

## An Assessment of the Needs of the Citizens from the Most Digitalized Areas of Romania – Cluj Napoca City

**COSMINA IOANA CRĂCIUNESCU- TIMOFTE**

Babes-Bolyai University, The College of Political,  
Administrative and Communication Sciences; Babes-Bolyai University of Cluj Napoca.

Email: [craciunescucosmina@gmail.com](mailto:craciunescucosmina@gmail.com)

Tel: +447553148604 / +40741091904

---

### **Abstract**

*In order to gain a better understanding of the public life, it is imperative to search within the domain of Social Sciences and connect it with the area of Public Administration. Along with the insertion of Artificial Intelligence on the international market, many changes have occurred. The most challenging aspects seem to be the ones related to having the people understand the new phenomena, and become adapted to the requirements of the contemporary world. In order to be able to gather a clear and truthful image of the cultural and technological revolution that the society is facing, an assessment of needs should represent one of the most appropriate tools for analysis. The purpose of the present article is to present an assessment of the needs of the people living in the city of Cluj Napoca, Romania, with regard to the use of artificial intelligence in governance.*

**Keywords:** Needs Assessment, Artificial Intelligence, Digitalization, Citizens.

---

### **Introduction**

The aim of the present work is to show a model of assessment of the identified needs of the citizens from Cluj Napoca. They were chosen to be the ones that live in a more digitalized environment from Romania, in this case being Cluj-Napoca city, which is known as the most developed city in the country, and the second most populous. Located at the Northeast of Transylvania, Cluj-Napoca is also the city with the most differences at the level of culture, next to Bucharest (București). The level of development was eventually achieved by the city in question, due to the fact that it attracts the IT investments, being characterized by a particularly high demand in the Artificial Intelligence sector.

### **Literature Review**

The term “Need” refers to a gap or a discrepancy between a present state and a desired state. The main focus in a need assessment procedure represents the target groups. Needs assessments are generally conducted for the purpose of determining the needs of the people within a certain organization or system. The needs assessment processes represent systematic approaches that progress through a defined series of phases. These focus on the ends or outcomes that are to be attained, rather than the means. In the needs assessment processes, the data is gathered by means of established procedures that are designed for specific purposes. With this occasion, priorities will be set and the criteria for solutions will be determined. The needs assessment processes lead to actions that will eventually bring about an improvement in the programs, structures, services or operations.

A three-phase model of needs assessment is available in this respect:

1. Explore “What is” – meaning: preparing a management plan, identifying concerns, determining measurable indicators, considering data sources, and deciding preliminary priorities;
2. Gather and Analyze Data – referring to determining target groups, gathering data to define needs, prioritizing needs, identifying and analyzing causes, summarizing findings;
3. Make Decisions by – setting priority needs, identifying possible solutions, selecting solution strategies, proposing action plans, and preparing reports. (Meiers, Visser, Watkins, 2012).

### **Needs Assessment – Clarifying Concepts**

The needs assessment process generally starts with the elements or the indicators that are collected during the research process. These might be referring to statistics on a certain population (related to growth, social inclusion, etc.) In order to complete a needs assessment process, there is a need to develop it at the level of characteristics that are required by the researcher in an existing record. In addition, three to five potential resources for obtaining that specific data have to be consulted and listed accordingly.

A document or data review protocol has to be created, which eventually will be used systematically in order to ensure that the valuable information is accordingly coded, analyzed and documented. A set of guidelines has to be developed within the needs assessment procedures. It is advisable to provide additional information, as well as establishing the type of information that has to be collected directly through the needs assessment process.

All the relevant files have to be reviewed accordingly, and a separate document has to be drafted concerning the situation that is placed under analysis.

#### **The Needs Assessment Process:**

Step 1: Identify a need or a needs assessment decision. (It can also relate to a gap between the current and the desired results). On the other hand, a need assessment decision may relate to prioritizing needs or determining which mix of improvement or interventions will work best within the situation or organization in question.

Step 2: Determine what type of review you wish to conduct within the research. A peer review, relevance review and the benchmarking review are three of the most commonly applied types of assessment. The first type refers to *peer review*, which involves judging the quality of something. This type of review is also helpful in increasing the quality of a certain product or service being involved in issues related to public administration.

### **Research Question**

The main research question for the present article is: “How to assess the needs of the citizens living in Cluj Napoca, as these are connected to the use of artificial intelligence in governance?”

### **Method**

The method used in the present article is the needs assessment. The assessment itself is based on the use of qualitative methods, such as interviews and qualitative document analyses. In order to gather a better understanding of the term “need”, qualitative document analysis employed. On the other hand, the data collection process was based on the use of qualitative instruments, such as the structured interview guide. The interviews were applied via telephone, between January and March of 2019. The purpose of the interviews was that of collecting qualitative data, and the processes were applied up until the point when

the information started to repeat itself, in this manner, achieving a level of validity in research. One major criterion in the search for answers was verifying whether the people were in any way familiar with the use of artificial intelligence. Due to the fact that the present work is centered on the social studies approach, the technical details of the problem were not included. The responses were collected in a systematic manner. Some of the responses were not qualified as valid, so these were excluded from the analysis.

The subjects of the interviews were people between 22 and 50 of age. They were selected according to the quality of citizen. A total of 18 structured interviews were applied by phone. There are two variables according to which the selection was made, namely the *state of citizen* and the *state of worker* in the public administration systems.

### **Analysis: Needs Assessment**

For the purpose of conducting relevant research to the main subject of interest, one important question was included in the interview guide. The people that were interviewed answered the query: *“Please provide three examples of needs that can be addressed in your case through the use of Artificial Intelligence.”* The answers provided by the subjects will be analyzed over the course of the present chapter, resulting in a needs assessment that will constitute the core of the research.

The examples of needs that were provided in the interviews will be subjected to a systematic comparison, in an effort to figure out what are some of the most pressing problems that people take into account, along with the increasing use of artificial intelligence. It is important to note the fact that additional needs were also identified over the course of the interviews, alongside those intended to bring to surface. The people that were interviewed were chosen to be the ones that live in a more digitalized environment from Romania, in this case being Cluj-Napoca city, which is known as the most developed city in the country, and the second most populous. Located at the Northeast of Transylvania, Cluj-Napoca is also the city with the most differences at the level of culture, next to Bucharest (București). The level of development was eventually achieved by the city in question, due to the fact that it attracts the IT investments, being characterized by a particularly high demand in the Artificial Intelligence sector.

When asked about three needs that could be identified, one of the respondents came with the following ideas: *„Entertainment, by playing videogames, business, since the company I work for will automatically assign me work based on how many agents are found active and how many cases are opened, and I also use AI for recommendations when watching movies on Netflix, based on the results of my previous views.”* This respondent in particular referred to the fact that Artificial Intelligence is used in their case for the purpose of carrying out business contracts and it is also used in entertainment. This need, entertainment *„The use of AI in the media”*, is partially addressed at the present time through the use of Artificial Intelligence, as it is of great use for the producers of entertainment, namely actors, singers, comedians...etc, through the fact that these have the opportunity to become known in the world through the use of the Internet. When it comes to videogames, the use of AI is an integral part of the whole process, as these could not be brought to light without the use of computers and various software. In this case, the AI is also highly involved in the design of the videogames and their processing through various computers or smart objects, such as TVs or other devices. However, this need does not come as a priority for the public system, and it only applies to the personal uses of the individuals. The same criteria applies to the movies that are downloaded via the Netflix platform. It would be useful for Artificial Intelligence to manage the entertainment system partially, in the sense that it could ease the processes of delivery of shows. On the other hand, AI might endanger the comedians' jobs, as robots could come into place, programmed with various jokes.

Another respondent, coming into contrast with the first one, referred to the importance of communication while carrying out business ideas and implementing action plans. *„Communication needs via the smartphone that connects me to the Internet and social media”*, referring to the need of the people to be almost permanently connected to the virtual environment, for the purpose of keeping up with the never-

ending flow of information. As for the present times, the use of AI is increasing, in comparison to the situations that were created over the past years, when the people were communicating through the old types of phones and making appointments at the postal office.

A need that was identified among the respondents is the involvement of Artificial Intelligence in the payment systems and in the processes of financial transactions. Many made references to their needs to use AI in the banking system, but this need is already addressed in Cluj Napoca, at the *Banca Transilvania* through the introduction of AI, as the bank is collaborating with Personetics since 2018. A great number of the respondents referred to the need of benefiting from *faster and more advanced banking systems*, in order to ease all of the processes that come into connection with the money handling issue by the bank. At the moment, the banks have already made significant advancements, such as the introduction of robots which are programmed to answer various questions of the people and guide them through banking processes. The majority of the respondents also stressed importance on the fact that the greatest need is centered around the pace of delivery among the services provided by the public administrative systems. „*Time saving when making payments and financial transactions*” shows the need of the people for the implementation of fast paced processes when it comes to money handling. As the most expensive asset that could be found in the present times in the world is time, people want to use AI in order to minimize the amount of time spent in consulting and dealing with certain people and services, and maximize the time they get to enjoy the services or simply live in their own terms. At the present time, the financial transactions take place relatively fast, as it all depends on the services provided by the bank and the supplier receiving the money. As for the case of Cluj Napoca, in some instances, the processes of making payments could be delayed, due to system shutdowns in the banks. The need of having effective transactions at all times could be solved through the introduction of a back-up server that would have the means to function even in extreme conditions, such as a power shutdown. In order to make this server function, it would have to be equipped with additional memory and SSDs or LSDs (Solid State Drivers or Liquid State Drivers), to ensure the quality of the storage, and also be connected to a power generator, capable of supplying the necessary amount of energy, even in the circumstance of an energy shutdown (coming from weather conditions or other issues that might affect the power supply system).

Connected to the pace of the processes taking place in the delivery of the public services, the main need that was identified during the interviews is the one revolving around the speed of the services of the administrative systems. People just despise the idea of waiting in long queues just for the purpose of solving issues related to bureaucracy. Moreover, in connection to this issue, another need was identified, namely the one of „*Reducing bureaucracy, by using AI in the storage of the files and faster pace of processing documents.*” Bureaucracy is an issue that is still eating at the Romanian public systems from the inside out, as an extensive amount of time is spent in the process of dealing with loads of paperwork, resulting in delays for the processing of various documents, long queues and dissatisfied people. It would take a long time to make adjustments to the system when it comes to bureaucracy. From the current state, it seems that the administration is not adequately equipped in order to respond to the most digitalized needs of the people. With the exception of Cluj Napoca, the pace of modernization of the public systems is in almost total disregard to the other European countries. And even when it comes to waiting in lines for various services, even though robots that provide tickets were implemented, I believe that it is still more work to be done in order to achieve the maximum efficiency in service delivery. The introduction of programmed robots that will manage the queues would constitute a possible solution to this problem.

For example, while the people are waiting in line, a robot could assist the people and separate them on the basis of their problems, creating shorter and more effective lines. This is already implemented in Cluj Napoca, in Banca Transilvania, only that a person is in charge of taking care of figuring out the means of assisting the clients, as they are walking along the lines and providing short advice.

Coming into contrast with all of the other needs identified one respondent provided an interesting view on the topic, bringing up the *need for storing great amounts of data*. Artificial Intelligence could definitely respond to this need, through the use of machines that could hold up many terrabytes of information at

once. This need in a way, is hand in hand with the one expressed by the most respondents, namely the need of reducing bureaucracy, as all the papers could be transformed into digital documents and uploaded in various storage places. In comparison to the past years, more data can be stored safely, so that it can ease certain administrative processes. However, the cloud uploading and the use of Google Drive should be made mandatory, due to the fact that the data stored increases in size day by day, and it would be harder for the computers to store such amounts of information. Also, if it is to take into consideration the devices, it would be necessary to make the use of the SSDs (the *Solid State Drivers*), and eventually upgrade to the LSDs (meaning the *Liquid State Drivers*), which are made of nanoparticles. These LSDs are made to function when the nanoparticles are heated, absorbing terrabytes of information in just a few seconds. Moreover, the Cloud option for storing data is already made popular among most of the developed enterprises, as it is already used by 77% of the mentioned bodies. (Columbus, 2018).

Some of the subjects brought up the idea of the use of *driverless cars*, which it would come as a great addition to the technological advancements worldwide. At a more specific level, the driverless cars would be suitable for the improvement of traffic flow in all of the large cities. The driverless cars are not fully implemented, but these are projected to come to the European countries as soon as possible. Among the countries that are placed on the waiting list for receiving the means to build these cars are the United Kingdom, Germany, The Netherlands, Norway, Finland, Sweden, Austria, France, Spain, the Czech Republic, Hungary, Russia, Mexico, India, Brazil, China, Singapore, Japan, South Korea, Israel, United Arab Emirates, Australia. (Gorey, 2019) However, taking into consideration the state of development that Romania is in, at the moment, it would take plenty of time for these cars to be brought to our society. Besides the lack of proper funding for such a project, Romania lacks the infrastructure that could support this technology, thus, making it unsuitable for the use of the driverless cars. Many sources have to be invested in the infrastructure, so that Romania could compete with the other countries that are part of the European Union.

The ideas of *socialization and e-commerce through AI* are very popular among the people that were interviewed. From the collected data, it could be observed that the need for having a strong e-commerce network through the use of Artificial Intelligence represents a big concern for the subjects. At the present time, people just lack the time and patience to wait in lines or spend hours on end visiting shopping centers to get what they want. E-commerce, along with the use of virtual assistants in the process of buying items, seems to be the solution for the never-ending queues and crowded shopping areas. E-bay and AliExpress are just two examples of the widely used platforms supporting e-commerce at the present time.

Moreover, with the development of the means of communication on various platforms, such as Messenger, WhatsApp and others that involve to some extent the use of AI, the idea of socialization seems to have taken a different form. Another important aspect to be mentioned revolves around the presence of virtual assistants, both in the banks and at the bus stations. As for the case of Cluj Napoca, these machines are present at every renovated bus station, delivering tickets and passes for bus trips. The downside of these advancements is represented by the problems encountered at the level of maintainance, especially for the ticketing machines and the ones present in the banks. From a personal point of view, more money have to be invested in the maintainance of these machines, in order to ensure proper flow of service delivery in the city.

Artificial Intelligence is used successfully in practices of *marketing* for the product and content recommendations. This action was first implemented in 1998, when the Amazon company started applying the practice of clustering customer behavior in order to make predictions on the future behaviors.

In 2019, some of the most successful companies based on digital assets have built their product offerings or content recommendations, to include Amazon, Netflix or Spotify. According to Lori Goldberg, „it all comes from AI-based clustering and interpreting of the consumer data, paired with the profile information and demographics.

*These AI-based systems will continually adapt to your likes and dislikes and react with new recommendation tailored in real-time.” (Sentance apud Goldberg, 2019).* At the present time, the digital arena is developing at an immense speed, as the need for having a more developed society from a technical point of view is gradually increasing. Thus, continuous efforts have to be made toward the modernization of the country.

The last important step that has to be taken when conducting a needs assessment type of research, is represented by the prioritization of needs. Taking into account the responses of the subjects that were interviewed, their needs were picked out of the contexts that were provided, and assessed according to the requirements of the present work. In this respect, it was found that the top priorities represent the needs for a better and faster communication, that could be made available through the use of Artificial Intelligence. Communication is an important part of the socialization process, and this is made possible also through the virtual environment. Artificial intelligence is also highly involved in the socialization process, leading to the gathering of many people from all over the globe (for example using the available technology to set up a virtual conference with the people working in different countries for the same project – such as in the multinational companies). Communication is very important also in placing different tasks that can be completed with AI – such as using the Siri platform on iPhones and Google voice typing that is made available on Android.

Socialization also happens in the virtual environment, through the use of WhatsApp and Messenger, which are some of the widely-used platforms made available to the large public to serve communication purposes. Artificial intelligence may play a crucial role in the business environments, in such a way in which to be responsible for several tasks, such as scheduling appointments, attending customers and communicating with people that are connected with the business. Also, this need interconnects with the one related to communication and socialization, since no business can function without these pillars.

The second important issue in our society is connected to the bureaucratic arena. Bureaucracy needs to be reduced, due to the fact that it is time-consuming and proves inefficient on the long run. The use of Artificial Intelligence in processing data and all the documents that come along, would constitute the optimal solution in the case of bureaucracy. In this case, many errors would be solved and avoided, and many social problems would be addressed in a more efficient manner. In this scenario, the introduction of virtual assistants will also be capable of answering one of the most pressing needs in the public administration of Romania, namely reducing the amount of time and money allocated for the purpose of addressing issues that are stressful for the population.

Because these needs come hand in hand, it seems that they also display a co-dependent nature. For example, if it is to take into consideration the issues related to bureaucracy, these could not be addressed, even if AI would be involved, because there will have to be a strong system of data storage. So bureaucracy and data storage are two issues that display a co-dependent character, and, as a result, need to be addressed at the same time with the backing of Artificial Intelligence.

The third in line comes the need for using Artificial Intelligence in financial transactions, assuring faster and more secure payments. The fact that Artificial Intelligence is already implemented in the banks of Romania, represents an important step forward toward digitalization. Artificial Intelligence can also be an effective tool to diminish the effects of thefts or eliminate them on the long term. Connected to the issue of financial transactions, and also displaying a co-dependent nature, the practice of e-commerce and the use of AI in marketing will eventually create a fusion between all the domains. This is because the AI may automatically contact the bank, as soon as a transaction is being made via the e-commerce platforms.

The next needs to be addressed through the introduction of artificial intelligence are those presented in connection to the use of AI in the media. This move would be a very interesting one, for various reasons. For example, at the level of information presented in the press, the AI would be less likely to be manipulated and to present aspects that do not rely on the immediate reality. On the other hand, people that

have certain interests of manipulating the society may program the AI, so in this case, the move toward AI remains an unanswered question, because there is no control over its development in the future, along with the extent of manipulation that the people may exercise over it. At this time, there are plenty of companies that use AI for the purpose of developing film trailers and design advertisements. (Mors, 2019). Last, but not least, the use of artificial intelligence for entertainment purposes surely makes up an all-encompassing domain. In this scenario, AI will be used in order to bring to light various forms of art. It can be used to create both visual and sound art. Computers can be programmed to recognize forms of art created by people and develop themselves through machine learning. In the end, the machine/computer will be able to create its own elements, based on the patterns that were learned and acquired during the training process. (Columbus, 2018)

## **Discussion**

A needs assessment model proves to be very reliable in the instance when an answer to a certain problem has to be provided. In this respect, the analysis painted a clear picture of the means and uses of implementing artificial intelligence. It is important to understand the fact that the introduction of artificial intelligence in governance represents one of the key steps toward the acceptance and positive feedback from the citizens toward the new technologies. On the other hand, the awareness toward the needs of the citizens has the potential of bringing the most accurate answers and solutions to the problems. As one cannot solve a certain problem while being unaware of the context, the assessment of needs is bringing clarity of the situation, creating the tools for the researcher to make progress in their findings.

## **Conclusion**

The present article placed emphasis on the importance of the use of artificial intelligence in governance. Through the analysis that was employed, it was found that the most pressing needs of the citizens that are in connection to the use of the newest technologies in artificial intelligence are related to communication, financial actions, decreasing bureaucracy and data storage. Though the application of the qualitative methods, namely document analysis and the application of structured interviews, the relevant information was extracted, enabling the creation of an assessment of needs. The work in itself is qualitative, and presents the different positions of the subjects involved in the study. Ultimately, the goal of the assessment was that of generating options for the use of Artificial Intelligence in governance. The main research question was answered through the assessment of the needs of the citizens.

## **References**

- Columbus, L., (2019) 'State of Enterprise Cloud Computing, 2018', Forbes, <https://www.forbes.com/sites/louiscolombus/2018/08/30/state-of-enterprise-cloud-computing-2018/#6a914b95265e>
- Gorey, C., (2019) 'These 25 Countries are the Most Prepared for Autonomous Vehicles', Silicon Republic, at <https://www.siliconrepublic.com/machines/countries-most-prepared-autonomous-vehicles-kpmg>, accessed
- Morss, J., (2019) 'Making Magic in Media and Entertainment with Artificial Intelligence', CIO, United States, 2018, at <https://www.cio.com/article/3308996/making-magic-in-media-and-entertainment-with-artificial-intelligence.html>
- Sentence, R., (2019) '15 Examples of Artificial Intelligence in Marketing', Econsultancy, at <https://econsultancy.com/15-examples-of-artificial-intelligence-in-marketing/>,
- Visser, M., Watkins, R., West, M., Yusra, L., (2012). *A Guide to Assessing Needs: Essential Tools for Collecting Information, Making Decisions, and Achieving Development Results*. World Bank.