MaCuDE

Management Curriculum for the Digital Era

Marketing Task Force

Phase III Report of the MaCuDE project[1]

Skills Needed by MBA Graduates and Recommendations on How to Deliver Them

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Marketing Disciplinary Task Force
Phase III Report of the MaCuDE Project: Curriculum Recommendations

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Executive Summary

This report proposes a general curriculum framework to meet the emerging needs for business education in marketing. We specify the underlying skills required for three key emerging roles: 1) Marketing Analyst, 2) Generalist Translator, and 3) Digital Strategist. These roles correspond, respectively, to the educational tiers of undergraduate, Master's of Science, and MBA. We categorize the skills required for marketing careers into the 7 major themes specified by MaCuDE: 1) Data analytics and machine learning, 2) Programming, 3) Algorithms and artificial intelligence, 4) Emerging digital technologies, 5) Managing digital organizations, 6) Domain-specific skills, 7) Domain-specific meta-skills. Given this framework structure, we then specify courses that teach these emerging skills, categorized into 1) General-breadth courses and 2) Content-specific courses. The course count and sequencing are presented both in a maximal version (which presumes resource availability) and a minimal version (which establishes necessities or requirements even within a resource-constrained institutional environment).

Introduction

The field of marketing has undergone profound changes over the last twenty years. The role of digital technology in marketing has proven transformative, and university training of marketing professionals must evolve to keep up with these changes. In the Phase 2 MaCuDE marketing task force report, we identified four key changes in marketing: 1) Artificial Intelligence (AI) and hyperpersonalization, 2) Precision, speed, and efficiency in marketing decision-making, 3) Algorithm-based ad buying, and 4) Universality of data and analytics in marketing operations. First, AI automates, accelerates, and increases the precision of targeting, defined as the matching of a company's offerings to specific customer segments or profiles. The current era of hypertargeting involves hyperpersonalization, meaning that both the product and the messaging that advertises that product may be customized to address individuals' as well as segments' specific preferences. Second, AI serves marketing in the realm of predictive analytics, which is the marshalling of vast quantities of data to extract statistical summaries of the interactive relations among input factors (e.g., customer demographics, prior behaviors) that are effective at forecasting future demand. Companies increasingly use AI to meet demand with greater speed and efficiency than was previously possible. Third, the advertising market has evolved from one of slow purchases of blocks of media time to an automated auction-based marketplace in which advertisers buy digital ad placement more by algorithms than by

human interaction, resulting in accelerated advertising dynamics. Fourth, nearly all of marketing will soon depend on the wrangling of large data and the leveraging of AI to personalize products. Thus, digital technology will enable the automation of extracting customer sentiment to provide faster input into the ideation stage of new product development, messaging, and distribution.

If there is one technology that presently stands above the rest in terms of import to marketing, it is the mobile phone. Essentially a powerful computer one can carry anywhere, the mobile phone is the always-on, always-accessible point of connection between customer and firm. Perhaps even more important, the mobile phone connects the customer into broader brand communities with increasing power to inform the marketing function by way of product suggestions and enhancements to brand meaning. Further, the mobile phone stands at the center of the omnichannel revolution, in which the means of distributing products and services to customers connects through the phone. An omnichannel platform is a unified digital system by which customers may shop, receive promotional offers, purchase, arrange delivery, and provide feedback. The firm's app is the focal point; sales through other channels (e.g., brick-and-mortar) are increasingly best coordinated in conjunction with the app and doing so provides richer data on customer behavior that may feed back into new product and messaging decisions. Advertising that is not digital (e.g., print, billboard, etc.) may now be coordinated alongside digital ads under a unified platform. But at the end of the day, it is the mobile phone that is the pivotal juncture point for consumer purchase in the years ahead.

In the Phase 1 MaCuDE report for marketing, we emphasized four recommendations which provide guidance for the present curriculum recommendations. The first recommendation was to emphasize the strategic focus, or in other words, the logic of the value creation process. An overarching emphasis on customer centricity is essential to marketing courses. As a guiding principle, an emphasis on the strategic focus ensures that digital content is offered within a coherent suite of courses at both undergraduate and graduate levels. The second recommendation was to use open-source software. Many schools struggle to manage the cost of digital content, both in terms of software / platform cost and as personnel cost. To achieve efficiency in cost management, we recommend open-source software (e.g., R and Python). An added benefit is compatibility with an emerging standard in computational science as well as industry. The third recommendation is that coding should be emphasized as a hands-on skill in marketing analytics courses, and where appropriate, courses focusing on digital marketing, sales, and advertising methods. The basic conceptual understanding of problem-solving via application of insights from data is made transparent in code. Further, programming skills allow the worker to ask simple questions of data without relying on a separate data team. The fourth and final recommendation was to teach ethics, which embraces the question of "what is the right thing to do?" as benchmarked by moral and legal considerations. The focal issue of privacy rights with regard to personal data is increasingly important as a global concern and may make or break businesses that increasingly rely on digital data sources: data breaches scare customers away. Additional ethical questions involve how to find fault in mishaps involving autonomous digital agents (robots, self-driving vehicles, etc.) and how to manage employment in an era of increasing automation. These four recommendations (strategic focus, open-source software, coding, and ethics) are embraced in this report as organizing principles

underlying the curricular recommendations that center on three key marketing roles in the future business environment.

The three marketing roles summarized in the Phase 2 MaCuDE marketing report were: Marketing Analyst, Generalist Translator, and Digital Strategist. These roles correspond respectively to the educational tiers of undergraduate, Master of Science, and MBA. Underlying these roles are key skills identified by industry leaders, chief among them expertise in analytics, digital advertising, omnichannel distribution, and ethics. Central to all such skills was the foundational skill centering on AI and its transformative role in marketing. With the goal of building these skills, the task force has articulated a sequence of courses that comprise curricula uniquely defined for each of the three educational tiers. We turn first to the undergraduate level and the role of marketing analyst.

Role #1: Marketing analyst (Undergraduate degree)

Role description. A marketing analyst is an entry level position that embraces digitally based marketing functions that may be carried out by an employee with an undergraduate level education. The marketing analyst position demands an understanding of digital advertising basics (including digital segmentation and personalization), the basics of marketing strategy, a rudimentary knowledge of analytics, and coding.

Assessment. From the Phase 2 MaCuDE marketing report, we reiterate that the primary goals for educating toward this role are as follows. First, a focus on teaching digital advertising basics reflects the recognition that much of the current advertising function now operates by way of digitally automated auctions. Advertising buying is conducted using a digital dashboard, with ever-evolving interfaces and capabilities. To operate an advertising "dashboard" requires modest training and can be managed by new undergraduate hires. However, what is needed here is an understanding of how the advertising process fits within the overall marketing function (which rests on providing superior value to the target consumer). An undergraduate course that situates the advertising buying function within the larger context of marketing strategy was seen to be a useful curricular addition. Second, statistics and analytics are seen to be as important at the undergraduate as MBA level, albeit at a correspondingly lower level of sophistication. Nevertheless, we saw a growing need for a new role that embraces undergraduate education in marketing (and business more generally) integrated with the computing science skills that embody the logic of coding.

Meta-skills and domain.

<u>1. Data analytics and machine learning</u>

▪ Statistics basics (probability, regression)

<u>2. Programming</u>

▪ Basic concepts in computer science (algorithms, data type, syntax, semantics)
▪ Coding and programming languages (R, python)
▪ Implementation of KPI measures in IT systems

<u>3. Algorithms and artificial intelligence</u>

▪ Fundamentals of artificial intelligence
▪ Methods of machine learning (supervised and unsupervised learning with Python, neural networks and deep learning, cluster analysis and dimension reduction, natural language processing).

4. Emerging digital technologies

▪ Augmented reality; virtual reality
▪ Technology use, monitoring, and control

5. Managing digital organizations

▪ Agile decision making

6. Domain-specific skills

▪ Digital advertising basics (segmentation, personalization, search engine optimization, bid strategies, creating audiences, launching ads, retargeting, managing owned, paid, and earned media)
▪ Mobile marketing (location-based and usage-based targeting)
▪ Social media analytics (sentiment analysis, campaign tracking)
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)

7. Domain-specific meta-skills

▪ Self-learning and active learning
▪ Teamwork and communication

We next describe the courses that comprise an undergraduate curriculum that embraces digital marketing. We first present a "maximal version" that contains the idealized coverage of emerging skills, and later contrast it to a "minimal version" that is more suitable for resource-constrained institutions. We organize the course content into three categories: 1) General-breadth courses, 2) Content-specific courses, and 3) Modules of smaller content areas that may be bundled within full courses.

1) General-breadth courses

In terms of general-breadth courses, the emphasis is on a high-level understanding of the discipline of marketing. At the undergraduate level, there is just one course within this category, namely the core or Digital marketing strategy course, which is essentially an upgraded version of the standard introductory marketing courses that is widely taught around the world under such titles as "marketing strategy" or "marketing management."

1a) Digital marketing strategy. This course introduces students to the concepts, analyses, and activities that comprise marketing management. It provides tools and frameworks to assess and solve marketing problems through the lens of AI, data management, and omnichannel platform management. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force, and competitive analysis. The course provides a broad introduction to artificial intelligence, machine learning, and other new emerging technologies that influence marketing. The course covers the fundamentals of data-driven marketing, providing coverage of data sources and how to use those data to guide decision-making. Through real-world applications from various industries, including hands-on analyses using modern data analysis tools, students learn how to conceptualize marketing problems as testable data-based problems that may be solved with particular marketing tactics.

Digital learning goals:

▪ Fundamentals of artificial intelligence

▪ Augmented reality; virtual reality
▪ Technology use, monitoring, and control
▪ Teamwork and communication
▪ Agile decision making

2) Content-specific courses

In terms of content-specific courses, here we focus on two courses with significant digital coverage: Digital advertising basics and social media and mobile marketing. Both courses are built from the ground up on emerging digital technology. These two courses may be contrasted with other, more traditional marketing content-specific courses that may further comprise the curriculum, but do not require so comprehensive an upgrade with digital content. Examples of these latter courses include new product development, branding, pricing, and B2B marketing.

2a) Marketing analytics. Marketing analytics center on the statistics basics of regression, which underlie predictive and causal analytics. The statistical logic and technique may be covered under statistics courses, and it may also be covered under a generalized business analytics course. In the context of marketing per se, analytics may cover applications of regression methods in predictive analytics for pricing and promotion decisions; and causal analytics to assess the impact of advertising, promotion, and pricing decisions, optimizing customer lifetime value.

Digital learning goals:
▪ Statistics basics (probability, regression)
▪ Coding and programming languages (R, python)

2b) Digital advertising basics. This course provides an overview of the advertising function including the psychological basics of persuasion. The primary focus, however, is on the modern digital advertising function, which involves bulk and automated ad buying on social media platforms. The course prepares students to design, implement, and optimize digital marketing spend on Google Ads, Facebook, Instagram, or other social media platforms (localized within the nation or geography in which the course is taught). Topics include structuring campaigns, keyword research, and effective bid strategies, creating audiences, and launching ads. The basics of the auction function within advertising buying is covered.

Digital learning goals:
▪ Digital advertising basics (segmentation, personalization, search engine optimization, bid strategies, creating audiences, launching ads, retargeting, managing owned, paid, and earned media)

2c) Mobile and social marketing. This course focuses on mobile phone and social media marketing strategies and tactics. It explores the mobile marketing ecosystem and how organizations incorporate key elements (such as location-based and usage-based targeting) into their business plans. Further, it includes aspects of social media marketing, including influencer marketing, digital storytelling, and online key performance indicators. Key objectives include developing an understanding of how marketers can engage their audiences on mobile devices, assessing quantitative data to make strategic social media and mobile marketing decisions, managing owned, paid, and earned media, and critical evaluation of the range of mobile marketing tools and the execution of mobile campaigns.

Digital learning goals:
▪ Mobile marketing (location-based and usage-based targeting)
▪ Social media analytics (sentiment analysis, campaign tracking)

3) Content-specific modules

Here we focus on smaller topic areas that may not necessarily be offered as full, standalone courses, but rather as modules within other courses, or "mini" courses that contribute to a certificate on undergraduate digital marketing.

3a) Coding. This module covers the fundamentals of coding and software development, which includes learning how to convert tasks described in natural language into formal algorithms, specifying typical language means of a procedural programming language, modeling simple and complex objects of the application domain using suitable data structures, using library-based modules as a means to master complexity. Students will be able to independently create Python scripts, apply them, and use them to solve simple tasks.
Digital learning goals:
▪ Basic concepts in computer science (algorithms, data type, syntax, semantics)
▪ Coding and programming languages (R, python)
(Source: Locher)

3b) Ethics and privacy. This module provides an overview of the laws and regulations applicable to digital marketing and introduces ethical frameworks that can be leveraged to enhance marketing strategies, communications, and business decisions. Topics include ethics, fairness, and privacy at a high level, with more specific focus on free speech, intellectual property, truth in advertising, data privacy and security, demographic and behavioral targeting and customer relationship management.
Digital learning goals:
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)
(Source: n/a)

3c) AI in marketing. This module provides a brief history of the history, logic, and mathematical basis of Artificial Intelligence. The module provides an overview of the uses and applications of AI in modern business. As such, the module may not necessarily be marketing-specific, but may be integrated into a marketing major. In this module, students learn the basic concepts in the computer science field of AI and machine learning, evaluate the most important developments and application areas in the field of AI, implement simple AI applications in Python and interpret the results, and apply the learned AI concepts to business contexts. More specific content includes methods of machine learning, supervised and unsupervised learning with Python, neural networks and deep learning, methods of cluster analysis and dimension reduction, natural language processing, business-specific applications and their importance.
Digital learning goals:
▪ Fundamentals of artificial intelligence
▪ Methods of machine learning (supervised and unsupervised learning with Python, neural networks and deep learning, cluster analysis and dimension reduction, natural language processing).

4) Maximal versus minimal version

The above curriculum constitutes a maximal version that might be deployed alongside traditional marketing courses given a certain degree of resources, including faculty expertise, time, and retraining. Of course, not all schools have access to such resources, and below we contrast the maximal version to a minimal version, one that might preserve the opportunity to teach the most essential of digital skills. The prioritization under the minimal version reflects insights uncovered in the Phase 2 MACUDE marketing report, which is the high value placed on understanding of the logic of marketing management alongside an understanding digital advertising basics, which represent a skillset that is immediately useful in the entry-level marketing position of Marketing Analyst.

Maximal version
1a) Digital marketing strategy
2a) Marketing analytics
2b) Digital advertising basics
2c) Social media and mobile marketing
3a) Coding
3b) Ethics and Privacy
3c) AI in marketing

Minimal version
1a) Digital marketing strategy

Role #2: Generalist translator (Master of Science degree)

Role description. A Generalist Translator is an early to mid-career managerial position in marketing that emphasizes analytics and digital integration within the broader marketing function of end-to-end value creation. The role requires an understanding of marketing strategy along with a particular focus on one or more facets of marketing tactical executions (product and service design, brand pricing, promotions, communications, distribution). The position demands detailed understanding of AI and analytics, with sufficient sophistication in coding and software design as to translate between personnel at the executive level and the data management level.

Assessment. From the MACUDE marketing phase 2 report, we reiterate that the primary goals for educating toward this role are as follows. Of key importance, this type of person has the generalist's savvy for understanding a wide range of challenges and finding data-driven solutions to those problems. A generalist knows a little bit about everything, and the basis for such knowledge may be an undergraduate degree that includes computer science, statistics, business, but also the humanities and social sciences, all of which are preparatory to the Master of Science degree in which the deeper understanding of marketing strategy and analytics are realized. Further, this position demands a deep understanding of the entire value chain that spans customer acquisition to retention, with the ability to cross-connect, creatively integrate, and "mash up" initiatives. The use of the term translator truly means to translate between disparate ways of speaking and thinking, someone who understands brand purpose, customer relationship management, and the data dashboard that provides real-time feedback on performance in market.

Meta-skills and domain.

1. Data analytics and machine learning

▪ Statistics advanced (probability, regression, dimension reduction, causation)
▪ Predictive vs. causal analytics
▪ Customer profiles and demand estimation (pricing)
▪ Data-driven problem conceptualization, analysis, and solution
▪ Designing data input systems

2. Programming

▪ Advanced coding and programming (R, python)

3. Algorithms and artificial intelligence

▪ Fundamentals of AI
▪ Advanced AI (sourcing, design, implementation, customization, and management)

4. Emerging digital technologies

▪ Augmented reality; virtual reality
▪ Blockchain
▪ Technology use, monitoring, and control

5. Managing digital organizations

▪ Human resource management
▪ Agile decision making

6. Domain-specific skills

▪ Omnichannel platform management
▪ Mobile marketing (location-based and usage-based targeting)
▪ Customer analytics (customer profiles, customer journey, demand estimation)
▪ Marketing automation for customer management
▪ Social media analytics (sentiment analysis, campaign tracking)
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)

7. Domain-specific meta-skills

▪ Communication, teamwork
▪ Management of distributed solution teams
▪ Human-technology interaction
▪ Self-learning

Courses that teach specific skills

We next describe the courses that comprise a Master of Science degree curriculum that specializes in digital marketing. We first present a "maximal version" that contains the idealized coverage of emerging skills, and later contrast it to a "minimal version" that is more suitable for resource-constrained institutions. We organize the course content into three categories: 1) General-breadth courses, and 2) Content-specific courses.

1) General-breadth courses

In general-breadth courses, the emphasis is on a high-level understanding of the discipline of marketing. At the Master of Science graduate level, three courses are recommended as General-breadth courses: 1a) Digital marketing strategy, 1b) Marketing analytics, and 1c) Marketing research.

1a) Digital marketing strategy. This course introduces Master's level students to the concepts, analyses, and activities that comprise marketing management. It provides a broad overview of the tools and frameworks needed to assess and solve marketing problems through the lens of AI, data management, and omnichannel platform management. Students learn how to gather data through automation and digitization and use it to obtain consumer insights for enhancing customer satisfaction and value, and to improve managerial decision making. Students receive introductory training in AI basics and how machine learning can be used for key marketing purposes such as segmentation and targeting. Students will become familiar with technologies such as virtual and augmented reality, Internet of Things, and robotics, how consumers interact with them, and how they impact marketing.
Digital learning goals:
▪ Fundamentals of AI
▪ Advanced AI (sourcing, design, implementation, customization, and management)
▪ Augmented reality; virtual reality
▪ Blockchain
▪ Technology use, monitoring, and control
▪ Management of distributed solution teams
▪ Agile decision making

1b) Marketing analytics. This course covers statistics, optimization, and simulation tools that are critical for managers in enabling their firms to have a competitive advantage. The course covers probability, sampling, estimation, hypothesis testing, linear regression, goodness-of-fit tests, linear optimization models, nonlinear optimization models, and managerial decision-making under uncertainty. Statistical applications center on marketing objectives such as identification of prospective clients, the analysis of response propensity to marketing tactics, the analysis of affinity in products, the definition of customer lifetime value models or segmentation sales, media selection, and advertising effectiveness. The course is organized to integrate marketing aspects treated from the perspective of technology for analysis and decision support, such as through data mining so as to improve the agility of decision-making.
Digital learning goals:
▪ Statistics advanced (probability, regression, dimension reduction, causation)
▪ Predictive vs. causal analytics
▪ Customer analytics (customer profiles, customer journey, demand estimation)
▪ Marketing automation for customer management
▪ Data-driven problem conceptualization, analysis, and solution
▪ Designing data input systems
▪ Agile decision making

1c) Marketing research. The course introduces students to statistical and methodological tools for acquiring customer insights, that is, specification of a customer need or opportunity for which a business value proposition may be directed. Traditional research methods (e.g., survey) are integrated with digital (real-time) acquisition of customer insights through online search, social media, and purchase history. Students learn how to define the research problem and design a research plan, craft a specific research study, and execute an analysis and presentation. Key methods include data-driven marketing tools, regression, cluster

analysis, and conjoint analysis, applied to specific marketing problems (segmentation and targeting, new product design, forecasting, etc.).
Digital learning goals:
▪ Statistics advanced (probability, regression, dimension reduction, causation)
▪ Predictive vs. causal analytics

2) Content-specific courses

In terms of content-specific courses, here we focus on the breadth aspect that is essential to the generalist aspect of the Generalist Translator role. To be sure, other breadth courses may be added, but her we focus on the digital essentials.

2a) Omnichannel. This course focuses on the omnichannel conception of product and service delivery. Consumers increasingly engage with firms and brands on multiple online, physical, and human touch points along their shopping journey and individual-level data and analyses generated from these engagements offer managers opportunities to improve their decision-making. This course focuses on how marketers can utilize data and analyses from all sources to manage the consumer journey and optimize the customer's complete shopping experience. Students will learn the scope of omnichannel distribution, communication, and engagement; explore consumer journeys such as customer search, trial, purchase, and post purchase experience and understand how consumers evaluate their total shopping experience across channels of distribution; understand the data and tools available at each stage of the consumer journey; apply AI and automation technology for gathering customer insights and develop skills for using predictive and causal analytics to personalize offerings and communication; understand ethical and data security issues specific to omnichannel distribution; understand metrics for omnichannel performance and actions they can take to improve performance.
Digital learning goals:
▪ Omnichannel platform management
▪ Predictive and causal analysis▪ Customer centric analytics

2b) Social media marketing analytics. This course focuses on the role of social media as a unique data source to inform acquisition of customer insights, observation of customer sentiment, and reactivity to challenges and crises. Social media data are also useful inputs for improving sales customer service and loyalty, product quality, branding, employee satisfaction, and supply chain partner effectiveness. Data mining methods and analyses for websites, search engine results, natural language processing, text mining, speech analytics, and sentiment analysis will be explored with a view to increasing the speed of decision-making.
Digital learning goals:
▪ Mobile marketing (location-based and usage-based targeting)
▪ Social media analytics (sentiment analysis, campaign tracking)
▪ Agile decision making

2c) Predictive analytics. This course is a deeper dive and follow-on from the marketing analytics course noted under the heading of General-breadth courses, centering on the specific application of inferential statistical methods to the forecasting of actionable customer behavior so as to optimize business activity. The course provides an overview of the structure and content of information from databases and data warehouses, along with basic skills for

designing, retrieving, and combining information from varied database sources. Open-source modeling tools are used to investigate hypotheses and discover patterns in enterprise data repositories. Analytic methods include decision trees, neural networks, market basket analysis, time series, and discriminant analysis, along with the challenge of data cleaning applied with a view to increasing the speed of decision-making.

Digital learning goals:

- Predictive vs. causal analytics
- Data-driven problem conceptualization, analysis, and solution
- Customer analytics (customer profiles, customer journey, demand estimation)
- Agile decision making

2d) Law, Policy and Ethics. This course provides a basic understanding of the laws and regulations applicable to digital marketing and introduces ethical frameworks that can be leveraged to enhance marketing strategies, communications, and business decisions. The course focuses on the areas of law and ethics that are most critical to digital marketing business judgment and decision making. Topics include ethics, fairness and privacy are discussed in detail as critical to growing a business, with specific focus on free speech, intellectual property, truth in advertising, data privacy and security, demographic and behavioral targeting and customer relationship management. Further topics focus on online advertising, email, mobile, search, social, viral, crowdsourcing and user generated content. Students will be able to identify relevant legal and ethical concepts to the practice of digital marketing in a way that informs more effective business and policy decisions, to make decisions to enhance marketing and business judgment through recognition and management of legal and ethical risks that arise in the practice of digital marketing, and to apply enhanced risk management strategies to digital marketing issues to minimize legal exposure, optimize business growth, and improve the customer experience.

Digital learning goals:

- Ethics (philosophical basis of ethics, legal basis of ethics, bias)
- Privacy (legal basis of digital privacy, regulatory constraints by nationality)

3) Maximal versus minimal version

The above curriculum constitutes a maximal version that would be fielded along with certain other more traditional marketing, statistics, or computer science courses. As with the Marketing Analyst role and its undergraduate curriculum, the key consideration that resource availability is variable results in the prioritization for a minimal version. This minimal version reflects insights uncovered in the Phase 2 MaCuDE marketing task force report, which is the importance of sophistication in marketing strategy along with analytics skills.

<u>Maximal version</u>

1a) Digital marketing strategy
1b) Marketing analytics
1c) Marketing research
2a) Omnichannel
2b) Social media marketing analytics
2c) Predictive analytics

<u>Minimal version</u>

1a) Digital marketing strategy
1b) Marketing analytics
2c) Predictive analytics

2d) Law, Policy and Ethics

Role #3: Digital Strategist (MBA degree)

Role description: The Digital Strategist is a role that encompasses more senior managerial positions that are typically held by those with an MBA. This role is aspirational in that few MBA graduates could attain such a position upon graduation, but rather is a long-term career target. The position entails oversight of AI marketing initiatives within the broader context of marketing management or general management. The Digital Strategist has a working knowledge of the economic approach to statistics, but also a working knowledge of how AI automates and accelerates the predictive and causal sides of the analytics equation. The role demands detailed understanding of AI and analytics, with sufficient sophistication in coding and software design as to interface between personnel at the executive level versus at the data management level. The Digital Strategist role may increasingly find its way into C-suite positions in the next decades.

Assessment. The Digital Strategist role emerges from both MBA and executive education courses to embrace the ability to question and challenge the assumptions and methods underlying data acquisition and quality. Perhaps the most pivotal skill is the ability to convert marketing problems into data analytic problems, which means understanding which data sources and which analytic methods are capable of providing actionable results, and which cannot. As such, critical thinking is essential, yet is one of the most difficult of skills to teach. This role includes working with data scientists in a supervisory capacity. An important aspect is an intuitive understanding of the basic logic of marketing, which embraces the logic of the value exchange between company and customer. The basic logic of marketing is not replaced by, but rather enhanced by, AI. Thus, training and expertise in the overall strategic envelope of marketing remains a key asset of any business leader. Training for marketing strategy is common at business schools today, but the next generation of marketing strategy courses will be infused with AI, not only as case examples but as part of the essential workflow that guides the strategic progression from specification of customer insight, value proposition, targeting, and tactical execution (including product design, pricing, distribution, communication, etc.).

Meta-skills and domain.

<u>1. Data analytics and machine learning</u>

- Statistics advanced (probability, regression, dimension reduction, causation)
- Predictive vs. causal analytics
- Data-driven problem conceptualization, analysis, and solution

<u>2. Programming</u>

- Coding and programming (R, python)
- Advanced programming paradigms and data team management

<u>3. Algorithms and artificial intelligence</u>

- Fundamentals of AI
- Advanced AI (sourcing, design, implementation, customization, and management)

<u>4. Emerging digital technologies</u>

- Augmented reality; virtual reality
- Blockchain
- Technology use, monitoring, and control

5. Managing digital organizations

▪ Leadership and teamwork

6. Domain-specific skills

▪ Leading digital innovation (digital transformation in marketing, emerging business models, emerging technologies in marketing).
▪ Omnichannel platform management
▪ Customer analytics (customer profiles, customer journey, demand estimation)
▪ Digital advertising advanced (segmentation, personalization, two-sided platforms, creating audiences, designing and managing ads, key performance indicators)
▪ Mobile marketing (location-based and usage-based targeting)
▪ Social media analytics (sentiment analysis, campaign tracking)
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)

7. Domain-specific meta-skills

▪ Communication, teamwork
▪ Management of distributed solution teams
▪ Agile decision-making
▪ Self-learning

We next describe the courses that comprise an undergraduate curriculum that embraces digital marketing. We first present a "maximal version" that contains the idealized coverage of emerging skills, and later contrast it to a "minimal version" that is more suitable for resource-constrained institutions. We organize the course content into three categories: 1) General-breadth courses, 2) Content-specific courses, and 3) Modules of smaller content areas that may be bundled within full courses.

1) General-breadth courses

1a) Marketing strategy and AI. This course introduces students to the essentials of marketing: how firms create value for customers, how customers behave, and the strategies and tactics that marketers can use to successfully operate in today's dynamic environment. The course focuses in particular on how to define the strategic role of marketing in the firm, the key elements of marketing analysis, a sound conceptual and theoretical "tool kit" for analyzing marketing problems, an exploration of the role of AI opportunities in marketing, the data needed to facilitate sound decisions, and the key questions

Digital learning goals:

▪ Fundamentals of AI
▪ Advanced AI (sourcing, design, implementation, customization, and management)
▪ Augmented reality; virtual reality
▪ Blockchain
▪ Technology use, monitoring, and control
▪ Leading digital innovation (digital transformation in marketing, emerging business models, emerging technologies in marketing).
▪ Management of distributed solution teams

2) Content-specific courses

2a) Customer analytics and AI. This course focuses on the challenge of gaining customer insight and enhancing customer lifetime value through effective use of data. The course also covers the development and understanding of AI in the modern business context, including machine learning and neural networks. In this course, students learn the data-driven approach to marketing via databases, machine learning, and computing systems to collect, analyze, and act on customer information. Although students will employ quantitative methods in the course, the goal is not to produce experts in statistics; rather, students will gain the competency to interact with and manage a marketing analytics and AI team. Students gain hands-on experience using R to work with individual-level customer data.

Digital learning goals:

- Statistics advanced (probability, regression, dimension reduction, causation)
- Predictive vs. causal analytics
- Customer analytics (customer profiles, customer journey, demand estimation)
- Advanced AI (sourcing, design, implementation, customization, and management)

2b) Omnichannel. In a world saturated with new commerce options, consumers and business buyers are radically changing their expectations and behaviors across the entire cycle of learning, shopping, buying, and using products and services. How does a modern business manage its brands across the vast array of new channel models, from brick-and-mortar showroom stores to e-commerce sites to experiential pop-ups and apps? In this course, students will learn how to structure and manage networks of partners into cohesive, brand-enhancing omnichannel ecosystems that reach end-customers any place and any time, whether through social commerce channels, mobile devices, in-person store environments, platform apps, or product story, photo and video sharing sites. Like the fast-evolving business models we will be studying, this class is both strategic and practical, and most of the situations we will analyze are from real-world developments and managerial problems. The course takes a senior leadership perspective, offering frameworks and analytical tools for effectively moving an organization outside the comfort zone of legacy beliefs and relationships, and into the new omnichannel world.

Digital learning goals:

- Omnichannel platform management

2c) Digital advertising. This course focuses on the advertising function within the modern digital context. This course teaches students to be effective critical thinkers to develop effective advertising across traditional and digital channels. Created for client-side managers tasked with advertising responsibilities as well as general managers overseeing communications, the class tackles both advertising strategy and execution. This course emphasizes the development of the central nucleus of any advertising strategy, the creative brief, to manage and guide relationships with creative partners. The course covers general advertising strategy, i.e., creating meaningful goals, selecting an attractive target for advertising, uncovering actionable insights, and developing an effective brand position. The course also covers planning of the tactical execution, i.e., understanding media, evaluating creative design, and measuring effectiveness.

Digital learning goals:

▪ Digital advertising advanced (segmentation, personalization, two-sided platforms, creating audiences, designing and managing ads, key performance indicators)

2d) Social media analytics. Marketing in the modern digital landscape involves a number of challenges as platforms, technology, competitive landscapes, data availability, and analytics techniques evolve rapidly. This class prepares students to be effective marketing leaders in landscapes that involve digital and social media initiatives and equips them to make strategic decisions in rapidly evolving and data-rich environments. Students will gain a working knowledge of the digital marketing landscape, learn to critically assess strategic digital and social media plans, and evaluate a range of approaches and techniques for measurement of digital and social media data.

Digital learning goals:

▪ Mobile marketing (location-based and usage-based targeting)

▪ Social media analytics (sentiment analysis, campaign tracking)

3) Content-specific modules

Here we focus on smaller topic areas that may not necessarily be offered as full, standalone courses, but rather as modules within other courses, or "mini" courses that contribute to a certificate on undergraduate digital marketing.

3a) Coding bootcamp. This module provides remedial training in the basics of software design using one or another open-source programming language (e.g., Python). The bootcamp format embraces a brief yet intense training period that would precede most course offerings in the curriculum.

Digital learning goals:

▪ Coding and programming (R, python)

3b) Advanced programming. This module provides a big picture, theory-based conceptual overview of advanced software design from the standpoint of academic computer science. The focus is on programming paradigms, i.e., styles of programming architecture to meet specific needs. In contrast to languages like Python and C++, computer scientists use paradigm to refer to goal specification, such as procedural paradigms, functional paradigms, and object-oriented paradigms. The module provides a managerial big picture on the applications of coding and enhances the ability of leaders to manage teams of data scientists.

Digital learning goals:

▪ Advanced programming paradigms and data team management

3c) Data privacy. This course focuses on the changing landscape of data privacy along with its regulatory environment. The course considers how to future-proof the digital marketing strategy by understanding identity change agents, what's to come and how to mitigate the risks of this changing environment. Key learning objectives include analysis of "web3," cookie tracking and mobile app monitoring, understanding misuses of data that impact marketing (data breaches, data storage, misinformation, lack of transparency, deficient governance, regulation, and oversight), evaluation of emerging opportunities (blockchain, decentralization, zero party data, data clean rooms, non-fungible tokens), and creation of customer centric transparency with focus on governance combined with user experience.

Digital learning goals:

▪ Blockchain

▪ Technology use, monitoring, and control
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)

3d) Ethics and AI. This module explores the ethical and societal considerations underlying the proliferation of artificial intelligence in business. Key topics include: (1) Why ethics matters in the context of AI and what can we do to address people's distrust in this technology itself and the companies that employ it?; 2) How leaders can manage the ethical risks that AI poses including issues pertaining to restructuring around automation, whether a company is responsible for how its technology is used, privacy concerns, and how to navigate bias produced by AI; and 3) How best to optimize human-machine partnerships and interactions, and how to conceptualize a fair and effective division of labor between humans and machines.

Digital learning goals:
▪ Ethics (philosophical basis of ethics, legal basis of ethics, bias)
▪ Privacy (legal basis of digital privacy, regulatory constraints by nationality)

4) Maximal versus minimal version

The above curriculum constitutes a maximal version that would be fielded along with certain other more traditional marketing, statistics, or computer science courses. The key consideration that resource availability is variable results in the prioritization for a minimal version. The prioritization is based on insights from industry leaders reported in the phase 2 marketing task force report, which underscored the importance of omnichannel, statistics, customer centricity, digital advertising, and ethics.

Maximal version
1a) Marketing strategy and AI
2a) Customer analytics and AI
2b) Omnichannel
2c) Digital advertising
2d) Social media analytics
3a) Coding bootcamp
3b) Advanced programming
3c) Data privacy
3d) Ethics and AI

Minimal version
1a) Marketing strategy and AI
2a) Customer analytics and AI
2c) Digital advertising
3c) Data privacy

Conclusion

We have specified a general blueprint for educating the next generation of business leaders for the emerging digital economy. This report is based on prior findings by this task force that may be summarized in terms of need for analytics and AI training within the marketing function, conceptualized in terms of three key emerging roles: 1) Marketing Analyst, 2) Generalist Translator, and 3) Digital Strategist, which correspond to the educational tiers of undergraduate, Master's of Science, and MBA, respectively. Across the curricula specified here, there is a large emphasis on analytics and coding, which serves as a wake-up call to higher education leadership.

For many businesses, a working knowledge of AI is increasingly important. At the same time, there is the concern that an overemphasis on AI may constrain innovation and competitive advantage over the long term. For the next decade or so, the primary benefit of AI will likely be for routine or incremental businesses processes. The value of AI may diminish as competitors also gain algorithm-based insights. Therefore, competitive advantage at some future points may come from breaking with AI and anticipating in more creatively "human" ways what customers want. To use a well-worn example, would an AI deployed a hundred years ago anticipate the car or simply a faster horse? The key point is to recognize that the ideal curriculum demands a balance between skills in understanding digital technology versus skills in holistic problem-serving and the generalist's courage to decide against the recommendation of an algorithm. Both the maximal and minimal versions of the curricula specified here attempt to capture this balance. It is up to business school leaders to refine further this balance for their own particular needs.

Appendix: Marketing curriculum development process -- MACUDE Marketing Task Force