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Exploring trust in decentralized finance intermediaries: a taxonomy and archetypes for guiding blockchain-based investment decisions on the web

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Abstract

Purpose – To promote acceptance of blockchain-based investment options and enhance confidence for new investors, the market must become more comprehensible and accessible to the broad masses. This requires transparency to build trust in web-based intermediaries, particularly given the multitude of websites that often advertise unrealistic returns in the crypto sector. Consequently, intermediaries within the decentralized finance ecosystem need to be clearly identified and categorized to facilitate mass-market adoption.

Design/methodology/approach – We employ a six-iteration taxonomy approach, establishing a data foundation through literature reviews, expert interviews and document analysis of 50 intermediaries. Archetypes are derived using a hierarchical clustering algorithm. Finally, a survey is conducted to evaluate the taxonomy and the archetypes.

Findings – The taxonomy encompasses three meta-characteristics (functionality, architecture, security) and 63 characteristics. Furthermore, the research findings reveal six archetypes of blockchain-based investment intermediaries, demonstrating significant discrepancies between them, particularly in terms of financial features and governance structures. Given the complexity of crypto intermediary platforms for novice users, the findings underscore the need to implement technology-based and institutional-based trust mechanisms, improve risk assessment and enable informed decision-making.

Originality/value – By increasing market transparency and fostering trust, this study contributes to the acceptance and adoption of blockchain-based financial intermediaries, drawing on the diffusion of innovation

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theory. The proposed taxonomy, particularly its dimensions, specifically addresses the requirements of both technology-based and institution-based trust, which are critical for crypto investments. Moreover, the findings emphasize the importance of educational resources and communicated trust features in strengthening user confidence and facilitating broader market participation.

Keywords Crypto investment, Blockchain, Intermediary, Trust, Taxonomy, Decentralized finance, Archetypes, Banking service, Platforms, Digital finance

Paper type Research article

1. Introduction

Why has blockchain-based investing not yet become mainstream? Despite its technical potential, it is often perceived as complex and difficult to reconcile with traditional investor behavior, factors that, following the Diffusion of Innovation (DOI) theory, inhibit adoption by lowering perceptions of relative advantage, compatibility and trialability (Rogers *et al.*, 2014). Trust plays a pivotal role, as perceptions of risk and uncertainty in complex technologies strongly influence how potential adopters evaluate technology's attributes. Highlighting the impact of word-of-mouth on mobile banking acceptance, negative experiences tied to dis-adoption can erode trust, while positive stories from re-adopters restore it (Saeed and Xu, 2020). As shown in financial technology (FinTech) innovations, such as facial recognition payments, trust built through transparency, quality and security is essential not only for adoption but also for achieving sustained, mainstream use (Lim *et al.*, 2025).

In light of these challenges, this study examines decentralized finance (DeFi) intermediaries, which offer innovative investment opportunities through blockchain technology to create transparency, thereby promoting mass adoption and trust. While the growth of DeFi platforms — measured by market capitalization — is rapidly increasing (Alamsyah and Muhammad, 2024; Voskobojnikov *et al.*, 2021) and the number of new assets and transactions via blockchain-based platforms is already substantial (Alamsyah and Muhammad, 2024), broad mass acceptance remains a challenge (Król and Zdonek, 2022; Zeiβ *et al.*, 2024).

Adoption is hindered by a lack of awareness and perceived trust deficit among investors (Zeiβ *et al.*, 2024). Additionally, the plethora of new crypto investment opportunities, primarily driven by emerging web applications, creates a complex environment for private investors (Caxton *et al.*, 2022; Voskobojnikov *et al.*, 2021). The accessibility and functionality of financial services have undergone significant evolution in recent years (Alamsyah and Muhammad, 2024). Ennew and Sekhon (2007) argue that customers generally find it challenging to understand financial products and are therefore more likely to trust digital providers. Consequently, private investors face heightened risks when purchasing financial products (Ennew and Sekhon, 2007), especially in the blockchain domain, where well-known financial providers are less prevalent due to new intermediaries (Chen and Bellavitis, 2020; Grassi *et al.*, 2022). Numerous negative reports, such as those concerning fraud in the blockchain sector, also adversely affect acceptance (Valeonti *et al.*, 2021; Zeiss *et al.*, 2024). The inherent complexity of blockchain complicates matters (Glomann *et al.*, 2019), making it challenging for individuals with limited investment experience to understand the nuances of decentralized investments compared to traditional banking (Litterscheidt and Streich, 2020; Zeiβ *et al.*, 2024).

To facilitate the acceptance of blockchain and crypto assets among the broad masses, it is crucial to create a supportive environment for newcomers and inexperienced users (Glomann *et al.*, 2019). In this context, trust plays a pivotal role in driving acceptance (McKnight *et al.*, 2002; Zeiβ *et al.*, 2024). As evidenced by extant literature, mitigating trust-related concerns can reduce perceived risk, thereby diminishing users' uncertainties or apprehensions regarding potential outcomes (McKnight *et al.*, 2002; Slade *et al.*, 2015). However, little attention has been paid to blockchain-based investment intermediaries, critical to establishing trust. This underscores the need for a comprehensive overview of the existing investment opportunities, as market transparency for customers remains insufficient (Langley and Leyshon, 2021;

Zeiss *et al.*, 2024). It is essential to identify the characteristics that crypto intermediaries possess and those that platform providers should transparently display to increase trust levels.

This study contributes to the overarching goal of blockchain acceptance in the Internet market by enhancing the transparency and comprehensibility of the multitude of blockchain-based investment opportunities while recognizing trust as a vital factor for adoption. We focus on the apparent differences between investment intermediaries and the derivation of investment archetypes, which are identified, explained and discussed in the context of trust, specifically concerning technology-based and institution-based trust as well as crypto-assets-related research findings.

RQ1. How do blockchain-based investment intermediaries differ, and how can they be classified in a taxonomy?

RQ2. How can the taxonomy contribute to fostering trust in blockchain-based investment intermediaries, and what archetypal patterns can be identified?

Therefore, Section 2 examines existing research on blockchain-based financial service intermediaries, trust in DeFi platforms and related work. Subsequently, Section 3 outlines the research design based on the taxonomy development and cluster analysis. The final taxonomy and the derived archetypes are presented in Section 4, followed by a discussion in Section 5. Finally, Section 6 addresses the conclusions, limitations and future research.

2. Research background

Blockchain-based financial service intermediaries: The financial sector has recently undergone a significant transformation, with banks historically serving as trustworthy contact points for customers (Gramlich *et al.*, 2023; Langley and Leyshon, 2021). With the rise of FinTech, new companies have emerged to compete with established financial service providers (Chen and Bellavitis, 2020; Schwiderowski *et al.*, 2024). Introducing blockchain and DeFi has enabled further transformations, creating novel opportunities for storing and exchanging assets (Zeiss *et al.*, 2024). This has led to new business models, services and products offering various new investment opportunities (Gramlich *et al.*, 2023; Voskobojnikov *et al.*, 2021). The convergence of physical and digital realms is driven by tokenization, enabling the fractionalization of assets, such as artworks, through internet-based applications (Whitaker and Kräussl, 2020). Moreover, these changes and the emergence of new market participants have led to a shift in power distribution within the financial sector – a transformation often characterized by the concepts of disintermediation and re-intermediation (Zeiβ *et al.*, 2024). Technological trends have introduced new intermediaries into the financial system, replacing traditional banks (Cai, 2018; Langley and Leyshon, 2021) and shifting the existing trust structures of investors (Chen and Bellavitis, 2020; Langley and Leyshon, 2021).

Trust in DeFi platforms: Although blockchain technology is perceived as more secure due to its tamper-proof nature (Gramlich *et al.*, 2023; Valeonti *et al.*, 2021), there is a notable trust deficit in applications among the general public, particularly in financial domains (Zeiβ *et al.*, 2024), which hinders the DOI. Studies show that trust cuts uncertainty and boosts user confidence in digital and finance systems (Gan and Lau, 2024; Jalan *et al.*, 2023). Trust has been shown to strongly influence technology adoption, as demonstrated in FinTech, where online or mobile banking and facial recognition payments are prevalent (Shiau *et al.*, 2023; Zhou, 2011), as well as in the area of crypto assets (Voskobojnikov *et al.*, 2021). In the context of the cryptocurrency ecosystem, trust issues such as price manipulation, security, governance and transparency are relevant (Rehman *et al.*, 2020). To establish a trust relationship, it is imperative that the trustor (crypto asset investor) possesses sufficient reasons to place their trust in the trustee (financial intermediary) and that the trustee is perceived as trustworthy by the trustor (Smits and Hulstijn, 2020). Years ago, trust in the conventional banking system was predominantly founded on reputation or prior interactions (party-based or person-based trust). With the advent of

technological advancements, this paradigm has undergone a shift. Consequently, the crypto literature has begun to explore institution-based and technology-based trust (Sas and Khairuddin, 2017; Smits and Hulstijn, 2020; Voskobojnikov *et al.*, 2021). Institution-based trust relies on third-party verification and is particularly relevant in the online sector, where transactions occur between new or anonymous parties (Pavlou and Gefen, 2004; Zhao *et al.*, 2023). Therefore, certifications, control mechanisms and feedback features are particularly relevant (Pavlou, 2002). Due to the unregulated nature of blockchain technology, third-party institutions like governance or regulatory authorities are challenged to provide an adequate response, protect investors and mitigate risks while fostering technological development (Ferreira and Sandner, 2021; Gramlich *et al.*, 2023). Given the crypto market's global orientation and the original exclusion of intermediaries, the use of institutional trust is currently limited. Technology-based trust places greater emphasis on the integrity and transparency of the technology itself, assuming that the mechanisms will perform as intended (Sas and Khairuddin, 2017; Smits and Hulstijn, 2020). Accordingly, it encompasses a range of elements, including technical standards, security procedures and protection mechanisms (Pavlou and Gefen, 2004; Smits and Hulstijn, 2020). Intermediaries can position these elements more clearly, making them appear more trustworthy to the trustor. However, these elements must be elaborated and presented to the platform user.

Related work: Studies on crypto investments focus on adoption (Zeiβ *et al.*, 2024) or explore opportunities, including user-centered non-fungible token (NFT) marketplace design (Caxton *et al.*, 2022) and metaverse platforms (Lee *et al.*, 2024). Further studies explore concepts such as security (Valeonti *et al.*, 2021), user-focused design (Lee *et al.*, 2024; Litterscheidt and Streich, 2020) and usability of platforms, websites and apps (Rehman *et al.*, 2020) to discuss the specific challenges of blockchain-based financial ecosystems. Taxonomies address digital platforms (Derave *et al.*, 2024) and their decentralization (Perscheid *et al.*, 2020), as well as blockchain-based business models (Weking *et al.*, 2020). Additionally, they handle DeFi on a broad level (Puschmann and Huang-Sui, 2024) or, more specifically, analyze business models (Beinke *et al.*, 2024), token structures (Hartwich *et al.*, 2024; Schwiderowski *et al.*, 2024) or risk and trust issues (Rehman *et al.*, 2020). However, no approaches have yet been developed to address the aforementioned research questions.

3. Methodology

We applied a taxonomy development approach proposed by Nickerson *et al.* (2013) to examine the differentiation of blockchain-based investment intermediary platforms. Following the categorization of real-world objects based on the taxonomy, a cluster analysis (Ward, 1963) was conducted to identify archetypes. The taxonomy and archetypes were subsequently evaluated through a survey, as depicted in Figure 1, and discussed in the trust context afterwards.

3.1 Taxonomy development

3.1.1 Preparation. A taxonomic system relies on classifying meta-characteristics (MCs), which define its fundamental structure and are established in the initial stage of taxonomy development (Nickerson *et al.*, 2013). Since MCs must align with the taxonomy's purpose, our MCs focus on *functionality*, highlighting overall investment attributes of intermediary platforms, *architecture* and *security*. As a result, our MCs incorporate the previously mentioned interplay of institution-based and technology-based trust elements, which are relevant in the digital financial world. We collected several taxonomies, analyzed their structures in workshops and derived our MCs, e.g. *functionality* business model perspectives or platform characteristics (Perscheid *et al.*, 2020; Puschmann and Huang-Sui, 2024; Weking *et al.*, 2020).

Additionally, taxonomy development is an iterative process requiring predefined ending conditions (EC). We adopted the eight objective and five subjective EC from Nickerson *et al.* (2013). The finalization of taxonomy development necessitates fulfilling all EC.

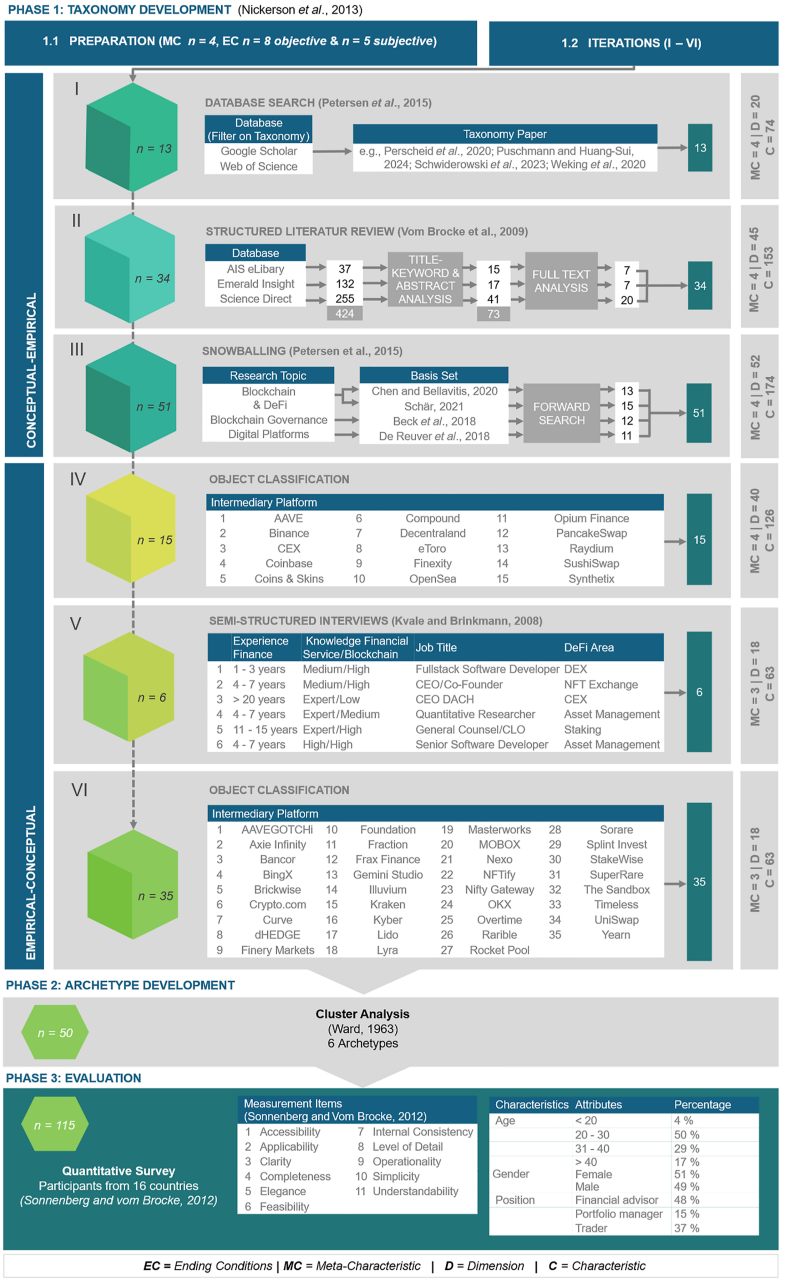


Figure 1. Research design. *Source*: Authors own work

3.1.2 Iterations. Figure 1 illustrates that we chose each iteration between conceptual and empirical procedures. Moreover, Figure 1 provides a structured overview of the data collection methods and the identified real-world objects. We collected these real-world objects using a multi-stage strategy. This approach involves a literature review of scientific papers (e.g. Shah

et al., 2023; Zeiss *et al.*, 2024), searching on websites (e.g. coinmarketcap.com) or following non-scientific articles (e.g. financial institutions). The two criteria that guided our selection process were that the intermediary platforms must be operational and that they must represent a viable business. As our scope is on private investment, we excluded objects with only business-to-business solutions.

Iteration I: Initially, a conceptual-empirical approach was chosen due to the research team's substantial expertise in this domain (Nickerson *et al.*, 2013). The objective of this iteration was an initial taxonomy draft (Herm *et al.*, 2022). We performed a systematic mapping database search for data collection (Petersen *et al.*, 2015), as this method aims to provide a comprehensive overview. A search was conducted using the query terms "DeFi", "Decentralized Finance", "Taxonomy" and "Systemization". Finally, a corpus of 13 taxonomies served as a literature base for the first taxonomy draft.

Iteration II: The second iteration contains a conceptual-empirical approach, incorporating a structured literature review (Vom Brocke *et al.*, 2009). This deductive procedure involves retrieving knowledge from scientific literature and combining it with empirical data in the taxonomy (Nickerson *et al.*, 2013). This review concentrated on "investment platforms" and "decentralized finance", resulting in 34 articles.

Iteration III: This iteration also drove the conceptual-empirical approach, extending our knowledge base. Therefore, to extend our knowledge base, we applied a systematic mapping and snowballing method in the third iteration (Petersen *et al.*, 2015). This method forms a corpus of basic literature (De Reuver *et al.*, 2018), and a forward search was initiated from this point. The resulting 51 papers were used to refine the taxonomy.

Iteration IV: To gain practical knowledge in addition to the theoretical foundation, we employed the empirical-conceptual approach. By this inductive procedure, we analyzed a set of 15 intermediary platforms to recognize attributes and categorize them, as outlined by Puschmann and Huang-Sui (2024). This approach is grounded in document analysis, which entails collecting and examining documents– such as white papers, websites, documentation and scientific as well as non-scientific articles – for each platform (Kundisch *et al.*, 2022).

Iteration V: In the fifth iteration, we selected an empirical-conceptual approach. The objective was to analyze and classify intermediaries based on empirical data. We contacted employees of the platforms identified in Iteration III ($n = 15$) and conducted five interviews using the semi-structured approach of Kvale and Brinkmann (2008). We presented the taxonomy, and the experts reviewed the MCs as well as categorized the intermediary platforms. Additionally, we reduced the complexity and scope of the taxonomy, as mentioned by the experts.

Iteration VI: For the final review of the current taxonomy version, we applied the empirical-conceptual approach. This review assessed the current state based on 35 identified intermediary platforms. As all objects were successfully assigned to their respective dimensions, no additional characteristics or dimensions were identified for inclusion in the taxonomy. The changes made were limited to nominal adjustments. Consequently, we initiated a comprehensive review of all EC and confirmed that all subjective and objective criteria were met without exception.

3.2 Archetype derivation

To identify archetypes, validate the taxonomy and derive archetypal patterns, the research team employed an agglomerative hierarchical clustering algorithm (Ward, 1963). For this, a descriptive analysis of 50 intermediary objects (from Iterations IV and VI: $n = 15$, $n = 35$) was

conducted (Herm *et al.*, 2022), and each object was classified within the taxonomy's dimensions. The frequency of occurrence for each characteristic was used in the descriptive analysis and subsequent hierarchical pattern (see Figure 3).

3.3 Evaluation approach

After deriving archetypal patterns, both artifacts underwent evaluation. A quantitative survey (Szopinski *et al.*, 2019) was conducted across five key aspects, including functionality, architecture, security, the taxonomy itself and the archetypes. The survey was completed on the Prolific platform, where we configured filters for our recruitment, with 115 individuals professionally engaged in the financial sector, including financial advisors, traders and portfolio managers. Owing to their active roles in investment decision-making and financial consulting, these participants were domain experts. Figure 1 presents an overview of the demographics. The study was structured as follows: First, the topic was introduced to provide the necessary context. After addressing general questions, the taxonomy was briefly explained. Furthermore, measurement items by Sonnenberg and Vom Brocke (2012) (see Figure 1) were combined with a 7-point Likert scale for each item. The findings are summarized in Section 4.3.

4. Results

Developing a taxonomy and archetypes supports the differentiation of blockchain-based investment intermediaries. This market transparency is crucial for establishing trust and is pivotal to the acceptance of crypto. It also reveals fundamental characteristics relevant to technology-based and institution-based trust that must be demonstrated to the market for greater acceptance.

4.1 Taxonomy on blockchain-based investment intermediaries

This section presents the taxonomy of blockchain-based investment intermediaries (see Figure 2). It describes its 3 MCs, 18 dimensions and 63 characteristics that can be assigned to the trust literature, as described in Section 5, and which are relevant to RQ1 and the groundwork for answering RQ2.

Functionality: This MC encompasses dimensions that delineate intermediaries' utility features and value-creating functions. The *main investment focus* is differentiated into income generation, exchange, asset management, in-game payouts and other categories (Shah *et al.*, 2023; Valeonti *et al.*, 2021). Upon closer examination of intermediary platforms, *financial features* such as lending, staking or yield farming can be distinguished (Schär, 2021), as well as derivative options, insurance, tokenized physical assets (Litterscheidt and Streich, 2020; Whitaker and Kräussl, 2020) and NFTs (Hartwich *et al.*, 2024). Intermediaries can create their own *native tokens*, which are an integral part of their ecosystems. These tokens are grouped into asset, utility and payment tokens (Schwiderowski *et al.*, 2024). Regarding *deposit* options, the taxonomy distinguishes between fiat currencies, cryptocurrencies and proprietary tokens (Zeiss *et al.*, 2024). With new regulatory approaches (Ferreira and Sandner, 2021), growing technical maturity and promised value gains, corporate clients are increasingly investing in the crypto market. The *target groups* of intermediaries are divided into private investors and businesses (Beinke *et al.*, 2024; Derave *et al.*, 2024). A critical factor is how users gain *access* to the intermediaries, with mobile applications and Internet websites playing a particularly central role (Caxton *et al.*, 2022; Lee *et al.*, 2024). Intermediaries should provide *financial learning*, as financial literacy is a critical factor for adopting crypto investments. An analysis was conducted to determine whether the platforms offer integrated learning resources such as video courses (Król and Zdonek, 2022; Rehman *et al.*, 2020).

Architecture: This MC entails the fundamental principles and structural configurations of the intermediary platforms' operational, relational and systemic properties, demonstrating

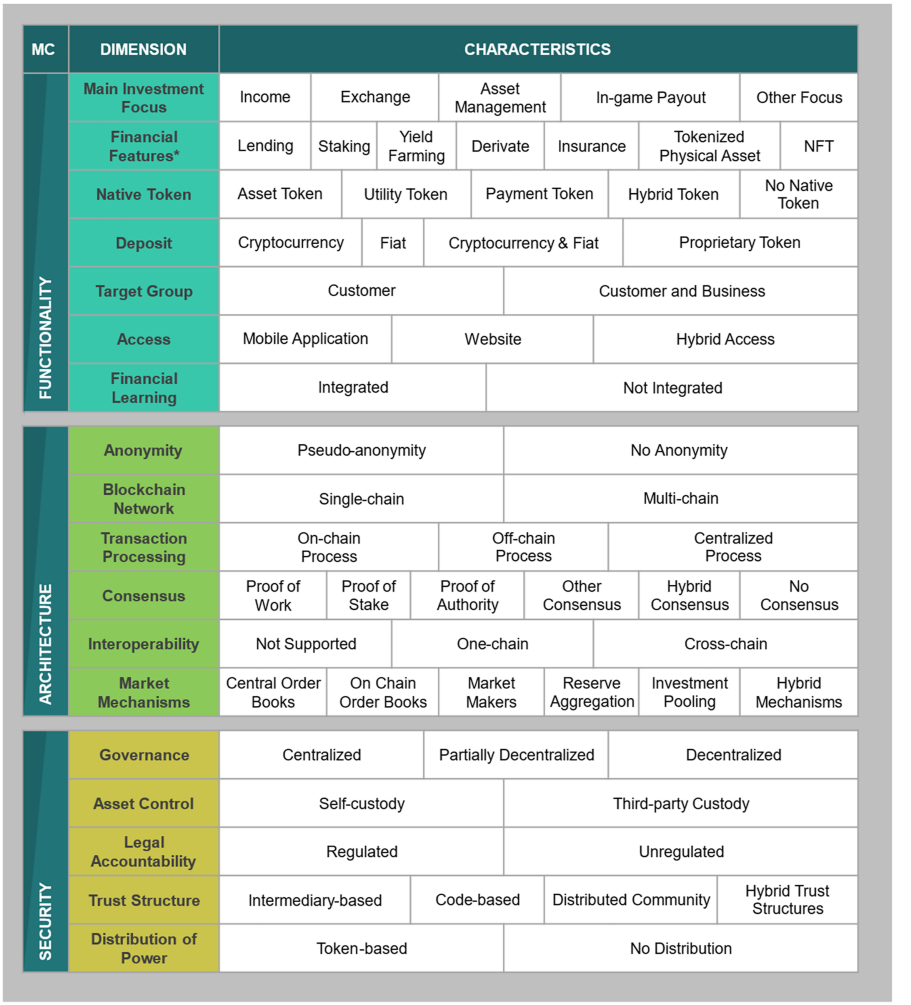
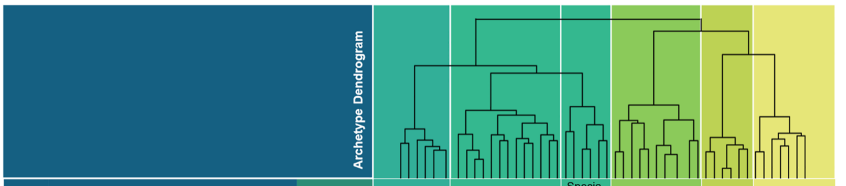


Figure 2. Taxonomy on blockchain-based investment intermediaries. *Source*: Authors own work

essential elements for technology- and institution-based trust. *Anonymity* distinguishes platforms based on the degree of identity obfuscation, ranging from pseudo-anonymity, where identities are partially concealed, to no anonymity (Benedetti, 2021; Perscheid *et al.*, 2020). The *blockchain network* differentiates intermediaries based on whether they use a single-chain, which limits functionality to a specific ecosystem (Meyer *et al.*, 2022; Puschmann and Huang-Sui, 2024), or a multi-chain, which expands transaction options across various blockchains but does not allow full interoperability (Grassi *et al.*, 2022). *Transaction processing* varies among platforms based on whether investments are conducted on-chain (Puschmann and Huang-Sui, 2024), off-chain (Schär, 2021) or through centralized intermediaries without direct blockchain integration (Shah *et al.*, 2023). *Consensus* includes Proof of Work and Proof of Stake for decentralized verification, Proof of Authority for private blockchains, hybrid approaches combining protocols, alternative algorithms under



MC	Dimension	Characteristics	Object Allocation	DeFi Gaming Intermediary	Multi Application Web Intermediary	Specia-lized Staking Web Inter-mediary	Learning-driven Exchange Intermediary	Tokenize d Asset Intermedi ary	Private Investor NFT Marketplace Intermediary
FUNCTIONALITY	Main Investment Focus	Income	10%		8%	33%			
		Exchange	46%		54%	67%	100%		43%
		Asset Management	26%		23%			100%	57%
		In-game Payout	14%	100%					
		Other Focus	4%		15%				
	Financial Features * (*= Dimensions are non-exclusive)	Lending	12%		31%	17%	55%		
		Staking	64%	86%	69%	100%	100%		
		Yield Farming	52%	57%	100%	17%	73%		
		Derivate	24%	14%	31%		64%		
		Insurance	16%		15%	33%	27%	17%	
		Tokenized Physical Asset	12%					100%	
		NFT	50%	100%	15%	17%	55%	33%	100%
	Native Token	Asset Token	12%		8%	67%		17%	
		Utility Token	22%		77%	17%			
		Payment Token	2%				9%		
		Hybrid Token	24%	100%	15%		27%		
		No Native Token	40%			16%	64%	83%	100%
	Deposit	Proprietary Token	2%	14%					
		Cryptocurrency	44%	72%	69%	67%			57%
		Fiat	18%				18%	100%	14%
		Cryptocurrency & Fiat	36%	14%	31%	33%	82%		29%
	Target Group	Customer	68%	100%	85%	83%	18%	33%	100%
		Customer and Business	32%		15%	17%	82%	67%	
	Access	Mobile Application	4%					33%	
		Website	62%	71%	100%	100%	18%		71%
		Hybrid Access	34%	29%			82%	67%	29%
	Financial Learning	Integrated	38%	14%	23%	33%	100%		29%
		Not Integrated	62%	86%	77%	67%		100%	71%
ARCHITECTURE	Anonymity	Pseudo-anonymity	68%	100%	100%	100%	18%		86%
		No Anonymity	32%				82%	100%	14%
	Blockchain Network	Single-chain	44%	86%	23%	33%	18%	100%	43%
		Multi-chain	56%	14%	77%	67%	82%		57%
	Transaction Processing	On-chain Process	64%	100%	77%	67%	27%	50%	71%
		Off-chain Process	22%		23%	33%	18%	33%	29%
		Centralized Process	14%				55%	17%	
	Consensus	Proof of Work	4%				9%	17%	
		Proof of Stake	46%	72%	39%	67%	9%	32%	86%
		Proof of Authority	4%		8%			17%	
		Other Consensus	6%	14%		16%		17%	
		Hybrid Consensus	24%	14%	53%	17%	27%		
		No Consensus	16%				55%	17%	14%
	Interoperability	Not Supported	32%		15%	33%	55%	100%	
		One-chain	40%	100%	39%		27%		71%
		Cross-chain	28%		46%	67%	18%		29%
	Market Mechanisms	Central Order Books	34%				73%	100%	43%
		On Chain Order Books	18%	43%		17%	9%		57%
		Market Makers	18%	14%	62%				
		Reserve Aggregation	2%		8%				
		Investment Pooling	4%		15%				
		Hybrid Mechanisms	24%	43%	15%	83%	18%		
SECURITY	Governance	Centralized	48%				100%	100%	100%
		Partially Decentralized	12%			100%			
		Decentralized	40%	100%	100%				
	Asset Control	Self-custody	66%	100%	92%	100%	18%		86%
		Third-party Custody	34%		8%		82%	100%	14%
	Legal Accountability	Regulated	52%			50%	100%	100%	86%
		Unregulated	48%	100%	100%	50%			14%
	Trust Structure	Intermediary-based	42%				100%	100%	57%
		Code-based	20%	43%	8%	50%			43%
		Distributed Community	12%	14%	23%	33%			
		Hybrid Trust Structures	26%	43%	69%	17%			
	Distribution of Power	Token-based	48%	100%	100%	67%			
		No Distribution	52%			33%	100%	100%	100%

Figure 3. Descriptive analysis with archetypal clustering. *Source*: Authors own work

development and centralized systems without consensus (Benedetti, 2021; Cavallaro and Mathieu, 2024). *Interoperability* categorizes intermediaries by their ability to transfer assets and data (Gramlich *et al.*, 2023), ranging from no interoperability in centralized systems to

seamless cross-chain operability (Chen and Bellavitis, 2020; Ray, 2023). Furthermore, the *market mechanisms* encompass intermediaries within the business logic of transaction processes, including centralized order books managed by intermediaries, on-chain order books that rely entirely on smart contracts for decentralized transactions and market makers utilizing liquidity pools to facilitate exchanges (Schär, 2021). Additional mechanisms include reserve aggregation for optimal pricing, investment pooling for collective returns and hybrid approaches (Shah *et al.*, 2023).

Security: This MC outlines the mechanisms and structures that ensure integrity, accountability and equitable participation within the intermediary platform, particularly related to institutional and technology-based trust. *Governance* differentiates intermediaries based on how decisions are made (Beck *et al.*, 2018), ranging from centralized models controlled by a single entity to partially decentralized systems with shared decision-making, and fully decentralized structures where decentralized autonomous organizations facilitate collective decision-making by the community (Greiner *et al.*, 2025; Shah *et al.*, 2023). *Asset control* differentiates whether investors directly manage their assets through self-custody via wallets and smart contracts or relinquish control to intermediaries, resulting in centralized management and increased vulnerability (Alamsyah and Muhammad, 2024). When it comes to *legal accountability*, intermediaries can be regulated, adhering to licensing guidelines such as Virtual Asset Service Provider License (VASP) and Markets in Crypto-Assets Regulation (MiCA) (Ferreira and Sandner, 2021), or unregulated, where platforms operate outside direct regulatory oversight (Heimburg and Wiesche, 2023). The *trust structure* categorizes platforms' foundation of user trust, including intermediary-based trust in central entities, code established through smart contract transparency, distributed community trust managed by decentralized communities and hybrid structures (Kölbel *et al.*, 2022). Furthermore, the *distribution of power* distinguishes between token-based and no distribution (Perscheid *et al.*, 2020).

4.2 Intermediary archetypes

Figure 3 provides an overview of the descriptive analysis and the cluster dendrogram, illustrating six resulting clusters from the algorithmic approach. Data from 50 intermediaries were collected and categorized along the taxonomy dimensions. The value distribution of each cluster is shown in the subsequent table and addresses RQ2. Finally, Figure 4 presents the archetypes with brief descriptions, highlighting the current intermediary market relevant for private investments.

The *DeFi Gaming Intermediary* focuses on in-game payouts with NFTs, as well as features primarily related to staking and exchanging. Intermediary access is provided through web-based or multi-channel, targeting a shared customer group. Intermediaries implement native tokens for multiple purposes (e.g. AAVEGOTCHi). The architecture recognizes interoperability, on-chain transaction processing and pseudo-anonymity. For security, decentralized governance involves decision rights and power distribution, paired with an unregulated environment and asset control through self-custody.

The second cluster is defined as *Multi Application Web Intermediary* and unites around a main focus on primary exchange. The archetype includes the shared functionality of yield farming (e.g. Yearn) and web-based access. However, most platforms also offer staking or derivatives. The user base mainly consists of private investors, but corporate clients for capital allocation are also included. Most intermediaries implement a multi-blockchain architecture. Transaction processing occurs both on and off-chain, with pseudo-anonymity for users. Platform governance is based on decentralized decision-making with token-based power distribution. Regulation is typically absent, and trust is provided through a combination of intermediaries, code or distributed communities.

The *Specialized Staking Web Intermediary* is characterized by offering staking options (e.g. liquid staking on Lido). The focus is on income generation as these intermediaries are highly

Figure 4. Archetypes for blockchain-based investment intermediaries. *Source*: Authors own work

specialized. The typical target audience consists of customers with web-based access, though options for businesses may also exist. Most platforms implement native tokens, but there are few learning opportunities, as these intermediaries usually cater to experts rather than new users. This is accompanied by self-custody asset control and partial decentralized governance, where users have limited decision-making rights.

The objects of the *Learning-driven Exchange Intermediary* combine the main focus on exchange functions with the provision of staking options. Financial features such as lending, yield farming, derivatives, insurance or NFTs may also be integrated. As these exchanges often operate as major players and serve as primary entry points for beginners, they are predominantly offered across multiple channels, including smartphone apps and web-based platforms (e.g. Binance). In most cases, businesses are also addressed in the target group.

Typically, these intermediaries do not implement native tokens. However, a key functionality is the availability of financial education resources, as these platforms are prominent spots for new users. The governance is centralized, with no implemented power distribution or decision-making rights for users, and operating in regulated environments. The intermediary itself ensures trust, while third-party services primarily handle asset control.

The *Tokenized Asset Intermediary* is characterized by its focus on asset management and the implementation of tokenized physical assets (e.g. Timeless). Both private customers and business investors are part of the target audience with mixed access. Deposits are typically made via fiat currency transfer. Most intermediaries within this archetype do not offer native tokens and generally do not provide financial learning opportunities. They often operate on a single blockchain without interoperability or user anonymity. In terms of market mechanisms, they integrate centralized order books. Governance is based on a centrally conceived model with no power distribution. Asset control is handled by third-party solutions, while an intermediary establishes trust.

The *Private Investor NFT Marketplace Intermediary* archetype entails NFT marketplaces (e.g. OpenSea), which are distinguished by their prominent shared feature of NFTs. The primary focus may be on exchange or asset management functions. The target group comprises private investors who can access the platform via web or apps. Deposits can be made using both fiat and cryptocurrencies. These platforms do not integrate native tokens, although some intermediaries provide learning opportunities. Most platforms utilize a multi-blockchain architecture with on-chain transaction processing. They ensure either one-chain or cross-chain interoperability. Governance follows a centralized model without power distribution among users. The environment is regulated, and the trust structure is based on either code or centralized intermediaries. In most cases, asset control is conducted via self-custody.

4.3 Evaluation

The survey with 115 participants provided feedback on the entire *taxonomy*, the *MCs* and the *archetypes*. Measurement tools from Sonnenberg and Vom Brocke (2012) were used (see Figure 2). The results show a high level of agreement with the research findings, although differences between the MCs are noticeable:

(1) The *Entire Taxonomy* achieved the highest average agreement (5.61 on a 7-point Likert scale), reflecting its clarity, accessibility and comprehensiveness. Participants appreciated its ability to effectively organize complex financial processes. However, qualitative feedback highlighted opportunities to simplify overly detailed elements, which seem to be a typical limitation of comprehensive taxonomies.

(2) *MCs: Functionality* aligns with practical applications. Participants found the taxonomy's usability and operational applicability favorable, but suggestions included improving the balance between functionality and simplicity for broader adoption. This can be underlined as it "provides sufficient transparency and ease to navigate and build a good portfolio and accessibility" (I19). Nevertheless, some also mentioned that it might be congested (I97) or that the layout might not be easy to read for non-scientific experts (I88, I98).

Architecture's feedback emphasized feasibility and operational applicability, with conceptual clarity identified as an area for improvement. Some participants noted the complexity (I3, I7, I8), while others praised "the design is understandable and is not multi-layered in terms of the dimensions, make it understandable too" (I15). One participant commented that the MC "breaks down the technical backbone of blockchain platforms" (I27). From this, we can deduce that granularity is important, but users' understanding still needs to be sharpened.

The *Security* dimension (5.61) was reckoned for its clear structure and accessibility, reflecting participants' strong emphasis on effective risk management frameworks.

Suggestions included refining detailed elements to better align with regulatory and industry-specific needs (I68). Qualitative feedback highlighted that this MC "helps users and stakeholders better understand security features and risks" (I100). Additionally, it enables a "comprehensive assessment of security measures, facilitating the identification of vulnerabilities and areas for improvement" (I101). This shows a higher added value for technology-based trust mechanisms.

(3) *Archetypes* garnered strong support, with an average agreement of 87.6% based on cumulative responses ("Somewhat Agree," "Agree" and "Strongly Agree"). Participants endorsed their relevance and feasibility across various decision-making scenarios. The ability of the archetypes to operationalize abstract elements of the taxonomy was particularly appreciated. Statements such as "very clear" (I13, I34, I38) and "very applicable" (I13) confirm this. Furthermore, the "brief, straight-to-the-point explanations make everything well-rounded" (I38). One participant commented, "The various archetypes are revealing and easy to understand, allowing me to get the entire overview" (I111), which is particularly interesting for diversification and market transparency.

In summary, the taxonomy received broad approval across all dimensions and derived archetypes. Results highlight its clarity, accessibility and applicability while identifying potential improvement areas, particularly in simplification and design. This information proves crucial in providing newcomers to the market with the necessary knowledge and transparency.

5. Discussion

The adoption of blockchain technology in the Internet market is predominantly driven by the transparency and comprehensibility of the numerous blockchain-based investment opportunities while acknowledging trust as a fundamental element in the context of digital platforms and transactions (Gan and Lau, 2024; Jalan *et al.*, 2023; Sas and Khairuddin, 2017). Consequently, market transparency should be created (Zeiss *et al.*, 2024), while intermediary platforms must provide secure and reliable environments to protect users from potential fraud and technical vulnerabilities (Voskobojnikov *et al.*, 2021). In this context, trust not only needs to be established but also consistently reinforced. This requires a clear orientation that supports trust-building efforts and provides a structured understanding of the dynamics within blockchain ecosystems. While our taxonomy offers a comprehensive context for understanding blockchain intermediaries, its connection to trust is deeply embedded in its various dimensions. The archetypes derived from the taxonomy highlight specific characteristics that have become dominant in blockchain-based investments, fostering market transparency. The results provide a clear overview of the current investment landscape within the DeFi market, fostering a more comprehensible and accessible investment environment.

Theoretical implications: Our research sheds light on societal transformation and hence innovation diffusion in investments, exemplified by the increasing role of intermediaries (Zeiβ *et al.*, 2024). Through web technologies, these intermediaries facilitate broader public access, thereby promoting the democratization of finance (Gramlich *et al.*, 2023). Emphasizing technology-based and institution-based trust, our taxonomy presents relevant elements, particularly in the dimensions of architecture and security, which are pertinent in the scientific discourse on blockchain trust. Our taxonomy incorporates regulatory aspects (legal accountability) within institution-based trust, and several dimensions concerning technology-based trust (e.g. consensus, governance).

A thorough examination reveals a discernible interconnection between the identified dimensions within the taxonomy and the core components of Mayer's trust theory – *ability, integrity, benevolence* – thereby underpinning its contribution to well-established trust

principles (Mayer *et al.*, 1995). This connection is demonstrated by including market mechanisms and transaction processing, which reflect ability through their emphasis on system reliability and technical competence. Moreover, governance and legal accountability illustrate integrity through transparent and consistent rule enforcement. Benevolence is indicated by financial learning and access, which enable user-centered design and foster inclusive access. Concerning trust transfer theory, the transfer of trust from a known object, perceived as reliable, to a new, initially unknown object is possible (Cao *et al.*, 2018). However, for such a transfer to occur, a certain level of initial trust must first be established. Our work aims to foster the construction of this initial trust, which serves as the foundation for further trust development and enables its transfer to new blockchain-based intermediaries. Strengthening initial trust not only facilitates trust transfer but also increases adoption readiness and lowers barriers to market entry.

While much of the existing literature focuses on trust-building mechanisms, the concept of trust-free systems offers a complementary perspective, particularly relevant in blockchain-based environments (Hawlitschek *et al.*, 2018). These systems aim to minimize reliance on interpersonal or institutional trust by embedding trust directly into technological protocols. Rather than depending on a trusted third party, users rely on the verifiability and immutability of code and distributed architectures. Nevertheless, blockchain-based platforms need to be aware that blockchain technology, in and of itself, cannot create an environment that eliminates the need to build trust outside of the closed blockchain ecosystem (Hawlitschek *et al.*, 2018). This underscores the notion that, while technology-driven trust is imperative, it is insufficient in isolation. To fully leverage the advantages of trust-free blockchain-based platforms, researchers and practitioners must develop approaches to overcome the trust frontier between closed technical systems and the complex realities of the physical world. The mainstream diffusion of blockchain investing will remain stalled until both institutional safeguards (e.g. clear regulation and insured custodians) and user-centric, reliable interfaces co-elevate institutional and technology-based trust, thereby restoring the DOI attributes of compatibility, relative advantage and trialability essential for mass adoption (Rogers *et al.*, 2014).

Although the initial aim of this study was to serve as a foundation for analyzing the intermediary market within the DeFi network and identifying conceptual discrepancies, the evaluation and survey feedback demonstrated that it covers a far broader spectrum of research on information systems and the internet. Additionally, the survey results indicate that the findings of this study contribute to investment decision-making, financial risk analysis, and the accessibility of intermediaries via the internet (I19, I36, I97). Participants viewed it not merely as an analytical framework but as a practical tool that could support investment decision-making and financial risk assessment (I19, I36, I97). While the taxonomy was not initially designed for these purposes, this feedback highlights its perceived scientific and practical value for the mentioned areas. However, we also contribute to the following fields, which are briefly summarized. We recognize the importance of ethical accountability and power distribution in digital ecosystems (Derave *et al.*, 2024; Heimburg and Wiesche, 2023) by examining governance structures and asset control. By systemizing the financial features of intermediaries, this research supports economic transformation, focusing on value creation and resource allocation in investment markets (Chen and Bellavitis, 2020; Hartwich *et al.*, 2024; Lee *et al.*, 2024). Finally, the results foster the expansion of internet-related policy research and support policy implications by analyzing intermediaries that are not centrally regulated (Ferreira and Sandner, 2021; Gramlich *et al.*, 2023) and digital platforms (Heimburg and Wiesche, 2023).

Practical implications: As blockchain technology and online applications disrupt traditional financial systems (Cai, 2018), trust becomes an indispensable tool for intermediaries to attract new private investors and deepen user engagement (Glomann *et al.*, 2019; Rehman *et al.*, 2020). It functions as a distinctive value proposition for a platform, as reliable and secure web applications can help differentiate themselves from other

intermediaries by giving users a sense of security and increasing user confidence, thereby enhancing the overall value of the platform (Lee *et al.*, 2024). Utilizing appropriate tools that underscore pertinent components of trust within the design can favor the adoption process (Voskobojnikov *et al.*, 2021). The taxonomy provides a framework for intermediaries to emphasize the relevant trust factors of blockchain platforms that exert influence on the trustor.

Additionally, for intermediaries, the taxonomy and archetypes offer critical factors for benchmarking, providing developers with a foundation for pre-planning platforms or reference points for strategic development. Intermediary platform developers (Zeiβ *et al.*, 2024) must recognize the findings and derive features to secure trust and ensure broad access to intermediary platforms and the crypto ecosystem (Rehman *et al.*, 2020). The intermediary must communicate and visualize the trust-relevant topics from the taxonomy to be perceived as trustworthy by the trustor and to enable a trust relationship. This involves adapting strategies and developing features focused on the taxonomy dimensions of functionality, architecture and security, such as financial features, decentralized decision-making in governance or targeted outreach to specific user groups. To strengthen the institutional-based trust of intermediaries in their relationships with private investors, intermediaries should properly implement laws, rules and regulations (such as MiCA or VASP) and thereby transparently demonstrate the implementation of trust mechanisms to users. To fortify their long-term standing, intermediaries must, in contrast to the unregulated nature of blockchain-based investments, address the issue of institution-based trust and proactively establish support structures, initiate them or demand them from the relevant authorities.

However, the visualization of the trust elements and implementation alone is insufficient. In the short term, new market entrants must provide active guidance and support trust-building structures (Glomann *et al.*, 2019) and foster safety nets for exchanges (Voskobojnikov *et al.*, 2021). In the long term, society needs to create sustainable and impartial learning opportunities that make it easier for the general public to understand the basics of blockchain-based intermediary platforms, as users often struggle to fully understand the information and the safeguards put in place. Since financial education and literacy programs in the crypto sector lag behind its developments, intermediaries primarily need to expand their educational offerings to reach a broader audience and build trust among the general public (Jalan *et al.*, 2023; Litterscheidt and Streich, 2020). Based on its characteristics, the Learning-driven Exchange intermediary is particularly relevant for widespread acceptance. The findings also offer new insights into diversification and portfolio management, which are fundamental in finance and must be communicated to private investors (Król and Zdonek, 2022). Intermediaries can select from the developed archetypes tailored to their specific functional, architectural and security-related requirements. The derived archetypes offer clear insights into the diversity of blockchain intermediaries, enabling investors to match platforms to their individual risk profiles, investment goals and technical preferences. In line with this, the taxonomy dimensions serve as a practical checklist when evaluating DeFi platforms. Investors should ask whether a platform offers regulated custody, supports self-custody or provides decentralized governance mechanisms.

6. Conclusion

Although it remains uncertain whether blockchain-based investments will reach full market penetration, it is crucial to continuously assess the transparency of the evolving landscape of financial intermediaries. This study addresses this challenge by developing a taxonomy that enhances the understanding of blockchain-based financial intermediaries and manages the complexity of DeFi adoption within the context of trust. In doing so, characteristics related to institution-based and technology-based trust are analyzed, particularly considering the digital realities in the cryptocurrency sector. Following the DOI theory, our findings underscore the interplay of technology and a user-centered perspective in the context of adoption. By classifying 50 real-world intermediaries, six archetypes were derived (e.g. specialized

staking web intermediary). The findings highlight crypto-based investments and differentiate DeFi intermediaries based on functionality, architecture and security. Trust is positioned as both an outcome and a driver for the success of blockchain-based intermediaries.

While the taxonomy and archetypes provide valuable insights, they represent a time-specific snapshot and are therefore inherently limited in scope and completeness (Hartwich *et al.*, 2024; Herm *et al.*, 2022). We encountered various limitations during the data collection process, which we addressed by employing a combination of qualitative and quantitative methods. This approach entailed the utilization of diverse databases for literature searches and the coding of interviews. The archetypes and clusters are based on platform classifications. To ensure robustness, a multi-level process was employed for platform selection, and classification was conducted collaboratively within the team to ensure high data quality. This study emphasizes these aspects by employing various methods and approaches recognized in IS research. Future research should build upon these findings, focusing on developing risk assessment tools for private investors, decision support structures and enhancing trust in intermediaries. Additionally, financial education about crypto opportunities should be analyzed and expanded. The taxonomy dimensions should be examined for options to operationalize trust-building measures, considering not only technical but also socio-psychological barriers.

Blockchain-based investments are still relatively new, and public acceptance remains low. However, the results point to a paradigm shift in which trust is no longer solely dependent on technological robustness but also user-centric design and accessibility. This is particularly relevant for beginners, who require precise and trustworthy guidelines to navigate blockchain-based investments effectively. The information systems community must provide support, as well as neutral and expert advice. To this end, it is essential to establish a solid foundation alongside the banking sector and develop confidence-inspiring financial instruments to facilitate the adoption and further development of DeFi.

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