An Assessment of the Citizens' Needs Identified through the Perspective of the Artificial Intelligence Experts

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Abstract

The aim of the present article is to show a model of assessment of the needs of the citizens though the perspective of the experts and specialists in Artificial Intelligence. Since the topic concerning Artificial Intelligence is highly debated, a more in-depth approach was placed in practice. It is important to point out that the information was retrieved from subjects that show admirable qualities and abilities in this field. The answers provide by the experts, following the structured interviews that were applied via phone calls are constituting the basis for the assessment. The qualitative method represents the foundation for the present article, along with employing the evaluation method, more specifically, formative evaluation. Moreover, eight contexts are brought to light to show the needs, necessities and possibilities of implementing Artificial Intelligence in more specific environments. The results are presented in the form of evaluation, as it was found that the main need is to use Artificial Intelligence in order to make significant progress in different contexts of daily life such as society, education, IT, the medical sector, the public sector, sustainable development and organizational management.

Keywords

Artificial Intelligence, Assessment, Evaluation, Experts on Artificial Intelligence

Introduction

Along with the developments achieved over the past decades, Artificial Intelligence has been extensively embedded in many areas of daily life. However, close attention is directed toward the use of these advanced technologies in the field of public administration and governance. In more specific terms, assessments of needs are

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employed, through the application of the evaluation method, in order to conduct research on the way the experts and specialists in Artificial Intelligence are approaching the problems involving means of responding to the needs of the citizens.

Methodology

The method employed in the present article is qualitative, as a formative evaluation is conducted. The qualitative method refers to a type of scientific research, seeking answers to specific questions, which systematically uses a predefined set of procedures in order to find an answer to the main question of research. Through the qualitative method, evidence is collected, and it comes to produce findings that are not determined in advance. Also, the qualitative method is capable of producing findings that are applicable beyond the immediate boundaries of the study.

The qualitative method is also known for seeking to understand a given research problem or topic from the perspectives of given research issues. It is capable of providing information about the "human" side of an issue. It is known to address the often contradictory beliefs, along with opinions, emotions and relationships of individuals. The qualitative methods are also effective in identifying the intangible factors such as the social norms, along with socio-economic statuses, gender roles, ethnicity and religion, whose role in the issue may not be readily apparent.

The type of research that requires evaluation, seeks to determine various effects, being related to programs, policies, along with other efforts that are made to affect social patterns. This type of or research is also considered an explanatory one, even though at its core, the explanatory research relies mainly on quantitative methods. Given the present context, the evaluation research may be used in the research process, even though the main focus in on the qualitative aspects of the work. The evaluation research is also related to the cause and effect analysis. (Schutt, 2012)

The instrument used to gather data is a structured interview. The evaluation indicator is the relevance of the needs, necessities and the possibilities.

Main Composition

The research question for the analysis is: *"If taking into consideration three main steps of implementing Artificial Intelligence in the public services, while referring to the need, the necessity and the possibility, how would you describe these steps?".*

In order to simplify the process, the respondents were asked to refer to a specific context of using AI in the public services. With that context in mind, they were asked to provide three main stages of implementing AI considering the need, necessity and the possibility.

In this respect, eight different contexts were identified, namely: *Society, Medicine, Education, Information and Technology, Public Administration, Artificial Intelligence, Sustainable Development, Organizational Management and Structure.* For every context the need, necessity and possibility will be presented. In addition, it is important to underline the fact that the "necessity" will be labelled as something "*unavoidable*" in terms of meaning. Since the difference between the terms "need" and "necessity" is practically non-existent, according to the dictionary, in the present case it is advisable to stick to a synonym ("unavoidable") in order to draw a clear distinction between the terms "need" and "necessity".

1. **Society**

At the level of *society,* the three main steps in implementing Artificial Intelligence, namely the need, necessity and possibility, were presented by the experts. The *need* is to *"use Artificial Intelligence in order to bring the society to a more advanced level of knowledge and consciousness."* In this situation, the use of AI is only bringing positive changes, since the society will be persuaded to learn more and get comfortable with the use of AI. Once the people will be able to handle AI properly, the society will advance as a whole. Since the concept of society refers to a large group of people in a community, it is also sharing values and traits.

The necessity, as in being something unavoidable, is the "*digitalization of the society".* One cannot disagree with this point of view, since it is a fact. Ever since the beginning of the modernization era, especially starting with the 1950s, the world had witnessed waves of digitalization. This is however, more obvious nowadays, because it needs to keep up with the demands of the society. On the other hand, more advanced products are placed and

promoted on the market, engaging in competition with the traditional products. In this manner, the long-established brands will develop the need to regularly update themselves, ensuring the continuous satisfaction of the customers.

The possibility, referring to the potential results of implementing AI are related to "increased efficiency" though the enforcement of the most powerful technologies on the market as well as to the "optimization of resources". While many would argue that the implementation and use of AI is expensive and seems to be wasting plenty of energy, the experts proved that it is quite the contrary. Artificial Intelligence can always be created and programmed in such a manner as to preserve most of the resources and energy allocated to its smooth running.

2. Public Administration

In the case of the *public administration*, which is also the main theme of the research, the three steps of implementing Artificial Intelligence were identified as the following: The *need* was described as "*increasing productivity and efficiency in the delivery of public services"*. This is one of the most pressing concerns of the people in relation to their connection to the public system. However, Romania is not the only country that is consumed by bureaucracy, as this was also found to be the main issue in many nations across the globe. Even with the most advanced technologies made available, when it comes to the public system, it seems that there will always be concerns and delays in serving the public. The introduction of Artificial Intelligence in the public services, can definitely constitute the answer to the problems of the general public. Productivity and efficiency are two important aspects that influence the choices of the people to a great extent. These two qualities are also expected to be displayed by the public officials delivering services.

The *necessity* as in something unavoidable, is to "*create safe environments"* for the citizens though the use of Artificial Intelligence. It seems that when approaching Artificial Intelligence as a main topic of research, the general concern is centered around its reliability. As mentioned in the previous chapters, the citizens will need time to adapt to the changes and be able to learn more about the use and functionalities of Artificial Intelligence.

The *possibility* related to the implementation of Artificial Intelligence in public administration resides in the creation of guidelines that promote and call for the enforcement of the application of transparent Artificial Intelligence. A major concern can be observed among the experts regarding the regulation of Artificial Intelligence, because they are trying to raise awareness on the dangers of this technology falling into the wrong hands.

3. Organizational Management

As for the topic of *Organizational Management,* it was clearly outlined that the use of Artificial Intelligence would prove very useful. It is important to understand the fact that AI can ease the processes that involve task management, as well as team management. For this reason, it was labelled as being an essential tool in the successful management of an organization.

The main need in the case of organizations was identified as "*using Artificial Intelligence with the scope of identifying flaws within the organization."* Although this idea might sound as "nitpicking", it is actually a very effective way to handle several problems within an organization. Artificial Intelligence will be able to detect errors in different processing tasks, as well as keeping an accurate record of documents, registrations, and others. This need shows the gap created at the level of the ability of analysis of the people in relation to an organization. It is important to outline the fact that people are subjected to making errors or come to flawed conclusions because of the way they perceive certain things. In the case of Artificial Intelligence, the programmed commands will be followed, and the incidence of errors could be significantly reduced. On the other hand, the scenario of having and AI with multiple flaws in its structure and programming is also a reality that has to be accepted. However, the AI is less prone to making the wrong decisions if it is programmed correctly. In addition, while making an effort to reduce flaws as much as possible, the AI should be always supervised by a specialist or expert, who will ensure the quality of the services.

The necessity is to "*determine what kind of systems can be implemented in order to make the AI functional".* Since the AI requires multiple tests and verification sessions, the specialists will be able to figure out what systems will be more suitable for certain situations. In this unavoidable scenario, it is up to the AI specialist to determine the best course of action to be taken in order to ensure the proper handling and implementation of Artificial Intelligence.

The possibility connected to this problem is "*the provision of servers made to manage the AI, as well as appointing an engineer to be in charge of it."* This statement refers to the possibility of providing the necessary equipment and employment of specialized personnel to be in control of the implemented AI systems. The quality assurance specialists will always play an important role in the management of organizations.

4. Education

As in any other field, Artificial Intelligence plays an equally important role in education. Since it was stated before that there is a growing demand for specialists and experts on Information Technology and Communications, along with Artificial Intelligence, this is the case where education is the center of discussion. In this respect, the need was identified as "*Making sure the AI has more variability*" refers directly to the issue of diversity at the level of coding and designing AI. There is an immense discussion on the topic of variability of Artificial Intelligence, as the experts unanimously agreed that diversity represents one of the major ethical and technical concerns related to the production of Artificial Intelligence.

The necessity related to the education on the topic of Artificial Intelligence, is to have "*expertise on the subject of AI*". In order to have expertise in any subject, education is a prerequisite. From this standpoint, getting an appropriate education is an unavoidable step in gathering knowledge and expertise in the subject of AI.

The possibility in the case of education refers to the "*creation of an adaptable AI*". Adaptability represents one of the essential qualities for advancement in any field. The case of Artificial Intelligence is no different. Adaptation is a prerequisite in any step taken forward. In order to create a reliable AI, it needs to be made adaptable and be upgraded with function that enable emulation[2] within the computer systems.

5. Sustainable Development

In the case of connecting Artificial Intelligence to the practices of Sustainable Development, the study shows that the domains have evolved into a co-dependent relation. Artificial Intelligence has definitely brought a significant boost to sustainable development as a whole. However, there are counter-arguments on the topic of implementing AI in sustainable development because of the impact the technology has on the environment. While the insertion of AI can make certain initiatives even more sustainable, it can also act against these practices.

The need of implementing Artificial Intelligence in the sustainable development practices is focused on "*maximizing efficiency*", which seems to be the most important aspect. Efficiency plays a major role in sustainability, as it can act as a quality assurance factor in many cases. On the other hand, in order for an

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[2] Emulation: reproduction of the function or action of a different computer

environment to become sustainable or to keep its sustainability, it also needs to be efficient. In this case, a strong connection between the two terms can be observed.

The necessity of implementing Artificial Intelligence in sustainable development would represent the constant improvement of the technologies associated with it. It is necessary for the technologies to meet the demands of the society and ensure a sustainable environment for all.

The possibility of implementing AI in sustainable development refers to the use of it for the purpose of processing natural resources, at the same time paving the way for the delivery of efficient source delivery and management. The last, but the most important aspect, is to develop the AI in such a manner as to be able to save as many resources as possible.

6. Artificial Intelligence

As referring strictly to Artificial Intelligence, the following needs, necessities and possibilities were identified. First, the most important need is to "*identify the objective along with the necessary data to be implemented within the system and to make it functional"*. It is crucial to correctly identify the objectives of creating Artificial Intelligence, in order to clearly shape its purpose. Building an AI without a specific purpose can result in loss of resources, which can be very damaging on the long run. On the other hand, the robotics specialists are taking this risk every time they develop a new model, since there is no guarantee it will work in the real life.

The necessity resides in "*testing the robot and the data"*, since the major concern of the specialists, experts and developers of AI resides in testing both the data and the model of Artificial Intelligence. The tests that are made on the AI model are not only related to its functionality and its flaws, but also serve in avoiding a possible disaster (such as a malfunction that may result in an explosion). With regard to the data, once implemented into the AI, it needs to produce accurate results and respond appropriately to commands. The greatest fear is placing human lives at risk.

When referring to the possibility for the described scenario, it would be that of "*correctly assessing and defining the objective based on the experience of the Machine Learning process".* In this case a strong trust in the AI is expressed. In relation to the issue of constantly testing the AI, it will eventually result in a very reliable technology, even though it will take a significantly longer amount of time to be released to the users.

7. Information Technology and Communication

Probably the most extensive topic related to the production and use of Artificial Intelligence is Information Technology. It is important to understand that through the application of IT skills, basic algorithms can be produced. An interesting aspect of IT is that, although it is very connected to Artificial Intelligence, it only takes part in the primary phases of creating AI and then in its functions of expression. Without a doubt, the most important aspects of Artificial Intelligence are connected to Robotics and Engineering. The programming is just the "outer layer" of AI, enabling it to perform certain tasks based on algorithms. Since the most examples were provided by the experts on this particular subject, the needs, necessities and possibilities will be categorized and grouped together to build a general view on the topic.

The needs related to Information Technology and Artificial Intelligence are those of "*addressing specific problems that can be solved with AI*". This example clearly illustrates the connection between the IT and AI, yet again proving the fact that the two domains are in a relation of co-existence. Another need identified in relation to the IT industry was that of "*going back though the code, and identify specific issues in order to fix AI.*". From this one can clearly observe that the programming represents the core of creating Artificial Intelligence. Another need related to the IT industry was described as "*organizing everything online, on specific platforms…*" Again, this is relating directly to the enforcement of IT skills in order to handle and understand AI.

The necessities identified in relation to the implementation of AI in IT&C also exhibited a similar character with the basics of Artificial Intelligence. The experts provided examples of necessities such as "*AI as tools to solve our problems*", highlighting the importance of know-how related to IT. Another necessity represents the "*creation of an open-access AI and code*" so that the people will be able to benefit from the research done on the topic.

Among the possibilities described in relation to the implementation of AI in the Information, Technology and Communications arena were "…*taking examples from similar situations of implementing AI and applying the same methods*". This opens the possibility to build a safe AI, being the main benefit of such an action. On the other hand, sticking to the same sources will never result in novelty. Another possibility provided in the context of using IT in Artificial Intelligence is the one of "*creating a trustworthy scale*" for AI.

8. Medicine

The last context identified in the answers of the experts was medicine, and it is probably the most discussed, debated and most important area. The experts brought to light the importance of using Artificial Intelligence in the medical field, since the fusion between these seemingly unconnected domains has the power to overcome a vast majority of obstacles that were encountered by the traditional medicine. I also believe that the application of Artificial Intelligence in the medical field is by far the most important area, since it directly impacts human life and the quality of health.

The needs related to the implementation of Artificial Intelligence in medicine are: "*implementing robots that can help people with speech problems" and "(robots) to take care of patients in Intensive Care".* It can be observed that the main need identified by the experts relates to assisting the patients along with the specialized medical personnel. Artificial Intelligence can definitely be implemented with success in the medical practices. The field of medicine can benefit the most from the development of AI and Machine Learning. By automating the processes of handling the sick, more lives will be saved in a timely manner.

The necessities or the unavoidable actions are in this particular case the "*implementation of AI in healthcare to serve multiple purposes".* The other unavoidable aspect is "*creating an efficient environment with AI in healthcare and monitoring".* Since the advancement of the Artificial Intelligence is unavoidable, it is fair to say that the medical field will be subjected to important changes. The healthcare sector needs to raise the bar when it comes to delivering services safely and efficiently. In this respect, Artificial Intelligence can represent the answer to the multiple concerns related to operability in the medical environment.

Last, but not least, *the possibilities* regarding the application of Artificial Intelligence in the healthcare sector were describes as "*raising awareness about AI in medicine",* as it seems that the medical practitioners need to be more in tune with the rapid advancements of this technology in order to be able to use and implement it in their workplace. The last possibility outlined by the experts referred to *"gathering data in order to develop the AI in such a manner as to respond to the demands".* It can be observed that this possibility is applicable in all fields, as the AI needs to be constantly developed to improve the quality of the services it provides.

Conclusions

In conclusion, the assessment showed the three stages of implementing AI in the public services, as it was found that the most appropriate manner to conduct the analysis was that of sticking to central themes and contexts. This enabled the researcher to present the stages clearly, depending on the subject of interest. The use of Artificial Intelligence in the public sector is a crucial step that both the citizens and the public workers need to take in order to deliver the best results, and overcome many of the challenges associated with any environment.

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