

# ***The Impact of Digital Transformation on Enterprise Performance — Evidence from Financial, Environmental, and Innovation Perspectives***

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**Abstract.** This article will discuss how digital transformation affects the comprehensive development of enterprises. Digitalization is a novel enterprise development model for contemporary enterprises, and it is of great significance in economic and social contexts. Contemporary enterprises, driven by advances in emerging technologies, have found that their traditional corporate structures are no longer well-adapted to the fierce competition in modern business and to social demands for environmental protection. Therefore, enterprises need to adopt a digital transformation policy to enhance their profits, ecological protection, and innovation capabilities. The enterprises mainly involved and studied in this article are primarily from China. This is because, as China has become one of the major economies in contemporary times, enterprises have made significant contributions to the economy. This article argues that digital transformation influences three areas: financial performance, that is, the ability of enterprises to generate profits and raise funds; and environmental protection capacity, that is, the ability of an enterprise to reduce pollution emissions and other ecological impacts during operations.

**Keywords:** Digital transformation, financial performance, environmental sustainability, innovation capability, enterprise development

## **1. Introduction**

Due to the need for efficiency growth and government regulations, Chinese enterprises need to transform, primarily through digital transformation. Among 1,000 companies in China, 50 per cent have chosen to undergo digital transformation, while globally, 67 per cent of 1,000 enterprises have done so [1, 2]. Therefore, there are many studies on digitalization from China, which facilitate the research on the digital transformation of enterprises in this article. The main issues studied and discussed in this article are in the development of enterprises, in what aspects digital transformation have an impact, and in what ways does it exert such an influence. And innovation capabilities, that is, the innovations an enterprise makes across all aspects during and after its digital transformation. There are three reasons why this article explores its theme: First, the current global economic environment is tending to stagnate. Financial difficulties have hit old enterprises, and they need to embrace new technologies, namely digital technologies, to ensure their survival, profitability and

development. Secondly, global ecological and environmental crises, such as carbon emissions, have led to climate change, negatively affecting ecosystems and human health. Such negative impacts have been recognized worldwide, leading to greater societal demands on enterprises' environmental protection responsibilities [3]. For example, enhancing ecological protection capabilities and reducing pollution generated during operation. Thirdly, the global digital industry has witnessed significant innovation and development in recent years (especially in areas such as artificial intelligence). The development of digital technology enables enterprises to arrange innovation and production activities according to different customer demands [4]. Enterprises need to draw on the achievements of the digital industry to enhance their innovation capabilities and further improve their competitiveness.

## **2. Literature review**

This section will be completed by digital transformation and financial performance, digital Transformation and enterprise environmental protection and digital transformation and enterprise innovation.

### **2.1. Digital transformation and financial performance**

Among existing research on the impact of digital transformation on corporate financial performance, some researchers argue that digital transformation, by digitizing parts of enterprises, has enhanced their efficiency and exerted a positive influence. For instance, digital transformation has improved enterprise performance through cost savings, enhanced R&D efficiency, and strengthened human resources [5]. Furthermore, other scholars have found that digital transformation optimizing financial performance is also reflected in increased revenue. They discovered that, with the help of digital transformation measures such as new management software, enterprise profit income has increased [6]. Finally, current scholarly research confirms that the operational efficiency of enterprises has also been substantially enhanced after the introduction of digital transformation. While the digital transformation of enterprises elevates economic development, through research methods such as model construction, some researchers have explored the relationship between digital transformation and production efficiency and found that it has enhanced enterprises' production efficiency and performance capabilities [7].

### **2.2. Digital transformation and enterprise environmental protection**

In terms of Environmental protection, some existing related research has established a connection between digital transformation and Environmental, social, and governance (ESG), as ESG is regarded as the standards and goals that must be adopted to fulfil corporate social responsibility, enhance environmental performance, and achieve high-quality, sustainable development. This research confirms that digital transformation has helped enterprises improve ESG performance across multiple areas. First, in terms of enterprise innovation, digital transformation has driven both green and non-green transformation, helping enterprises fulfil their social and environmental responsibilities while ensuring enterprise performance [8]. Second, a researcher pointed out that digital transformation can be regulated in its direction by receiving guidance from the government in environmental-related laws and regulations, as well as support from formal and informal environmental supervision measures within the region, ensuring that digital transformation plays a more positive role in achieving ESG [9].

### 2.3. Digital transformation and enterprise innovation

In current research, there is consensus that digital transformation promotes and facilitates enterprise innovation. The specific roles this digital transformation plays include stimulating enterprises' innovation momentum, ensuring their sustainable development, and encouraging the integration of the real and digital economies. Firstly, digital transformation promotes enterprise innovation, including both technical approaches (such as providing development tools) and economic ones. A study links digital transformation to the digital economy and confirms a positive correlation between the digital economy and enterprises' innovation performance. It helps enterprises enhance their innovation capabilities by providing platforms and promoting financing [2]. Secondly, in current research, sustainable enterprise development is regarded as a necessary condition for long-term enterprise development. An enterprise vision-driven by digital transformation can become the driving force behind sustainable enterprise development. The digital transformation of enterprises has played a significant role. By helping enterprises innovate, it has enhanced their internal management and external affairs response capabilities, ensuring sustainable development [10]. Thirdly, the improved innovation capabilities of enterprises resulting from their digital transformation are positively related to the integration of digital and real economies. Digital transformation promotes green innovation of enterprises by facilitating the integration of digital and real economies [11].

## 3. Analysis

Before presenting specific digital transformation measures, this article argues that a more detailed analysis of the causes of the three issues mentioned is needed to make the research more in-depth and convincing. At the same time, breaking down the causes of problems can make it easier to provide measures to address them.

### 3.1. Financial performance

This article argues that financial performance issues stem from the following: First, in recent years, the way of social consumption has been nearly completely different from before. For example, cross-border e-commerce, which digitizes border trade via e-commerce platforms to facilitate transactions between entities in various countries, represents a new model of modern international trade in the digital age [12]. As this new way of consumption and transactions for enterprises becomes increasingly common, enterprises need to proactively embrace various new business models, such as partnering with e-commerce platforms and selling goods on their platforms. This can be understood as a form of digital transformation. The second point is also related to the content of digital transformation and environmental protection. Due to strict environmental protection requirements, enterprises often need to invest more time, energy, and resources to meet government and societal ecological protection demands. For instance, the Chinese government proposed in 2021 to establish a more robust environmental governance system [13].

Meanwhile, although the government can encourage enterprises to adopt environmental protection measures through subsidies and other measures, this can still lead to short-term declines in profits and enterprise performance. Due to enterprises' pursuit of maximizing profits, they may find it difficult to accept the government's environmental protection requirements voluntarily [8]. This article argues that digital transformation can reduce waste and achieve stable development by enhancing enterprise operational efficiency.

### 3.2. Environmental protection

In the contemporary operational environment, the impact of relevant regulations on environmental protection on enterprises' decision-making cannot be ignored. Under the dual pressure of government regulations and social responsibilities, enterprises need to invest significant resources, such as time, funds, and human resources, to ensure compliance with laws such as the Environmental Protection Law. Although the input of these resources hinders enterprises from achieving greater profits or expanding their scale, enterprises must adhere to government regulations and fulfil their social responsibilities. However, enterprises, especially those in the manufacturing industry, may be more inclined to pursue profits when making decisions, while neglecting the pollution caused by production. In the current research, some researchers also hold that investment in environmental protection is negatively correlated with corporate performance, as such investment compresses corporate performance. However, some scholars believe that, in the long run, enhancing ecological efficiency and developing environmental technologies will offset the short-term costs of long-term environmental protection [14]. Enterprises that adopt digital transformation solutions can better promote the research and development of new environmental protection technologies and help them achieve green transformation through the various advantages of digital transformation [15].

### 3.3. Innovation capabilities

Under the dual influence of strict external regulatory pressure (from the government, trade unions, etc.) and insufficient internal operational efficiency, enterprises may face the risk of a decline in innovation vitality. On the one hand, the cost increases caused by various constraints may divert resources from enterprises' original intentions for research, development and innovation, technological updates and product innovation, leading them to prioritize meeting basic regulatory requirements rather than investing in high-risk, high-investment innovative research and development. On the other hand, the low efficiency of internal management, such as a rigid management structure and a shortage of qualified technical personnel, will further reduce the enterprise's innovation capacity. In this situation, enterprises' innovation output is prone to decline, and they may thus be defeated by more innovative competitors in market competition. In addition to weakening market competitiveness, the deceleration of enterprise innovation may also damage the enterprise's reputation. When enterprises lack continuous innovation, the performance of their products or the quality of their services will lag, failing to meet the constantly evolving demands of consumers. Consumers generally regard innovation ability as an essential signal of a company's capabilities and brand value. Therefore, enterprises that lack innovation and have outdated products often find it more challenging to win consumers' preferences. If this situation persists, the company's reputation may be adversely affected, leading to a decline in product sales and thereby weakening the company's market share and revenue-generating capacity.

When an enterprise's innovation capacity is weak and its market competitiveness is poor, digital transformation can become an essential driver of enhancing its innovation capacity, market competitiveness, and consumer reputation. Firstly, enterprises can adopt new digital operating methods through digital transformation, thereby improving operational efficiency. This can encourage enterprises to transfer new spare resources into research and development. Secondly, a company's reputation can be enhanced through additional promotional channels enabled by digital transformation (such as social media), and the public's trust in the company's statistics is relatively high, which can be used to develop new products that meet market requirements. The above measures can help enterprises increase their profits.

## 4. Solutions

This section will be discussed by environmental protection, financial Performance and innovation capabilities aspects.

### 4.1. Environmental protection

In terms of environmental protection, this article argues that three digital transformation paths can enhance enterprises' environmental performance and drive greater operational improvements. The three paths include improving the quality of enterprise production equipment, increasing transparency in enterprise management, and hiring efficient administrative personnel.

First, enterprises should allocate more of their budgets to upgrading their production equipment and contribute to their environmental performance by introducing more efficient digital devices. Specifically, efficient production equipment can directly reduce environmental pollution in an enterprise's production process. This part of environmental pollution is often regarded as the primary source of pollution generated during the enterprise's operation process. Therefore, optimizing equipment in the production process can be considered as an active response measure to this source of pollution, effectively reducing emissions. In addition, energy consumption has been reduced, as high-efficiency equipment better addresses production process issues, reducing processing hours compared to older equipment. This can effectively reduce the energy and other resources consumed per workpiece and make a significant contribution to overall energy consumption. In addition, investing in improving equipment quality can enhance a company's reputation. This improvement involves two aspects: on the one hand, for the market, better production equipment improves the quality of a company's products and enhances its ability to handle orders. By investing in production equipment, enterprises have achieved comprehensive improvements in their core production capacity. This serves as an essential reference for market purchasers, and enterprises may thereby gain a better reputation. And obtain more orders, which means the enterprise can achieve long-term profits that cover the costs of equipment upgrading investment.

On the other hand, enterprises can also gain a better reputation at the social level. By improving equipment quality, enterprises have enhanced their ability to comply with government environmental protection regulations. By complying with environmental protection regulations, enterprises can gain societal recognition for their efforts. The public may have a more positive preference for outstanding ecological protection enterprises when making market purchases. By investing in improving equipment quality, enterprises not only reduce environmental pollution and fulfil their social responsibilities but also cut production costs and enhance their social and market reputation, thereby increasing profits.

In addition to implementing improvement measures in the production process, enhancing enterprise management transparency can also yield positive improvements in operational and environmental performance at the management level. Improvements in enterprise management transparency have enabled oversight of essential decisions, especially the allocation of company resources. With high transparency, limited funds and resources can be allocated more rationally and effectively, thereby positively impacting enterprises' continued investment in environmental protection and other areas. Through rational decision-making and continuous investment in ecological protection, enterprises will better meet the government's and the public's demands for their social responsibility in environmental protection. This will give enterprises greater motivation to make investment decisions related to environmental protection, and, overall, they will develop a

willingness to shift from passively responding to ecological protection responsibilities to proactively undertaking environmental protection obligations.

In addition to enhancing transparency in enterprise management, hiring outstanding management personnel is also a feasible measure to improve enterprises' environmental protection performance during the management process. Hiring outstanding managers and placing them in essential positions within the enterprise can significantly enhance the company's operational efficiency. This improvement includes optimizing the enterprise's management processes with the assistance of these excellent managers, as well as the execution capabilities required when the enterprise makes decisions and responds to government regulations. At the environmental protection level, outstanding management personnel enable enterprises to implement the government's environmental protection requirements better. By abiding by environmental protection regulations and fulfilling ecological protection responsibilities, the enterprise can also improve its social reputation, attracting more outstanding personnel, including better management, production, and R&D personnel. This can bring about all-round improvement for the enterprise. Through these remarkable new talents, Enterprises can also gain a greater reputation and profits, ultimately leading to a virtuous cycle in their operations and development.

## 4.2. Financial performance

In terms of enterprise financial performance, this article argues that enterprises can enhance their performance by implementing the following three digital transformation measures: introducing performance management software, adopting more advanced financial management and data analysis systems, and establishing digital enterprise procurement and sales channels.

Firstly, performance management software, as a digital transformation measure at the enterprise management level, can help improve the overall efficiency of the enterprise. Through performance management software, enterprise managers can obtain real-time micro reports on the operation of the enterprise (including the progress and achievements of employees' work) and macro reports (including the enterprise's real-time financial status). In the past, if enterprise managers wanted to obtain information across all aspects of the enterprise, they had to rely on manual processes, which could lead to delays in information and, in turn, decision-making mistakes. Performance management software can reduce redundancy in manual labor and processes, and lower enterprises' operating costs. Managers make more accurate analyses and decisions based on the information and reports provided by performance management software, thereby improving the efficiency of resource utilization in enterprises. The enterprise's overall financial performance has been enhanced through reduced production costs resulting from improved resource utilization efficiency and decreased operating costs from management redundancy.

In addition to introducing digital transformation measures into management processes, digital financial management and data analysis measures can also enhance enterprises' financial performance. Compared with old-fashioned measures based mainly on manual labor, digital financial management measures make enterprise capital flow clearer and more transparent. Enterprise management can more intuitively monitor the flow and use of every fund, ensuring that management has a direct financial reference for the enterprise's current situation and the results of past decisions. In addition, digital data analysis can analyze, evaluate, and predict an enterprise's current financial crisis, which is beneficial for management in making more rational and accurate financial decisions. An enterprise's limited funds can be utilized more effectively, thereby achieving the maximum utilization rate. Through digital financial management and data analysis, enterprises

ensure that restricted funds are not wasted and maximize profits from funds used effectively, thereby enhancing their financial performance.

Finally, digital procurement and sales channels can help enterprises better achieve cost control and profit improvement. In terms of procurement, enterprises can establish a digital supply chain. By reducing costs in raw material procurement, product inventory, and logistics, enterprises can preserve their limited reserve funds and reduce production costs, achieving positive cost control. In terms of sales, digital e-commerce platforms, as essential sales channels in contemporary times, enable enterprises to expand their product audience and consumer base by joining these platforms, thereby increasing product sales volume and boosting profits. Through digital transformation, enterprises have achieved cost control and profit improvement, helping them increase the turnover rate of funds, improve their cash flow, and enhance their financial performance.

### 4.3. Innovation capabilities

This article holds that digital transformation can contribute to enhancing an enterprise's innovation capabilities in three aspects: adopting digital R&D tools; Use a smoother information sharing platform; Introduce digital market data analysis.

First, in the contemporary era of digitalization and informatization, digital R&D tools, as one of the digital transformation measures that enterprises should take for innovation, can help enhance the product and technology R&D of enterprises. For enterprises that adopt old R&D tools, their R&D costs (including preliminary research, repeated experiments, etc.) often lead to a reduction in the expected returns of the enterprise. Furthermore, the R&D efficiency of the old R&D tools is even lower, making it difficult to respond immediately to market demands and launch new products promptly. Eventually, this leads to the enterprise's competitiveness being lower compared to other enterprises that have undergone transformation and improvement. Through digital R&D tools, the R&D costs of enterprises have been reduced, which saves them additional expenses. Moreover, the R&D department has improved its R&D efficiency and innovation output through digital R&D tools. Ultimately, the overall innovation ability of the enterprise has been enhanced, and its market competition has also improved.

In addition to adopting digital R&D tools, the use of digital information sharing platforms is also a feasible digital transformation measure that is conducive to enhancing the innovation capabilities of enterprises. Traditional enterprise information sharing relies on means such as documents or oral communication, resulting in relatively low efficiency of information exchange, relatively difficult collaboration within the enterprise, and low efficiency of information circulation. In addition, the traditional enterprise information exchange process is complicated, which can easily lead to employees being overly conventional and it is difficult to stimulate their enthusiasm for innovation. By adopting a digital information sharing platform and establishing a digital information database for the enterprise, internal collaboration within the company can be enhanced, and the flow of information and knowledge within the enterprise can be made smoother. At the same time, the enthusiasm of employees for innovation can be stimulated, and the overall innovation ability of the enterprise can be improved.

Finally, digital market data analysis can also contribute to enhancing the innovation level of enterprises. The feedback on market preferences determines a company's market competitiveness. In addition, the judgment on technological paths determines whether a company can develop healthily. Digital market data analysis can more quickly and accurately summarize market preferences and more accurately identify market demands for products. This makes it clearer for enterprises to judge capital investment and determine the direction of product innovation, etc. The risk of innovation

failure for enterprises can be reduced, and the waste of enterprise resources can be prevented. In conclusion, through digital market data analysis, enterprises can enhance their innovation level.

## 5. Conclusion

Overall, this article demonstrates that digitalization is not only a trend but also a key strategic requirement for enterprises seeking sustainable development in today's competitive environment. The previous sections systematically studied how digital transformation affects financial performance, environmental protection and innovation capabilities, and proposed feasible solutions to address the corresponding challenges. The analysis section shows that enterprises are under increasing pressure from constantly changing consumer behavior, stricter government regulations, and the evolving technological landscape. Financially, the shift towards digital business models such as e-commerce platforms and digital supply chains has become the key to maintaining competitiveness and profitability. At the same time, regulatory pressure and social expectations regarding environmental responsibility require enterprises to invest in sustainable practices, which often leads to higher short-term costs and operational challenges. Furthermore, innovation capabilities are threatened by both external regulatory requirements and internal inefficiency. If not proactively addressed, it may lead to the loss of market position and reputation. In response to these issues, the solutions section of this article outlines targeted digital transformation strategies. In terms of environmental protection, upgrading production equipment, enhancing management transparency and recruiting skilled managers are key measures. These measures not only reduced pollution and energy consumption but also strengthened compliance and raised public awareness. Financial performance can be enhanced by adopting performance management software, advanced financial and data analysis tools, and digital procurement and sales channels. These measures have simplified operations, optimized resource allocation, and enabled more accurate data-driven decision-making. In terms of innovation capabilities, it is recommended to introduce digital R&D tools, promote effective information sharing and utilize digital market analysis to enhance R&D efficiency, internal collaboration and the ability to respond to market trends.

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