

## Characteristics of Platform Shifts - A Single Case Study of ChatGPT

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### Abstract

*This research investigates platform shifts as transformative change. Utilizing Yin's methodology, it examines the transition from single platforms to assistant platforms and its impact on value creation by employing ChatGPT as a single case study. The key findings indicate that the democratization of module creation, actor integration, resource integration, creation, liquefaction, and the network structure are driving the shift to assistant platforms. In addition, platform shifts affect value creation by fostering externalities such as complementarities and network effects and enabling higher-order externalities. These encompass network effects spanning multiple platforms and complementarities connecting three or more modules. The study concludes with strategic recommendations for developers and policy-makers to address these characteristics of platform shifts. It aims to enhance the theoretical understanding of platform shifts and digital ecosystems by providing an integrated perspective of the role of generative AI in shaping the technological landscape.*

**Keywords:** platform shift, assistant platforms, digital transformation, multi-platforms, generative AI platforms

### 1. Introduction

In his keynote on Microsoft Build 2024, OpenAI's CEO Sam Altman (2024) stated that the advances in generative AI and the ChatGPT "looks like it's really truly a platform shift". This assertion draws attention to a significant transformation in the digital landscape: the emergence of assistant platforms. ChatGPT, as an example of this new category, represents a shift from traditional single platforms to assistant platforms (Schmidt et al., 2023). Assistant platforms, characterized by their capacity to comprehend and generate human-like text and integrate with other platforms, fundamentally alter the way users interact with technology and the processes through which value is generated in digital ecosystems.

*A platform shift constitutes a platform transformation that occurs concurrently with a fundamental alteration in value creation. This differs from the set-up of or the migration to a platform-based business model, referred to as platformization (Bygstad & Hanseth, 2018). Platform shifts were first reported by Bresnahan and Greenstein (1999) with historical instances of platform shifts, including the advent of personal computers (PCs) (Gawer & Cusumano, 2014) after the mainframe age and the rise of cloud computing after the era of on-premise IT (Byrne et al., 2018). These shifts occur at irregular intervals within the IT industry (Bresnahan & Greenstein, 1999), leading to substantial disruptions that redefine value creation and capture.*

Platform shifts entail not only deep changes to the platform itself but also to its ecosystem (Jacobides et al., 2024). Ecosystems surround platforms, embrace third-party actors and modules, and are driven by externalities that describe value creation processes outside platform interactions (Jacobides et al., 2024). Such ecosystems can significantly impact the long-term success of companies, as demonstrated by IBM's System/360 (Bresnahan & Greenstein, 1999).

A platform shift can result in substantial investments without proportionate revenue, as evidenced by Amazon's Alexa (Lazzaro, 2024). Despite Amazon's estimated \$40 billion investment in Alexa, the return on investment has been lackluster (Ball, 2024). However, passive behavior can be dangerous as Nokia's experience shows (Bouwman et al., 2014).

Since the literature knows platform shifts for some time, the question arises as to how assistant platforms, such as ChatGPT, live up to the notion of being a platform shift. The following research examines the nature of platform shifts, particularly in the context of assistant platforms. As platforms such as ChatGPT reshape various industries, understanding the dynamics of these shifts is valuable for both researchers and practitioners.

Therefore, this study seeks to answer the following research question (RQ): *What are the characteristics of platform shifts, particularly in the context of emerging assistant platforms such as ChatGPT?*

This study employs Yin's (2009) single case study methodology to investigate the platform shift towards assistant platforms, focusing on ChatGPT. This approach is ideal for exploring complex, emerging phenomena in real-life contexts. Yin's single case study methodology helps enhance our understanding of platform shifts, contributing to theory building (Eisenhardt & Graebner, 2007) and offering practical insights for stakeholders navigating the adoption of assistant platforms. Our findings can guide future research in this field of evolution. ChatGPT serves as a quintessential example of an assistant platform owing to its widespread adoption and impact, with over 340,000 GPTs created rapidly (*BeeTrove - OpenAI GPTs Dataset*, 2024). This case allows an in-depth examination of the mechanisms, processes, and consequences associated with this platform shift across various sectors. The paper is structured along the following six sections: literature review, methodology, ChatGPT case analysis, discussion of the findings and their implications, and conclusions. It aims to examine ChatGPT's development, adoption, and impact to illuminate the characteristics and broader implications of platform shifts towards assistant platforms in six parts

## 2. Background

Assistant platforms represent a significant evolution in digital ecosystems, transcending the traditional dichotomy between innovation and transaction platforms (Schmidt et al., 2023). While these conventional archetypes serve distinct core functions, they share fundamental elements that have paved the way for the emergence of assistant platforms.

### 2.1. Platforms

Innovation platforms (Gawer & Cusumano, 2014) provide the core functionalities around which modules can be created by reusing these core functionalities. Windows and its applications are typical examples of this core and module architecture. These modules, developed by independent third parties, enable continuous, independent innovation and evolution. External developers benefit from leveraging the platform core and saving it from developing these functionalities independently. ChatGPT embodies the concept of the innovation platform through its GPT modules. These extensions allow developers to build upon ChatGPT's core functionality, creating a diverse ecosystem of specialized capabilities—a hallmark of successful innovation platforms. Complementarity is an important source of value on innovation platforms and originates from the joint production or use of modules (Jacobides et al., 2024).

*Transaction platforms* (Parker et al., 2017) facilitate the execution of transactions by matching offers and requests, modularizing and standardizing the presentation of these offers and requests. These platforms enable seamless interactions between buyers and sellers, thereby enhancing transaction efficiency. Network effects describe the impact of the number of users on the value of products and services (Katz & Shapiro, 1985). ChatGPT exemplifies transaction platforms by facilitating a marketplace for GPTs and effectively matching creators' offerings with users' demands, thus fostering a dynamic ecosystem of AI-driven solutions.

Both innovation and transaction platforms are characterized by resource integration and liquefaction (Lusch & Nambisan, 2015). Resource integration means that a resource is integrated and managed by the platform, whereas resource liquefaction refers to the process of digitally representing resources, making them searchable and accessible.

It should be noted that platforms overlap with general-purpose technologies (Helpman, 1998) but are not identical. Some platforms may be considered general-purpose technologies if they exert a pervasive impact across various sectors and drive complementary innovations (e.g., Windows (Gawer & Cusumano, 2014)). However, not every platform manages to attain an extensive transformative effect that may be categorized as a general-purpose technology.

### 2.2. Assistant platforms

Assistant platforms are platform networks created by integrating various platforms via gateway modules (Schmidt et al., 2023). These are emergent, large-scale structures. Assistant platforms are distinguished by declarative user interfaces and the utilization of generative AI (Feuerriegel et al., 2023) and agentic AI (Shavit et al., 2024), which allow users to interact through voice- or text-based interfaces (Schmidt et al., 2023). Prominent examples include Google's Astra (*Project Astra - Google DeepMind*, 2024) and ChatGPT 4o (*Hello GPT-4o*, 2024), which exemplify the growing significance and relevance of assistant platforms in today's technological ecosystem.

Understanding the distinct roles of assistant platforms in technology and digital transformation is essential since these platforms facilitate new interactions and represent a significant evolution in ecosystem structure and leverage (Jacobides et al., 2018). They expand network effects by increasing the user base and enabling complementarities between different platform modules (Schmidt et al., 2024b).

### 2.3. Platform shifts

Platform shifts are platform changes which are based on technological disruptions and redefine the dominant industrial platform. The shift to assistant platforms is driven by advancements in generative AI (Banh & Strobel, 2023) and agentic AI (Banh & Strobel, 2023; Shavit et al., 2024). These technologies have revolutionized industries by enabling new forms of automation, intelligence, and interaction.

Unlike incremental changes, platform shifts fundamentally transform the ecosystem by introducing new actor groups and resources, altering existing externalities, and creating new ones. Notable examples include the introduction of PCs and the rise of cloud computing (Jacobides et al., 2024). Such shifts occur irregularly within industries (Bresnahan & Greenstein, 1999) and lead to significant disruptions that redefine value creation and capture. Platform shifts share traits with digital transformations, which involve substantial changes brought about by digital technologies that affect business models, products, and organizational structures (Nadkarni & Prügl, 2021). Thus, platform shifts can be considered a form of digital transformation specific to platforms.

It should be noted that platform shifts differ from platformization and colonization. Bygstad and Hanseth (2018) defined platformization as the initial adoption of platform-based business models to exploit network effects, co-create value, and build ecosystems. Ozalp et al. (2022) described platform colonization as the gradual entry of platforms into markets such as healthcare and education through a stepwise approach by platform vendors.

## 3. Case study design

The case study method is well-suited for investigating complex real-world scenarios in which phenomena are emerging and data are scarce or fragmented (Hunziker & Blankenagel, 2024). This methodology is especially suited for capturing technological disruptions and their impacts, making it optimal for examining the platform shift exemplified by ChatGPT. Case studies are an established research methodology that employs one or more cases to develop theoretical concepts, propositions, and/or midrange theories based on empirical evidence (Eisenhardt & Graebner, 2007). We adopted Yin's (2009) single-case study approach for several reasons.

First, the case study approach enables an in-depth exploration of complex phenomena using diverse data sources, facilitating a comprehensive understanding of the changes introduced by key technological innovations, such as ChatGPT. Platform shifts, particularly in

the realm of generative AI, involve intricate interactions among technology, users, developers, and market dynamics. A case study approach is well suited for capturing these complexities and their interrelationships (Yin 2009). Second, the shift to assistant platforms is a recent development that has resulted in a scarcity of empirical data. Case studies are particularly useful for examining emerging phenomena where the boundaries between the phenomenon and its context are not clearly evident (Eisenhardt & Graebner, 2007). This approach allows for a nuanced exploration of the contextual factors influencing platform shift, which may not be captured by other research methods.

We chose ChatGPT as our primary case because it exemplifies the essential traits of assistant platforms, making it an appropriate representative for studying this emerging phenomenon. Several factors influenced our decision: With over 340,000 GPTs created rapidly (*BeeTrove - OpenAI GPTs Dataset*, 2024), ChatGPT holds significant impact and relevance across sectors. Its open nature and ecosystem provide abundant and accessible data for analysis, facilitating a thorough examination of its features, adoption patterns, and impact. As a cutting-edge development in generative AI, ChatGPT is ideal for studying the technological aspects of platform shift. In addition, the platform's interactions with developers, users, and other stakeholders offer insights into the evolving dynamics of digital ecosystems.

Using Yin's (2009) single-case study methodology to examine ChatGPT, our study aims to provide a detailed understanding of how this platform exemplifies and drives the ongoing platform shift. This approach allowed us to explore the phenomenon within its authentic context by capturing the nuances of the platform transitions in the AI era. We used multiple sources of evidence to validate our findings and enhance the credibility of the results. This case study generated theoretical propositions that can inform both academic theory and practical applications in the rapidly evolving AI-driven platform domain.

### 3.1. Data collection methods

Given the early stage of the platform shift to assistant platforms and the limited availability of empirical data, this study relies on multiple sources of qualitative data. The primary data sources included the following: The official documentation and technical papers published by OpenAI (OpenAI, 2023) shed light on the development and capabilities of assistant platforms such as ChatGPT. An important source of information was the BeeTrove dataset (*BeeTrove - OpenAI GPTs Dataset*, 2024). It is an open-source project that provides extensive data on custom GPTs created with OpenAI tools, detailing approximately 349,000 GPTs. They are

freely accessible for research, development, and other applications. The BeeTrove collection comprises three datasets for GPT performance analysis: the Authors' Dataset, detailing GPT creators' organizations and online presence; the GPTs Details Dataset, specifying GPT attributes such as creation dates, capabilities, and tags; and the GPTs performance dataset, providing historical metrics, including conversation numbers, average ratings, reviews, and stars, facilitating the examination of GPT developer demographics and performance trends, and industry blogs, news articles, and online forums document the evolving platform shift and its reception by various stakeholders (Hunziker & Blankenagel, 2024).

### 3.2. Data analysis

The data collected from these sources were analyzed using thematic and pattern-matching techniques. These methods are well-suited for qualitative research and will help identify key themes and patterns related to platform shifts. Triangulation and peer responses were employed to ensure the rigor and validity of the study. Multiple data sources (documentation, presentations, and blogs) were used to corroborate the findings and to provide a comprehensive view of the platform shift.

## 4. Results of the ChatGPT case study

This section explores the transformative capabilities of ChatGPT by focusing on its impact on module creation, actor integration, resource integration, creation and liquefaction, and network structures.. ChatGPT is an assistant platform that showcases modern AI technologies. By leveraging generative AI, it comprehends and produces human-like text, proving useful across various industries. Its capabilities can be expanded with modules called GPTs, which are third-party developer extensions, not to be confused with generative pretrained transformer technology in general. Currently, over 340,000 GPTs exist, covering categories such as productivity, education, research, writing, programming, and lifestyle.

Figure 1 demonstrates how ChatGPT extends its capabilities through GPTs, using KAYAK as an example. When a user selects the KAYAK GPT, ChatGPT gains access to KAYAK's travel expertise and booking services. This integration allows users to plan trips and make reservations using the natural language within the ChatGPT interface. The KAYAK GPT effectively transforms ChatGPT from a general-purpose assistant to a specialized travel planning tool, showing how GPTs can seamlessly connect ChatGPT to various external platforms and services.

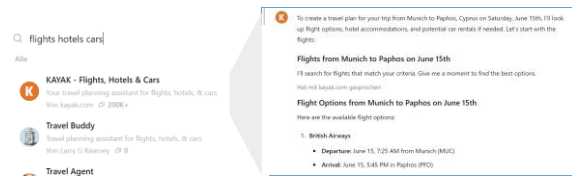


Figure 1. Travel planning with GPTs

### 4.1. Module creation

Creating modular extensions in ChatGPT is significantly more accessible and streamlined than in traditional software development. Historically, the development of new applications for platforms such as Windows required an in-depth understanding of programming languages such as C++ and Windows API, which acted as a barrier for many potential developers (Petzold, 2012). ChatGPT democratizes the creation of modular extensions, thereby enabling users without programming skills to generate GPTs. By offering natural language specifications and utilizing both structured and unstructured text files as data sources, the platform facilitates the customization and specialization of GPTs. This allows users to adapt the behavior and knowledge base of these modules to meet specific needs and contexts through natural language input.

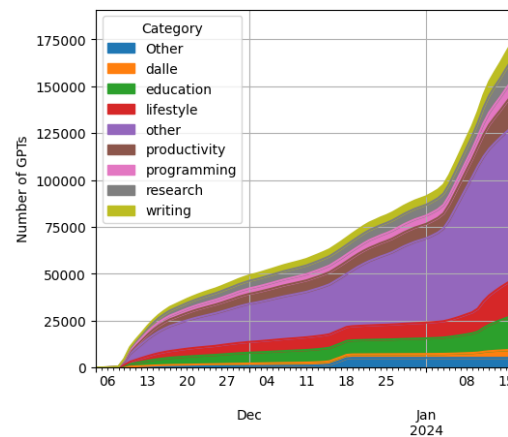


Figure 2. Growth of GPTs

Figure 2 illustrates the rapid growth of modules from November 1, 2023, to January, 15<sup>th</sup>, 2024 differentiated by category. ChatGPT's user-friendly module creation process marks a notable departure from conventional software platforms, empowering users to develop and distribute modules that enhance platform capabilities without requiring specialized programming expertise. This democratization of development accelerates innovation and broadens the scope of the potential applications of ChatGPT.

## 4.2. Actor integration

ChatGPT's declarative and generative interfaces make it easier for new users to engage with the system, reducing cognitive demands, and rendering it more accessible (Riefle & Benz, 2024). Users can interact with ChatGPT without learning a specific syntax or navigating complex menus thanks to its declarative interface. Rather than providing detailed step-by-step instructions, users can simply state their objectives, which improves user experience and makes the system more accessible to those with limited technical expertise. (Riefle & Benz, 2024). Figure 3 shows a rapid increase in the number of GPT developer with the most important categories of GPTs created by the developers being education, programming, and research.

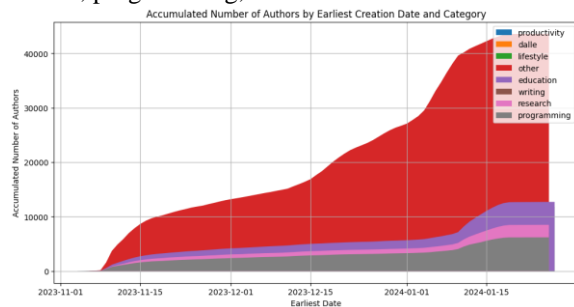


Figure 3. Aggregated number of developers

Voice interfaces also improve accessibility for the disabled, the elderly, and technologically inexperienced users by allowing natural language interactions, reducing physical contact, and simplifying learning. ChatGPT provides automated translation, overcomes language barriers, and fosters global communication and collaboration, which are essential in today's interconnected world. Combining a declarative interface, voice interaction, and automated translation enhances the user experience, extending the platform's accessibility and utility across diverse demographics and languages.

## 4.3. Resource integration

Integrating resources into ChatGPT leverages generative AI, which can interpret unstructured text, extract essential information, and convert it into a structured and usable format. This process eliminates the need for manual data entry and complex data transformations, thereby significantly reducing the time and effort required for resource integration. Resource integration is more streamlined and efficient than earlier platforms. The generative mechanisms inherent in these platforms enable seamless integration by extracting information from various textual sources and converting it into standardized formats compatible with the platform (Feuerriegel et al., 2023).

## 4.4. Resource creation

ChatGPT can generate entirely new types of resources as artifacts, adding value to business processes in innovative ways (Feuerriegel et al., 2023). Figure 4 shows the number of GPTs that can create artifacts using DALL-E, which is a generative AI tool for image creation. For instance, ChatGPT can analyze historical data to predict future trends through predictive analytics and insights, thereby helping businesses make informed decisions. An example is a retail company that uses ChatGPT to predict inventory needs based on past sales data and seasonal trends, optimizes stock levels, and reduces waste.

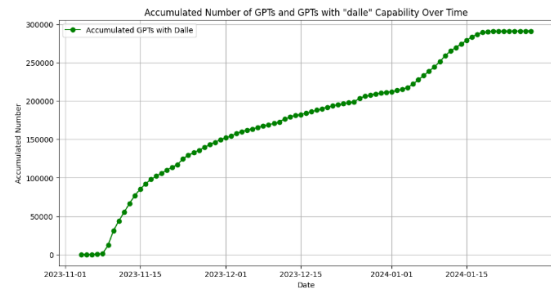


Figure 4. GPTs creating DALL-E artifacts

## 4.5. Resource liquefaction

Resource liquefaction, as defined by Lusch and Nambisan (2015), refers to the ability to create, manipulate and share detached information with existing entities. ChatGPT offers potential enhancements to resource liquefaction through its content generation and information-processing capabilities. For instance, these models can summarize documents, extract key information, and generate reports or briefs, potentially making the information more accessible and actionable.

Challenges in using LLMs for resource-liquefaction tasks include AI hallucinations, where models produce plausible but incorrect information (Huang et al., 2023), which impacts the reliability of the information generated despite the potential benefits. For example, although ChatGPT can summarize legal case files or cross-reference information, its accuracy and validity require human oversight. The AI's tendency to generate inaccurate information necessitates additional verification of the content it produces. Thus, the effective use of LLMs involves robust fact-checking, human oversight, and reliance on verified databases to ensure reliable sources. In addition, advancements in training methods and model architectures can reduce hallucinations.

Additionally, ChatGPT may enhance personalized customer experiences by tailoring interactions based on customer data, thereby increasing customer satisfaction and loyalty (Schwede et al., 2023). For example, an e-

commerce platform may use ChatGPT to recommend products based on the browsing history of a customer (Han et al., 2024). Furthermore, ChatGPT enhances decision-support systems by providing decision-makers with detailed analyses and insights to support strategic planning and operational efficiency (Reinkemeier & Gnewuch, 2022). An example is an AI system that offers a real-time analysis of market conditions, aiding financial analysts in making investment decisions.

#### 4.6. Network structure

The ChatGPT network structure is created by integrating other platforms through gateway modules (Schmidt et al., 2024b). For example, the integration of travel services from the KAYAK platform into ChatGPT allows significantly more modules to be combined than is possible with a single platform. Consequently, a larger number of different functionality categories can be offered on innovation platforms.

Similarly, the network structure increases the range of offers on transaction platforms because the products of integrated platforms can be seamlessly integrated. Another advantage of the creation of platform networks on ChatGPT is accelerated growth because gateway modules are able to integrate all platforms with many modules and offerings. By creating a gateway module, the modules from the integrated platform can be incorporated in a single step. Figure 5 shows the accumulated number of GPTs with gateway functionality.

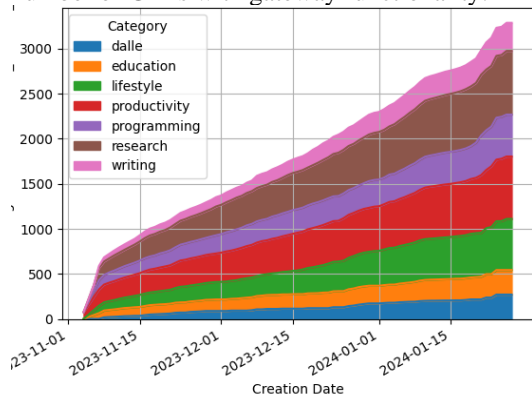


Figure 5. GPTs with gateway functionality

### 5. Discussion

The empirical data reveal that platform shifts are driven by synergy between technological advancements and evolving value-creation mechanisms. As illustrated in Figure 6, ChatGPT exemplifies this shift by facilitating enhanced module creation and resource integration. Furthermore, this significantly amplifies resource liquefaction, which is a key enabler of value creation in digital ecosystems.

These technological advancements have catalyzed multifaceted value creation. The proliferation of modules and integration of diverse platforms foster increased complementarities, both within and across platforms. Concurrently, network effects are intensified owing to lowered entry barriers and improved resource liquefaction, enabling more efficient value exchange among participants. This interplay between technological capabilities and value creation forms the core of the shift observed in assistant platforms, giving insights into the broader transformation of digital platforms.

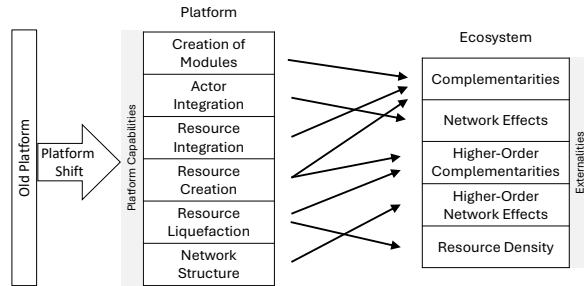


Figure 6. Characteristic areas of platform shift to assistant platforms

The shift towards assistant platforms, exemplified by ChatGPT, profoundly impacts platform externalities (Jacobides et al., 2024), particularly complementarities and network effects. These externalities are crucial drivers of value creation and platform growth in the digital ecosystem. Complementarities arise when the value of one module or service increases in the presence of another, whereas network effects occur as the platform's value grows with its user base.

This section examines how the unique characteristics of assistant platforms such as simplified module creation, enhanced resource integration, and intuitive interfaces reshape both complementarities and network effects. We explore how these externalities are amplified and transformed, leading to new value creation and capture dynamics within the ecosystem. By analyzing these changes, we gain insights into how platform shifts fundamentally alter the mechanisms of value generation on digital platforms.

#### 5.1. Complementarities

The simplification of module creation on assistant platforms such as ChatGPT significantly enhances complementarities in several ways.

First, the ease of *module creation* attracts developers who create additional modules, thereby increasing complementarities (Boudreau, 2012). The GPT library with over 340,000 GPTs demonstrates how simplified module creation directly translates into a large set of complementary offerings that enhance overall platform

utility. The combinatorial possibilities enabled by a large module library can lead to emergent use cases and higher-order network effects (Schmidt et al., 2024b). Modules may be mixed in novel ways to unlock values beyond their individual utilities (Borner et al., 2023).

Second, *resource integration and liquefaction*, enabled by the generative AI capabilities of platforms such as ChatGPT, also amplify complementarities (Lusch & Nambisan, 2015). Generative mechanisms allow the platform to automatically extract information from unstructured data sources and convert it into standardized, usable formats. This significantly streamlines the integration of new resources and datasets. By facilitating onboarding and combination of data from various sources, these capabilities enable the creation of novel complementary applications and insights that are not feasible with manual integration. Resource liquefaction through content summarization, fact checking, and insight generation makes information more accessible and actionable across the ecosystem, thereby unlocking new opportunities for complementary services.

Overall, by radically simplifying module creation and enabling resource integration, assistant platforms can eliminate key bottlenecks in developing complementary offerings. This has expanded the quantity, diversity, and combinatorial potential of complementarities, leading to outsized value-creation and stickier ecosystems. The magnitude of the impact on complementarities distinguishes this shift from incremental improvements to assistant platforms.

## 5.2. Network effects

Kraus et al. (2021) highlight that digital transformation initiatives often initiate enhanced network effects owing to the improved capabilities of digital platforms to attract and retain users. Similarly, Haile and Altman (2016) found that easier module creation increases network effects on platforms. Thus, platform shift enables a much wider range of developers to contribute modules, thereby rapidly expanding the ecosystem of complementary offerings. This expanded set of modules has the potential to attract a larger and more diverse user base as the platform can cater to a broader spectrum of needs. In turn, more users incentivize further module development, thereby creating a powerful positive feedback loop.

Generative AI-driven resource integration and liquefaction enhance network effects by simplifying user onboarding and data amalgamation from diverse sources, thereby boosting a platform's predictive capabilities and attracting more users. Resource creation provides derivative informational assets, such as summaries, insights, and predictive models, which, when shared

and recombined, facilitate knowledge spillovers and combinatorial innovation across ecosystems.

In addition, several further network effects may be observed: Intuitive interfaces and translation services lower entry barriers for new users, which is essential for initiating and maintaining network effects. Natural language and voice interfaces increase accessibility for non-technical users and those challenged by traditional ones. Expanding the user base accelerates direct network effects, as automated translation bridges linguistic divides and fosters global interactions. Each new language community enhances the platform's value by broadening interaction opportunities and module contributions. User-friendly interfaces reduce churn and encourage engagement, generating richer data and personalized experiences, thus reinforcing network effects.

In summary, by democratizing module creation, fluidly integrating resources, and designing for inclusivity, assistant platforms such as ChatGPT are designed to generate and harness network effects at an unprecedented scale and velocity. The convergence of these mechanisms triggers a virtuous cycle of value creation and capture, which propels the growth and transformative impact of the platform.

## 5.3. Higher-order complementarities

Investigations of externalities on platforms increasingly consider their network structure (Karhu et al., 2024). The creation of new resources and the network structure of assistant platforms enable the emergence of higher-order externalities (Schmidt et al., 2024b).

*Complementarities* are enhanced because the capabilities of ChatGPT, such as language understanding, content generation, and analytics, can be leveraged to augment the functionalities and user experiences of integrated platforms. Combinatorial possibilities enabled by a module library spanning multiple platforms have led to new use cases. The modules can be mixed and matched in novel ways to unlock values beyond their individual utilities.

The shift towards assistant platforms such as ChatGPT significantly amplifies polyadic externalities (Schmidt et al., 2024b) which are value-creating relationships involving multiple modules. Although ChatGPT's current architecture does not allow direct GPT-to-GPT communication, polyadic externalities are manifested. For example, when a user employs multiple GPTs in sequence to solve a complex problem, the combined value exceeds that of individual GPTs used in isolation. These polyadic complementarities emerge from the interconnected nature of the ChatGPT ecosystem, even without direct technical interaction between GPTs and users.

## 5.4. Higher-order network effects

Network effects intensify as user interactions and data from integrated platforms are fed into ChatGPT's generative AI, which continuously enhances its value. With each new platform, the user base, data, and interactions collectively foster a growth and innovation cycle. Each integration brings a unique user community, expanding the network and leveraging the capabilities of ChatGPT. The diverse interactions and data from various platforms enable ChatGPT to adapt to multiple contexts and use cases, enhancing the assistant's versatility and utility across different domains. As users interact with ChatGPT-powered applications across various domains, the diversity and richness of the collected data enables the platform to learn and adapt to a wide range of contexts and use cases. .

## 5.5. Resource density

The shift towards assistant platforms such as ChatGPT also enhances resource density within digital ecosystems, a concept introduced by Lusch and Nam-bisan (2015) referring to the accessibility and reconfigurability of resources for value creation. This enhancement is driven by several factors observed in our case study: The simplified module creation democratizes resource contributions and expands the pool of accessible resources. Advanced resource integration capabilities, powered by generative AI, facilitate the liquefaction of previously rigid data into usable formats. Furthermore, the network structure of assistant platforms enables novel combinations of previously siloed resources to be developed.

## 6. Implications

This case study demonstrates the value of applying a platform perspective to understand the transformative impact of generative AI on assistant platforms. It reveals the key characteristics of platform shifts, as observed in the example of ChatGPT towards assistant platforms.

### 6.1. Research

The platform shift perspective enables a nuanced analysis of the transformative changes occurring as digital ecosystems evolve towards assistant platforms. This lens reveals the emergence of higher-order externalities, particularly cross-platform and polyadic effects, which are hallmarks of the networked, multi-platform (Schmidt et al., 2024a) structure characterizing these shifts. Furthermore, this approach illuminates the criti-

cal interplay between technological advancements, exemplified by generative AI, and evolving platform mechanisms such as democratized module creation and enhanced resource integration. These interactions are key drivers of the intensified complementarities and network effects that characterize these fundamental platform shifts. Thus, the platform shift lens offers a comprehensive view of the dynamic forces reshaping digital ecosystems, providing crucial insights into the mechanics of these transformative changes..

### 6.2. Practice

The shift towards assistant platforms has significant strategic implications for ecosystem stakeholders. Platform owners should recalibrate their governance and orchestration strategies, balancing control with autonomy, building trust, fostering collaboration, and mitigating risks in an AI-mediated environment. This shift requires reevaluating platform management practices and continuous innovation by the platform operators. For developers, it offers new opportunities, as the democratization of module creation and enhanced resource integration facilitate rapid innovation and novel application deployment. Users gain access to a wider range of functionalities and more intuitive interfaces but face new privacy considerations due to increased integration and data fluidity. They need to navigate these ecosystems with heightened awareness and make informed decisions about data sharing.

### 6.3. Limitations and future research

While insightful, this study has limitations owing to its single case study approach and focuses on ChatGPT in the early stages of the platform shift. Generalizability may be limited, and long-term trends may be missed. To address these limitations and to enhance our understanding of assistant platforms, we propose several directions for future research.

Quarterly data collection on platform features and user behaviors, including key metrics, such as module creation rates and user adoption over time, will provide a more comprehensive view of platform evolution. Future studies should employ a mixed-method approach (Venkatesh et al., 2013) to provide more empirical grounding for the theoretical propositions presented in this paper. This could include surveys of platform users and developers, usage data analysis, interviews, and focus groups to obtain qualitative insights into user motivations and challenges. We recommend conducting comparative studies with other platform shifts to draw parallels. This approach will validate the findings across various contexts and potentially uncover aspects of the current shift. Statistical analyses can be used to assess

the impact of the identified characteristics on platform adoption and value creation. Cross-industry studies can examine sectoral adaptation and exploitation of opportunities from this transformation. We will also investigate the broader impacts of widespread assistant platform adoption, including privacy, data security, and digital divide concerns.

## 7. Conclusion

This study examined the transition to assistant platforms through a case study of the ChatGPT. The transition to assistant platforms, such as ChatGPT, involves fundamental changes across several key platform capabilities. First, the creation of modules has undergone a significant transformation, with assistant platforms enabling more accessible and AI-assisted module development. Simultaneously, the shift to assistant platforms introduced novel ways of integrating actors into the ecosystem, potentially lowering entry barriers and enabling participation from a wider range of contributors. The shift to assistant platforms also facilitates resource integration and creation methods by leveraging advanced AI capabilities to combine and generate resources. Resource liquefaction has become a central feature of these platform shifts, enhancing the fluidity and transferability of resources across ecosystems. This increased liquefaction rate facilitates more efficient resource allocation and utilization. Finally, platform shifts often manifest as alterations in the ecosystem's overall network structure. These structural changes enhance existing and enable new types of externalities such as higher-order complementarities and network effects. These findings enhance our understanding of platform shifts and provide crucial insights to developers, businesses, policymakers, and educators. By understanding and leveraging higher-order complementarities and network effects, stakeholders can navigate this platform shift better and exploit its potential for innovation and growth. Businesses must recognize that the shift to assistant platforms involves adaptation to a changed ecosystem.

The emergence of assistant platforms and their intricate networks has introduced challenges for policymakers and regulators. These complex interdependencies require thorough monitoring to prevent abuse, ensure fair competition, and safeguard user interests. Existing regulations may require revisions, and new rules may be essential to address the distinct characteristics of assistant platforms, such as the increased cross-platform and multi-sided externalities emphasized in this study.

Further research is essential to harness the benefits of platform shifts while mitigating their associated risks. The characteristics identified in this study form the basis for examining platform shifts, providing insights into

the dynamics of assistant platforms and their impact on value creation across industries and contexts.

The shift to assistant platforms is a pivotal moment in the digital economy. Traditional platforms, such as operating systems and web browsers, may become secondary, with assistant platforms emerging as the main user interface. Leveraging these platforms' potential and tackling their challenges will enable stakeholders to maintain and leverage competitiveness in a digital world that repeatedly faces disruptive changes.

## 8. References

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