthusiasm for AI in the previous, no longer many years, a few investigations have been led throughout Europe to extend Asimov's association of rules, and 5 laws had been advanced: "(1) robots ought not to be established completely or essentially to execute or harm people; (2) people, not robots, are dependable operators. Robots are contraptions intended to accomplish individual goals; (3) robots ought to be structured in manners that guarantee their well-being and protection; (4) robots are relics; they ought no longer to be supposed to misuse weak clients through summoning a passionate response or reliance; (five) it ought to constantly be practicable to find out who's lawfully liable for a robotic." ([69], 2015). With those preparations of legal guidelines, society starts to assemble a lawful casing over the pastime of

machines, be that as it may, there's no law to cautiously survey the duty of a system at the off threat that machines settle on an off-base desire.

With admire to society acknowledgment and agree with, (Espín-León et al., 2019) query how plenty machines need to attempt individual's assignments, what ought to be the task of individual beings working together with the machine, and furthermore "are there undertakings that solitary people need to be allowed to include?" ([62], 2017). The acknowledgment of AI's inner society is profoundly installed within the concept of trust (Hengstler et al., 2016). Truth is instructed, (Hengstler et al., 2016) connected the potential to make use of the innovation with the idea of accepting as true with, because agree with is a primary condition in individual communications. (Hengstler et al., 2016) clarified in his article that the use of AI "sounds unnerving in mild of the fact that there's a scarcity of seeing, essentially like every new innovation that is introduced into society. On the point, while innovation isn't always definitely regarded, it's far to be had to false impression and confusion". Furthermore, most of the people emotions of trepidation an inflow of mechanization of occupations "because of the inquiry 'what's going to be left for individual professionals to do?' it's far additionally difficult to oppose the stop that the proper reaction needs to be 'less and less'" ([62], 2017). Moore's law ([2], 2014) (Silver et al., 2016) - expressed that the intensity of computers will increment at some stage in the years. With IoT and mobile phones the measures of statistics had detonated, empowering AI to increase and credibilities trans individualism ventures approximately the eventual fate of individuals. This ascent of AI looks after prophetically calamitous predictions of Elon Musk and Stephen Hawking. GAFAM and IBM made a Partnership on AI which will sharpen most people to the usage of AI and to get society's acknowledgment (Silver et al., 2016). (Hengstler et al., 2016) clarified how an inexpensive, trustworthy, and simply correspondence toward AI could encourage the general public acknowledgment with the aid of indicating how AI can be helpful for most of the people, ensuring that "several individuals would reevaluate their opposition if the gain of this utility can be successfully demonstrated to them".

Partnership among Individual & AI in Decision-Making procedure:

As indicated by ([33], 2003), with regards to settling on a choice, the double undertaking technique can be valuable; this strategy comprises in approving presumptions of a hidden instinctive choice - framework 1 of the Figure 6 - because of the help and remedy of an objective reasoning - framework 2 of the Figure 2 - ([33], 2003). In the event that we draw an equal of this procedure of Decision-Making with the beneficial interaction in Decision-Making among AI and people depicted by ([30], 2018), we can dole out the framework 1 to people and the framework 2 to AI. Apparently an association among people and AI can encourage the Decision-Making procedure.

Truly, one-of-a-kind researchers take into account AI to be a help for individual decision-Making, as machines cannot choose a choice on themselves seeing that they want intuition, precise judgment, and contextualization ([30], 2018). AI can help with figuring level-headed selections ([52], 2016a). Of their selection-Making, individual beings have pretty favourable circumstances with respect to instinct, innovativeness, innovative thoughts, social communicate, and compassion ([2], 2014). At the point while Kasparov performed in opposition to Deep Blue, he gave some bits of knowledge about what desktops cannot do: machines have a hard time making new thoughts - it is the idea of ideation that can be delineated while a culinary professional makes some other dish for the menu - ([2], 2014). Machines are likewise obliged through their codes and calculations with the purpose that they cannot think out of doors approximately the box and be resourceful and innovative ([2], 2014). Machines are likewise obliged with the aid of their codes and calculations with the aim that they cannot think outside about the crate and be imaginative and innovative ([2], 2014) (Espín-León et al., 2019).

Irrespective of whether a few researchers have notion approximately an affiliation amongst AI and people, ([16], 2015) addresses a few cut off points whilst thinking about this employer on a hypothetical stage on account that "notwithstanding the reality that memories of individual-computer coordinated effort are out of control in sci-fi, now not many antiquities look to join the quality items of a person and a computer" ([16], 2015). Subsequently, as indicated via ([16], 2015), the hollow present in the writing can be clarified with the accompanying most important troubles: (1) it's miles problematic to recall people for specific examinations "seeing that individuals are non-uniform, exorbitant, gradual, mistake willing, and from time to time nonsensical, accurately dependent observational examinations with them are appreciably steadily unpredictable."; (2) "the primary vision for AI predicted a self-enough gadget. We have contended here, however, that a system that imparts an errand to a character requires all the practices the Dartmouth proposition centred, further to 1 more — the capacity to paintings collectively on a shared objective."

Anyways, exceptional researchers have looked at that as an affiliation amongst AI and people should assist with defeating the cut off factors and shortcomings of each other in decision-Making ([2], 2014) ([30], 2018). This is the purpose, in mild of the structure of (Espín-León et al., 2019), we've got brought the connection among AI and those in choice-Making. For the duration of the time spent choice-making among individual beings and AI, Dejoux and León clarified that the preliminary step incorporates of revealing the issue to AI (Espín-León et al., 2019). At that point, AI examinations a steady degree of data present inside the framework because of calculations. Coming from this research, AI proposes numerous examples to individuals and two alternatives expand: either AI selections the instance and

robotizes the association without everyone else or individuals choose one example as consistent with their traits and locations. Extra or much less, we will say that AI may be a pacesetter or AI may be a partner in decision-Making. We've got summed up this process of selection-making amongst AI and people in discern 5, a shape that we deciphered from (Espín-León et al., 2019).

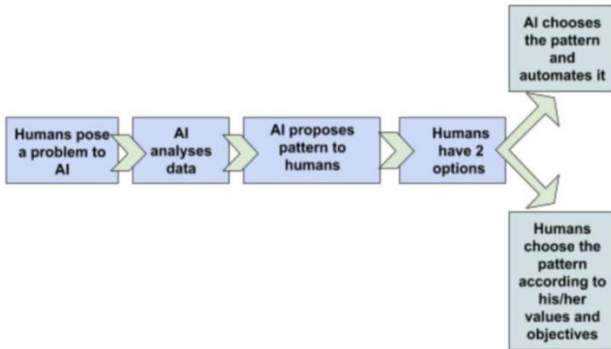


Figure 6: Process of Decision-Making among AI and people: AI can be a chief or AI can be a right hand in Decision-Making (Espín-León et al., 2019)

To summarize our element approximately the task of AI and people in decision-Making strategies, we've set up a continuum depicting the selection-Making process and the related chief in discern 6. Intuition and discernment are the tremendous pieces of the continuum. We have coupled the one's markers with the three kinds of blends of leaders that we've portrayed, individuals just, the connection amongst individuals and AI, and self-governing AI.

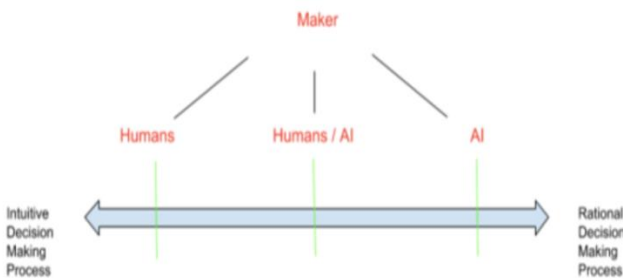


Figure 7: Decision producer inside the continuum of Decision-Making procedures

Data-Supported Decision Making:

Thank heavens, at that point, for information. Associated gadgets presently catch incomprehensible volumes of information: each exchange, each client motion, each small scale and macroeconomic marker, all the data that can illuminate better choices. In light of this new information rich condition we've adjusted our work processes. IT offices bolster the progression of data utilizing machines (databases, dispersed record frameworks, and such) to decrease the unmanageable volumes of information down to absorbable rundowns for individual utilization. The rundowns are then additionally handled by people utilizing the instruments like spreadsheets, dashboards, and investigation applications. In the end, the profoundly handled, and now sensibly little,

information is introduced for Decision-Making. This is the "information driven" work process. Individual judgment is as yet the focal processor, however now it utilizes summed up information as another info.

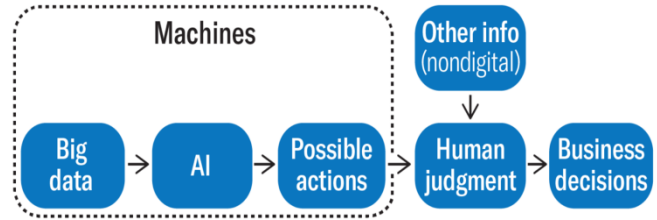


Figure 8: Decision-Making Model Utilizing Summarized Data

While it's without a doubt better than depending exclusively on instinct, people assuming the job of focal processor despite everything makes a few restrictions.

- a) We don't use all the information. Summed up information can darken a significant number of the bits of knowledge, connections, and examples contained in the first (large) informational index. Information decrease is important to oblige the throughput of individual processors. For as much as we are skilled at processing our environmental factors, easily preparing huge measures of surrounding data, we are strikingly restricted with regards to handling the organized information showed as millions or billions of records. The brain can deal with deals numbers and normal selling cost moved up to a local level. It battles or closes down once you begin to consider the full dissemination of qualities and, significantly, the connections between information components data lost in total rundowns yet imperative to great Decision-Making. (This isn't to propose that information synopses are not valuable. Undoubtedly, they are incredible giving essential perceivability into the business. Be that as it may, they will give little an incentive to use in Decision-Making. An excessive amount of is lost in the groundwork for people.) In different cases summed up information can be through and through deceiving. Bewildering variables can give the presence of a positive relationship when it is really the inverse (see Simpson's and different mysteries). What's more, when information is amassed, it might be difficult to recoup contributing elements so as to appropriately control for them. (The best practice is to utilize randomized controlled preliminaries, for example A/B testing. Without this training, even AI will be unable to appropriately control for jumbling factors.) To put it plainly, by utilizing people as focal processors of information, we are as yet compromising precision to bypass the significant expense of individual information handling.
- b) Information isn't sufficient to protect us from psychological predisposition. Information synopses are coordinated by people in a manner that is inclined to every one of those psychological inclinations. We direct

the summarisation in a way that is instinctive to us. We ask that the information be amassed to portions that are we feel are delegate models. However, we tend to coarsely characterize subjects introduction wide generalizations that don't adequately clarify their disparities. For instance, we may move up the information to characteristics, for example, topography in any event, when there is no perceptible contrast in conduct between locales. Synopses likewise can be thought of as a "coarse grain" of the information. It's a more unpleasant guess of the information. For instance, a credit like geology should be kept at a locale level where there are generally barely any qualities (i.e., "east" versus "west"). What is important might be better than that — city, ZIP code, even road level information. That is more diligently to total and sum up for individual cerebrums to process. We additionally incline toward basic connections between components. We will in general consider connections direct in light of the fact that it's simpler for us to process. The connection among cost and deals, showcase entrance and transformation rate, credit hazard and pay — all are expected direct in any event, when the information proposes something else. We even prefer to invoke expound clarifications for patterns and variety in information in any event, when it is all the more enough clarified by normal or irregular variety. Too bad, we are obliging our inclinations when we process the information.

Implementing AI into the Workflow:

We have to advance further, and carry AI into the work process as an essential processor of information. For routine choices that just depend on organized information, we're in an ideal situation assigning choices to AI. Computer based intelligence is less inclined to individual's intellectual inclination. (There is an undeniable danger of utilizing one-sided information that may make AI find credible connections that are unreasonable. Make certain to see how the information is produced notwithstanding how it is utilized.) AI can be prepared to discover fragments in the populace that best clarify difference at fine-grain levels regardless of whether they are unintuitive to our individual observations. Simulated intelligence has no issue managing thousands or even a large number of groupings. What's more, AI is more than happy with working with nonlinear connections, be they exponential, power laws, geometric arrangement, binomial appropriations, or something else.

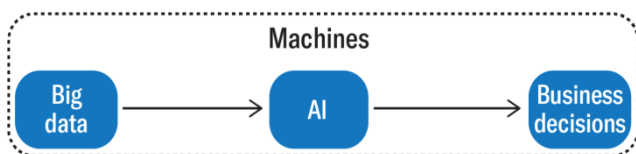


Figure 9: Decision-Making Model Utilizing AI

This work process better use the data contained in the information and is increasingly predictable and objective in

its choices. It can more readily from figure 5-9 out which advertisement imaginative is best, the ideal stock levels to set, or which money related speculations to make.

While people are expelled from this work process, note that minor mechanization isn't the objective of an AI-driven work process. Certainly, it might decrease costs, yet that is just a gradual advantage. The estimation of AI is settling on preferred choices over what people alone can do. This makes step-change improvement in effectiveness and empowers new abilities.

Utilizing both AI & Individual processors in the work process:

Ejecting people from work approaches that just include the handling of structure data would not suggest that individuals are obsolete. There are various commercial enterprise alternatives that depend on something past organized information. Vision articulations, organization structures, and corporate qualities, put it up for sale factors all are instances of statistics this is just reachable in our psyches and transmitted via way of life and distinct sorts of non-advanced correspondence. These facts is out of attaining AI and amazingly applicable to business choices.

For instance, AI may equitably decide the correct stock levels so as to augment benefits. Notwithstanding, in a serious situation an organization may pick higher stock levels so as to give a superior client experience, even to the detriment of benefits. In different cases, AI may verified that putting more dollars in advertising will have the most noteworthy ROI among the choices accessible to the organization. Be that as it may, an organization may decide to temper development so as to maintain quality guidelines. The extra data accessible to people in the structure or procedure, qualities, and economic situations can justify a takeoff from the target sanity of AI. In such cases, AI can be utilized to produce prospects from which people can pick the best elective given the extra data they approach. The request for execution for such work processes is case-explicit. Now and again AI is first to decrease the remaining burden on people. In different cases, individual judgment can be utilized as contributions to AI handling. In different cases still, there might be emphasis among AI and individual preparing.

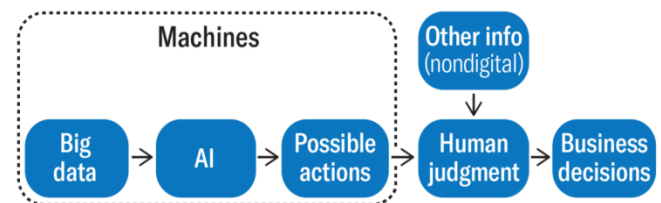


Figure 10: Decision-Making Model Combining the Power of AI & Individual Judgement

They key is that people are not interfacing straightforwardly with information yet rather with the conceivable outcomes created by AI's preparing of the information. Qualities, technique and culture is our approach to accommodate our choices with target sanity. This is best

done expressly and completely educated. By utilizing both AI and people we can settle on better choices that utilizing it is possible that only one.

THE NEXT PHASE IN OUR EVOLUTION

Moving from Data-Driven to AI-driven is the following stage in our advancement. Grasping AI in our work processes bears better handling of organized information and takes into account people to contribute in manners that are reciprocal.

This development is probably not going to happen inside the individual association, similarly as advancement by characteristic choice doesn't occur inside people. Or maybe, it's a choice procedure that works on a populace. The more effective associations will get by at higher rate. Since it's difficult to for develop organizations to adjust to changes in the earth, I speculate we'll see the rise of new organizations that grasp both AI and individual commitments from the earliest starting point and incorporate them locally with their work processes.

CONCLUSION

The upsides of AI talked about in the past area propose that AI has a few aptitudes that are important to settle on a choice, and that AI beats people on a portion of these abilities. Thus, one can genuinely think about whether AI can settle on choices in an independent manner. While dissecting our outcomes, we saw that AI is by all accounts effectively self-sufficient with respect to choices taken at a constrained scale, particularly as indicated by the IT counseling firms interviewees. These choices are typically tedious and unpleasant assignments for people. They can be completely computerized since they require just capacities in which machines are superior to people, for example, objectivity and managing a gigantic measure of information. Indeed, AI is utilized in endeavors to manage "routine operational choice procedures that are genuinely all around organized" ([52], 2016, p. 573) as a major aspect of GDSD, as referenced previously.

Such computerized choices as of now exist inside high recurrence exchanging and stock administration.

A few bits of knowledge originated from the discoveries of our subjective investigation. We found that right now, AI can't supplant people in the Decision-Making procedure. For sure, in spite of the fact that AI offers a quicker and more profound investigation on unmistakable subjects contrasted with people, it can't coordinate boundaries that are passionate and moral, and AI can't unravel a quandary or take care of another issue out of its extent of skill without having individual's information sources and preparing. Thusly, AI's job in the Decision-Making procedure is the one of a right hand and a help to people in the examination and the definition of elective choices, with the goal that people despite everything have a significant task to carry out in the Decision-Making procedure. The primary job of people in the Decision-Making procedure is to represent the issue to AI and to figure10 an inquiry on account of their basic sense,

presence of mind and contextualisation capacities. At that point, people evaluate the choices proposed by AI and pick the best answer for execute or decide to consider another option not proposed by AI on account of their matrix of qualities, morals, innovativeness and instinct.

Restrictions and Challenges:

We have considered three difficulties experienced by associations in Decision-Making: vulnerability, intricacy, and equivocalness. We have examined the separate jobs of AI and people to conquer these difficulties. Our examination shows that (1) AI can decrease vulnerability through its capacity to make target estimates while people understanding and their exhaustive methodology are fundamental to settle on choices inside this unique circumstance; (2) machines have better capacities than break down complex information and offer sense to it, yet their decisioning is checked to their particular field of ability; (3) AI can explain vagueness as long as it is posed the correct inquiry yet they need basic reasoning, compassion and contextualisation that are individual attributes so as to determine these circumstances. Our outcomes feature new difficulties for associations and society identified with the advancement of AI. The obligation of AI in choices it have made or have assisted with causing must to be explained, both inside associations and before the law. This is firmly identified with morals as giving virtues to machines raises numerous issues. Computer based intelligence is another innovative insurgency that will profoundly alter hierarchical practices and society, and because of the reasons expressed above, individuals are once in a while hesitant to these changes. Our examination was worried about 'feeble AI', which is the sort of AI applications that are utilized today inside associations. The improvement of 'solid AI', likewise called genius, is as of now continuous. It will increase these difficulties and accelerate the requirement for solid answers from the two associations and society.

REFERENCES

- [1] Alyoubi, B. A. (2015). Decision support system and knowledge-based strategic management. *Procedia Computer Science* 65 (2015) 278 – 284.
- [2] Brynjolfsson, E. & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York, NY: WW Norton & Company.
- [3] Cerka, P., Grigiene, J., Sirbikyte, G. (2015). Liability for damages caused by artificial intelligence. *Computer Law & Security Review*, 31(3), 376-389.
- [4] Cerka, P., Grigiene, J., Sirbikyte, G. (2017). Is it possible to grant legal personality to AI software systems? *Computer Law & Security Review*, 33(5), 685-699.
- [5] Clark, L. & Steadman, I. (2017, Jun 07). Remembering Alan Turing: from codebreaking to AI, Turing made the world what it is today. *Wired*. [electronic]. Available via: <http://www.wired.co.uk/article/turing-contributions> [30 March 2018].
- [6] Collis, J., & Hussey, R. (2014). *Business research: A practical guide for undergraduate and postgraduate students*. Palgrave

- Macmillan: England.
- [7] Company profile. Atos.[electronic]. Available via: <https://atos.net/en/about-us/company-profile> [02 May 2018].
- [8] Dane, E.; Rockmann, K. W.; Pratt, M.G. (2012). When should I trust my gut? Linking domain expertise to intuitive decision-making effectiveness. *Organizational behaviour and individual decision processes*, 119, 187-194.
- [9] Davis, S., & Botkin, J. (1994). The Coming of Knowledge-Based Business. *Harvard Business Review*, 72(5), 165-170.
- [10] Deepmind's article. (2016). The Google DeepMind Challenge Match, March 2016. Deepmind. [electronic]. Available via: <https://deepmind.com/research/alphago/alphago-korea/> [26 March 2018].
- [11] Dejoux, C.; Léon, E. (2018) *Métamorphose des managers*. 1st edition. France: Pearson.
- Denning, P.J. (1986). Towards a Science of Expert Systems. *IEEE Expert*, 1(2), 80-83.
- [12] Dirican, C. (2015). The Impacts of Robotics, AI on Business and Economics. *Procedia - Social and Behavioral Sciences* 195, 564-573.
- [13] Dittillo, A. (2004). Dealing with uncertainty in knowledge-intensive firms: the role of management control systems as knowledge integration mechanisms. *Accounting, Organizations and Society*, 29, 401-421.
- [14] Duchessi, P., O'Leary, D.; & O'Keefe, R.(1993). A Research Perspective: Artificial Intelligence, Management and Organizations. *Intelligent systems in accounting, finance and management*, (2), 151-159.
- [15] Edwards, W. (1954). The theory of decision making. *Psychological Bulletin* 51 (4), 380- 417.
- [16] Epstein, S.L. (2015). *Wanted: Collaborative intelligence*. Artificial Intelligence, 221, 36-45.
- Fishburn, P.C. (1979). *Utility Theory for Decision Making*. Reprint edition 1979 with corrections. New York: Robert E. Krieger Publishing Company Huntington.
- [17] Fjeldstad, Ø.D.; Snow, C.C.; Miles, R.E.; Lettl, C. (2012). The architecture of collaboration. *Strategic Management Journal*, 33(6):734–750.
- Galbraith, J.R. (2014). Organization design challenges resulting from Big Data. *Journal of Organization Design* 3(1): 2-13.
- Galily, Y. (2018). AI and sports journalism: Is it a sweeping change? *Technology in Society*, <https://doi.org/10.1016/j.techsoc.2018.03.001>.
- [21] Grant, R.M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17 (Winter Special Issue), 109-122.
- Godin, B. (2006). The Knowledge-Based Economy: Conceptual Framework or Buzzword? *Journal of Technology Transfer*, 31, 17-30.
- [23] Gurkaynak, G., Yilmaz, I., Haksever, G. (2016). Stifling artificial intelligence: Individual perils. *Computer Law & Security Review*, 32(5), 749-758.
- [25] Hendarmana, A.F.; Tjakraatmadja, J.H. (2012). Relationship among Soft Skills, Hard Skills, and Innovativeness of Knowledge Workers in the Knowledge Economy Era. *Procedia - Social and Behavioral Sciences* 52 (2012) 35 – 44.
- [26] Hengstler, M., Enkel, E., Duelli, S. (2016). Applied AI and trust—the case of autonomous vehicles and medical assistance devices. *Technological Forecasting & Social Change*, 105, 105-120.
- [27] Holtel, S. (2016). AI creates a wicked problem for the enterprise. *Procedia Computer Science*, 99, 171-180.
- [28] IBM (2017). Annual Report. [electronic] Available via: https://www.ibm.com/annualreport/2017/assets/downloads/IBM_Annual_Report_2017.pdf [02 May 2018].
- [29] https://www.ibm.com/annualreport/2017/assets/downloads/IBM_Annual_Report_2017.pdf [02 May 2018].
- [30] Jarrahi, M.H. (2018). AI and the future of work: Individual--AI symbiosis in organizational decision making. *Business Horizons*. <https://doi.org/10.1016/j.bushor.2018.03.007>.
- [31] Johnson, G.; Whittington, R.; Scholes, K.; Angwin, D. & Regner, P. (2017). *Exploring Strategy*. 11th Edition. Edinburgh Gate. United Kingdom: Pearson.
- [33] Kahneman, D. (2003). A Perspective on Judgement and Choice. *American Psychologist*. Vol. 58, No. 9, 697–720.
- [34] Kahneman, D.; & Klein, G. (2009). Conditions for Intuitive Expertise. *American Psychologist*. Vol. 64, No. 6, 515–526.
- [35] Klashanov, F. (2016). AI and organizing decision in construction. *Procedia Engineering* 165 (2016), 1016-1020.
- [36] Klein, G. (1998). A naturalistic decision making perspective on studying intuitive decision making. *Journal of Applied Research in Memory and Cognition* 4 (2015) 164–1.
- [37] Kobbacy, K.A.H. (2012). Application of AI in Maintenance Modelling Management. *IFAC Proceedings Volumes*, 45(31), 54-59.
- [38] Kornienko, A.A., Kornienko A.V., Fofanov O.V., Chubik M.P. (2015). Knowledge in AI systems: searching the strategies for application. *Procedia - Social and Behavioral Sciences* 166 (2015), 589-594.
- [39] Laurent, A. (2017). *La guerre des intelligences*. France: JCLattès.
- [40] Markiewicz, T.; & Zheng, J. (2018). Getting started with artificial intelligence: a practical guide to building applications in the enterprise. O'Reilly. [electronic book] Available via : <https://developer.ibm.com/code/2018/02/19/getting-started-artificial-intelligence-practical-guide-building-applications-enterprise/> [31 March 2018]
- [41] Marr, B. (2017, Dec. 04). 9 Technology Mega Trends That Will Change the World In 2018. *Forbes*. [electronic]. Available via: <https://www.forbes.com/sites/bernardmarr/2017/12/04/9-tech-mega-trends-that-will-change-the-world-in-2018/#6027a9ec5eed> [28 March 2018]
- [42] Martínez-López, F.J., Casillas, J. (2013). Artificial intelligence-based systems applied in industrial marketing: An historical overview, current and future insights. *Industrial Marketing Management* 42 (2013), 489-495.
- [43] McCarthy, J., Minsky M.L., Rochester N., Shannon C.E. (1955). A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence.
- [44] McKinsey&Company (2011). Big Data: The next frontier for innovation, competition and productivity. [electronic] Available via: https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Big%20data%20The%20next%20frontier%20for%20innovation/MGI_big_data_exec_summary.aspx [1st April 2018]
- [45] McKinsey&Company (2017). AI the next digital frontier. [electronic] Available via: <https://www.mckinsey.com/~/media/McKinsey/Industries/Advanced%20Electronics/Our%20Insights/How%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/MGI-Artificial-Intelligence-Discussion-paper.aspx> [29 March 2018]

- [46] Miles, M.B., Huberman, A.M. (1994). *Qualitative Data Analysis*. 2nd edition. Thousand Oaks. Sage Publications.
- [47] MIT Sloan Management Review (2017). *Reshaping Business with Artificial Intelligence*. [electronic] Available via : <https://sloanreview.mit.edu/projects/reshaping-business-with-artificial-intelligence/#chapter-10> [28 March 2018]
- [48] Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: how Japanese companies create the Decision-Makings of innovation*. New York: Oxford University Press.
- [49] Nurmi, R. (1998). Knowledge-Intensive firms. *Business Horizons*, 41(3), 26-32. Olsher, D.J. (2015). New AI Tools for Deep Conflict Resolution and Individualitarian Response. *Procedia Engineering*, 107, 282- 292.
- [50] Pan, Y. (2016). Heading toward AI 2.0. *Engineering*, 2 (2016), 409-413.
- [51] Papadakis, V. M.; Lioukas, S.; Chambers, D. (1998). Strategic decision-making processes: the role of management and context. *Strategic Management Journal*, Vol. 19, 115-147 (1998).
- [52] Parry, K.; Cohen, M.; Bhattacharya, S. (2016). Rise of the machines: A critical consideration of automated leadership decision making in organizations. *Group and Organization Management*, 41(5), 571-594.
- [53] Prahalad, C.K., & Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68 (3), 79-91.
- [54] Pomerol, J.C. (1997). AI and individual decision making. *European Journal of Operational Research*, 99 (1997) 3-25.
- [55] Sadler-Smith, E.; & Shefy, E. (2004). Understanding and Applying 'Gut Feel' in Decision- Making. *The Academy of Management Executive* (1993-2005), Vol. 18, No. 4, Decision- Making and Firm Success (Nov., 2004), pp. 76-91.
- [56] Saunders, M., Lewis, P., Thornhill, A. (1997). *Research Methods for Business Students*. London: Pitman Publishing.
- [57] Smith, K. (2002). What is the 'knowledge economy'? Knowledge intensity and distributed knowledge bases. [Discussion paper]. Maastricht, The Netherlands: United Nations University, INTECH.
- [58] Snow, C.C.; Fjeldstad, Ø.D.; Langer, A.M.; (2017). Designing the digital organization. *Journal of Organization Design*. (2017) 6:7.
- [59] Stalidis G., Karapistolis D., Vafeiadis A. (2015). Marketing decision support using AI and Knowledge Modeling: application to tourist destination management. In: *International Conference on Strategic Innovative Marketing, IC-SIM 2014*. Madrid, Spain September 1-4. *Procedia - Social and Behavioral Sciences* 175 (2015), 106-113.
- [60] Starbuck, W.H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies*, 29(6), 713-740.
- [61] Staub, S., Karaman, E., Kayaa, S., Karapınar, H., Güven, E. (2015). Artificial Neural Network and Agility. *Procedia - Social and Behavioral Sciences*, 195, 1477-1485.
- [62] Susskind, R.; Susskind, D. (2015). *The Future of the Professions: How Technology Will Transform the Work of Individual Experts*. 1st Edition. New York: Oxford University Press.
- [63] Syam N., Sharma A. (2018). Waiting for a sales renaissance in the fourth industrial revolution: Machine learning and AI in sales research and practice. *Industrial Marketing Management* 69 (2018), 135-146.
- [64] Villani, C. (2018). Donner un sens à l'intelligence artificielle. French Government report.
- [65] Wagner, P.W. (2017). Trends in expert system development: A longitudinal content analysis of over thirty years of expert system case studies. *Expert Systems with Applications*, 76, 86-96.
- [66] Wauters, M., Vanhoucke, M. (2015). A comparative study of AI methods for project duration forecasting. *Expert Systems With Applications* 46 (2015), 249-261.
- [67] Wolfe, A. (1991). Mind, Self, Society, and Computer: AI and the Sociology of Mind. *American Journal of Sociology*, 96 (5), 1073-1096.
- [68] Zack, M.H. (2003). Rethinking the Knowledge-Based Organization. *MIT Sloan Management Review*, 44(4), 67-71.
- [69] Zeng, D. (2015). AI Ethics: Science Fiction Meets Technological Reality. *IEEE Intelligent Systems*, May-June 2015, Vol.30(3), 2-5.