

Association for Information Systems

AIS Electronic Library (AISeL)

WHICEB 2022 Proceedings

Wuhan International Conference on e-Business

Summer 7-26-2022

Platform Enterprises Help Traditional Enterprises in Digital Transformation : Collaborative Innovation in the Process

Jia Gu

School of Information, Central University of Finance and Economics, Beijing, 100000, China

Ming Yang

School of Information, Central University of Finance and Economics, Beijing, 100000, China,
yangming@cufe.edu.cn

Follow this and additional works at: <https://aisel.aisnet.org/whiceb2022>

Recommended Citation

Gu, Jia and Yang, Ming, "Platform Enterprises Help Traditional Enterprises in Digital Transformation : Collaborative Innovation in the Process" (2022). *WHICEB 2022 Proceedings*. 71.
<https://aisel.aisnet.org/whiceb2022/71>

This material is brought to you by the Wuhan International Conference on e-Business at AIS Electronic Library (AISeL). It has been accepted for inclusion in WHICEB 2022 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Full Research Paper**Platform Enterprises Help Traditional Enterprises in Digital****Transformation: Collaborative Innovation in the Process***Jia Gu¹, Ming Yang^{2*}*¹School of Information, Central University of Finance and Economics, Beijing, 100000, China²School of Information, Central University of Finance and Economics, Beijing, 100000, China

Abstract: Traditional enterprises relying on platform enterprises to complete digital transformation are a good solution to the cold start dilemma. However, there are still problems such as an unclear transformation process, difficulty for traditional enterprises to eliminate their dependence on the platform, and difficulty in acquiring or complementary innovation in the early stage for the platform. Based on the case of Ding Talk helping ADOPT A COW to complete digital transformation, this paper analyzes the specific process of platform enterprises helping traditional enterprises complete digital transformation, explores how platforms can promote participants' innovation and obtain complementary innovation after participants' successful transformation from a bilateral perspective, and finally completes the mechanism of collaborative innovation. In the early stage of digital transformation, the platform helps traditional enterprises digitize their work processes through data empowerment. At this time, relying on innovation is the mainstay. After that, the platform helps traditional enterprises to complete the digitization of their business models, and traditional enterprises become embedded sub-platforms to provide complementary innovation; Traditional participations as players continue to cooperate with multiple platforms, and bilateral collaborative innovation will eventually transform into multilateral collaborative innovation.

Keywords: Enterprise digital transformation, Case study, Collaborative innovation

1. INTRODUCTION

With the popularization of the Internet and the development of technologies such as big data and artificial intelligence, advanced modern information and communication technologies have driven fundamental changes in the entire economic environment, giving birth to the digital economy, a new economic format that has brought new development opportunities and motivation to all walks of life.

The global informatization wave has prompted traditional enterprises to actively seek digital transformation. However, the lack of technical capabilities and resources, deep-rooted “hardware thinking” in the traditional industrial era, the lack of clear goals and strategic paths, and the lack of systematic thinking about transformation make it difficult for traditional enterprises to break through the “cold start” dilemma of digital transformation (Saarikko et al., 2020) ^[1]. The “2019 Research Report on Digital Transformation and Data Application of Chinese Enterprises” pointed out that approximately 40% of the surveyed companies have started digital transformation, but only approximately 10% of them have achieved significant results.

Therefore, traditional enterprises' leveraging the platform's digital empowerment is considered to be an ideal path to promote digital transformation. Traditional enterprises become ecological participants by joining the platform ecosystem, and using platform empowerment can accelerate the digitalization process (Liang Li et al., 2018) ^[2]. However, in the process of digital transformation, if traditional enterprises, as participants, simply accept products and services (such as product systems, technical solutions, user portraits, etc.) launched by platform enterprises, then there is no essential difference from the upstream and downstream buying and selling relationship or service outsourcing model of the traditional value chain, and participants will face the problems

* Corresponding author. Email: yangming@cufe.edu.cn(Ming Yang)

that digital transformation solutions are not deeply customized and need to pay high service costs (Chen Weiru et al., 2021) ^[3]. In this regard, participants need to think about how to use their own advantages, extract and export the accumulated industry experience, and provide complementary innovations for platform companies to truly realize depending on the platform and taking advantage of the momentum.

Platform enterprises build basic blocks to support the transactions and innovation activities of multilateral entities. With digital empowerment and network effects (Parker et al., 2016) ^[4], they subvert the traditional business model and set off a global "Platform Revolution". The network effect, also known as the Metcalfe effect, refers to the fact that the actual market value of a network depends on how active users interact with each other, the transactions generated by those interactions, and the revenue that platform companies get from those interactions and transactions (Tiwana, 2013) ^[5]. Although platforms can take advantage of strong network effects to achieve "winner takes all", this does not mean that they can be done once and for all. To maintain ecological vitality, platform enterprises also need to innovate continuously, and platform innovation is not only the innovation of platform enterprises themselves but also the need to stimulate the innovation of participants (Wang Jiexiang et al., 2021) ^[6]. Through digital empowerment, it is an ideal path to help traditional enterprises as participants in their digital transformation to promote innovation and ultimately achieve collaborative innovation.

The process and mechanism for platform enterprises to help traditional enterprises in digital transformation is relatively complex, and how to achieve collaborative innovation in the process to make both parties benefit urgently needs further research. The core research questions of this paper are "exploration of the process and mechanism of platform enterprises helping traditional enterprises to achieve digital transformation, and how to promote innovation of participants in the process of assistance" and "how traditional enterprises rely on platform enterprises to complete digital transformation and how to reversely promote the platform to achieve complementary innovation". Using the causal single-case study method, we analyze the digital transformation process of Ding Talk (a platform company) to help ADOPT A COW (a traditional participant company). Research how the platform promotes the participant to innovate and obtain complementary innovations after the participant's successful transformation to complete collaborative innovation. From the perspectives of the platform and the participant, this study enriches relevant theoretical research based on the network effect. It has certain reference significance for the strategic choices of traditional enterprises when they rely on the ecological platform to achieve digital transformation and the practical actions of how platform enterprises can promote the innovation of participants.

2. THEORETICAL BACKGROUND

2.1 The platform promotes enterprises' digital transformation

In the past 20 years, scholars have carried out much research on the digital transformation of enterprises. With the continuous development of digital technology, the digital transformation of enterprises has changed from the traditional application of information technology within the enterprise to a comprehensive transformation involving strategic planning, corporate culture, product business, organizational processes and business models (Ferreira et al., 2019) ^[7]. This means that the role of digital technology is shifting from the internal organization and business of an enterprise to a broader industrial ecology, and the traditional simple development or introduction of digital technology is far from enough to achieve a more comprehensive digital transformation. Large companies can develop and deploy their own digital platforms, and with abundant resources and capabilities, they can coordinate internal resources to develop key capabilities that allow them to overcome organizational inertia and resistance to change (Chen et al., 2014; Cui & Pan, 2015) ^{[8][10]}. However, most traditional SMEs have to rely on third-party digital platforms (Banerjee & Ma, 2012) ^[9].

The concept of the platform first appeared in the research literature on new product development. Currently, the concept of the platform is widely used by management scholars in the fields of products, technical systems and transactions. A platform is essentially a transactional space or venue that can exist in the real world or virtual cyberspace, directing or facilitating transactions between two or more parties and by charging appropriate fees to try to attract transactions. With the development of the Internet, platform enterprises emerge as the times require, build basic blocks, have a bi/multilateral structure and network effect, set interface rules, open architecture to attract participants to enter, and further form a platform ecosystem.

The phenomenon of platform enterprises helping traditional enterprises to digitally transform through digital empowerment has sparked increasing research in the past few years. Platform enterprises can use their infrastructure resources and capability sharing to help traditional enterprises join the ecosystem to achieve rapid change (Cutolo & Kenney, 2019) ^[11]. By joining digital platforms to become ecological participants, traditional enterprises can obtain the dividends of rapid ecological expansion. However, if they passively accept platform arrangements and lack strategic initiative, it will lead to negative effects, and even eventually be "blocked" by the platform (Nambisan & Co. Baron, 2019) ^[12]. If platform companies cannot continuously promote the innovation of participants and obtain complementary innovations from them, they will also fall into development stagnation, leading to the collapse of the platform ecosystem.

Existing research mostly focuses on the specific technical functions provided by platform enterprises for the digital transformation of traditional enterprises, and there is less research on the transformation process and the collaborative innovation mechanism between the two, which is the focus of this paper.

2.2 Collaborative innovation of platform enterprises and traditional enterprises

The collaborative innovation mechanism between platform enterprises and traditional ecological participating enterprises is a gap in current research. After reviewing the relevant literature, it can be found that the main research explores how platform enterprises can promote participants' innovation from the perspective of platforms. Wang Jiexiang et al. (2021) believe that platform enterprises can stimulate participants to innovate mainly through three strategies: open and attractive strategies, self-operated proofing strategies and data empowerment strategies. The platform to stimulate the innovation of complementors needs to take multiple measures and spiral upward, moving from "centralized management" to "decentralized management". ^[15]

In terms of how to feed back platform innovation after the digital transformation of traditional companies, it is mainly a study of complementarity. Complementarity was first proposed by Teece (1986) in the PFI framework ^[13], and it was used in management research. Complementarity refers to the degree to which two or more assets complement each other (Jacobides, 2006), and sometimes the combination of two assets will produce a value of $1+1>2$ ^[14].

Jacobides divides complementarity into transaction complementarity and innovation complementarity. In the platform ecosystem, transaction complementarity refers to the fact that participants provide complementary goods or services to other participants in the platform, such as buyers and sellers, and promote transactions or innovative activities between other complementors and users, which is the embodiment of the network effect of platform enterprises, and the scope of action is still within the platform. Complementary innovation means that participants refine their own industry experience after in-depth digital transformation, build sub-platforms and embed them in the platform ecosystem, and the embedded symbiotic sub-platforms form a nested structure with the platform (Xie Fusheng et al., 2019) ^[16], that is, a platform within a platform. Participating enterprises can effectively promote the innovation of platform enterprises by providing basic blocks with cornerstone functions in the platform system, complementing or extending the functions of the original platform (Khanagha et al., 2018) ^[17]. The scope extends outside the platform. Furthermore, by expanding cooperation with other platform companies, collaborative innovation of multiple ecosystems is formed.

3. METHODOLOGY

This paper adopts the single-case study method, which is a research method that develops theory from the individual to the general and from the phenomenon. The single-case study focuses on the vertical excavation of the phenomenon, and the in-depth analysis of the background and development process of the case (Sun Yuzhong, 2021) ^[18]. This paper studies the digital transformation process of platform enterprises helping traditional enterprises and the collaborative innovation mechanism between the two. It requires in-depth analysis of the development process of both parties and the motivations, measures and results of different stages, so the case study method is suitable. In addition, the collaborative innovation mechanism in the process of digital transformation is a complex dynamic process. A single-case longitudinal study can deeply dig and analyze this process, sort out according to the timeline, explore the triggering factors of important nodes, and summarize the mechanism of collaborative innovation between platform enterprises and traditional enterprises.

3.1 Case selection

Following the case selection criteria of a single case study: case matching research problems, case enlightenment and rich material that can be obtained, this paper selects the case of Ding Talk helping ADOPT A COW digitally transform.

As an intelligent office platform enterprise of Alibaba, Ding Talk is currently a leading office platform in China and actively realizes cooperation with traditional enterprises in many industries. Ding Talk not only has its own development tools, but also connects with third-party suppliers to meet the development needs of specific enterprises, and has the characteristics of the multilateral architecture of platform enterprises.

ADOPT A COW is a dairy brand founded in 2016. It is now a leader in the dairy industry, and has achieved the number one sales of dairy products during the “Double Eleven” for many years. As a member of the traditional Chinese dairy industry, the company was actively seeking digital transformation shortly after its establishment. In 2018, ADOPT A COW reached a cooperation with Ding Talk, connecting more than 1,000 people in animal husbandry and upstream suppliers to Ding Talk to complete the digitalization of the organization. Later, to further digitize the business, ADOPT A COW integrated the silage system with Ding Talk, and the workflow began to change. Safety is the biggest pain point in the food industry. In order to achieve quality traceability, ADOPT A COW connected the employees and processes from production to inspection and transportation to Ding Talk, officially realizing full-link digitalization. After that, ADOPT A COW based on the full-link digitization realized after cooperation with Ding Talk, launched the “Cloud Adoption Plan” and “Million Family Adoption Plan” so that customers can know the specific situation of their adopted dairy cows online at any time. ADOPT A COW expanded the company's popularity, and made full use of Ding Talk's data analysis tools to accurately locate customer needs, established an online self-operated channel with many fans, and completed the transformation of the business model. Through the integration of cloud nails, resources from Tmall, FRESHIPPO and other platforms have also been integrated. At present, the proportion of online self-support for ADOPT A COW has reached 70%, and the digital transformation has been a great success. ADOPT A COW made up for Ding Talk's deficiencies in the dairy sector after the successful transformation and expanded the service scope of the cloud platform through cooperation with other platforms such as Tmall, realizing complementary innovation for Ding Talk.

The case of Ding Talk helping ADOPT A COW to realize full-link digitalization and business model transformation matches the research question of this paper, and ADOPT A COW as a traditional dairy enterprise, its rich experience in digital transformation has a strong inspirational effect on other traditional enterprises.

3.2 Data collection

The data collection in this paper includes secondary data and participatory observation. Secondary data mainly include literature data, official corporate website information, news media reports, research reports

issued by major research institutions and corporate financial reports. Participatory observation means that the author purchases enterprise products through the official online channel of ADOPT A COW, participates in the enterprise's "cloud adoption" activity, and personally experiences the online display effect of full-link digitalization.

3.3 Key concept recognition and description

This research involves the three key concepts of the digital transformation of traditional enterprises, complementary innovation and collaborative innovation, which are specifically defined and described as follows.

3.3.1 Digital transformation of traditional enterprises

It can be divided into two stages. The initial stage is information digitization or work process digitization. The internal work process and organizational management of the company are greatly improved, and the efficiency is improved. The advanced stage is the digitization of business, and the business model of the company has changed from traditional offline to online-based, and profits have increased significantly.

3.3.2 Dependent innovation

It means that traditional enterprises promote their digital transformation with the help of digital empowerment of the platform, but do not make much contribution to the platform.

3.3.3 Complementary innovation

It is mainly divided into transaction complementarity and innovation complementarity. Transaction complementarity means that participants meet the needs of other participants in the platform ecosystem and is a manifestation of network effects. Innovation complementation is the complementarity of participants to the functions of the platform enterprise.

3.3.4 Collaborative innovation

It is divided into bilateral collaboration and multilateral collaboration. Bilateral collaboration is a platform that helps participants transform and promote their innovation, and participants feed back the platform through complementary innovation. Multilateral collaboration occurs when participants cooperate with other platforms to realize multi-platform co-innovation while promoting the innovation of enterprises on the main platform.

4. CASE ANALYSIS

The main process of the digital transformation of Ding Talk to help ADOPT A COW can be divided into three stages: dependent innovation, complementary innovation, and collaborative innovation. These three stages are not separated from each other. The development of the latter stage depends on the digital transformation results of the previous stage. The following will follow these three stages to explore the progressive digital transformation process in which Ding Talk helps ADOPT A COW.

4.1 Dependent innovation

4.1.1 Digital transformation process

In 2014, the founder Xu Xiaobo spent 3 million to travel around the best pastures in the world, and finally spent 460 million to build his own Bobo Ranch in Hebei, and introduced 6,000 pure Holstein cows from Australia to produce quality milk with higher than EU standards. In 2016, Wu Xiaobo and Bobo Ranch cooperated, and ADOPT A COW formally established. At the beginning of its establishment, due to Wu Xiaobo's IP effect, the company attracted the attention of a large number of Internet platform users. Xu Xiaobo knew that relying on IP effects alone would not last long, and he made arrangements for the digital transformation of the enterprise early.

In 2018, ADOPT A COW reached a cooperation with Ding Talk, which opened the road for comprehensive digital transformation. This stage is mainly led by the platform unilaterally, providing a variety of customized

products and services for ADOPT A COW. The work process of the ranch can be divided into three main parts: cattle management, silage management and milk source traceability. ADOPT A COW chose to digitize its entire link. After the company connected more than 1,000 people in animal husbandry and upstream suppliers to Ding Talk to realize organizational digitization, it further integrated the silage system with Ding Talk and brought it into digital management. Business personnel can use the Ding Talk system to complete feed quality inspection, the health of the herd, and product pricing. In order to enable consumers to further trace the source of milk products, ADOPT A COW put the milk source traceability system on Ding Talk, so that milk production and canning, the process of assembly, transportation, quality inspection, and processing is standardized and online to achieve precise control.

To date, with the help of Ding Talk, ADOPT A COW has completed the digitalization of the whole link from the production of a bottle of milk from the farm to the transportation of the final product. The enterprise has realized the primary digital transformation, that is, the digitalization of the work process, and the management efficiency has been greatly improved. The cost is reduced by 50%, and the time efficiency is increased by approximately 25%.

4.1.2 Innovation results

At this stage, Ding Talk promoted ADOPT A COW through digital empowerment to achieve various innovations in the workflow, but the innovative feedback provided by ADOPT A COW for Ding Talk was relatively limited. To a certain extent, it satisfied the demand of other dairy industry participants in the platform, providing transaction complementarity. Participants are highly dependent and have low complementarity, and traditional enterprises are generally dependent innovation.

4.2 Complementary innovation

4.2.1 Digital transformation process

ADOPT A COW launched the “Adoption Plan” at the beginning of its establishment. Customers can adopt a specific cow, and customers can subscribe to the dairy products produced by this cow first. However, if customers cannot observe the specific situation of the adopted cow, they will still have doubts. After Ding Talk helped ADOPT A COW complete the digitalization of the entire chain, the specific situation of each cow can be observed online. At the end of May 2018, ADOPT A COW launched the “Million Family Adoption Plan”, with the concept of “drinking milk, it is better to adopt a cow”. In addition, there are three adoption models: cloud adoption, joint adoption, and real-name adoption. Cloud adoption is an online interactive game. After adopting a specific dairy cow, consumers can use WeChat or Alipay applet to feed dairy cows, engage in milking interactions and exchange milk. In addition, ADOPT A COW has also initiated a pasture plan, hoping to build a century-old pasture through open business links and co-construction with users. Users can observe the real-time situation of pastures and cows through Taobao Live or the official online platform.

Through the adoption model, the company has rapidly expanded its popularity, and made full use of Ding Talk's data analysis tools to accurately locate customer needs, establish an online self-operated channel with many fans, and complete the transformation from the traditional offline to online business model. The proportion of online self-operated businesses has reached 70%.

In this stage, Ding Talk helped ADOPT A COW to realize the advanced digital transformation, that is, the transformation of the business model, and the profit increased significantly.

4.2.2 Innovation results

At this stage, through digital empowerment, Ding Talk promoted ADOPT A COW to achieve various innovations in the business model, and established an online self-operated channel for it. ADOPT A COW expanded the popularity of the network platform and became a leader in the dairy industry. Therefore, Ding Talk has been supplemented and improved in the dairy sector, and to a certain extent, ADOPT A COW has become an

embedded dairy sub-platform, providing complementary innovation for Ding Talk. The platform enterprise and the participant have initially formed bilateral collaborative innovation.

4.3 Collaborative innovation

4.3.1 Digital transformation process

The digital transformation of ADOPT A COW has been basically completed. In order to further develop, the enterprise integrates resources from platforms such as Tmall and FRESHIPPO through the integration of cloud nails, and has advertisements on Weibo, Xiaohongshu, Bilibili, Zhihu, TikTok and other platforms to conduct consumer drainage and successfully created a multi-ecological layout. In addition, the company actively seized the hot spot of live streaming, cooperated with a number of well-known anchors, and launched IP co-branded products.

At this stage, Ding Talk basically helped ADOPT A COW complete the digital transformation, and the participant began to seek cooperation with more platforms.

4.3.2 Innovation results

ADOPT A COW, through cooperation with other platforms, promotes Ding Talk innovation while realizing multi-platform co-innovation, completing the transformation from bilateral collaborative innovation to multilateral collaborative innovation.

5. DISCUSSION

Based on the case of Ding Talk helping ADOPT A COW to complete digital transformation, this paper analyzes the specific process of platform enterprises helping traditional enterprises digital transformation, explores how platforms can promote participants' innovation and obtain complementary innovation after participants' successful transformation from a bilateral perspective, and studies the mechanism of collaborative innovation. Figure 1 shows the theoretical modeling diagram of this paper.

5.1 Conclusions and contributions

This paper analyzes the specific process of platform enterprises helping traditional enterprises in their digital transformation. In the initial stage, the platform is unilaterally dominated. Traditional enterprises realize primary digital transformation, that is, digitization of work processes, and management efficiency is greatly improved. After the digitization of the work process, the traditional participating enterprises will exert their own efforts to complete the digital transformation of the advanced stage, that is, the transformation of the business model, and the profits will be greatly increased. The research in this paper enriches the theory of enterprise digital transformation.

The collaborative innovation mechanism of the platform and participants is explored from a bilateral perspective. In the initial stage, platform companies promoted multi-faceted innovation of participants' workflow through digital empowerment. Participants' feedback to the platform for innovation was limited, and participants were highly dependent and had low complementarity. With the in-depth innovation of participants, the basic blocks of the platform in the corresponding industry can be compensated and improved. To a certain extent, the traditional enterprise has become an embedded sub-platform to provide innovation and complementarity for the platform, and gradually cooperate with multiple platforms to complete the transformation of bilateral collaborative innovation to multilateral collaborative innovation.

5.2 Inspirations

Traditional enterprises can actively seek the help of the platform to complete their own digital transformation, but they cannot blindly accept the products and services provided by the platform. They should seek customized services as much as possible, and immediately output their own industry advantages after the transformation is completed. Only by providing transaction complementarity and innovation complementarity

can continue to develop together with the platform. After in-depth transformation, traditional enterprises can continue to yearn for cooperation with multiple platforms, expand their own advantages, and reduce their dependence on a single platform.

Platform enterprises should actively promote the innovation of participants through digital empowerment to harvest complementary innovation in the later stage and maintain the continuous competitiveness of the platform.

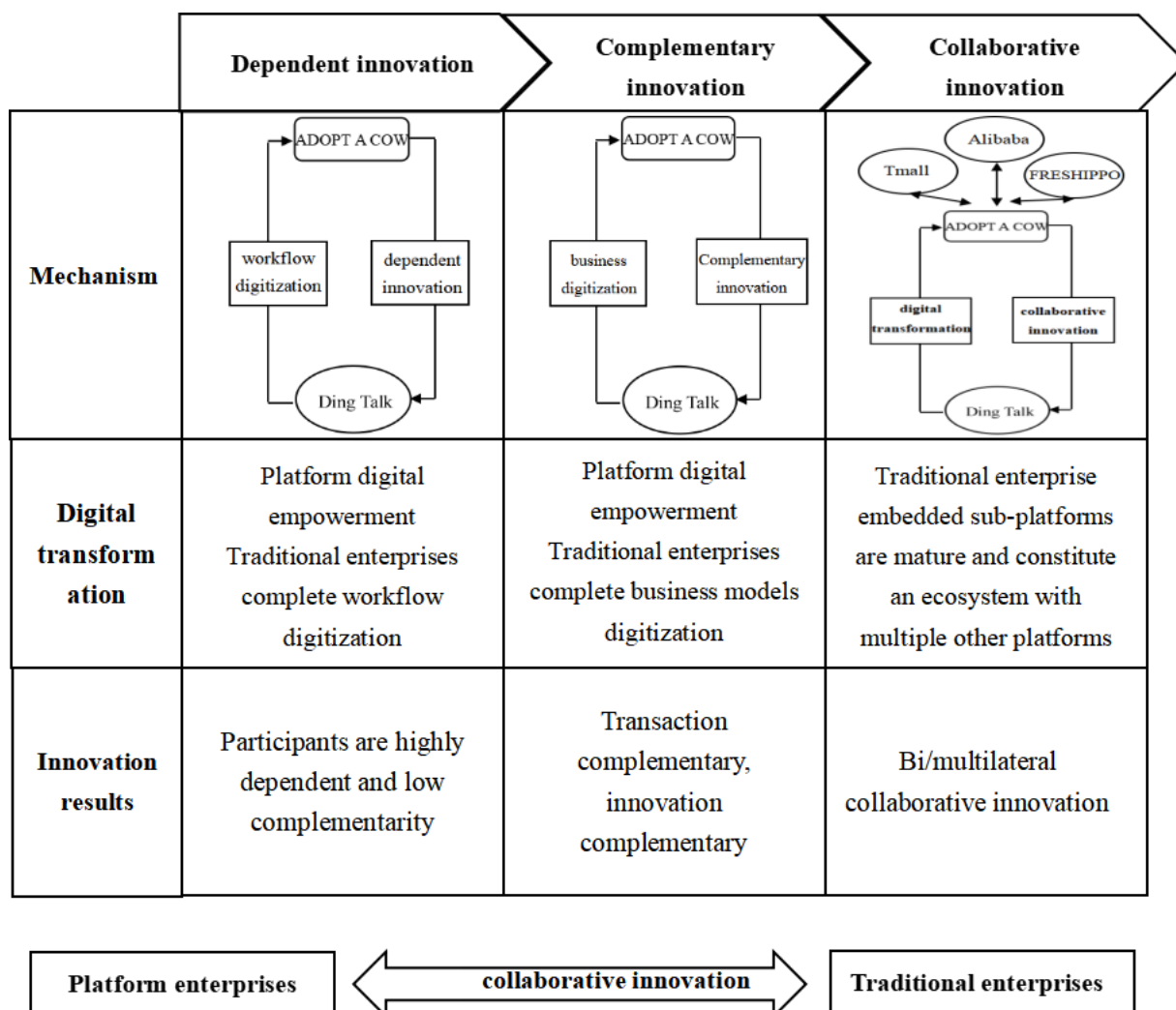


Figure 1. Theoretical modeling diagram

REFERENCES

- [1] Saarikko, T., Westergren, U. H., & Blomquist, T. (2020). Digital transformation: Five recommendations for the digitally conscious firm. *Business Horizons*, 63(6), 825-839.
- [2] Liang Li et al. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6): 1129-1157.
- [3] Chen Weiru, Wang Jiexiang. (2021). Dependency Upgrade: Digital Transformation Strategy of Participants in Platform Ecosystem. *Management World*, 37(10): 195-214(in Chinese)
- [4] Parker G. Geoffrey, Marshall W. Van Alstyne, Sangeet Paul Choudary. (2016). *Platform revolution: how networked markets are transforming the economy – and how to make them work for you*. W. W. Norton & Company, 352.
- [5] Tiwana, A. (2013). *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Computer Science.

- [6] Wang Jiexiang, Liu Yongben, Chen Weiru. (2021). How Platform Enterprises Can Stimulate the Innovation of Ecological Complementaries. *Tsinghua Management Review*, (05): 88-94(in Chinese)
- [7] Ferreira J. J. M., Fernandes C. I., Ferreira F. A. F. (2019). To be or not to be digital, that is the question: firm innovation and performance. *Journal of business research*, 101:583-590.
- [8] Chen, J. E., Pan, S. L., & Ouyang, T. H. (2014). Routine reconfiguration in traditional companies' e-commerce strategy implementation: A trajectory perspective. *Information Management*, 51(2), 270– 282.
- [9] Banerjee, P. K. & Ma, L. C. (2012). Routinisation of B2B e-commerce by small firms: A process perspective. *Information Systems Frontiers*, 14(5), 1033– 104..
- [10] Cui, M., & Pan, S. L. (2015). Developing focal capabilities for e-commerce adoption: A resource orchestration perspective. *Information Management*, 52(2), 200– 209
- [11] Cutolo, D. & Kenney, M. (2019). The Emergence of Platform-Dependent Entrepreneurs: Power Asymmetries, Risk, and Uncertainty. *Berkeley Roundtable on the International Economy*, Working Paper.
- [12] Nambisan, S. & Baron, R. A. (2019). On the Costs of Digital Entrepreneurship: Role Conflict, Stress, and Venture Performance in Digital Platform-based Ecosystems. *Journal of Business Research*, Forthcoming.
- [13] Teece, D. J. (1986). Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy. *Research Policy*, Vol.15, 285-305.
- [14] Jacobides, M. G., Knudsen, T. and Augier, M. (2006). Benefiting From Innovation: Value Creation, Value Appropriation and the Role of Industry Architectures. *Research Policy*, Vol.35, 1200-1221.
- [15] Wang Jiexiang, Liu Yongben, Chen Weiru. (2021). How to make platform enterprises stimulate ecological complementation innovation. *Tsinghua Management Review*, (05): 88-94(in Chinese)
- [16] Xie Fusheng, Wu Yue, and Wang Shengsheng. (2019). Political economic analysis of platform economic globalization. *Chinese Social Sciences*, (12): 122-124(in Chinese)
- [17] Khanagha, S., Ansari, S., Paroutis, S. and Oviedo, L. (2020). Mutualism and the Dynamics of New Platform Creation: A Study of Cisco and Fog Computing. *Strategic Management Journal*, Forthcoming.
- [18] Sun Yuzhong, Rong Mengyao. (2021). Case Study Law Literature Review. *Cooperative Economy and Technology*, (17): 140-141.