Research on the Digital-Intelligent Transformation of Management Courses in Universities

—Taking the Enterprise Strategic Management Course as an Example

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Abstract. Taking the "Enterprise Strategic Management" course in universities as an example, this paper discusses how to digitally transform traditional management discipline teaching through literature review, digital-intelligent transformation pathway design, and summary of teaching practice examples. The research proposes that course digital-intelligent transformation should first establish a three-dimensional integrated teaching framework combining "strategic management theory + digital-intelligent technology application + digital strategic scenario simulation practice". Secondly, it should construct a "trinity" digital-intelligent teaching model comprising a three-dimensional digital-intelligent teaching system, "dual helix" digital-intelligent teaching content, and full-chain "digital + human" intelligent evaluation mechanism. The transformation can be implemented through digital-intelligent resource development and design across various teaching modules, as well as integration into quality-ability-knowledge objectives. Finally, taking the digital-intelligent teaching practice of Porter's Five Forces Model as an example, the paper illustrates how to effectively integrate digital intelligence into teaching frameworks, models, and content by combining flipped classrooms, online-offline blended teaching, data collection-analysis-visualization, and AI-assisted strategic case discussion-analysis-insight generation.

Keywords: Digital-intelligent teaching, Flipped Classroom, Online-offline hybrid teaching, AI+ (Artificial Intelligence empowered), Strategic Management, Multidimensional teaching.

1 Introduction

The development and popularization of digital and artificial intelligence technologies are entering a brand-new era, which is profoundly reshaping the educational ecosystem and innovation paradigm, and has become a crucial force for empowering the innovative development of higher education. Management courses in universities contain a

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large amount of qualitative knowledge. The popularization of artificial intelligence technology has posed significant challenges to conventional educational methods such as case discussions and knowledge point analysis. How to apply digitalization and intelligentization to management courses, enabling course teaching to maintain strong vitality and high educational value through innovation in the new era, is a common issue faced by management teaching in universities.

The *Enterprise Strategic Management* course is one of the typical courses for management-related majors in universities. Usually offered to senior undergraduates and postgraduates, it helps students majoring in management-related disciplines enhance their knowledge, literacy, and abilities from multiple aspects, including strategic theory, strategic thinking, and enterprise practice simulation. The course enables students to understand enterprise management from a macro and holistic perspective, and emphasizes making effective strategic decisions in an uncertain and complex environment. *Enterprise Strategic* Management integrates and applies knowledge points from multiple functional fields such as financial accounting, operation management, marketing, and R&D management, thereby promoting the integration and application of interdisciplinary knowledge. Against the backdrop of the rapid integration of digital-intelligent technologies into education and teaching, it is an opportune time to explore the digital-intelligent reform of the *Enterprise Strategic Management* course in universities.

2 Literature Review

Currently, there is no unified definition for the theoretical connotation of digital-intelligent transformation in education, teaching, and courses, and different scholars have discussed it from various methodological perspectives. Wang Zhuli (Wang Zhuli et al., 2025) [7] and others argue that digital-intelligent integrated courses refer to a new type of course form guided by the new knowledge view and new talent view in the digital-intelligent era. These courses deeply integrate digital-intelligent technologies with course teaching, aiming to cultivate new-quality talents. Liu Li (Liu Li et al., 2025) [4] and others hold that in the face of knowledge transformation in the intelligent era, teaching should focus on building thinking-oriented deep learning classrooms, constructing digital-intelligent integrated teaching spaces, exploring human-machine collaborative teaching models, and promoting intelligent teaching evaluation based on evidence-based diagnosis and improvement.

These literatures suggest that the digital-intelligent transformation of the *Enterprise Strategic Management* course is inseparable from the application of data and artificial intelligence technologies, a human-machine collaborative teaching model, and a digital-intelligent integrated teaching space. On this basis, a deep learning classroom should be established. In terms of teaching evaluation, learning process data can be collected for evidence-based diagnosis, improvement, and personalized teaching.

The popularization of generative artificial intelligence has also brought many challenges to education and teaching. Liu Fang (Liu Fang, Xu Li, 2024) [3] and others point out that over-reliance on technology tends to undermine the innovative spirit of teachers

and students. Teachers also need to be prepared to supplement teaching when "algorithm failure" occurs and prevent "data output deviation". In teaching practice, emphasis should be placed on teaching for the "integrated person", transforming knowledge into wisdom through examining oneself and understanding the world, and returning to the essence of practice in the process of idea generation. Lan Guoshuai (Lan Guoshuai et al., 2024) [2] and others summarize the views in the *2024 EDUCAUSE Horizon Report (Teaching Edition)* released by the EDUCAUSE. They argue that applying artificial intelligence in teaching may face risks such as unequal access, accuracy of output content, algorithmic bias, and academic integrity. It is advisable to make good use of artificial intelligence to assist rather than replace human work, and students should understand that creativity, empathy, love, and humanity cannot be replicated or replaced by artificial intelligence.

These literatures remind us that teachers should make full use of data tools and artificial intelligence tools to innovate course resources during lesson preparation. Through highly interactive teaching arrangements, rigorous data-based evidence, and a collective and mutually inspiring learning atmosphere, students can not only experience the efficiency improvement brought by artificial intelligence to learning but also fully recognize that the creative discoveries and business insights achieved by humans through more comprehensive and accurate data and in-depth thinking based on theoretical models cannot be completely replaced by artificial intelligence tools. Additionally, students should be able to perceive positive social emotions.

At present, there is relatively little research on the digital-intelligent transformation of the *Enterprise Strategic Management* course. In recent years, reforms related to this course mainly include online-offline hybrid teaching (Sun Ting et al., 2024) [6] and teaching reform based on practical ability cultivation (Li Yuji, 2024) [5]. From these studies, online-offline hybrid teaching is an inevitable choice to improve teaching efficiency and effectiveness in the current technological environment, and the "flipped classroom" teaching method is also one of the commonly adopted reforms. In class, teachers no longer simply impart theoretical knowledge of the course; instead, they turn the classroom into a space for interactive learning with students. They examine and discuss the learning tasks assigned before class, and check the learning effects through answering questions and completing tasks.

3 Paths for Digital-Intelligent Transformation of the Enterprise Strategic Management Course

Based on the aforementioned literature content and implications, under the background of the in-depth integration of educational digital transformation and the "Digital-Intelligent China" strategy, the course takes "serving national strategic needs and cultivating interdisciplinary management talents in the digital-intelligent era" as its fundamental orientation. The transformation path of the course is defined as: building a "three-dimensional integration" new digital-intelligent teaching framework for the *Enterprise Strategic Management* course and constructing a "trinity" digital-intelligent teaching model.

3.1 Building a "Three-Dimensional Integration" Digital-Intelligent Teaching Framework

Closely aligning with the national strategic positioning of "the digital-intelligent economy becoming a new engine for economic growth", the course construction is deeply integrated into the development needs of "industrial digital-intelligent transformation". By constructing a three-dimensional integrated teaching framework of "strategic management theory + digital-intelligent technology application + digital strategic scenario simulation practice", efforts are made to cultivate two core capabilities:

- The ability to gain insights into industrial and enterprise strategic issues based on big data analysis and data visualization. This includes using artificial intelligence web crawling tools to collect data, and applying tools such as Tableau, Power BI, and Excel to conduct visualized analysis of industry and enterprise competitive trends and assist in strategic decision modeling.
- AI-enabled strategic decision-making ability. Students should master the use of common artificial intelligence tools such as DeepSeek, Doubao, and Tongyi Qianwen, and fully combine these artificial intelligence tools with their own data collection results and analysis capabilities to scientifically formulate enterprise strategic decisions. Due to the unexplainability of the output results of artificial intelligence tools and potential algorithmic bias, students need to develop the ability to conduct multi-angle analysis, in-depth inquiry, and comprehensive correction of the output results using professional knowledge and data-based learning methods.

3.2 Constructing a "Trinity" Digital-Intelligent Teaching Model

Digital-Intelligent Teaching System: Building a Three-Dimensional Teaching System Combining Online-Offline Hybrid Teaching and Flipped Classroom.

Relying on intelligent teaching platforms of the Ministry of Education, Xuexitong, Duifenyi, and other online teaching platforms, a "three-stage progressive" course structure is constructed: Basic theory module (online independent learning); Case analysis module (hybrid discussion); Digital practical simulation module (offline immersive exercise).

A typical case library of enterprise digital-intelligent transformation and a typical case library of leading artificial intelligence enterprises are developed, integrating video and text materials and made available on the online teaching platform. Students independently study theories and cases before class and answer questions on the platform; in class, offline debates are held to reproduce the strategic decision-making scenario, thereby materializing abstract theories.

Digital-Intelligent Teaching Content: Constructing "Dual-Helix" Digital-Intelligent Teaching Content.

In the horizontal dimension, classic strategic management theories (PEST, Five Forces Model, Value Chain, etc.) are integrated with digital technology tools (Business Intelligence (BI), enterprise profiling, digital twins, etc.). In the vertical dimension, the

entire process of "strategic analysis - formulation - implementation - evaluation" is connected. Artificial intelligence tools and technologies are introduced to collect real-time business data and analysis materials, training students to use intelligent visualization tools to construct strategic dashboards and generate their own strategic decision insights based on this.

Digital-Intelligent Teaching Evaluation: Establishing a Full-Chain "Digital + Human" Learning Effect Monitoring Mechanism.

In the AI era, through the intelligent analysis of learners' learning behaviors and log data, personalized learning paths, learning content, learning suggestions, and diverse learning resources can be provided based on their foundation, abilities, interests, and needs, greatly improving the depth and efficiency of learning. For the *Strategic Management* course, full-scale data collection throughout the teaching process can be conducted to construct a three-dimensional multi-variable evaluation model covering: Cognition (mastery of knowledge graphs); Skills (digital-intelligent analysis of strategic issues, practical simulation, and presentation/debate effects); Literacy (self-discipline, teamwork, and strategic decision-making ability).

Through a "digital + human" dual-track evaluation mechanism, multi-dimensional learning behavior labels of students are tracked, and personalized learning evaluation and diagnostic reports are generated.

The *Enterprise Strategic Management* course usually requires students to take the strategic analysis and case presentation of actual companies and industries as an important basis for course assessment. In the process of analysis, discussion, reporting, and case presentation, data analysis, visualization, the data basis and reasoning presentation of various strategic model tools, and the appropriate use of artificial intelligence tools can all serve as important bases for evaluating students' ability to use digital-intelligent tools and their digital-intelligent decision-making ability.

In general, the "trinity" digital-intelligent teaching model combines the teaching system, teaching content, and teaching evaluation. Through digital-intelligent transformation, it cultivates strategic management talents with digital-intelligent analysis capabilities, leadership, and execution, providing intellectual support and talent guarantees for promoting the in-depth integration of the digital-intelligent economy and the real economy.

4 Example of Digital-Intelligent Transformation of Teaching Content—Digital-Intelligent Teaching Case of Porter's Five Forces Model

In response to the design of the digital-intelligent transformation of teaching content, the author has carried out some teaching practices. The following is a summary of the digital-intelligent teaching practice for the knowledge point of Porter's Five Forces Model.

Porter's Five Forces Model assesses an industry's ability to obtain excess returns through the intensity of five industry forces. The five forces in the model are: the intensity of competition within the industry, the threat of potential entrants, the threat of substitutes, the bargaining power of suppliers, and the bargaining power of buyers. The stronger these five forces in an industry, the weaker the industry's profitability; conversely, the weaker these five forces, the stronger the industry's profitability.

4.1 Case Introduction, Data, and Assignment Requirements

In the warm-up session of this module's teaching, first, indicators for analyzing industry profitability are discussed and introduced, such as Return on Equity (ROE), Return on Assets (ROA), net profit margin, and gross profit margin. Second, commonly used industry analysis databases are introduced to students, including Wind Database, Bloomberg Database, CSMAR Database, and the industry data platform of Professor Aswath Damodaran from New York University (Damodaran, 2025) [1]. Afterwards, students are asked to complete one of the following assignments in groups after class:

- Collaborate in groups to identify the top 5-7 industries with the highest and lowest sustained ROE in the United States over the past 10 years. Analyze why these industries have sustained high or low returns, and provide at least 3 reasons for each industry. When answering this question, artificial intelligence tools such as DeepSeek can be used, but each student must first derive an answer, review it, and upload the personal result to the individual assignment section of this case on the online teaching platform. Then, a final group answer is formed through group discussion and uploaded to the group assignment section of this case on the online teaching platform.
- Collaborate in groups to download the ROE data of listed companies by industry in the United States over the past 10 years from Professor Damodaran's industry data platform. Calculate the average ROE of each industry in each year, and use visualization tools such as Tableau, Power BI, Excel, or Python programming to display the returns of the top 5-7 industries with the highest and lowest sustained returns over the past 10 years in a single chart. Each student uploads the results of their responsible part to the individual assignment section of this case on the online teaching platform, and the final group results are uploaded to the group assignment section of this case on the online teaching platform.

4.2 Considerations in Case Design

Multi-Dimensional Implementation of Digital-Intelligent Transformation.

The teaching design of this knowledge point reflects multiple dimensions of the approach and goals of the course's digital-intelligent reform, including flipped classrooms, online-offline hybrid teaching, the use of data tools and artificial intelligence tools, the mutual verification of classic theories and modern data, the experience of the theoretical generation process in a data-driven manner, the experience of the charm of classic models, and the understanding of team operation and the cultivation of positive

social emotions of teamwork and healthy competition and cooperation through team collaboration.

Reflection of Personalized Teaching.

The requirement for each group to complete only one of the assignments is to reflect personalized teaching. Students have different strengths and interests; some prefer qualitative analysis, while others prefer quantitative analysis and graph-based analysis. At the same time, this arrangement helps save students' after-class study time and improve the completion rate of assignments.

Collection of Process Data.

In the past, group analysis of strategic cases was often a "black box". It was difficult to assess and measure whether group members participated and what contributions they made to the group results. In the teaching design of this knowledge point, by requiring the separate upload of personal results and group results, the "black box" of group assignments can be opened, and more process data can be collected. This helps urge students to actively participate in group projects and facilitates teachers to carry out personalized tracking, guidance, and evaluation of learning effects.

Enhancement of Classroom Interaction.

Although groups take on different assignments, there is a close logical connection between the assignments. Groups completing the first assignment can obtain verification and correction for their qualitative analysis from the visualization charts of groups completing the second assignment, while groups completing the second assignment can gain inspiration for qualitative analysis from the conclusions of groups completing the first assignment. This helps students concentrate in class, compare and verify with each other, and conduct in-depth discussions.

4.3 Student Assignment Process and Classroom Discussion

Most students who choose the first assignment usually first use artificial intelligence search tools to find out which industries in the United States have the highest and lowest sustained ROE. According to statistics, over 90% of students in the *Strategic Management* course will first use artificial intelligence to search for answers to relatively qualitative case analysis questions. For groups choosing the second assignment, the choice of visualization tools depends on the courses students have learned in the past. Students often choose Excel, Power BI, or Tableau, but Excel has the highest usage rate.

During in-class discussions, students will find through comparison that there are significant differences between the answers of artificial intelligence tools and the results presented by data. For example, artificial intelligence tools often answer that the finance and insurance industry is an industry with extremely high sustained ROE. However, from the data, the highest industry return rate of the banking (capital center) industry over the past 10 years (2014-2025) is only 14.97%, and the highest return rate of the

life insurance industry over the past 10 years is only 11.93%, which are far lower than the lowest industry return rates of the automobile retail industry and the soft drink industry over the past 10 years (32.34% and 21.98% respectively). Another example is that artificial intelligence tools usually generally list industries such as the healthcare industry as industries with relatively high sustained returns. However, from the data, the return rate of the health products industry is actually not high; the industry with truly high return rates is the pharmaceutical industry.

When answering why some industries have sustained high returns, students often list reasons such as large market demand, high investment requirements, and economies of scale based on the answers of artificial intelligence. At this point, it is necessary to guide students to think about whether the same phenomena exist in low-return industries. If these phenomena also exist in low-return industries, it is necessary to consider whether this reason is a fundamental one or whether it needs to work together with other factors to improve the industry's return rate. For example, the power and banking industries have large market demand, but their return rate rankings are not high. Through this, the classic theory that the five forces in Porter's Model determine the level of an industry's return rate is introduced.

4.4 Teaching Effects

After studying this module, students have improved their digital-intelligent abilities in the following aspects:

- Data collection and cleaning capabilities;
- Data visualization chart production capabilities;
- Data-assisted strategic issue analysis capabilities;
- Ability to use artificial intelligence tools to assist strategic analysis;
- Ability to analyze the conclusions of artificial intelligence tools independently.

At the same time, through independent data analysis, chart construction, in-depth thinking, comparative research, group discussions, and classroom debates, students have developed a deep understanding of classic strategic management theories, established a basic benchmark for industry data in the contemporary social economy, and experienced positive social emotions in collective division of labor and cooperation, group discussions, and classroom debates.

5 Conclusion

In the digital-intelligent era, the AI+ digital-intelligent transformation of the *Enterprise Strategic Management* course is necessary and feasible. Both teachers and students can make full use of big data, artificial intelligence tools, and data analysis and visualization tools to develop and reconstruct methods for common strategic analysis theories and models. Teachers need to collect a variety of available data sources, combine strategic theory knowledge points, and develop digital-intelligent cases and teaching resources for each teaching module. Based on the digital-intelligent resources developed by

teachers, students use digital-intelligent tools to conduct digital-intelligent thinking and exploration and personally participate in in-depth digital-intelligent simulation practice. Only in this way can a brand-new *Enterprise Strategic Management* teaching course that combines digital-intelligent technology and digital-intelligent content be created, and excellent students with outstanding digital-intelligent literacy, strong digital-intelligent practical ability, and internalized digital-intelligent strategic management thinking into wisdom be cultivated.

Looking forward to the future, with the emergence of more intelligent tools and agent technologies, students' efficiency in learning knowledge and answering questions will be higher, and it will become more challenging to truly improve students' thinking and practical abilities. Only by continuously promoting more in-depth transformation and reform of the course can we keep up with the trend of the times.

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