

## Mutual Fund Product Launch Process Setup and Automation: Streamlining Spreadsheet Workflows: A Case Study

Sunil Chahal

Concepts Information Technology Inc

### ABSTRACT

The implication of technology is discussed in the study in a streamlined manner. The white paper presents a detailed case study that outlines the successful transformation of macro-heavy spreadsheets into a streamlined system to track the launch of a new mutual fund strategy. Gold source databases were associated before setting up procedures to assist business users in tracking the launch of new mutual fund strategies. Therefore, the empirical analysis is purposed toward analysing mutual fund product launch process setup and automation through a case study. Such features provide the basis for the introduction of mutual funds. The project required the creation of a gold source database from scratch, the implementation of effective procedures, and the use of software programs like Informatica and ServiceNow. Additionally, with the help of a streamlined case study method, it was possible to discuss the challenges of the mutual fund's product development process. The strategy teams in the US and UK were analysed with a framework, and the framework and procedure were put into place accordingly. Furthermore, ServiceNow, which is a cloud-based platform was analysed for product development and Informatica was used in the project. Moreover, it was noted that the software aids businesses in automating and managing their HR, security, and customer support procedures. Thus, ServiceNow and Informatica were analysed from the lens of creating a product for mutual funds.

### \*Corresponding authors

Sunil Chahal, Concepts Information Technology Inc.

**Received:** January 15, 2023; **Accepted:** January 29, 2023; **Published:** February 08, 2023

**Keywords:** Mutual fund Strategy, Mutual Fund Strategy Launch Tracking, Workflow Automation, Informatica and Service Now, Transformation of Macro-Heavy Spreadsheets

### Introduction

The development of different financial processes has impacted the financial environment in a drastic manner. Further, the implication of such drastic changes in the financial environment has caused a dramatic change in the development of mutual fund policies [1]. Moreover, with the changing environment, businesses, and investment organizations' strategies becoming increasingly sophisticated. As per the opinion of Wang & Wang, such changes have caused a complication in the development of the product [2]. Similarly, the time has become one of the major factors for the development of such strategies.

As a result, it has become crucial to have reliable solutions to efficiently track and manage the launch procedures of these financial plans [3]. Additionally, there are certain pseudo factors that silently impact the development process of mutual fund policies. Thus, the empirical analysis shows how manual, macro-heavy spreadsheets can be converted into an automated system [4]. Moreover, the aim of the process is intended to speed up the tracking of the introduction of a new mutual fund strategy. In order to develop the process both US and UK-based strategy teams were analysed. Furthermore, the study is based on reliable data that have investigated similar topics.

### Background of the project

It was noted that the process of launching a product related to mutual funds is time-consuming and complex. Therefore, in order to maintain the consistency of product launch and make a suitable product according to the market. As per the suggestion of Awan, Arnold & Gölgeci, one of the decisive factors associated with mutual funds is related to the understanding of market demand [5]. Therefore, there are certain steps that are associated with every stratum of developing mutual funds. Additionally, it is essential to develop a product in less time. Monitoring the launch's progress and ensuring that all dates are reached is one of the most crucial tasks [6]. One of the most important factors for developing a mutual fund is calculating assets. Additionally, tracking the performance of such products is essential. In the past, spreadsheets were frequently used to manually track data. Moreover, the process of tracking and creating a product based on past information was done manually. As stated by Guo Choi & Shen, this procedure could be quite laborious and prone to mistakes [7]. Additionally, it was hard to identify the flaws of the product at the time of launching the product. It was challenging to communicate with other team members and to learn the general status of the launch [8]. For instance, there are large-cap, small-cap, and mid-cap mutual funds that are designed based on the targeted groups. During the past analysis it was noticed that there were issues related with the FinTech, for example data insufficiency is one of the major issues. At the same time, it was noted that manual error and a clan data set is a major issue at the time of creating the Gould source data set.

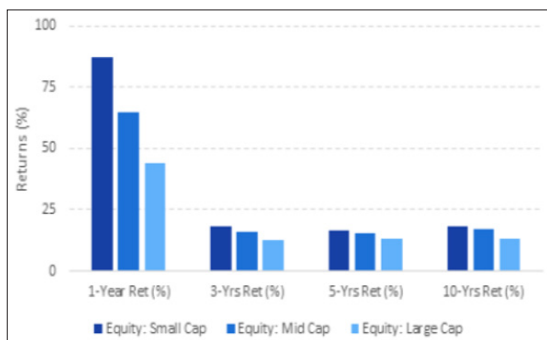


Figure 1: Different Product Categories of Mutual Funds

Figure 1 of the empirical analysis is associated with the different mutual fund products. The large-cap funds are required to invest at least 35% in large-cap equities and 35% in mid-cap [9]. On the other hand, there are certain funds that are developed based on specific users. As per the observation of Cooper, there are multi-cap funds that have a 65% corpus distribution among small and mid-range stocks [10]. Therefore, spreadsheets with a lot of macros were simplified in order to contemplate the process of developing a product related to mutual funds [11].



Figure 2: Different Types of Mutual Funds Policy

### Challenges Faced

During the process of analysing past literature and reliable data sources, there are certain challenges that were noticed. Moreover, such challenges hinder the process of developing the use of macro-heavy spreadsheets for the development of mutual fund products. For instance, the following are some of the challenges

• **Data Inconsistencies:** At the time of employing macro-heavy spreadsheets for mutual fund product launch procedures, data discrepancies are a major problem. As per the opinion of Rudd, inconsistent data can be implemented to provide a complete picture

at the time of developing a mutual fund product [12]. Therefore, such inconsistency results in the development of a product that has flaws in the process. Additionally, such issues result in a miscalculation of the financial information, hence hindering the development process.

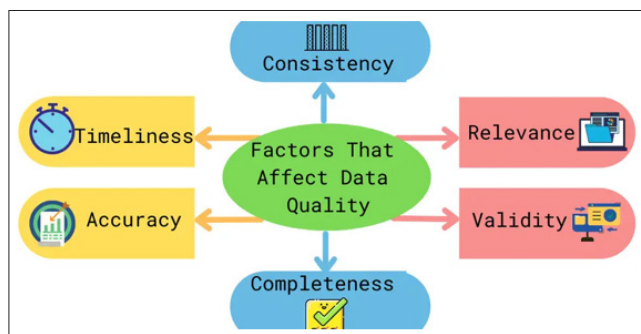


Figure 3: Factors Impacting Data Quality

• **Manual Errors:** Manual errors were found to be one of the issues that can cause massive errors in the final product. As stated by Nair et al. in one situation it is hard to determine the manual error till the launch of a financial product such as a mutual fund policy [13]. Therefore, it was noted that manual error can be detrimental to the development of a mutual fund product.

• **Lack of Real-Time Visibility:** The past analysis of data has repeatedly discussed the issue related to lack of vision. As per the suggestion of Kalinin et al. a financial product is developed based on the demand and demographic of the market [14]. For instance, the case study has pointed out that the US market and the UK market have some rudimentary differences between them [15]. Therefore, the development of the product needs to be different based on the factors. Moreover, the lack of real-time vision results in the development of a relevant product, thus, the sales are impacted drastically.

• **Difficulties in Collaboration across Geographical Locations:** The past analysis largely pointed toward the issue of collaboration according to the geographical location. As per the statement of Bagchi, Mohanty & Girdhar, demographic location is one of the major factors that form the demand of a specific group [16]. Henceforth, it can be stated that the development of a financial product can be impacted by the lack of collaboration with demographic factors [17]. According to the case study, it was noted that the demand of consumers was impacted based on the demographics of the US and UK. Hence, modifying a financial product requires collaboration based on demographic demand and keeping the base of the financial product similar.

**Building the Gold Source Database:** Gold source data is associated with a specific organization data set. Moreover, the data set contains valuable information about consumers. As per the opinion of Boydens & Pintelon, a golden source of database acts as a premise of information [18]. Therefore, based on the information of a golden database it is possible to create other sources of information. In order to build a golden database base following process required to be followed

• **Selection:** Determining relevant and particular datasets is the first step for making a gold dataset. As per the opinion of Zhang & He, information is the base that makes up the Gold Source Database [19]. Hence, the selection of the relevant data and categorizing them in a coherent manner is the initial step for building a golden data set.

• **Extraction and Cleaning of the Data Set:** Extracting the data according to the selection is the second step of building a database. Additionally, after the extraction of the data, it is essential to clean the data in order to identify and remove any possible or other factors that can cause errors in the calculator [20]. Therefore, after the extraction and cleaning the data set became consistent and clean.

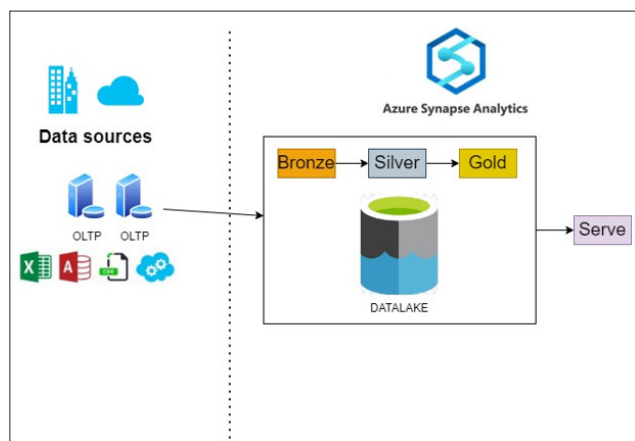


Figure 4: Gold Source Database

• **Integration of Data:** After the cleaning process, the data need to be categorized and added to the primary data set in order to the user in the design process. Moreover, the process of data validation is done at the time [21]. Additionally, Integration of data with the primary data set allows for regular maintenance and update of the data set.

• **Test of Data Set:** After the integration of the data in the gold database, it is essential to test the data set for any possible flaws. Additionally, bugs in a dataset are identified and rectified in the process.

### Process Design and Implementation

In order to design an appropriate product for a mutual fund product the designing process is essential. As per the opinion of Teimoor, collaborative understanding is essential for the sale to grow [22]. Therefore, identification of the flaws of the current process is essential in order to contemplate the possible objectives of the process. Additionally, identification of their consumer need and building a product based on that is essential [23]. Additionally, governance of the automated process is essential in order to make the product flawless.

The process of automation depends on the database choice. Therefore, it is essential to select a reliable and relevant gold database for the process of automation. Hence, for the standardization and automation of the workflow in order to introduce mutual fund strategies, effective methods were created [24]. The process of automation was focused in order to formulate the creation of the plan through its implementation every stage was outlined, making it possible to define roles, responsibilities, and deadlines.

### Technology Solutions

Technological solution for the development of the process is essential for policy automation. In order to develop the process Informatica and ServiceNow were foccouses. ServiceNow is a cloud-based service that aids in the process of automation for IT-based services. Additionally, consumer services and data security

can be automated with the use of ServiceNow [25]. On the other hand, informatics provides a vivid understanding of the relation of financial processes. Therefore, the effective installation was greatly aided by the combination of ServiceNow and Informatica [26]. While ServiceNow offered a strong foundation for process automation and collaboration, Informatica made it easier for data to be integrated, transformed, and loaded into the industry standard database.

### Benefits and Impact

Integrating such a streamlined system in order to develop a product there are certain benefits for the process. For instance

• **Enhanced Data Accuracy:** It was noticed that data accuracy is one of the processes that is impacted due to the integration of technological solutions for the development of mutual funds. As per the opinion of Velmurugan & Manoharan, standardized procedures dramatically decrease manual mistakes and inconsistent data [26]. Thus, the accuracy of the policy development is increased due to the integration of technology.

• **Improved Collaboration:** One of the major impacts that were noticed is that with the integration of technology, collaboration can be increased. There are certain tools that can be used in order to improve the collaboration among processes [27]. For instance, there are file-sharing tools and progress-racking tools that provide data about performance. Therefore, with increased collaboration, it is possible to develop a better product according to the demand of the consumers.

• **Time and Resource Savings:** It was seen that with the implication of automation manual efforts of the policymaker can be reduced. As per the opinion of Al-gowany & Almotairi, it is possible to reduce errors when there is a reduced manual effort [28]. Thus, chances of massive error reduced and the product development for mutual funds can be reduced.

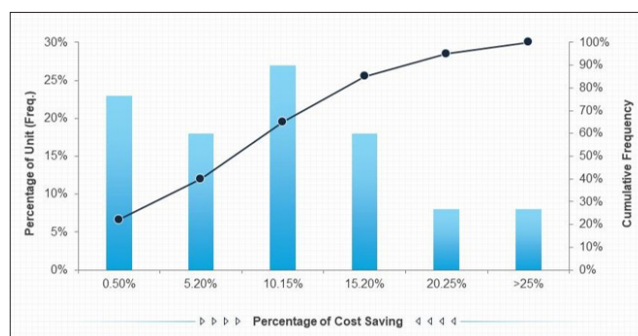


Figure 5: Cost-Saving Graph

The above figure is related to cost saving for a business unit through the implication of technology. It can be seen that a drastic change is possible in cost saving through implementing technology. Therefore, strategic tasks can be focused on in order to maintain the coloration among different processes and increase the sales of the product [29]. Streamlining the automation process aids in saving time. Similarly, Deng & Yan stated that with automation resources allocated or the development process can be divorced into different tasks [30]. Therefore, automation further aids in the process of resource allocation.

• **Real-Time Visibility:** During the past analysis, it was noticed that real-time visibility is one of the issues in developing the development of the product. Hence integration of an automated



process aids in the real-time visibility of the data Kaur [31]. Such visibility in the real-time situation aids in the development of the product and making any real-time changes in the product. Additionally, the solution offered a dashboard view of the launch procedure. Such technology enables the stakeholders to monitor progress and spot bottlenecks.

### Case Studies

In order to conduct the empirical analysis stem lined heavy spreadsheet methods were used in the study. Moreover, the process uses the streamlined heavy spreadsheet methods. In specific, the collected data sources are based on the past case study additionally past literature were used in order to formulate the concepts of the topic. In addition, there are methods such as document generation management that utilize compliance management techniques to continuously assure regulatory compliance. Moreover, such method aids in manging the product formation of mutual funds.

• **US Strategy Team:** According to the case study, the automation system was effectively used by the US-based strategy team to track and manage the introduction. Such, factors are essential for the development of a new mutual fund strategy. Therefore, such strategies lead to a quicker time-to-market and lower operational risks.

### UK Strategy Team

According to the case study, it was noticed that the UK policy development facilitates easier cooperation and communication. moreover, the UK team used the system to plan launch events across time zones. Therefore, a vivid understanding of the demographic is associated with the development process of the police.

### Lessons Learned

Based on the case study there are several takeaways

• **Clear Stakeholder Communication:** It was noted that communication among different factions is one of the important factors at the time of developing a policy. Understanding stakeholders' demands and achieving successful system deployment need effective communication. Additionally, as per the opinion of Jacob, Gupta & Gopalakrishnan, communication among stakeholders ensured to have a clear and uniform for the business [32]. Therefore, it can be stated that the implication of automation in the process improves the workflow. Additionally, a uniform vision can be maintained with clear communication as well.

• **Flexible Technology Integration:** Integration of technology aids in flexibility as well. The use of gold databases allows for a wider vision of the dataset [33]. Therefore, the management of the data improves, and decisions can be taken faster and more accurately. For automation and data management, combining Informatica with ServiceNow offers a customizable and scalable solution [34]. Hence, such features lead to a reliant and reliable product development process.

• **Iterative Improvement:** Iterative improvement is the practice of gradually making tiny adjustments to a system or process in order to make it better. The system is kept in line with changing business requirements by continuous enhancement based on user feedback [35]. Moreover, the implication of different small changes leads to a noticeable change in the process [36]. In addition, small changes such as data cleaning and integration processes aid in improving the overall policy development process. Such changes can be

accomplished by experimenting with various strategies, getting feedback, and making necessary corrections.

### Future Prospects

The aspect of integrating technology for the development of workflow aided in understanding the possible future development that can be achieved. Additionally, factors that aid in product development were contemplated in the study [37]. Moreover, reliable past analysis was used in the process of developing the study. Thus, the success of this endeavour lays the path for more improvements in the field. Such as integration with data visualization tools for more thorough insights and predictive analytics for gauging launch performance at the same time literary evidence aided in the contemplation of possible workflow improvement [38]. Additionally, the development of the product is demonstrated based on UK and US demographics. Hence a vivid understanding of the demographic understanding is provided in the study. Therefore, the paper can be the base at the time of contemplating the data integration process for the gold database systems and its appropriate use.

### Conclusion

Thus, it can be contemplated that with the use of a streamlined process of workflow process, there are several aspects of automation. It was noted that there are aspects that need to be managed in order to improve product development. Challenges such as data inconsistencies, manual errors, lack of real-time visibility, and difficulties in collaboration were noticed. On the other hand, improvement such as enhanced data accuracy, improved collaboration, time and resource savings, and real-time visibility was noticed. Moreover, the implication of gold databases can be pondered upon based on the information analysis.

### Implementation Journey

The process of implementing automation was thoroughly analysed based on past literature. Initial steps in the implementation process included a detailed evaluation of the current spreadsheet-based workflow [39]. Furthermore, data cleaning and integration were found to be an important process. Furthermore, in order to fully comprehend the needs, demands, and expectations of business users. Additionally, the integration of informatics and ServiceNow aids in improving product development [40]. It was founded that A collaborative effort of the technology benefits by reducing the error and time in product development. Further, it was noticed that the project team working closely with them can be beneficial for the development of mutual funds products. The project's goals were made very clear, and they included strengthening cross-team communication, lowering manual labour, and improving data accuracy [41]. Moreover, the focus of implementing the technology was to deliberately improve the workflow and improve the product development process. In the end maintenance and modification of the gold, database was found to be an important step for the appropriate implication of technological advancement.

Based on the pre-discussed findings following recommendations are formulated. Additionally, the recommendations are realistic based on the findings of the study.

- **Recommendation 1:** Using a network or intranet with low latency can be beneficial at the time of using gold source data sets.
- **Recommendation 2:** Using a hybrid system for data entry can reduce the errors in the process of data entry.
- **Recommendation 3:** Allocation of resource can be automated in order to improve the management of the data source.

Additionally, there are other factors that can be beneficial for improving the mutual fund launching process which are discussed following

**• Database Architecture and Design**

A gold source database's database architecture and design are found to be a difficult and complex process. Therefore, the gold source database creation required careful planning for the inclusion of numerous data elements [42]. Additionally, including team roles, strategy specifics, launch milestones, and accompanying documents are essential steps that are required. The process necessitates meticulous preparation and execution. As the system grew to support more strategies, the design guaranteed data integrity, and simple scalability maintenance was also required [43]. The process of building the architecture initiates with the identification of data sources and cleaning the data for further inclusion.

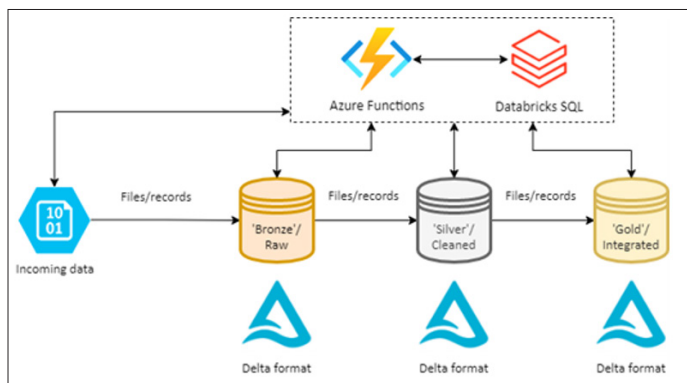


Figure 6: Framework of Gold Source Data Set

The above figure is associated with the creation of a gold data set. Moreover, it can be seen that the initial architecture is associated with the development of data accuracy [44]. At the same time, it was noticed that having a clean data set is important for the development of a gold dataset.

**• Process Automation with Informatica**

For the financial service firm, the data integration process was revolutionized by Informatica. Moreover, the process aided in the integration of relevant data and extracting relevant information the same [45]. Additionally, the data integration process was greatly aided by Informatica's automation capabilities. These difficulties can be managed with the robust data integration platform Informatica. Moreover, Data from numerous sources was easily integrated into the primary database with the help of Informatica's automation features [46]. Moreover, Spreadsheets and external systems were only two of the sources of data that were easily included in the gold source database. Hence it was possible to reduce the processing times, remove data entry mistakes, and give a real-time picture. Thus, the process of product development can be improved with the integration of the automation process.

**• Workflow Management through ServiceNow**

It was noticed that ServiceNow provides a range of tools for managing workflows, including automation collaboration, and workflow reporting. As per the opinion of Bhuiyan et al. the automation features of Informatica were quite helpful in the data integration process [47]. It was noted that the integration of the data set can improve the efficiency drastically.

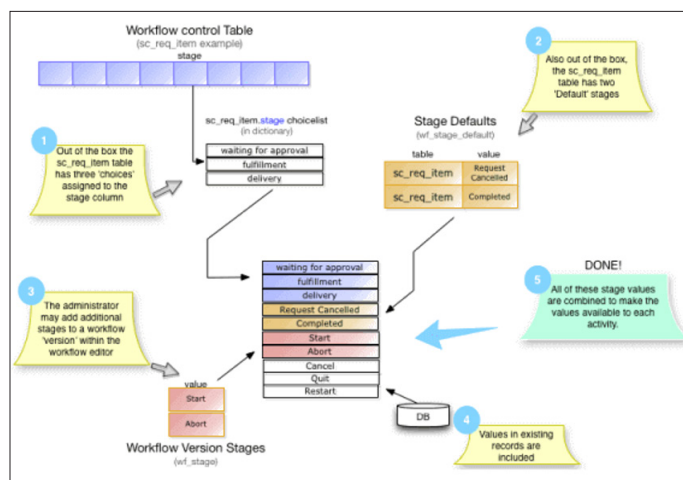


Figure 7: Workflow Management through ServiceNow

Additionally, with the integration of technology resource allocation can be improved. Only two data sources, spreadsheets, and external systems, could be easily included in the gold source database [40]. Through automation, processing times were shortened, data entry errors were eliminated, and a real-time snapshot of the strategy launch process was improved through the appropriate use of such dataset.

**• User Adoption and Training**

Adoption by users was prioritized through the case study analysis of the UK and US. moreover, user needs, and adaptation were observed in the process to acquaint business users with the new system's interface, features, and advantages, training was found to be important [37]. Additionally, seamless, and user-friendly user interfaces need to be the priority of the development process. For instance, the inclusion of a simple dashboard, and unambiguous reporting structures was found to be important.

**• Data Security and Compliance**

Compliance and data security are essential for creating a gold database. Therefore, data security played an important aspect throughout the development process. The process deals with users' personal information and financial information [38]. Hence, in order to protect sensitive financial data, access limits, encryption techniques, and audit trails were found to be an important aspect of data security. Additionally, a constant upgradation of the data sources and security needs to be there [29]. The system's compliance with pertinent regulatory standards increased user and stakeholder confidence in the system. Hence, ensuring the security of confidential data is of the utmost importance for the product development process.

**• Real-world Examples**

At the time of analysing past information related to the databases that are certain real-life examples were established. racking the rollout of a new mutual fund strategy was done by a US-based strategy team using an efficient approach. thus, with the help of the system, the team was able to keep track of dependencies, monitor progress, and guarantee regulatory compliance [32]. Therefore, collaboration was found to be the priority of the US-based firms. The smooth collaboration between the US and UK teams resulted in a successful launch within the allotted period. Hence, the aspect of time management can be contemplated from the example.

### • Continuous Improvement and Evolution

It was noted that after the implication of the systems aiming for constant development was found to be the priority of the firm. Moreover, it was noted that a constant update from the user base aids in identifying the flaws in the process. As per the opinion of Seetharaman, Patwa & Suchdev, the business demands are addressed with the constant improvement of the data [37]. Additionally, it was noted that the constant improvement and evolution of the process improve data security [39]. Additionally, the operation of the business can be improved with the constant improvement of the process.

### • Industry Impact

The implication of technology is discussed in the study moreover the usability of the gold dataset is described. Moreover, the case study exemplifies how technology-driven changes can improve the banking sector [35]. At the same time challenges and possible benefits of an automated workflow are mentioned in the study. Moreover, the study has demonstrated that technology not only enhanced internal procedures but also demonstrated how creative approaches can boost operational effectiveness. Moreover, workflow management is found to be an effective measure that helps in operation management. Thus, lowering risks, and providing positive results in the fiercely competitive financial market environment. Therefore, it can be contemplated that with effective usage of technology, workflow management is possible and appropriate resource allocation can be improved.

### Conclusion

Therefore, the empirical analysis has discussed the implications of technology in order to develop the product development process of mutual funds. A case study analysis was done, emphasizing the significance of adopting technological solutions such as Informatica and ServiceNow to convert spreadsheet procedures that are macro-intensive into efficient systems. Moreover, the impact of workflow and production is covered in the study. This program demonstrates the potential for enhancing mutual fund strategy launch procedures by addressing issues with data quality, cooperation, and efficiency. Furthermore, a vivid understanding of the hindrances in the process is discussed along with relevant solutions. For financial institutions looking to improve their operational excellence and innovation in a volatile market environment, the transformation's success provides an encouraging model. In addition, tangible implication of the solution is possible by contemplating the benefits that are discussed in the study.

### References

1. Streimikiene D, Svagzdiene B, Jasinskas E, Simanavicius A (2021) Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable development* 29: 259-271.
2. Wang M, Li Y, Li J, Wang Z (2021) Green process innovation, green product innovation and its economic performance improvement paths: A survey and structural model. *Journal of Environmental Management* 297: 113282.
3. Mliier J (2021) Groups express SFC concerns Testing service now. <https://repository.stcloudstate.edu/cgi/viewcontent.cgi?article=4727&context=chron>.
4. Yasser F, Kalim R (2021) Application of ijarah al ashkhaas in personal banking—a missing opportunity by islamic banks of pakistan. *GISRAS Journal of Management & Islamic Finance (GJMIF)* 1: 119-135.
5. Awan U, Arnold MG, Gölgeci I (2021) Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. *Business Strategy and the Environment* 30: 1283-1295.
6. Widyawati L (2020) A systematic literature review of socially responsible investment and environmental social governance metrics. *Business Strategy and the Environment* 29: 619-637.
7. Guo S, Choi TM, Shen B (2020) Green product development under competition: A study of the fashion apparel industry. *European Journal of Operational Research* 280: 523-538.
8. Ji X, Zhang Y, Mirza N, Umar M, Rizvi SKA (2021) The impact of carbon neutrality on the investment performance: Evidence from the equity mutual funds in BRICS. *Journal of Environmental Management* 297: 13228.
9. Sabirov OS, Berdiyarov BT, Yusupov AS, Absalamov AT, Berdibekov AIU (2021) Improving Ways to Increase the Attitude of the Investment Environment. *Revista Geintec-Gestao Inovacao E Tecnologias* 11: 1961-1975.
10. Cooper RG (2019) The drivers of success in new-product development. *Industrial marketing management* 76: 36-47.
11. Marion TJ, Fixson SK (2021) The transformation of the innovation process: How digital tools are changing work, collaboration, and organizations in new product development. *Journal of Product Innovation Management* 38: 192-215.
12. Rudd M (2020) The impact of acquisitions on security technology. *Computer Fraud & Security* 2020: 6-9.
13. Nair D, Veeragandham M, Pamnani P, Prasad S, Guruprasad M (2021) Impact of COVID-19 On Fintech Industry. *International Journal of Research in Engineering, Science and Management* 4: 27-34.
14. Kalinin O (2022) The role and analysis of venture financing in the digitalization of the economy. *Digital Technologies in the Contemporary Economy* 2022: 81-95.
15. Nie G (2021) A Study of Chinese Mutual Insurance <https://dspace.mit.edu/bitstream/handle/1721.1/139460/Nie-gxn5021-MSMS-Sloan-2021-thesis.pdf?sequence=1&isAllowed=y>.
16. Bagchi S, Mohanty D, Girdhar R (2023) Transformation of Financial Trading with Blockchain Technology in India <https://www.igi-global.com/gateway/chapter/321966>.
17. Gold J, BNP Paribas (2023) Data ETL for Key Performance Indicators to Improve Prime Brokerage Service Levels. <https://digital.wpi.edu/downloads/np193c960>.
18. Boydens A, Pintelon M (2022) Conducting a market research and price analysis to assess consumer preferences and the willingness to pay for a subscription to re-use sports equipment. <http://hdl.handle.net/20.500.12127/7219>.
19. Zhang J, He QZ (2021) Dynamic cross-market volatility spillover based on MSV model: evidence from Bitcoin, Gold, Crude Oil, and stock markets. *Complexity* 2021: 1-8.
20. Fritz B, Aichele C, Schmidt M (2020) Environmental impact of high-value gold scrap recycling. *The international journal of life cycle assessment* 25: 1930-1941.
21. Daystar J, Handfield R, Golden JS, Mc Connell E, Pascual-Gonzalez J (2021) An Economic Impact Analysis of the US Biobased Products Industry. *Industrial Biotechnology* 17: 259-270.
22. Teimoor RA (2021) A review of database security concepts, risks, and problems. *UHD Journal of Science and Technology* 5: 38-46.
23. Avant D, Neu KK (2019) The private security events database. *Journal of Conflict Resolution* 63: 1986-2006.
24. Subramani K, Caskurlu B, Acikalin UU (2019) Security-aware database migration planning. In *International Symposium on Algorithmic Aspects of Cloud Computing* 12041: 103-121.
25. Awadallah R, Samsudin A (2021) Using blockchain in cloud computing to enhance relational database security. *IEEE* 9:



- 137353-137366.
26. Velmurugan L, Manoharan S (2020) Designing Factors of Distributed Database System: A Review. *Data Min Knowl Eng* 12: 7-10.
  27. Hakkoymaz V (2020) Classifying Database Users for Intrusion Prediction and Detection in Data Security. *Tehnički vjesnik* 27: 1857-1862.
  28. Al-gohany NA, Almotairi S (2019) Comparative study of database security in cloud computing using AES and DES encryption algorithms. *Journal of Information Security and Cybercrimes Research* 2: 102-109.
  29. Kumar S, Srivastava M, Prakash V (2023) Challenges and Opportunities for Mutual Fund Investment and the Role of Industry 4.0 to Recommend the Individual for Speculation. *New Horizons for Industry 4.0 in Modern Business 2023*: 69-98.
  30. Deng W, Yan P (2023) Security Risk and Preventive Measures of Multimedia Database System under Remote Control of Network Robot. *Journal of Robotics* 2023: 1-8.
  31. Kaur H (2021) Analysis of NoSQL database state-of-the-art techniques and their security issues. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)* 12: 467-471.
  32. Jacob J, Gupta N, Gopalakrishnan B (2020) Mutual Fund Asset Allocation During COVID-19. [https://www.zbw.eu/econis-archiv/bitstream/11159/452467/1/EBP078177529\\_0.pdf](https://www.zbw.eu/econis-archiv/bitstream/11159/452467/1/EBP078177529_0.pdf).
  33. BM L, Chakraborty S, Kumar Ghosh B, Shenoy UR (2021) Overview of bond mutual funds: A systematic and bibliometric review. *Cogent Business & Management* 8: 1979386.
  34. Akhileshwari A, Babu BK (2021) Forecasting of Net Asset Value of selected Environmental, Social and Governance (ESG) Mutual Funds in India using ARIMA Model. *Acta Universitatis Bohemicae Meridionales* 24: 95-106.
  35. Kumar S, Kasaudhan S (2020) REAL ESTATE: MONEY MARKET, MUTUAL FUND and RESOURCE MOBILIZATION IN INTERNATIONAL CAPITAL MARKET. *National Journal of Real Estate Law* 3: 91-102.
  36. Papadopoulos K (2019) Predicting Mutual Fund Redemptions with Collaborative Filtering. University of Toronto (Canada) [https://tspace.library.utoronto.ca/bitstream/1807/98289/3/Papadopoulos\\_Krist\\_201911\\_MAS\\_thesis.pdf](https://tspace.library.utoronto.ca/bitstream/1807/98289/3/Papadopoulos_Krist_201911_MAS_thesis.pdf).
  37. Seetharaman A, Patwa N, Suchdev P (2020) Anatomy of the Fund Management Industry. *Accounting and Finance Research* 9: 1-84.
  38. Stanley PM, Strittmatter LM, Vickers AM, Lee KC (2020) Decoding DNA data storage for investment. *Biotechnology Advances* 45: 107639.
  39. Ahmad SM, Al Mamun A (2020) Opportunities of Islamic fintech: The case of Bangladesh and Turkey. *CenRaPS Journal of Social Sciences* 2: 412-426.
  40. Aujirapongpan S, Songkajorn Y, Ritkaew S, Deelers S (2020) Japan's digital advance policy towards performance in multilateral ASEAN's innovation business. *Entrepreneurship and Sustainability Issues* 8: 1081.
  41. Kiseleva EG (2020) The impact of digital transformation on the investment potential of the Russian cities. *Finance: theory and practice* 24: 72-83.
  42. Fields D (2022) Automated landlord: Digital technologies and post-crisis financial accumulation. *Environment and Planning A: Economy and Space* 54: 160-181.
  43. Martinez-Marquez D, Jokymaityte M, Mirnajafizadeh A, Carty CP, Lloyd D, et al. (2019) Development of 18 quality control gates for additive manufacturing of error free patient-specific implants. *Materials* 12: 3110.
  44. Hendri R, Sari N, Wibowo A (2019) Timeseries forecasting using long short-term memory optimized by multi heuristics algorithm. *International Journal of Recent Technology and Engineering (IJRTE)* 8: 11.
  45. Taghizadeh-Hesary F, Yoshino N (2020) Sustainable solutions for green financing and investment in renewable energy projects. *Energies* 13: 788.
  46. Manley K, Widén K (2019) Prefabricated housing firms in Japan and Sweden: Learning from leading countries. *Offsite Production and Manufacturing for Innovative Construction—People Process, and Technology 2019*: 399-418.
  47. Bhuiyan MN, Rahman MM, Billah MM, Saha D (2021) Internet of things (IoT): A review of its enabling technologies in healthcare applications, standards protocols, security, and market opportunities. *IEEE Internet of Things Journal* 8: 10474-10498.

**Copyright:** ©2023 Sunil Chahal. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.