Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol.12 , (2023)
https://www.jneonatalsurg.com

OPEN ACCESS

The Impact Of Strategic Knowledge Management On Chinese Innovation And Manufacturing Firm's Performance In The Era Of Internet Of Things (IOT).

Liu Huiyan [1], Abhijit Ghosh[2]

[1]Research Scholar, Lincoln University College

[2]DEAN, Lincoln University College

Corresponding author:

Liu Huiyan

Research Scholar, Lincoln University College

Cite this paper as: Liu Huiyan, Abhijit Ghosh (2023) The Impact Of Strategic Knowledge Management On Chinese Innovation And Manufacturing Firm's Performance In The Era Of Internet Of Things (IOT).. Journal of Neonatal Surgery, 12, 184-191

ABSTRACT

This research paper aims to examine the impact of strategic knowledge management and the Internet of Things (IoT) on Chinese innovation and manufacturing firm's performance. In the era of digital transformation, organizations are increasingly leveraging the power of IoT technologies to enhance their operational efficiency and competitiveness. Additionally, effective knowledge management strategies play a crucial role in fostering innovation and improving firm performance. This study explores the interplay between strategic knowledge management practices and IoT adoption in Chinese innovation and manufacturing firms. The research methodology involves a combination of qualitative and quantitative approaches, including interviews with senior managers, surveys with employees, and analysis of firm performance indicators. The findings of this study will provide insights into how knowledge management strategies can be integrated with IoT technologies to drive innovation and enhance firm performance in the Chinese context. The results will be beneficial for managers, policymakers, and researchers in understanding the critical factors that influence successful IoT implementation and knowledge management practices in Chinese innovation and manufacturing firms

Keywords: strategic knowledge management, Internet of Things, IoT, Chinese innovation, manufacturing firms, firm performance, digital transformation, qualitative research, quantitative research.

INTRODUCTION

The Internet of Things (IoT) paradigm is a novel paradigm in the current context of modern information and communication technologies (ICTs). The Internet of Things, a collection of disruptive digital technologies, affects both individuals and businesses. Disruptive technologies are increasingly being incorporated into business processes in order to increase efficiency through the flow of knowledge and the collection of data and information. It is imperative for companies to develop appropriate and relevant knowledge management processes and capabilities in order to maintain their competitive advantage in this global economy. More and more academic and practical research has been done on information management and how to get the most from it at work. Knowledge management refers to the process of identifying and utilizing a group's collective knowledge in order to enhance competitiveness, innovation, and responsiveness to environmental changes. Information technology-based knowledge management systems have received relatively little research attention in terms of their development, implementation, and overall success rates (IT) (Kim and Kim, 2016; Scuotto et al., 2016). This represents a significant gap in scientific business knowledge because many organizations are implementing knowledge management systems to make it easier to create, share, and store knowledge. In light of the movement's new and increasing momentum, creating digital ecosystems using ICT tools, experimental technology platforms, e-service applications, and other infrastructures of the information society can give companies a competitive edge by facilitating the collection and exchange of data and information. This phenomenon is reshaping the way innovation is carried out in the first place. Despite significant progress in several areas of knowledge management, the results of programmes to improve knowledge management have been inconsistent and unclear. Then why aren't there more studies on how and when knowledge management initiatives can improve productivity and outcomes? This has resulted in a greater focus on the link between knowledge management and business performance. Research in knowledge management (KM) is also common to focus solely on internal knowledge, ignoring the importance of integrating both internal and external knowledge into a holistic approach. Internal Knowledge

,

Management Capacity (KMC) is becoming increasingly important to companies in today's dynamic environment as a means of effectively managing knowledge flows both within the Organization and to and from the outside world. As the name suggests, KMC is all about a company's ability to explore and retain information not only within the organisation in which it is employed, but also across all other organisations. As a result, firms tend to form alliances with other stakeholders in their ecosystem, resulting in a dynamic exchange of knowledge. As a direct result of the IoT phenomenon, firms can and should implement and maintain KMS that utilise cutting-edge ICTs and external knowledge sources, resulting in improved innovative performance (defined as the ability to introduce new products/services and processes or open up new markets.

The top authorities and economic planners in China have issued mandates for the rise of the Internet of Things (IoT), which has resulted in the announcement of a variety of government directives that overlap with one another. These mandates have caused the announcement of a variety of government directives that overlap with one another. Beijing has placed a high importance on the development of the Internet of Things (IoT), and this is obvious in the efforts made by the Chinese government to coordinate regulations and offer financial aid for the IoT sector. Certain

government accounts provide the funding for research and development (R&D), and a variety of state laws encourage government agencies to coordinate policies in order to facilitate the rapid and broad adoption of the Internet of Things (IoT).

At the beginning of the "information era," the Internet of Things marks a huge technical achievement. The "Internet of Things" is how it's referred to in English parlance. The phrase "Internet of Things" refers to the notion of physical objects located all over the globe that can be accessible through the internet. It may look at this a couple of different ways: First, the Internet is still the backbone and foundation of IoT; second, between the network's enhanced and extended clientele, information exchange and connection between any commodities and articles of interest becomes tangible objects of interest. In summary, IoT is still based on the Internet.The Internet of Things (IoT) refers to a collection of applications with the goal of expanding the connection and reach of the Internet. If the Internet of Things is going to have a substantial impact on the economy, then it is necessary to fulfill certain conditions and overcome certain obstacles. There are certain problems that are essentially technological, while others call into question the legality of the present corporate structures, management practices, and even governmental supervision. In this regard, the World Institute examines eight primary characteristics that will determine the success of the growth of the Internet of Things based on research carried out inside the computer industry. According to Kezar 's research, the open innovation paradigm has to be used in order to investigate the development of an ecosystem that is beneficial to entrepreneurs. The entrepreneurship accelerator was determined to be an essential component in the process of developing a setting that was favourable to the activities of new business owners. In this section, they analysed the qualitative data that was gathered from business accelerators. They stated that in a situation where the ecosystem that supports entrepreneurs is lacking, governmental policies have to be established to foster open innovation among the major participants in the entrepreneurial ecosystem. This would be the case because: Through the use of open innovation, the accelerator has been able to broaden its network of connections with actors operating outside the system. As a result, the accelerator's capacity has increased, and it has been integrated into the global innovation system. The study of open technical innovation in the new information and communication technology business is thus of utmost practical relevance. This will help enhance inventive ability as well as reform and opening up (Kezar 2017).In conclusion, the new industry of information and communications technology that operates under the technology of the internet of things (IoT) has an immediate need for solutions to the problems posed by open technological innovation in order to supply the full creative potential of businesses. After reviewing the previous research that has been done on the subject, the authors of this study devised a scale to rate the open technological innovation that has occurred in the information and communication technology business. This approach considers the existing circumstances while developing its own qualities. When it comes to determining how much weight each indication should be given, they use a variety of statistical methods, including factor analysis, multiple regression, and backpropagation neural network (BPNN). What's new is their use of AI, their concentration on network architecture, and the expertise they've gained from IP management. Because of the structure of the model, they are able to investigate how employee behaviour is impacted by knowledge management skills, network strategy, and artificial intelligence technology, all of which are essential to open technological innovation. This article explores a variety of viewpoints on the influence of various management strategies and technology, providing theoretical support for the development of new innovations in this field

The outline for this paper is presented in the following paragraphs. The first section of the article mostly consists of an introduction to the study as well as an analysis of the relevance of the research. The significance and significance of the study, as well as its benefits and limits. In the third section, the theoretical understanding of open technical innovation and Internet of Things technologies to use by constructing a questionnaire to collect responses. The results of the survey and the regression analysis are presented (Kianto, 2014).

OBJECTIVE

To find the effect of strategic knowledge management on manufacturing company performance.

To evaluate the performance of a manufacturing firm.

LITERATURE REVIEW

(Martinsons, 2017) Knowledge Management does not have a clear vision (KM). The KMS is suffering from a lack of top-level support and commitment. According to Martinsons and colleagues in the International Journal of Information Management, the causes of KM successes and failures are not universally applicable to all organizations (IJIM). In China, one of the first things they are trying to figure out is why and how KMS projects go wrong. Informal and unstructured knowledge exchange is preferred by them. CAR projects have helped the researcher shed light on Chinese knowledge management. Despite the fact that the investigation has yielded important findings and insights, it is not without its drawbacks. It's risky to extrapolate the findings beyond the confines of China's small PSFs. They can be confirmed or refuted by different organizational and social cultures. According to the researcher, it is necessary to conduct more in-depth studies across a wider range of industries and collect more data. Additional theorizing and new study concepts are needed in order to build on this theory's foundation in China and other transition economies. It may be difficult for an organization's leaders to accept a more normative approach to organizational change, which provides an opportunity for clean-cut change if they want to preserve a culture that is known for its lack of surprises and discomfort. This strategy has the potential to jolt a company out of its comfortable but ineffective slumber. China has a long way to go when it comes to mastering the art of Knowledge Management. Small and large businesses should be studied using a variety of methods and theoretical perspectives. These studies should also consider institutional factors in order to advance and expand the understanding of knowledge management and sharing.

Since IoT has only been around for a short time, there aren't many studies looking at its societal, behavioral, economic, and managerial implications. As a result, businesses have a difficult time making well-informed decisions about IoT adoption and implementation. For the first time, a conceptual model of IoT applications for businesses has been developed. Observation and control, big data, and business analytics, and sharing and collaboration of information and ideas are the three categories of IoT applications they have identified in this article. They also presented investment poor- unities and investment evaluation with NPV and real options. Finally, they discussed five challenges in implementing IoT applications for enterprises (Lee, 2015).

Present paper allows one to draw conclusions relevant to academics and practitioners. The research finds and explains strategic KM improves organizational performance and innovation. Empirical

evidence is provided about the consequences of codification and personalization strategies on innovation and performance, developing previous research in the field of KM where the link has been proposed quite often, but with scarce empirical support. Now, academics and companies are aware of the implications that KM and its strategy may have. Thus, one of the main conclusions of the research is that KM has been found as a significant mechanism to enhance innovation and corporate performance. Besides, both codification and personalization strategies have a positive impact on financial results (Nicolás, 2022).

METHODOLOGY

This section's goal is to provide an explanation of the methods of research that were taken. The stated goals and conceptual framework of the research programme ought to serve as the primary inspiration for the study's design and analysis. The impact of strategic knowledge management and the internet of things (iot) on chinese innovation and manufacturing firm’s performancewill have a significant impact on scanning the environment, plans and strategies, strategies execution, analyses and regulation. It is necessary to ascertain how significant these adjustments are. This objective has been taken into consideration when developing the suggested layout. The goals of this section are meant to follow immediately in the footsteps of this fact and are designed to:

The benefits and cons of different quantitative approaches to study should be weighed together.

Provide a brief explanation of how quantitative research is conducted.

The rationale and explanation for the study's use of quantitative research methods are required.

RESULT

The results of an investigation are presented in the part of the report titled "Results," along with an explanation of the procedures that were used to assemble the data for those results. Also included in this part of the report is an analysis of the data. These findings are provided in a methodical manner, without any interpretation or prejudice on the part of the author, and they serve as the foundation for the analysis and assessment that is offered in the section labelled "discussion." The primary objective of the results section is to present the data in such a manner as to emphasise how relevant they are to the research subject that is being investigated (s).

ANALYSIS AND REGULATION

Do you think that analysis and regulation is effective on strategic knowledge management?

The knowledge management is effective for the organization.

Table 1: Yes/no questions

Questions	Yes	Percentage (%)	NO	Percentage (%)
1) Do you know about scanning the environment?	390	57.0%	295	43.0%
2) Do you believe that Perceived environmental uncertainty is a function of the perceived complexity and perceived dynamism of the external environment?	356	52.0%	329	48.0%
3) Do the knowledge management (KM) strategy is a specific plan to help the organization manage information, data?	370	54.0%	315	46.0%
4) Do you agree that successful KM strategies align with your overarching organizational strategy?	404	59.0%	281	1.0%
5) Do you think Strategy execution relies on continually assessing	363	53.0%	322	47.0%
6) Do you think Strategy execution relies on continually assessing	377	55.0%	308	45.0%
7) Is Strategy execution depending on each member of your organization's daily tasks and decisions?	370	54.0%	315	46.0%
8) Is strategic execution vital to ensure everyone understands not only the company's broader strategic goals?	384	56.0%	301	44.0%
9) Do you think that analysis and regulation is effective on strategic knowledge management?	377	55.0%	308	45.0%

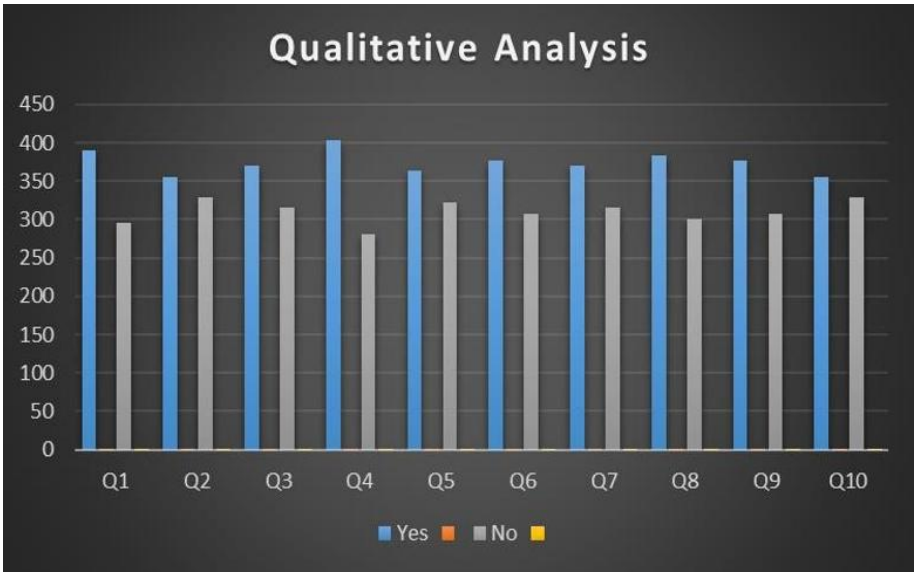

Fig 1: Qualitative Analysis

PILOT STUDY

The degree to which an instrument can be relied upon is proportional to the number of times in a row that it is able to provide the same measurement when subjected to the identical test conditions. The researcher conducted a global pilot test with 10–20 respondents in order to check for any questions that were confusing or unclear. The test was done in order to check for any questions that had been misunderstood. Questions that were overly broad in scope have been either rephrased or eliminated outright from the survey. They found out that the usual length of time necessary to finish the survey was somewhere in the neighbourhood of twenty minutes after having a group of students carry out a pilot test of the survey for us. In contrast of what had been said before, the people who had participated in the pilot survey were not included in the main research. This was done for many reasons. As part of the reliability investigation, both the properties of the measuring scale and the questions that were selected for the final pool of questions were analysed. In addition, the connection between the items on the scale was analysed in order to obtain insight into the consistency of the scale's internal components. This was done in order to determine whether or not the scale was reliable. The collecting of reliable reliability estimates is a necessary step in the process of validating any instrument. This step is a vital part of the process.

OVERVIEW OF DATA COLLECTED

A total of 815 questionnaires were distributed to the respondents. Out of this number 795 sets or 97.54% of the questionnaire were returned and 685 questionnaires were analyzed using the Statistical Package for Social Science (SPSS version 25.0) software.

RESPONSE

Table 2: Survey Response

Questionnaires sent	702
Questionnaires received	685
Response rate	(812/935) × 100 = 97.54 return

Demographics

The study of demographics is a subfield of statistics that focuses on the examination of human populations. The demographics of a population are what set it apart from other populations. The study of demographics allows for the examination of whole societies as well as more intimate groupings composed of a few people. Some aspects of a person's life that may be classified as demographics include their age, gender, marital status, work experience, income, technical skill, and computer skill. Researchers have the option of subdividing the population based on a broad range of demographic factors, including age, gender, family income, race or ethnicity, level of education, marital status, employment, and so on.

Table 3: Gender

Gender	Male (390)
	Female (295)

In the study data comprised of 390 male and 295 female respondents.

Table 4: Gender percentage

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
c	Male	390	57.0	57.0	57.0
	Female	295	43.0	43.0	100.0
	Total	685	100.0	100.0	

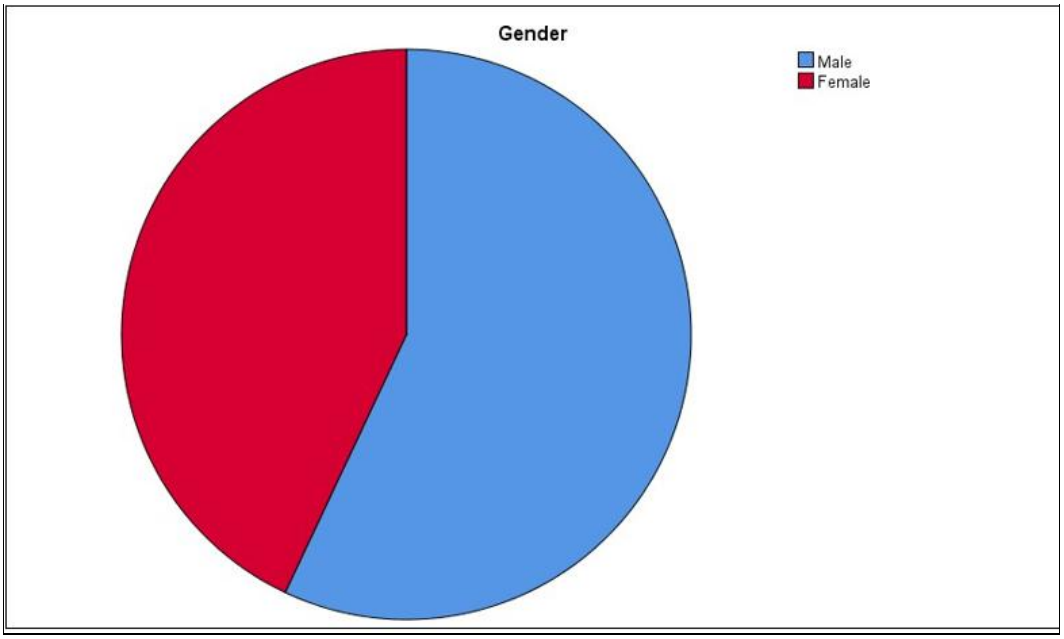

Fig 2: Gender chart

390 men and 295 women responded, and respective responses are shown in the graph above in separate columns. 53 percent of our population is male, while the other 47 percent is female.

Table 5: Age

Age	18-25 (M= 125, F=97)
	26-40 (M= 137, F= 112)
	41-60 (M= 81, F=47)
	Above 60 (M= 47, F=39)

In the study data comprised of age group 18-25 (N=222, M= 125, & F=97), 26-40 (N=249, M= 137 & F= 112), 41-60 (N=128,

M=81, & F=47), and above 60 (N=86, M= 47, & F=39).

Table 6: Age percentage

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	219	32.0	32.0	32.0
	26-40	247	36.0	36.0	68.0
	41-60	130	19.0	19.0	87.0
	>60	89	13.0	13.0	100.0
	Total	685	100.0	100.0	

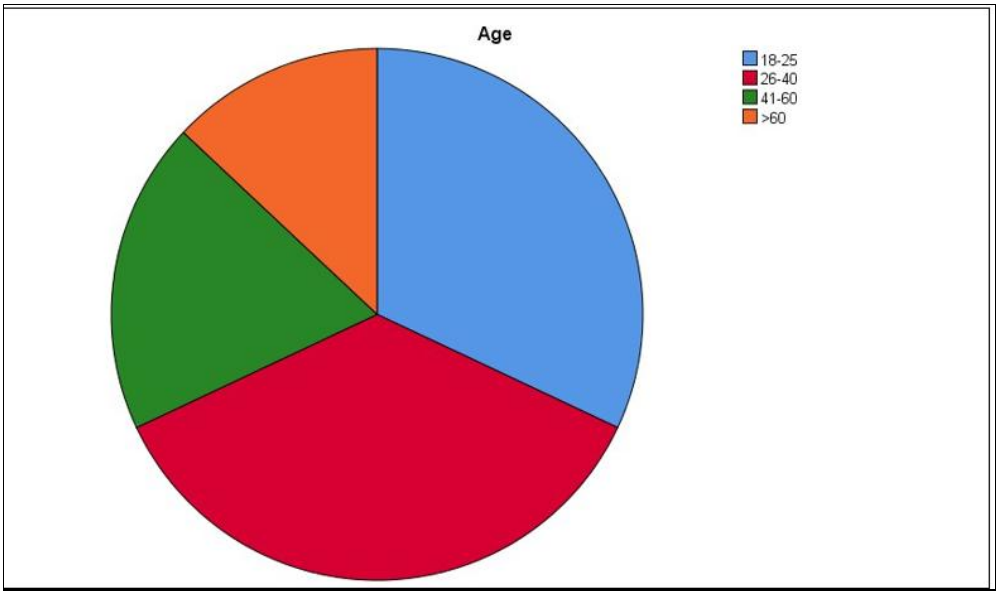

Fig 3: Age chart

32 percent of the participants in our research are between the ages of 18 and 25. The study has 36 percent of responders in the age range of 26 to 40. It has 19 percent of respondents between the ages of 41 and 60, and 13 percent of respondents between the ages of 60 and above.

5. CONCLUSION

The proliferation of data silos is a direct consequence of the fact that the overwhelming majority of Internet of Things devices are not compatible with the vast majority of Internet standards. This is due to the fact that the vast majority of IoT devices are built to work on proprietary protocols. The Internet of Things will, in the not-too-distant future, refocus the majority of its attention on the vertical integration of business services and sensors in place of its current concentration on horizontal integration. New service providers will emerge to acquire and analyze the varied data that wireless sensors collect as more of these sensors are placed. In order to make this practicable, standards will be necessary. In order to improve their prospects of making a profit from services that are created on top of the Internet of Things (IoT), manufacturers of hardware are becoming more outspoken in their support for IoT protocols. IERC and the activities that it supports are regarded as a catalyst as well as a European IoT coordinating platform that promotes worldwide conversation. This is because the effort to standardize the Internet of Things (IoT) is gaining momentum, and IERC is one of the organizations that is contributing to this momentum. A wide range of organizations, such as the European Commission, IoT Research and Innovation programs, IoT Industry Stakeholder groups, and IoT Standard Organization organizations, are continuing to host Internet of Things (IoT) Workshops. These workshops, the goal of which is to encourage the growth of the Internet of Things (IoT) community, have the objective of facilitating events for interoperability testing in the interest of reaching a consensus on IoT standards and common advancements across all protocol levels. This is done in the interest of reaching a consensus on IoT standards and common advancements across all protocol levels. To be more specific, this will be

achieved. The creation of standards for Intelligent Transport Systems (ITS) at organizations such as ETSI and ISO is one example of a new field that has to be included into the bigger picture. A large amount of manual effort will be necessary in order to realize an all-encompassing, cross-industry vision for the Internet of Things and to provide standardized, interoperable settings. In this essay, they provide a high-level review of the present scenario surrounding the standardization of technologies related to the Internet of Things (IoT) throughout Europe and the rest of the globe. It is not an exhaustive examination of all of the work that is being done on standards for the Internet of Things; rather, it is just a selection of the work that is being done. Either they have already established themselves as big players on the Internet of Things (IoT) industry or they have taken the initial steps toward becoming one of the key participants in this market. On the other hand, this overview highlights the vast number of companies and apps that will eventually be connected to the Internet of Things in the future

REFERENCES

[1] Mills, and T. Smith., "29P. Exploring the Impact of Knowledge Management Capabilities on Organizational Effectiveness", CONF-IRM 2010 Proceedings. 35, 2010.

[2] Adnan, K., and R. Akbar. 2019. “Limitations of Information Extraction Methods and Techniques for Heterogeneous Unstructured Big data[J].” International Journal of Engineering Business Management 11: 1847979019890771. doi:10.1177/1847979019890771.

[3] Afuah, A. 2014. Business Model Innovation: Concepts, Analysis and Cases. New York: Routledge.

[4] Afuah, A., and C. L. Tucci. 2012. “Crowdsourcing as a Solution to Distant Search.” Academy of Management Review 37 (3): 355–375.

[5] Ahmad, N., Lodhi, M. S., Zaman, K., & Naseem, I. (2017). Knowledge management: a gateway for organizational performance. Journal of the Knowledge Economy, Vol. 8(No. 3), 859– 876.

[6] Ahn, J.M., Ju, Y., Moon, T.H., Minshall, T., Probert, D., Sohn, S.Y., Mortara, L., 2016. Beyond absorptive capacity in open innovation process: the relationships between openness, capacities and firm performance. Tech. Anal. Strat. Manag. 1–20

[7] Akhtar, P., Khan, Z., Tarba, S. and Jayawickrama, U., 2018, “The Internet of Things, dynamic data and information processing capabilities, and operational agility”. Technological Forecasting and Social Change, 136, 307-316.

[8] Alavi, M., Leidner, D.E., 2013. Review: knowledge management and knowledge management systems: conceptual foundations and research issues. MIS Q. 107–136.

[9] Alexy, O., G. George, and A. J. Salter. 2013. “Cui Bono? The Selective Revealing of Knowledge and Its Implications for Innovative Activity.” Academy of Management Review 38 (2): 270–291.

[10] Alexy, O., J. Henkel, and M. W. Wallin. 2013. “From Closed to Open: Job Role Changes, Individual Predispositions, and the Adoption of Commercial Open-Source Software Development.” Research Policy 42 (8): 1325–1340.

[11] Alexy, O., P. Criscuolo, and A. Salter. 2012. “Managing Unsolicited Ideas for R&D.” California Management Review 54 (3): 116–139.

[12] Alfalla-Luque, R., Medina-Lopez, C., & Dey, P. K. (2013). Supply chain integration framework using literature review. Production Planning & Control, 24(8-9), 800-817

[13] Ali, N., Tretiakov, A., Whiddett, D., & Hunter, I. (2016). Knowledge management systems

[14] Ali, N., Tretiakov, A., Whiddett, D., & Hunter, I. (2016). Knowledge management systems success in healthcare: Leadership matters. International Journal of Medical Informatics, 97, 33-340. Allen, D. (2016). China’s Smart Cities Connected by the ‘Internet of Things’. East West

[15] Bank. Retrieved from ((https://www.eastwestbank.com/ReachFurther/News/ Article/China-Smart- Cities-Connected-By-The-Internet-Of-Things)).

[16] Allen, D. (2016). China’s Smart Cities Connected by the ‘Internet of Things’. East West Bank. Retrieved from ((https://www.eastwestbank.com/ReachFurther/News/ Article/China-Smart- Cities-Connected-By-The-Internet-Of-Things)).

[17] Aloini, D., Pellegrini, L., Lazzarotti, V., Manzini, R., 2015. Technological strategy, open innovation and innovation performance: evidences on the basis of a structural-equation model approach. Meas. Bus. Excell. 19 (3), 22–41