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MODELLING THE CONTRIBUTORS OF ADOPTION OF DIGITAL INVESTMENT SERVICES OF MUTUAL FUND DISTRIBUTION

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Abstract

Rapid digitalization has transformed financial services and yet the adoption of mutual funds in India remains low. The purpose of the study was to explore the factors, influencing the adoption of digital investment services of mutual fund distribution. Further, the study aims to develop a model, using Interpretive Structural Modeling (ISM), to understand the dynamics between the factors and find out the driving power of factors, using Matrice d'Impacts Croisés Multiplication Appliquée à un Classement (MICMAC) analysis. Findings revealed that financial literacy, socioeconomic status, and social influence reported the highest driving power. Attitude and trust were highly responsive to system changes, while regulatory support, investor protection, transparency, service quality, and interoperability, contributed gradually. The study would provide insights for mutual fund distributors and policymakers, to enhance the adoption of digital investment services. The development of a hierarchical model, to identify the contributing factors, is a unique contribution of this research.

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1. Introduction

Rapid digitalisation in financial sector offers huge opportunities to all stakeholders and investors. The initiatives by government like 'Mutual Funds Sahi Hai' and 'Digital India' campaign, has led to increased participation and substantial growth in Assets Under Management (AUM), from 7.46 trillion in September, 2013 to 46.58 trillion in September 2023. Fintech platforms have revolutionised asset management industry, which allow tech firms to distribute mutual fund directly to individual investor, bypassing the traditional channel of mutual fund distribution. These platforms offer real-time portfolio tracking, seamless transactions and provide high-quality investment possibilities, empowering investors to make informed decisions.

Despite these advancements, the penetration of mutual funds in India still lags behind the global average. The mutual fund distribution remains skewed in favour of Top 30 (T30) cities, which contribute approximately 80% to AUM (**AMFI, 2024)**. Expanding the use of digital channels could bridge this gap, fostering financial inclusion and increasing mutual fund adoption. The research by **Seiler & Fanenbruck, 2021,** suggests that factors influencing investor acceptance and usage of digital investment platforms have not been properly examined. Identification of these factors and interrelation and interaction between them could help in planning strategies to promote digital platform and deepen the Indian mutual fund market. Hence it becomes imperative to understand the various factors, that influence this adoption process.

2. Review of Literature

The adoption of digital platform is a multifaceted phenomenon. Technology Acceptance Model (TAM), introduced by **Davis (1987)**, highlights two critical factors, for measuring the acceptance of digital technologies, namely, perceived usefulness and ease of use. TAM was later expanded to form Unified Theory of Acceptance and Use of Technology (UTAUT), emphasizing the facilitating conditions that affect technology use **(Venkatesh et al., 2003)**. In the Indian context, studies by **Madan & Yadav (2018) and Sharma et al., (2018)**, confirmed the key role of social influence, where investors consult their family and friends while adopting a new technology. Additionally, perceived risk, particularly concerning privacy and security, negatively influences the intention to use digital platforms, thereby impacting investor confidence **(Mandala & Sirisetti, 2020**). Research by **Niswah et al., (2019)** further supports that financial self-efficacy, financial literacy, socioeconomic status, boost investor confidence and perception of usefulness of digital platforms. Trust is a key factor in reducing investor uncertainty and influencing decisions to use digital platform **(Jünger and Mietzner, 2020)**. Notably, Indian investors trust public banks more than any online investment platform **(Johri et al., 2023)**. This underscores the need for regulatory bodies to address this through clear guidelines and effective communication, regarding the purchase of mutual funds through digital platform.

The study, undertaken by **Albayati et al., (2020),** expanded the horizon to understand the usage of digital investment, revealing that external

factors, like regulatory policies have profound influence on digital acceptance. In India, regulatory support and infrastructural elements like services quality and interoperability, can induce adoption, especially from tier 2 and tier 3 cities, thus deepening Indian mutual fund market. These enablers foster cooperation and innovation within the digital ecosystem, thereby leading to a digitally inclusive society **(Khan & Abideen, 2023)**. In the past decade, Fintech services have revolutionized the traditional financial industry, by offering convenient solutions. Convenience has been the strongest positive impact on Fintech adoption, primarily due to seamless transactions **(Feyen et al, 2021)**.

In conclusion, while existing literature provides a solid foundation for understanding the adoption of digital platforms, there is a critical need for research, that integrates these factors into a comprehensive framework. Interpretive Structural Modeling (ISM) and MICMAC (Matrice d' Impacts Croisés Multiplication Appliquée à UN Classement) are popular techniques to address multifaceted factors across sectors. They are well-established techniques for assessing the complex relationship among factors and their interaction **(Panackal & Venkataramani, 2021; Chauhan et al., 2022).**

3. Statement of Problem

Despite rapid technology adoption, mutual fund industry remains underpenetrated in India compared to global averages. Efforts are made by industry and government, to enhance accessibility, yet there is reluctance to embrace digital services for mutual fund purchase. In addition to socio-economic status of investors, there are various other factors, influencing acceptance of digital platform for mutual fund purchase. This study aims to explore the multifaceted factors and their interplay, to understand the hurdles in the acceptance of digital platform, for purchase of mutual fund in India.

4. Need of the Study

The literature review reveals that there is scant research conducted, that integrates diverse factors into a comprehensive framework. Previous research has mainly focused on theory, overlooking the broader interplay and interlinkage among various factors. Hence there is a need to develop a model, that depicts interrelationship among diverse factors, influencing the adoption of digital platform for purchase of mutual fund. Given the largely untapped potential of Indian mutual fund market, understanding these barriers and facilitators becomes essential.

5. Objectives of the Study

The study explored the factors, influencing retail investors' decision to use digital investment services of mutual fund distribution. The specific objectives were:

1. To develop a structural hierarchical model of factors that facilitates adoption of digital platform.
2. To categorise the identified factors, based on their driving and dependence power of influencing the adoption of digital platform.
3. To discuss theoretical and managerial implication, derived from the insight of the study.

6. Hypothesis of the Study

H1: There is significant hierarchical structure among the factors, indicating varying levels of influence, on the adoption of digital investment services of mutual fund distribution.

7. Research Methodology

In the first step, variables were identified, based on past literature and expert opinion. In the second step, discussions were held with the chosen industry expert panel on online platform,

where relevant variables were finalised after removing overlapping variables. In the third step, using industry expert opinion, interrelationship among identified variables was found, using pairwise comparison and the final step included model validation.

7.1. Sample Selection

The study selected a diverse group of 50 financial industry experts from various cities and positions, having more than 10 years of experience. The selected heterogeneous group ensured a broad spectrum of perspectives, to guarantee the robustness of the model. Owing to the limitation of time, only 30 experts participated in the research. As per Novakowski & Wellar, (2008), studies where group of heterogeneous experts are involved, an ideal sample size can range between 10 to 15 experts. Hence the sample size of 30 experts was considered adequate to provide comprehensive understanding of the factors, influencing the adoption of digital investment services of mutual fund distribution.

7.2 Source of Data

The study was based on factors, derived theoretically from various literature sources, and discussion.

7.3 Period of Study

The study was conducted from September 2023 to November, 2023. The chosen timeframe ensured a comprehensive analysis of the contributors to the adoption of digital investment services of mutual fund distribution.

7.4 Tools used in the Study

7.4.1 Interpretive structural modelling (ISM)

ISM is a systematic approach, developed by **Warfield (1974),** to identify and understand the interrelationship among various factors. It assists in constructing a structural model, that depicts the hierarchy and direction of relationship between factors, thereby highlighting the role of each factor. The detailed steps, involved in ISM, are elaborated in the data analysis section.

7.4.2 MICMAC analysis (Matrice d'Impacts Croisés Multiplication Appliquée un Classement)

MICMAC analysis developed by **Duperrin & Godet (1973)**, generates a graph, that categorises factors into four quadrants i.e. autonomous, dependent, linkage, and independent. These quadrants help to examine the strength of relationships, based on driving and dependence power of the factors.

8. Data Analysis and Interpretation Regarding Contributors of Adoption of Digital Investment Services of Mutual Fund Distribution

The calculation of ISM and MICMAC analysis, as described by **Ruben et al., (2018),** involves a series of steps. Initially, 16 factors were identified through the review of literature and expert opinion, for analysing the adoption of digital investment services of Mutual fund Distribution. In the next step, Structural Self-Interaction Matrix (SSIM) was constructed based on expert opinion, to depict pairwise relationship among variables, using symbol V, A, X, O **(Table-1).** This SSIM was transformed into initial reachability matrix, which was further refined into final reachability matrix, using binary digit 0 and 1 **(Table-2)**. Using this final reachability matrix, hierarchical levels among factors were identified by constructing level partitions **(Table-3)**. Then, with the help of final reachability matrix and level partitions, the ISM model was created, as presented in **Figure-1.** Finally, MICMAC analysis was conducted to assign cluster to factors, based upon their driving and dependence power, as presented in **Figure-2**

The ISM model (**Figure-1**), represents the hierarchical relationship, among 16 identified variables, that influence the adoption of digital platform for purchase of mutual funds. At the base of the framework, i.e. level 6, are financial literacy, social influence and socio-economic status. These factors can be categorised as an elementary driver of digital platform. Level 5 consists of regulatory support and financial self-efficacy, which are pivotal factors as they significantly influence users' adoption decision. Factors at level 4 include investor protection, transparency, perceived ease of use, perceived privacy, perceived security and perceived usefulness. These factors address users' concern for ease of use of digital platform. Influenced by the factors at level 4, level 3 comprises service quality, interoperability and attitude. These factors are mainly responsible for developing trust among investors (level 2). This trust, in turn, leads to openness to change (level 1), which ultimately leads to the adoption of digital platforms for the purchase of mutual funds.

According to the MICMAC analysis (**Figure-2**), factors, which come under the segment of independent variables like financial literacy, social influence and socio-economic status, have high driving power and weak dependence power. Financial self-efficacy appears on the borderline of autonomous variables and independent variables cluster. However, after considering inputs of experts, these variables were categorised as a part of independent variables. These independent factors are highly influential and play a critical role in shaping the overall system. In the context of the underpenetrated Indian mutual fund market, strategic focus on these drivers can enhance market accessibility and encourage wider digital participation in the Indian mutual fund industry.The study found that no variable falls under the category of linkage variable. In other words, each factor plays a distinct role in influencing the overall adoption of digital investment services. Variables such as openness to change, trust, service quality, and others exhibited either strong driving or dependence power, indicating a more independent and direct influence on the overall system.

The factors, which have strong dependence power and weak driving power, were categorised under dependent variables. Their strong dependence power implies that they are more responsive to changes than other factors within the system. Factors like attitude, trust, openness to change, falls within this cluster. However, it was found that perceived ease of use, perceived privacy, perceived security and perceived usefulness appear on the borderline of autonomous variables and dependent variables cluster. After consultation with experts, these variables were categorised as a part of dependent variables group. This categorisation is justified by their significant influence on investor decisions and their strong interdependencies with other factors in the system. The findings highlight that Indian investors are influenced by psychological and perceptual aspects. Strategies should be more tailored towards building trust, user friendly digital platform, continuous feedback, transparency and reliability, which will not only enhance components of dependent variables but also foster increased digital participation in the Indian mutual fund industry.

Autonomous variables are those that have both low driving and dependence power and they are relatively disconnected from the system and have individual effect. Factors that fall under this category included regulatory support, investor protection, transparency, service quality and interoperability. These factors will not trigger rapid change but rather impact more gradually.

They do not singularly drive any extensive changes but rather contribute gradually and consistently. These factors lay the foundation for the long-term success of digital platform for mutual fund investments. Measures such as clear disclosure norms, stringent risk assessment, historical performance of fund and clear redressal mechanisms, enable investors to use digital platforms, especially those with limited financial expertise. Service quality like regular and transparent reporting to investors of their funds performance, will foster their confidence, thereby leading to long-term efficiency of the industry.

9. Finding of the Study

The ISM and MICMAC analysis, reveal the hierarchical relationship among 16 variables, influencing the adoption of digital platforms for mutual fund purchases. Independent variables such as financial literacy, social influence, and socio-economic status, exhibit high driving power and they are foundational drivers of digital platform adoption. In the underpenetrated Indian mutual fund market, these factors are crucial and should be addressed through educational programs and tailored services to foster digital participation. No variables were identified as linkage variables, suggesting each factor has a distinct role in the adoption process. Dependent variables like attitude, trust, and openness to change have strong dependence power, indicating their responsiveness to changes within the system. These findings highlight the importance of perceptual aspects in influencing Indian investors, suggesting strategies should focus on building trust, user-friendly digital platforms, and transparency, to enhance digital participation in the mutual fund industry.

10. Suggestion

Investors are increasingly drawn towards digital investment platforms. Trust and confidence are centric to financial industry. Investors, despite being tech savvy, have reservation for purchase of mutual fund through digital platform. The marketing of mutual fund should extend beyond the scope of investment scheme such as educating investor about digital risk, macro-economic factors. This will not only help to educate the investor but also lead to acceptance of the digital platform for investments in mutual fund. Strategically, launching tailored advertising campaigns to target different segments of investors could promote mutual fund penetration. Additionally, all the necessary information should be disclosed in easy-to-understand manner and timely measures to be taken for curbing mis-selling and misleading advertisement.

11. Conclusion

The study is an attempt to construct a structural hierarchical model, to understand the multifaceted factors influencing digital platform adoption for mutual fund investments. By applying ISM and MICMAC analysis, the research identified 16 factors, across six levels, highlighting the importance of financial literacy, social influence, and socio-economic status as key drivers located at the base level. These independent variables, characterized by high driving power, are pivotal in shaping the digital adoption landscape in the underpenetrated Indian mutual fund market. Further, the study observed the absence of linkage variables, suggesting a distinct role for each factor. Trust, attitude, and openness to change being crucial dependent variables, rely on other factors for the acceptance of digital technology. The study highlights the importance of tailored strategies to address varying socio-economic status and educational initiatives, to enhance digital participation in Indian mutual fund market.

12. Limitation

The study was mainly focused on Indian mutual fund market, limiting its applicability to other markets. It examined 16 factors and their interconnection, based on expert opinion, which could introduce potential biases.

13. Scope for Further Study

The study was conducted in India and future work can extend the scope to other counties. Additionally, validating these factors through structural equational modelling would enhance robustness of the finding. As the primary focus of this study was on adoption factors and their interrelation, further research can delve into examining post adoption experiences, which will help to develop a holistic model.

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Table 1: Structural Self-Interaction Matrix (SSIM) for Critical Factors

S. No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1		O	O	V	V	V	V	V	V	O	O	O	O	O	V	V
2			O	V	V	V	V	V	V	O	O	O	O	O	V	V
3				V	V	V	V	V	V	O	O	O	O	O	V	V
4					V	V	V	V	V	O	O	O	O	O	V	V
5						X	X	X	V	O	O	O	O	O	V	V
6							X	X	V	O	O	O	O	O	V	V
7								X	V	O	O	O	O	O	V	V
8									V	O	O	O	O	O	V	V
9										O	O	O	O	O	V	V
10											V	V	V	V	V	V
11												O	V	V	V	V
12													V	V	V	V
13														X	V	V
14															V	V
15																V

Source: Authors compilation

Table - 2: Final Reachability Matrix for Critical Factors

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Driving Power
D1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	1	1	9
D2	0	1	0	1	1	1	1	1	1	0	0	0	0	0	1	1	9
D3	0	0	1	1	1	1	1	1	1	2	0	0	0	0	1	1	9
D4	0	0	0	1	1	1	1	1	1	0	0	0	0	0	1	1	8
D5	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	7
D6	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	7
D7	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	7
D8	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	7
D9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	3
D10	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	7
D11	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	5
D12	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	5
D13	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	4
D14	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	4
D15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
D16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Dependence Power	1	1	1	4	8	8	8	8	9	1	2	2	5	5	15	16	

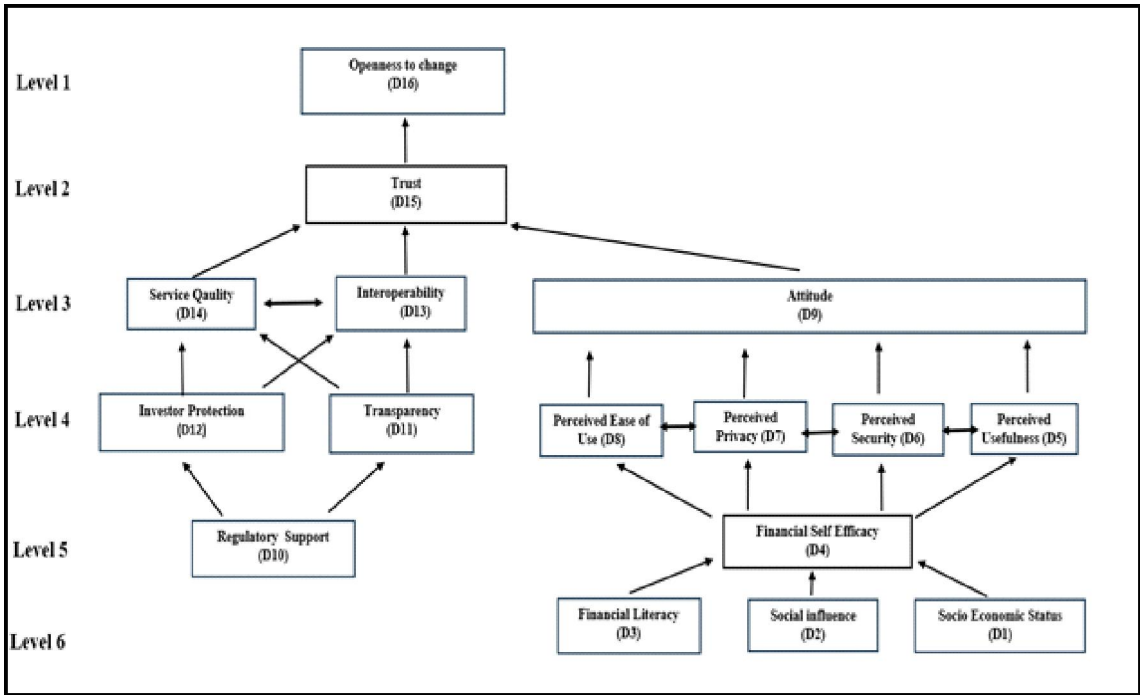
Source: Authors compilation

Table 3: Level Partitioning of the Factors

Elements (Mi)	Reachability Set R(Mi)	Antecedent Set A(Ni)	Intersection Set R(Mi)n A(Ni)	Level
D1	D1,	D1,	D1,	6
D2	D2,	D2,	D2,	6
D3	D3,	D3,	D3,	6
D4	D4,	D1, D2, D3, D4,	D4,	5
D5	D5, D6, D7, D8,	D1, D2, D3, D4, D5, D6, D7, D8,	D5, D6, D7, D8,	4
D6	D5, D6, D7, D8,	D1, D2, D3, D4, D5, D6, D7, D8,	D5, D6, D7, D8,	4
D7	D5, D6, D7, D8,	D1, D2, D3, D4, D5, D6, D7, D8,	D5, D6, D7, D8,	4
D8	D5, D6, D7, D8,	D1, D2, D3, D4, D5, D6, D7, D8,	D5, D6, D7, D8,	4
D9	D9,	D1, D2, D3, D4, D5, D6, D7, D8, D9,	D9,	3
D10	D10,	D10,	D10,	5
D11	D11,	D10, D11,	D11,	4
D12	D12,	D10, D12,	D12,	4
D13	D13, D14,	D10, D11, D12, D13, D14,	D13, D14,	3
D14	D13, D14,	D10, D11, D12, D13, D14,	D13, D14,	3
D15	D15,	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15,	D15,	2
D16	D16,	D1,D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16,	D16,	1

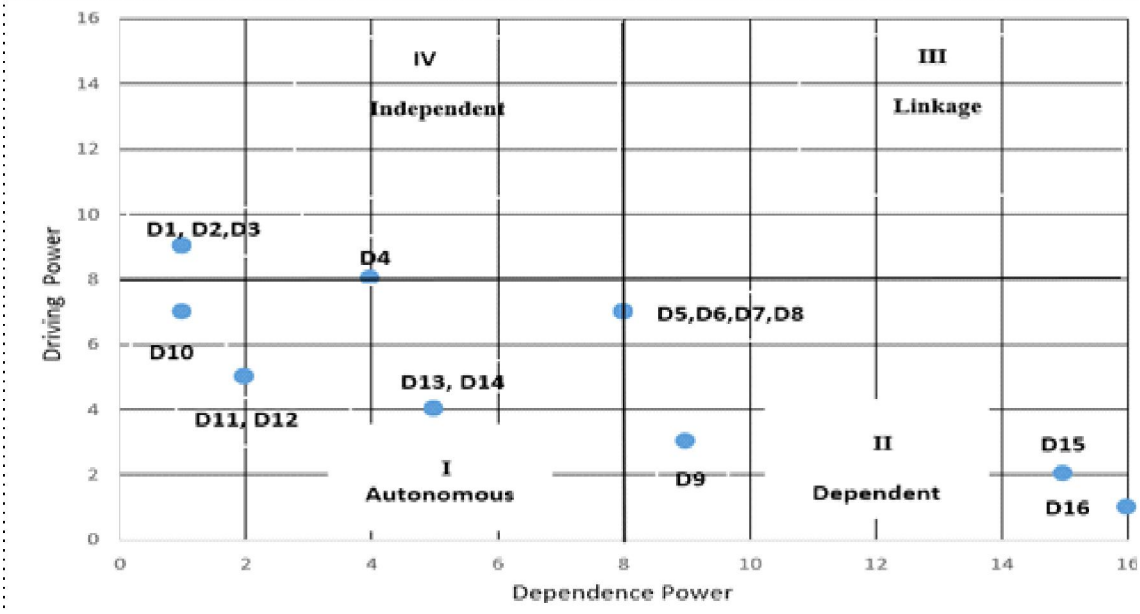
Source: Authors compilation

Figure 1: ISM Model of the Contextual Relationships between Factors



Source: Authors compilation

Figure 2: **MICMAC Analysis, Representing Dependence and Driving Power**



Source: Authors compilation