Brain Dynamics in Managerial Dynamics: Untold Chronicle

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Abstract
Decision-making is a region of intense study in neuroscience, and cognitive neuroscience, In real, World decision processes, management decisions emerge from complexly interlinked, This paper explores how brain absorbs information, recognises and frames problematic situations, and chooses appropriate responses,. In this state, neuromanagement seeks to explain decision-making, ability to process multiple alternatives and choose optimal course of action. This Paper attempts to explore phenomena through individual action, decision - making and reasoning processes. Objective is to put forward a model for neuro - management decision, in which interaction between variables of neuro - management decision processes are addressed through series of measurements of brain activity at time of decisions. Attempt is to describe a regular model for decision making process with intent of linking neuro - psycho and management levels of analysis capable of predicting observed behaviour. This provides conceptual framework for understanding and conducting Neuro (managerial) management research at intersection of neuro (managerial) science, management and psychology, offer solution through measurements of brain activity at time of decisions, linking and spanning neuro (managerial) biological and psychological and management levels of analysis.

Keywords: Cognitive Neuroscience, Brain Imaging, Coherent Brain Dynamics, VUCA, fMRI, BOLD, EEG, ECG

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Introduction

Modern day business development and its global form have ushered in changes in the life of individuals and the business environment. Most behavioral decision research takes place in carefully controlled laboratory settings, and examination of relationships between performance and specific real-world decision outcomes is rare. Although previous studies investigated the relationship between general cognitive abilities and decision making, few have characterized specific cognitive abilities underlying decision making competence. Deciphering brain - environment transactions requires mechanistic understandings of project biological processes that implement value-dependent project decision-making. There is a crucial difference between 'thinking about thinking' and actually enhancing brain and mental processes by developing latent potential of each individual. Theoretical accounts posit that human brain accomplishes this through a series of neural computations, in which expected future reward of different project decision options are compared with one another and then option with highest expected value is selected. If human brain is often compared with computer, one aspect is crucially missing. Humans define goals for information processing in computers, whereas goals for biological brains are determined by need for survival in uncertain and competitive environments. How to handle brains behind businesses in age of dramatic change and growing uncertainty? What then are the coherent brain dynamics underlying prediction, control and project decision-making?

Decisions are inevitable part of individual activities with daily life being a sequence of decisions. Distinctively, researchers are interested in assumptions, beliefs, habits and tactics to make decisions. Any iteration of economics as a human endeavour would need some explanation of substrates, mechanisms and variable effects of emotional influence upon cognitive functions operative in decision-making processes relevant and relative to ecological resources. Brain considers sources of information before decision. Nonetheless, how does it do this? Why does process sometimes go awry, causing impulsive, indecisive and confused decisions that lead to potentially dangerous behaviours? Neuroeconomic decision making offers tools for modeling behaviour. With different disciplines approaching through characteristically different techniques and substantial advances, question of how we design and how we have to craft judgments / decisions has engaged researchers for decades. This research investigates neural bases of decision predictability and value, parameters in Economics of expected utility. Neuro - multiple - systems approach to decision - making, in turn, influences Economics, a perspective strongly rooted in organisational psychology and neuroscience. Integration of these offer exciting potential for construction of near - accurate models of decision - making.

Decision research has been influenced by homo behaviour economics metaphor with emphasis on normative models and deviations from predictions of those models. In contrast, principal metaphor of cognitive psychology conceptualizes humans as 'information processors'. Cross-fertilization between the two areas is important. A wide range of models and metaphors has been proposed to explain and describe 'decision making in ingenious ways. This encourages cross-fertilization between cognitive psychology and decision research by providing an overview of current perspectives that continues to highlight benefits of synergistic approach: cognitive modelling of

multi-attribute decision making. Expansion of neuromanagerial management parallels development of cognitive science. Neuromanagerial management has bridged contrasting fields of management and psychology. Management, psychology, and neuromanagerial science converge into a single, unified discipline with ultimate aim of providing single, general theory of human behaviour. This is the field in which consilience operates. Researchers and psychologists offer conceptual tools for understanding and modeling behaviour. Neuromanagerial researchers offer tools for the study of mechanism. The goal is to understand processes that connect sensation and action by revealing neuromanagerial mechanisms by which decisions are made.

How are decisions carried out in brain? Question is how manager make decisions. Brain considers sources of information before decision. In particular, the processes by which individuals reach decisions have been ignored. Problems confronting decision makers often embody conflicting values. Manager often fail to design 'rational' decisions. When faced with obscure decision, individuals engage in strategic simplifications of decision problems. How do parts of the brain that govern decision-making coordinate their activity when making a decision? This paper explores certain neuro-underpinnings in managerial decision modeling. Brain structures suggest that brain considers various sources of information before making decision, *Brain imaging technologies have stimulated neuro (managerial) studies of internal order of mind and its links with bandwidth of human decisions*, how is (managerial) decision making processes carried out in brain? What are the limits of understanding thinking as a form of computing? How does previous experience alter behavior? Do we interpret research findings when neuro (managerial) logical results conflict?

Imaging is an important aspect of dynamic capabilities and there is an increasing amount of evidence of how evolutionary patterns are shaped, There are yet unsolved problems in (managerial) cognition, although some of these problems have evidence supporting a hypothesized solution, and the field is rapidly evolving, What are the general implications of neuro (managerial) management? There are unsolved research issues; how does Manager decide in a state of vacillation, Risk and Probability? How does a Manager decide in state of VUCA (Uncertainty, Vulnerability, Complexity and Ambiguity? How do we make decisions? How does human brain compute and represent abstract ideas? What counts as explanation of how the brain works (what are function, algorithm and implementation)? This paper attempts at addressing current pace of advances in methods (fMRI, BOLD, EEG, ECG, etc), where we are going, and what we should research next. This provides conceptual framework for understanding and conducting Neuro (managerial) management research at intersection of neuro (managerial) science, management and psychology, offer solution through measurements of brain activity at time of decisions, linking and spanning neuro (managerial) biological, psychological and management levels of analysis, volatility, uncertainty, complexity and ambiguity of general conditions and situations, The deeper meaning of each element of VUCA serves to enhance the strategic significance of VUCA foresight and insight as well as the behavior of groups and managers in organisations.

Brain Tectonics

Human resources rely on cautious mock-up of neuromanagerial economic decision making modeling. Tactic consists in construction models to display relationship between cause and neuro incongruity. Freedom provided by introspection technique leads to a model selection problem. Neuro - management neuromanagerial economic decision making-making, regarded as a mental process (cognitive process), result in selection of path of action among alternative circumstances. Each neuromanagerial economic decision making-making process produces neuromanagerial economic decision making. Process is regarded as incessant process integrated with situation. Investigation is concerned with rationale of neuromanagerial economic decision making - making, reasonableness and invariant neuromanagerial economic decision making. These reflect compensatory interface of neuromanagerial economic decision making - related expanse.

Specific brain structure potentiates neuromanagerial economic decision making - makings depending on strategy, traits and framework. Therefore, neuromanagerial economic decision making is a reasoning or emotional process which can be rational or irrational, based on explicit / tacit assumptions. This leads to formulation of a 'neuro - management neuromanagerial economic decision making paradox'. Explorations on brain mechanisms juxtapose link between brain and behaviour, known as Cognitive Neuroscience, to study neuronal activities, connections between neurons, plasticity of brain and relationship between brain and behaviour. These inherit methods as how brain encodes, processes information, stores representation in mind to craft actions in reaction to stimuli. These embrace sensation and perception of information, interface linking information in dissimilar modalities, matrix of memory and dispensation of information. Deduction is based on postulation that individual cognitive functions are based on neural activities in brain.

Volatility, Uncertainty, Complexity and Ambiguity

We are living in a World where volatility and uncertainty have become the new normal. We look at the World through a lens, which we call VUCA, which stands for 'Volatile, Unstable, Complex, and Ambiguous.' VUCA**,** as prescribed in Wikipedia,is describes or reflects on ischemic failures and behavioural failures,which are imperative to organisational failure, At some level, capacity for VUCA management and managerial hinges on enterprise value schemes, assumptions and natural goals, A 'prepared and resolved' enterprise is engaged with strategic agenda that is aware of and empowered by VUCA forces, The capacity for VUCA managerial in strategic and operating terms depends on a well, developed mindset for gauging the technical, social, political, market and economic realities of the environment in which people work, Working with deeper smarts about the elements of VUCA may be a driver for survival and sustainability in an otherwise complicated World,

- V = Volatility, The character and dynamics of change, and the character and speed of change forces and change catalysts,
- U = Uncertainty, The lack of predictability, the prospects for surprise, and the sense of awareness and understanding of issues and events,

- C = Complexity, The multiplex of forces, confounding of issues and disorder and confusion that surround an organisation,
- A = Ambiguity, The haziness of reality, the potential for misreads, and the mixed meanings of conditions; causeandeffect confusion,

These elements present the context in which organisations view their current and future state, They present boundaries for planning and policy management, They come together in ways that either confound decisions or sharpen the capacity to look ahead, plan ahead and move ahead, VUCA sets the stage for managing and leading, The particular meaning and relevance of VUCA often relates to how people view the conditions under which they make decisions, plan forward, manage risks, foster change and solve problems, In general, the premises of VUCA tend to shape an organisation's capacity to:

- Anticipate issues that shape conditions
- Understand consequences of issues and actions
- Appreciate interdependence of variables
- Prepare for alternative realities and challenges
- Interpret and address relevant opportunities

Uncertainty pervades neuromanagerial economic decision making. Nearly all real-world decisions involve some form of psychological uncertainty, whether about the likelihood of an event or about the nature of future preferences. Most studies in neuromanagerial economic decision making neuroscience literature – like in its counterparts in the socio - Managerial sciences – have examined the effects of risk; for reviews see Knutson and Bossaerts (2007), Platt and Huettel (2008), Rushworth and Behrens (2008). While definitions vary across contexts, a 'risky neuromanagerial economic decision making' involves potential outcomes that are known but probabilistic, such that risk increases with variance among those outcomes, potentially normalized by the expected value (Weber et al., 2004). Uncertainty can have other forms, however. Outcomes may be known but occur with unknown probability; such neuromanagerial economic decision makings reflect ambiguity (Ellsberg, 1961). Only a handful of studies, so far, have investigated the neural basis of ambiguity (Smith et al., 2002; Hsu et al., 2005; Huettel et al., 2006; Bach et al., 2009). And, still other states of uncertainty might be evoked in cases where the outcomes themselves are unknown, as is the case in complex real-world neuromanagerial economic decision makings. So far, neuromanagerial economic decision making neuroscience research has established weak, albeit numerous, links between uncertainty and its neural substrates.

How are Decisions Carried?

How are decisions carried out in brain? Question is how manager make decisions. Psychological models of decision-making explain that humans gradually accumulate evidence for a particular choice over time, and execute that choice when evidence reaches a critical level. Brain considers sources of information before decision. In particular, the processes by which managers reach decisions have been ignored. Problems confronting decision makers often embody conflicting values. Manager often fail to design 'rational' decisions. When faced with obscure decision, managers engage in strategic simplifications of decision problems. How do parts of the brain that govern decision-making coordinate their activity when making a decision? This paper

explores certain neuro-underpinnings in managerial decision modeling.

In neurosciences, how the brain processes different sensory stimuli (such as images or sounds) and which are the neural basis involved in deciding what we perceive, have been the deeply studied in the past decades. Impairments in decision-making are at the core of a variety of psychological and neurological impairments. Brain accumulates evidence when faced with a choice and triggers an action once that evidence reaches a tipping point. But, how do we know where we are, where we have been and where we are going? It's important to understand intricacy of managerial brain. Brain is main organ of nervous scheme. It has the same general structure as brains of other mammals, but with developed cerebral cortex. Model of brain function can explain a wide range of anatomical and physiological aspects of brain schemes.

Size of brain comes from cerebral cortex, especially frontal lobes, which are associated with executive functions. The area of cerebral cortex devoted to vision, visual cortex, greatly enlarged as compared to other animals. Basic structural design of brain is constructed through a process that begins early in life and continues into adulthood. Simpler circuits come first and more obscure brain circuits endow with basic blueprint. Certain neurons seem to represent the accumulation of evidence to a threshold and others represent the evidence itself, and that these two types of neurons interact to drive decision-making. Experiences influence how or whether genes are expressed. Imaging studies suggest that differences in cognition and behaviour (might) relate to differences in brain connectivity. Perceptive the coverage to which two brains can differ is crucial in basic neuroscience research.

An emerging theme in decision neuroscience is that organisms need to make a number of value-related computations to make even simple choices. Consider the case of action-based choice exemplified by the goalkeeper's problem. First, he needs to assign a value to each action under consideration. These signals, known as action values, encode the value of each action before choice and regardless of whether it is subsequently chosen or not, which allows them to serve as inputs into the decision-making process. Second, these action values are compared to generate a choice. Third, the value of the option that is selected, known as the chosen value, is tracked to be able to do reinforcement learning. In particular, by comparing the value of the outcome generated by the decision to the chosen value, the organism can compute a prediction-error signal that can be used to update the action value of the chosen option. Note that while the action values are computed before the decision is made, the chosen value and outcome of the comparator process signals are computed afterward.

There are steps that are generally followed that result in a decision model that can be used to determine an optimal production plan and in a situation featuring conflict, role-playing may be helpful for predicting decisions to be made by involved parties. Each of these factors leads to a fresh perspective. A neural level focuses on the basic forebrain functions and shows how processing demands dictate the extensive use of timing-based circuitry and an overall organisation of tabular memories. An embodiment level organisation works in reverse, making extensive use of multiplexing and on-demand processing to achieve fast analogous calculation. An awareness level focuses on the brain’s representations of emotion, attention and consciousness, showing that they can operate

with great economy in the context of the neural and embodiment substrates.

Each step in the decision-making process may include social, cognitive and cultural obstacles to successfully negotiating dilemmas. It has been suggested that becoming more aware of these obstacles allows one to better anticipate and overcome them. Neuroscience and social science have witnessed tremendous advance in Neuroeconomics and Neuromanagement since the birth of these interdisciplinary fields at the turn of Century. In order to explain the cognitive and neural underpinning of managerial decision-making, the ability to process multiple substitutes and to choose an optimal course of action, especially in a managerial context. Nerve management is contemporary developments in cognitive neuroscience, neural imaging technology progress, and the traditional management research across a field of study, through study of manager in their daily management behaviour such as consumption, investment, production, circulation, financial management, managerial activities such as various acts of the neurophysiologic underpinning, thereby from brain science perspective on managerial management activities of the mechanisms behind, and brings forward corresponding management measures and strategies. And neuroeconomics, nerve management emphasis on exact situations, manager differences and the operational level of behaviour, study different conditions managed object evolution rule and achieve the most effective management method. Decision makers must have vast amounts of information in order to make use of the rational comprehensive decision-making technique. There needs to be an ability to predict the future consequences of decisions made. Also, problems confronting decision makers often embody conflicting values. In addition, it is tough to ignore the sunk costs of former decisions, these may foreclose many substitutes.

Questions

Overall, this multi-dimensional and thus potentially integrative approach combines neuro-biological, socio - Managerial and trans-cultural dimensions of decision-making and trust into a ‘stratified image’ of the human being and its behaviour(s). Important to this paradigm is the need to characterize the interaction of physical, psychological, cultural, and even spiritual cognitions that establish various decisions, and which relate decisional-actions and outcomes to evaluations of trust. We opine that this explicitly experimental (heuristic) neuro-bio-psycho-socio - Deciphering brain - environment transactions requires mechanistic understandings of neurobiological processes that implement value-dependent decision-making. There is a crucial difference between ‘thinking about thinking’ and actually enhancing brain and mental processes by developing latent potential of each individual. Theoretical explanations posit that human brain accomplishes this through a series of neural computations, in which expected future reward of different decision options are compared with one another and then option with highest expected value is selected. If human brain is often compared with computer, one aspect is crucially missing. Humans define goals for information processing in computers, whereas goals for biological brains are determined by need for survival in uncertain and competitive environments. How to handle brains behind businesses in age of dramatic alter and growing uncertainty? What then are the coherent brain dynamics underlying prediction, control and decision-making? To cope with this mismatch,

behavioural economists have developed new theories of decision-making that are a better fit for the behavioural data than traditional models. The methodology consists in building models to demonstrate the relationship between cause (preference for particular object) and behavioural anomaly. This line of research formulates possible explanations for behavioural data, but it is nevertheless subject to shortcomings. Often the cause is not observable, and there is no evidence of the relationship provided by the model. Most notably, freedom provided by introspection method leads to model selection problem. Also, cause of behavioural anomaly may simply lie elsewhere.

What are the Limits?

The computational theory of mind holds that the mind is a computation that arises from the brain acting as a computing machine. The theory can be elaborated in many ways, the most popular of which is that the brain is a computer and the mind is the result of the program that the brain runs. Computationaltheory of mind names a view that the human mind or the human brain (or both) is an information processing scheme and that thinkingis a form of computing.Is the universe naturally symmetric, or do our brains simply look for certain types of symmetry which then become our reality? Why are we symmetric beings? Would an asymmetric intelligent being find a different looking universe here, based on asymmetrical laws of a very different physics? A manager is not a single entity of a single mind: a human is built of several parts, all of which compete to steer the ship of state. As a consequence, people are nuanced, complicated and contradictory. We act in ways that are sometimes difficult to detect by simple introspection. Are we governed by unconscious processes? Neuroscience believes so – but isn't the human condition more complicated than that? Thinking like a computer scientist means more than being able to program a computer. It requires thinking at multiple levels of abstraction. Thinking may be more than computing.

What follows is a description of some of the scientific, philosophical and practical issues that lead inevitability to uncertainty in data, and to limitations in our ability to draw conclusions from it. Such questions are complex and uncertain. Intelligent behaviour presumably consists in a departure from the completely disciplined behaviour involved in computation, but a rather slight one which does not give rise to random behaviour or pointless repetitive loops. Computational thinking builds on the power and limits of computing processes, whether they are executed by a human or by a machine. Computational thinking is using abstraction and decomposition when attacking a large complex task or designing a large complex scheme. It is separation of concerns. It is choosing an appropriate representation for a problem or modeling the relevant aspects of a problem to make it tractable. It is using invariants to describe a scheme’s behavior succinctly and declaratively. Having to solve a particular problem, we might ask: How difficult is it to solve? What’s the best way to solve it? Computational thinking is thinking recursively. It is parallel processing. It is interpreting code as data and data as code. It is type checking as the generalization of dimensional analysis. It is recognising both the virtues and the dangers of aliasing, or giving someone or something more than one name. It is recognising both the cost and power of indirect addressing and procedure call. It is judging a program not just for correctness and efficiency but for aesthetics, and a scheme’s design for simplicity and elegance.

Computational theories of mind are often said to require mental representation because 'input' into a computation comes in the form of symbols or representations of other objects. The universe is complete and understandable through mathematics, although we do not yet understand completely. Such a universe is predictive, which leads to a conflict with the idea of free will. Are all of our "choices" and decisions already laid out before us? The universe is incomplete, and we will never understand it through mathematics. The universe is complete, but not completely understandable through mathematics.

Neuro - Models in Decision Making

Decision theories postulate bounded rationality to be the basic problem in decision-making in a complex environment, assuming a trade-off between costs and benefits for or against extensive decision making in situations where information is typically incomplete and cognitive resources are limited . Thus, it is thought that two options might exist to deal with this problem and find a resource-sparing solution:

(i) relying on optimization strategy under given constraints; or (ii) basing decisions on heuristics, i.e. over-learned habits and hard-wired solutions. Both approaches would support the idea of dual processing theories which distinguish between two schemes: an automated, intuitive processing scheme which is typically involved in fulfilling the heuristic approach, and an analytic reasoning scheme which alone might be overwhelmed when reaching its analytic processing capacity. Usage of one or the other scheme depends on influencing factors such as saliency of incoming stimuli and availability of resources. It was particularly argued that especially experts make use of the automated processing scheme by acquiring respective gist knowledge, whereas novices would need to rely on analytic reasoning instead. The automated scheme comes in handy in situations with equably repetitive decisions which can easily be based on known rules or categories while it might be prone to errors in novel situations.

With respect to decision making, managers may be regarded as experts since their job, independent of hierarchy, requires them to decide and to answer for this decision. In its basic ideas, this is independent of the success of the manager since it is just a basic job requirement. Overall, the need for fast decisions in the work environment increased, aggravating the problem of incomplete information. It was therefore assumed that managers as opposed to non-managers must have access to respective strategies to adequately deal with this situation. The manager should be able to make fast choices with limited information and limited cognitive resources, but at the same time be as accurate as possible, e.g. by relying on simplified mechanisms and heuristics.

Conclusion

Real-world problems are often complicated. Psychological scientists have been interested in how people make decisions for several decades, but philosophers and economists have been studying decision making for centuries. Highlighting areas of overlap between cognitive modeling and multi-attribute judgment will stimulate further cross-fertilization and inspire research examining the boundary conditions of various models. Deciphering brain - environment transactions requires mechanistic understandings of neurobiological processes that implement value-dependent organisational decision-making. There is a crucial difference between ‘thinking about thinking’ and actually enhancing brain and mental processes by

developing latent potential of each individual. Theoretical accounts posit that human brain accomplishes this through a series of neural computations, in which expected future reward of different organisational decision options are compared with one another and then option with highest expected value is selected. If human brain is often compared with computer, one aspect is crucially missing. Humans define goals for information processing in computers, whereas goals for biological brains are determined by need for survival in uncertain and competitive environments. How to handle brains behind businesses in age of dramatic change and growing uncertainty? What then are the coherent brain dynamics underlying prediction, control and organisational decision-making?

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