Transdisciplinary Approaches to Healthcare Solutions during COVID-19

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Edited by

Ravi Kant Avvari, Singam Jayanthu and Mohamed Sultan Mohamed Ali

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CHAPTER 1

OPHTHALMOLOGIC SOUNDINGS IN NEURO-FEEDBACK

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ABSTRACT

Business 'decision - feedback sounding(s)' thinking has a biological basis. A paradigm for business leadership is emerging; a thinking business leader understands, develops, creates, engages and inspires. Business leaders end conventional thinking, understanding how to engage and influence the cerebral context and help activate openness to new ideas. In this, leaders' actions are transformed from results of a relationship orientation. This monograph aims to focus on the role of neuro-business in understanding business leadership strategy. The objective is to display the dynamics of neurobiological drivers in understanding behaviour. The aim is to understand empirical mosaics in 'neuro trajectory feedback sounding(s)' of 'business' decision circuit'. Relating to methodology, the monograph draws inspiration from business leadership and neuro-business works to evaluate the influence of the cerebral aspects in shaping communication, decision, negotiation, and emotion regulation that can directly be connected with business strategy. The study experiments to deduce causal knowledge. The methodology includes neuro-based opinions to imitate thinking of neurobiology in 'business' decision research. Based on a comprehensive literature review, models and prototypes, an eye-tracking

experiment was conducted to measure eye positions (identifying fixations and saccades) and eye movement (geometry of stimulus). Results indicate a link between fixations, gaze and business decision-feedback sounding(s) thinking. The study provides key findings and explains how neuro-apparatuses explore 'business decision - feedback sounding(s)' thinking through biological basis in prototyping decision - feedback sounding(s) thinking. Results exhibit monikers to engage in 'business decision - feedback sounding(s)' thinking using eye-tracking techniques that business leadership delineate process information through activation of neuro-components. The monograph depicts the impact of biological processes as a significant element in business strategy. Activation of 'business decision - feedback sounding(s)' thinking processes helps interpret decision-making styles and how cerebral response to strategic 'business decision - feedback sounding(s)' thinking.

Keywords: *Neurobusiness; Business Leadership; Neuro Apparatuses; Decision - feedback sounding(s) Thinking and Strategic Leadership*

"If [philosophy of business] is worth doing at all, it must be done to gain new insights that will allow one to do better business" – Mittermaier, 1989.

1. INTRODUCTION

Leadership denotes the prospects of leading behaviour to achieve goals and objectives in an organisational setting. Leaders take an operative resolution to remove inconsistencies. Additionally, they are responsible for inspiring by signifying, backup and endeavouring to encourage positivity. Furthermore, it considers the organisation and its citizens' welfare and prosperity equally. Of late, there has been a lot of conversation around the future of the workroom, future-ready personnel, and the future of labour. As representatives of transformation, leaders have the serious character to perform in determining the future. In such a scenario, how can leaders grow future-ready workers? What could be the role of technology tomorrow? What inclinations would silhouette the ecosphere of labour? Organisational justice takes place from the perspective of consequentialist, functioning, cerebral and transactional interpretations in a multifaceted practice. At the same time, a move like this has been long overdue.

On the one hand, business is somewhat famous for its reluctance to discuss the path-dependent properties inherent in existing business stratification within regions, nations, and the world. Any change in this regard, and a more open consideration of the fact that today's discrepancies in wealth and opportunities in many cases derive from historical roots that relate to

forced work and other atrocities of our past, would do us well to put things in an appropriate context. On the other hand, alternative theoretical perspectives are too often excluded based on mere prejudice, and any change in that regard is also to be applauded (Heterodox Business Newsletter, Issue. 297, May 30, 2022).

Business is civilisation, and unconventional business is current fruition. Neuro-entrepreneurial management sciences have linked disparate fields of management and psychology. Extension of microentrepreneurial management sciences counterparts advance of cognitive science. The interface between entrepreneurial business and brain sciences is not smooth, with misconceptions. Neuro-entrepreneurial discoveries posture a challenge to the usual management viewpoint. How can complexity in the philosophy of business leadership help advance the study of establishments, administration and revolution? What are the drivers of business leadership? How can the link between business leadership and pliability be inspected? How can organisations substitute pliability in a competitive setup? How can business leadership complexity philosophy aid in advancing performance? How can business leadership complexity philosophy procedures provision research? Why do some economies accomplish constant business growth while others miss the mark?

Curiosity in the radical economy, business expansion, business evolution and origination are correlated. An answer to this must be grounded on two masts: Radical Economy and Novelty. The world economy is moving inexorably towards a new phase, where large corporations will manage the purchase persuasion at will through new knowledge about the consumer's brain and big data tools. In this context, Neuro-business and Psychobusiness will become fundamental for the analysis of this new business world, where a deep scientific understanding of human emotions and feelings, both in consumption and in savings and investment, will nuance in a good way the ancient idea of "egotistical rationality", which from the hand of Adam Smith has been the cornerstone of the economy for more than two centuries. This extreme rationalist approach will no longer serve to understand the economy of the years to come. In this way, both business strategies and public policies will become neuro, incorporating everything that is known and will be known about the brain to better understand customers and voters. As a balance, business and political ethics will also become essential, given the excessive power of new neuro tools to influence people. The 21st Century will be the Century of the brain; say, many futurologists and business analysts will have to adapt to these changes (Laza and Marisela; 2021).

Growth is neither general nor undeviating leading to unwarranted social order. Are the working development replicas likely enough to create sustainability in evolution? How will the global business landscape assume its form in the 21st Century? What are the imposing undercurrents that would shape the destiny of business patterns? It is imperative to efficaciously endorse business progress, universal marketplace and provincial activities by abstracting a multifaceted structure finished by modest interrelating fragments. Complex systems are especially problematic to the rheostat. Computing these links can detect blockages to business advancements and shape the strategy towards a convergence pattern. Business 'decision - feedback sounding(s)' thinking has a biological basis. A paradigm for business leadership is emerging; a thinking business Leader understands, develops, creates, engages and inspires. Business leader appreciates, evolves, generates, engrosses and stimulates others through new insights and skills. Business Leaders end conventional thinking, understanding how to engage and influence the cerebral approach of others and help activate openness to new ideas. In this, Leader's actions are transformed from results orientation to relationship orientation. A precise understanding of the polycentric matrix is imperative to focus on the leadership aspect of decision-making progression. This invites a call for a changed and invigorated mindset, innovative dynamics in organisational order, and business leadership to comprehend and face competitive agents branded by other evidence and ecological subtleties.

2. LOCUS OF FOCUS

"It is true that humanity is faced with many problems. It always has been, but perhaps not always, with a such keen awareness of them as we have today. We might be more optimistic if we recognised that we do not have to solve all of these problems. Our essential task – a big enough one to be sure – is simply to keep open the options for the future or perhaps even to broaden them by creating new varieties and niches. Our grandchildren cannot ask more of us than we offer them the same chance for adventure, to pursue new and interesting designs." – Herbert Simon in The Sciences of the Artificial.

20th Century thinking stands outdated. Application of neuroscience in structural frameworks signifies a contour in field and laboratory experiments. Recapitulation of Cognito business as a human endeavour would merit clarification of substrates, instruments and flexible paraphernalia of emotional stimulus upon cognitive - feedback sounding(s) roles functioning in judgement-making progressions. Understanding human decision-making is currently a convergence of disciplines (psychology, neuroscience, and

business) besides the synergy of methods (experimentation, cerebral imaging, and quantitative modelling). The human brain and eyes have always captivated humanity leading towards a cognitive - feedback sounding(s) revolution. How do cerebral dynamics evaluate knowledge and jeopardies? Under what neural mechanisms does it strike an equilibrium between constancy and framework sensitivity in decision, preferences and choice? What happens in the 'cerebral box' when (business) leaders style decisions or are in the process of making those? Is the study of Cognito business processes germane for business leaders? Does Cognito-business elucidate judgement-making, the potential to process multiple alternatives, and indicate an optimal course of action? Does Cognito-business study how business behaviour profile understanding of comprehensible cerebral undercurrents are causal to forecasting, regulating and decision making? These lead to the construction of a 'Cognito-business judgement-making inconsistency'. The goal is a conjecture of how cerebral apparatuses are tied to behaviour (Satpathy and Mund; 2022).

3. AIM AND OBJECTIVE

A paradigm for business leadership is emerging. The world is experiencing a thinking business leader who understands, develops, creates, engages and inspires. These leaders end conventional thinking, understanding how to engage and influence the cerebral of others and help activate openness to new ideas. In this, their actions are transformed from results orientation to relationship orientation. This monograph aims to focus on the role of neuro-business in understanding business leadership strategy. The primary aim is to archetype neuro-entrepreneurial neuro-feedback by using brain waves (EEG). This paper integrates neuro-entrepreneurial science and the psychology of management modelling tactics. The objective is to monitor neurobiological 'motorists' undercurrents in preference making. The effort is to elucidate how neural investigations appreciate 'mental sounding' in entrepreneurial decision-making. The pivotal point is to comprehend causal processes of how Entrepreneurs craft decisions, appreciate apparatuses of decision making and integrate interdisciplinary scholarship in the direction of a contributive neuro-entrepreneurial decision. The objective is to monitor the dynamics of neurobiological drivers in understanding business leadership behaviour via empirical mosaics in 'neuro trajectory feedback sounding(s)' of 'business' decision circuit'. As regards methodology, experimentation was run to measure eye positions (Identifying fixations and saccades) and eye movement (geometry of stimulus). Results indicate the link between

fixations, gaze and business decision - feedback-sounding (s) thinking.

4. MOTIVATION

The foundation of stimuli has been neuro-entrepreneurial decision explorations (merger of philosophies from cognitive science and management). Neuro-entrepreneurial decision-making has arisen as an interdisciplinary determination to bridge this gap. It mixes ideas from organisational psychology, neuro-entrepreneurial science and neuro-entrepreneurial - management to stipulate precise representations of decision-making.

5. PROBLEM STATEMENT

Notwithstanding considerable developments, enquiry of how we make decisions stays to posture significant trials for methodical explorations. Erecting a decision infers that there is an alternate choice to be factored in. And in such a circumstance, we want not only to detect as many of these substitutions as conceivable but select the one that (1) has a peak prospect of efficiency and (2) best fits with the goal line, needs, routine, and ethics.

6. LITERATURE SCAN

The origin of Cognito business can be traced to ‘Wealth of Nations’ in 1776, which explains influenced behaviour, appreciating judgement behaviour and accumulation of judgements. One School of Thought was on regularities in behaviour that could (Ceteris Paribus) provide a psychological basis to manage business preferences. The Second School of Thought advocates sequences of theorems that protract revealed - preference philosophy to business leadership judgements. This is a period in which heterogeneous researchers have begun to develop models of mental processes and correlate intermediate variables. As a sign of globalisation, the world is swiftly becoming an integration of intercontinental frugality, trade, philosophy, policies and information. Thoughtful digital transformation, vicissitudes, and procedures, besides growth, skills and knowledge transfer, succeed as the potential frame for knowledge development, business consistency, affordability and development. For business leaders, promoting convergence in a field characterised by a high degree of complexity is morally significant. The question is, under what conditions would such functions exist (Satpathy and Mund; 2022)?

Balconi (2020) explained that neuro-management was born from a need to comprehend mental processes subserving motives, attitudes, and behaviours of professionals in organisations to predict, modify, and/or enhance. Quite a few argue that lack of familiarity with neuroscientific methods (Nofal; 2018), uncertainty about expectations (Murray and Antonakis; 2019), resistance compared to looking in the Black Box (Becker; 2011), and presence of ethical issues have made professionals of organisations rather cautious (Butler; 2016). Boone and Piccinini (2016) outlined that the cognitive feedback-sounding (s) neuroscience revolution consists of rejecting scientific practices stemming from the traditional two-level view of cognitive feedback-sounding (s) science and replacing them with a fully integrated science of cognition. Konovalov and Krajbich (2019) asked whether neuro-business kept its promises: "Unfortunately, finding analogous ties between brain regions and psychological constructs such as 'value' has proven more challenging." Grayot (2020) critically reviewed dual-process philosophy for human reasoning and decision-making in all neuro-thing literature. The focus is on deciphering such transactions and requires understanding Cognito processes that implement value-dependent judgment-making.

7. ULTIMATE TECTONICS

Human resources relies on sensitivities that facilitate information. The tactic involves building models to present the relationship between reason and Cognito absurdity. The freedom provided by the tactic primes to a model of a mental process (cognitive - feedback sounding(s) process) that leads to the selection of a path of action among alternatives. These replicate compensatory crossing points of business judgement, cerebral structure, approach, characters and outline. Consequently, business judgement is a reasoning or emotional development which can be rational or irrational. This leads to 'Cognito-business judgement making inconsistency'. These accede to how the cerebral encrypts, processes data, and stores representation to craft stimuli. These embrace consciousness and perception of data, interface linking data, protoplasmic arrangement (configuration) of memory and dispensation of data. In such a spectrum, neuro-business leadership plays the role of understanding the cerebral reason for behaviours. Key snags include how the cerebral characterises the value of diverse inclinations and capitulates the best possible business judgement-making. Which are the limits for test potential in experimentation? Could we experiment with business judgement-making flawlessly, mimicking valid contexts? Is top-down control involved? Do we have liberated will, and to what extent do we have room for

inclination, if any? The fundamental limitation is that it can spot different cerebral regions in definite situations. All these intensify cognitive-feedback sounding(s) complexity.

In history, previous civilisations witnessed erudite business notions and inscribed leaders of the finest business practices and standards in the 1st millennium BCE. The first theoretical exposition was propounded by Tunisian philosopher Ibn Khaldun, writing in the 14th Century, who was among the first theorists to examine who dwelt on the separation of labour, revenue object and transnational trade. Adam Smith applied the philosophies of the French Enlightenment to advance on how frugality should work, followed by Karl Marx and Thomas Malthus expanded on his work. Statistics and mathematics were interjected by Walras and Marshall to prompt economies of scale. Keynes advanced theories to bring dynamism to monetary policy. Amartya Sen's reasons for factorisation of integrity in social wellbeing calculations of business competence. Currently, Industry 5.0 promises prodigious swings with the help of data science and IoT technologies. With a focus on the problem-solving and inventiveness, automation will team up with humans at diverse levels. Industry 5.0 envisions new business information and considerations that will transmute present trends. In such an arrangement, there is an unavoidable need to grow leadership aids, including problem resolution, directional, communication, tactical planning, solidarity, conflict steadfastness and time administration. This is to be complemented and supplemented with the introduction of professional issues from different establishments, bargain explanations using biofeedback sounding(s) and mentoring the next cohort of practitioners and investigators to support best practices that add value to the comprehensive profession.

Real-life decision-making encompasses the calculation of the induced value of various actions by reasoning and expressive processes. Leaders have a vision-backed mission. Ancient models of leadership have changed. There has been a paradigm shift. New models have gone over the properties of augmented VUCA. New-fangled critical neuro-business leadership competencies are setting in. The concentration of a leader is on delivering transformational consequences. Leaders need to focus principally on strengths and on cultivating weaknesses. Leaders need to be resolve-obsessed ('moonshots' purpose). However, situations often require judgements between many complex and conflicting alternatives, with a high degree of uncertainty and ambiguity. The goal is to make better and 'rational' business judgement making. Theories and prescriptions require a cognitive - feedback sounding(s) understanding of business leadership

business behavioural judgement system. The question of appropriate prescriptions is directed towards the conceptualisation of business leadership and business behaviour equipped with implications for understanding strategy. Some business leadership business behaviour fails to achieve the goals of the firm. One way of looking at it is a pre-existing framework of conceptualisation and analysis can be resolved with the initial judgement process. It also has to be recognised that once strategic judgements have been made, and a suitable judgement framework is established, then the business leadership work involved in such decisions becomes increasingly routine. The objective will be to reach an acceptable balance so that judgement is made promptly and coordinated. The operational measure of balance/imbalance between neural systems is the extent of temporal discounting apparent in a business leader's Cognito judgement behaviour. This ensures that conflict between goals is minimised. The explanation has often concentrated on functional and dysfunctional Cognito judgement business leadership business behaviour (Satpathy and Mund; 2022).

8. EXPERIMENTATION: RESULTS AND DISCUSSION

Human choices define human beings. How to introduce a 'human-centric choice'? In fact, what is a human-centric choice? Is it a beginning or end to a specific contemplation? Do they have a biological basis? Do these have bio - computational philosophical connotations? Are they regulated by some genetic 'drivers' like human sense organs? Such an archetype is concerned with perception underpinning a driver's choice. If yes, then who serves as a 'driver'? Leadership replicas are concomitant with technical novelty. Voyaging through 'bust-amination' ('businesses and 'contamination'), the leadership community is transversely at cater - cornered with neuroscience and entrepreneurship, transmitting a perceptive organised linkage ('Chess Board Matrix'). Key regeneration originates with rational information as 'control'. The final question is: are these networked neurologically ('neural roulette')? This amounts to 'rationality'. Do these represent a sweeping renaissance of primary concerns in understanding the biology of choice apparatus?

Eye movements are connected to optical deliberation as leading tools for electing stimulating dividends of chromatic projections for augmented perceptual and rational processing. Examination of leadership decision-making has protracted from the leadership decision behaviourist approach to the cerebral approach, which focuses on decision processes. The problem statement is that, in eye simulations, the choice is represented by

spots of neural activity linked to stimulating prospects for rational processing that help acquisition, possessing and sketching leadership choice formation replicating computational choice formation.

9. METHODOLOGY AND DESIGN PARAMETERS

Eye-tracking choice research, through neuro-ocular approaches is distinguished by the occurrence of collaborating solicitations. Eye movements are an integral part of interactions with the ocular world. This is for inspecting the contents of a neuro-ocular scene or navigating through the environment. This brings eyes quickly and accurately to important positions. Eye movements accomplish this without external stimulation or spontaneous and self-generated activity. This manifests itself as oscillations in different frequency bands. Research explores the effect of neuronal oscillation perceptual processes (amplification or filtering) that cannot be observed directly. Instead, they can be identified by modelling empirical 'inferential' data with models. These explain the relationship between functional methodologies, experimental conditions and emotional 'inferential' data. With different disciplines approaching through characteristically different techniques and substantial advances, the question of how leaders design business choices has engaged scholars for decades (Satpathy, 2015).

10. RESEARCH DESIGN

The objective was to learn about relevant eye tracking, design research questions, tasks and possible metrics, test stimulus, create tests, analyse tracking 'inferential' data and generate result deliverables. Subjects were briefed about the experiments and were provided with 'material' on which they were to be tested as regards their comprehension of the provided information. The principal objective of the experiment was to contribute to the neuro-ocular domain with accepted optimal techniques. The aim was to have a 'cognitive - feedback sounding(s) - link' with 'heat maps' to connect neuro-ocular information schema. Heat maps were adopted to answer the questions about what fascinates participants' responsiveness (**Fig. 2**). How does one look at a spot when undertaking a task? How do subjects allocate attention over an inducement? These helped connect important aspects of neuro–ocular information graphic behaviour. Gaze plots were observed as crucial contributions in the neuro-ocular domain with accepted optimal techniques that set potential benchmarks for business choice-making. All these experimental designs aimed to understand and inquire if a relationship exists between how subjects

assimilated information and understanding of ‘material’ information.

To confirm that the eye-tracking experiment was correctly inferred and simulated, the experiment atmosphere, the geometry of light settings, the geometry of stimulus, font of ‘material’, system configuration, population traits, regulation corroboration method, timing, ‘inferential’ data route, AOIs and segregation criteria were defined. After the Area of Interest was restricted, ‘inferential’ data was transferred to eye-tracking software (Tobii) for each AOI. Eye movements were conducted to include fixations (when the eye stops and focuses) and saccades (when the eye moves between fixation points). Eye movements were undertaken to have fixations (when the eye stops and focuses) and saccades (when the eye moves between fixation points).

Design emphasis was to;

- Articulate queries and primary style observations,
- Articulate supposition and make likelihoods,
- Choose developmental methods and research strategy,
- Outline each measure,
- Select suitable recorded ‘shots’ technique,
- Practice recorded ‘shots’ technique,
- Collect facts and develop ‘Heat Maps’, and
- Analyse information to draw inferences.

Experiments were piloted at the Fang Yang Laboratory, Graduate Institute of Science Education, New Taiwan Normal University, Taipei, Taiwan, to resemble a typical choice-oriented setting. Subjects were tested on their comprehension of VUCA information. Tobii Eye Sensor was used for neuro-ocular purposes. The literature manual from Tobii Company illustrates that depending on system design, Tobii uses different NIR sensors and illuminators. Tobii Eye Sensors offer specific sensors and illuminators for each neuro-ocular design. Tobii uses imperceptible near-infrared light and tall classification cameras to assign light to the leadership eye. Then, it registers the path they are revealed. After that, sophisticated algorithms calibrate eyes and regulate foci on which where they are convexed. Tobii combines custom-designed and standard components typically used in higher-volume designs.

- **F1** – Displays live view to help place subject.
- **F2** – Perform a simple one-point standardisation update.
- **F3** – Launch full standardisation.

- **F4 –** Pointers become imperceptible.
- **F5** – Introduction of locations edge.
- **F6** – Hides hotspot at top.
- **F7** – Recesses eye-tracking.
- **F8** – Clasp left click lock.
- **F9** – Quick access exit.

11. RESEARCH STRATEGY

As this research (neuro-ocular) is a maiden attempt within the spectrum of neuro management, observed as crucial contributions in its neuro-ocular domain with accepted optimal techniques that set potential benchmarks for business choice-making, it is prudent to place an extract from Tobii manual (**Fig. 1**).

Thirty (30) healthy volunteer respondents were accorded space for undertaking the tests. New Taiwan Normal University, Taipei approved all experimental procedures. At the start of each experiment session, a 'material' was provided to the subject to be read aloud and then a silent reading. After that, the Lab entrepreneur in the station regulated the eye tracker for each participant to map 'points' on the monitor. After calibration, participants' references were captured, reflecting the perception of cognitive – feedback sounding(s) load. 'Inferential' data were collected for each contributing subject independently. The stimuli, procedures, and analyses used in experiments were designed and deliberated at Fang Ying convened Eye-tracking Lab, New Taiwan Normal University, Taipei. Some operational details were obtained directly from Prof Fang Ying convened. Subjects differentiated upward from downward motion, and random dot impetuses were located to the left and/or right of fixation. Visual stimuli were created and considered. This was done using a Pentium – class computer operating within a Windows XP environment. Visual stimuli were displayed using a linearised 42″ CRT monitor. It had an animated rate of 60 Hz. The screen was viewed by subjects from a distance of 65cm. A chin rest was used. This was to steadily observe the situation. All experiments were performed in a dimly-illuminated testing booth. Test results are presented in subsequent section(s) subtitled 'Results' below.

‘Eye-tracking analysis is based on the important assumption that there is a relationship between fixations, gaze and thinking. The spatial and Temporal sampling ability of the eye limits the manner to extract ocular information from events. However, because ocular acuity decreases when we move away from the centre of the ocular field, we possess a repertoire of eye movements that allow eyes at target locations of interest. Fixations are common features of looking that eye-tracking researchers analyse to make inferences about cognitive - feedback sounding(s) processes or states they are interested in probing. Fixations are those times when eyes essentially stop scanning the scene, holding central fovea vision in place so that the ocular system can take in detailed information about what is being looked at. But how do we get fixations? Fixations are constructions and outputs of a mathematical algorithm that translates the sequence of raw gaze points into an associated sequence of fixations.

Fig. 1: An extract from the Tobii manual

12. OBSERVATIONS AND DISCUSSIONS

‘Inferential’ data from each subject were analysed independently. Error rates were quite low even with the MSS (memory set size) of 100 objects. Observations were correct 85% of the time. There was a main effect of both presence of the target item and MSS on response accuracy: target presence, $F(1, 12) = 31.18$, $p < 0.001$, generalised eta squared ($g\text{-}\eta 2$), a measure of effect size) = 0.25; MSS, $F(1.44, 18.85) = 88.80$, $p < 0.001$, $g\text{-}\eta 2 = 0.51$, and the two factors interacted significantly, $F(1.47, 19.30) = 23.77$, $p < 0.001$, $g\text{-}\eta 2 = 0.04$. Real-time ‘inferential’ data on correct references follow the same pattern of large main effects for both factors: target presence, $F(1, 12) = 28.71$, $p < 0.001$, $g\text{-}\eta 2 = 0.24$; MSS, $F(1.37, 17.88) = 83.81$, $p < 0.001$, $g\text{-}\eta 2 = 0.51$, and substantial interaction between the two, $F(2.46, 31.94) = 24.26$, $p < 0.001$, $g\text{-}\eta 2 = 0.04$. The slope was significantly influenced by target presence, $F(1, 12) = 37.25$, $p < 0.001$, $g\text{-}\eta 2 = 0.27$. In addition, there was a significant effect of MSS on the search slope, $F(1.33, 17.47) = 45.43$, $p < 0.001$, $g\text{-}\eta 2 = 0.45$. In sum, behavioural results are in substantial agreement with previous work. There was a significant effect of target presence (all F values > 7, $p < 0.04$) on all measures except dwell time on fixated distractors, $F(1, 12) = 2.00$, $p = 0.17$, $g\text{-}\eta 2 = 0.01$. In all cases, two factors interacted such that the effect of target presence became larger as MSS increased (all Fs > 5, all ps< 0.004). The percentage of distractors fixated on absent references increases significantly from an average of 22% per O per reference to 72% as MSS

increases from one to 100 items, $F(1.74, 22.87) = 56.9$, $p < 0.001$, g-$\eta 2 = 0.55$. Dwell time on each distractor rose from 52 to 290 ms, $F(1.24, 16.23) = 27.97$, $p < 0.001$, g- $\eta 2 = 0.36$. This result replicates if we restrict the analysis to only fixated distractors, $F(1.27, 16.57) = 13.55$, $p < 0.004$, g-$\eta 2 = 0.23$. Total fixations per item on absent references rose from 0.26 with one item in memory to 1.27 with 100 items in memory, $F(1.26, 16.32) = 29.23$, $p < 0.001$, g-$\eta 2 = .36$. Fixations could be interpreted in different ways depending on context and objective of the study. During the processing of the neuro-ocular scene, individuals moved their eyes to relevant features in that scene. The peripheral area primarily detected some features. Based on this, it can be inferred that 'leadership choice making is unswerving inter-oriented to instantaneous accessibility and effortlessness of analysis of pertinent 'material' evidence'. Neurophysiological experiments reveal that neurons in the prefrontal cortex display saccade–oriented activity. Saccade–oriented activity in the prefrontal cortex shows steering discernment and setting dependence. Inherent characteristics are parallel between pre/post-saccadic activities. The above results indicate the prefrontal cortex and eyes might contribute to saccadic eye movements. This does play a role in cognitive – feedback sounding(s) functions or monitoring leadership behaviour.

The results above lend credence to the aim of experiments undertaken, in that eye-tracking methodology does help in investigating and corroborating dynamics of leadership choice-making. Results exhibit an essential link between 'subjective', 'physiological' and 'fixations' from a real-world point of view. When leaders make choices, there's a heavy disparity in comportment. 'Vacillating' leaders employ additional evidence when attempting an option compared to 'definite' leaders. First, there were differences in the manner leaders scanned available information. While 'definite' leaders spot on to a choice based on a particular trait, 'vacillating' leaders take in all of the 'material'. 'Definite' leaders perhaps opine that all options have 'good' and 'bad' characteristics. But they prefer a feature that is presumably important. 'Vacillating' leaders observed and opined that all 'materials had some quota of 'good' and 'bad' points. Secondly, 'vacillating' individuals distributed available time over a greater number of attributes during their course of experimental observation. The 'definite' participants 'focused' on fewer attributes to make their choice. Interestingly, 'vacillating' leaders spent more time overall looking at nothing. The subjects looked at 'blank cells' in the 'grid' while (apparently) attempting to make a choice. This series of experiments theorises that undertaking leaders to 'cogitate' or 'reframe' selections before arriving at a choice.

Prefrontal neurons display saccade–oriented action. Appreciating how the leadership brain works is significant in footings of meaningful impact on cognitive – feedback sounding(s) functions. Pre-saccadic activity encrypts guidelines of eye movements. The brain filters out unwanted information when leaders shift vision from one target to another focal target. The complexity of (leadership) 'intended' choice problems increases with the options and features of each available option. Neuro-intended choice, from eye-tracking processes (images and responses) to complex results, makes assumptions about how (leaders) make intended choices and defines the link between (leadership) choices and (leadership) preferences. This postulates that leaders fully understand the 'intended' choice problem and adopt optimising behaviour to create 'intended' choices. Neuro–ocular action towards leadership-oriented behaviour, capable of explaining leadership choice making, on cognitive – feedback sounding(s) models of choice, recommends the following;

- Escape from clichés and arrangements,
- Challenge conventions,
- Generate options and alternatives,
- Strategies new designs and observe what happens, and
- Find new access opinions from which to change forward.

13. INFERENCE

Neuro–ocular analysis is based on the assumption that there is a relationship between fixations, gaze and what leaders consider in matters of choice. Insistently, the prefrontal cortex of the leadership brain is responsible for visual stability. Eye-tracking techniques reveal the ability to aid in leadership choice dynamics. Settings, lengths and records in prechosen 'areas of interest' with transitions indicate 'degree of attention allocation' to prechosen areas. These exhibit how choice-making can be explored with eye-tracking techniques. However, it reflects methodological concerns when interpreting 'inferential' data. Research needs renewed thinking and undertaking things to address them. Primarily, sometimes fixations do not necessarily translate into conscious cognitive – feedback sounding(s) process. For example, during a search task, one can easily fixate briefly on a search object and miss its presence, especially if an object has an unexpected shape or size. These happen in the form of expectations of what objects should look like, modulating ocular attention and further interference with object detection. As an inference, the above study attempts to explore phenomena through neuro–ocular action, management-oriented choice and reasoning processes on cognitive

feedback sounding(s) models of choice. This provides a framework for understanding and conducting research at the intersection of brain–and eye–based models capable of predicting management–oriented behaviour capable of explaining leadership choice-making.

Eye-tracking measures provide non-invasive indices of brain dynamics. Gaze examination divulges attentional and cognitive – feedback sounding(s) approaches. Ocular measures deliver perceptions concerning cognitive

- feedback sounding(s) expanses. As a concluding note to this Chapter, this thesis advocates auxiliary inquiries to scan physiognomies of saccade–related dynamics in the prefrontal cortex and the conceivable influences on eye movement mechanism and related – prefrontal functions. Eye-tracking offers a novel peep into choice management.

Fig. 2: Heat maps from one of the analysis

14. CONCLUSION

Making cogent psychosomatic decisions in a state of Chaos and Resilience is a management action. Cerebral Science (Cerebral Management) has made advances, bringing unprecedented insights into the human brain and decision-making. Inquiry is witnessing multilevel research in organisational studies integrating delineated research domains and offering a novel lens for understanding business practice. Human organisations are at a crossroads between cerebral and business laying a conduit that seems an abnormal approximation with infinite 'Scrolling', Chaos, Complexity and 'Interpolations'. The impression that decisions are taken through rational or logical thought processes has been exposed to questioning by experiments that analyse estimation during decision-making. Reference is drawn to bio-processes that impact decisions, activate to differentiate

based on multiple signals of origin, and conditions that support or negate findings that aid understanding how neuro-configurations influence decision-making. Documentation of molecular and genetic markers precisely forecast rational physiognomies for understanding neural mechanisms of 'Chaos' and 'Resilience' in leadership decision-making.

Are 'business actors' being threatened by 'decision alarm'? 'Business actors' assume that decisions are rational, optimal and based on the best accessible data. They postulate that they totally appreciate decision-feedback-sounding (s) behaviours. Such propositions are now scanned under the lens of cellular and chromosomal prisms. Issues like how decision-feedback sounding(s) processes transgress in brain pathways, how the brain considers data sources and what intrinsic processes embody conflicting 'Chaos' and' Resilience' values have been explored to design 'rational' decisions. The objective has been to monitor the philosophy of neurobiological drivers in behavioural models towards understanding neurobiological drivers that underlie behaviour and decision-making using fundamental tools from business, psychology, neuroscience, mathematics and statistics. The significant finding is that business actor attempts to decide and evaluate prospective decision in Chaos and Resilience conditions using blood glucose medium and eye-tracking.

Leaders (Actors) contract high uncertainty, ambiguity, time pressure and emotional stress. Neural mechanisms of behavioural strategy-based sustainable decision-making require the integration of evidence over time until a response threshold is reached. Cognito - management investigates behavioural strategy-based sustainable decision-making using 'Cognito - Tactical Monikers' (CTM) to investigate how the brain behaves in the circuit of higher cognitive - feedback sounding(s) functions. This has transitioned from mapping confined effects, to evolving extrapolative models that assimilate data scattered across brain structures. In a progressively complex management milieu, leaders struggle between tactical arrangements and precise methods to gauge the degree of accomplishment of predetermined goals. Behavioural strategy-based sustainable decision-oriented planning assists as a 'catalyst' in cognitive - feedback sounding(s) behaviours. There is a need to understand behavioural-biological 'drivers' for investigating underlying behavioural - mechanisms of sustainable decision processes. The scope is to know how leadership trait mapping divulges behavioural insight. The factual lateral lies in analysing available verifiable, reliable and significant information, filtering and sieving of available data and accessing expressive information. This is supplemented by actions of behavioural compartments

to further process interactive-oriented actions. In neural computational simulations, the decision is represented by a node of neural motion encompassing mechanisms of spiralling of activity and initiation for the neural motion to scan positioning of eye movements as a fundamental rationale of leadership decision.

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CHAPTER 2

EMERGING TECHNOLOGIES IN HEALTHCARE POST-COVID ERA

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ABSTRACT

The COVID-19 pandemic has caused a rapid decline in the world's economic growth by rendering many people jobless. During the pandemic, the management of critical patients in Intensive Care Units (ICUs) was the major challenge faced by healthcare professionals. Recently contactless or contact-free services have brought a lot of opportunities in the healthcare industry post-pandemic period, which includes telemedicine, telecommuting and mobile transactions. As direct person-to-person contact is avoided, people's purchasing behaviours have also seen a lot of transition. Thus, the pandemic has accelerated the digitalisation of various medical applications, including self-diagnosis app services, digital tracking of confirmed cases, etc. As far as recent developments in medical device development are concerned, advanced information technology has paved the way for more innovative design, as in the utility of artificial intelligence (AI), Internet of Things (IoTs), 3D Printing, Smart Sensors, and Drones, which have been instrumental in providing contactless services. Despite these advancements, the challenges faced by the medical device manufacturing industry are regulatory complications, high healthcare costs, and slow, expensive R&D.

Keywords: *COVID-19; Smart Sensors; Telemedicine; Internet of Things; Communication Technologies; Artificial Intelligence*

1. INTRODUCTION

One of the deadliest issues in the world today, the 2019 coronavirus disease pandemic, has claimed many lives. The virus that causes coronavirus disease is contagious and spreads from infected people through airborne droplets.

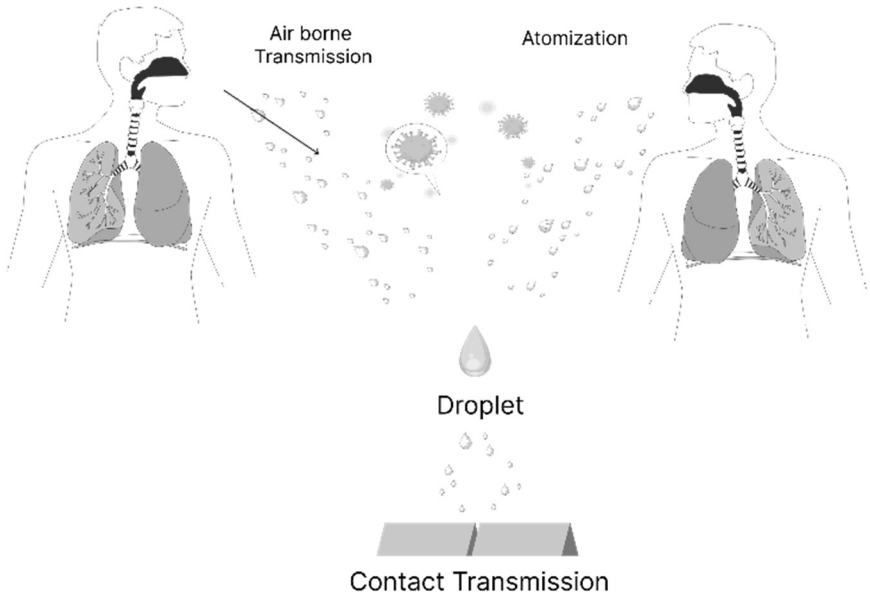

Fig. 1: Transmission of the viral particles through air/ contact media

The main symptoms of this disease include fever, headache, cough, nausea, vomiting, fatigue and breathlessness. One of the main methods currently available to detect the virus is real-time Reverse Transcription Polymerase Chain Reaction (rRT-PCR). After the onset of this disease, several vaccines have been developed, approved and sent to various countries for the mass vaccination campaign. Other ways by which we can minimise the spread of this disease are by wearing masks in public places, social distancing, quarantining, frequently washing hands and proper ventilation of indoor spaces. In addition, the government has taken many steps to minimise the spread of the disease by restricting the population in