

# Research on Digital Transformation and Implementation Path of Marketing Specialties in Colleges and Universities in the Age of Artificial Intelligence

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## Abstract

The growth of artificial intelligence technology is causing a revolution in the global business landscape, with the marketing discipline leading the way. The digitalization of consumer behavior, fragmentation of marketing channels, and the intelligence of decision-making models are driving companies into a corner towards a new - type marketing talent that can harness data insight and algorithm - based applications. Meanwhile, the current marketing major in higher education is still organized around the traditional 4P theory, and there are decades - long generational divides between curricular contents and new iterations of industry technology. Data indicate that more than 70% of marketing positions require some digital skills, such as user portrait analysis, or intelligent placement, but the trained response to this demand by the cultivation system in higher education has not been systematic. This discrepancy between supply and demand pulls not only on the competitiveness of graduates, but also inhibits industrial intelligent upgrading. The digital transformation of marketing as a major is no longer an exploratory issue but rather a survival issue in terms of whether it will still function as an discipline.

## Keywords

artificial intelligence, marketing program, digital transformation, implementation paths

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## 1. Introduction

Marketing education is at a historic turning point. When deep learning algorithms effectively predict consumer preferences and virtual anchors are reshaping the logic of brand communication, the education potential of traditional marketing theory is inherently challenged. Artificial intelligence (AI) is not just an improvement in tools, it is also a challenge to the marketing cognitive - a cognitive paradigm that prompts talent with the attention for “dual - core ability” of business understanding and data model. The education situation today is that we lag in knowledge - dissemination behind technological advancement, learning and skills training are disconnected from contemporary settings, the tendency to evaluate on traditional criteria ignores innovations and tolerance for errors. The resulting disconnect leaves graduates in an embarrassing position of having “tight knowledge but loose practice”. Educators must equally realize that digitalization is not just incremental improvement by offering a few programming courses, it is in fact an all - dimensional

rebirth from educational philosophy to implementation paths. This article attempts to cut through the fabric of technology hype and clarify the foundational contradictions and key solutions for the transition.

## **2. Theoretical Foundations of Marketing in the Age of Artificial Intelligence**

### **2.1 Definition and Characteristics of Intelligent Marketing**

The marketing paradigm, powered by artificial intelligence, has transcended traditional tools and has evolved into a strategic cognitive framework with interdependent data, algorithms, and business perspectives. At its core is a user value mining system that builds a dynamic value creation system, relying on machine learning metrics to conduct analyses within milliseconds on massive traces of consumer behavior that converts fuzzy consumption intent models into measurable decision paths. The feature layer reveals three impressive transformations: marketing activities have transitioned from experience-oriented to prediction-oriented, with the substitute of real-time optimization for scheduled planning; the creative production chain has been reimaged by human-machine collaboration. While natural language generation tools provide routing in brand storytelling, humans design the emotional resonance; ethics has become a new competitive moat, and algorithm transparency and privacy protection are now the valuable anchors of a brand's trust. This paradigm shift has disrupted the marketing education model. The AIDA model we are teaching in the classroom now urgently requires an infusion of clean data feedback and self-healing model layers, because consumers' decision-making is now taking place in neural networks and their decisions may be iterated for accuracy [1].

### **2.2 The Impact of Digital Transformation on Marketing Education**

The transmission knowledge model of marketing education is crystallizing structural change. AI has disassembled interpretive limits of traditional theories as well as changed the tool carriers. Consumer behavior models relied upon empirically in traditional teaching have decreasing explanatory power in the data stream, and the funnel theory delivered in class barely aligns with ever - rolling user conversion paths. Educators must face three structural shifts: the knowledge system must permit dynamically updated algorithm logic; parts of cluster analysis and recommendation engine principles have transitioned to baseline skills; and teaching contexts must urgently create real - world data contexts. Case discussions without enterprise - level CDP platforms for contextualisation have become as empty as uninformed philosophising; when students and educators spell out the 'theory bug', there is no return point because education system and industry practice has fundamentally changed the roles of students and educators. Educators shift from being knowledge authorities into data coaches, while for students, part of cleaning noisy data is cultivating business intuition. At the heart of this structural transformation is the truth that it exposes and closes the 'time - lag' of teaching theory gap to practical industrial fields, thus forcing all educators to examine better the importance of each module in their development program.

## **3. Problems and Challenges in the Development of Digital Transformation of Marketing Specialties in Colleges and Universities**

### **3.1 Disconnect between Curriculum System and Market Demand**

Currently, the curriculum framework of the marketing major is facing severe challenges in generational adaptation, and there is an increasingly widening gap between knowledge supply and the industrial intelligentization process. Many universities are still using the marketing framework based on the traditional media environment. The core courses only make conceptual references to cutting - edge content such as user data mining and algorithm recommendation mechanisms, making it difficult for students to access real intelligent advertising systems or customer data platforms in class. Cross - domain capabilities urgently needed by enterprises, such as the integrated training of behavioral data analysis and business strategies, have not yet formed a systematic teaching module. Meanwhile, traditional planning cases that consume a large number of class hours often deviate from the current marketing combat scenarios featuring real - time feedback and dynamic optimization. This lag makes graduates feel at a loss when facing intelligent advertising systems, and enterprises have to spend months reshaping their skills after they are hired. The root of the problem lies in the rigid curriculum update mechanism [2].

### 3.2 Bottleneck of Teachers' Digital Teaching Ability

In the wave of digital transformation, the teaching staff is experiencing the pain of capacity reconstruction. Teachers with profound theoretical knowledge are facing double pressures of technological cognition and practical transformation. Traditional marketing scholars are good at deconstructing classic theoretical models but lack operational intuition for user clustering algorithms driven by machine learning. Professors familiar with the case - teaching method may have never logged into an enterprise - level data center, causing classroom demonstrations to remain at the level of abstract concept deduction. This transformation pressure stems from the long - standing divergence between academic backgrounds and industrial practices. The doctoral training system focuses on theoretical innovation while neglecting the tracking of technological tool iterations, and the speed of teachers' knowledge update can hardly match the monthly upgrade frequency of platform algorithms. A deeper - seated contradiction lies in the misaligned teaching ability evaluation mechanism. Title promotion values academic papers rather than the degree of curriculum - technology integration, and the programmatic buying technology that teachers spend months mastering can hardly be translated into visible career rewards. When students return to the classroom after being exposed to cutting - edge marketing technologies on short - video platforms, the gap between theoretical teaching and technological practice becomes more prominent, and the authority of educators continues to erode due to the technological generational gap.

### 3.3 Shortcomings in Practical Teaching Resources and Modes

Against the backdrop of artificial intelligence profoundly reshaping the marketing landscape, the digital transformation process of practical teaching in the marketing major at universities has encountered significant bottlenecks in terms of resources and models. The core dilemma is that the scarcity of real - world business data resources limits students' ability to access cutting - edge trends. In many institutions, the simulation software or training platforms struggle to connect with enterprise - level dynamic databases. As a result, students are unable to conduct in - depth analysis and strategic deduction in a data - rich environment that closely resembles the real market. This disconnection at the data level directly affects the depth of digital skills training. Although the introduction of virtual simulation technology has enriched teaching forms, some scenario designs are overly idealized or the technological applications are superficial. They fail to effectively simulate the complex and ever - changing market competition and immediate consumer feedback, making it difficult for students to have a truly immersive experience in business decision - making. To be honest, the existing practical projects often lack in - depth integration with rapidly evolving intelligent marketing tools and real - world enterprise needs. The problems of outdated cases or excessive simplification are quite prominent.

### 3.4 Lagging Teaching Management and Evaluation Mechanism

In the current context where artificial intelligence is driving a profound transformation in the marketing paradigm, the pace of updating the teaching management and evaluation system for the marketing major in universities fails to fully meet the urgent needs of the major's digital transformation. Its lag constitutes a real obstacle to improving the quality of talent cultivation. The current teaching management framework often adheres to the traditional disciplinary paradigm. When it comes to setting up and adjusting new digital courses that require rapid responses to market changes and flexible integration of interdisciplinary resources (such as data analysis and application of intelligent algorithms), there are widespread problems of lengthy approval processes and insufficient institutional flexibility, making it difficult to support the agile iteration of course content. The core contradiction in the evaluation mechanism is even more prominent. Most assessments still overly rely on paper - and - pencil tests of theoretical knowledge or static case analyses, and fail to effectively establish a scientific indicator system to measure students' practical digital marketing abilities (such as the accuracy of user profile construction, the optimization effect of intelligent advertising placement strategies, and the quality of marketing decisions based on real - time data). Many evaluation criteria still focus on "what students know" rather than "what they can do". As a result, even if students master cutting - edge marketing automation tools or data analysis methods, their actual application effectiveness and innovative thinking are difficult to be accurately recognized and incentivized in the existing grading system [3].

### **3.5 Poor Connection between External Support and Industry**

As the marketing major in universities embraces the wave of digital transformation driven by artificial intelligence, the substantial support and in - depth collaboration from the industrial circle have not been fully established, which has become a key constraint in terms of resource and ecological integration. Currently, the formalistic tendency in school - enterprise cooperation still exists. Many cooperation projects only involve factory visits or guest lectures, failing to build a regular and iterative data - sharing mechanism and a joint R & D platform based on real - world business scenarios. As a result, students are often exposed to highly simplified or desensitized case materials, which have a significant gap with the ever - changing and data - intensive real - world intelligent marketing environment that enterprises face. Enterprises generally worry about the boundaries and security of business - sensitive data. Coupled with the lack of a clear profit - sharing mechanism and long - term investment willingness, high - value collaborations such as providing real - time market data interfaces, opening access to core intelligent marketing tools, and jointly building a dynamic case library are difficult to implement in depth.

## **4. Countermeasures and Suggestions for the Development of Digital Transformation of Marketing Majors in Colleges and Universities**

### **4.1 Optimizing the Curriculum to Fit the Market**

Course optimization needs to break free from the constraints of traditional frameworks and substantially incorporate operational training on cutting - edge digital marketing tools. For example, it is necessary to transform the actual enterprise application scenarios such as automated consumer behavior tracking systems, real - time bidding advertising platform operations, and cross - channel data integration and analysis into experimental course modules. This transformation means that students will no longer passively memorize concepts. Instead, they will debug algorithm parameters and diagnose differences in advertising campaign effectiveness in a simulated business environment, thereby developing the ability to make integrated decisions on technical tools and business strategies. At the same time, it is also necessary to break down disciplinary barriers. For instance, big - data clustering analysis technology should be embedded in consumer behavior courses, and social media public opinion monitoring tools should be integrated into brand management courses. This allows theoretical teaching to simultaneously present the process of technical deconstruction, which helps students understand how artificial intelligence reconstructs traditional marketing logic. More importantly, a dynamic course elimination mechanism should be established. Technical supervisors from leading e - commerce platforms and intelligent advertising companies should be invited to participate in course evaluations. Based on the industry's technological iteration speed, the outdated software operation content in courses should be regularly replaced. For example, the basic data statistics course should be upgraded to a predictive consumer tendency modeling practice to ensure that the tools used in the classroom are technically synchronized with those in the enterprise operation environment [4].

### **4.2 Enhancing the Digital Competence of Teachers**

In the present era when artificial intelligence has deeply penetrated into marketing practices, the digital literacy of the teaching staff has become a key bottleneck restricting the in - depth transformation of the marketing major in universities. Resolving this bottleneck calls for a series of solid and sustainable actions. Constructing a systematic plan to enhance teachers' digital capabilities is a fundamental task. Such plans should go beyond the form of scattered lectures. Instead, an advanced curriculum system should be designed, which includes core modules such as the application of basic machine - learning principles in consumer behavior prediction, hands - on operation of mainstream marketing data analysis tools, the operating logic of programmatic advertising platforms, and the evaluation of generative AI content - creation tools. A continuous technology - update tracking mechanism should be provided to ensure that teachers can truly keep up with the pace of technological iteration in updating their knowledge structures. Deepening the connotation of school - enterprise cooperation is an effective way to bridge the gap between theory and practice. Teachers should be promoted to participate in the actual operation of real projects at the front - line of enterprises' digital marketing or take short - to - medium - term temporary posts. For example, they can be involved in the process of building user portraits based on big data, the deployment of intelligent social media public opinion monitoring systems,

or the optimization of AI recommendation algorithms on e-commerce platforms. This immersive experience can transform abstract technical concepts into concrete industry knowledge, greatly enriching the practical teaching materials and in-depth insights in the classroom.

### **4.3 Innovating Practical Teaching Resources**

Facing the problem of the disconnection between practical teaching and enterprise needs, universities should focus on constructing a digital resource system with real business scenarios. The core lies in collaborating with leading Internet enterprises to build a dynamic project library, and connecting desensitized business data such as user group portraits of ongoing e-commerce promotion activities and real-time traffic fluctuation curves of live-streaming sales to the laboratory system. Students are required to operate the back-end of real stores in groups to conduct audience targeting and intelligent bidding, and experience the interaction boundary between algorithmic decision-making and human judgment in the task of repairing the traffic funnel. After students become proficient in operating basic tools, they need to be introduced to enterprise-level intelligent marketing cloud platforms such as Alibaba Mama's Wanxiangtai and JD Digital Marketing Platform for advanced training. They should complete the full-process drill from demand analysis to intelligent creation in modules including natural language generation and multi-modal content creation. For example, they use generative AI tools to produce product explanation video scripts in different customer group styles and immediately conduct A/B testing for feedback and correction. This closed-loop training with an immediate effect completely changes the lag of traditional virtual cases. Moreover, universities need to establish a mechanism for collaborative sharing of equipment, integrating the idle GPU computing power resources of different departments to build a distributed training cluster to accommodate high-load practical training such as digital human live-streaming and virtual store construction.

### **4.4 Innovating Teaching Evaluation Mechanism**

Nowadays, universities should reconstruct a multi-dimensional evaluation system based on actual business performance. The key lies in introducing industry experts to participate in the evaluation process. For example, universities should collaborate with platform providers such as Tmall Data Bank and Douyin Cloud Atlas to jointly design practical assessment tasks. When students operate real enterprise accounts in groups, dynamic data such as audience penetration rate and content interaction index are automatically connected to the scoring system. Algorithms track the correlation between keyword coverage strategy adjustment and changes in user stickiness in real-time, forming an objective record of decision-making optimization ability. Regarding the evaluation of the ability to operate intelligent tools, students are required to create a virtual live-streaming room using MetaSpark software and debug intelligent anchor scripts within a limited time. The review team focuses on observing the process of repairing the fluency of digital humans and handling emergency situations of sudden traffic interruption. This stress test effectively examines the integration level of technical tools and business scenarios. The final evaluation results need to be stripped of abstract scores and converted into dynamic ability radar charts to mark students' mastery levels in sub-fields such as new media fission communication and predictive user modeling. Coupled with the intelligent marketing engineer certification issued by leading enterprises, the talent ability profiles can be accurately matched with the job requirement models of the intelligent marketing departments of enterprises, essentially resolving the core contradiction between the school's evaluation criteria and the enterprise's employment dimensions [5].

### **4.5 Deepening School-Enterprise Integration and Development**

In response to the problems of superficial school-enterprise cooperation and periodic disruptions, universities should jointly establish a digital marketing innovation center with physical operations with leading technology enterprises. In the initial stage, enterprises such as Tencent Advertising and JD Cloud should dispatch engineers to stay on campus permanently. These engineers bring unpublished commercial API interfaces to build a real-data sandbox environment. For example, they embed the real-time user portrait analysis system of Douyin e-commerce into the students' practical training platform, and authorize students to operate enterprise accounts to conduct precise target testing for product audiences during the Double Eleven promotion. The center should implement a rotation system for enterprise project tutors, introducing real task lists from Tmall's consumer operation team every quarter. Students should undertake the intelligent content creation needs during the cold-start phase of new brands in groups, use generative AI tools to create

advertising material packages, and immediately obtain feedback on click - through conversion rates. Throughout the process, enterprise tutors record the performance of students' strategy iteration ability. After the center operates smoothly and matures, it should establish a technical service station for regional small and medium - sized enterprises, transforming real pain points such as the construction of live - streaming rooms for local time - honored brands and the optimization of community fission paths into graduation design topics. Under the guidance of industrial professors, students produce implementation reports including algorithm model optimization plans. Some excellent plans can be directly applied to the enterprise's intelligent marketing system with the computing power support provided by the center, forming a two - way value chain of a closed - loop talent cultivation and technology service feedback.

## 5. Conclusion

The digital transformation of the marketing major is not a simple superimposition of technologies, but rather it is a reconfiguration of educational genes. It is all about leaving behind "theory first, practice second" inertia and creating a reverse curriculum logic of being "driven by real problems and imbued with technical tools." When three layers of awakenings have been undertaken - teachers transforming from knowledge transmitters into scenario architects; courses are moved from a static knowledge base to a dynamic algorithm pool; and school-enterprise cooperation moves from intern dispatching to a co-researching data ecosystem - the digital transformation of the education truly strikes at its core. When students can operate a real user data platform in class and the innovative application of AI tools is created in teachers' evaluation indicators, then may we say the digital transformation of education has engaged at the most substantive level. This is a thorny path, this path is the only path to reach the high-ground of future marketing talents. The decisions that universities make today will ultimately determine the availability of a prequalified and competent industry think-tank 10 years from now.

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