Management between crises and emergencies.
Toward an "absential" approach

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> I felt a cleaving in my mind
> As if my brain had split;
> I tried to match it, seam by seam,
> But could not make them fit.
> The thought behind I strove to join
> Unto the thought before,
> But sequence ravelled out of reach
> Like balls upon a floor.
> *Emily Dickinson*

Abstract

The aim of this study is to propose a new approach to decision making based on information variety endowment and configuration. The research adopts an exploratory methodology and a qualitative approach, deepening and analyzing both academic and non-academic studies. The study found the existence of general characteristics in the dynamics of human behavior and in that of social phenomena, characters that lead to specific paths of decision and action based on information variety endowment of decision makers.

The developed conceptualization needs verification through appropriate tools and tested in empirical settings. The study can support the decision-making process of individuals, organizations, and whole societies – understood as viable systems – in the current dynamic and unpredictable context. This is the first work to propose an absential approach for the framing of managerial problems, recognizing that current methodologies are not capable of effectively responding to uncertainty and unpredictability of the melted result of economic, political, and social environments interaction. Eventually, this is the first work to engage in a mathematical demonstration of decision-making essentiality.

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Sommario

L'obiettivo di questo studio è proporre un nuovo approccio al processo decisionale basato sulla configurazione della varietà informativa. La ricerca adotta una metodologia esplorativa e un approccio qualitativo, analizzando e approfondendo studi accademici e non accademici. Lo studio ha rilevato l'esistenza di caratteristiche generali nella dinamica del comportamento umano e in quella dei fenomeni sociali, caratteri che portano a specifici percorsi di decisione e azione.

La concettualizzazione sviluppata dovrà essere verificata con strumenti adeguati e testata in contesti empirici. Lo studio può supportare il processo decisionale di individui, organizzazioni e intere società - intese come sistemi vitali - nell'attuale contesto socioeconomico, dinamico e imprevedibile. L'approccio assenziale per l'inquadramento dei problemi manageriali, ancora embrionale, riconosce che le attuali metodologie d'indagine dei fenomeni sociali e d'impresa non sono in grado di rispondere efficacemente all'incertezza e all'imprevedibilità dell'interazione tra ambiente economico, politico e sociale. Si tratta del primo lavoro che si impegna in una dimostrazione matematica dell'assenzialità del processo decisionale.

Parole chiave: management assenziale, emozioni, processo decisionale, varietà informativa

1. Introduction

The above verses explain the unease that every decision-maker feels when the rational framework at disposal appears inadequate. Similarly, only in apparent contradiction, it happens that even those who do not have the required knowledge begin to discuss issues and topics considered not simple. The emergence of such behavioral patterns leads to believe that management is experiencing a crisis regarding principles and main theories that have characterized the discipline from its inception. There are many cultural areas in which such a dynamic is taking place.

Every type of organisation (public or private, profit or non-profit, political or financial), is experiencing the progressive inadequacy of its interpretative schemes. The unifying dimension of this trend can certainly be found in the increasingly overcoming of the articulated palimpsest of consolidated managerial processes. Regardless of any classification of scope and perspective, what we find is an increasing difficulty for any type of organisation, be it a firm or an institution, to be able to identify choice procedures (decision making)

appropriate to the nature of the problems to be faced. It is central to understand that these difficulties are not connected to project management procedures (problem solving) but they are traced back to the inability to circumstantiate a problem and to hypothesize adequate solution strategies. This is becoming more and more evident in managerial disciplines and, in general, it is happening in any social/entrepreneurial decision-making process (Rullani, 2020). It is not difficult to see that most of these disciplines end up concentrating 'deterministically' on the analysis of factors relating to previous case histories, often even considering a limited number of them, and thus trying to derive general laws of behaviour to be biunivocally associated with specific problems (Barile *et al.*, 2018).

It is becoming clear that concentrating on the search for formal planning methodologies, basing on the analysis of past performance, entails the risk of limiting the elements to be considered in the problem analysis, accepting the unverified principle that every current problem can be traced back to a case history that has already been tested. Based on such a premise, there is little point in admitting that strategies must be systemic and multidimensional in nature. The countless attempts to take the 'context' into account by imagining that such an intention can be limited to including new variables, which can also be derived objectively and therefore in a 'formalizable' manner, qualifies the flaw in the origin of the consolidated approach (Denrell *et al.*, 2004).

The fideistic expectation that has led even enthusiastic managers to believe that most of the crises encountered in the strategic-operational dynamics of contemporary organisations can be traced back to a case history that is in any case homologous in its established approach is increasingly improbable. Decision-makers motivational sphere and their perspective, the gradient of significance with which the environment is analyzed by extracting a 'context' from it, become a priority.

Although it is undoubtedly of intellectual and cultural interest to reflect on why such evidence comes to the fore in the present era, and whether it has become detectable as a result of specific socio-economic factors, it must be borne in mind that such speculation is beyond the scope of this paper. What is of interest here is the central role assumed by the aforementioned 'motivational sphere', and how the compendium of factors connected to this descriptive sphere can contribute to designing new and more opportune paths of 'decision management'.

Essentially, the intention is to develop a reflection on the progressive loss of efficiency of interpretative schemes: due to the dynamics of context change underway, it is necessary, rather than thinking about adapting tools and techniques, to proceed to the realization of a refunding of the principles

underlying the approach from which those techniques and tools, which are today inadequate, were generated.

The paper is organized as follows: after a first introduction, the work focuses on setting the theoretical background (Sec. 2) of this research. Accordingly, the paper focuses on the role of information variety in balancing rationality and emotions (Sec. 2.1), shading light on how it learns and varies (Sec. 2.2). Then, a new approach to knowledge is presented (Sec.3) and discussed (Sec. 4). Implications and conclusions are presented in section 5.

2. Theoretical background

2.1 Between rationality and emotions: the role of information variety

In recent times, in many disciplines, particularly in neuroscience and computer science, but also in philosophy and anthropology, there has been an intensified effort to better understand nature, function and role of components underlying human behaviour, decision and action. This is an exciting challenge that requires a broad interdisciplinary approach, having to consider research on both human brain and human mind, perceptions and cognitions, feelings, and emotions, as well as the entire value system, including morals and ethics, ideality, and faith: in essence the entire scenario ascribable to our consciousness.

The need to probe consciousness, understood as the awareness of our potentialities beyond the rational, registers the commitment of many scholars of the highest standing. Prospects for problem analysis are innumerable, ranging from brand imaging studies aimed at understanding the systems distributed in the cerebral hemispheres, to philosophical analyses aimed at identifying the mental seat to which the formation of moral judgement and ethical behaviour can be traced. Therefore, intervening in such a scientific dialectic requires caution and, above all, a premise of objective modesty regarding the contribution to be made. As already mentioned, there are many giants of research on whose shoulders it is necessary to stand, but in the reflection carried out in this contribution, a founding role must be attributed to the work of Paul Ekman, the author of the "neuro-cultural theory" which, drawing on Darwin's considerations regarding facial expressions and emotions, provides empirical evidence in support of the universality of emotions and their link with facial expressions (Darwin, 1872). Ekman's studies hypothesize that there is a strong correlation between facial

expressions and the emotions experienced in certain situations, and that the possible facial expressions have a universal character. Furthermore, in addition to the universality of emotional expressions, the author argues that there are social rules for the expression of emotions, consolidated in the cultural paradigm of different ethnic groups, which determine the control and modification of emotional expressions according to social circumstances (Ekman, 2007). Another prodromal reference to the reflections that follow is constituted by the research ascribable to the so-called Yerkes-Dodson law that postulates the empirical relationship between emotional tension and behaviour, distinguishing between 'Eustress' (or positive emotional tension) and 'Distress' (or negative emotional tension). In addition to the considerations that the authors expound on the relationship between emotional tension and the individual's performance, what is relevant for our purposes derives from the highlighted correlation between emotional condition and the complex of psycho-physical factors referable to problem-solving processes (Nickerson, 2021). Also important is the contribution offered by the French philosopher Henry Bergson, who considers intuition not as a method of approaching decision-making necessarily contaminated by a halo of error, but rather as an indispensable perspective for the expansion of knowledge, in symbiosis with the rational dimension (Bergson, 1889). Considering decision-making methods based on rationality as opposed to those based on emotion (impulsivity, intuition, the unconscious in Bergson's considerations) predisposes to a perspective error in the study of human behaviour. Another indispensable contribution comes from the studies of Robert Plutchik (1980), an American psychologist, known for the theory that traces the genesis and derivation of every other possible human emotion to eight primary emotions (Fig. 1).

All this being said, with the assumption that emotions and their control are inseparably linked to the decision-making dynamics of organisations and that the feelings that emotions generate contribute to the definition of the context in which choices are made by the decision-maker, in wishing to deal with social phenomena and hence mental phenomena, and in line with the possibility of intervening on the paradigmatic hypothesis in which the context is represented, it is necessary to define some elements, so to speak 'primitive', capable of characterizing the context itself. The aim of this contribution is to identify the conceptual grid to which the need for preparatory change can be traced, through which to operate the modification of the patterns of approach to the solution, providing general schemes for rethinking the approach to decision making.

There is a need to identify a group of principles useful for describing all phenomena, and perhaps understand the laws that determine their results (Deacon, 2012).

Fig. 1 - *Plutchik's wheel of emotions*

Source: Plutchik (1980).

Knowledge, interconnected with other concepts such as those of learning and reasoning, can (and should) be understood as a cyclical process in which perception, action of the intellect, storage, and processing of information (reasoning), create a virtuous path that results in an ever-increasing endowment of "known things".

We emphasize that the concept of knowledge useful for this discussion, an ongoing and continuous process, must necessarily recover a possible static, discrete description (a snapshot), i.e. an endowment of things known at a given moment. Although much literature prefers to assimilate knowledge to a

process, to a continuous elaboration, rather than to an accumulation of information, for our purposes, while sharing the idea of knowledge as a continuous progression, we believe it cannot be denied that the comparison between two temporally distinct moments t_1 and t_2, lead to highlight that the knowledge possessed at the moment t_1 is to be considered necessarily different from the knowledge possessed at the time t_2.

It is precisely this endowment of knowledge - fixed at a certain time t_j - that we qualify as the 'primary object' of our discussion. We use the term Information Variety at time t_j: Var inf t_j (understood as the stock of information resources possessed by a mind, and stored via a brain, at that precise moment t_j). It is evident that if knowledge as a process must also include the dynamic action of the intellect, then the concept of wealth of information resources possessed at a certain instant must be understood as including the wealth possessed by the mind as determined by the effect of cognitive activity as a whole. This cognitive activity, aimed at learning and understanding, is carried out through both exo-perception and endo-perception (reflection), the latter understood as the autonomous self-determination (internal circularity) of new cognitions. In some of our contributions we have investigated the socio-behavioural dynamics concerning the endowment of information variety (the wealth of information resources) possessed by a subject engaged in decision-making (Maggioni, 2014; Baldinelli, 2012).

The investigation requires first of all that we represent information variety through three dimensions that can be expressed in a coherent measurement system:

$$V_{inf}(k) = (SDe_{def}(k), SSp_{spec}(k), CSg_{val+ScheGen}(k))$$

Dove:

- $V_{inf}(k)$ = Information variety of the Viable System K;
- $SDe_{def}(k)$ = Definite Schemes of the Viable System K;
- $SSp_{spec}(k)$ = Specific Schemes of the Viable System K;
- $CSg_{val+ScheGen}(k)$ = Value Categories and General Schemes of the Viable System K;

Elements $SDe_{def}, SSp_{spec}, CSg_{val+ScheGen}$, which, as mentioned above, characterise the wealth of information resources of the variety V_{inf}, are to be understood both in dimensional terms; that is, they explain the proportions of the information variety with respect to orthogonal dimensions such as those of height, depth and breadth, which are typical expressions of the

spatial representation of material bodies, and rather they are to be understood as expressive quantities of specific properties possessed by each information variety, and consequently as factors capable of conditioning the evolutionary dynamics of knowledge. Specifically, we can assume that the three factors are representative of the following characteristics:

- SDe_{def} breadth of perspectives, shapes of knowledge (possible representations);
- SSp_{spec} specificity, detail of knowledge (final unitary elements);
- $CSg_{val+ScheGen}$ general overview, but also resistance that possessed knowledge opposes to change (information variety inertia).

The decisive aspect to be introduced at this point concerns the unit of measurement, and thus in functional terms the independent variable that substantiates the entire representation. The entire conceptual framework is based on the verified isomorphism existing between the flow of the time variable, and the corresponding flow of perceptions typical of a human mind. Due to the already stated correspondence between perceptions, data and information, which we will explain in more detail shortly, in what follows we will use the expression u_i to indicate the unitary element of information. Therefore, it makes sense to imagine that the size of the information variety is dependent on the quantity of information units (Barile, 2013; Barile, 2015, 2016b):

$$SDe_{def}(u_i), SSp_{spec}(u_i), CSg_{val+ScheGen}(u_i).$$

### 2.2 Information Variety: learning mode and variation

The learning phenomenon from a viable systems perspective consists essentially of the variation of an information variety from an initial configuration perceived by an observer (self-observation is also to be understood in this definition).

Above, it was specified that an information variety can be traced back to three components:
- value categories and general schemes;
- interpretative schemes (definite and specific).

The value categories and general schemes, which are strongly based on values and inspired by general laws felt as true by the subject and - in general - by the community to which a decision-maker belongs, make up the dimension of the deepest interpretative sensitivity of any phenomenal.

Fig. 2 - *Information variety components*
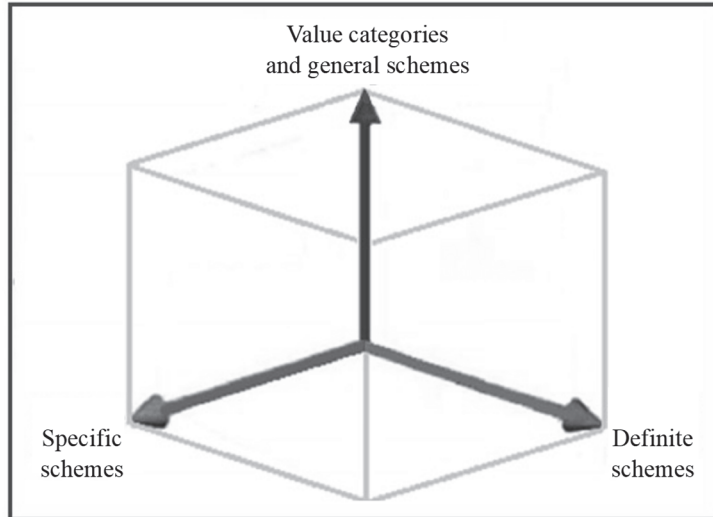
Source: our elaboration.

Interpretive schemes, composed of definite and specific schemes, are understood as the contextualization of value categories and general schemes. In the same way that a 'genotype' interacting with the environment develops 'phenotypic' characteristics, value categories and general schemes, interacting with the environment develop definite and specific interpretative schemes.

The definite schemes, directly derived from the general schemes, could be defined as the contextualized transposition of the former, they pertain to a rational dimension but are generally not "rationalized", they constitute an endowment of tacit knowledge, they are of a qualitative level, they are essentially linked to the actor's motivations being based on the actor's own experiences, and therefore referable to the specific systemic context. They are patterns that the individual retrieves from active training, from action related to doing.

Finally, the specific scheme, although of more immediate reference than the concept of 'information', are always referable to a specific systemic context and correspond to an essentially quantitative level, they are explicit knowledge which can be manualized, and therefore subject to the logic of representation proper to the theory of communication (Shannon, 1949).

It is interesting to note that the three dimensions of the variety of information, find correspondence and resonance in reference to specific linguistic terms, the semantics of which, although they circumstantiate a very

165

broad epistemological 'space', in terms of explanatory constructs essentially lead back to the conceptual syntheses mentioned above, and which make it possible to identify logical spaces that are interdependent.

3. Reframing knowledge: an issue of time or perception?

Before proceeding, it is necessary to substantiate a fundamental premise that brings the dynamics of social behaviour closer to the established laws of the physics of matter. Regardless of the position that the writer and those reading this may hold regarding the objective existence of reality, it is arguable that reality finds meaning in the succession of perceptual sequences that are detected by sentient entities (human beings in particular) (Barile *et al.*, 2016a). Therefore, it becomes permissible to argue, echoing Ernst Mach, that the progressive order of time, even in the most basic sensations, is connected with the images produced by the memories of those sensations (Mach, 1903).

Thus, it is possible to qualify 'sensation' and the resulting 'perception' as a factor in the detection of the flow of time. Each moment t_i ends up being biunivocally identified by a pair of perceptions p_{i-1} e p_i which unambiguously define the instant t_i as the temporal distance between the realisation of the first perception and the occurrence of the second. Therefore, where the variety of information relating to a specific endowment of knowledge qualifies the 'position' of a mind (or group of minds), the number of elementary data deriving from perceptions, even the result of self-processing, present in it, defines its seniority.

In this meaning, perception, whether internal or external to the sentient subject, qualifies as an independent flowing factor, endowed with a single positive direction in the normality of the learning process. It follows that the 'structural' composition of knowledge, is given by the quantitative endowment of Interpretive Schemes $\boldsymbol{SDe_{def}(k) + SSp_{spec}(k)}$, owned by a viable system $\boldsymbol{k}$. Basically, everything that has been perceived through the five senses (and which is not overlooked due to lack of interpretative schemes) or further perceptions that come about as a result of subsequent processing. They derive from that composite set of data that aspire to contribute to the formation of elements of an accomplished thought and to fit into the experiencer's own pathway so that he or she can process them, transforming them into information relating to defined knowledge processes (Pessa and Penna, 1994).

In what follows, after listing some of the main terms (and their meanings) useful for outlining the characteristics, modalities, as well as the assumptions, constraints, and dynamics of interaction proper to that something we could synthesize with the locution "mental sphere", evidence is provided that the entire set of terms proposed can be traced back to that essential synthesis defined by the components of an informative variety.

The color used for the classification of the different terms refers to the components of the information variety. We will use green for value categories and general schemes, yellow for definite or synthesis schemes, and light blue for specific schemes (Tab. 1a, b, c)[1]:

Tab. 1a – *Value categories and general schemes*

VALUE CATEGORIES/GENERAL SCHEMES (GREEN)
Subjectivity refers to an unchanging concept of essentiality, to a well-determined and certain 'objectivity'. Subsequently, the meaning is turned upside down, taking on the value of what is apparently true in the realm of individual subjectivity. The Latin term translates the Greek ὑποκείμενον (*hypokeimenon*), which means 'that which lies beneath', that which according to ancient thought is hidden within the perceptible thing as its ontological foundation.
Psyche refers instead to the mind as a whole, i.e. including the irrational dimension, i.e. instincts and the dimension of the deep (unconscious).
Awareness, in psychology, is qualified as the perception and cognitive reaction of an animal to the occurrence of a certain condition or event. Awareness does not necessarily imply understanding.
Self-awareness is the knowledge and ability to identify relationships between oneself and one's surroundings.
Introspection is an act of thought that consists of direct observation and analysis of one's interiority represented by feelings, desires, products of thought itself, as well as a person's sense of identity. It is opposed to the process known in English as extrospection, which consists of the observation of that which is external to one's self.
Brain is responsible, together with the endocrine system, for part of the regulation of vital functions and is the seat of homeostatic regulation and higher brain functions. In humans, brain activity, studied by neuroscience, gives rise to the mind with its higher cognitive functions and, more generally, to the psyche with its psychic functions, studied in the field of psychology.
Consciousness (in the Freudian formulation, German *bewusstsein*) is a quality of mind that usually includes other qualities such as subjectivity. The term derives from the Latin *conscientia*, i.e., 'to be aware, to know' and indicates the awareness that a person has of mental contents.
Mind is commonly used to describe all the higher functions of the brain and those of which one can be subjectively aware such as sensation, thought, intuition, reason, memory, will. Thought is the activity of the mind.
Memory is the brain's capacity to retain information, i.e., that psychic or mental function aimed at the assimilation, retention and recall, in the form of recollection, of information learned during experience or by sensory means.
Cognition is a term used in different meanings by different disciplines but is generally accepted to refer to thinking and the way awareness is achieved.
Idea (from the ancient Greek ἰδέα, from the theme of ἰδεῖν, to see) is a term used since the dawn of philosophy, originally indicating a primordial and substantial essence, but which today has taken on a narrower meaning in common language, generally referring to a representation or 'drawing' of the mind.
Cognition is a term used in different meanings by different disciplines but is generally accepted to refer to thinking and the way awareness is achieved.

[1] Definitions have been adapted from www.treccani.it.

167

Tab. 1b – Definite/synthesis schemes

DEFINITE/SYNTHESIS SCHEMES (YELLOW)
Judgement In philosophy, is a cognitive mental function or operation that links subjects to gnoseologically significant predicates.
Intuition In philosophy means that kind of immediate knowledge that does not make use of reasoning or sensible knowledge;
Imagination It means the capacity to represent things which are not present to the sensation.
Wisdom The virtue of prudence in distinguishing good from evil and useful from harmful.
Will is the factual and intentional determination of a person to undertake one or more actions aimed at achieving a specific purpose. The will thus consists of the end, or ends, that the human spirit sets out to achieve in its life, or specifically also in its simple, everyday actions.
Learning is the acquisition or modification of knowledge, behaviour, skills, values or preferences. Humans, animals, plants and some machines possess this capacity. The evolution of behaviour over time follows a learning curve. Both adaptive and maladaptive behaviour can be learnt.
Behaviour is the manner of acting and reacting of an object or organism placed in relation or interaction with other objects, organisms or more generally with the environment. It is therefore the actuation of a potentiality that, in turn, is based on an idea or belief, more or less realistic, even a prejudice. Human behaviour can be conscious or unconscious, voluntary or involuntary, and is closely linked to the individual's personality type or model.
Understanding (from Latin *comprehensio, -onis*) is the act and capacity to understand, i.e. to 'grasp' a cognitive content.
Experience is the direct knowledge, personally acquired through observation, use or practice, of a certain sphere of reality.
Skill is the ability to perform a particular activity. In pedagogy, it is understood as the acquired ability to exercise certain faculties and perform certain tasks.

Tab. 1c – Specific schemes

| SPECIFIC SCHEMES (LIGHT BLUE) |
|---|
| *Sapientia* (from Latin *sapientia*) translates the Greek word σοφία (sofia). Until Plato, it was understood to mean not only the possession of rational knowledge but also the related technical skill in putting that knowledge into action. |
| *Value* is understood as a concept of the desirable, explicit or implicit, which distinguishes an individual or characterizes a group, which influences the selection between possible ways, means and ends of action. |
| *Meaning* is a concept expressed through signs that may be graphic, verbal-oral, or through nods and gestures. Meaning makes it possible to understand or express the meaning, value or content of the sign. |
| *Sensation*, from a physiological point of view, can be defined as the modification of the state of our neurological system due to contact with the environment through the sense organs. Stimuli offered by the environment are captured by our sense organs. |
| *Rationality*, in philosophy, is the faculty by means of which thought is exercised, especially thought directed towards abstract subjects; it is considered by most philosophers to be a universal faculty, such that it is shared as much by humans as, theoretically, by animals or artificial intelligences that would use rationality understood as the capacity to calculate. |
| *Depiction* is a representation, reproduction, description, figure, image, illustration, portrait, effigy, iconography, a symbol, personification, embodiment, emblem, allegory. |
| *Perception* is the psychic process that operates the synthesis of sensory data into forms with meaning. Assumptions to the study of perception vary according to theories and historical moments. |
| *Notion* is made of elementary data, referable to the informative or systematic moment of a specific knowledge, fundamental cognition comparable, or identifiable, with the idea or concept. |

Intelligence can be identified as the capacity of an agent to face and successfully solve new or unknown situations and problems; in the case of man and animals, intelligence also seems to be identifiable as the complex of all those faculties of a cognitive or emotional type that concur or would concur to such capacity.
Information is an exchange of knowledge between two or more persons, within a community or society, and the meaning that the persons involved attribute to that knowledge. In other words, it concerns the context in which data is collected, its encoding in intelligible form and ultimately the meaning attributed to that data.
Erudition is the possession of a great deal of knowledge and information in one or more fields of knowledge. The term emphasizes the vast store of knowledge possessed, obtained through intensive reading and meticulous research, and can also have a derogatory connotation when the vast amount of knowledge acquired is not assisted by original thought or critical insight.
Education is the activity, influenced in different historical periods by various cultures, aimed at the development and formation of mental, social and behavioural knowledge and faculties in an individual.
Concept is a term by which we mean a defined and ideally configured thought, formulated and usable on an intuitive, logical and practical level; in philosophy, it means the general and universally valid process or result of cognitive activity, aimed at grasping and defining the essence of the object.
Criticism means the activity of thought engaged in the interpretation and evaluation of historical or aesthetic facts or documents (historical criticism, literary criticism), or of the deep functions and contents of the human spirit, from a gnoseological and moral point of view (philosophical criticism; criticism of pure reason, practical reason).
Culture derives from *colere* ('to cultivate') and refers both to the acquired baggage of intellectual knowledge and to the intellectual process of reworking and rethinking necessary to convert notions from mere erudition into a constitutive element of one's moral personality, one's spirituality and one's aesthetic taste and, in short, in one's awareness of oneself and one's world.
Knowledge, understood as awareness, is the understanding of facts, truths or information obtained through experience or learning (a posteriori), or through introspection (a priori). Knowledge is the self-awareness of the possession of interconnected information, which, taken individually, is of lesser value and utility.
Data (from the Latin datum meaning literally 'fact') is an elementary, often codified, description of a phenomenon. Data processing can lead to information. Each type of data depends on the code and format used.

Source: our elaboration.

Different terms and concepts, on the basis of the colors they belong to, can be summarized in the conceptual map depicted in Fig. 3.

It is interesting to note that the three dimensions of the information variety find correspondence and correspondence in reference to specific linguistic terms, whose semantics essentially lead back to the conceptual syntheses mentioned above, and which make it possible to identify logical spaces that are independent of each other.

Fig. 3 - *Erudition, Awareness, Understanding: a map*
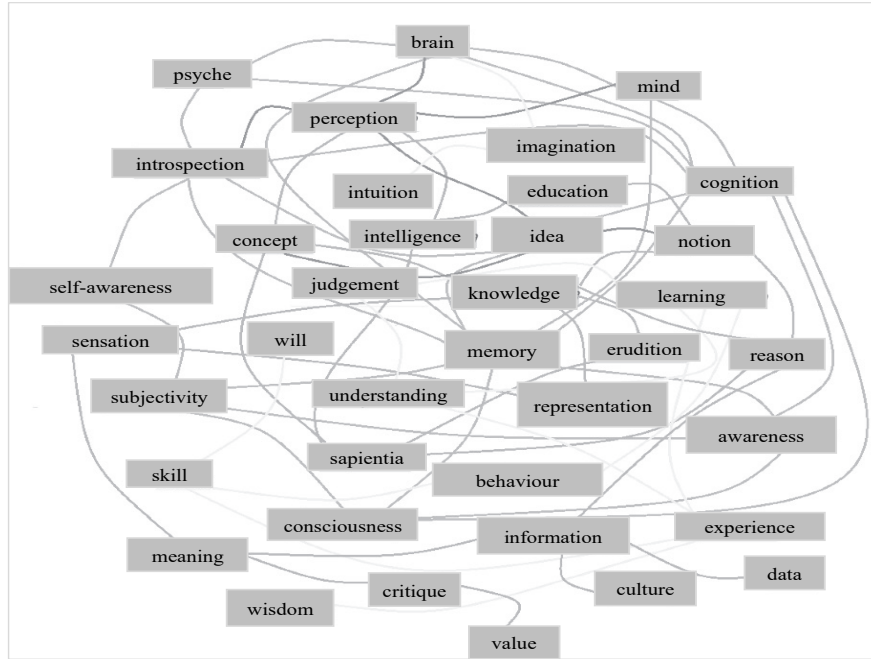
Source: our elaboration.

Essentially, given the need for simplification even at this explanatory stage, it is possible to identify a strong conceptual analogy between the following terms and the identifying elements of the axes in Fig. 4:

I.   Mastery: singular skill, rare expertise in the performance of an activity, in the execution of a work and the like [definite schemes]; masterly skill expressible through artistic, sporting and intellectual modalities. Generally, these are innate aptitudes, also cultivated through experience;

II. Sapientia: refers to the possession of much knowledge and profound cognition [specific schemes] in one or more fields of knowledge, acquired through study, meditation, reflection;

III. Wisdom: refers to an individual condition [value categories + general schemes] that reveals, in behaviour, judgement and action, shrewd discernment, moderation, intellectual and spiritual balance. It entails maturity and balance, and a knowledge of things acquired through reflection and superior to that of the average individual.

Moreover, through further reflection, it is possible to consider that the three dimensions outlined above lead to two-dimensional realms, proper to further logical assertions referring to what could be called the 'state of

170

consciousness' of any sentient subject. By 'state of consciousness', in this case, we must mean the outcome of processes of understanding, cognition, and knowledge, typical manifestations of the vitality of human beings, of organisations in general, and even more inclusively, of any viable system. The interpretative content that can be attributed to the three possible two-dimensional domains is as follows:

a) Understanding (Mastery - Wisdom): is the state of mind, which, starting from the interaction with a specific event, enables one to formulate thoughts capable of tracing the phenomenology of the same back to already known concepts, so as to be able to justify it in an adequate interpretative framework;

b) Cognition (Sapientia - Wisdom): it is the faculty of processing the elements of understanding, acquiring awareness of them, and also proceeding to the formation of new concepts (learning), useful for evaluating and interpreting the surrounding reality;

c) Knowledge (Wisdom - Mastery): is the cognition and understanding of facts, truths or information obtained through experience or learning (a posteriori), or through introspection (a priori). Knowledge is the self-awareness of the possession of meta-concepts capable of connecting information, attributing a meaning and significance certainly not deducible from information individually taken.

Fig. 4 - *Two-dimensional domains relating to the 'state of consciousness'*
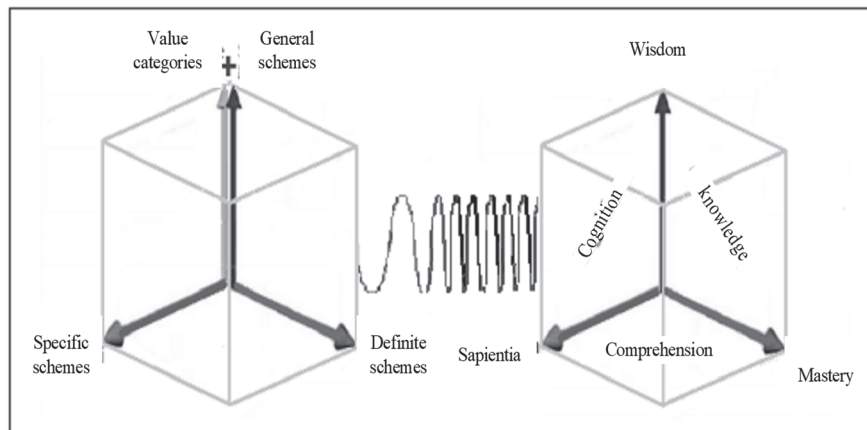
Source: our elaboration.

4. Discussion: information variety configuration between Time and Perception

Following the discourse, therefore, the configuration of an information variety is not a characteristic of the variety itself but is an interpretative mode that can be traced back to the dimensions defined above. In Fig. 5, it is represented in the context of a Cartesian coordinate system. Vectors provide an ideal language for identifying the position of a configuration with respect to the origin, in the context of a Cartesian diagram. The vector, which in our case represents the variety configuration having specific characteristics, is called the configuration vector and is denoted by $¢$.

It is possible to state that if the configuration $¢$ undergoes changes, then the vector $\vec{¢}$ redetermines itself as a function of the information perceived by the viable system, and these changes can be traced back to the dimensions of the Cartesian diagram:

$$\vec{¢}_i = \widehat{ma} \cdot ma(i) + \widehat{sp} \cdot sp(i) + \widehat{sg} \cdot sg(i) \quad \text{where:}$$

- *ma* is a unit of mastery;
- *sp* is a unit of sapientia;
- *sg* is a unit of wisdom.

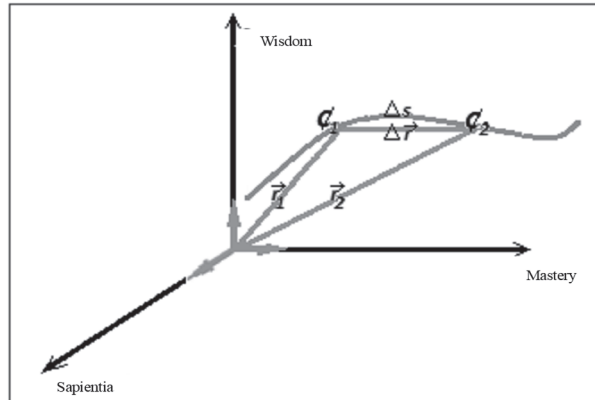Fig. 5 - *Variety configuration through the vector ¢*
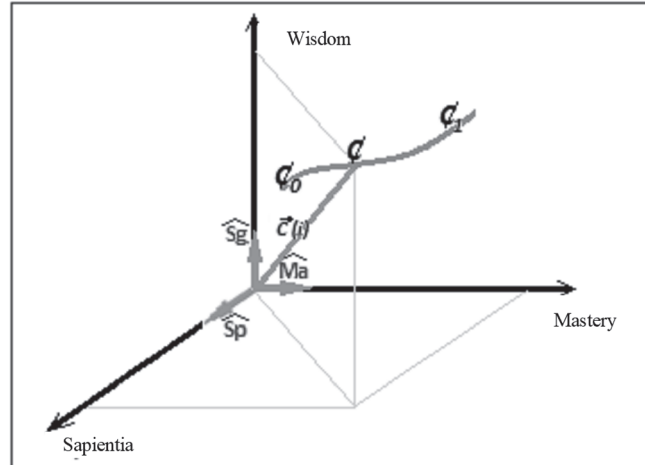
Source: our elaboration.

These dimensions represent three independent variations along the directions identified by the three verses *ma, sp,* and *sg*. This translates into the statement that the configuration of an information variety possesses three

degrees of freedom. Fig. 6 shows that the evolutionary dynamics of a configuration describes a trajectory $\mathrestricted$. The different points of $\mathrestricted$ identify, due to the information variety, different values of configuration.

Fig. 6 - *Evolutionary dynamics of a configuration*

The measure s(i) of the evolution undergone due to the unit of perception along the trajectory starting from position $\mathrestricted_0$, relative to i=0, is given by the value assumed at perception i by the scalar function s(-), called the learning law.

The vector of change. Let us assume that, at the occurrence of the perceptual i_1, an information variety is in the configuration $\mathrestricted_1$, and at the occurrence of the perceptual i_2 information variety is in the configuration $\mathrestricted_2$, described respectively by the configuration vectors r_1 e r_2.

The vector $\Delta_r = r_1 - r_2$, representing the distance between $\mathrestricted_1$ e $\mathrestricted_2$ is referred to as the change in the configuration of the information variety due to the learning derived from the information $\Delta_i = i_1 - i_2$.

Observable consonance. Ratio Δ_i is fully defined where i_1 and i_2. It is a vector having the same direction and verse as r but modulus $1/\Delta_i$ times that of Δ_r. It is a derived quantity whose dimensions are $[sharing] = [understanding] \cdot [information]^{-1}$, its unit is $\frac{[scheme]}{\text{information}}$; it is useful to characterize the configuration variation between $\mathrestricted_1$ e $\mathrestricted_2$ and is called mean consonance:

$$\vec{\mathfrak{C}}_m = \frac{\Delta \vec{r}}{\Delta \vec{\imath}}$$

173

This new observable provides only an average idea of the evolution of a configuration. For example, if we think of the change of opinion due to listening to a political debate, due to the opinions of the different participants, the average consonance may be much lower than the consonance with this or that participant in the debate at the different moments of the debate. To obtain a more precise description, we can divide the trajectory r between $¢_1$ e $¢_2$ into a number k of parts as in Fig. 7.

Fig. 7 - *Breakdown of the evolution trajectory*
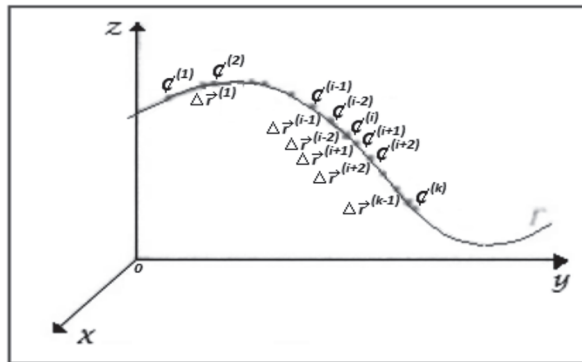
Combining successive configuration changes $\Delta\vec{r}^{(1)}$, $\Delta\vec{r}^{(2)}$... we will obtain a break that constitutes a better approximation to the trajectory the greater the number of parts. The set of consonances $\vec{\mathbb{C}}_m^{(i)} = \frac{\Delta\vec{r}^{(i)}}{\Delta\vec{\imath}^{(i)}}$

cs a more precise description of the change. If k becomes very large, the difference between percepts $\Delta\vec{\imath}^{(i)}$ and movements $\Delta\vec{r}^{(i)}$ will become smaller and smaller. For $k \rightarrow \infty$ they tend to zero. In other words, they become infinitesimal variations of the respective observables which we shall denote by the symbol d. The ratio tends to the derivative of the position vector $\vec{r}(i)$ with respect to the percept and takes the instantaneous change.

Observable resonance. Consonance varies with perception. The rapidity of change in consonance as "percepts" occur is called resonance.

As we did for consonance, we can define average resonance in the interval $\Delta_i = i_1 - i_2$:

$$\vec{R}_m = \frac{\Delta\vec{¢}}{\Delta\vec{\imath}}$$

174

Moving on to the limit, we define instantaneous resonance, which is therefore the first derivative of consonance with respect to perception and the second derivative of configuration with respect to perception. It is a derived quantity in the sense that its dimensions are:

$$[involvement] = [sharing] \cdot [information]^{-1}.$$

Evolution with constant r in module: knowledge from reflection. This change in configuration is also very important. For there to be a change in configuration with r constant in modulus, there must be a change in its direction. The condition $|r| = cost$ translates into Cartesian coordinates:

$$[ma(i)]^2 + [sp(i)]^2 + [sg(i)]^2 = cost = R^2,$$

where R is the radius of the spherical surface on which the configuration change takes place. It is easy to verify that this condition is fulfilled when:

$$ma(i) = Rsin\phi(i) \cdot cos\theta(i)$$
$$sp(i) = Rsin\phi(i) \cdot sin\theta(i)$$
$$sg(i) = Rcos\phi(i)$$

The preceding equivalences show that the set of the three parameters r, ϕ, θ is equivalent to Cartesian coordinates in the sense that, given one of the triads, the other is unambiguously determined. The numbers (r, ϕ, θ) are the spherical coordinates of the configuration ¢ (Fig. 8).

Fig. 8 - *Spherical coordinates of a configuration*
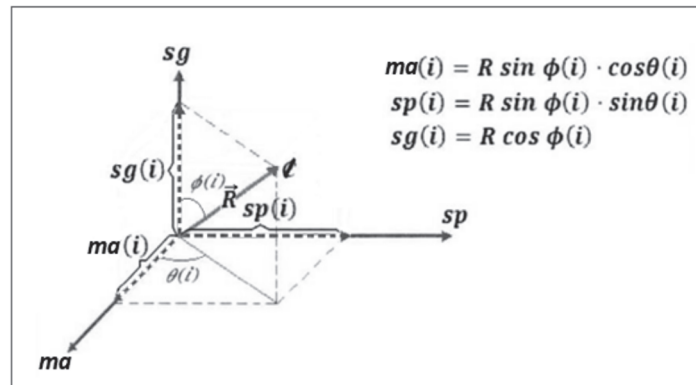
Source: our elaboration

Assuming, for simplicity of representation $\phi = 90°$, the evolutionary dynamics can be described as $(ma; sp)$ as shown in Fig. 9. With this formulation, since there is no perception of events from outside, and

175

information is generated internally, it is intended to represent the self-generation phase of understanding. In essence, the information generated using memory can be processed in the same way as information derived from external perceptions (which, as we know, generate internal information anyway). This process may be repeated several times, and the end result may therefore also be a configuration of information variety distinct and distant from the initial one.

Fig. 9 - *Self-reflection dynamics*
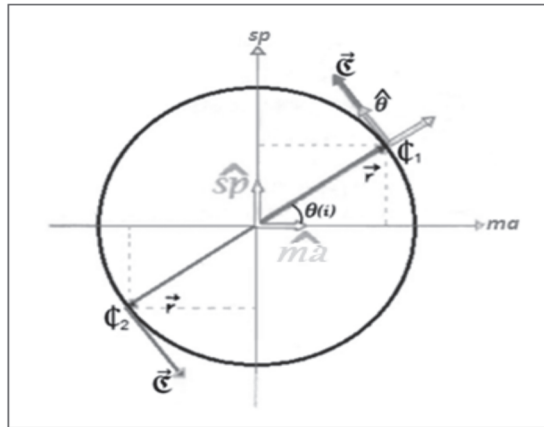
Source: our elaboration.

In formal terms, since from the above descriptions, it is possible to express the configuration vector as:

$$\vec{r}(i) = R\hat{r}(i)$$

where the versor $\hat{r}$ can be expressed as:

$$\hat{r}(i) = \widehat{ma} \cos \theta\,(i) + \widehat{sp} \sin \theta\,(i);$$
$$\vec{r}(i) = R[\widehat{ma} \cos \theta\,(i) + \widehat{sp} \sin \theta\,(i)];$$

the consonance vector $\vec{\mathfrak{C}}$ is derived by $\vec{r}(i)$ with respect to information:

$$\vec{\mathfrak{C}}(i) = \frac{d}{di}[R\hat{r}(i)] = R\frac{d\hat{r}(i)}{di} + \vec{r}(i)\frac{dR}{di}$$

from which:

$$\vec{\mathfrak{C}}(i) = R\frac{d\theta(i)}{di}[-\widehat{ma} \sin \theta\,(i) + \widehat{sp} \cos \theta\,(i)]$$

It is important to consider that if the consonance remains constant during the self-generation of understanding, it is possible to define a symptomatic state of a more or less severe pathology, in which a cycle is carried out on the information variety without succeeding in producing any evolution.

$$w := \frac{d\theta(i)}{di} = cost$$

176

Basically, we have that $\theta(i) = wi + d$ where d is a constant derived from the information variety possessed before starting the reflection. It is impossible to get out.

4. Implications and conclusion: toward an innovative approach to management

While considering the disconcertment and consequent carelessness that results from forcing a management scholar, rightly interested in practical and useful knowledge to better make strategic and operational choices, to have to be attentive to a language such as mathematics, the previous representation of qualitative observables through a quantitative formalization may prove particularly useful.

Indeed, as things stand, there is no theoretical approach that is useful for representing, analyzing, and governing the motivational and decision-making factors that underlie the attitudes described in the statements. The entire methodological complex of entrepreneurial decisions, as specified at the beginning of this work, requires references to consolidated, measurable elements, perhaps by means of so-called qualitative methodological instruments, but traceable to mathematical/statistical type of technical tools. However, as the founding fathers of behavioral economics Tversky and Kahneman (1979) have already shown in the past, rationality and the associated models of behaviour are selected based on heuristics that are only valid in certain contexts. Above all, such models are not immune to bias and error when the changing context no longer permits their application. Hence the necessary introduction of an emotional, irrational, absential dimension into decision-making processes in complex contexts. Indeed, according to Deacon «information, function, purpose, meaning, intention, significance, consciousness» (p. 23) do not exist in the way artifacts of science exist because they have «no momentum, no electric charge, no solidity and no clear extension in the space» (p. 2). Nevertheless, they causally act in the world. Thus, these phenomena are called «absential». In Deacon's view, absential is the quality that defines phenomena whose existence is related to an absence or to an intrinsically incompleteness: human experience - and managerial experience as a part of it - is wholly 'shaped' by "absentials", i.e., by 'things' that are no longer or not yet present such as beliefs, desires, values, goals, the whole pool of possibilities encompassed uncertain or complex choices.

In a previous work (Barile *et al*., 2021), we pointed out that the logical levels against which we can intervene to bring about procedural changes in

177

problem-solving planning and implementation processes are, regardless of the organisational profile of reference, more than one.

Considering Polya's thought (1971) it is apparent that solving problems means to find a way out of a difficulty, a way around an obstacle, to achieve a goal that is not immediately attainable. Solving problems is a specific initiative of intelligence and intelligence is the specific gift of mankind; one can consider this as the most characteristic activity of mankind.

It is worth reiterating that managerial thinking is going through a historical phase that cannot be solved by simple procedural adjustments. The solution does not reside in a new technique that can better streamline a consolidated problem-solving approach. The complex context demands a change that is at the level of transformation or even more at the level of restructuring of the problem-solving approach. The condition is well described by Taylor (1991): although the elements of the puzzle never fit together perfectly, gradual modifications can bring about major changes. If thinking is a complex process, where images, concepts and schemes struggle to fit together, the pieces of the jigsaw puzzle form networks where transformations that occur at a certain time and in a certain place have repercussions throughout the network. When ripples become waves, the networks lose stability. As experiences accumulate and ideas can no longer process them, thought is pushed away from equilibrium, approaching the critical point. At that very moment, danger and opportunity intersect.

Having reached the edge of chaos and overwhelmed by confusion, thought can dissolve into madness or undergo unpredictable transformations. The critical point is the boiling point, the point at which ideas reach maximum turbulence. If change occurs, new configurations emerge that can organize themselves spontaneously. This is a phase in which the obvious and undisputed priority of functions, purposes, and meanings that the organisation has experienced as irreplaceable and ineradicable principles requires that they be redefined even before a phase of technical deployment, in a moment of critical thinking (Deacon, 2012). It is evident, therefore, that there are two distinct perspectives to which decisions and choices can be traced: one of a logical-rational type, consolidated and shared, which can be traced back to the scientific approach; a second, little explored to date, of a sense-emotional type (Darwin, 1872; Papez, 1937; LeDoux, 1986, 2002; Damasio, 1994, 2003; Barrett and Barr, 2009; Brooks *et al*, 2012), where emotion directs and finalizes the adaptive logic to the environment, responding flexibly and quickly to environmental variability. The relevant assumption is that when environmental conditions qualify for high levels of complexity and delay in action may pose serious threats to the viable system

survival, the decision-maker amplifies the role of emotions in selecting appropriate choices.

Regardless of the possibility of establishing whether factors exist to discern whether best decisions are rational or emotional, managerial literature shows that the commitment of most scholars is focused on the analysis and description of the rational, quantitative aspects underlying decisions, redirecting relations between emotions and decisions to the field of psychology and social psychology. Nevertheless, the operational reality of organisations has demonstrated a significant pervasiveness of emotional factors that can act or have acted positively or negatively in the process of formulating choices (Slovic *et al.*, 2001).

Therefore, believing that future research cannot disregard considering the complex interaction between emotion and rationality, and considering the growing pervasiveness of the emotional dimension with respect to the ideal prospect of absolute calculability, the construction of a methodological framework useful for correctly interpreting the role and limit of the emotional input can no longer be postponed.

Such reflection has the immediate effect of projecting management studies and research onto a different level of interdisciplinarity. Present times find a culturally broad commitment to the need to rediscover principles of causation (and meta-causation) of human events, and on the recognition of managerial methods to better connect problems and purposes, overcoming the deterministic criterion of efficiency centered on a reductionist method.

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