



# The Vitality of Thick Data through Emotion AI in Successful Decision-Making and Problem-Solving Processes for Efficient Marketing Strategies in Sustainable Business and Organizational Operations

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**Abstract:** In today's challenging times we need some soft skills alongside our technical hard skills to ensure the success of decision-making processes for the benefit of your sustainable business(es) in various organizations. These very soft skills entail the presence of various emotion management tools and diverse techniques. Emotions provide us with guidance in different lifetime stances, where we are constantly faced up with the challenge of taking decisions and responding to various issues throughout our whole lives. The business field is not an exception, where we also have to deal with different people having diverse backgrounds endowed with very different emotions and feelings, which we also have to take into consideration while taking decisions and solving problems. Moreover, currently with the development of artificial intelligence, the urgency of more enjoyable human-human-machine interactions is more required than ever before. Thence, the application of Emotion AI is a huge step towards success in various business operations in organizations that has become mandatory which can help companies also gain insights into the demands and needs of their consumers. The present chapter discusses the role of emotions in decision making and problem solving processes in marketing, as well as their positive impact on effective business decisions taking into account not only the big data, but also the thick data that can easily be generated through emotion AI tools which actually comprise sensitive information that can be beneficial for the success of the whole company's resultant blooming and blossoming alongside proposing diverse fields of applications therein.

**Keywords:** emotions, thick data, decision-making, emotion management, emotion AI, business management, problem solving, marketing, emotional intelligence (EQ/EI).

## 1. INTRODUCTION

It goes without saying that emotions constitute a large part in our everyday lives, be it in our personal lives or in our professional lives in the business sector. Being not only rational but also emotional beings, we experience thousands of diversified emotions throughout the whole day depending on the external stimuli that we might perceive during the day. This may suggest that mostly all of our actions may be subconsciously guided by our internal states, feelings, beliefs, desires, aspirations, intentions, and expectations. This suggests that while we take decisions and solve problems in our lives, we may subconsciously also be governed by our internal states, which can slightly direct the decision-making and problem solving processes, both in our everyday life and in business, while interacting with our partners, colleagues, co-workers, managers, leaders, bosses, etc.

In the recent years there has been much talk about the importance for *Emotion AI* in Business Intelligence. According to recent research, Emotion AI can greatly increase customer and employee satisfaction in terms of providing the users with thick data on the internal states, expectations, wishes, desires and feelings of the consumers. This eventually gives the ultimate chance of heightening the level of credibility between the parties involved. Moreover, businesses can adjust their produced goods and delivered services in accordance with the feedback of the customers and consumers. Here, Emotion AI comes to the forefront, with the help of which artificial intelligence deploys emotions in gathering

sensitive information that can largely be beneficial for companies/organizations/businesses (Rostomyan, 2024a).

Research has shown that Emotion AI can basically be of two types: a) *perceiving, processing, and interpreting human emotions*, b) *not only “understanding” but also replicating human emotions in terms of displaying emotions reciprocatively towards their communicative interactants* (Nagy, 2018; Marr, 2021; Alkhalidi, 2022; Rostomyan, 2024a,b,c). Artificial Intelligence has indeed gone a long way since its introduction to the business world and is still progressing and with the rise of *Artificial Emotional Intelligence* (called *Emotion AI* for short), we have the ultimate chance of gaining insights into emotions of the others, which will give us the possibility of understanding the involved parties better to be able to adjust our decisions and performance accordingly. Thence, the main hypothesis of the present chapter is that the application of Emotion AI can make businesses flourish in taking their data driven decisions that besides big data also involve thick data, which alongside with big data may increase the chances of a business to meet the demands of the consumers, which will resultantly increase the business turnover and ensure better output and better overall results for both the businesses and the customers.

## **2. INSIGHTS INTO THE HISTORY OF AI**

AI is not a new concept. The idea of creating an intelligent being was proposed and discussed in various ways by different writers and philosophers even many centuries before the computer was even invented and brought to life. For instance, Finlay and Dix (1996) describe that the earliest writers imagined “artificial” beings created from stone: the Roman poet Ovid wrote a story of Pygmalion, the sculptor, whose statue of a beautiful woman was revived (the musical “My Fair Lady” is the more recent rendition of this fantastic fable, as well as the play bearing the same title by the Irish playwright, critic, polemicist and political activist Bernard Shaw). Much later, in the age of industrial machines, Mary Shelley had Doctor Frankenstein manufactured a man composed of very many separate components and brought him to life through electricity. Other similar films touching upon AI, such as “Terminator”, present a vision of cyborg machines almost indistinguishable from human beings. The same can be observed in the film series of the “Transformers” movies directed by Michael Bay, where some of the main characters are endowed with AI and, moreover, have the ability to transform, as well as read and respond to human emotions. This very fact of being able to read human emotions and feelings brings machines closer to humans than ever before, since we are not only rational, but also emotional beings endowed with very different emotions and feelings, beliefs and desires, wishes and aspirations. Thus, in case machines become human-like and, moreover, are able to read human emotions, they will eventually also be better apt in efficiently and harmoniously interacting with us humans (see more in Rostomyan, 2024a,b,c).

In fact, artificial Intelligence has gone a long way since its first introduction with the earliest successful AI program written in 1951 by Christopher Strachey, who later became the director of the Programming Research Group at the University of Oxford and has made many things possible ever since that were considered unattainable previously in the past. It is here noteworthy that many computer programmes are running in line with the structure and functions of the human brain and higher cognitive processes: the human brain is a very complex structure, where many different interrelated processes partake in our various multifold everyday life actions, which also make emotion experience, detection, knowledge, and expression possible (Rostomyan, 2022a).

As for our science fiction (sci-fi) movies, they love to portray Artificial Intelligence as the bane of human existence and something provisionally that will take over the entire world soon, whether it is good or bad we will see in the future, but in case machines are endowed with emotion detection and replication algorithms, it will indeed become much easier cooperating with the latter (Rostomyan, 2024c). Moreover, since the field of emotions is very vast and challenging and that we ourselves are not fully able in detecting emotions in others or understanding our very own emotions and feelings, Emotion AI can lend us a helping hand in being able to penetrate into our internal states providing us with exact data about therein. Therefore, it is very intriguing and fascinating to look at this aspect of Emotion AI that is yet to be uncovered, namely in terms of emotions and their detection, as well as reciprocally their replication and application possibilities. Moreover, through emotion AI companies gain the ability to gather information on the emotional states of their co-workers, customers and partners, which have the

greatest potential of making business operations much more productive, efficient, and fruitful (Rostomyan, 2024a).

### **3. THE SIGNIFICANCE OF THE APPLICATION OF EMOTION AI FOR THE SUCCESS OF SUSTAINABLE BUSINESS OPERATIONS**

Though it may seem very promising to interact with emotionally intelligent machines, we have first to understand the nature and essence of the concept of our own EQ, as well as the notion of Emotion AI. As we know, emotions are instant plans for handling life that evolution has instilled in us, whereas emotional intelligence, namely EI(EQ) is our ability to navigate through them. As for *Emotion AI*, although the name may sound a bit confusing, Emotion AI does not refer to a weeping computer who has had a bad day or a bad week at work or has private life issues either. Emotion AI, also known as *Affective Computing* namely dates back to 1995 and refers to the branch of Artificial intelligence which aims to *perceive, process, digest, understand*, and even *replicate* human emotions (Alkhadi, 2022).

Whilst some of us are more sensually perceptive than others, we humans can easily interpret the emotions and feelings of those around us, since we are all endowed with the same emotion regulation, management and recognition systems that guide us throughout our entire lives. Moreover, we also have the ability to enhance our emotion management skills through different emotion management tools and techniques that can be applied for successful interpersonal communicative interaction (Rostomyan, 2013). Furthermore, in case we ourselves are *emotionally intelligent*, it makes us better communicators and better interactants who are better apt in understanding the world around us and those in our surroundings (Rostomyan, 2022a,b). As for human intelligence, social and emotional intelligence come almost automatically to humans; we react on instincts and to external stimuli, since our emotional sensory system is what evolution has instilled in us for successfully handling life (Goleman, 1995; Murray, 1964). Nonetheless, research shows that emotional intelligence can be enhanced in due course of time through training (Rostomyan, 2022b). Besides, it is also noteworthy that if machines are also emotionally intelligent through Emotion AI, they will cooperate with us more efficiently and it can also further be enhanced through proper programming (Rostomyan, 2024a). To understand the concept of Emotion AI better, as said above, we have first to refer to the notion of EI (EQ), namely Emotional Intelligence, which is our ability to *perceive, understand, manage* and *use* our emotions depending on the perceived outward situation (Goleman, 1995; Rostomyan, 2022c). The base level intelligence, namely IQ, which we were partly born with and partly learn, tells us how to behave in certain situations. As for the EI (EQ), that is the emotional intelligence, it can be both an inborn quality and learnt through life (Rostomyan, 2022b). Emotional intelligence (EQ/EI) is, thence, also our ability to react to certain outward stimuli depending on various extralinguistic factors (Rostomyan, 2022a). In this connection, it is also noteworthy that nowadays people prefer referring to EQ by abbreviation EI, which entails that AI is brought closer to EI meaning that humans and machines are closer than ever before (Rostomyan, 2024a).

It is in this connection noteworthy that it has always truly been a challenge to know what people feel on the inside at the moment of speech production, even for us humans, since sometimes what people express on the outside and what they actually feel on the inside may differ. So, to be able to learn what their employees and customers feel has never been an easy task for companies to determine. For one thing, emotions are inherently difficult to read since our human emotional repertoire is very broad and may quite often even be changing throughout the whole day, us feeling very different emotions depending on the various external stimuli that life imposes on us (Rostomyan, 2020). For another reason, sometimes there is a dissonance between what people *say* they feel and what they *actually* feel (Rostomyan, 2013), which is not the case with machines. Here, Emotion AI can provide us with exact data about human emotions processing the perceived information (Rostomyan, 2024a). Therefore, to be able to better understand the demands and needs, the wishes and desires of their customers, it is highly recommended for businesses to apply Emotion AI in their day-to-day activities. This will, in fact, enhance the producer-consumer, employer-employee, etc. relations which also take into consideration the emotions and feelings of the parties involved.

Thereinafter, the ultimate outcome is a much better understanding of their customers and consumers — and even their employees. So, in case these pieces of sensitive information are used for the benefit of

all parties involved, the positive outcomes will not make wait for them for way too long, which will ensure much efficient and successful cooperation across industries and organization. Moreover, if we look at the discussed issue through the lens of sustainability, we will reveal that through the detection of emotions we can acquire sensitive information that can strengthen our interconnections in creating emotive bonds between businesses and customers, employers and employees, where the needs of all parties will be taken into account, that will resultantly strengthen their bonds, stimulate their cooperation and keep it for the longer run and promote the sustainability of the businesses across different cultures and organizations.

#### **4. HOW CAN ARTIFICIAL EMOTIONAL INTELLIGENCE BE USED TO ENHANCE SUSTAINABLE BUSINESS OPERATIONS?**

It goes without saying that humans have for a long time been superior to machines when it came to reading and understanding human emotions. But according to research that will not be the case for way too long. While some of us may still doubt that machines will encroach on emotion, those working in the field of *artificial emotional intelligence*, also known as *Emotion AI* or *Affective Computing*, say we are well on our way when machines will gain a mastery over our human emotions, which is rather scary since emotions are private phenomena and sometimes we do not want to share them with others and want to keep them to ourselves.

As we have already given stated, *Emotional Intelligence* (EQ/EI) is how we feel, interpret, understand and express our emotions in real-life situations for handling relationships with our partners, neighbours, colleagues, friends, managers, both in our personal and business lives (Rostomyan, 2022c). So, in case of Emotion AI, currently AI machines endowed with *artificial emotional intelligence*, not only perceive, process and “understand” human emotions, but also respond to the latters in an emotionally empathetic manner. That is to say, they also express emotions in the process of communicative interaction with their human counterparts. Let us have a closer look at these emotion experience correlated stages, they are as follows according to Daniel Goleman’s definition of *emotional intelligence* (1995) and draw parallels with emotionally intelligent machines:

1. *Perceiving emotions*: the ability to get emotional messages from the outward world and to detect emotions in faces, pictures, voices, and cultural artifacts. This includes not only perceiving the emotions in the others but also the ability to identify one’s very own emotions. Perceiving emotions represents a basic and grounding aspect of our emotional intelligence, as it makes all other processing of emotional information plausible (Rostomyan, 2022b). Both humans and machines can nowadays well perceive emotions and feelings and respond to them accordingly.
2. *Using emotions*: the ability to deploy emotions to facilitate various cognitive activities, such as thinking, decision-making and problem-solving activities. The emotionally intelligent person can capitalize fully upon his or her changing moods in order to best fit this or that task at hand. Besides, one can also use his or her very own emotions to have an emotional impact on the other through gestures, facial expressions, eye contact, gross bodily movements, voice fluctuations, mimics, such emotive words and phrases as positive and/or negative intensifiers to emotionally colour one’s speech, which has the greatest emotional effect on the listener(s), etc. (Rostomyan, 2022a). In the case of machines, if they communicate with their human counterparts in terms of adequately applying emotions, they will eventually gain a better aptitude in persuading them and cooperating efficiently and effectively, which is undoubetdly a great milestones for successful business operations.
3. *Understanding emotions*: the ability to comprehend emotive language and to understand the emotions in the others in order to be able to maintain healthy relationship with the latters, which also presupposes emotions. For example, in the process of communication trying to understand the viewpoint of the other person, his or her intentions, internal motivations, aspiration, feelings, beliefs, desires, expectations, motivations, intentions, etc. (Rostomyan, 2020). It also involves understanding the slight variations between positive and negative emotions, and the ability to recognize and describe how emotions evolve over time in interpersonal interaction. This will give humans, machines and businesses across industries and organizations the chance to better understand the emotions of their cooperators and eventually to operate sustainably, successfully and productively with the latters.

4. *Managing emotions*: the ability to regulate emotions in both ourselves and in others. The emotionally intelligent person can better tune in with the emotions of oneself and of the others, even smoother navigating through negative experiences, and managing negative emotions to achieve the intended and set goals and objectives. This also includes managing the expressions of emotions on the verbal and non-verbal levels for harmonious cooperation and for communicative conflict reduction (Andersen & Guerrero, 1998; Rostomyan, 2022a,b). In terms of emotionally intelligent machines, there is still speculation if they themselves can “experience” human emotions, but they can rationalize what emotions they should feel at a given moment in the process of communicative interaction. Thence, emotion management will here adhere to machines appropriately responding humans and managing their experienced emotions (learn more in Rostomyan, 2022c).

Artificial Emotional Intelligence, therefore, is when computers can read emotions by analyzing data, including facial expressions, mimics, gestures, tone of voice, pitch of voice, and even more to determine a person’s emotional state and then to react to it accordingly (Rostomyan, 2024a). This has the greatest potential of making machines be more human-like, which makes human-human-machine interactions more enjoyable and trustworthy on the side of the human interactants and why not also for machines creating a safe space for both of the side to cooperate peacefully, harmoniously and efficiently. Moreover, functionalism argues that if we simulate the expressions of emotions, emotion AI *can* be considered as emotionally intelligent as well. Nonetheless, experts question whether the machine can truly “understand” the message they are delivering and, therefore, a simulation or emotion replication is not by all considered to be a reflection that the machine is actually emotionally intelligent, instead that it can only decode the emotions in humans, adequately respond to them, and replicate them accordingly in the process of human-human-machine communicative interaction (Rostomyan, 2024c). Furthermore, humans can also greatly benefit from their interactions with machines equipped with emotion AI in feeling emotionally safe and creating healthy human-machine interactions. This way or another, we strongly believe that Emotion AI is a fascinating progress in the advancement of artificial intelligence that has the greatest potential of stimulating the advancement in human-human-machine harmonious cooperations(s) in case used according to the ethical norms and guidelines.

## **5. THE IMPORTANCE OF EMOTIVE THICK DATA IN EFFICIENT DECISION-MAKING AND PROBLEM SOLVING**

Decision making refers to the process of selecting an option from among a set of alternatives according to its probability of leading to the best outcomes in terms of the survival chances of the organism. As we know, emotion plays a significant role in the survival of the organism as well, therefore, it should also be paid a closer attention to while analyzing the chances of survival to be taken in various decision-making or problem solving activities (Rostomyan, 2022d).

According to the Oxford Advanced Learner’s Dictionary (1997) the term decision-making means - *the process of deciding about something important, especially in a group of people or with an organization or a company*. Decision-making thence refers to the process of selecting an option from among a set of alternatives according to its probability of leading to best outcomes in terms of the survival chances of the organism, including the fight-or-flight paradigm. It follows that in our everyday duties and everyday activities, bosses, managers and leaders continually take decisions on various topics and issues, especially in their team-oriented activities. Therefore, because of being responsible of a group of people (sometimes or often consisting of people of various educational and cultural backgrounds), they should also pay a closer attention to the emotions and feelings therein as well and here the application of Emotion AI can be of great use and truly beneficial. Moreover, in case the emotions and feelings of all parties involved are taken into consideration, the business leaders and managers cannot be mistaken in shaping a successful and sustainable future for all (Rostomyan & Rostomyan, 2023).

Factually, individuals, teams, and leaders within organizations make dozens of decisions each day. These decisions may be small or large scale and many challenges, even those unseen, may arise from variability and weakness in this challenging process since the decision takers have to always act confidently in their choices. In terms of their nature, there can be *individual*, *team-based* and *hierarchical* decision-making types (Griffith & Rostomyan, 2022). On all the aforementioned levels, emotions can come into play, especially in *individual decision* types. Therefore, when making important decisions, it is more plausible to take them in teams in accordance with the *team-based decision making*

rules after some ground and solid brainstorming and critical thinking activities, since in that case many different perspectives will be put onto the table and will accordingly be taken into consideration in the final decision-making stage. As for *hierarchical decisions*, where the decision makers are the top management, here too the different positive and/or negative emotions of the individuals involved in the decision-making processes may interplay on the background and make up a kind of an accompanying “noise” throughout the decision-making and problem-solving processes, that might sometimes hinder the overall efficient outcome. Nonetheless, it should in this connection also be noted that emotions can also sometimes provide the decision maker or the problem solver with very useful and highly imperative information on what decision is the best one to take also taking into account some sensitive information, which might at first sight seem irrelevant, yet in some cases can provide us with very useful thick data that should also by all means be taken into account as well for effective choices.

According to McKinsey & Company (2021), one of the current leading management consulting companies, different decision types layer even more complexity in the ABCDs of categorizing various decisions types (de Smet et al., 2021, online), that elucidate the most frequently applied decision making types, namely a) *big bet decisions*, b) *cross cutting decisions*, c) *ad hoc decisions*, d) *delegated decisions*, and the level of their frequency. This categorization well denotes the main types of decisions made in big organizations and large companies, the explanations of the nature and essence thereof used within organizations and businesses can be found below.

Let us go through the aforementioned decision-making types one by one:

- 1) **Big-bet decisions:** these are major decisions that are higher in stake and may resultantly bring with them major consequences for businesses and in the companies. They are mostly taken by the top management and have a huge impact on the overall processes in companies and organizations across cultures and industries.
- 2) **Cross-cutting:** these are lower in stake than big-bet decisions but still bigger than delegated decisions and require collaboration in teams in terms of coming up with a final effective decision for the benefit of the whole company at hand.
- 3) **Ad-hoc decisions:** these are spontaneous decisions that arise episodically and can also be taken both by the top management and have an impact on the whole organization. They are mostly taken in line with the occurring events and require speed in decision taking to be able to navigate with the perceived data properly and instantly.
- 4) **Delegated decisions:** these are taken up by various individuals in the company when they come up with daily decisions themselves without engaging the management (de Smet et al, 2021). In this case especially we have to properly deal with our experienced emotions and feelings to be able to sort them in accordance with efficiency to be able to come up with a rationally emotional decision that will be beneficial both for the businesses and for ourselves (Griffith & Rostomyan, 2022).

When speaking about the last decision-making type, it is noteworthy that in this case we should take into consideration the emotions of the employees responsible for the taken decisions, since here we deal with the human factor, and as Dale Carnegie, the well-known human relations connoisseur stated, “*When dealing with people, remember, you are not dealing with creatures of logic, but with creatures of emotion.*” This comes to suggest that while taking decisions, we are never fully detached of our internal states, feelings and emotions, that also have the greatest potential of influencing our eventual decision-making and problem-solving activities. Moreover, our emotional background memory highly influences our decisions and actions. For instance, if we have had formerly generated negative predisposition towards someone or something, it will negatively influence our final decisions. And just vice versa, if we have positive predisposition towards someone or something, this positive feelings will positively influence our eventual decisions (Rostomyan, 2012). Thereinafter, we can conclude that though emotions are mostly apparent in the type of delegated decisions, they may also arise in the other decision-making types, since we usually cannot extract ourselves from our very different emotions and feelings while taking decisions, which may overtake and influence the actual decision-making processes (Rostomyan, 2022d).

Furthermore, it is highly imperative in this connection to note that here too Emotion AI can be of great use in coming up with efficient decisions and successfully solving arising problems and issues. Here, it

is also important to note that decisions do not always come that easy though for some people they might be easy-peasy, though they may regret later for this or that very decision made and met spontaneously in an ad-hoc manner, yet it is noteworthy that decisions are almost always influenced by a number of accompanying factors, i.e. emotional background memory, former interpersonal relations and former positive and/or negative emotions connected with a certain person intertwined with a certain decision, etc. In this connection, it is also noteworthy that very often our interpersonal relations are also mostly governed by our former positive/negative experiences (Rostomyan, 2012). This also refers to our positive/negative experiences with people, businesses, brands, companies, etc. For this very reason to be able to attract and keep our customers interested and dedicated with should strive towards creating for them emotionally safe and positive experiences, which can be gained through the application of Emotion AI that has the potential to provide companies and individuals with emotional information about their interactants and consumers (Rostomyan, 2024a). Though there might be slight cultural and situational variations, for instance a smile having some various cultural connotations, but being a universal sign of positive emotions, having insights into the palette of emotions and feelings of our customers and co-workers can help us cooperate with the latter more efficiently and successfully.

In her article, Dr. Anna Rostomyan (2022d) mentions that one of the factors, influencing decisions are *emotions* and *intuition*, which are often neglected in business; nonetheless, these are tiny little instincts guiding us in handling life that evolution has instilled in us according to Edward Murray (1964), especially in terms of *motivations* and *emotions*, and the business field is not an exception, where people continually are faced up with the challenge of understanding human emotions and feelings, their wishes and desires. Therefore, in case companies deploy emotion AI to have insights to the emotional experiences of their target audience, they will eventually surely reach sustainability, success and prosperity in their businesses (Klein & Rostomyan, 2024). Here, we can speak about the interesting Ted Talk speech of Mrs. Tracia Wang back in September 2016 entitled “*The human insights missing from big data*”. During her interesting speech, Mrs. Wang spoke about the differences between “*big data*” and “*thick data*”, namely big data are the pure data retrieved through numeric logical data analysis, while the “*thick data*” include such subtle phenomena as intuition and emotions, motivations and intentions, likes and dislikes, aspirations and desires, feelings and emotions, which can be gathered through qualitative research, which are also very essential for business-driven management and decision making. In her speech, Mrs. Wang brought the example of the back then big and influential telecommunication company “Nokia”, where she had formerly worked, which did not consider her research on the preferences of people in connection with mobile phones having found out through her thick-data qualitative research that the consumers have begun to prefer more sensory touch-screen phones rather than those with buttons. The company eventually neglected this highly imperative and very sensitive information and some years later they faced a factual collapse and resultant bankruptcy with the introduction of sensory phones to the market. Therefore, it turned out that conducting only a purely “data-driven” analysis based merely on “big data” is not enough for coming up with an effective decision that all the parties will eventually benefit from in terms of running the business (Rostomyan, 2022d).

Rostomyan (2022d) further concluded that that the *intuition* and *emotions*, *motivations* and *intentions* of people also have a great impact on the decisions people make, including what phones to possess, which car to drive and which dress to wear, and, moreover, with which partner to sign a contract with, whom to marry, etc. Here in case AI technologies give us the possibility of gaining insights into the others’ emotions and feelings we will have a better chance of meeting their expectations and here in case AI technologies have integrated Emotion AI programmes, humans will feel more at ease in cooperating with the latter and even feel safer in sharing sensitive information with the latter knowing that it will be used for their benefit (Rostomyan, 2024a,c).

Although Brookehouse (2022) mentions that we should also by all means be careful to what extent emotionally sensitive information we should like to share with the machines, as is the case with our other human counterparts, since oversharing has also the potential of harming us. Moreover, sometimes we might feel sad on the inside because of some personal issue that have nothing to do with our job and an HR manager using emotion AI can wrongly perceive them. This comes to suggest that there should be strict ethical constraints in terms of application of emotion AI in our businesses (Prudy, 2019). This said, we should acknowledge the vast possibilities of emotion AI and in case deploying it for our very

own benefit and the overall benefit of our businesses, we will gain a striking chance of a successful and sustainable, peaceful and harmonious human-human-machine co-existence where all the parties involved will blossom and prosper.

## **6. NEUROMARKETING AND EMOTIONAL DECISION-MAKING IN SUSTAINABLE BUSINESS RUNNING**

Nowadays businesses cannot survive without an efficient marketing strategy, which can be better generated with the introduction of AI and especially emotion AI. To have a better business operational marketing, in case we take into account the expectations and emotions of the consumers, we will have a better chance of emotionally influencing them to buy the proposed product(s) and to continually interact with our brand(s). Here, the concept of *Neuromarketing* comes to the forefront, where people not only market, but *neuromarket* the products, in terms of having an emotional and neurological impact on the buyers. Neuromarketing, in fact, thus *refers to the measurement of physiological and neural signals of the brain to gain better insight into customers' motivations, intentions, preferences, emotions and decisions, which can help greatly advertise and market the products accordingly* (Harrell, 2019). This comes to suggest that in case we understand our customers better on the neurological level as well, we will eventually gain a better chance of designing our products and the delivered services in accordance with their emotional needs and demands, expectations and motivations, aspiration and intentions, wishes and desires.

As Georges, Bayle-Tourtoulou and Badoc (2013) truly mention, as a science studying how to bring companies closer to their customers, marketing has numerous limitations in terms of studies as well as business approach, sales and communication. By drawing on neuroscience, which helps probe human intelligence and comprehends the unconscious part of our human brain, it significantly improves its efficacy with all its interlocutors: managers, employees, partners and, of course, customers and consumers. This new approach constitutes the Neuromarketing which analyzing how the brain works and their applications to marketing, gives us better insights into the needs and demands of our consumers and consumers. Neuromarketing, thence, not only analyzes the emotions, feelings and expectations of the customers, but also taking into account all the aforementioned, puts into action the acquired knowledge to create the products effectively and advertise them accordingly. Here, the importance of emotions and intuition, motivation and intention is of paramount importance and to help make things easier for the marketers emotion AI can be of great assistance, and intuition especially, since it is our ability to understand or know something immediately based on our feelings rather than even the most vivid and obvious facts (Rostomyan, 2015).

To learn more about the role of emotions and intuition in the business sector, we have conducted an online quantitative survey at the well-known Porsche company (mainly Porsche Centre of Eastern and Central Europe and Porsche Center Yerevan) on whether men or women tend to rely more on their intuition and emotions while taking decisions and the results came to prove that women are more often inclined towards taking decisions and decisive actions based on their intuition than men and, as they say, when a woman asks you a question, they most probably already intuitively know the answer.

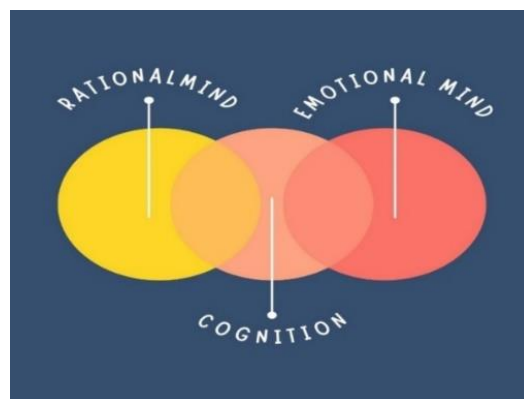


**Infographic6.1.** *The Role of Intuition in Decision-making in Men and Women*

Source: Rostomyan & Rostomyan Research (2021-2022)



The results of the above diagram can be explained by the fact that women tend to take decisions more based on our intuition and gut instincts. This may be because of the fact that our right side of the brain, also called the right hemisphere, which is responsible for creativity and innovation, intuition, emotions and feelings is more developed than that of men, who are more rational beings in nature than women and mostly take decisions based on dry facts, rationality and logical reasoning, since their left side of the brain, also called the left hemisphere, which is responsible for rationality, logic, reason, etc., is more developed than that of women according to psychological research (Rostomyan, 2022d). Nonetheless, it should in this connection also by all means be given stated that in her works on emotions and emotionality, Dr. Anna Rostomyan argues that *emotionality* and *rationality* go hand-in-hand, they cooperate closely with one another and should not be viewed in contrast, but rather in comparison (Rostomyan, 2020, 2022a,b). This comes to suggest that both parts of our brain are very essential in taking decisions and they both provide very valuable information for us.



**Infographic 6.2.** *The Interrelation of the Rational and Emotional Minds in Our Higher Cognitive Processes*

Source: Diagram designed by Dr. Anna Rostomyan (2022d)

In line with the infographic above, we would like to highlight that the main hypothesis of the PhD work of Dr. Anna Rostomyan was that *emotionality* and *rationality* are not two distinct phenomena but are closely interrelated and intertwined and should therefore be viewed in unison. According to the author, the basis of our cognition and the higher cognitive processes is the interconnection of our *emotional* and *rational minds*. In fact, these two are very closely interconnected with one another, with emotions stirring up and the rational mind endorsing or vetoing certain emotions and feelings and the outward expressions thereof (Rostomyan, 2013; Rostomyan, 2020; Rostomyan, 2022a). Normally, there is a balance between these two, but sometimes in the heat of an emotional moment, emotions can overrule the reason and there might account a dis-balance between these two. If something like this happens, emotions are being overtly expressed in speech through various verbal and non-verbal tokens, which are thoroughly discussed in the book by Dr. Anna Rostomyan entitled “*The Ultimate Force of Emotions in Communication*” published in 2022 in Germany (learn more in Rostomyan, 2022a).

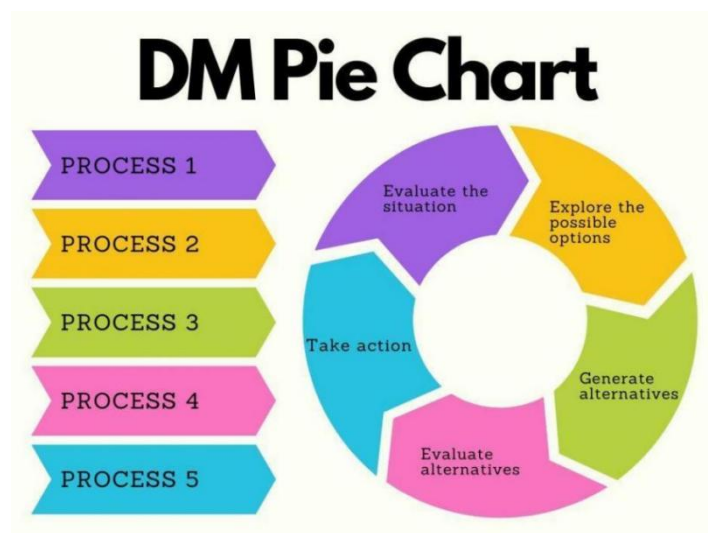
Here, while making a decision, we can speak about the importance of conducting a “*diagnostic*” analysis while striving towards finding a solution when trying to come up with a certain decision, of course also paying attention to our emotions and feelings. Thus, according to the authors D. Swanson and J. Dearborn (2017), there are four stages of analytics that can be used for both thick and big data: These include the following interrelated stages that in case progressively used can ensure better decision-making and problem solving:

- **Stage 1: Descriptive analytics:** here you have to find what has happened to be able to come up with a certain decision.
- **Stage 2: Diagnostic analytics:** you identify why a certain thing has happened to be able to derive solutions.
- **Stage 3: Predictive analytics:** you investigate what might have happened besides what has already happened and to investigate the causes of the situation.

- **Stage 4: Prescriptive analytics:** you come up with certain suggestions and diverse solutions on what should be done to overcome the situation and what decisions should be made to solve the present problem at hand ( Swanson & Dearborn, 2017).

It follows from the above that in case “Nokia” had conducted such an analysis according to the aforementioned stages, it would most probably have helped the managers and the engineers to deduct why people have begun to prefer sensory phones in accordance with the retrieved thick data that would help them better understand their preferences, needs, demands and expectations of the market and to take actions after the prescriptive stage of analysis towards finding the best option for the company to proceed matching the demands of the market (Rostomyan, 2022d). It can be concluded that by means of gaining thick data through AI machines, also including emotional data gained through emotion AI, a lot of work can be made easier in terms of qualitative research, which will still give us insights into the expectations and emotions of the consumers that will resultantly help us design and generate the marketing processes and activities accordingly taking into account the gained information.

Decision making (DM) actually, as a matter of fact, does not happen all at once but represents several interconnected processes enlisted below which can be used not only in the business field, but also in our private lives. Hence, before taking a final decision, we should analyze all the alternatives, their pros and cons, advantages and disadvantages, shortcomings and assets to thoroughly evaluate the situation and only after that come up with a certain decision:



**Infographic6.3.** *The Interrelated Processes of Decision-making (DM)*

Source: DM Pie Chart by Dr. A. M. Rostomyan (2022d)

The incorporation of all the above interrelated processes actually ensures effective decision making with positive results both in your everyday life and business tasks. In this connection, it is noteworthy that, as mentioned above, our emotions may play on the background of decision-making processes, sometimes highly influencing them, and in order to be able not to get drifted away by them we have to be equipped with strong EQ skills (Rostomyan, 2022b). The concept of EQ is not a new one and nowadays it goes further in being applied in Artificial Intelligence as well, being called Emotion AI. Here, we mostly speak about the harmonious and fruitful human-machine interaction, where all the parties benefit from the cooperation (Rostomyan, 2024a,b,c). This brings us also to the newly coined notion of “WeQ” put forward by Peter Spiegel (2015), who rebutted the importance of IQ & EQ in business and in life, instead proposing the concept of **WeQ**, where many different participants cooperate in decision-making, problem-solving, brainstorming, mind-mapping and critical thinking activities. The author is convinced that we should bid farewell to the “I-Culture” and instead introduce and implement the “WE-Culture”. In fact, WeQ stands for and indicates to the collective intelligence, which is more than IQ or EQ (Rostomyan, Rostomyan & Ternès, 2021).

Thinking and acting in the new collaborative togetherness requires thinking in a WeQ culture, i.e. thinking and acting away from an ego culture, which should also include the detection, perseverance and application of emotions both in communication and interpersonal interaction, as well as in decision-

making and problem-solving. This means that a paradigm shift that stringently continues the development from IQ to EQ (nowadays commonly referred to as “EI” which brings EQ and AI closer than before), resulting in a collective WeQ, which comprises both and is the result of *collective intelligence* (Spiegel, 2015). Thus, in this case, both the companies and all the involved parties will have a better chance of looking at the problems from different perspectives through the dragon-fly eye, by means of also considering all the interrelated consequences and choosing the right option for the benefit of all, also taking into account the data provide by AI and emotion AI, where sometimes emotions can also be manipulated for which ethical norms have to be adhered to (Rostomyan, Rostomyan & Ternès, 2021; Rostomyan & Rostomyan, 2023).

J. Allen (2017) states that a salesperson may display this emotion by acting as if they are happy the customer is there and the salesman is eager to help, when in reality they may not be very much emotionally involved in accordance with the emotion management demands of his/her profession (Rostomyan, 2024b). Employers especially of the sales departments that deliver direct service to the customers usually require their employees always to offer a wide smile and a genuine offer of help, regardless of how the employee feels on the inside. Often people will practice this type of suppression of their emotions simply not to appear rude and provide perfect guidance to the consumers in accordance with their so-called “emotional labour” (Hochschild, 1983; Rostomyan, 2024b,c). In this respect it is noteworthy that with the help of thick data gained through AI one can retrieve more information about the expectations of the consumers and change the marketing strategy accordingly.

To diminish their negative impact on the effective action plans in businesses and organizations and their successful operations, the concept of WeQ and collective decision-making can be applied, which can result in successful problem-solving, especially in terms of human resources management (Rostomyan & Rostomyan, 2023). The more people become aware of the participation of emotions in these processes, the better they can handle them, which will bring efficiency to the strategy and the overall labour output of the company. Moreover, if AI is used appropriately, it will give better and more precise insights to the customers’ and employee’s need beneficial for the businesses. Indeed, if artificial intelligence technologies provide us with insights into the consumers emotions, feelings, wishes and desires, marketers will be more apt in providing better services and adjusting the products accordingly. To conclude with, decision-making and problem-solving are very tightly interrelated processes, where several external and internal factors should be taken into consideration. Bearing this in mind, it goes without saying that emotions also partake in the aforementioned processes discussed earlier. Therefore, if we have access to the internal states of our customers, we will be able to market and neuromarket much more proficiently.

## **7. THE VAST POSSIBLE APPLICATION FIELDS OF EMOTION AI IN SUCCESSFUL BUSINESSES**

Taken the vast possibilities that Emotion AI brings with it, there are a number of fields that can largely benefit from the developments in the field thereof. For example, just to name a few of the fields of possible applications of *emotion AI* can be as follows:

- Smart cameras enable retail stores to record customer reactions to products, prices, services, etc. in real time and, thus, the companies can be better apt in improving their assortment of the of their brands, marketing, and pricing accordingly.
- Cameras integrated in computers, machines, software, smartphones, and/or TV screens can make it possible for brands to leverage Emotion AI to test reactions to certain content, which will help them adapt their online presence, branding, and marketing accordingly.
- Emotion AI cameras can retrieve emotions of the consumers and help marketers develop their marketing plan and strategy accordingly taking into account the emotions and feelings, preferences and desires, expectations and intentions.
- With the help of emotion AI product marketing will exactly match the demands and requirements of the consumers and consumers.
- Chatbots get Emotion AI to detect human emotions and respond correspondingly for smoother and more empathetic and harmonious communication flow.
- HR managers can detect emotions in applicants in the recruiting processes, as well as in their HR operations thoroughly considering the emotions of their employees.
- Emotion AI robots can reach a stronger bond with their human counterparts by means of understanding and applying emotions. In this case they can be applied in spheres where human capital is scarce, e.g. the medical sector in times of pandemics.

- Emotion AI will not only make machines more human-like making it much easier for humans to interact with machines, but also machines will have a better understanding of us humans and be able to respond more empathetically and cooperatively.
- Educational experiences can be greatly enhanced through the application of AI. Furthermore, through emotion AI teachers can gain better insights into the satisfaction of their students, which will help them adjust the learning/teaching materials accordingly.

According to OpenAI (2023), as a free and new AI chatbot, the launching of ChatGPT significantly led to the OpenAI's estimated value leapfrogging to US\$29 billion. A chatbot is an AI-based software application which can engage in human-like chats and conversations. Rudolph et al. (2023) claim that users can ask questions or make requests, and the system will respond instantly within just a couple of seconds. ChatGPT reached one million users only five days after its actual initial launch. Thus, taking into account all of our above points, we can firmly claim that ChatGPT has really revolutionized education, businesses, marketing, and many other sectors in very many different ways and therefore it is nowadays regarded as one of the most popular apps in the world. The New York Times coined ChatGPT as "the industry's next big disrupter" that "could change the world" (Grant & Metz, 2022). Therefore, L. Ibeh (2023) firmly believes that the applications of ChatGPT in education are of utmost importance and hence cannot be overlooked, since it brings vast possibilities in gaining deeper insights into the expectations and emotions of students.

Moreover, it is the possibility to make teaching and learning more fun and much easier, especially in terms of literature reviews. Thus, we can state that this is truly a revolutionary age and in case both educators and learners are aware of the abundant potential of ChatGPT but also its limitations and constraints, education can largely benefit from it. As the field goes on expanding and developing we witness many eloquent and exquisite advancements. For instance, at Microsoft there is even a whole group called HUE (*Human Understanding and Empathy*) working to make chatbots much more empathetic and human-like, since as we know we humans besides being logical are also emotional beings and thence if a chatbot responds to us emotionally, we will feel more soothed and encouraged in sharing and receiving information and there will resultantly occur a more efficient and harmonious human-machine interaction (Rostomyan, 2024a).

A. Hochschild (1983) claimed that professions require an efficient emotion management and since machines have become an indispensable part of our lives, we strongly believe that in case machines are equipped with the emotion management techniques too, they will also deploy and an emotionally professional demeanour and cooperate with humans in an emotionally professional manner (Rostomyan, 2024b). As we know, according to Daniel Goleman (1995), there are three main distinct types of empathy, namely a) *cognitive*, b) *emotional*, and c) *compassionate*. Thus, A. Rostomyan (2022d) explains that on the cognitive level we simply rationally understand the emotions of the others, on the emotional level we emotionally resonate to the emotions of the others, yet on the compassionate level we (and now already also the machines) not only emotionally and rationally tune in with the emotions of the others, but also go further in taking a decisive step towards finding a solution to the needs of the consumers. Therefore, Rostomyan (2024a) also believes that the advancements of Emotion AI are of utmost importance and with the help of having more empathetic emerging AI technologies, we stand a better chance of having more profitable and peaceful, efficient and harmonious cooperations. To sum this section up with, there are, of course, many other possible fields of application that can benefit from *Emotion AI* features: the only caution here is to remain ethically correct and just in terms of programming machines with human emotions, since providing the latter with far too much sensitive information might be provocative and malfunctioning. Therefore, we should remain cautious with machines equipped with a strong arsenal of EI tools and further detect their functioning possibilities and beneficial options that can work efficiently in human-human-machine cooperations.

## **8. DISCUSSION**

The field of emotions is very vast and challenging to analyze. With the help of emotion AI, which is very promising, technologies can be revolutionary in gaining insights into the customers emotions and expectations, preferences and desires, which can greatly stimulate the growth and success of this or that company at hand. Nonetheless, it should also by all means be mentioned here that there should be ethical limitations and constraints, since emotions belong to the privacy of a person and should thence be accordingly respected. This way or another science keeps on advancing rapidly and the technology-savvy future seems very promising in making human-machine interactions far more enjoyable and fruitful.

## **9. LIMITATIONS**

Since humans while feeling a distinct emotion on the inside do not always share it on the outside in its full width, it can also be a challenge even for machines to exactly reveal the internally truly felt emotion and feeling for we humans have the ability to mask pain with a smile. Moreover, there can also be cultural limitations, since for instance an eye contact or a smile can mean something in one culture and another thing in another culture. Nonetheless, it should also be noted that our truly felt emotions and feelings are almost always to some extent expressed in our communicative interaction(s) through different verbal and non-verbal markers, which can be thoroughly analyzed through emotion AI programmed machines and the corresponding emotion can be eventually detected. This comes to suggest that we humans should also be willing in efficiently cooperating with machines and reciprocally sharing information and expressing emotions and feelings with the latter as with other humans.

## **10. CONCLUSIONS**

In conclusion, notwithstanding the advancements in emotion AI, there is still much to be done for an Artificial Intelligence to be capable of entirely replicating every action we humans can perform, especially those qualities which we consider most human ones, such as emotions, which are our soft skills' arsenal and make us different from other species. Emotions are truly very complicated and multifaceted phenomena that are very hard to perceive and read. So, in case science develops so much further that we gain insights into other humans' emotions and feelings, we will have a better chance of having an emotional influence on the latter. So, with the help of Emotion AI we can get to the point of understanding the expectations of others, which is undoubtedly very important in marketing as well. It follows from the discussion that emotion AI has greatly developed during the last couple of years with the help of which not only machines but also we humans too can truly gain a better understanding of the emotions and feelings of others. This will eventually help us make better decisions on which product to launch and how to proceed in our day-to-day activities. This brings us to the final assumption that having a clear-cut idea of the emotions of the others is highly imperative for business decisions and operations, since we humans are often guided by our internal emotions and feelings which may have an influence on our thinking and decisions. Moreover, having a dragonfly-eye analysis, also taking into account the important aspects of emotions and intuition, motivations and intentions, we stand a better chance of solving problems much easier and smoother. Therefore, having exact thick data retrieved through emotion AI can greatly contribute to the benefit of the business sector being applied in various fields thereof. Moreover, business operations across fields and industries can gain more sensitive information that will hugely enhance their operations.

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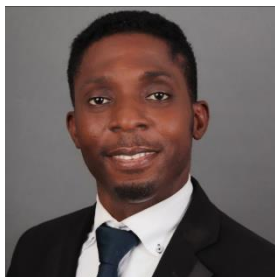
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Dr. Anna Rostomyan is an Assistant Professor, an international author of 7 books and over 50 publications worldwide with a readership of around 100 nationalities, as well as an established researcher, reviewer, speaker, translator, editor and EQ coach. She defended her PhD on the intersections of cognitive linguistics and emotions with the highest distinction in collaboration with the University of Fribourg (Switzerland) and Yerevan State University (Armenia - her Alma Mater) in 2013 within the frames of an international research grant of excellence. Her main research interests lie in the field of emotions, emotion management, human resources and business intelligence, as well as emotional intelligence in communication. Having worked both in the academia and in the business sector, she conducts interdisciplinary research focusing on the cognitive aspect of emotions and their role and impact in discourse and management in different spheres of human activity. Her works have been featured at such outstanding publishing houses as Springer and DeGruyter. She is also a contributing author at such business magazines as the European Business Review, Personal Führungsmagazin, Wirtschaftspsychologie aktuell, neues lernen, and others.



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