



Digital Transformation and Enterprise Value Creation - A Case Study Based on GRG Banking

Xiaoxuan Guo^(✉)

School of Management, Guangdong University of Technology, Guangzhou, Guangdong, China
2559897075@qq.com

Abstract. Digital transformation is the key for companies to cultivate competitive advantages, but few studies have distilled the paths of action in depth. This paper adopts a single-case study approach to investigate the process of digital transformation at GRG Banking, as well as the value creation mechanism and effects of digital transformation. The study finds that GRG Banking digitally upgrades its production, service, and innovation processes into digital production, digital service, and digital innovation to achieve flexible production, meet user needs, and open innovation, which improves enterprise organizational performance, enhances user value, and conducts business innovation, and ultimately realizes the enterprise's value creation process. This study of the quality development of capital markets is of some relevance.

Keywords: digital transformation · value creation · case study · GRG Banking

1 Introduction

With the rapid development of the Internet, artificial intelligence, and other digital technologies, digitalization is becoming a key force in changing the global competitive landscape [1]. Digitization is the main driver of the rapid development of the digital economy [2]. In 2022, the scale of China's industrial digitization reached 37.2 trillion yuan, accounting for 81.7% of the digital economy. Facing the strong impact of digitalization, many enterprises choose to adopt digital transformation to upgrade their industries to enhance their ability to improve their competitive advantages. Digital transformation can jointly promote enterprise value creation from various aspects such as production, management and innovation, but at the same time, there are problems such as high investment, high risk and poor results [3]. In the 2022 Accenture Digital Transformation Index Study of Chinese enterprises, it is noted that only 17% of enterprises have achieved significant results in digital transformation. Therefore it is crucial to explore the mechanism of enterprise value creation in the process of digital transformation.

Existing studies focus on the motivation of digital transformation and the value it brings to enterprises, without discussing the operational mechanism of enterprises in the process of digital transformation in detail [4]. In this paper, we analyze the digital transformation of production, service and innovation of GRG Banking, explore the value creation mechanism and value creation effect of digital transformation, and provide valuable experience for other enterprises to carry out digital transformation.

© The Author(s) 2023

G. Vilas et al. (Eds.): ICEMED 2023, AEBMR 254, pp. 397–405, 2023.

https://doi.org/10.2991/978-94-6463-224-8_49

2 Case Selection

Founded in 1999, GRG Banking is a state-controlled high-tech listed enterprise. The company's main business covers the fields of intelligent finance, transportation, public safety and government services. The reasons for choosing GRG Banking as the research object are as follows: First, GRG Banking is the leading enterprise in the field of domestic intelligent financial terminals, and has been ranked first in the market share of domestic financial machines for 15 consecutive years, and has been the pioneer and model of digital transformation of manufacturing enterprises. Second, in 2017, GRG Banking invested nearly \$5 billion in building digital infrastructure and comprehensively laying out new digital businesses in the face of lower domestic ATM market demand. After the digital transformation, the company has actively carried out innovation activities and set up many innovative businesses, and its digital transformation is experienced and has remarkable results. Therefore, the study of GRG Banking's digital transformation process can provide an experience for other companies to learn from.

3 Case Study

3.1 Digital Transformation History

GRG Banking has determined to carry out a digital transformation strategy from the end of 2017 and started to implement it to carry out digital transformation in 2018. Therefore, the digital transformation history of GRG Banking is divided into three stages, pre-transformation, early transformation, and transformation growth period.

3.1.1 Pre-transformation (2015–2017)

Since its establishment, GRG Banking has been manufacturing and selling bank automatic teller machines as its main business. With the company's continuous expansion, it has carried out three major service industries, including self-service equipment maintenance services, financial outsourcing services, and financial armed escort business. However, the company's traditional business was hit hard by the explosion of mobile payment in 2015. In late 2017, under the leadership of the new chairman Huang Yuezhen, the company established a digital transformation strategy, extending the product chain from a "teller machine" to an "intelligent network point", and pushing the business towards "digitalization, networking and intellectualization".

3.1.2 Early Stage of Transformation (2018–2019)

At this time, the company segmented its business areas and personalized them according to big data drive to achieve its strategic goal as a smart terminal and digital operation service provider. In 2018, the company implemented the construction of "1 General Research Institute + 6 professional research institutes", and in 2019, the aiCore System, an artificial intelligence big data platform, was implemented. The General Research Institute continues to improve the functions of the aiCore system platform, while the professional research institutes continue to promote the common construction and sharing of common technologies. The company connects mature digital solutions with various terminal devices to lay a certain foundation for future development.

3.1.3 Transformation Growth Period (2020 to Present)

In the field of financial technology, GRG Banking is deeply involved in the digital transformation of financial institutions, vigorously expanding incremental financial technology businesses such as financial credit creation, smart finance and scenario finance, and accelerating the opening up of new business growth points. In the field of urban intelligence, the company focuses on three core areas of digitalization of government and enterprises, large traffic and public security to launch a digital transformation business. GRG Banking provides full-stack solutions for specific businesses and conducts related digital business. At present, GRG Banking has established several AI + Big Data platforms to promote the innovation of intelligent IOT terminals. The company has created several AI + application scenarios with benchmarking effect, forming the first-mover advantage of technology-enabled industry application scenarios and promoting the high-quality development of enterprises.

3.2 Value Creation Mechanism in the Process of Digital Transformation

From a dual competency theory perspective, companies need to explore how to integrate technology with internal resources so that digital technology can be applied to existing products and technology platforms [5]. How does GRG Banking undergo digital transformation to truly create value? This paper argues that GRG Banking achieves value creation through digital production, digital services, and digital innovation to achieve increased revenue and profitability.

3.2.1 Value Creation Mechanism of Digital Production

Flexible production to improve the efficiency of research and development. In 2018, GRG Banking proposed to become a leading industry artificial intelligence solution provider. Therefore, the company combines digital technology to build a digital base for a digital type of business. The company adopts the component development model, and the component-based software can be more flexibly embedded in physical products to reduce repetitive development work, speed up product updates and iterations, and realize product intelligence [6]. Relying on more than 20 years of industrialized product manufacturing experience, the company has formed a product system with 410 types of intelligent terminals and nearly 100 solutions, and its supply chain management system is becoming increasingly mature. Under digital production, the company has deepened the synergy of production, sales and research, significantly improved digital production efficiency; strengthened product quality control, optimized supply chain channels, and enhanced flexible manufacturing capability.

3.2.2 Value Creation Mechanism of Digital Services

Scenario integration to promote user value implementation. Scenario convergence means that different innovation subjects can produce different innovation results according to different needs for the same digital technology [7]. As GRG Banking focuses on two business lines of financial technology and urban intelligence, to meet different user needs, the company needs to realize scenario-based applications of its data platform. GRG

Banking builds the platform based on three links: scenario analysis, scenario design, and scenario application. In the scenario analysis, the actual needs of users and the environmental characteristics of the platform application are examined; in the scenario design, corresponding hardware facilities are configured according to the characteristics of application scenarios; in the scenario application, corresponding software and algorithms are matched with business needs to produce a new platform that fits the scenario. The company has built numerous digital platforms according to different application scenarios, and realized the smart contract platform online in more than ten cities, accumulating profound project implementation experience, which realizes the company's digital services.

3.2.3 The Value Creation Mechanism of Digital Innovation

Open innovation to diversify innovation subjects. GRG Banking achieves open innovation and forms digital business through diversified cooperation with partners and users. First, partners join innovation. On the AI open platform, device manufacturers and technology service companies can collaborate through the platform, each taking what they need to jointly develop applications and services that meet users' needs [8]. GRG Banking cooperates with Tencent Cloud to develop a new generation of cloud counter products based on Tencent Cloud technology and product base. The addition of partner has facilitated GRG Banking to accelerate innovation and broaden the digital business. Second, user enterprises join the innovation. GRG Banking not only serves major banks but also governments around the world as well as domestic and foreign enterprises. Therefore, for different users, AI open platform provides one-stop model customization services to help users develop functions independently. The open platform is an important tool to realize open innovation, enabling partners and user enterprises to join the innovation process [9]. The construction of a digital platform makes the innovation subject diversified, and any enterprise's ideas and needs have the opportunity to be realized on the digital innovation platform.

The impact of the role of digital transformation on enterprise value creation is shown in Fig. 1.

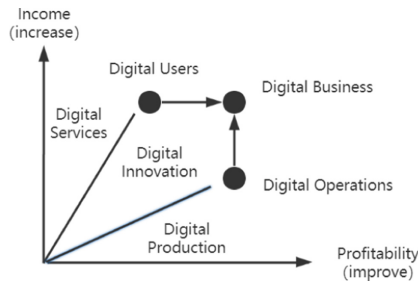


Fig. 1. Map of the impact of GRG Banking's digital transformation on enterprise value creation. Source: Author's drawing based on GRG Banking annual report.

3.3 The Effect of Value Creation During Digital Transformation

In this paper, value creation in the digital transformation process of GRG Banking is divided into three aspects: organizational performance, user value, and business innovation, which are analyzed using financial performance and non-financial performance.

3.3.1 Improve Organizational Performance

R&D innovation is a key concern of GRG Banking, and the company focuses on the improvement of R&D efficiency and has been investing a large amount in R&D. As can be seen from Fig. 2, the amount of the company's R&D investment and the proportion of R&D investment show an upward trend from 2015 to 2022, especially the rise is obvious from 2018 to 2019. The company set the strategic goal of digital transformation at the end of 2017, and in 2018 the company focused on building the infrastructure base and the research institute, and only in 2019, it started to devote itself to research, thus significantly increasing its R&D expenses in 2019. Before the company underwent a digital transformation, the proportion of R&D investment fluctuated slightly around 8%, and after undergoing digital transformation, the proportion of R&D investment broke through to 11.13%. The R&D investment has increased from 0.453 billion yuan in 2018 to 0.825 billion yuan in 2022, which is a 0.82 times increase in R&D expenses. The current proportion of R&D investment of GRG Banking is basically around 11%, consolidating its market position through continuous innovation and laying a solid foundation for its development in the fields of financial technology and urban intelligence. As can be seen from Fig. 3, after the digital transformation, GRG Banking Express has been in the leading position compared to its competitor XGD INC. GRG Banking started with a revenue of 3.073 billion yuan in 2015 and developed to reach a revenue of 7.526 billion yuan in 2022, which is a 1.89 times increase in revenue in 8 years. The company's organizational performance is continuously enhancing and the effect of digital transformation will be more significantly highlighted in the future.

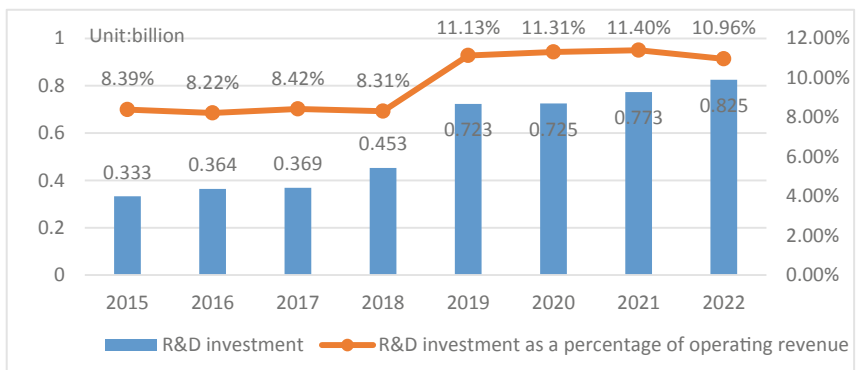


Fig. 2. Trend of GRG Banking's R&D investment. Source: Data from the Flush database

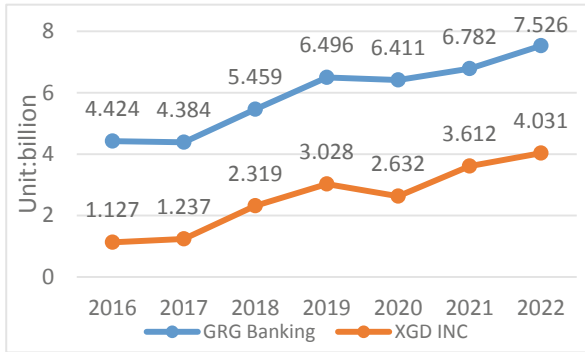


Fig. 3. Comparison of operating income between GRG Banking and XGD INC. Source: Data from the Flush database

3.3.2 User Value

User value is the subjective feeling after the needs are satisfied and is an abstract expression of the sense of gain and satisfaction after using the product or service [10]. According to the pain points of the user demand application scenario, GRG Banking has changed the combination of software and hardware to flexibly meet the needs of different users with the help of a digital technology innovation platform, thus creating user value. In the field of financial technology, the company launched a full-stack solution to help banks' digital transformation of public and retail business - the intelligent brain, to realize the construction of digital operation capacity of all scenes of banks and digital operation platform capacity of all scenes. In the field of urban intelligence, GRG Banking uses AICore System as the infrastructure to build a big data platform for the intelligent state capital, which has been recognized by many government and enterprise units after the platform has been put into operation in actual scenarios, promoting the interconnection and open sharing of digital resources of the state capital and state-owned enterprises; building a core IT infrastructure support platform with enterprise hybrid cloud + multi-cloud management platform, which can realize the group information architecture and resource support of the company, and at the same time provide business empowerment. At the same time, it empowers businesses and greatly improves the user value of the company.

3.3.3 Business Innovation

Before the digital transformation, the main business composition of GRG Banking was mainly manufacturing of automatic currency processing equipment and service industry of equipment maintenance, and the proportion of the manufacturing industry was over 75%, with single business and weak profitability. As shown in Table 1, after the digital transformation, the company has innovated its business and successfully developed its software development and service business. The original manufacturing and service industries have been innovated accordingly, developing from simple manufacturing of automatic currency processing equipment to manufacturing of intelligent equipment. The company no longer relies on a single manufacturing industry as its main business

Table 1. Composition of Broadcom's Operating Income. Unit: billion

Year	2020		2021		2022	
Project	Amount	Ratio	Amount	Ratio	Amount	Ratio
Intelligent Devices	2.667	41.60%	2.533	37.35%	2.858	37.97%
Software Development and Services	0.674	10.51%	0.917	13.52%	1.092	14.50%
Operation and maintenance services and others	3.070	47.89%	3.332	49.13%	3.577	47.53%

Note: Data from GRG Banking annual report.

but shifts its focus to the service industry. The company's software development service business revenue reaches 0.674 billion yuan in 2020 and 1.092 billion yuan in 2022. In just three years, the proportion of the company's software development and service business has grown from 10.51% to 14.50%, and the company's digital transformation has achieved certain results. Among all business segments, the software development and service business has the fastest growth rate. According to this development trend, the software development and service business will become an important driving force for the sustainable development of the company.

4 Conclusions

In this paper, we take GRG Banking as the research object and explore how the digital transformation of the company creates corporate value, and the role mechanism diagram is shown in Fig. 4. The following conclusions are drawn: the digital transformation of GRG Banking is divided into three stages: the business starts to develop in the direction of digitalization in the early stage of transformation; the early stage of transformation lays a certain foundation for the digital transformation of the company; the growth period of transformation is the period when the digital transformation of the company makes great progress. The digital transformation of the company is based on "digital production, digital service, and digital innovation". Digital production is to build digital infrastructure, based on digital technology, to transform the production process to achieve flexible production; digital service combines digital technology and services to produce specific products for specific scenarios to meet the different needs of users; digital innovation is based on the digital platform to achieve the diversity of partners and users and other subjects. The impact mechanism of digital transformation on value creation is to achieve corporate organizational performance, user value, and business innovation under the influence of three aspects: digital production, digital service, and digital innovation, thus helping the company to create value. Therefore, other companies need to develop specific digital transformation strategies in conjunction with their development strategies to develop the company's digital market. It is also important to realize that digital transformation does not happen overnight, and companies need to

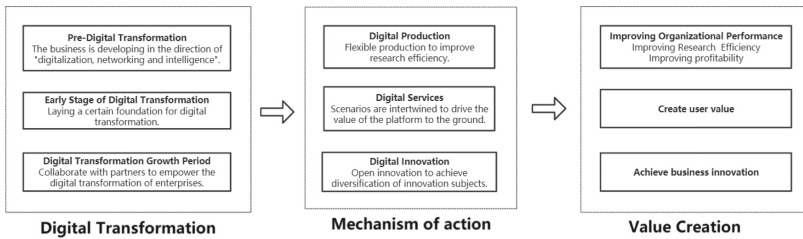


Fig. 4. Digital transformation and value creation map of GRG Banking. Source: Author's drawing based on GRG Banking annual report.

actively explore the best ways of digital transformation, timely adjust the company's organizational structure and business structure, and improve the company's resilience, so as to realize enterprise value creation.

References

1. Sun X.B., Zhang Y., Wang Y.X. (2021) Digital Value Creation: Research Framework and Outlook. *J. Foreign Economics and Management*, (10):35–49. <http://mtw.so/6uPPTU>.
2. Liu Y., Wang W., Su F.(2020) A Case Study of Enterprises Achieving Digital Transformation in the Context of Industrial Big Data. *J. Journal of Management*, 33(01):60–69. <https://doi.org/10.19808/j.cnki.41-1408/F.2020.01.007>.
3. Wang Q.,Wang C.,Liu Y.Q.(2020)Mechanisms of Retail Digital Transformation in the Perspective of Digital and Value Creation Capabilities - A Multi-Case Study of New Retailing.J. *Research and Development Management*,32(06):50–65. <https://doi.org/10.13581/j.cnki.rdm.20191843>
4. Chen K.H.,Feng Z.,Sun X. (2020) Innovation Big Data, Innovation Governance Effectiveness and Digital Transformation. *J. Research and Development Management*, 32(06):1–12. <https://doi.org/10.13581/j.cnki.rdm.20200844>.
5. Jiang, J. H., Liu, R. (2019) The Key Source of User Value Creation in Internet Products: Product or Connection? -- A Longitudinal Case Study of WeChat 2011–2018. *J. Management Review*, 31(07):110–122. <https://doi.org/10.14120/j.cnki.cn11-5057/f.2019.07.015>.
6. Liu Y.,Dong J. Y.,Wei J. (2020) Digital Innovation Management: Theoretical Framework and Future Research. *J. Management World*, 36(07):198–217+219. <https://doi.org/10.19744/j.cnki.11-1235/f.2020.0111>.
7. Li, L. Y., Zhang, D. T. (2017) Analysis of Factors Influencing the Efficiency of Intellectual Capital Value Creation in High-tech Enterprises-Based on the Perspective of R&D Investment, Industry Competition, and Internal Cash Flow. *J. Research on Quantitative Economics and Technology Economics*, 34(05):55–71. <https://doi.org/10.13653/j.cnki.jqte.2017.05.004>.
8. Wang Z.Y., Wei W., Zhu W.X. (2020) Exploring the Digital Transformation Path of Tianhong in the Perspective of Business Model. *J. Journal of Management*, 17(12):1739–1750. <http://mtw.so/6fNgGq>
9. Yan Z.C., Li X.L., Wang W.N. (2021) Digital Transformation Research: Evolution and Future Prospects.J. *Scientific Research Management*,2021(4):21–34. <http://mtw.so/5wFAB5>
10. Tang, H.D., Fang, S.H., Jiang, D.C. (2022) Market Performance of Digital Transformation: can Digital M&A Enhance the Market Power of Manufacturing Firms? . *J. Research in Quantitative Economics and Technology Economics*,2022,39(12):90–110. <https://doi.org/10.13653/j.cnki.jqte.2022.12.005>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

