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Introduction to the Special Issue: Deciding in uncertainty. Why a dynamic multicomponent model of decision making: some milestones and a preliminary tool

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In this Special Issue entitled: **Deciding in uncertainty. Why a dynamic multicomponent model of decision making: some milestones and a preliminary tool**, we move within a theoretical framework where decision-making is deemed as a higher-level cognitive function whose enactment takes the form of situated dynamic information-processing, appraisal, reasoning, and action-implementation processes. Decisional processes are considered intrinsically complex, in that they are shaped and influenced by many subjective, task-related, situational, and contextual factors.

For further background information on this topic and how it has been declined during the creation of the tool that we will here introduce, in this Special Issue we included a first article (Why a dynamic multicomponential model of decision making: some milestones and a preliminary tool) focused on a new, multicomponent and modular tool to explore the main pillars of decisional processes, that is based on neurophysiological evidence and claims the need to think of the decision-making process as a great opportunity for the

decision-maker. In this first article it is described the need for a new analysis tool for decision-making and the hierarchical, modular multicomponential and digitalized DAssDec tool, with its strength points.

Then, it is presented a general introduction to the concept of decisional style ("Neuroscience for a new concept of decision-making style"), focused on the main "personal" features of decision maker, followed by the conceptualization of decisional strategies used to implement strategies functional to the decision in the context ("Framing decision-making: the role of executive functions, cognitive bias and reward"). The purpose of the contribution on decision-making styles is to go beyond the traditional models conceptualizing the styles of decision-making and to provide a novel insight and definition of this concept, through the identification of some of the prerogatives most closely associated with the notion of style: these include self-representation, adaptability, and risk-taking. While beyond the contextual influences in which decisions are taken, the contribution on executive functions discuss the relationship between decision-making and cognitive – attentional and perceptual – bias.

A fourth article ("Why we need to assess dysfunctional decision-making process in addictions within a comprehensive framework") is devoted to exploring the dysfunctional outcomes of some decisional processes, taking into account the role of Executive Functions (EF) in this anomalous process. This theoretical contribution focuses on the neurocognitive disorder of addiction, as it is one of the clinical disorders in which a deficit in decision-making has been most frequently explored in the neuroscientific literature and proposes three examples of methodologies and studies showcasing potential approaches to assess decision-making process in addictions.

This paper is followed by a specific examination of the early stages of validation of the DAssDec tool ("Assessing decision-making skills: preliminary proof-of-concept data for DAssDec - Mod_{1STY} and Mod_{2STR}"), considering the first two modules of the tool. Preliminary outcomes from proof-of concept and feasibility study performed on the first two domains of the DAssDec Tool – Mod_{1STY} and Mod_{2STR} – dedicated to decisional styles and strategies have been here presented.

The Special Issue ends with the consideration of some possible applications relating to decision-making processes in the communication field (The social representation and social action effect of critical issues: autonomic system and self-report measures), as a new, little-explored frontier of decision-making. This article discusses the results of an original research conceiving advertising (ADV), as a form of communication for promoting consumer awareness, positive social change, and ADV-related decisional processes, even on topics of high-social relevance such as crisis communication.