Superapps: At the crossroads of enhanced customer experience and innovation management theories

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Abstract: This study focuses on one of the most notable digital innovations in recent times - the SuperApps, which synergically combine customer service, mobile usability, and integrated service offerings. Utilizing a comprehensive review of existing literature, this research explores the concept of the SuperApp, evaluates the feasibility of establishing a ranking system for SuperApps, and constructs a definitive top ten list of leading applications. Following this, the research advances to a primary investigative task, which entails a thorough analysis of academic sources to assemble and define the essential attributes that define a SuperApp, specifically revealing what essential features distinguish a mobile application as a SuperApp. To achieve these objectives, the study rigorously processes scientific articles available in the Scopus and Web of Science database, aiming to enhance the academic understanding and categorization of SuperApps within the digital technology domain. Using a bibliometric mapping methodology, which involves analysing keyword occurrences through VOSViewer, the conducted research identifies a notable academic gap in Scopus- and Web of Science-indexed documents. The analysis indicates that despite the prevalence of recent articles and academic texts, the defining characteristics of a SuperApp (commonly referred to as 'Super-App' in Scopus-indexed scholarly literature) remain inadequately explored and understood. This gap underscores the need for further empirical research to clarify the features and implications of SuperApps. Such research could enrich the body of knowledge in the above-described documents, contributing to a more comprehensive understanding in the field. Based on experiences with Scopus and Web of Science by selecting some of the most cited articles from Google Scholar, this study has compiled a six-element list that encapsulates the most crucial characteristics of SuperApps. These fundamental features are then briefly analysed and presented, linked to some of the most impactful innovation management theories linked to SuperApp concepts also presented. This offers a comprehensive understanding of their significance and functionality within the SuperApp framework.

Keywords: Customer experiences, Innovation theories, SuperApp features, SuperApp, Super-App, Top SuperApps,

1. Introduction

The usage of mobile applications has reached astonishing levels worldwide. The ability to equip our phones with an increasing array of functionalities, such as camera or lighting controls, is attributable to the availability of applications on mobile devices.

The spread of applications, facilitated by increasingly affordable smartphones, data plans, and expanding coverage, fundamentally stems from a favourable confluence of three driving factors and one resultant factor: a) the decreasing cost of phones and data plans coupled with expanding coverage, b) the decreasing cost of mobile application development, and c) the consequent migration of numerous personal and corporate functions to mobile phones. As of

2023, there are 8.93 million mobile applications globally, downloaded a total of 255 billion times [1]. Considering there are 7.21 billion smartphones worldwide, owned by 4.88 billion users, this implies that, on average, a user downloads the same application 32 times onto one of their phones. The typical user possesses 40 applications on their smartphone, utilizing 9-10 daily and 30 each month [2]. By 2025, mobile applications are projected to generate a revenue of $613 billion, placing this market roughly around the total country GDP values forecasted by the IMF for Argentina ($604.26 billion USD) and Ireland ($564.2 billion USD) for 2024 [3].

With the extensive usage and broad applicability of mobile applications, there arises a fundamental inquiry into the methods through which both customers and service providers can streamline their activities and engagements. This inquiry has been addressed through the conceptualization of the term "SuperApp." The term "SuperApp," as described back to 2021 by Roa et al. [4] refers to different mobile applications designed to meet various daily consumer needs within a single platform, eliminating the necessity for users to download multiple apps.

As the scholarly discourse regarding SuperApps remains relatively limited, this paper will employ publicly accessible resources also to compile data concerning its principal research topics. The available hits to SuperApps using the search keywords 'superapp*' or 'super-app*' are as follows (as of 28th April 2024):

Table 1.
SuperApp keyword search results, based on data from Google Scholar, Scopus and WoS.

Source / Search	Superapp*	Super-App*
Google Scholar	4 360	3680
Scopus	37	110
Web of Science	42	159

The scarcity of academic literature on SuperApps suggests that this area remains largely uncharted, presenting extensive opportunities for in-depth exploration and scholarly inquiry. The relatively limited number of existing studies underscores the need for additional research to comprehensively understand the complexities and implications of SuperApps in various contexts. This gap in academic knowledge signifies a wide-open terrain for researchers to delve into, offering possibilities for uncovering new insights, analysing trends, and advancing theoretical frameworks. As such, the field of SuperApps presents an excellent ground for scholars to expand their investigations, contribute to knowledge accumulation, and propel the discourse forward, ultimately enriching our understanding of this emerging phenomenon in the digital landscape. Today's fast-changing world demands and requires these project-based initiatives [5][6], which have the potential to innovate and shape the future. They are of paramount importance at both individual and corporate level [7][8][9][10][11].

This paper has been crafted with three main objectives. Within the rapidly changing domain of digitalization, the work presents a brief historical overview derived from an in-depth analysis of recent academic literature. It aims to depict the current market situation of mobile applications known as 'SuperApps', exploring their usage patterns, the prevailing customer needs, and how these needs are addressed. Using bibliometric analysis as a primary research method, this study seeks to answer critical questions about the key attributes and defining features of a SuperApp. Additionally, it investigates the challenges faced by users and outlines potential future directions for the development of SuperApps, considering ongoing market and technological changes. This research aims to deepen our comprehension of SuperApps and to

contribute to the broader discussion on digital innovation and user engagement in the mobile technology arena.

2. Global landscape of Superapps

The first SuperApp is considered to be WeChat [12]. Based on the Google Scholar searched performed on 27th April, there is 3 080 000 hits for the keyword 'wechat", which is a reasonable high number, even comparing to the most popular social media applications or some specific usage applications. By author's own search the below table shows the Google Scholar hits performed in April 2024:

Table 2.
SuperApp keyword search results, based on data from Google Scholar.

Keyword	Google Scholar search results
facebook	7 530 000
instagram	4 830 000
wechat	3 080 000
revolut	35 200
waze	23 900
alipay	22 200

Based on recent information WeChat is the one of the five apps worldwide that has more than one billion active users [13]. There are several different views how different SuperApps can be ranked, however, to gain insights of the evolution and different significant features of the topics, there is a need to have a discrete list.

When discussing financial performance metrics, particularly in the context of fintech services and agent operations, obtaining and verifying precise figures can be challenging. For example, various sources report that WeChat generated approximately $16.38 billion in annual revenue in 2023. In contrast, AliPay, a subsidiary of Alibaba, reportedly handled about $280 billion in transactional revenue in 2022. This figure significantly surpasses that of WeChat. However, since this represents the total value of transactions processed and not the direct revenue to AliPay, the exact value added to the company remains uncertain.

Based on the recently collected list the ranking is structured according to the number of active users of the given application. It is essential to acknowledge that the origins of data pertaining to active users are diverse, encompassing corporate databases, academic literature, and various statistical or professional websites. As illustrated by the examples provided below, it can be stated that these figures can vary significantly, even among academic sources. For instance, there is widespread information suggesting that PhonePe has approximately 350 million active users; however, the company has not officially published such data. Contrastingly, a 2023 academic paper reports only 165 million active users. Moreover, discrepancies can also be observed between academic sources themselves. For example, Neethu (2023) documents only 58 million active users for PayTM [18], while another scholarly work cites Das (2023), who reports 90 million active users [19]. As of April 2024, based on the available data (see date of information in Table 3), it takes a minimum of 30 million activities user to get into the TOP10 of global SuperApps.

Table 3.
SuperApp ranking based on number of users, based on data from above indicated sources.

Name	Active users (Million)	Source
WeChat	1 330	2023, [13]
Alipay	1 300	2023, [14]
PhonePe	350	2023, [19]
Uber	150	2023, [17]
Tata Neu	120	2022, [20]
Paytm	58-90	2023, [18], [19]
Gojek	38	2024, [21]
Grab	35	2023, [22]
Rappi	30	2022, [15]
Revolut	30	2023, [16]

Numerous studies have addressed the emergence of SuperApps, as evidenced by Table 1, which shows that WeChat, the pioneer and currently the largest in terms of user base, has the most extensive literature. Due to the objectives set forth in this work and for reasons of scope, this study does not explore the reasons behind the development of SuperApps, nor the innovative evolutionary path through which existing mobile applications have transformed into SuperApps or were initially launched with the intention of becoming SuperApps.

3. Research Methodolgy

Utilizing Scopus and Web of Science for keyword searches related to Super Apps, searches were conducted in Scopus as follows:

a) TITLE-ABS-KEY (superapp*) and
b) TITLE-ABS-KEY (super-app*)

The search for "superapp*" yielded 37 documents, whereas the search for "super-app*" returned 110 documents. Although verifying terminology usage was not the primary objective of this research, the findings from the Scopus searches demonstrate that the term "super-app" is more prevalently used in academic literature.

The data processing methodology adhered to a rigorous protocol outlined as follows:

1. A comprehensive search was conducted using the Scopus and Web of Science (WoS) databases, with all documents subsequently exported into. ris and .csv formats.
2. A Network Visualization Map was created using VOSviewer, with the textual data serving as the basis for the map. The data sources for this were the files sourced from Scopus and WoS as described in point 1.
3. For term abstraction, titles and abstracts of the documents were utilized, excluding structured abstract labels and copyright statements.
4. The counting methodology employed was Full Counting.
5. A threshold for the minimum occurrences of a term was initially set at 10, and subsequently adjusted to 5. Further details are provided following the description of the methodology.
6. The selection of terms for display was based on a relevance score, initially set at 60%

Table 4.
VOSViewer keyword occurrence network mapping procedure information – Scopus and WoS.

Scopus	Super-App*	Superapp*
Found terms	3 011	406
Occurrences of terms = 10	37	**7**
Occurrences of terms = 5	136	**7**
relevance score set to 60%	82	4
Manual reset to review	100	7
Web of Science		
Found Terms	3 531	618
Occurrences of terms = 10	40	9
Occurrences of terms = 5	147	33
relevance score set to 60%	88	20
Manual reset to review	100	33

3.1. Results for Super-App Search

The For super-app* results in Scopus and WoS sourced papers, after the bibliographic search and advanced keyword search methodology all the 2x100 results have been manually reviewed. As feature the following keywords have been identified in the list, which are only represented in Scopus based list, there has been no relevant expression found in the 100 items within WoS sourced paper:

Table 5.
VOSViewer keyword occurrence network mapping result for "super-app* Scopus documents.

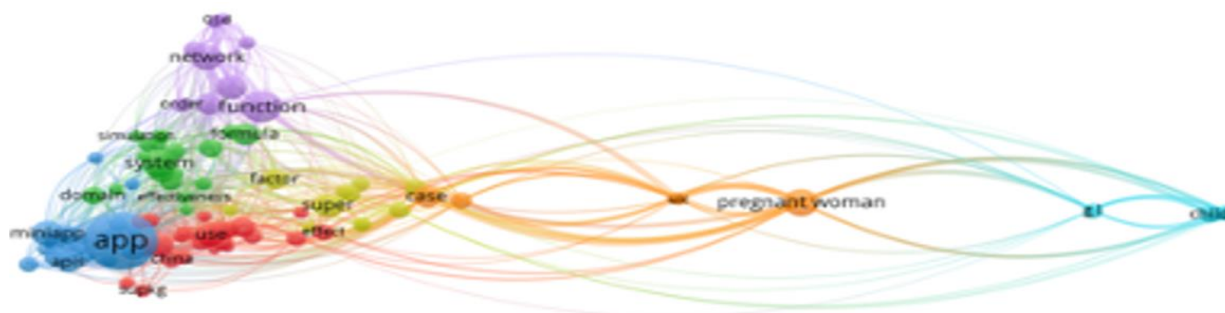| Word	Rank	No of occurrence
Security	23.	14
Digital wallet	95.	5
Digital transformation	96.	6

Figure 1.
VOSviewer: Network visualisation map on keyword occurrence based on scopus search documents for super-app*.

3.2. Results for Superapp Search

For "superapp*" search results, after the bibliographic search and advanced keyword search methodology showed altogether 7 results for Scopus based papers and 33 results for WoS based papers which have been manually reviewed. There has been no keyword identified for a feature for SuperApps from 2.2.
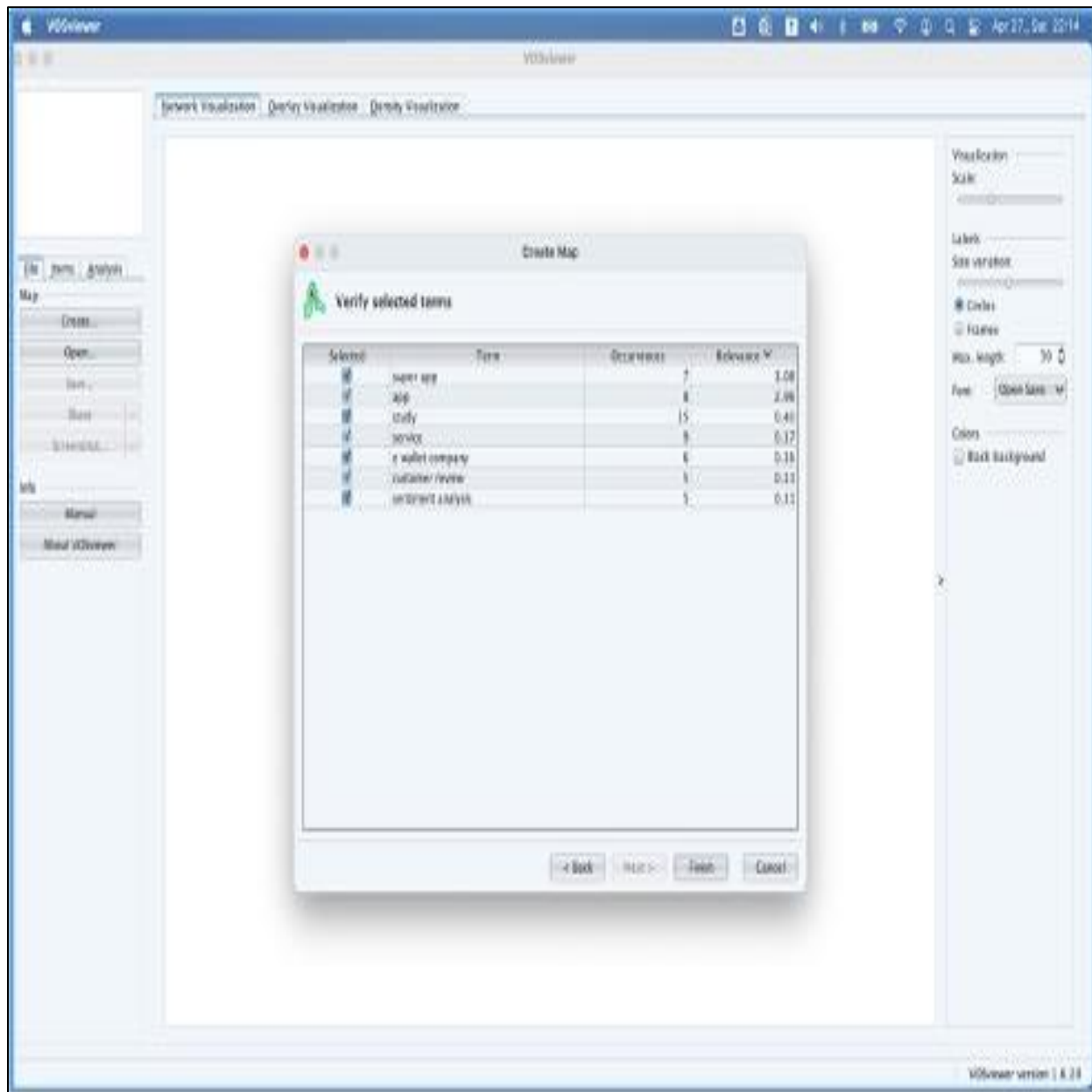

Figure 2.
VOS Viewer: Keywords for creating bibliometric mapping on keywords occurrence based on Scopus Search documents for superapp*.

4. Findings

Based on the keyword occurrence analysis using VOSViewer Software analysing Scopus and Web of Science databases for titles and articles it can be revealed that based on the bibliographic analysis the reviews and existing papers in this academic field has not yet achieved a status where the most important features can be identified with such methodology.

Considering that the examination of articles found in Scopus and in WoS did not contribute to the original objective of the research, specifically to establish what constitutes a SuperApp and what makes a mobile application a SuperApp, the study shifted focus towards analysing articles on similar topics from Google Scholar. After conducting the above analysis based on findings from prestigious scientific databases, an extensive review of highly cited academic articles in Google Scholar was undertaken. This comprehensive evaluation involved the detailed reading and annotation of approximately 30 articles. From this thorough examination, six principal characteristics emerged as essential criteria that define and elevate a mobile application to SuperApp status. These characteristics were systematically identified to provide a deeper understanding of what distinguishes a SuperApp from other mobile applications in the dynamic landscape of digital technology.
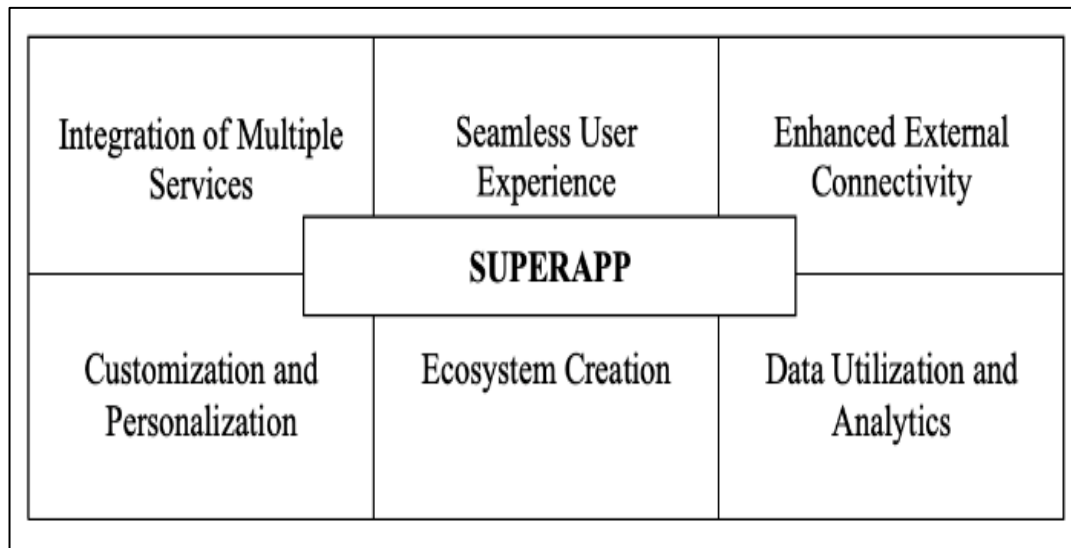

Figure 3.
Six foundational features of SuperApps, based on data from the below indicated sources.

4.1. Integration of Multiple Services

The fundamental essence of a SuperApp is the provision of various services through a single mobile application [23]. Typically, various other services are developed in connection with some form of transactional service activity [24]. This original core activity may involve social media communication (as with WeChat), merchandise sales (as with AliPay), or transportation services (as with Uber). This inherently has significant implications for user experience, particularly in terms of single sign-on, security, data storage, and manageability [25]. If not deriving from the base offering, financial services, typically enabled through FinTech technology within or at the core of the SuperApp, are fundamentally identified as one of the essential service offerings in the base content of most Super Apps [26], [27].

4.2. Seamless User Experience

One of the major advantages of mobile applications from the user's perspective, compared to computers, is their quick, simple usability and intuitive operation. Regarding the enhancement of customer experience, SuperApps display numerous different functionalities within a visible framework, which users particularly appreciate [28]. Within the given framework, users typically need to authenticate only once. The user management is centralized and unified, allowing for the seamless integration of existing data and information (such as billing data, shipping addresses, and bank card details). This significantly contributes to the simplicity and speed of using various services. [29].

4.3. Enhanced External Connectivity

One of the key objectives of SuperApps is to attract as many active users as possible and bind them with a comprehensive service portfolio, ideally for the long term. A crucial strategy to achieve this is the continuous development of functionalities within the mobile application, sometimes by partnering with external entities or allowing them access to data [30]. This strategy is also supported by the use of standard data transmission interfaces, such as APIs (Application Programming Interfaces) [31].

4.4. Customization and Personalization

The various services available on mobile devices, individual and unique settings, and often even the customization of the screen display interface, are increasingly seen as fundamental demands by users. The simpler, more comfortable, visually appealing, and customizable an application is, the more likely its users are to return and potentially promote its good reputation, particularly in the case of SuperApps [32]. The ability to customize and create unique user experiences not only meets the demands of users but also provides valuable feedback opportunities for the owners and operators of SuperApps [33]. These benefits are discussed in more detail in Point 6) under Data Utilization and Analytics.

4.5. Ecosystem Creation

As previously demonstrated, one of the hallmarks of SuperApps is the multitude of diverse functions and services offered on a common platform. Often, even among the top 10 SuperApp platforms, services provided from a single interface or application framework involve not only internal providers but also external partners available to users [34]. The majority of SuperApps, which offer some basic services such as part or all financial transactions through an external connected provider (e.g., UBER), underscore the importance of ecosystem building. The more reliable, reputable, and successfully customer-serving ecosystem network a SuperApp has, the more efficiently it can operate and increase both its traffic and active customer base. Naturally, a SuperApp ecosystem comprises not only internal or external service providers and employees but also regulatory authorities - since usually those are companies that provide global, transnational services. Additionally, various other partners and the users themselves, who are organized into communities, form a crucial part of ensuring their long-term app engagement. As previously mentioned, the world's first and still largest SuperApp, WeChat, began as a messaging application, with KakaoTalk also serving as an excellent example of this evolution [35].

4.6. Data Utilization and Analytics

"Data is the new gold," a saying that holds particularly true in the world of SuperApps. This realm is characterized by unified customer management, an expanding service portfolio, consolidated databases, and the exponentially increasing volume of data arriving continuously and online. This environment not only facilitates online and real-time analysis but also allows for immediate interventions based on analytical outcomes and specific intentions [36]. Fundamentally, these data processing and management practices aim to provide customers with faster, better, and more customizable service, thereby enhancing the service quality of the SuperApp and establishing directions for development [37]. To illustrate with a simple example, if a bank card routinely used in Budapest is suddenly employed for multiple consecutive transactions on another continent, algorithms like those of Revolut would trigger an alert, notifying the

user and requesting verification that they are indeed using the card. However, the data and information continuously collected by SuperApps enable analyses of unprecedented depth regarding individual user behaviours and specifically their personal characteristics and habits. Such extensive data utilization thus raises significant concerns regarding user security and data privacy [38].

5. Innovation Theories Within Superapp Concept

Examining the nature, the development of SuperApps and overviewing the above six fundamental features several innovation management theories can be identified within. Classic SuperApps, such as WeChat, Alipay or Uber, began with a defined core functionality and subsequently included extended services [39]. These applications exemplify the use of Disruptive Innovation, providing compact and excellent customer experiences, creating new value chains and disrupting traditional players in various sectors, including social media, finance and transportation [40]. In addition, the majority of SuperApps are typically reliant upon Open Innovation, whereby third-party services and offerings are offered and integrated [41][42]. The utilisation of internal innovation results and customer reach, with subsequent expansion to external use and opportunities, is exemplified by the WeChat ecosystem [43].

Furthermore, the ability to innovate a Business Model is a key factor in the success of SuperApps. These companies have achieved remarkable results by developing new business models, offering unique combined services under one brand [44], and utilising novel approaches to customer acquisition and retention, such as freemium models or adaptive and demand-based pricing [45]. One of the SuperApps' greatest strengths is their ability to leverage their extra capabilities and market-leading practice of user-centric design and experience innovation [46].

As a company that is second to none in its ability to grab and retain the attention of customers, SuperApps is investing heavily in the continuous improvement of the designs and usability of its applications. The existence of Technology Acceptance Model is clearly evident in the case of the introduction of such an innovative approach as SuperApps offers its users to manage everyday tasks in a digitalised, seamless way [47], [48]. Value co-creation, as an innovation theory, can also be observed within SuperApps ecosystems, where users and its partners are allowed and motivated to interact, transact and cooperate within the given application, offering additional values on every level of usage [49], [50]. Overall, as can be seen from the compact summary, SuperApps use several different elements of innovation theory, mostly focusing on specific features, to create a winning and future-proof combination of customer service.

6. Conclusion

The research helped to define the concept of a SuperApp and provided a current overview of the world of SuperApps, ranking the top ten innovative digital solutions within this category. Based on the study, it can be determined that while the proliferation and significance of SuperApps are undeniable, their exploration in highly rated (Scopus-indexed and Web of Science-indexed) academic works remains relatively infrequent as a subject of study. The field of SuperApps presents numerous outstanding research opportunities in several areas, including aspects of innovation, digitalisation, radical improvement of customer experience, and the mobile services market.

This paper has identified a promising research gap and an untapped repository of research possibilities in the field of SuperApps. Utilising Google Scholar source materials, the paper

identified six foundational characteristics of SuperApps and provides a detailed exposition on their implications, significance, and positions within the digital ecosystem. This work has also successfully demonstrated the applicability of several key innovation theories to the various core features and recent SuperApps. By employing the provided overview and synthesised information, this research can further enhance the customer experience and suppliers' intention to serve their clients (either B2C or B2B) in the rapidly evolving field of mobile applications, from both scientific and practitioner perspectives. Digital innovations are typically based on multiple innovation theories, with SuperApps exemplifying how a theoretical framework can facilitate business resilience, growth, customer acquisition, retention, and expansion in the global marketplace.

Additionally, this study highlights the explicit need for an interdisciplinary approach to understanding and developing SuperApps, integrating insights from technology management, consumer behaviour [51][52], and market dynamics. By bridging these fields, researchers can uncover deeper insights into the operational mechanisms of SuperApps and their impact on various stakeholders. Future research could create comparative analyses of regional SuperApp markets, exploring how cultural and economic contexts influence their adoption and evolution. Longitudinal studies tracking the lifecycle of SuperApps could provide valuable data on their sustainability and long-term effects on the digital economy. Such comprehensive analyses would not only contribute to the academic field but also offer practical guidance for developers and policymakers aiming to leverage SuperApps for socio-economic development.

7. Future Research

This study has identified a significant research gap in highly cited databases concerning the coverage of SuperApps. During the analysis of source materials, it became evident that neither user numbers nor revenues for SuperApps can be clearly identified, with substantial variations observed across different sources. This inconsistency underscores the need for further scientific exploration. Future research should aim to systematically address these discrepancies, enhancing our comprehension of the economic and operational dynamics of SuperApps. Such efforts are essential for establishing robust metrics and frameworks that accurately reflect the ongoing evolution of these complex highly innovative digital ecosystems.

Copyright:

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