



Proceedings of the
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Path to a Knowledge Society-
Managing Risks and Innovation

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Stanković, M. and Nikolić, V.

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Crisis Communication and Risk Management

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Abstract—The human mind, its design, the way in which it works, the way in which decisions are made and, ultimately, manipulations, is always a fascination for scientists and experts. Our decision-making is largely influenced by several factors at once, for example, desires, motives, emotional state at a given moment, the system of values that we have adopted, the way in which we look at our own ambitions and abilities, our assessment of the environment, etc. For the integration of emotions in the decision-making process, a part of the brain called Orbitofrontal Cortex (OFC) is in charge, and this paper deals with only some of the phenomena that can be triggered but also by models that run this whole new area of research called "predictive analytics".

Keywords – predictive analytics, predictive model, decision making, Eliot CASE, COVID 19.

I. INTRODUCTION

The human mind, its design, the way it functions, the way it makes decisions and ultimately its manipulation, has always been a fascination for scientists and various experts. Our decision-making is usually influenced by several factors at once, e.g., our desires, motives, emotional state at a given moment, the value system we have adopted, the way we perceive our own ambitions and abilities, our assessment of environmental conditions, etc. And the question of whether to obey intuition or reason was also dealt with by Plato. He compared the functioning of the human mind to a carriage, to a two-wheeler. One horse represented the rational mind, the other the emotional, and the rider is the one who must constantly control them. After all these years, psychologists, philosophers, psychiatrists, neurologists, biologists and others, tried to penetrate the secrets of His Majesty. Of course, Plato's chariot driver depends on both

horses, and horses depend on each other. And in that, perhaps, there is a charm, because what would happen if that connection was broken, such as in the 1984 Eliot case.

A part of the brain called the Orbitofrontal Cortex (OFC) is responsible for integrating emotions into the decision-making process. By impairing this part, people have intact cognitive abilities, but their ability to make everyday decisions is significantly reduced. So, Eliot, a happily married young man in his thirties, was an excellent student in college, then, a successful manager in a large corporation, a naturally gifted leader, and so on. Unfortunately, in the 35th year, he was diagnosed with a brain tumor. The operation was successful, but Eliot had bilateral OFC damage. Tests of his intelligence, memory, reading, writing, spatial-visual ability, facial recognition, showed that his performances range from average to superior. But making even the simplest decisions was very difficult for him. The decision to choose a restaurant for dinner would take hours. Shortly after the operation, he was fired, divorced, lost contact with family and friends, lost all his money, married a prostitute, and divorced after 6 months. Eliot was completely deprived of the emotional influences of the brain and his life turned from ideal to hell. Here is the paradox of OFC: how damage to this area leaves so many cognitive abilities intact, and destroys the ability to make decisions that guide us through life on a daily basis. And in the future, that enigma remains a task for experts. Our behavior, habits, attitudes and other data that we leave, someone carefully analyzes, constructs a picture of us and based on established patterns, predicts our next step, the next decision we will make.

Everything in the world is connected and if you are looking for connections, you will be able to predict. Wherever you have the opportunity to collect data, to learn from experience, you can predict. Predictive analytics is based on this principle: finding a template from "historical" data is the key to the future. Predictive analytics is used in marketing, medicine, telecommunications, sales, finance, politics, education, but also for any scams. Real-time monitoring lies between two extremes, learning from "historical" information and finding patterns with advanced predictive analytics. Real-time tracking detects events and event patterns as data flows through a transaction system, network, or telecommunications channel. The amount of data we leave on the internet has increased in proportion to the development of the internet and social networking. In addition to business motivation, the abundance of data is another key ingredient for the success of predictive analytics. The data goes through a modeling process and the model it predicts is ready for action. Many perceive the data as annoying piles of zeros and ones, but they are for high-tech miners, gold ore. So, to summarize the term predictive analytics: the terms are extracted from the data and used in the modeling process; combining someone's attitudes (behaviors) with some attributes (demographic) increases the accuracy of the created models.

Programming language R. Very simple, but has huge potential. A language that transcends the borders of all countries, the universal language of a large number of world companies. Some of the users are Google, Bank of America, Stanford University. In addition to being easy to use and flexible, it is also an open source project. The designers of this miracle are gentlemen professors of statistics from Auckland University, Ross Ihaka and Robert Gentleman. Another interesting tool used by predictive analytics is IBM's SPSS Modeler. The data he uses can be structured (age, gender, marital status, income ...) or unstructured (user notes, call center calls, content of posts on social networks, etc. From the huge amount of data, the given concepts are extracted. , are a very powerful weapon of companies in the fight for profit. Of course, the word profit is masked by caring about customers, their needs, their satisfaction, well-being, etc. Or e.g. Watson Explorer which provides the ability to answer in

real time how and why something happened using advanced cognitive neural network services, text and sentiment analysis. Such a tool is great in the context of Customer 360 views, because it interactively predicts which product the user will buy next.

II. INTERESTING EXAMPLES ARE THE BLACK SWAN PHENOMENON

An urban legend - men who buy diapers in supermarkets, buy beer, in fact, it is not. This is determined on the basis of credit card data that were used when shopping in supermarkets. Another example, based on an analysis of supermarket purchases and credit card payments, provided an answer to the question of how risky a person is in terms of repaying a loan installment. Some of the conclusions are:

- People who buy car oil from non-reputable manufacturers and at a lower price, compared to those who buy branded oil, more often fail to pay the loan installment.
- People who buy self-adhesive pillows as protection so that the chair does not scratch the floor, rarely fail to pay the installment.

Prediction is always better than guessing. And all actions stem from predictions about one person. And that is not the end of the game, because success is not only predicting someone's behavior in the future, but also influencing it. The man is surrounded by organizations that analyze him. Financial institutions advise on a daily basis where and how to invest money, companies offer a percentage of sales for certain services and products, insurance companies and health insurance are trying to identify possible diseases in a timely manner and offer adequate treatment and cure.

Amazon, for example, will send a pair of sneakers of a certain color and number to the nearest warehouse even before we confirm the order with the click of a mouse.

Powerful software and tireless prediction algorithms are no longer scenes of Spielberg's sci-fi film "Redundant Report" in which they are used to prevent crime. Police in Memphis, Los Angeles, Great Britain and Poland have a very serious approach to analyzes of this kind. The behavior of criminals can also be reduced to models. Mark Cleverley, an analyst at IBM, which works with police in London, Poland and

several US and Canadian cities, explained that it is possible to establish a model of behavior based on several factors such as weather, whether the day is when salaries are paid. It does not mean that some crime will happen at a certain time and place, it cannot be predicted, but it can tell us, for example, that a wave of car theft is expected. That is how the police can react, because they are in the right place and at the right time. In Memphis, authorities claim that the crime rate has dropped by 30 percent since the police used the predictive analysis program designed by IBM. A program called CRUSH allows the police to identify individual dangerous areas in order to better deploy people in the field.

These, and similar examples, raise the following questions for controversy: To what extent does the use of predictive analysis please the privacy of citizens and their constitutionally guaranteed protection? And another question: Can we rely on observation-based learning or experience and the fragility of our knowledge, looking for a pattern and expecting the future to follow?

Although it is in the nature of people to attach importance to the experience of past events, looking for a pattern and expecting the future to follow it, human history is usually shaped by the strong influence of events for which history could not give us a guide. The author Nasim Nikolas Taleb, who started his career as a stockbroker, and encouraged by the acquired experience, opted for scientific work, is one of the most active financial mathematicians, researchers in the field of probability and chance, and whose scope of study includes the epistemology of chance. To answer the question of how to live in a world we do not understand enough. Taleb's concept of the Black Swan, an unpredictable event with great consequences, described in the book of the same name, is an original contribution to the theory of complex systems. Using the term Black Swan, he talks about phenomena that he considers to be completely unexpected, but which still bring tectonic changes on a global scale. The Black Swan is a reference to the famous philosophical thought experiment from the 17th century. Until then, no one in Europe had seen swans other than white, so the claim: "All swans are white" was often used as an example of undeniable truth. The chance of finding a black swan was considered to be zero, until it happened in 1697. In Australia. It was clear that based on previous experience, their alleged non-existence could not

be proven. Similar predictions applied to the terrorist attacks of September 11, 2001 in America, to the famous Maginot Line, the supposedly insurmountable bulwark of French defense in World War II that German troops simply bypassed, to the expansion of the Internet, to the emergence of Google, to the collapse of world stock exchange in autumn 2008...

A small number of Black Swans explain almost everything in our world, from the rise of ideas and religions, the dynamics of historical events, to important events in our private lives. Their influence strengthened especially during the industrial revolution, when the world was becoming more complex. Transient trends, epidemics, fashion, ideas, new artistic directions and schools - all this follows the dynamics of the Black Swans. Precisely because of the combination of low predictability and huge influence, they represent a great puzzle. The central idea of Taleb's book is that we are blind to coincidence, especially to large deviations. It is easy to determine that life is the cumulative outcome of several significant earthquakes, if we only consider our own lives. Let's take into account the significant events, technological changes, and inventions that have occurred in our environment since we were born and compare it all to what was expected before they happened. How many were foreseen? Or say, choosing a profession, finding a partner, relocating, unexpected gains or losses. How often did these things go according to plan? Given the share of extraordinary events in historical dynamics, the inability to predict the extraordinary implies the inability to predict the course of history - Taleb concluded. But we still act as if we are able to predict everything and as if we are able to change the course of history. We are making multi-year projections of the social security deficit or oil prices, for example, and we are not aware that we cannot even claim what will happen next summer. We live in a world where there is more and more feedback. They cause events, which cause new events, thus triggering avalanches and unpredictable planetary outcomes. So, can we assess how dangerous a criminal is based on what he does during an "ordinary" day? Can we study health without knowing the deadly diseases and epidemics? Can we believe the methods of inference by means of a bell curve, and at the same time know that it neglects large deviations?

III. PRIVACY AND PREDICTIVE ANALYTICS

The time of global networks and information opens a strategic issue of security and privacy of a country and all its individuals. According to media reports, the American agency NSA (National Security Agency) currently monitors the largest part of telecommunication traffic and collects data that are stored in the world's largest data center, in the American state of Utah. Something similar is done by the French agency "French", "Onyx" from Switzerland, etc.

A huge amount of data from a politically "interesting" country, for example, is in-depth analyzed and a virtual scenario is projected, in order to play the appropriate moves of global planners and controllers of the cyber galaxy. By following the global network, videos, Facebook, Twitter, various reports, profiles of politicians are created, which should be paid attention to or influenced in order to satisfy certain strategic interests.

If such "powerful" people and states cannot defend and protect themselves, what should ordinary mortals expect? From domainers, trolls, bots, hackers, haters, spin doctors, to polished and reputable companies that subtly place ads, various unethical phenomena that lurk and follow every click, you need to save your life. Every click, every like represents information, which is stored in a hundred places at the same time. Recorded is a social network or site that we visited, but I also read through other companies that download data from those internet sites. World research shows that people perceive content on the Internet as free. Data show that only about 10 percent of people who use smartphones think they have bought the apps they use. In Serbia, that number would probably be 0.01 percent. So, we perceive this huge database of knowledge and information, which is searchable, classified and accessible - as completely free. This information has its value expressed in money. The more specific the data, the more it is worth. A thousand basic data - name, surname, address, etc., are worth, say, a few cents; that person's marital or health status will double the amount, which only grows further by crossing with different information about income, consumer habits, and so on. Sites like Amazon and Google make about a thousand dollars a second.

Thanks to technological development, society is on the threshold of another new paradigm - "internet of things", the networking of

various devices that we use. New generations of pacemakers, refrigerators, traffic regulation systems, and even street garbage cans are being connected to the network. We absolutely do not have to pay for the online presence with money, we pay for it with personal data. There is no controversy, online privacy - an impossible mission.

IV. CRISIS MANAGEMENT AND COMMUNICATION PROBLEM

Crisis communication is defined as the perception of an unpredictable event that threatens to jeopardize the significant expectations that the company's stakeholders have and that can seriously affect the performance of the organization and create an undesirable outcome [1]. The communication process between sender and receiver in the rhetorical arena during crisis communication contains three elements, crisis communication, sender and receiver. The main sender is the company, ie its representatives. The crisis team defines those responsible for internal and external communication, as well as spokespersons with the authority to address the public.

The primary group that represents the recipient in the communication process are always the victims. In addition to the victims, there are four other types of public, ie stakeholders with whom a relationship is established through communication in a crisis: formative (enabling), functional, normative and diffuse public. The formative public provides authority and control over the resources that enable the organization to exist at all, and these are owners, shareholders, boards of directors, regulatory agencies, and the like [2]. Functional audiences provide the basic operational functioning of organizations and include employees, suppliers and customers. Normative publics are broader groups to which a company or employee belongs, and which have the power to represent their interests, for example trade unions, political groups and professional associations. Diffuse publics are the external public, the local community, the media, civil society organizations and citizens.

Crisis communication is a specific form of communication, and one of the typologies divides it into four main forms of communication among crisis participants: public relations, problem management, community relations, and media relations [3]. On the other hand, relations

with the media are more often conducted as one of the segments of public relations, both in terms of subject and formation, and therefore in the organizational sense within companies. Public relations that can be used in a crisis therefore includes, in addition to media relations, internal communication, social responsibility programs, and specific communication of leaders to the community. In this way, in this paper we will look at media relations, as part of a broader area of public relations.

V. COMMUNICATION PARAMETERS IN CRISIS PROCESSES

The interest of the media in the crisis appears very early and it is necessary to set a certain tone of the company's communication [2]. The tone should be in line with the crisis communication plan that the company already has. Organizations can choose one of two approaches in media relations. The first approach is assertive and proactive, which allows the organization to be the first to publish the news about the crisis, without waiting for someone to "report" it to the public and the media, nor to hide it and wait for it to go unnoticed. In that way, he has the opportunity to present his version, trying to tell the story precisely. The second approach is reactive and delays unavoidable events with the risk that the company version will be published incorrectly. Ignoring the situation only makes things worse. A proactive approach gives the company the opportunity to set the tone of communication that is in line with the situation, and which it has anticipated and occupied.

In the pre-crisis period, practice has shown that it is necessary to make preparations for a possible crisis. Companies should, in regular circumstances, outside the crisis, set their official communication policy and rules for working with the media. Such a plan is made as part of the management of the entire business process and stakeholders of the company, which lays the foundation for work even in crisis situations [4].

Preparation for the crisis includes conducting business risk analysis, anticipating crises in all segments, prioritizing crisis situations, anticipating the public at risk, formulating communication strategies and tactics, determining relevant communication channels to stakeholders, anticipating media interest, preparing a crisis management plan, defining procedures, appointing a team and training its members for adequate roles, appointing and training a spokesperson to present to the public

and prepare a communication center. The made plan should be practiced and tested through it, and as a consequence it should be updated and supplemented. Directors, managers and other members of the crisis team, and not just communication experts, should ideally be trained and trained to work with the media, which is especially true for crisis situations.

In larger organizations, communication professionals, along with the legal department and the operations sector, are given shared responsibility for crisis planning. It is their responsibility to create, maintain, manage and communicate a crisis management plan. This plan should include special media training for spokespersons during the crisis, as well as the establishment and maintenance of internal and external channels of communication and the development of contingent responses and messages for the presumed crisis scenario.

Crisis communication, by definition, takes place well before the crisis itself, and that is the period when the organization gets to know the work with the relevant media and has good relations. During the preparation period, it is necessary to get acquainted with the way each media works, as well as understanding how the organization is seen from the outside, what reputation and media image it already has, as well as planning to avoid the media chaos that most often occurs. The goal of crisis communication in the pre-crisis period is to build relationships of mutual trust with the media. Given that the power of the media is such that they can improve or worsen the company's image and affect business, the public relations department is expected to have adequate knowledge of the functioning of different types of media, work technology, genre they cover, reporting context, editorial preferences, overt and covert political or ownership interests. This means knowing how to prepare the content that the media expect, how to meet the deadlines, how to meet their requirements and attract their audience in a way that suits both the media and the company.

VI. CONCLUSION

The famous physicist Stephen Hawking warns about the level of development of machines and that in the near future we should not worry about who will control artificial intelligence, but whether control will be possible at all. Towards 2021, we will repeat the quotes of John Maynard Keynes, who back in 1919 (The

Economic Consequences of the Peace - London) simply emphasized as fate: "The power to adapt to the environment is a prominent feature of the human species. Very few of us are convinced of the extremely unusual, unstable, complex, unreliable and temporary nature of the economic system in which Western Europe has lived for the past half century. We hold that some of our strangest and most temporary recent benefits are natural, permanent, and reliable in the future, and we are forging our own plans accordingly." More than a legacy for the future.

The issue of crisis communication became especially relevant during the crisis, caused by the COVID 19 pandemic, which represents one of the greatest world threats since the Second World War. Communication between the subjects is of crucial importance, the exchange of information, data, as well as knowledge, have proven to be crucial. Also, basic issues, such as the exchange of data and information from a certain country, which has a prominent place and importance at the international level, are deeply analyzed and virtually projected into a possible scenario, in order to play adequate moves of global cyber galaxy planners and controllers. By following the global network, videos, reports from social networks, various reports, profiles of politicians are created, as well as other important personalities in the world of education, science, geopolitics, business who should be paid attention to or influenced in order to satisfy certain strategic interests.

In crisis situations, the crucial strategic interest is to maintain order and peace within the limits deemed necessary. Depending on the strength of the trigger of the crisis, the intensity of the actions of the competent subjects is

determined, as well as the way of directing the communication itself, communication focuses, as well as determining the interest that is to be realized. At best, it is preventing the crisis from occurring at all, which is considered a top managerial success, and at worst, it is minimizing the potential consequences, while minimizing the damage.

In crisis situations caused by the COVID 19 pandemic, the interest of crisis communication is timely exchange of relevant information, regular informing of citizens on ways to prevent and combat pandemics, regular communication of knowledge about new knowledge about the virus and its characteristics, in order to prevent misinformation and inaccurate information. This way of communication prevents uncontrolled diffusion of the virus, its consequences, which have already inevitably occurred, are kept under control and within reasonable limits. The exchange of information must take place both nationally and internationally, as prevention and control systems against COVID 19 must be established at all levels, with a greater or lesser level of success.

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