FINANCIAL INNOVATION AT LARGE FINANCIAL SERVICES BUSINESS: EVIDENCE FROM EASTERN EUROPE

Chih-hung Mien Liu[1], Xie Ching Kung Meng[2]

[1]*National Taiwan University, Taiwan*
[2]*Peking University, China*
chih-mien@engineer.com

Abstract

Purpose: Big data analytics is a recently offered state of the art technology with potential business influence. Nevertheless, the roadmap for the effective implementation of its also the street to exploit its essential value remains unclear. This specific analysis seeks to create a much greater understanding of the enablers facilitating BDA implementation in the banking, in addition to the financial service part, from the view of interdependencies and interrelations.

Design/Methodology/Approach: We use an integrated approach that incorporates Delphi assessment, interpretive structural modeling, and fuzzy MICMAC technique to identify the interactions between enablers, which determine the accomplishments of BDA implementation. Our incorporated method uses experts' domain understanding and gains a novel insight into the underlying causal relations about enablers, linguistic evaluation of the mutual impacts among variables, and also like two revolutionary techniques for visualizing the results.

Findings: Our findings highlight the main key role of enabling components, including technical and skilled workforce, infrastructure readiness, financial assistance, and also selecting good main details strategies. These elements have considerable driving impacts on other enablers in a hierarchical style. The outcomes provide reliable, robust and easy insights into the qualities of BDA implementation in banking and financial programs as a whole system, while demonstrating attainable influences of all interconnected crucial components.

Originality/Value: This analysis explores the main key enablers for good BDA implementation in the banking and financial service sector. Much more enough, it reveals the interrelationships of components by calculating operating as well as dependence degrees. This particular exploration provides managers with a clear strategic path toward effective BDA implementation.

Introduction

Investment in big data analytics is a significant managerial option for the banking and financial service sector, not simply because it is possible to produce organization worth, but also because of organizational alterations as well as supply commitments that it might come up [twelve]. BDA might better be diagnosed by considering the principal characteristics of big data, besides surrounding elements of gear, infrastructure, along with methods of imagining that predictably make managerial insights and add value to the decision-making operation [fifteen]. Based on the IDC Institute's article in 2019, BDA investments are thought to account for 1dolar1 26.3 billion in the BFS sectors. Recently, BFS sectors have started growing their BDA teams to meet the increasing demands. For instance, HSBC plans to recruit 1,000 data scientists to improve customer knowledge and risk management by using BDA [three]. The investment in BDA has brought significant benefits to BFS firms. JP Morgan Chase, for instance, has recognized fraud risk among its customers by verifying buying patterns and spending actions, while American Express offers clients because of their information driven promotions by analyzing customers' social media info [five].

No matter the outstanding benefits of BDA for effectiveness and business value, numerous BFS firms remain behind in adopting BDA treatments [fifteen]. One of the most common problems is that consistently improving volumes of info out of diverse options hinders BFS firms' info acquisition, processing, and interpretation capabilities. Surely, almost all, nearly all of the useful banking in addition to finance connected data has not been examined for strategic implications to know managerial options in service innovation in addition to advertising methods, benefit co creation, and personalization [seventeen]. Consequently, BFS managers require countless guidance about exactly how their organizational conditions may best match BDA implementation.

Prior studies have provided exploratory discussions on socioeconomic effects, challenges, and the advantages of BDA in banking and financial services, and other research, whose focus is on the specialized features and applications of BDA in financial command.

Specifically, this specific study aims to cope with three research questions:

RQ1: What are the main key enablers of BDA implementation in the BFS context?

RQ2: How are the BDA enablers interrelated, determined by two criteria of dependency driving powers? RQ3: What is the roadmap to ensure BDA implementation achievement for BFS businesses?

The study of ours fills this vastly critical gap in literature by leveraging an integrated technique of Delphi assessment, interpretive structural modeling, and fuzzy Matrice d' Impacts Croises Multiplication Appliquee á un Classement technique to ascertain BDA enablers and also look for interrelationships with such enablers [four]. By BDA enablers in this specific investigation, we actually mean many components, such as managerial or organizational, technology associated or perhaps information associated designs, that enable the group to become successful in implementing BDA initiatives, safeguarding aspects that are important from pre adoption measures to implementation phases [seventeen]. Moreover, the interrelationship between BDA enablers refers to the relationship between

important elements based on Two criteria of dependency driving powers [six]. Understanding and also representing the probable influences involving essential variables gives unique insights into effectively accomplishing BDA in BFS businesses. In this specific vein, the study of ours seeks to move beyond determining and also proposing a summary of verified components from experts' viewpoint of conditions of looking at the enablers' interdependencies by calculating their driving in addition to dependency powers [twenty]. To deal with the evaluation, RQ1: a Delphi examination is conducted to confirm the list of the most essential big data analytics enablers in BFS makers, and also to spotlight alternative connected context based enablers based on the knowledge and understanding of website gurus. To respond to the RQ2, we made a version using ISM as a mathematically derived methodology. We also guided fuzzy MICMAC analysis to quantitatively assess the interdependencies with the enablers, and also computed the traveling and reliant power of most of them. To address RQ3, the modeling process of ISM allows structuring a complicated event by implementing a pair of interconnected matrices. Thus, the intricate interrelationships between variables are generally determined and quantified. Innovatively representing extensive inter connectivity between enablers in suggested frameworks has a significantly greater understanding for academic and providers [seven].

This study offers numerous important contributions. Mainly, it is among the first studies to unravel the paths to effective BDA implementation with an integrated and organized empirical technique [nine]. The outcomes realized in our research offer empirical guidance for BFS businesses to use BDA. Second, the analysis of ours provides value to BDA literature by identifying the main key enablers of BDA implementation and looking at the linkages with such enablers to provide a clear pathway of BDA implementation via incorporating Delphi exploration with interpretive structural modeling and fuzzy MICMAC methodology. Finally, we provide helpful suggestions to BDA implementation, urging BFS providers to think about these enablers to experience a lot more values from BDA implementation. The paper proceeds as follows: the following aspect provides the essential info, as well as likely impacts on the BFS sector. In section 3, we clearly show the research design. Results as well as findings are discussed with section 4. Finally, section 5 as well as 6 provide limitations, future research, implications, and the discussion.

Research Background

Big data analytics was considered among the breakthrough technologies that can send operational and strategic business values for organizations [twelve]. Adopting BDA allows monetary service organizations and banking to meet the expectations of their consumers, and also rejuvenate their business models. Since the monetary trouble of 2008, BFS firms have actually been under intense pressures to act in a manner seminar, stakeholders' expectations, and appropriate laws and regulations. Revolutionary legislations, like the Payments Service Directive, and also Basel III, ask BFS businesses to be offered and transparent a chance to access huge quantities of proper customers' info. On the other hand, completely new technologies such as BDA, Internet of Things and also Blockchain have the potential to modify the market developing. BDA is required together with the aim of obtaining various insights about the business and surroundings of its, and thus, making far better decisions plus more effective strategic moves. Many changes resulting from BDA have substantially altered businesses, particularly started companies in the region of financial services as well as banking [eight].

Sazu et al (2022) argue that big data can change the whole advantage chain of information in three ways: a) regarding people, processes, and diverse technologies, b) greater amalgamation of ways for analytics, in addition to knowing extraction, and c) depending a lot more on info researchers along with analysts to allow for real time choice, as well as self service making [twenty eight]. Information that is big is believed to be leading to many more helpful, impressive activities, or maybe as an empowering agent or stimulus, which enables creating business models [twenty four]. Due to opportunities created by BDA, many monopolies have disappeared, and standard frontiers of businesses have removed, and also companies have the chance to enter different production contexts [thirty]. Thus, large businesses as Alibaba may get into the financial and banking industry, and also by using their big data, they can provide new solutions to their customers, without any necessity to regular banks [thirty]. Consequently, BFS businesses must consider details that are great, like a double edged sword, to create simple changes in their business strategies [nine].

Although almost all studies have found that the benefits of BDA show, the implementation of BDA responsibilities is complex and costly. Some firms have troubles unveiling the company value of its. This is evident, the truth is that about sixty % of BDA projects don't excel. Particularly in the BFS sphere, research on strategic use of BDA stays in the first stages of its. Very little is believed about how essential the enablers of BDA implementation are, and how they are associated [ten]. So, Jahan's analysis has answered the call for a lot more focus on management difficulties of BDA. This includes looking at the organizational factors which influence the adoption of BDA [twenty eight]. Prior research has examined the enablers of BDA implementation from specialized, information affiliated, along with organizational perspectives [one]. Nevertheless, identifying enablers for implementing BDA is still insufficient. It is essential to have alternative, interdependent, and interrelated sets of BDA enablers, which may provide a deeper understanding of BDA implementation [eleven]. To this particular conclusion, productive BDA initiatives require an integrated style, which discloses the interrelationships between various BDAEs and also shows their driving and dependence powers. A blend of Delphi method, ISM, and fuzzy MICMAC solutions enabled us to finalize and confirm the summary of BDAEs in the BFS sphere, extract their interdependencies, and think of the results [sixteen].

Research Design

Due to the exploratory and holistic nature of the analysis, we used an incorporated multi-method strategy, which combines both qualitative and quantitative methods to reply to our research questions. Sazu et al. (2022) point out that the gain of utilizing a multi-way tactic is usually to "compensate for the weak points, and also use the strengths, of the various methodologies" [twelve]. We selected an integrated Delphi and ISM fuzzy MICMAC method, which helps us create a structural model for a complicated problem in a generated pattern. We developed a hierarchical sort of variables for systematically and effectively describing the pattern beneath the analysis, rather than considering each adaptable separately [thirteen]. Fuzzy MICMAC procedure and ism understand the interdependencies between variables, and also highlight the impacts they could have on one another through the paths and loops. In the last stage, we developed fuzzy MICMAC models, as well as ism with the use of experts' opinions [fifteen]. The integrated exploration look of ours enables alternating qualitative and quantitative methods, producing a crystal clear picture of the intricacy of BDA implementation [twenty seven]. The following subsections provide extra elaborations of each research problem.

Delphi Study

In the existing paper, we used the Delphi method to have a summary of major enablers attached to BDA implementation and reach the consensus of panel individuals about these enablers, along with their contextual interrelationships [twenty three]. The Delphi examination is a methodical analysis, getting insights into probably the most essential facets of a complicated occurrence [fourteen]. The strategy is useful to collect group judgments, while avoiding undesirable consequences related to interpersonal biases, strong personalities, defensive attitudes, and inadequate disagreements. Jahan et al. (2022) define an expert as "an person who has acquired expertise in big data continuously from several experiences" as well as learning [twenty six].

Interpretive Structural Modelling

As mentioned before, ISM as a logical mathematically derived strategy is owned by a complicated phenomenon comprising the interrelated variables through an organized development based on the structural modeling of interconnected matrices [twenty six]. The ISM tactic is interpretive, as it uses experts' judgment to set the interrelationships involving variables associated with a complicated concern [twenty nine]. Of all the benefits of ISM strategy is it enables the vague and inadequately articulated rational representation of products into visible and well-structured versions.

Results and findings

In what follows, we review the reason for the ISM process in a lot more info. The results of each step are totally described and illustrated by the appropriate outputs of theirs.

Identifying the Variables

The ISM treatment initiates by identifying the list of important parts of a complicated concern. As we pointed out earlier, the list of crucial enablers was extracted, as well as selected by literature review and Delphi technique. Reviewing prior tasks suggests 20 3 major enablers, which are like a summarized as well as synthesized kind of variables, which are crucial from relevant case studies, taxonomy orientated investigation and wider evaluation on the fundamental efficiently accomplishing BDA responsibilities [nineteen]. Through Delphi assessment, specialists eliminated some BDAEs which were similar in meaning, and maybe a lessened level of genuine in the BFS context. Furthermore, expert panels recommended 4 completely new products due to the value of theirs in BFS firms [thirty one].

Ultimately, our panelists selected 19 key BDAEs as variables essential for efficiently applying BDA projects. Table 3 summarizes the justifications of BDAEs option [twenty five].

Building the ISM Model

To establish the structural style or maybe digraph is the final phase in the ISM methodology. Figure 3, as a final ISM version, displays the representation of the BDAEs, in addition to their interrelationships based on the FRM, and level partitioning of the reachability matrix. The ISM model has five levels, the highest amount comprises four enablers: Embedding big data in business processes, proper

 organizational structures, clear and justifiable business case, big data analytics strategic positioning. This specific level has the enablers with likely the highest position of dependency energy, but decreased amounts of getting electricity. Thus, they are fairly based on the enablers in the lower levels.

Fuzzy MICMAC Analysis

Duperrin and Godet developed the MICMAC technique to analyze the framework of complex systems. MICMAC examination visualizes the variables of a complex system based on their dependence on operating energy. MICMAC examination computes the driving and dependence power of each process, adaptable by summing in place across each horizontal and vertical axis. For binary MICMAC analysis, the number of all 1s in the row provides the working power of which is different, even though the number of 1s in the column states the dependence power of its [twenty one]. To increase the sensitivity and accuracy of the outcome, we used fuzzy MICMAC analysis to consider not only the presence of all variables, but also the sturdiness of the associations.

Discussion

This specific paper seeks to create a good style to determine the contributory enablers of big data implementation in the BFS sector. The ISM, together with fuzzy MICMAC analysis, specify and quantify interrelationships among 19 BDAEs, which we identified and validated by Delphi and literature review master. The structural merchandise resulted from ISM visually highlights the potential influences and dependencies of the enablers [twenty three]. The digraph style and MICMAC analysis show that technical and skilled workforce, financial support, infrastructure readiness, and choosing good key details solutions are the primary enablers. They also have the largest driving power in applying BDA duties in the BFS firms [twenty two]. This specific locating notes that the accessibility of the proper energy is crucial for great data things. Thus, BFS firms must ensure they have the possibility of needed materials before initiating the BDA job.

The literature has also underlined the links between excellent data project success and the presence of these primary enablers. The study of ours extends this specific type of searching by criticality linking these single enablers, as well as the likely impact of theirs within the model. The BFS businesses should procure crucial specialized, financial and human information. They should effectively use these core enablers to obtain - Positive Many Meanings - the productive outcomes. The extra major enablers, at the consequent degree in the digraph, are huge information protection, dependability, scalability and big details customization skill. Managers, especially in the financial industry, have superb concerns

about security problems and are also worried about the legal and ethical ramifications of unauthorized use and gathering of customers' info. Furthermore, the nonfunctional abilities of big data solutions, and the ability to modify the features and analytical abilities of its about the demands of end users, are elements that are important in big data things. The dependency of these BDAEs on the extra enablers in the low level indicators, which BFS companies have used to use specialized professionals and include extra assets to manage the required functions and tackle security problems.

Huge data governance, producing a data driven culture, great control assistance, and also controlling dependency on history products have high instability, therefore supervisors need to be incredibly careful about them. This specific characteristic means that when a great info task has several problems with a single and even a lot more of these enablers, due to their many connections, extra effects could happen, in addition to the whole project. Most financial service providers have invested huge money in their current systems, in addition to infrastructures, and also count on them to perform their daily and critical operations. Thus, managers are confronted with the job of changing and incorporating these history techniques with excellent details solutions, while considering substantial investments today manufactured in their infrastructure. Moreover, healthful data driven culture, productive key data governance, and support of greatest command have a good effect on some other enablers and great commentary on themselves.

Data integrity, empowering end users, embedding big data in business processes, good organizational structures, clear and justifiable company scenarios, together with BDA strategic positioning, are in the top as well as upper middle ph levels with increased dependency power. This finding suggests that lower level elements can impact these enablers. BSF companies have to look into this particular outcome, so that being successful in every one of elements in top as well as other interconnected elements mainly affect upper middle amounts.

Conclusion

Theoretical Contributions

Through the use of an exploratory incorporated remedy, this specific study seeks to boost the expertise of BDA enablers by examining the interrelationships and influences they have on each other. To produce a genuine and continuous theoretical foundation, the study of ours identifies BDAEs and their contextualized interrelationships, which can be vital in real world key details techniques, particularly in BFS context. The multi procedure approach enabled us to enhance the insight of ours into the contextual interdependencies between BDAEs, and the impacts of theirs on the effective vital details of task implementation.

Practical implications

The findings of the current study suggest that executing and operating an enormous information project is a complicated concern. Especially, it depends upon the firms' possible to simultaneously harness vital capabilities and resources inside a business context, including the info attributes, and also deploy these synergistically to thoroughly clean the key info implementation system [twenty]. Furthermore, the outcomes of ours propose that although numerous enablers stated in this specific analysis are crucial in the implantation of BDA discovered BFS, the elements with improved driving powers offered at lower levels of Figure 3 and also impartial enablers in cluster IV of Figure 4 need more strategic focus. These factors with improved affect energy or perhaps perhaps as impartial enablers will develop other relevant components that holistically predict the accomplishments of BDA in a banking or perhaps financial service corporation. Consequently, managers must ensure that the company is financially and technically ready to step forward [twenty eight]. Much more especially, our findings provide BFS managers with evident strategic guidance, in addition to the pathway to effectively

utilize BDA. The structural design produced in this specific analysis shows a much more realistic representation of the primary key enablers of big data things. The prioritized contributory BDAEs offer beneficial empirical insights for managers and practitioners to observe the entire structure and importance of elements driving big details tasks. The identified hierarchy and interdependencies of the BDAEs enable supervisors to find out a) key variables with effective effect on various other elements, b) extremely weak areas with increased operating and dependence energy, which both groups need ongoing fascination with the effective implementation of BDA responsibilities [eighteen].

Furthermore, the results pinpoint important factors with great traveling strength for big data things. Thus, practitioners and managers must pay a little attention to these main enablers [thirty]. Moreover, the substantial dependency and driving power of some BDAEs, which includes good management help, controlling dependency on legacy techniques, signifies their unstable nature, and also provides useful instruction to managers when embarking upon the BDA of their transformational journey. Furthermore, the prioritized contributory BDA enablers provide helpful proof for managers and practitioners to observe the entire structure and importance of components driving BDA projects. The identified hierarchy and mutual associations of the BDAEs will help supervisors learn key variables with effective effect on various other elements, b) extremely weak areas with increased operating and dependence energy, which both groups need ongoing fascination with the effective implementation of BDA responsibilities.

Limitations

Directions for Future Research Even though this research improves comprehension of the primary key BDAEs, as well as the significance of their family members, the outcomes of this specific analysis should be viewed in light of its limitations. First of all, existing paper findings are based on the participation of 20 pros, and endure the subjective nature of experts' viewpoints, and may not be generalizable to other contexts. Nevertheless, the wealthy information resulting from the Delphi research and the Delphi analysis present a preliminary starting spot for future studies.

References

[1]   F. Ghobadi, M. Rohani, "Cost Sensitive Modeling of Credit Card Fraud using Neural Network strategy", 2016 Signal Processing and Intelligent Systems (ICSPIS), International Conference of pp. 1-5. IEEE.

[2]   Akter Jahan, S., & Sazu, M. H. (2022). Rise of mobile banking: a phoenix moment for the financial industry. Management & Datascience, 6(2).

[3]   Akter, J. S., & Haque, S. M. (2022). Innovation Management: Is Big Data Necessarily Better Data?. Management of Sustainable Development, 14(2), 27-33.

[4]   Dutton W, et al. Clouds, big data, and smart assets: ten tech- enabled business trends to watch. McKinsey Q 2010;(4).

[5]   Isenberg, D. T., Sazu, M. H., & Jahan, S. A. (2022). How Banks Can Leverage Credit Risk Evaluation to Improve Financial Performance. CECCAR Business Review, 3(9), 62-72.

[6]   JAHAN, S. A., & Sazu, M. H. (2022). Factors Affecting The Adoption Of Financial Technology Among The Banking Customers In Emerging Economies. Financial Studies, 39.

[7]   Jahan, S. A., & Sazu, M. H. (2022). Role of IoTs and Analytics in Efficient Sustainable Manufacturing of Consumer Electronics. International Journal of Computing Sciences Research, 6.

[8]   Jahan, S. A., & Sazu, M. H. (2022). The Impact of Data Analytics on High Efficiency Supply Chain Management. CECCAR Business Review, 3(7), 62-72.

[9]   Jahan, S. A., & Sazu, M. H. (2023). Role of IoTs and Analytics in Efficient Sustainable Manufacturing of Consumer Electronics. International Journal of Computing Sciences Research, 7, 1337-1350.

[10] N. Kalaiselvi, S. Rajalakshmi, J. Padmavathi, "Credit card fraud detection using learning to rank approach", 2018 Internat2018

[11] Nwachukwu, A. S., & Boatengu, K. E. How banks are leveraging machine learning: perspective from african banks, business & IT, 2022

[12] Parisi GI, Kemker R, Part JL, Kanan C, Wermter S. Continual lifelong learning with neural networks : a review. Neural Netw 2019;113:54–71.   https://doi.org/ 10.1016/j.neunet.2019.01.012.

[13] Park, Y., and El Sawy, O. A. ―The value of configurational approaches for studying digital business strategy‖, Research in the Sociology of Organizations, 38, 2013, pp. 205-224.

[14] Ragin, C. C. Redesigning Social Inquiry: Fuzzy Sets and Beyond. Chicago: University of Chicago Press, 2008.

[15] Rao, A. M., & rothstein, m. A. How analytics is driving the supply chain innovation in north america., business & IT, 2022

[16] Sazu, M. H. (2022). Does Big Data Drive Innovation In E-Commerce: A Global Perspective?. SEISENSE Business Review, 2(1), 55-66.

[17] Sazu, M. H. (2022). How Machine Learning Can Drive High Frequency Algorithmic Trading for Technology Stocks. International Journal of Data Science and Advanced Analytics (ISSN 2563-4429), 4(4), 84-93.

[18] Sazu, M. H., & Jahan, S. A. (2022). Can big data analytics improve the quality of decision-making in businesses?. Iberoamerican Business Journal, 6(1), 04-27.

[19] Sazu, M. H., & Jahan, S. A. (2022). How Analytics Can Improve Logistics And Supply Chain In Multinational Companies: Perspectives From Europe And America. Business Excellence and Management, 12(3), 91- 107.

[20] Sazu, M. H., & Jahan, S. A. (2022). How Analytics Can Improve Logistics And Supply Chain In Multinational Companies: Perspectives From Europe And America. Business Excellence and Management, 12(3), 91-107.

[21] Tao F, Qi Q, Liu A, Kusiak A. Data-driven smart manufacturing. Int J Ind Manuf Syst Eng 2018;48:157–69. https://doi.org/10.1016/j.jmsy.2018.01.006.

[22] Trkman, P., McCormack, K., De Oliveira, M. P. V., and Ladeira, M. B. ―The impact of business analytics on supply chain performance‖, Decision Support Systems, 49(3), 2010, pp. 318-327.

[23] Wang G, Gunasekaran A, Ngai EWT, Papadopoulos T. Big data analytics in logistics and supply chain management: certain investigations for research and applications. Int J Prod Econ   2016;176:98–110.   https://doi.org/10.1016/j. ijpe.2016.03.014.

[24] Zhang J. Multi-source remote sensing data fusion: status and trends. Int J Image Data Fusion 2010;1(1). https://doi.org/10.1080/19479830903561035.

[25] Zhang Y, Ren S, Liu Y, Si S. A big data analytics architecture for cleaner manufacturing and maintenance processes of complex products. J Clean Prod 2017;142. https://doi.org/10.1016/j.jclepro.2016.07.123.

[26] Zhang Z, et al. Pathologist-level interpretable whole-slide cancer diagnosis with deep learning. Nat Mach Intell 2019;1(May). https://doi.org/10.1038/s42256- 019-0052-1.

[27] Zhong RY, Newman ST, Huang GQ, Lan S. Big Data for supply chain management in the service and manufacturing sectors: challenges, opportunities, and future perspectives. Comput Ind Eng 2016;101. https://doi.org/10.1016/j. cie.2016.07.013.

[28] Zhu K, Li G, Zhang Y. Big data oriented smart tool condition monitoring system. IEEE Trans Ind Inform 2019;16(6):1. https://doi.org/10.1109/tii.2019.2957107.

[29] Sazu, M. H., & Jahan, S. A. (2022). How Big Data Analytics Impacts the Retail Management on the European and American Markets. CECCAR Business Review, 3(6), 62-72.

[30] Sazu, M. H., & Jahan, S. A. (2022). How Big Data Analytics Impacts the FMCG Management on the European and American Markets. CECCAR Business Review, 3(6), 62-72.

[31] Sazu, M. H., & Jahan, S. A. (2022). How Big Data Analytics is transforming the finance industry. Bankarstvo, 51(2), 147-172.

[32] Sazu, M. H., & Jahan, S. A. (2022). Impact of big data analytics on business performance. International Research Journal of Modernization in Engineering Technology and Science, 4(03), 367-378.

[33] Sazu, M. H., & Jahan, S. A. (2022). Impact of blockchain-enabled analytics as a tool to revolutionize the banking industry. Data Science in Finance and Economics, 2(3), 275-293.

[34] Schryen, G. —Revisiting IS business value research: What we already know, what we still need to know, and how we canget there‖, European Journal of Information Systems, 22, 2013, 139-169.