

INNOVATION AND NEURO-ECONOMICS: THE INFLUENCE ON MANAGERIAL EFFECTIVENESS AND CORPORATE FINANCIAL PRODUCTIVITY

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Abstract : Centric to business is profit-making, and incorporating professionals in management is invaluable for growth and organizational development. Management processes call for effective operation and efficient resource utilization, a metric in planning for enhanced visibility and productivity critical in business sustainability. The idea is that innovation and neuro-economics are pivotal, interfering and significantly contributing to business advancement, and companies continuously seek to turn things around for success. This study utilizes a phenomenological research design using a grounded theory approach fully structured, enabling systematic processing in the research. Empirical activities involve an 8-person focus group discussion in three sets in each of the 5 sample companies through video conferencing. With data triangulation, the research ensures the validity and reliability of data and resources obtained from Scopus and Google search engines. Apart from a positive indication of the effect of artificial intelligence (AI) and internet usage on business operations, the result shows significant turnover in sales and income, meaning systems and software enhance managerial performances. Emotions and behavior are also critical, as the research outcome reveals in decision processes and the productivity level. Overall, the strength of technology is imminent, and the impact of neuro-economics on managerial effectiveness and efficiency remains outstanding.

Keywords : Technology, innovation and change, management strategy, neuro-economics and emotions, employees, and performance.

INTRODUCTION

Fundamental to any business objective is profit-making and wealth creation, besides environmental value creation and product enhancement, sector or industry not- withstanding. Management processes play a role in this dimension, calling for effective operation and efficient utilization of resources (human and material) for profit generation for companies and wealth creation for customers, employees, shareholders, and suppliers.

The criticality of leading, planning, and controlling resources in the

sustainability of business growth and development is increasing and inviting researching possible new influences that can drive managerial effectiveness.

To achieve this, using new processes and methodologies, including information technology, promises improvement in management effectiveness is essential (Kendall, 1997, p. 778). Several investigations reveal the instrumentality of change and innovations in firm productivity. Contemporary times have witnessed many institutions and governments aggressively embarking on

policies to accelerate the engagement of technology.

Innovations revolve around development and efficiency, calling for competitiveness in the market environment to contribute to business advancement as companies continuously seek to turn things around for success. (Batt, 1999, p. 541). The concept is critical in driving change and unfolding new ideas for profit. For example, growth implies increased productivity in goods and services companies can deliver. Change is an ever-increasing need of modern society supported by technology, business environment, culture, and leadership, to mention a few across industries.

In many instances, leadership manifests change, motivates, and influences people to achieve corporate aims and objectives (Mullins, 2005, p.281), and equips individuals with appropriate resources for growth and success maximization. The rapidly changing environment also demands managerial reactions and organizational flexibility, signifying the importance of a dynamic workplace. In another instance, decision-making processes, which have significant connectivity with neuro-economics, with limited research, also influence organizational performance.

The interrelationship of neuroscience and social sciences manifests neuro-economics in modern society, demonstrating the role of neurosciences in business research. Many studies confirm the function of neuroscience in practical research development and solving managerial and economic challenges (Volk & Becker, 2014). These interfere with different brain experiments with technologies and devices about social dynamics determining things accurately.

Due to the existing research gap, the researcher seeks to examine the impact of innovation and neuro-economics on productivity with advances to establish how the scenario affects organizational growth and efficiency. The study explains the relationship

between neuro-economics and technology and economic theories vis-à-vis the growth and sustainability of media companies in Nigeria. The discussion focuses on technology and innovation theory, games theory, decision process theory, and the general effect on managerial effectiveness.

In the competitive and globalized contemporary markets, nothing empowers growth and development as innovation. Innovation is the frontier of globalization and sustainability, and firms utilize technology and scientific investigations for strategic and social benefits. Research shows the significance of innovation in many dimensions, including business operations and customer service, with limited demands on business reformations. The technology ensures data security for companies and the protection of proprietary assets for competitive concerns (Bauer and Bender, 2002, p. 28).

As firms advance for profit-making, technology gets increasingly relevant, creating space for growth and business sustainability. In addition to enhancing the security of confidential data and financial information, the technology protects proprietary resources and ensures competitive advantage (Bauer and Bender, 2002). From customer service to operation, technology manifests a far-reaching development without business fundamentals reformation, bringing the best of firms into the ever-changing and growing economies.

Drawn from the Latin word *-nova*, the concept consistently influences business processes and outcomes over time, utilizing information in creating goods and services with enormous benefits, empowering managers and business administrators for profitable engagement of resources.

Neuro-economics centers on brain functionalities and the dynamics of choices and has many significant reviews backing the discipline in enhancing decision-making more than the conventional approaches. The science of neuro-economics combines the social and neural processes for gains and reward forecasting, such as pains and money (Cohen, 2010). Insights from the reviewed articles reveal the strategic role of the discipline in organizational structure that enables productivity and sustainability and advances knowledge of behavioral variables that aid forecasting and decisions.

The newly developed science in the last three decades holds significance in behavioral economics at the time, enhancing tremendous breakthroughs in technologies such as the fMRI neuroscience device. fMRI is a device most economists and scientists deploy in brain examinations (Volk & Becker, 2014). The technology is sufficient in detecting the stress level and emotional imbalance of employees, besides offering insights to management for decisions that can better the welfare of the workers.

Neuroscience technology is instrumental to productivity and overall organizational performance, providing new insights into economic variables for choice behavior explanation. Doyle (2002) researches the economics of the media linked to this position and presents reliable premises for economic theory deployment in strategic media organization development. The resource establishes media economics as a revenue and profit generation alternative

with scarce means, utilizing media activities in the study for better output.

Owing to the fundamental objective of business operating for profit, companies explore recruiting the best brains to pilot the organization, indicating that efficient decisions may result from managerial effectiveness. Strong managers are more engaging, manifesting the capacity to recognize unique skills, strengths, resource utilization, and strategy in increasing productivity levels (Isen and Means, 1983). That suggests that team members also need mental stability and imaginative ability to make decisions that can transform resources and create wealth. Brain involvement and information acquisition get more critical, at this point, drawing attention to this investigation, focusing on the role of innovation and neuro-economics in decision-making, enhancing managerial effectiveness and productivity of multi-media firms in Nigeria.

LITERATURE REVIEW

Evaluating scientific research materials is critical for better understanding available resources relating to the phenomenon and drawing a reference to support a position. This work draws insights from theories and concepts relating to the subject for understanding existing knowledge and challenges and assists in locating relevant methodologies to conduct research. In this paper, the study reviews theories of innovations, expectation, decision process, and game theory.

Disruptive innovation

Disruptive innovation is one of the developments in innovation theories. It provides insight into why new and smaller companies can bypass the larger firms and take over the market share. Zaiid, Louati,

and Affes (2015), studying innovation, explain what enables new technologies and how innovation helps new companies overtake the larger establishments in the economy. That demonstrates the efficacy of change management and how technology can impact corporate productivity.

Specifically, the theory holds the possibility of smaller firms interrupting the larger organization-dominated market, offering new products, captivating and appealing to clients. For example, this is evident in the supply of new versions of computers, cell phones, and cars to the larger market with a lower price tag or even inferior quality. That can help the smaller firms advance in the short term. However, the general idea is that the smaller firms can improve the technology over time and maintain the market.

The other argument about the theory is that established organizations may not necessarily react to this development due to the consensus of lesser profitability of the lower side of the market (Christensen, Raynor, and McDonald, 2015). The assumption is that ignoring the lower portion of the market makes the larger organizations stronger. But there is no sense in getting stronger without making a significant profit to the efficiency and effectiveness of the management.

Christensen et al. (2015) explain disruptive innovation as a process with evolutionary tendencies demonstrating the potency of technology in a change-driven society and revealing the importance of the concept to entrepreneurs and managers. Innovations take the lead among the priorities of business executives and established institutions worldwide as contemporary business changes demand innovative approaches and modern solutions. Innovation originating from low-

end or new-market setups performs incredibly well and restructures and empowers management strategies to drive change and generate more income and resources.

An example of this drive is the Uber taxi development in the transport sector of the global economy via software, artificial intelligence (AI), and internet applications. The uber-transport mechanism is efficient and has expanded its presence in the mainstream economy and meets the global transport needs of clients. The technology offers transport managers a facility to improve services and increase profit over time, reflecting possible influence on managerial processes.

Dual innovation

Developing ideas can sometimes pose a challenge to companies, let alone efforts to implement innovations, and that leads to the process implementation referred to as dual innovation. The ambidextrous organizational theory explains how a company initiates and deploys validated innovations in achieving core business objectives (Zhao, 2020, p. 789). However, experience shows managers always create reasons for not implementing new ideas because of fear of the unknown, and, in many firms, no one wants to take responsibility for launching a new product or service because of failure possibilities.

Zhao (2020) examines the link between knowledge acquisition and management ability, explaining theories of dynamism and synergy and exploring the impact of uncertainty that technology emits on knowledge generation. While revealing a significant moderating effect of technology uncertainty and a positive moderating effect on new technology and innovation balance, the research outcome maintained a positive

correlation between dual innovation and knowledge creation. Dual innovation is critical in new ideas implementation, though most managers may try to avoid the process for some personal reason. For example, administrators may complain of insufficient technical know-how of the team members and the risk of not satisfying clients if implementing new technology.

Open innovation

The theory of open innovation embraces a wide range of contributors within and outside a company, influencing organizational processes and strategies and building a network allowing incorporation of internally generated projects with external resources. Organizational openness concerns developments increasingly gaining momentum in research and empirical business environments (Gassmann, Enkel, and Chesbrough, 2010). For example, a firm can source ideas from employees and the general public, and that can occur via suggestion channels to tackle an issue or a challenge that the company created with the potential of creating new income streams without altering business direction.

Developing from a small group of innovation professionals, the concept of innovation has increasingly gained ground practically and in the research field. Gassmann et al. (2010) investigate the prospects of open innovation advancing knowledge from the previous R&D management processes of 2006 and 2009. The work reveals recent developments and captures nine strategies in open innovation advances. Firms with challenging situations and issues beyond the assistance of experts can employ this concept to allow external inputs that can enable a solution.

Open innovation may help managers generate productive feedback on services

and products from the larger pool of clients and customers where effectively utilized. For example, it can expose operational inefficiencies that management ordinarily would not know. In sourcing for marketplace feedback on new products, the theory appears essential and can assist management in improving performance.

That raises curiosity to ask scientific questions such as: Does AI application improve customer service operation and managerial effectiveness in media companies? Do data protection and security apps influence management performance in the company?

Does the outcome of such results impact profit-making in the companies and, if at all, to what dimension? Aside from the innovation theories pointing greenlight to the capacity to impact managerial effectiveness, other economic theories (expectation, decision-process, and game theories) with multidisciplinary dimensions exist, and analysis of such positions may explain the importance in management and administration.

Expectation theory

Simon (1959) discusses the psychological perspective on expectation formation, indicating the role of psychology in understanding and predicting saving and spending trends in organizations and individual experiences. The study builds on data from a survey from the University of Michigan and manifests resources supporting expectation levels in the organization. The research evaluates future income and patterns of expenses in the long term so that entrepreneurs and managers can benefit from utilizing the ideas and drawing info on consumption. For example, with the knowledge of future income and consumption patterns, a company can

optimize production and services, meeting future demands, helping to generate more revenue, and creating abundance for the company.

Concerning probability economic theory, the study also supports the position of probability distribution in engaging and forecasting productivity in the long run. The economic theory of probability is a veritable business tool for managers, though it can sometimes draw some concerns (Gerlach, 2017). Indication shows that samples from alternatives for reward can reduce expected forecast variation and the effect of strategic output and incapability in prediction. Probability experiments are necessary even though the research identifies some setbacks due to possible asymptotic trends inducing a stochastic learning experience. Stochastic learning engages psychology in determining asymptotic manifestations (Gerlach, 2017).

With this perspective, strategic analysis embraces extensively the psychological dimensions and influences financial management. Hence, managerial effectiveness is possible where there is an understanding of these dynamics. Of course, financial management revolves around many functions, including organizing, directing, planning, and controlling organizational resources for leverage and competitive advantage (Collins, 2012).

Decision process theory

Allen (1977) is one of the principal contributors to the developments in decision-making processes, presenting valid and reliable data relevant to solving organizational challenges and enhancing decision-making. The paper sets apart the convenient decision theories from the normative while considering the socio-political forces in totality. That moves away from the impracticability of normative to the

convenient-descriptive process, emphasizing the essentiality of subjectivity and value-based positions arising from personal perspectives. The study examines the dimensions of rational decision processes and identifies limited and ineffective decisions due to dependence solely on microeconomic and firm theories. Overall, the work shows the behavioral involvements of managers in organizations, pointing to the entanglement of neuro-economics in realizing economic decisions.

In another instance, Takemura (2014), through a controlled experiment, captures the importance of emotion in decision-making and, specifically, the effects of human feelings. The research outcome uncovers the impact of neural developments in delivering judgment, reflecting on the role of neural interplays in strategic decisions and how humans attend to challenges. Indications also manifested higher-test scorers making faster decisions than those without any results, implying that participants with more feedback had no frustration deciding how to handle problems. The study also reveals positive data in another experiment on partner selection, showing that participants with much info about future partners had made faster decisions than those without information.

The process of making a decision is multifaceted and all-encompassing, cutting across disciplines and endeavors. Strategic decisions drawn from knowledge from multiple fields come with enormous benefits, including innovations and allowance for varied perspectives. Simon (1959) explains how human behaviors influence administrative decisions and shows the criticality of the role of emotions both in strategic decisions and policy development.

Games theory

Games theory allows for efficient decisions on economic variables in a strategic platform and demonstrates sector and market analysis value consisting of multi-players. Sanfey (2007), discussing decision-making in a social context, deploys both neuroscience and game theory in evaluating decision-making processes in social sciences. The research reveals the dynamics of brain activities in decisions concerning social phenomena.

Concerning reward mechanisms, the research discusses the bargaining effect and the combination of competitive games in goal optimization. The issue is the possibility of constraints that neural interferences can pose to the microeconomic model implementation. Also, the challenge is the differences in data updating by different individuals. For example, management with higher capacity may indicate high possibilities of success in utilizing economic models in businesses. Therefore, a manager who successfully engages game theory principles can do much more in performance and turn around the fortune of any company.

Engineering further curiosity, the study seeks to ascertain the role of neuro-economics in the forecasting and decision capacity of managers in media firms. Knowing the degree of brain reactions to advertising information and product services by customers also constituted the basis of this inquiry. As decision-making investigations combine research on innovation-tech and neuro-economics repositioning a manager for adequate understanding and processing of diverse data from multiple sources, it becomes pertinent to verify such impact on managerial effectiveness and financial

productivity of corporate companies in the media sector of the Nigerian economy. .

METHODOLOGY

The study adopts a qualitative approach to examine the influence of innovation and neuro-economics on managerial effectiveness vis-à-vis financial productivity of multi-media TV companies in Nigeria. With a population of 21 corporate media companies, the study utilizes data from five sample companies through focus group discussions and phenomenological research design using a grounded theory approach. Grounded theory empowers structured and comparative analysis, enabling systematic processing in qualitative investigations (Pidgeon and Henwood, 2004, p. 629).

Streamlined and most relevant resources obtained from the Scopus and Google search platforms empowered the literature reviewed in developing the study framework. The study utilizes effective and appropriate online search commands on the stated scholarly search engines with keywords including technology, innovation and change, management strategy, neuro-economics and emotions, employees, and business performance. That opened access to research materials with valuable insights into the study phenomenon of engineering strategic content, creating a reliable investigation with high validity.

Empirical activities involve an 8-person focus group discussion in three different sets in each firm through video conferencing. Minimizing the number of group participants to 8 allows a lively session where the respondents have sufficient airtime to share opinions and ideas on the subject matter. Focus group population may range from 8 to 10 members, and exceedingly larger groups

may build on time availability for quality participation and contributions of study participants (Escalada and Heong, 2014).

The study employs neuro and innovation-tech variable components in the area of competitive advantage, data security and protection, customer service, marketing processes, managerial productivity, sales and revenue impact, forecasting and decisions, decision-making, stress and emotional imbalances, and neural reaction to advertisements to examine the influence of innovation and neuro-economics on managerial effectiveness. In a 55- minute structured and semi-structured interview during a focus group discussion, the study obtained primary data from senior management staff with over ten management experiences in the sample firms across three departments - accounting and finance, marketing, and administrative departments. The study coded discussion responses, providing relevant input for analysis, discussion, and strategic applications. Triangulation embraces many data sources in investigation review (Fraley, Waller, and Brennan, 2000).

Hence, the researcher enforces data triangulation for the validity and reliability of data sources.

RESULT AND DISCUSSION

Innovation enhances business growth and continuous evolution both in production and marketing, just as neuro-economics impacts through theories affecting choices on branding, product prices, and advertising. That happens because the concept can reposition and empower managerial functions that plan and coordinate resources for profitable implementations. There are tremendous benefits and multiplier effects of innovations

on multi-media TV business operations and other sectors of the economy in Nigeria. Managers may engage in different innovations in developing brands and advertising for the impact and profitability of companies.

Tremblay and Tremblay (2012) reveal the essentiality of advertising and branding in determining consumer choice. Applying new ideas and technology is credible for resource redeployment and turning around things for organizational growth. For example, internet facilities (Wi-Fi) and computers assist companies in data sourcing and brand creation.

Zaied et al. (2015) explain what enables new technologies and how innovation helps new companies overtake the larger establishments in the economy. The component of data protection and security and customer service operations observed across the five (5) sample firms in 15 sets confirmed 100% acceptance to boost company productivity and considerably improve business profit margin. Great benefits are associated with internet access monitoring, especially in protecting sensitive data, besides enhancing increased access to data relevant to product branding, managerial practices, and corporate productivity.

The same 100% affirmation is reflected in the competitive advantage component in the focus group outcome, implying that keeping track of employees' functions cannot be anywhere effective without the engagement of technology in the business processes. Within and outside the organizational team, technology helps job function coordination and enables effective communication (Muslin, 2005, 663) for better performance. That demonstrates the likelihood of boosting the relationship between the media firm employees and the

clients, increasing corporate output, and reflecting more turnover and job satisfaction generation. The company cash inflow appeared increasingly appreciating under this scenario, as information technology improves inventory apart from the conventional methodologies of discount offerings, utilizing leasing options and not outright purchases, engaging interest-savings accounts and consumer credit checks, and significantly reducing production costs.

Researching a French outfit, Abowd, Corbell, and Kramarz (1999) analyzed and created work statistics and employment dynamics with a three-year data flow (1987-1990) indicating the distinction between worker inflow, elimination, and job creation. The study outcome revealing the growth of three employees recruits per year points to organizational change theory advantage. When asserting the innovation impact on business success and productivity, the central phenomenon is change, which people naturally resist, and managerial effectiveness will embrace organizational innovation to drive processes, administrative practices, and product services, as witnessed in the study. Christensen et al. (2015) support innovations taking the lead among the priorities of business executives and established institutions globally as contemporary business changes demand innovative approaches and modern solutions. For example, the testing component facilitating marketing processes across the sets in the 5 sample companies (in the annex) reveals effective advertising through innovation and technology as the principal forces driving managerial productivity and efficiency.

In enhancing objective and scientific reasoning, neuroeconomics empowers

business leaders, enabling the understanding of employees and consumers for strategic business decisions. The study outcome supporting the Game theory and Sanfey (2007) on social decision-making involving neurosciences in social phenomena decisions manifests the role of science in value-oriented decisions. The area test component of brain reactions to advert information remains positive in all the discussion groups in the sample firms, meaning a manager with more customer-oriented info is likely to understand what informs a consumer preference for a product over other products.

The reviewed theories affecting choices on branding, product prices, and advertising display connectivity between neuro-variables and value-based decisions. When a company launches an advert, for instance, information transfer to consumers is likely going to the brain, and the brain does the processing and updating. Neural data processing informs decisions to reject (consumption or investment) or accept it. For example, with an advert for car sales, the brain determines to buy or reject the offer after information processing.

While it is crucial to engage in persuasive advertisements, informative adverts hold significant benefits that can enhance better purchasing decisions. Investigation into sunscreen and anti-smoking reveals the role of the brain in predicting consumption patterns in the future. The research of Berns and Moore (2012) discusses brain dynamics and potentials and the forecasting powers. Neuroeconomics is a strategic source that can transform the productivity level of managers in any industry or business, and applying the concept within and outside the media industry will assist advertising

managers in increasing demand and empowering utility.

Therefore, the more informed the manager is, the better the decisions on brand development and offerings that may result. Even so, the faster will be the speed of decisions concerning the best forms of operation in the company, which ultimately will impact the cash flow generating financial income for the media firm and the clients. Data analysis in the annex captures positive development with 93.3% affirmations of forecasting and decision-making function that the brain exhibits, pointing to the effect on business productivity and sustainability.

Management with significant access to historical data and market trends may likely handle critical processes, helping businesses with better decisions and accurate outcome predictions. The practical observations in the study show that management is exceedingly effective where other relevant factors are held constant. Firms with highly informed managers may empower forecasting, enabling demand and supply change anticipation and strategically initiating adjustments with resource allocation efficiency for optimum performance.

Achieving enhanced acceleration and accuracy of decisions is another advantage of informed brains. The empirical data indicates the dominant factor of brain dynamics relating to corporate decisions across the five (5) sample companies and appreciates information needed in problem identification and proffering solutions. Apart from aiding problem identification and enhancing solution offerings, neuro-variables in the observation help stress and emotional imbalances management and significantly impact productivity by increasing sales and revenue. Knowing how

to manage stress levels will boost morale and productivity among workers and may enhance focus on achieving corporate aims and objectives.

CONCLUSION

Globally, businesses exist for profit, and having a professional management team is invaluable for growth and organizational development. The involvement encompasses processes calling for effective operations and efficient resource utilization, which is essential for business sustainability, and innovation brings a significant contribution to this advancement as firms continuously seek to turn things around for success. Critical to this is the role of technology apart from culture and leadership, which all industries demand in the face of a rapidly changing business environment with diverse reactions for organizational flexibility, signifying the importance of a dynamic workplace. Indications capture decision-making processes with significant neuro-economics connectivity, a strong force influencing organizational performance.

Closed examination of innovation theories (open, disruptive, and dual-innovations) and technology, game theory through decision process theory revealed neuro-economics and technology supporting managerial effectiveness and organizational growth. Besides the consensus position support that managers possess influence over the performance of small and medium-scale enterprises, the study confirms innovation application as instrumental to the rapid growth of smaller companies and the possible forces behind an increasing market share expansion tallying with the disruptive innovation concept. With increasing access to information and resources, including artificial intelligence

applications, by management within and outside the firm, as identified in the study, open innovation can explain dimensionally managerial efficiency and corporate productivity the same way innovation can in ideas implementation.

Measuring full-scale technology impact aids the understanding of the transformative dimension of the company besides advancing business growth and empowering culture and efficiency (Herrera, 2015, p. 1470). This resource manifests the restructuring capacity of technology in communication improvement, achieving competitive advantage, data security, and protection, and enhancing marketing processes. Boosting customer service operations and driving sales reflects a multiplier effect on managerial efficiency, which translates into financial productivity as the company revenue increases.

The brain functionalities stand out in choice-making, demonstrating the efficiency of neuro-economics in enhancing decisions beyond the conventional approaches, bringing to light the relevance of behavioral variables in forecasting and decision-making processes. The study data shows how brain reactions to advertisements and the accumulated knowledge influence the quality and speed of decisions on branding, sales, and marketing. The strategic resultant decision may improve organizational performance via employee productivity, as shown in the study. Strategic decision-making is crucial when the company considers defining policies and driving business growth (Dean and Sharfman, 1996, p.381). The whole analysis demonstrates the efficacy of change management and how technology can impact corporate productivity and finance in addition to establishing the relationship between neuro-economics and technology vis-à-vis financial

growth and sustainability of multi-media companies in Nigeria.

The study confirms the critical role and support of expectation, decision process, and game theories in delivering managerial effectiveness. Maintaining over 70% component impact on sales and income turnover with an increasing percentage effect in the area content of emotions and behavior, forecasting, and decisions portrays business success. Although increasing sales revenue does not necessarily mean an increase in profit margin, a high percentage affirmation recorded in the competitive advantage component in the annex suggests average operations at the companies enjoyed cost minimization, enabling a conclusion that under this condition, firms can receive a boost in profit-making over time. Overall, the strength of technology is imminent, and the impact of neuro-economics on managerial effectiveness and efficiency remained significant.

REFERENCES

- Abowd, J., Corbell, P. and Kramarz, F. (1999). The entry and exit of workers and the growth of employment: An analysis of French establishments. *Review of Economics and Statistics*, 81(2), 170 -187.
- Allen, D. (1977). A review of process theories of decision making. *Management Education and Development*, 8(2), 79-94.
- Batt, R. (1999). Work organization, technology, and performance in customer service and sales. *Industrial and Labor Relations Review*, 52(4), 539 – 564.
- Bauer, T., and Bender, S. (2002). Flexible workplace systems and the structure of wages: Evidence from matched

- employer-employee data. IZA Discussion Paper, 353.
- Berns, G. S. and Moore, S. E. (2012). A neural predictor of cultural popularity. *Journal of Consumer Psychology*, 22, 154-160.
- Christensen, C. M., Raynor, M. E., & McDonald, R. (2015). What is disruptive innovation? *Harvard Business Review*. <https://hbr.org/2015/12/what-is-disruptive-innovation> Retrieved on, 5(5), 2017.
- Cohen, J., & O'Callahan, T. (2010). What is neuroeconomics. Obtenido de Yale Insights: <https://insights.som.yale.edu/insights/what-is-neuroeconomics>.
- Collins, J. M. (2012). Financial advice: A substitute for financial literacy? *Financial services review*, 21(4), 307.
- Dean Jr, J. W., & Sharfman, M. P. (1996). Does decision process matter? A study of strategic decision-making effectiveness. *Academy of management journal*, 39(2), 368-392.
- Doyle, G. (2002). *Understanding Media Economics*. Mass Communication, Media Policy & Regulation, Cultural Studies. Sage Publications Limited. <http://dx.doi.org/10.4135/9781446279960>
- Escalada, M., & Heong, K. L. (2014). Focus group discussion. *Research Gate Journal*, 3, 178.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). Item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350-365.
- Gassmann, O., Enkel, E., & Chesbrough, H. (2010). The future of open innovation. *R&d Management*, 40(3), 213-221.
- Gerlach, P. (2017). *The Games Economists Play: Why Economics Students Behave More Selfishly than Other Students*. *PLoS One* 12: e0183814. <https://10.1371/journal.pone.0183814>
- Herrera, M. E. B. (2015). Creating competitive advantage by institutionalizing corporate social innovation. *Journal of business research*, 68(7), 1468-1474.
- Isen, A. M., & Means, B. (1983). The influence of positive affect on decision-making strategy. *Social cognition*, 2(1), 18-31.
- Kendall, K. E. (1997). The significance of information systems research on emerging technologies: seven information technologies that promise to improve managerial effectiveness. *Decision Sciences*, 28(4), 775-792.
- Mullins, L. (2005). *Management and organizational behavior* (4th ed.). Prentice-Hall. Pidgeon, N., & Henwood, K. (2004). Grounded theory. *Handbook of data analysis*, 625-648.
- Sanfey, A. G. (2007). Social decision-making: insights from game theory and neuroscience. *Science*, 318(5850), 598-602.
- Simon, H. (1959). Theories of Decision-Making in Economics and Behavioral Science. *The American Review*. XLIX, 3.
- Takemura, K. (2014). *Behavioral decision theory: Psychological and mathematical descriptions of human choice behavior*: Springer Japan.
- Tremblay, V. J. and Tremblay, H. C. (2012). *New Perspectives on Industrial Organization: With Contributions from Behavioral Economics and Game Theory*. New York: Springer.
- Volk, S., & Becker, W. J. (2014). How insights from neuroeconomics can inform organizational research: The case of

- prosocial organizational behavior. *Schmalenbach Business Review*, 66, 65-86.
- Zaied, R. M. B., Louati, H., & Affes, H. (2015). The relationship between organizational innovations, internal sources of knowledge and organizational performance. *International Journal of Managing Value and Supply Chains*, 6(1), 53-67.
- Zhao, J. (2021). Knowledge management capability and technology uncertainty: driving factors of dual innovation. *Technology Analysis & Strategic Management*, 33(7), 783-796

Annex: data indicating variables examine under artificial intelligence (AI) and brain functionalities

AREA COMPONENTS	MEDIA COMPANIES														
	A			B			C			D			E		
	GR1	GR2	GR3	GR1	GR2	GR3	GR1	GR2	GR3	GR1	GR2	GR3	GR1	GR2	GR3
Artificial Intelligence (AI)															
Data protection and security	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Competitive advantage	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Customer service operation	8	1	1	0	1	0	1	1	1	1	1	1	0	1	1
Facilitating marketing processes	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
enhancing managerial productivity and efficiency	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Computer and internet relationship vis-a-vis productivity	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Effect on sales and revenue	8	1	1	0	1	0	1	1	0	1	1	1	1	0	1
Brain functionality (fMRI)															
Decision-making processes	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Reactions of the brain to advert info	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Effects on productivity and business sustainability	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aids forecasting and decisions	8	1	1	0	1	1	1	1	1	1	1	1	1	1	1
Captures the stress level and emotional imbalances of workers	8	1	1	1	1	1	1	1	0	1	1	1	0	1	1
Effect on sales and revenue	8	1	1	1	1	1	1	1	0	1	1	1	1	0	1
TOTAL	104														

GR represents Focus group