

DIGITAL TRANSFORMATION: THE IMPACT OF INTELLIGENT FINANCE STUDENT INNOVATION CAPABILITY

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ABSTRACT

Digital transformation will bring a disruptive technological revolution to the finance industry, and finance is facilitating a revolution from the traditional model to the innovative development of information technology model, with significant changes in its processes, storage, and disclosure. The financial data as a big data mining object can be from a large amount of data through the algorithm to search for the information hidden in it, from different dimensions to make more accurate decisions and judgments, at the same time needed to solve the problem of data standardization and security. How to adapt to the trend of digital transformation and enhance the innovation ability of students majoring in intelligent finance is a focus of attention in both practical and theoretical fields. However, existing research has not proposed a theoretical analysis framework for financial management innovation in digital transformation, but rather a general exploration of the necessity, objects, and content of digital transformation, which is difficult to guide the innovative development and practice of students majoring in intelligent finance. This article adopts a sequential design research method of quantitative and qualitative interpretation. Firstly, quantitative data is collected and analyzed through a questionnaire survey, and then case analysis methods based on research quantitative data results are used to supplement the interpretation of quantitative data analysis results. Combine the characteristics of digital transformation to Provide suggestions and strategies in view of the existing problems of improving the innovation ability of smart finance students.

Keywords: Digital transformation, Innovation ability, Mart Finance Students

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INTRODUCTION

The China Academy of Information and Communications Technology (CAICT) revealed in its recently published White Paper on the Global Digital Economy (2023) that the digital economy is accelerating the construction of the key support for economic recovery, in which industrial digitisation continues to be the main engine of the digital economy development, accounting for 85.3% of the share of the digital economy. The top five information technologies affecting financial data include financial cloud, e-invoicing, mobile payments, data mining, and digital signatures. "These information technologies can lead to the restructuring of financial management, reduce operating costs, improve work efficiency, safeguard the integrity and security of information, and lead to the e-filing of archives" (Li Licheng et al., 2019).

The economy and society have a strong demand for the innovation ability of intelligent finance students. To this end, China has also issued many relevant policies. Since the proposal of the concept of 'intelligent finance' by China in 2018, various application scenarios have emerged. The Intelligent Finance Research Institute has held three consecutive best practice selection activities since 2020, with local intelligence achieved in areas such as fund settlement, financial accounting, management accounting, and financial reporting. In February 2022, the State-owned Assets Supervision and Administration Commission encouraged eligible enterprises to explore the establishment of a digital and intelligent financial autonomous and controllable system in the 'Guiding Opinions on Accelerating the Construction of a World-class Financial Management System by Central Enterprises.' Therefore, in the process of digital transformation and intelligent financial development, government departments and enterprises place great importance on human resource development.

Innovation is recognised as key to national competitiveness. The Ministry of Finance's 'Development Plan for Accounting Informatization (2021-2025)' in December 2021 stated that financial data has been enhanced by the concepts of digital transformation and intelligent finance. The latest technological revolution has led to the emergence of new industries, formats, and models. This has increased the demand for accounting informatization capabilities and encouraged accounting professionals at all levels and types to adapt to the digital transformation requirements of accounting work. As an emerging form of business, intelligent finance not only brings an impact on the traditional financial business model, but also provides new opportunities for the development of the financial industry. In this context, the spirit of innovation and social responsibility of financial students are particularly important.

REVIEW OF RELATED LITERATURE

Student Innovation Capability Theory

Innovation and creativity are often used interchangeably in research, and both originate from technological advancements in the field of economics. However, due to their economic and social benefits, they have gradually attracted the attention of scholars from fields such as sociology, psychology, and pedagogy. Joseph Schumpeter (1950) first proposed the concept of innovation, defining it as the establishment of a new production function to achieve the recombination of production factors. Scholars from various fields have attempted to develop a more precise definition. Creativity is the result of a unique individual's interaction with their life circumstances, materials, events, and people, resulting in a novel relational product (Rogers, 1954). Innovation is a process of problem identification, idea generation, support, and implementation (Kanter, 1988; Scott & Bruce, 1994). Innovation is defined as creating, disseminating and fulfilling new conceptions for individual, teamwork or organization (West & Farr, 1990). Innovation is defined as 'any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one' (Csikszentmihalyi, 1996).

Everett M. Rogers (2003) states that innovation refers to new ideas, practices, and things created by individuals or organizations. Later scholars defined innovation as an ability. For example, innovation is the capacity to generate novel ideas, products, or artistic performances (Beverland & Lindgreen, 2010). Innovation capability refers to the capacity to create or apply new products, services, creative work processes, and effective management procedures to gain a competitive advantage for the development of individuals or organizations (Drucker, 2014). An organisation's ability to provide unique products and services to customers and its ability to implement innovative approaches or creative strategies to achieve superior results (Hui et al., 2018).

Student Innovation Capability of Intelligent Finance Definition and Observation Variables

1) Definitions of Student Innovation Capability of Intelligent Finance

Innovation capability refers to the capacity to create or apply new products, services, creative work processes, and effective management procedures to gain a competitive advantage for the development of individuals or organizations (Drucker, 2014). Creativity is the generation of new ideas and innovative thinking (Ghimire et al., 2021). Regarding Student Innovation Capability, if learners are consistently challenged to expand their content knowledge, they will be motivated to broaden their cognitive levels (Bandura, 1999). The process of developing students' innovative abilities involves transforming experience into new knowledge and putting it into practice. Education can influence a student's attitudes towards entrepreneurship (Galloway and Brown, 2002). Innovation awareness and ability are central to students' innovative activities and are also influenced by their innovative personality. Universities' educational systems must provide an academic environment that can act as a catalyst for high-tech start-ups (Franke and Lüthje, 2004). Overall, in the research Student innovation capability signifies the process of identifying problems, generating ideas, organizing creativity, and effectively implementing them to gain a competitive advantage. Innovation activities are influenced by innovative personalities, and schools should provide an environment that acts as a catalyst for innovation capabilities. According to the needs of digital transformation in finance and economics, the innovation ability of intelligent finance students is reflected in the application ability of integrating information technology with professional knowledge, strategic thinking with innovation ability (Ding Lei et al., 2023).

Innovation awareness refers to students' attitudes, readiness or intentions towards innovation. Secondly, innovation in application refers to the creative implementation of new ideas and methods to address practical problems, offering ideas and strategies for effective problem-solving (Sumarni & Kadarwati, 2020). Thirdly, Financial technology quotient index is the ability to apply information, learn information technology, and use information to solve problems in the financial workplace. It refers to people's ability to recognize when they require information, locate, assess, and use it effectively. Finally, social collaboration, including networking, supervisory communication, and teamwork across differences (Kegan, 2009), can broaden horizons, reduce misunderstandings and conflicts, and achieve mutual growth for both individuals and teams by optimizing interpersonal relationships, strengthening supervisory communication, and actively participating in team collaboration across differences.

2) Observation variables of Student Innovation Capability of Intelligent Finance

In this research we choose the 4 dimensions for Student Innovation Capability of Intelligent Finance (SICIF). The concept consists of four dimensions: innovation awareness, innovation practice (IP), financial technology quotient index (FT), and social collaboration (SC). Each dimension of the SICIF has its own set of indicators. The indicators of Innovation Awareness dimensions embrace 5 indicators, namely Intention, expectation, attitude, planning and evaluating. Innovation application are application opportunities, application effort, application activity, the ability to integrate business and finance, Innovation and

entrepreneurship. The Financial Technology Business Index comprises five dimensions: data processing ability, data analysis ability, machine governance ability, innovation plan management ability, and innovation change management ability. This indicator is used to assess the performance of financial technology businesses. For the last dimension is Social Collaboration, which including Communication and collaboration skills, Searching for new ideas, team Advantages, team building, and proactive communication.

Table 1 Observation variables of Student Innovation Capability of Intelligent Finance

| Name, Year | Innovation Awareness | Innovative Thinking | Innovation Practice | Innovation Achievement | Cognitive and development | Financial Technology Quotient Index | Social Collaboration | autonomy and curiosity |
|---|----------------------|---------------------|---------------------|------------------------|---------------------------|-------------------------------------|----------------------|------------------------|
| Kegan, (1994) | √ | | | | √ | √ | √ | |
| Cerinek, (2009) | √ | √ | | | | √ | | √ |
| Rhodes, (1961) | √ | √ | √ | √ | √ | √ | √ | |
| De Jong & Den Hartog, (2010) | | √ | √ | | | | | |
| Matejun, (2017). | | | | | √ | √ | √ | |
| Bozic,(2017) | | | | | √ | √ | √ | |
| Parlar& Cansoy, (2017) | √ | | | | √ | √ | | √ |
| Pérez-Peñalver et al.,(2018) | √ | √ | | | | √ | √ | √ |
| Ainley&Carstens,(2018) | | √ | | √ | | √ | √ | |
| Kanter, (1988); Scott & Bruce, (1994); Shanker et al., (2017) | √ | | √ | √ | √ | | | |
| Kim et al., (2018) | | | | | √ | √ | √ | √ |
| Al-Mansoori & Koç, (2019). | √ | | √ | √ | | | | |
| Tao, J.G., Zhang, Y., & Liao, L.L.,(2020) | | | | | | √ | √ | √ |
| Al-Husseini et al., (2021) | | √ | √ | √ | | | | |
| Rii K. B., Edastama, P., & Nabilah, N. F. (2022) | | √ | √ | √ | | √ | √ | √ |
| Kim et atl., (2016) | √ | | √ | √ | | | √ | |
| Ainley & Carstens, (2018) | √ | √ | √ | | | | | |
| Al-Mansoori & Koç, (2019) | | √ | √ | √ | | | | |
| Al-Husseini, (2021) | √ | | √ | | | | | |
| Ha, D. Let atl. (2023) | √ | | √ | √ | √ | | √ | √ |
| | 11 | 9 | 11 | 9 | 8 | 11 | 11 | 7 |

Scholars commonly use the dimensions of Innovation Awareness (IA), Innovation Practice (IP), Information Literacy (II), and Social Collaboration (SC) to measure innovation capability. In this research, the dimensions for Student Innovation Capability of Intelligent Finance(SICIF) will be Innovation Awareness (IA), Innovation Practice (IP), Financial Technology Quotient Index (FT), and Social Collaboration (SC).

Digital Transformation Definition and Observation Variables

1)Definitions of Digital Transformation

Currently, there is no consistent conclusion among different researchers regarding the definition of digital transformation. The term 'digitization' is often used interchangeably with digital transformation, but the latter encompasses a broader range of changes. Digital transformation is often referred to as a technological revolution (Perez et al. 2021). The process of rebuilding business models to meet the needs of customers through the use of new technologies. A paradigm shift characterised by hyper-connectedness and collaboration between consumers and organisations across all value chain activities, including co-design, co-creation, co-production, co-marketing, co-distribution, and co-funding(Berman, 2012). The aim is to improve the efficiency and accessibility of service delivery to citizens, rather than creating new business models (Meijer & Bekkers, 2015). From the perspective of innovation, digital transformation is seen as an innovative process in which companies use

digital technology to reshape their vision, strategy, organisational structure, processes, capabilities and culture to adapt to a highly changing digital environment (Gurbaxani, V., & Dunkle, D., 2019). In this article, digital transformation is defined as follows: Digital transformation is a change that starts with the infrastructure of digital technology, digital products and digital platforms, and leads to changes at multiple levels, such as individuals, organisations and industries, and achieves certain impacts.

2) Observation variables of Digital Transformation

There are numerous measurement standards for digital transformation in both industry and academia. This is because digital transformation encompasses not only hardware equipment and technological means, but also innovation in management and changes in organizational culture. Therefore, the measurement standards for digital transformation must consider not only technical indicators but also the process and effects of change. A nationwide survey of enterprises and identified two dimensions of digital transformation: digital technology level and digital application scope (Yang Zhenning et al., 2021). Digital transformation across four dimensions: digital orientation, digital organizational preparation, digital innovation, and digital capability (Li Ling and Tao Houyong, 2023). The division of digital transformation in small and medium-sized service enterprises into digital intensity and transformation management intensity (Zeya He et al., 2023). Structured and layered the digital transformation of enterprises based on government work documents, dividing it into two levels: 'bottom level technology application' and 'technology practice application' (Zhao Chenyu et al., 2021). The former focused on the dimension of 'big intelligence cloud area', while the latter focused on the dimension of 'digital technology application'. Constructed a detailed list of four words: basic digital technology, blockchain, information and communication, and digital applications, based on the policy documents of the State Council and the digital-related Sogou cell vocabulary (Ma Lianfu et al., 2022).

Table 2 Observation variables of Digital Transformation

| Name, Year | Business planning | Business processes | Business operations | Value creation | Digital technology level | Digital application scope | Research and development design | After-sales service | Environment, talent, ... | Intelligent manufacturing |
|-----------------------------------|-------------------|--------------------|---------------------|----------------|--------------------------|---------------------------|---------------------------------|---------------------|--------------------------|---------------------------|
| Panel, I. L., (2002) | | | | | √ | | | | √ | |
| Dunleavy et al. (2006) | | √ | | | √ | | | | √ | |
| Chi Maomao et al. (2020) | √ | √ | √ | | | | | | | |
| Lu Yanqiu et al. (2021) | | √ | √ | √ | | | | | | |
| Li Liwei et al. (2023) | | | √ | | | | √ | √ | | |
| Yang Zhenning et al. (2021) | | | | | √ | √ | | | | |
| Li Ling and Tao Houyong (2023) | | | | | √ | √ | | | | |
| Zeya He et al. (2022) | | | | | √ | √ | | | | |
| Yuan Chun et al. (2021) | | | | | √ | √ | | | √ | |
| Qi Yudong and Cai Chengwei (2020) | | | | | √ | √ | | | √ | |
| Zhao Chenyu et al. (2021) | | | | | √ | √ | | | √ | √ |
| Wu Fei et al. (2021) | | | | | √ | √ | | | √ | √ |
| Ma Lianfu et al. (2022) | | | | | √ | √ | | | √ | √ |
| He Fan and Liu Hongxia (2019) | | | | | √ | √ | | | | |
| Cao Xiuqin and Liu Yanxia (2020) | | | | √ | √ | √ | | | | |
| Liu Shuchun et al. (2021) | | | | √ | √ | √ | | | | √ |
| Wang Hecheng et al. (2021) | | √ | | | √ | √ | | | √ | √ |
| Zheng Yueping (2021) | | | | | √ | | | | √ | √ |

| | | | | | | | | | | |
|---|---|---|---|---|----|----|---|---|----|---|
| Evaluation indicators for digitalization level of small and medium-sized enterprises in 2022 | | | √ | | √ | √ | | | | √ |
| Huawei's Digital Maturity Model (ODMM) | | | √ | | √ | √ | | √ | √ | √ |
| Accenture's "Digital Transformation Model for Chinese Enterprises" | √ | √ | √ | √ | √ | √ | | | | |
| Bumann Peter&,(2019) | √ | √ | | √ | √ | | | √ | √ | |
| Li Mingyue, (2023) | √ | √ | √ | √ | √ | √ | | | | √ |
| Jos'e Ant'onio Porfirio al.,(2024) | √ | √ | √ | √ | √ | √ | √ | | | √ |
| | 5 | 8 | 8 | 7 | 21 | 17 | 2 | 3 | 13 | 8 |

Generally speaking, three dimensions can be used to characterize Digital Transformation, namely: Digital technology level; Digital application scope; Environment, talent, communication. In this research, the three dimensions are explained as follows. Digital technology level is the metadata management ability, data integration and interoperability ability of key data, data science and artificial intelligence, such as the success rate of intelligent customer service answering customer questions. Digital application scope is the ability to use design thinking, continuous delivery, and adaptability to change environment, talent, communication is The ability to collaborate and innovate proactively across teams, utilize external and social resources, and build continuous learning and digital capabilities within the team.

DISCUSSION & CONCLUSION

Digital transformation has a significant impact on the innovation capability of students majoring in intelligent finance. The researchers have analysed and discussed the impact of digital transformation on job creation and destruction from various perspectives. Most research findings suggest that the development of digital technology affects employment (Balsmeier and Woerter, 2019). The rapid development of new technologies, such as artificial intelligence, has led to increased concern about future job security and the possibility of mass unemployment. Therefore, employees dealing with digital transformation are worried about losing their jobs. This will stimulate the innovation awareness of students majoring in intelligent finance and improve their financial technology quotient index.

The Chief Digital Officer is considered better equipped to judge the changing needs of digital transformation and can shift the digital strategy from high-level planning to a series of concrete actions involving close collaboration between business, finance, and IT functions. Some scholars point out that collaboration between top management is one of the important factors in ensuring the success of digital transformation programs (Matt et al.,2015). In this context, it is necessary to examine how different configurations of senior management teams empower and initiate or change the digital transition process (Marabelli and Galliers, 2017). This will facilitate a better understanding of new roles and guide the organization in designing the best top management structures to support decision-making for organizational innovation. Secondly, it is important to ensure a clear and logical flow of information.

The research findings may propose effective measures for improving students' innovation ability in the field of intelligent finance to cope with fierce competition in the new era. The models of digital transformation, curriculum teaching, social responsibility, and innovative abilities of students majoring in intelligent finance contribute to the continuous improvement of financial work, sustainable economic growth, and social development.

Research shows that in the process of digital transformation, it is necessary to investigate the correlation between digital transformation and curriculum teaching, and their impact on the

innovation capability of students majoring in smart finance. Because the impact of digital transformation on curriculum teaching is an important influencing factor for innovative talents in intelligent finance. Classroom environments have remained largely unchanged in recent years, resulting in a lack of attention to modern learning needs and digital technologies. Therefore, it is important to address the issue of how to implement digital transformation in education within the context of management and educational programs.

At the same time, it is also necessary to investigate the correlation between digital transformation and social responsibility, and their impact on the innovation capacity of students majoring in smart finance. Because the impact of digital transformation on social responsibility is an important influencing factor for innovative talents in intelligent finance. The organization of innovation needs to be challenged by introducing AI and machine learning due to their cost advantages in information processing. Today, innovation management organised by humans plays a crucial role in companies and their ability to reinvent themselves through exploratory initiatives. The course teaching related to digital transformation, including digital textbooks, digital resources, digital teaching, etc., can provide new perspectives and approaches for cultivating innovative abilities of intelligent finance students through transformation.

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