THE IMPACT OF DIGITALIZATION AND AUTOMATION ON ASSET MANAGEMENT

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ABSTRACT

The primary objectives of this research were to explore the influence of digitalization and automation on decision-making processes in asset management, focusing on technological advancements and their effects on companies and investors. Specifically, the objectives of this research were: (1) To study the potential of digital tools and automated processes in enhancing decision quality through data analysis and interpretation, (2) To develop an understanding of how digitalization and automation influence the decision-making processes of companies and investors, and (3) To explore the challenges and opportunities that digitalization and automation introduce to asset management, following the principles of the Technology Acceptance Model (TAM).

The research adopted a quantitative approach, utilizing a descriptive research design to quantitatively gauge perceptions, experiences, and attitudes towards digitalization and automation among asset management professionals and independent investors. The population of interest encompassed professionals within the global asset management sector, with a sample group of 407 individuals, including asset managers, financial analysts, portfolio managers, risk managers, compliance officers, and independent investors from various parts of the world. Data were collected through a structured questionnaire and analyzed using descriptive statistics, including percentage, mean, and standard deviation.

Major Findings: (1) Digital tools and automated processes significantly enhance decision quality and efficiency, evident through improved data analysis and interpretation capabilities.; (2) These technologies have a profound impact on the decision-making processes, enabling companies and investors to make more informed and strategic decisions; and (3) Despite challenges such as integration complexities and security concerns, the opportunities for growth, efficiency improvements, and strategic market expansion introduced by digitalization and

Keywords: Digitalization, Automation, Asset Management

Research Background

The advent of digitalization and automation has brought about significant changes in various industries, and asset management is no exception. This transformation has been driven by the rapid advancement of technology, which is challenging and reshaping the traditional methods of asset management. The integration of digital tools and automated processes is not only altering the landscape of asset management but also influencing the decision-making processes of companies and investors alike.

In the past, asset management was largely a manual process, characterized by physical meetings, paper-based reports, and decisions made based on experience and intuition. However, the digital revolution has introduced a new era of asset management. Today, digital platforms are used for trading, algorithms are used for decision-making, and data analytics are used for gaining insights and forecasting trends. This shift towards digitalization and automation has made asset management more efficient, accurate, and cost-effective.

The proliferation of technologies such as artificial intelligence (AI), machine learning, blockchain, and big data analytics has introduced new possibilities for managing assets more efficiently and effectively. AI and machine learning, for instance, are being used to analyze vast amounts of data and make predictions about market trends, helping asset managers make informed decisions. Blockchain technology, on the other hand, is being used to create transparent and secure transactions, reducing the risk of fraud and error.

Big data analytics is another technology that is revolutionizing the asset management industry. By analyzing large volumes of data, asset managers can gain valuable insights into market trends, customer behavior, and operational efficiency. This information can be used to make strategic decisions, improve customer service, and increase profitability.

Moreover, these technologies have the potential to enhance decision-making processes, improve risk management, and provide more personalized services to clients. For example, AI and machine learning can be used to develop sophisticated risk models that can predict potential risks and provide early warnings. This allows

asset managers to take proactive measures and mitigate risks before they materialize. In terms of client service, digitalization and automation have enabled asset managers to provide more personalized and responsive services. Through data analytics, asset managers can understand the needs and preferences of their clients better, allowing them to tailor their services accordingly. Automation, on the other hand, has improved the speed and efficiency of service delivery, enhancing client satisfaction. However, the transition towards digitalization and automation is not without challenges. Issues such as data privacy, cybersecurity, and regulatory compliance are significant concerns. Furthermore, there is a need for skilled professionals who can understand and manage these advanced technologies.

In conclusion, the impact of digitalization and automation on the asset management industry is profound and far-reaching. It is transforming the way assets are managed, decisions are made, and services are delivered. While there are challenges to be addressed, the benefits of these technologies are undeniable. As such, the future of asset management lies in embracing digitalization and automation, and leveraging these technologies to drive growth and innovation.

1.2 Research Objective

The primary objectives of this research are:

1.2.1 To study the potential of digital tools and automated processes in enhancing decision quality through data analysis and interpretation.

1.2.2 To develop an understanding of how digitalization and automation influence the decision-making processes of companies and investors.

1.2.3To explore the challenges and opportunities that digitalization and automation introduce to asset management, following the principles of the Technology Acceptance Model (TAM).

1.3 Research Scope

1.3.1 Content Scope

The research will delve into the significant impact of digitalization and automation on decision-making processes within asset management. It will specifically examine how digital tools like artificial intelligence (AI), machine learning, and big data analytics not only enhance decision quality in data analysis and interpretation but also aid in risk reduction and the optimization of investment strategies. The focus will extend to the application of these technologies in streamlining decision-making processes,

improving market trend predictions, and offering insights into market behaviors and customer preferences.

1.3.2 Area Scope

The research will have a global perspective, considering the impact of digitalization and automation on asset management in different regions around the world.

1.3.3 Population Scope

The population for this research will comprise companies and investors involved in asset management across various sectors.

1.3.4 Time Scope

1 September 2023 to 31 Jan 2024.

1.4 Definitions of Specific Terms

1.4.1 Technology Acceptance Model (TAM): The Technology Acceptance Model (TAM) is a theoretical model in the field of information systems that explains and predicts the acceptance and use of technology by users. The model suggests that when users are presented with a new technology, their acceptance and use of this technology are influenced by two main factors:

Perceived Usefulness (PU): This refers to the degree to which a user believes that using a particular technology will enhance their job performance. In other words, if users believe that a technology will help them perform their tasks more effectively or efficiently, they are more likely to accept and use this technology.

Perceived Ease of Use (PEOU): This refers to the degree to which a user believes that using a particular technology will be free of effort. If users believe that a technology is easy to understand and use, they are more likely to accept and use this technology.

These two factors determine the user's attitude towards using the technology, which in turn influences their intention to use the technology and their actual use of the technology. The TAM is widely used in research to understand the adoption and use of various technologies in different contexts.

1.4.2 Digitalization: Digitalization refers to the integration of digital technologies into everyday life by the digitization of everything that can be digitized. It involves the conversion of information from a physical format into a digital one and the use of this digital information to streamline processes, improve accuracy, and facilitate decision making. In the context of asset management, digitalization could involve the use of digital platforms for trading, digital tools for portfolio management, and data

analytics for market trend analysis.

1.4.3 Automation: Automation is the use of technology to perform tasks without human intervention. It involves the use of software, machines, AI, and other technologies to automate routine tasks, improve efficiency, and reduce the risk of human error. In asset management, automation could be used in various processes such as automated trading systems, robo-advisors for portfolio management, and automated risk assessment tools.

1.4.4 Asset Management: Asset Management is the process of developing, operating, maintaining, and selling assets in a cost-effective manner. It involves a systematic approach to the governance and realization of value from the things that a group or entity is responsible for, over their whole life cycles. In the financial context, assets could include stocks, bonds, real estate, or other investments, and asset management involves making investment decisions and strategies to increase the value of these assets.

1.4.5 Artificial Intelligence (AI): AI refers to the simulation of human intelligence processes by machines, especially computer systems. These processes include learning, reasoning, problem-solving, perception, and language understanding. In asset management, AI can be used to analyze large volumes of data, make predictions about market trends, and assist in decision-making.

1.4.6 Machine Learning: Machine Learning is a type of AI that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. It focuses on the development of computer programs that can access data and use it to learn for themselves. In asset management, machine learning algorithms can be used to analyze historical data, identify patterns, and predict future market trends.

1.4.7 Big Data Analytics: Big Data Analytics is the process of examining large and varied data sets to uncover hidden patterns, unknown correlations, market trends, customer preferences, and other useful information. In asset management, big data analytics can provide valuable insights into market trends, customer behavior, and operational efficiency, which can be used to make strategic decisions.

1.5 Research Framework

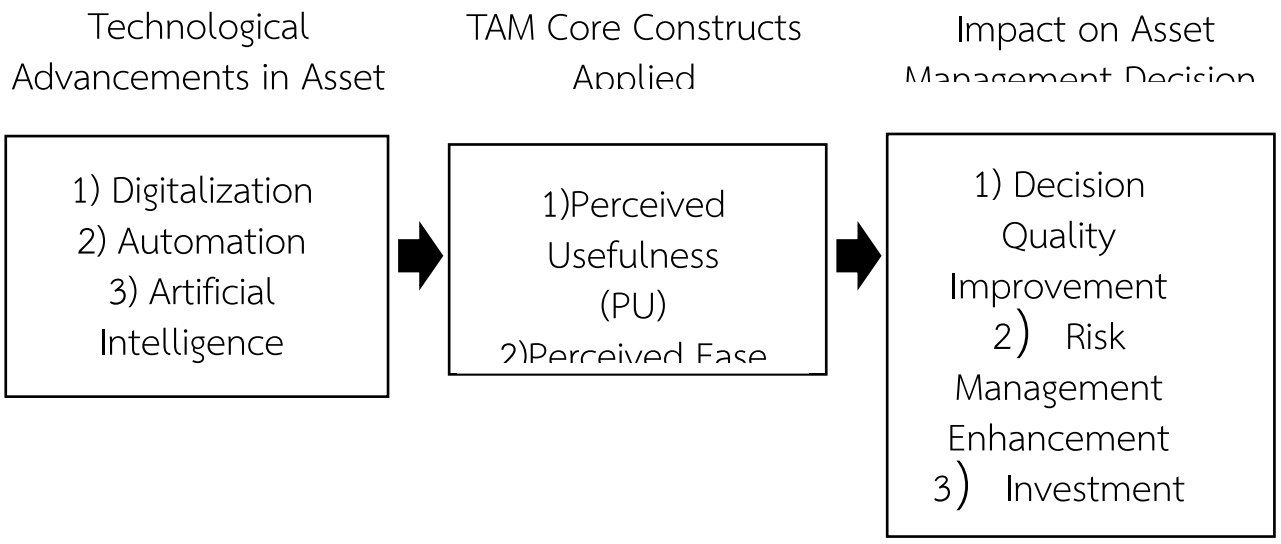

Figure 1: Conceptual Framework

1.6 Expected Benefits

The findings of this research are expected to provide valuable insights into the evolving landscape of asset management in the digital age. It will help companies and investors understand the implications of these changes and guide them in making informed decisions. Furthermore, it will contribute to the existing body of knowledge on the impact of digitalization and automation on various industries.

CHAPTER 2
Literature Review

This part is a literature review that makes the research result of the impact of digitalization and automation on asset management useful and achieves the set goals. It is divided into four parts:

2.1 Theory of Digitalization and Automation in Asset Management

2.2 Current Status of Research on Digitalization and Automation in Asset Management

2.3 Theory of Decision-Making Processes in the Context of Digitalization and Automation

2.4 Related Research

Research Methodology

The objective of this research were: 1) to study the internet usage behavior of people who decide to buy products online through applications in Chongqing city 2) to study the 6P's marketing factors that affect the decision to buy products online through applications in Chongqing city 3) to study the decision to purchase products online through applications in Chongqing city. In this chapter refer to research methodology.

3.1 Research model

3.2 Population and Sample

3.3 Research Tools

3.4 Data Collection Methods

3.5 Statistics Used in Data Analysis

3.1 Research Model

The researchers conducted the research according to the research process and quantitative research methods. This is a descriptive study by using questionnaires to collect information from population samples. The research mainly adopts the methods of literature research, interview and questionnaire.

Literature research method mainly collects scholars' previous research on this issue

through the school library and network system. On this basis, the supporting data for this study are extracted. At the same time, try to avoid repeated research in the selection of research topics and research angles. On the basis of literature research, this paper puts forward the corresponding research hypotheses and constructs the research model.

The interview method is mainly carried out in the pre investigation stage. Through in-depth interviews with the respondents, understand the shortcomings of the original questionnaire, and modify individual items in the questionnaire.

3.2 Population and Sample

The population studied in this study were user who purchased products online through the application in Chongqing city. The exact number was unknown.

The sample group in the study was user who purchased products online through the application. Sample sizes were determined from Taro Yamane's formula (1973) at 95% confidence level and tolerances of 5% sample selection were accepted 400 total.

3.4 Research Tools

Research object: after the questionnaire is designed, in order to ensure the reliability and validity of the questionnaire, this study first conducted a pre-test on a small part of the sample population. At the same time, we conducted in-depth interviews with 100 consumers who had experience in smartphone online purchase, avoided unclear expression and ambiguous understanding in the questionnaire as far as possible, deleted the options that are not easy to understand and repeat, and formed a formal questionnaire with small samples.

1. The general information of the respondents is as follows: consumers buy products online through applications in Chongqing city sent out 450 questionnaires, and a total of 400 valid questionnaires were collected after inspection

2. The respondents' opinions are as follows: the first determinant of the sample population's willingness to buy products online through applications should be the function of the product. Compared with ordinary smartphones, consumers are more willing to buy products and are willing to pay high prices for them because of their powerful functions.

Secondly, from the analysis results, the second influencing factor is the brand. It can be seen that when people buy products online, the brand has become a more important factor after the function, especially in the consumer group. Through further analysis of the questionnaire, in the questionnaire, some subjects' reference price index is greater than or equal to 1, and some of them have the same demand for the brand as or even slightly higher than the latter, this is enough to show that Chinese consumers are very keen on brands.

By using the Likert scale, it is divided into five levels, namely 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree.

3.5 Data Collection Methods

This is the data collected by the researchers:

(1) Basic data were collected from the questionnaire survey of the sampling group.

(2) Assistant Data Researchers collect data from studies of relevant documents.

3.6 The statistics used in data analysis

Descriptive statistical analysis.

Part1 Information on personal factors of respondents, including gender, age, level.

Part2 Information about purchasing behavior buy products online through applications in Chingqing city, including applications used to purchase online products, Frequency of purchase buy products online through applications, cost of purchase buy products online through applications, type of product buy online through the application, time of purchase buy products online through the application, date of online purchase through the application, equipment used for

purchase online through the application, payment channels for purchases online through the application.

Part3 Marketing Mix Factors (6P's) are product, price, place, promotion, personalization, privacy.

Part 4 Information about purchasing decisions buying products online through applications in Chongqing city is recognizing the needs of the problem. Seeking information Evaluation of purchasing decision options and post-purchase behavior.

The criteria for interpreting the results are as follows:

When analyzing the data, the students collected all the scores to find the mean and standard deviation of the sample based on the criteria according to which the question is a scoring scale, which is divided into 5 levels.

Score Level

Strongly Agree means a score of 5 points

Agree means a score of 4 points

Neutral means a score of 3 points

Disagree means a score of 2 points

Strongly Disagree means a score of 1 point

Therefore, the criteria for interpreting to classify the mean into the following ranges:

Average score between 4.20–5.00 means Strongly Agree

Average score between 3.40 – 4.19 means Agree

Average score between 2.60 – 3.39 means Neutral

Average score between 1.80 – 2.59 means Disagree

Average score between 1.00 – 1.79 means Strongly Disagree

Research Results

The comprehensive analysis of data collected from 407 respondents within the asset

management sector provides substantial insights into how digitalization and automation influence decision-making processes. These findings, aligning with research objectives, offer a nuanced view of the impact of technological advancements in asset management. The demographic profile reveals 67.81% of respondents are male, and 32.19% are female, with the largest age group being those aged 31-40 years, representing 48.65% of the sample. This suggests a workforce that is predominantly in their early to mid-career stages. Furthermore, a majority, 52.09%, hold a Master's Degree, indicating a highly educated demographic. Concerning the adoption of technology, 36.12% of respondents report being very familiar with digital and automated tools. Additionally, a significant majority, 52.33%, express a strong likelihood of continuing their use, attributing this to the tools' effectiveness in enhancing decision quality—a view supported by 47.67% observing substantial improvements—and in mitigating risk, with 48.16% noting a considerable reduction. Despite facing challenges like integration complexities and security concerns, the consensus points towards digital and automated tools enhancing operational efficiency, investment strategy, and customer service, demonstrating a readiness to embrace digital transformation within the sector. The key results are as follows:

1. Enhanced Decision Quality and Efficiency: A substantial majority of respondents reported an improvement in the quality and efficiency of decision-making processes attributable to the adoption of digital and automated tools. This enhancement is primarily due to the advanced capabilities of these tools in data analysis and interpretation, facilitating more informed and timely decisions.
2. Optimized Risk Management: The application of technologies such as Artificial Intelligence (AI) and Big Data Analytics has been pivotal in advancing risk management strategies. Respondents acknowledged these technologies' role in providing more sophisticated tools for risk assessment and mitigation, thereby enhancing the overall risk management framework within asset management practices.
3. Strategic Investment Decisions: The shift towards digitalization and automation has enabled more strategic and informed investment decisions. Through the utilization of advanced data analysis capabilities and insights provided by these technologies, asset managers are now better equipped to devise and implement effective investment strategies.

4. Perceived Usefulness and Ease of Use: The research underscored the critical importance of perceived usefulness (PU) and perceived ease of use (PEOU) in the adoption and effective utilization of digital technologies in asset management. These factors, as outlined by the Technology Acceptance Model (TAM), significantly influence professionals' willingness to embrace digital and automated solutions.

5. Challenges and Opportunities: While the transition towards digitalization and automation presents challenges such as integration complexities, security concerns, and the need for specialized expertise, it also opens up significant opportunities. These include potential for growth, efficiency improvements, and market expansion, which are seen as outweighing the aforementioned challenges.

These results provide a clear indication that digitalization and automation are reshaping the asset management landscape by enhancing decision-making processes, optimizing risk management, and enabling more strategic investment decisions. The findings also highlight the importance of TAM constructs (perceived usefulness and ease of use) in facilitating the adoption of these technologies, suggesting a positive trajectory for the future of asset management in the digital age.

5.2 Conclusion

The culmination of this research into the influence of digitalization and automation on decision-making processes in asset management has yielded profound insights, affirming the transformative power of technological advancements in this field. Through a meticulous analysis of data collected from 407 professionals and investors within the asset management sector, the study has met its primary objectives, offering a comprehensive exploration of the potential, challenges, and opportunities presented by digital and automated tools. The conclusions drawn from this investigation are as follows:

1. Pivotal Role of Digitalization and Automation: The research unequivocally demonstrates that digitalization and automation act as significant catalysts for improvement within asset management. These technologies have been instrumental in enhancing decision quality, optimizing risk management practices, and refining investment strategies. Their impact extends beyond mere operational efficiency, influencing strategic decision-making and contributing to more informed, data-driven outcomes.

2. Critical Influence of TAM Constructs: The findings underscore the importance of the Technology Acceptance Model (TAM) constructs—perceived usefulness (PU) and

perceived ease of use (PEOU)—in the adoption and effective utilization of digital technologies in asset management. These constructs serve as essential factors in determining the willingness of professionals to embrace and leverage digital and automated solutions, highlighting the need for technologies that are not only advanced but also user-friendly and beneficial in the eyes of the end-users.

3. Navigating Challenges with Strategic Opportunities: While the transition towards a more digitized and automated asset management landscape is fraught with challenges such as integration complexities and security concerns, the research identifies a clear path forward. The opportunities for growth, efficiency enhancement, and market expansion presented by these technological advancements significantly outweigh the hurdles. This positive outlook suggests a net beneficial impact on the asset management industry, advocating for a strategic approach to navigating the challenges.

In essence, this research has illuminated the critical role that digitalization and automation play in shaping the future of asset management. By harnessing these technologies, asset management professionals can unlock new avenues for innovation, efficiency, and growth. The study's conclusions reinforce the notion that, despite the challenges inherent in adopting new technologies, the potential benefits for decision-making processes, risk management, and investment strategy formulation are substantial and far-reaching.

5.3 Suggestion

Given the significant insights from the study on the influence of digitalization and automation on decision-making processes in asset management, it's imperative to outline strategic suggestions for asset management professionals, firms, and future researchers. These recommendations are designed to leverage the opportunities and navigate the challenges identified, ensuring the asset management industry can fully harness the potential of technological advancements for innovation, efficiency, and growth.

1. Embrace Continuous Learning and Development

The rapid evolution of technology in asset management underscores the critical need for continuous learning and development. Asset management firms must prioritize enhancing digital literacy and technical skills within their teams. This can be achieved through comprehensive training programs that focus on the latest digital tools and automated processes. Developing in-house training programs or forming

partnerships with educational institutions can provide a structured approach to upskilling teams. Moreover, highlighting case studies or examples where continuous learning has led to the successful adoption of digital tools can serve as powerful motivation and a blueprint for implementing similar strategies within other organizations.

2. Implement Robust Security Measures

In the digital age, the protection of sensitive data is paramount to maintaining client trust and ensuring the integrity of asset management operations. Firms must implement advanced security protocols and follow best practices in cybersecurity specific to the asset management sector. This includes conducting regular security audits, employing encryption methods, and ensuring compliance with global data protection regulations. Firms should also offer actionable steps for assessing current security measures and identifying areas for improvement, thereby creating a resilient cybersecurity framework that adapts to evolving threats.

3. Foster Innovation and Adaptability

Creating a corporate culture that values innovation and adaptability is essential for staying competitive. Asset management firms should encourage creativity and openness to technological advancements among staff. This involves promoting a mindset that views change as an opportunity rather than a threat. Strategies for fostering this culture include hosting innovation workshops, supporting internal incubators for new ideas, and recognizing and rewarding innovative contributions. Additionally, integrating flexible processes that can quickly adapt to new technologies and market demands will ensure firms remain agile and responsive to industry shifts.

4. Further Research on Technology-Specific Impacts

While this study has provided a broad overview of the impact of digitalization and automation, there is a clear need for more in-depth research on specific technologies such as blockchain, AI, and big data analytics. Future research should focus on understanding the unique benefits and challenges these technologies present to asset management practices. This includes formulating research questions that delve into how these technologies can optimize asset allocation, risk management, and client engagement strategies. Understanding technology-specific impacts is crucial for strategic implementation and gaining a competitive advantage.

5. Explore the Long-Term Effects of Digitalization

The long-term effects of digitalization and automation on asset management practices, client relationships, and market dynamics warrant thorough investigation. Advocating for longitudinal studies can provide insights into how these technological advancements shape the industry over time. Areas of focus for long-term research could include the sustainability of digital tools, the evolution of client service models, and the integration of digital strategies into traditional asset management frameworks. Such studies will be invaluable in preparing asset management firms for future challenges and opportunities.

In conclusion, the asset management industry stands at a crossroads, with digitalization and automation offering unprecedented opportunities for growth and innovation. By embracing continuous learning, implementing robust security measures, fostering a culture of innovation, conducting further technology-specific research, and exploring the long-term effects of digital advancements, asset management professionals and firms can navigate the complexities of the digital age. These strategic suggestions provide a roadmap for leveraging technological advancements, ensuring the industry not only survives but thrives in the face of digital transformation.

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