Emotion, Cognition, and Their Marvellous Interplay in Managerial Decision-Making

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Edited by

Matteo Cristofaro

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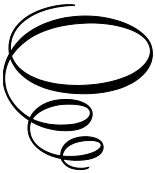

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PREFACE

MATTEO CRISTOFARO

Human beings, decision makers:
intentionally rational but spontaneously irrational.

Stemming from Herbert Alexander Simon's studies in the second half of the twentieth century, the way in which decision makers have been conceived has drastically changed: the *homo oeconomicus* that knows everything and can maximize decision options left the stage in favour of the *administrative man*, featured by bounded rationality and oriented to satisfying choice alternatives. This opened up a new era of management thought.

Indeed, from that point onwards, a series of studies in management research advanced the debate of *how organizational agents really make choices*. In this vein, discoveries on the human deviations of rationality and their antecedents and consequences – such as heuristics, cognitive traps, the influence of personality traits, intuition, emotions, superstition, religious beliefs, etc. – have pervaded this stream of research. The resulting man is now different from the one postulated by Simon: s/he is no longer just affected *only* by bounded rationality, but s/he is increasingly pervaded *also* by irrational forces. Within this updated field, and mainly thanks to the cross-fertilizing advances in neuroscience studies (initiated by Antonio Damasio), the role of emotions – always considered as irrational forces – has continuously and increasingly gained momentum within decision-making research. This happened mainly because – according to psychology and management scholars interested in perception and sensemaking – emotions are considered as the first biological reaction to stimuli in a decisional environment, condensing the effects of all other irrational impulses. Emotional answers, however, not only may directly influence the initiation and/or the output of a decision path, but they can also influence the content and depth of thought within decision-making processes, at the individual and collective levels. From that, *emotions and cognition emerge as a meaningful interplay that directs decision-making processes*.

The aim of the edited book *Emotion, Cognition, and Their Marvellous Interplay in Managerial Decision Making* for Cambridge Scholars Publishing – to whom I am deeply grateful for the editing opportunity and professionalism – is to investigate *how rational and irrational forces concurrently factor in management decisions*. The final intention of this editorial work is to set the foundations for a new stream of studies that simultaneously look at both rational and irrational tensions in management choices; this is the main way through which management research on the human black box can be significantly advanced.

In pursuing this ambition, I have been in good company: 17 scholars from seven countries provided their excellent works for this challenging endeavour. I am deeply indebted to each of them, and to the 15 reviewers, for believing in my scientific direction and leadership. The variety of geographical origins and points of view, rooted in the common aspiration of the edited book, elevates the academic standing of the project at an international level.

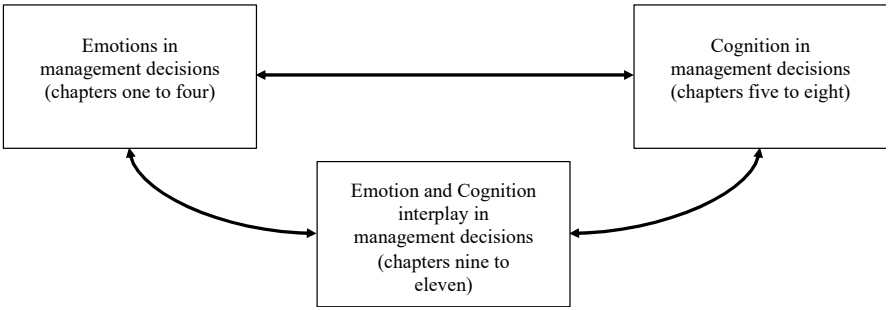

Figure 1: structure of the edited book
Source: own elaboration

The sequence of included chapters follows in the footsteps of the title: *i)* addressing the role of emotions in management decisions (chapters one to four), *ii)* investigating the role of cognition in management decisions (chapters five to eight), and *iii)* analysing the interplay of emotions and cognition in management decisions (chapters nine to eleven). In this regard, it is worth noticing that the chapters in the first two parts are not exclusively related just to one perspective (emotion or cognition); indeed, both perspectives are considered in their development, but, it happened that more emphasis is assigned to one side of the coin rather than the other.

In particular, the journey starts with van Hoorebeke (chapter 1), who studies the role of emotions in managerial computer-mediated collective decisions. Through a theoretical-based approach, she arrives at the conclusion that emotions also permeate computer-mediated collective choices, and cognitive biases typical of face-to-face relationships just leave the pace to others, which are not less influential, but, rather, specific to the computer-mediated environment. Dell'Orco and Ranieri (chapter 2) and Sarin (chapter 3) explore the biasing role of emotions with regard to risk, reaffirming that gains and losses in decision making are a balance between pleasure and regret for what is acquired and what is lost. In this process, gaining experience and training emotional intelligence help to master the emotional schemata to be applied in managerial and investment decisions. However, this requires a strong motivation to act. In this vein, Hendijani (chapter 4) deals with motivation theories that flourished in management research according to the focus on different phases of goal accomplishment (i.e., goal choice and goal striving). Due to the criticisms she made, motivation theories are not seen only according to a cognitive perspective that considers motivation as a purely rational act, but are interpreted according to an emotional standpoint. In this regard, positive emotions are seen as a means that can enhance goal pursuit, increase persistence towards achieving goals, and facilitate flexible thinking and problem solving.

Leoni's chapter (no. 5) forms the beginning of the cognitive part of the book. She deals with a pivotal question of current inter-connected organizations: how do knowledge-sharing activities carried out at inter-organizational level influence the decision-making processes of these organizations? Her theoretical discussion arrives at the conclusion that developing an environment featuring trust and good management of conflicts enhances the shared cognition and values of involved parties, bringing inter-organizational decision-making processes that are characterised by superior decision quality. In a similar setting, Giardino (chapter 6) studies how the cognition of top decision makers influences Mergers and Acquisitions (M&As) through the adoption of game theory and, in particular, bi-cooperative games. In these cases, which feature a high level of uncertainty and information asymmetry, the experiences of executives – which are at the basis of the mental schemata that are applied to interpret events – are the main drivers of these important choices. However, being assisted with game theory tools may provide solidity to M&As' choices and reduce biases. Zoltay-Paprika and Farkas-Kis (chapter 7), in contrast, while debating the mathematical and cognitive side of managerial decision making – emerging from the fact that every organisational problem pushes the consideration of the numerical side (the last defender of rationality) – highly criticise the

myth of maths. Indeed, due to the cognitive limits of our mind (e.g., heuristics and cognitive traps), the interpretations that emotions assign to numbers, and the use of numbers in proving what is suggested by emotions, emotions seem to be positioned at the same influential level as cognition. Similar cognitive limits and emotional pressures are at the centre of chapter 8 by Tangpong, Lehmberg and Pillai. This work concludes the second part by discussing the managerial cognition perspective of the effectiveness of Executive Stock Options (ESOs) – usually used to align the interests of managers with those of shareholders. In particular, due to the above limits, ESOs are undermined as a pay-per-performance instrument, and this practice can be partially restored only considering indexing ESOs against a reference group of comparable firms.

Kessler, Knetch and Marsch (chapter 9) begin the third and last part of the journey by dealing with the influence (and integration) of spirituality in decision-making processes. Through a study of the Salvation Army and Wycliffe Global Alliance faith-based organizations (FBOs), they analyse the different methods used by Christian and Protestant FBOs and identify some differences in their decision-making approaches. According to their analyses, these converge on the fact that decision-making process quality is positively influenced by escalation from the individual to the collective level, as well as the fact that the irrational and rational sides of decisions form a bipolar whole in which divine and human facets take shape reciprocally. In chapter 10, Patricelli Malizia and Mastrogiorgio start the discussion of raised reciprocity by looking at the advancements made in neuroscience studies. In particular, they begin by making some parallelisms between brain and mind areas, and undermine the established concept that these two are featured by emotions and cognition that act through distinct mental faculties (dual process theory emerges as being substantially damaged by these statements). Furthermore, by referring to neuroscience studies, they affirm that the cognitive system seems to regulate emotional responses and that this interplay is regulated through the influence over the brainstem neurotransmitter system. In sustaining it, the adoption of emotional regulating strategies, with a specific emphasis on reappraisal, can be beneficial for decision-making processes within organizations. This last assumption calls for a stronger connection between neuroscience and behavioural studies to explore the connection between emotions and cognition in managerial decision making, and this is better explained in the last chapter (chapter 11) by Cristofaro. In this regard, a new Affect Cognitive Theory of management decisions that can benefit from cross-fertilisation between neuroscience and management research is advanced and advocated to be developed in the near future. In this regard,

neuroscience studies are assigned with the role of feeding behavioural strategy studies without trying to directly inform practice. This would avoid creating confusing messages for recipients when asking for the usefulness and applicability of neuroscience results (that, however, are not exempt from limits and drawbacks). Finally, it is argued that, notwithstanding a holistic theory of human rationality – comprehensive of rational and irrational forces – which may work as a useful framework to understand human behaviour and reduce fallacies, this will not eliminate biases at all – which are part of inner human nature and, sometimes, lead to better results.

CHAPTER ONE

DECISION-MAKING IN REMOTE TEAMS: NO EMOTIONS?

DELPHINE VAN HOOREBEKE

Abstract: The subject still understudied of emotions in managerial computer-mediated collective decisions highlights a paradox: 'remote', often linked to depersonalization, and 'collective', calling for emotional exchanges and consensus. An analysis is conducted in order to enlighten the point on emotion in those decisions, their role and effects.

Keywords: emotion, collective computer mediated decision, role, effects

Introduction

IT systems, like databases or decision support systems -where the decision is delegated to algorithms- and IT processes, like the "opendecide"[1] that promote the computer mediated decisions collaboration and are often call to expertise of several members, have changed the way to decide (Lemoine, 2014, 22). Like Wikipedia's success in establishing collective knowledge, these evolutions seem to ensure an optimum decision making, i.e. ' consensual', combining the best ideas and the major concerns of each, according to the sense of synergy. The collective decisions would tend to be more productive. For example, Larrick (2004, 318) even considers collective decision-making as a tool for reducing individual bias. According to him, a synergy of the group allows the correction of errors by the complementary expertise, there are different perspectives and experiences formulated individually to others. However, finding a consensus limited in cognitive biases remains an unresolved and problematic problem for companies. Morel (2006, 10) explains:

[1] Databases and information used to facilitate decision making, a computerized decision support system, and a term used on some websites: decision open to the collective

> "*A priori, we will consider more possible solutions, we will have more different points of view. But on a strictly cognitive level, reasoning in a group poses problems, for example if we work on two variables simultaneously. The discussion will almost always shift towards one of the variables, to the point of completely obscuring the other. It was then that the absurd decision arose. We can speak here of limited rationality. The best example is when you try to write a document together: it is much more difficult, and you often get a worse result."*

In their recommendations to make a decision, (Kahneman et al., 2011, 55) precise that deciding in a group can be a source of conformity to find unanimity. On this subject, Ulfarino (2007, 23) tells about properties constituting the decision by an apparent consensus. But, Herrera et al. (2005, 116) argue that consensus has a problem of the language used by the experts in the group. They propose a system to be followed to better express their opinions and share a common dialectal. Even more, Raiffa et al. (2002, 1) state in their book on negotiating for group work:

> "*most books prescribe advice for a decision maker in the group, under the assumption that other decision makers are not concerned by this advice and behave more by 'imitation'".*

Much more importantly, the managers of Google, a well-known international and technological company (Schmidt and Rosenberg, 2014, Chap. 4), explain, in this sense, that most managers advocate consensus without knowing what it is. The authors insist on the subject based on the Latin etymology of the term consensus: 'con' (together) and 'sentire' (feel or think). This etymological decomposition allows them to point that the term does not indicate the search of unanimity side, as commonly seen, but highlight a part of his process. These think-feel dichotomy faced by decision-makers led Cristofaro (2020, 5) to name them "emotional cognizers". In this regard, the consensus sought is seen as a cognitive process group (feel or think) not inevitably derived from a submission to herd behavior as seen by Pontikes and Barnett (2017, 141). The cognitive process suggested and described with details by previous researches on collective decision, especially in social neurosciences, help to better understand. Neural mechanisms have been discovered that indeed - often in unconscious manners – account for mutual mirroring effects between mental states of different persons. The private mental states are often show high points of dynamics due to social interactions. An emotion expressed with a smile, when observed by another person, automatically activates mirror neurons for smiling within this other person, and consequently produces the same emotion (Iacoboni, 2008, 660). Is this process the same

in a computer mediated situation? The literature on the mediated collective decision show specific attributes, such as efficiency of perception of a decision taken by the transmission of an information specifically useful and disinhibition linked to anonymity (Jessup et al., 1990, 150; Connolly et al., 1990, 699; O'Reilly and Roberts, 1977, 677). They also show that this process is subject to specific cognitive biases, such as dehumanization. Thus, without denying those fundamental studies, to carry out the analysis, mediated collective decision is here seen as a collective decision providing specificities, corresponding to an aggregation of individual decisions who must lead to a consensus, i.e., think and feel. The aim, here, is to better apprehend mediated collective decision in organisation and to seek to answer a main question: Do emotions, essential to decide according to Damasio (1994), play the role of disruptive or support of the managerial computer mediated collective decisions? To answer this question, it must be established a thought about it, seen as an evolutionary process which makes it possible to understand a phenomenon without wanting or being able to control it. According to Tsarev et al. (2019, 2):

> "*computer-mediated communication between people is inherent to information-oriented societies and creates new realities in our life, dealing with socially actual information transmission and exchange. They require kindly new approaches for accurate description and characterization of collective behaviors and emotional states in modern social and behavioral sciences*."

In that, this article will follow few steps. The first step is to define the three categories of decisions -individual, collective face to face and mediated collective -, to identify distinctions. The next step seeks to detail these distinctions more precisely through comparative studies of their effect. This double review aims to identify their possible accumulation and a common cognitive and emotional (feel and think) anchoring point. These various reviews in different fields of research to be as exhaustive as possible (management, communication, economy and neurology) allow to the development of a thoughtful of the role of emotions in mediated collective decisions in organisation.

Theoretical background

To compare the three types of decisions, we need a common point, based on a common reasoning "*a set of individuals is more than the sum of the individuals that the up* ", it might seem unthinkable from the individual to achieve the aggregate analysis. A theoretical point of view, a type of

models collective decision supports this vision, the " *model-oriented individuals* " (Grimm and Railsback, 2005, 247-269). If some models only consider the collective aspect in their analyses, multi-agents' models and more specifically –individuals oriented-, sharpens our interest because they focused their study on the concept of "decision". They consider collective decision as the aggregation of individual decisions and are constructed from individual theories. These models of analysis seem, despite everything, to be based on a paradox: an analysis of the decisions of isolated individuals and of multiple individuals at the same time. Faced with this paradox with which our analysis could be confronted, and in addition to the existence of this type of model which supports our approach, the definitions can enlighten us.

On the one hand, individual decision-making. According to Lehmann-Ortega et al. (2013, chap. 19), decisions are the processes by which choices are made that allow changes to be made to a strategy between an instant T and a T + 1. Roy and Bouyssou (1993, chap. 1) believe that the decision is presented as the fact of a single individual (decision-maker) who carries freely a choice between several possibilities shares at some point in time.

The decision group or organization is, according to the famous theory of social choice, perceived as an aggregation of individual preferences (Arrow, 1951, chap. 1). For Mintzberg and Waters (1990, 4), the organizational decision made by the 'real' community, i.e,., the organization, precedes action, "a real-word behaviour". For Novak and Ulfarino (2017, 67):

> "*The notion of collective decision is not stabilized but a minimum common definition cannot be proposed. It is understood as 1) a choice made collectively by all the members of a delimited group, and 2) which is imposed on this group or even on all the members of a larger social group that this group represents*".

So-called collaborative decision-making is envisaged by Marakas (1999, 164) as an activity carried out by a collective entity composed of two or more individuals and characterized both in terms of the properties of the collective entity and those of its individual members. Laborie (2006, 31) defines the activity of taking collaborative decision as a convergence of inter cognitive actions and visuals planned opportunistic, where people agree to decide together for a common goal, in a defined period of time, either in the same place or in different places, for the purpose of making decisions.

As we can see, the main distinction between individual, collective and mediated collective decisions is based on the multiplicity of individuals. The decisive question would thus remain that of moving from a collection of particular decisions to a collective decision, mediated or not. In this regard, early studies have tended to focus on comparisons between group and individual, current studies focus more on cognitive and social influence on the process of convergence of individual decisions in a collective response. A review can help us to analyse the role of social interactions and emotions, underestimated in those definitions. The following part describe the different effects between individual and collective decisions to highlight the impacts of social relations in decision.

Effects of collective decision-making compared to individual decision

Emotions, factors of bias or bias reduction?

When emotions are cited as influential in the decision, it's often the emotional state of the individual that is studied, as demonstrated in several researches (see for review, Lerner et al. 2015; Cristofaro, 2020). As discussed further, the emotion can be appreciated both like a facilitating factor in the decision and a bias factor. Thus, for example, Lacroix (2014, 61) shows, in his study of the interventions of marine firefighters in Marseille, that the decision is subject to this emotional dilemma. Decision can be both disturbed by negative emotions - linked to the help of a family member for example - and promoted by the positive emotions of group cohesion. As bias factor in the decision making, emotional state can affect the content of the information (LeDoux 1996, chap. 1) and change a judgment (Forgas, 1995, 40). The intense negative emotion can also induce a pleasant short-term choice, rather than a long-term choice perceived as more negative (Gray, 1999, chap. 5). This perception may, thus, biased judgment. On the contrary, emotion can facilitate decision-making performance given its ability to stimulate conscious attention and promote the memory necessary for reasoning (somatic marker hypothesis, Damasio, 1994, chap. 8). The pleasant emotion helps the makers to solve the dilemma of choice and to deal with different options or conflicting benefits based on a perceived distinctive (Morris, 1989, chap. 1; Raghunathan and Pham, 1999, 71). On this subject, Schwarz and Clore (2003, 297) specify that emotion helps in choice by an affective selection of priorities adapted to a given situation. In addition, Loewenstein et al. (2001, 270) distinguish the immediate emotions, which make it possible to feel the

fears or serenities of the decision to come, from the anticipated / expected emotions which induce the behaviour, the action.

In a collective point of view, we can retain from a review that there are several specificities of collective decision-making, according to previous research:

(1) The group is supposed to allow optimization of decision-making insofar as it has more knowledge and is likely to generate more criticism of different decision alternatives than an isolated individual. However, the group often fails to select the best alternative (Schulz-Hardt et al., 2000, 658)
(2) It allows error detection, better understanding of problems and information sharing (Stasser and Dietz-Uhler, 2001, chap. 2)
(3) Decision Support Systems couple the intellectual resources of individuals with the capabilities of the computer to improve the quality of decisions. It is a computer-based support system for management decision makers who deal with semi-structured problems. (Keen and Scott-Morton, 1978, chap. 1)
(4) It requires a processual and sequential understanding (Allison, 1971, chap.3)
(5) It does not promote rationality (Bornstein et al., 2004, 8) and collegiality (Kugler et al. 2012, 21), but tends to reduce risk taking (Masclet et al. 2009, 20)
(6) The best members' score on a judgement task is a better predictor of the groups' scores than the average members' score, but also the inverse, according to the way of communication used in the group. (Watson, Michaelsen and Sharp, 1991, 808)
(7) There is a tendency for group members to spend more time and energy discussing information that multiple members are already familiar with. Researchers predict poor decision-making can arise when the group does not have access to unshared information for making well-informed decisions. (shared information bias or collective information sampling bias, Baker, 2010, 261). Moreover, groups frequently fail to detect the correct decision alternative if the information supporting this alternative is unshared (Brodbeck et al., 2007, 473).
(8) Despite the lack of consensus on means of framing, it is subject to certain individual biases and does not correct the negative effects, when it does not increase it (rational choice, escalation of commitment) (Paese et al.1993, 160; Whyte, 1993, 448).

(9) It is subject to so-called collective biases, such as group strategy (Bornstein et al., 2004, 8)

The two last points show clearly that the collective decision could be an accumulation of collective and individual bias. There is, moreover, a common point to the revealed biases. Indeed, the risk aversion, the loss aversion (Tversky and Kahneman, 1991, 1054), the escalation of commitment. and the anchoring effect linked to the formulation of choice (Tversky and Kahneman, 1981, 457) form biases and heuristics based on reflections approximate of the decision-making providing answers called satisfactory. Studies of collective decision indicate that it does not favour rationality, whereas it frustrates in terms of interpersonal relationships. Whereas emotions are central to decide, they seem emphasized in collective decisions.

The following part describe the collective decisions through emotional or cognitive effects.

Effects related to collective decision

This chapter describing allows us to highlight effects of emotions in collective decision making. Indeed, for several years, researches show the consistency of these factors in the decision (Damasio, 1994, chap. 5; 2000, chap. 2). The decision has, moreover, been shown to be dependent on emotion, often opposed and yet inducing cognition (Damasio, 1994, chap. 5; 2000, chap. 2). If they are a component of heuristic biases as well as decision factors, positive emotions, such as joy, is proven to be a factor supporting the right decision (Isen, 1984, p.82). From a collective point of view, few negative effects are predictable: the conformism (group thinking), the power of the sunflower (Boot, 2005, 518), the champion bias (Lefley, 2006, 183) and the halo effect (contamination effect) (Nisbett et al., 1977, 250).

For a more in-depth analysis, those collective biases are here detailed according to the cognitive and emotional interaction that their definitions presuppose.

It is possible to consider the biases of the efforts to build consensus in group thinking and the trend assumed in the management of sunflower as cognitive. The perception of the experience of the person, the conformism, the contamination, the contagion and social influence are more related terms to emotion. To clarify, the definition established by Janis (1991,

237) of group thinking bias assumes that in addition to conformism, linked to an unconscious mimicry shown as more emotional behaviour (Aebisher and Oberlé, 2012, chap. 2), the term 'effort' indicates cognitive, or even voluntary and conscious intervention of this behaviour (Janis, 1991, 237). A priori, the emotional aspect has a particularly strong presence within collective biases. If the cognitive aspect holds its position, an imbalance is perceptible. This observation helps to explain how individual biases may have been analysed as being multiplied during collective decision-making. Emotion has an undeniable power of contagiousness (Hatfield et al, 1994, 5) that could lead to an emo-decisional contagion (van Hoorebeke, 2008, 43). This may explain in part how a group like Kodak was able to ignore the development of digital and how some leaders, supported by the boards of directors and an army of consultants and experts have ignored certain opportunities and made decisions that we know are also unfortunate and dramatic for the company. Emotion remains in individual decision, in collective decision, what about mediated collective decision?

Their effects in computer mediated collective decision-making

Mediated collective decision-making is less the subject of studies in terms of its biases and effects. However, a few do specify them. Strauss and McGrath (1984, 95) confirm that certain tasks require social exchanges which can be disrupted by the computer relationship. But Derk, Fischer and Bos (2007, 16) show that there is no indication of an emotional difference in the social relationship via computer versus face to face. According to their results, the observed differences are based on a more marked and more explicit frequency of the emotional and a more reduced spontaneity, linked to a more developed control.

Stasser and Stewart (1992, 434) highlight the discussion bias, or the selection bias of information to share in order to be able to follow the desired strategy. Stasser and Titus (1985, 1477) speak of a common information sampling bias. Information known by several members of the group will be discussed more than information known to only one member. These two biases are based on the fact that mediated discussions are less developed and more focused on the main object. We are avoiding discussions seen as superfluous that would not occur in face to face (Herring, 1996, chap. 5). Zigurs et al. (1988, 641) show that there are some points of significant difference regarding social influence for distant groups. According to Dobrovsky et al. (1985, 384), the computer promotes rationality to focus on the essence of the task being performed by filtering the emotional components of communication, minimizing the impact of social, status and

interpersonal noises. But, a de-individuation -depersonalization- exists as part of the decision when there is a perception of anonymity. That leads to behaviour that would not be accepted in a face-to-face situation (Lea and Spears, 1991, 296). Moreover, a 'hyperpersonal' interaction could appear (Walther, 1996, 2540). Studies show that the individual will seek to recreate a social relationship by methods different from those used face to face (writings, images…) (Reid, 1991, chap. 4). Thus, in the long term, individuals create social relationships with each other and often failing to meet physically, imagine their partner using stereotypes (Lea and Spears, 1991, 296). This induces a self-representation bias (Lea and Spears, 1992, 338). The individual shows himself in a better appearance than he would be face to face and may use excessive communication compared to face to face, in terms of representation and relational goals. That penalizes the consensus calls for exchanges social based on a less superficial building, consisting of socio emotional messages -aspect of expressions of emotions- (Walther, 1996, 2540; Siegel et al, 1986, 183), with emergence of leadership and few organizational difficulties (Rice,1984, chap. 6). As indicated by Baltes et al. (2002, 156), most of these studies date from years when the technology was not as advanced as it is. Nevertheless, it is to consider that the results described do not indicate a fundamentally different behaviour from the decision face to face, except on condition of anonymity that the means of the person's status has more effect Dubrovsky et al. (2009, 384) and where divergent thinking is allowed, reducing the bias of Janis' group thinking (1991, 237).

For review, Table 1 summarizes the effects listed.

Table 1: synthesis of effects

Effects	Descriptions
Decision bias related to emotional state	affect the content of the information[2]
	amends a judgment[3]
Positive effect on decision	better decision[4]
Decision bias and intense negative emotion experienced	may induce a pleasant choice in the short term[5]
Positive effect on the decision and positive emotion felt	may facilitate performance in decision-making[6]
Positive effect on the choice dilemma	helps designers solve the dilemma of choice[7]
Positive effect on priority selection	help in choosing through an emotional selection[8]
Effect of immediate emotions Effect of anticipated emotions	allows to feel the fears or serenities of the decision to come, induce behaviour, action. [9]
Effects of collective decision	often fails to select the best alternative[10]
	enables error detection, better understanding of problems and information sharing[11]
	inherent in the complex organization[12]
	requires processual and sequential understanding[13]
	does not promote rationality nor collegiality tends to reduce risk taking[14]

[2] LeDoux 1996; Meyer et al, 1990
[3] Forgas, 1995
[4] Isen, 1984
[5] Gray, 1999
[6] Damasio, 1994
[7] Morris, 1989; Raghunathan and Pham, 1999
[8] Schwarz and Clore, 2003
[9] Loewenstein et al., 2001
[10] Schulz-Hardt et al., 2000
[11] Stasser and Dietz-Uhler, 2001
[12] Keen and Scott-Morton, 1978
[13] Allison, 1971
[14] Bornstein et al., 2004 ; Kugler et al., 2012 ; Masclet et al., 2009

	the score of the best members on a decision is a better predictor of group scores than the average score of members, but also the reverse,[15]
Shared information bias	group members tend to spend more time and energy to discuss familiar[16] information
	groups often fail to detect the right choice if the information is not shared[17]
Escalating engagement	does not correct the negative effects, when it does not increase it[18]
Group Policy Bias	is subject to collective biases[19]
	conformism (groupthink) power of the sunflower project champion bias halo effect (contamination effect)[20]
Effects of collective remote decision	disruption by the computer relationship of some tasks[21]
	no emotional difference in the social relationship by computer or face to face. differences related to greater frequency and more explicit emotional a reduced spontaneity, a more developed control [22]
Selection bias of shared information Common information sampling bias	selection of information to share Information known by members of the group more discussed [23]
Influence bias	difference in social influence in distant groups[24]

[15] Watson, Michaelsen and Sharp, 1991
[16] Baker, 2010
[17] Brodeck et al., 2007
[18] Paese et al., 1993; Whyte, 1993
[19] Bornstein et al., 2004
[20] Boot, 2005; Lefley, 2006; Nisbett et al., 1977
[21] Strauss and McGrath, 1984
[22] Derk, Fischer and Bos, 2007
[23] Stasser and Stewart, 1992; Stasser and Titus, 1985; Herring, 1996

Positive effect of remote decision making	promotes rationality to focus, minimizing the impact of social, status and interpersonal noise[25]
	efficiency of perception of a decision taken with useful information disinhibition linked to anonymity [26]
Negative effect	deindividuation linked to anonymity Hyperpersonalization[27]
self-representation bias	rebuilt a social relationship by specific methods (writings, images, etc.) imagine the partner in a stereotypical way show oneself better than he would be face to face, use excessive communication penalize consensus emergence of leadership and organizational troubles [28]

Conclusion and implications

This literature review has, first of all, made it possible to identify studies that confront individual decision and collective decision face to face and from a distance in order to discover the various effects and roles of emotion in remote decision in organisation. Our analysis shows that several elements stand out from the biases of the computer mediated collective decision seen as an aggregation of individual decisions (Baker, 2010, 261; Derk Fischer and Bos, 2007, 16). They complete individual and through collective face to face and has specificities (Zigurs et al., 1988, 641). Computer mediated collective decision is not more efficient or favour to rationality (Dubrovsky et al., 1985, 380), it is frustrating in terms of interpersonal relationships (Lea and Spears, 1992, 338; Walther, 1996, 2540) disadvantage consensus (Stasser et al., 1992, 434; Strauss and McGrath, 1984, 95) and remains, nevertheless, subject to biases and heuristics and

[24] Zigurs et al., 1988
[25] Dubrovszky et al., 1985
[26] Jessup et al., 1990; Connolly et al., 1990; O'Reilly and Roberts, 1977
[27] Lea and Spears, 1991; Walther, 1996
[28] Reid, 1991; Lea and Spears, 1991; Lea and Spears, 1992; Walther, 1996; Siegel et al, 1986; Rice, 1984

paradoxically perceived as very prone or totally devoid of emotional relationships (Reid, 1991, chap. 4). In any case, this writing has clearly shown that emotion, despite a certain depersonalization, is present in this type of decision. As in face to face collective decision making, it can be a bias or a support (Derk Fischer and Bos, 2007, 6). The managerial and communication research shows that being together to think things over is certainly an advantage: we can divide the reasoning into simpler tasks, examine more options, mutually enrich each other's ideas, check each other's calculations. A priori, the rationality of a collective should be greater than that of an individual, necessarily limited by his ability to learn and think. But this collective rationality comes up against other limits, which come from the very forms of reflection and decision-making.

An organization has its own intelligence that makes it more efficient than a single individual, but this collective intelligence, in order to function, must use specific processes like group work and implicit coordination. Moreover, these processes present specific risks of dysfunction which can deteriorate this collective intelligence, such as the deny of emotions.

Modern organization is characterized by principles such as the division of labour, impersonal rules and methodical actions. However, these very principles, and in spite of qualities otherwise proven when they are applied to groups, are the source of certain silences which induce counterproductive effects. In particular, they hinder the perception and understanding of problems that can be serious. Indeed, the modern organization wants to be impersonal and rational: we do not shout, we do not insist, we use standardized signals, we do not show personal feelings. For example, a note or a serious alert message can perfectly, in form and style, resemble a routine note. Often, stakeholders feel that an alert issued does not need to be repeated. This form of silence is at the origin of famous cases of collective error.

During a decisive meeting for the launch of the shuttle Challenger (which was to explode in flight on January 28, 1986), several engineers fell silent because they felt it was unnecessary to speak again of the defects in the seals responsible for the accident after another participant had already mentioned them, as described by Janis (1991, 235).

This example shows how undeclared emotions have played a role in this collective error in managerial decision. Several factors explain the biases, the errors that exist in collective decision-making. According to the writings on decision-making, computer-mediated collective decision-

making doesn't favour rationality. Would the difficulty to share emotions in this situation be the reason to explain this finding? Not so sure. An analysis of a review on emotion in computer-mediated communication (CMC), made by Derks et colleagues, (2007, 12) shows that there is no indication that CMC is a less emotional or less personally involving medium than face to face. On the contrary, emotional communication online and offline is surprisingly similar, and if differences are found they show more frequent and explicit emotion communication in CMC than in face to face (F2F*).* Those findings allow to affirm that researches on computer-mediated decision-making and communication (CMC) must be studied through a meta-analysis to cross the results found in the two fields, as done in this text. The aim would be to investigate factors that influence the perception of the relations: Are frequency of exchanges, cultural distance in the case of a multinational organisation, type of decision (strategic, problem solving or current), way to decide collectively, number of deciders, types of status of deciders: engineers, financial…, personalities (Cristofaro, 2017, 24) able to limit collective biases? Is the regulation of emotions or emotional work a significant factor in improving rationality in collective decisions mediated by the organization? Many questions that remain to be investigated. Despite certain limits (a reflection and literature review), from a managerial point of view, this analysis gives managers a vision of the effects of emotions when they make remove decisions, both support and bias factors. This overview can help them seek to limit biases related to social relations by organizing regular physical contact, especially or related to information shared by allowing each decision-maker to access and benefit from the information, or favour media richness to support consensus (Daft and Lengel (1986, 3). The positive effects observed on the rationality of decisions can be seen as an opportunity in collective decision-making. To sustain emotions and consensus and to avoid the lack of humanization, a startup, for example, has gone so far as to create a facial recognition system capable of capturing the emotional state of the employee remotely. As with the academic point of view, there is still a lot to discover in order to managerially adapt remote collective decision-making and make it a decision-making tool that both limits bias while retaining its human aspect.

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