

A Match in the Making: How Emergent Changes in the Marketing Discipline Present Opportunities for Information Systems Programs

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Abstract

The digital revolution is upon us, bringing with it disruptive forces in every aspect of business and personal interactions. The business marketing function has become so technologically driven it is sometimes hard to tell where the boundaries between the Marketing and Information Systems disciplines lie. The new world of digital marketing has changed how both marketing and technology professionals approach their jobs. Digital has created new roles, and much of what we knew and taught in higher education is no longer viable. New hybrid education programs are required to equip the new generation of workers with the skills they need to be successful. While marketing and information systems and technology education programs will undoubtedly continue to exist as separate entities, there are opportunities for cross pollination between the two disciplines. Just as corporate enterprises will need to embrace this new way of doing business if they are to be successful, so too will academic enterprises need to incorporate new methods and new ideas into their offerings if they are to remain competitive with their peer institutions. This paper explores the concept of how this new digital world has transformed the marketing function, the impact it has on the consumerization of information technology, and how higher education will have to respond. Digital has arrived, and it is here to stay.

Keywords: Digital Marketing, Social Media, Mobile, CIO-CMO Relationship, Age of the Customer, System of Engagement

1. INTRODUCTION

Marketing, as defined by the American Marketing Association, is “the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large” (American Marketing Association).

Information systems (IS) has been characterized as “the study of complementary networks of hardware and software that people and organizations use to collect, filter, process, create and distribute data” (Jessup, 2008).

Much attention has been paid to the intersection of these two disciplines, and what it means for

the respective function leaders (i.e. Chief Marketing Officer [CMO] and Chief Information Officer [CIO]). Within just the last ten years, marketing has gone from being one of the least technology dependent business functions to being one of the most. Marketing now relies more heavily on technology to accomplish its mission than any other industry "in the history of computing" (Brinker, 2014), and is in fact increasingly being viewed as a technology-powered discipline (Brinker & McLellan, 2014). This change requires a paradigm shift in how both marketing and Information Technology (IT) professionals approach their work (Brinker, 2014).

We use the term paradigm shift, particularly with respect to technology, to mean a change from one way of thinking to another. It is encompassing in the manner of revolutions, transformations, and metamorphoses (Tapscott & Caston, 1993). It is common that agents of change drive paradigm shifts (Perez, 2004).

The agents of change responsible for the metamorphosis of marketing into a technology driven discipline are advances in technology itself. According to Scott (2007) "technology is doing to marketing what it did to financial markets: driving it toward automation and real-time analysis." In many ways, 20 years of the disruptive technology that is the World Wide Web has completed its cycle of massive disruption in the discipline of marketing (Brinker, 2014; Christensen, 2013).

In order to understand what Information Systems may contribute to this paradigm shift in marketing, it is important to understand why marketing has become so technologically dependent. One obvious answer is that the world in general, and business in particular, has become much more technology dependent. Technology connects us to data and people in a way that is both pervasive and ubiquitous; we are in a digital "hyper-connected" set of interconnected cultures, societies, nations, and people (Saha & Mukherjee, 2003). Digital has fundamentally and forever changed the world (Brinker, 2014). Specific to marketing, consumers are now demanding goods faster, better, cheaper, and with a higher degree of service; technology makes it possible for them to have it (Cooperstein et al., 2013). It has become commonplace for companies and organizations to transact and interact with customers digitally. There is no question that a

technology-fueled customer-led disruption is underway (Cooperstein et al., 2013). Moreover, the new paradigm will continue to evolve as technology and society evolve.

This paper reviews the technology-driven paradigm shift in the marketing discipline to better understand the implications for the information systems discipline and curriculum such that the emerging partnership between these disciplines may become more formalized. As both disciplines tend to exist in colleges of business, it would seem natural for new hybrid curricula to emerge that is symbiotic and co-creative. We do not foresee either discipline losing its core identity, but rather see complementary competencies that are ripe for collaboration.

This paper goes on to discuss the marketing discipline, the advent of technology and how it has impacted marketing, how digital has changed the roles and relationship of the CIO and CMO, and the implications of this shift to education.

2. CLASS NOTIONS OF THE MARKETING DISCIPLINE AND THE ADVENT OF TECHNOLOGY

Marketing has grounded its discipline on the four P's for for more than half a century: Product, Place, Price, and Promotion (Ettenson et al., 2013). The formula was simple: put the right product in the right place and time at the right price with the proper promotion mix (*MindTools*). Prior to the digitization of almost everything, that formula worked. Marketers were in charge of the information – and the information flow (Fetherstonhaugh, 2009). Customers had few options for discovering brands, and had to wait to be made aware of a product's value (Burris, 2013). Promotion consisted of static messages delivered via large scale mainstream media, which could be used to efficiently communicate with large segments of the population (Fetherstonhaugh, 2009), and customers were led down a logical path from prospect to loyal customer (Burris, 2013).

The traditional buyer – seller dynamic has changed dramatically (Aberdeen Group, 2013). Technological advances have shifted the power between vendors and consumers in favor of the consumer (Bieler et al., 2014). While the customer was always at the center of the

marketing mix, now the customer is in control (Fetherstonhaugh, 2009).

Forrester Research defines this new world as the "Age of the Customer": "A 20-year business cycle in which the most successful enterprises will reinvent themselves to systematically understand and serve increasingly powerful customers." (Cooperstein et al., 2013)

Brinker (2014) posits that there are three disruptive forces primarily responsible for this phenomenon: open information, open communications, and customer experience. We will explore each of these in the following sections.

Open Information

1990 to 2010 was the age of information (Cooperstein et al., 2013). With the dawn of the World Wide Web in 1990, and the original search engine in 1994 (IEEE Computer Society History Committee, 2012), came the dawn of open information.

A web search engine is an automated software system used to search for information on the internet. The search results are generally presented in a linear format, and may consist of web pages, images, other files, or any mix thereof (http://en.wikipedia.org/wiki/Web_search_engine). Search engine optimization (SEO) uses a complicated algorithm to determine how often or where a particular website shows up in a search engine's "natural" or un-paid search results list. In general, the higher up and more frequently a site appears, the more visitors it will receive from the search engine's users (http://en.wikipedia.org/wiki/Search_engine_optimization).

As search engines have become more advanced and "intelligent", information has become easier to find. Information gathering and sharing, that used to be done manually – and take days, weeks, or months, is now accomplished in seconds. Open information has given buyers more power than ever. 2010 and beyond will be the age of the customer (Cooperstein et al., 2013).

Today's consumers are active in their search to acquire sources of value to satisfy their needs. They use many channels to proactively seek information everywhere, instantly (Burriss, 2013). Something as simple as a multitab

browser allows prospective buyers to compare product pricing and other features with ease (Cooperstein et al., 2013). Ready access to this kind of information means that marketing has become much more inbound, as opposed to outbound, where passive customers waited to be found and informed of your value proposition. Marketers must now earn their customer's attention, as opposed to buying it (Drell, 2011).

Open Communication

Keeping customers' attention is proving to be yet another challenge. Gone are the days when televisions were used for entertainment, computers for productivity, and telephones for communication. Now they're all screens. (Laskowski, 2014) Audiences are splintered in fragments and slices (Fetherstonhaugh, 2009). Instead of a static message delivered via large-scale media, today's marketing communication is comprised of a dizzying assortment of digital touch points across various websites, social networks, broadband and mobile devices (Brinker, 2014). Marketers can – and must – use social media such as blogs, podcasts and white papers to create engaging content that is interesting, informative and adds value (Drell, 2011).

Information flows are multidirectional but especially strong among customers themselves. (Burriss, 2013). Consumers use on-line ratings and reviews to guide their purchase behavior (Topinka, 2014), many of which are shared experiences by other consumers. This explosion in communication does not just benefit the consumer, either. Businesses can gain valuable information by tracking customers' online shopping and buying behavior (Florentine, 2013). Email marketing automation lets organizations track open rates, know who clicks which links, and what prospects do when they visit a website. Some also provide email forward rates (Vance, 2012). The new marketing communications environment is so many unstructured one-to-one and peer-to-peer conversations (Fetherstonhaugh, 2009).

Social Media

Social media is one of the most compelling examples of how technology and the new communication environment impacts marketing practices (*Gartner* July 30, 2012). Social media is not entirely a new phenomenon. Consumers have long been influenced by their peers when considering purchase decisions. Few have been reluctant to share their displeasure when a

product or organization disappointed them. What is new, however, is that word-of-mouth now happens instantly and has far greater reach (Vance, 2012). Social media outlets such as Twitter, Pinterest, Facebook, and the like, allow customers to share their experiences – both positive and negative – not only with their peers, but globally (Florentine, 2013). Social media is a platform where "audiences have audiences" (Laskowski, 2014). The back-end of one buyer's experience, when shared, may serve as the foundation of the research cycle for another customer (Vance, 2012). CMOs are just beginning to understand the complexity of interactive social media (Nash, 2012a), and the influence personal activities of sharing comments, links and recommendations has on what individuals buy (Gartner, 2012).

Understanding the marketing nature of social media presents somewhat of a challenge for the CIO. IT must develop, understand, manage, secure and support the applications that allow for collecting, maintaining and sharing disparate bits of knowledge gleaned by listening to these conversations. Without the analytical tools and metrics provided through technology, social media would just be "shouting in the dark" (Nash, 2012b). This new responsibility is immensely different from anything the IT department has previously done. "Social networks are as different from computer networks as playing a piano is from building a piano." (Nash, 2012a)

Mobile

Advances in mobile technology have contributed greatly to the explosion of open information and open communication. Connections to people and information through mobile devices have become ubiquitous (Cooperstein et al., 2013). Consumers use smartphones to research and buy products from anyone at any time anywhere (Topinka, 2014). The shift to mobile does not refer simply to devices. It has evolved into an entirely new process used for making purchasing decisions. Referred to as the "mobile mind shift", customers expect that "any desired information, service, or product is available on any appropriate device, in context, at their moment of need" (Colony et al., 2013).

For IT as well, mobile is more than just another device to support, or a shrunken website, or a screen-scraped application. Rather, "mobile is the visible manifestation of a much broader shift to systems of engagement that marry physical

context and digital intelligence to deliver service directly into a person's hands" (Burris, 2013).

How can CMOs manage all these channels, and connect these billions of unconnected, unstructured data points back to individual people – the very customers they are trying to reach, to generate insights that are predictive, not just historical – all on a massive scale? (Baird & Ban, 2013). "It's really easy to collect information, but it's hard to pull out insights and even harder to act on insights," says Matthew Kaness, chief strategy officer at fashion retailer Urban Outfitters Inc., (Torode, 2013). The only answer is technology. To connect with individual customers at every touch point effectively, marketers need a system of engagement that maximizes value with each interaction (Baird & Ban, 2013).

Big Data

Information has become the lifeblood of today's organizations (Feldman et al, 2012). Marketers' knowledge and use of distinctive elements of consumers' behavioral data such as clickstreams and site search records can help them tailor offerings that are closely aligned with consumers' preferences (White et al, 2007). This behavioral data helps marketers understand interests, impulses and motivations. It also requires them to collect enormous amount of data (Henschen, 2013).

Every hour, terabytes of video are uploaded, gigabytes of location data are streamed, billions of emails are sent, and there are tens of millions of Facebook posts and tweets (Colony et al., 2013). The unstructured, or human friendly, data contained in these documents, email messages, contact center recordings and comments on social forums, tweets, blog posts, online product reviews and verbatim answers to open-ended survey questions is where the valuable nuggets of untapped customer knowledge exist (Feldman et al., 2012). Structured, historical data is also valuable, but due to the inherent constraints imposed by an inability to anticipate every actual opinion in closed ended response options, it does not provide for a multidimensional view of the customer (*Hewlett-Packard*). In the age of the customer, the only sustainable competitive advantage is a thorough knowledge of and engagement with customers at every level (Cooperstein et al., 2013).

Somewhere in that big data is the right data (Sitecore, 2014). The most successful IT leaders of the next generation will be able to spot the data elements that create critical customer insights, and weave them together into a dynamic system that will deliver strategic and competitive advantages to the enterprise (Araujo, 2013).

While Marketing has always been responsible for knowing the customer, now they must be obsessed with understanding and responding to customers as individuals (Baird & Ban, 2013). CMOs are looking for creative ways to gather situational context from mobile device sensors, preference context from historic activity, and operational systems data into a cohesive resource capable of reaching down to the customer level – revealing each customer's individual value and inclination to respond to different stimuli to predict next-likely-action functionality (Yamnitsky, 2014). Using context to derive the conceptual meaning of these interactions allows the human functions to be automated. A technology-enabled understanding of both the structured and unstructured data, combined, is exponentially more valuable than the structured data by itself (Hewlett-Packard, 2013).

With the right data, and tools to extract and manipulate it, marketers can create experiences that go beyond just personal ("Welcome back Sam") to contextual ("Glad to see you back in Dallas on your mobile, Sam"). Tying the customer's complete profile, past engagement history, and current situation into contextually personalized customer experiences exude relevance when done well (Cooperstein et al., 2013).

Great customer experiences begin with and rely on great information (Fenwick, 2013). Poor data quality has stymied business intelligence and analytics projects for decades (Henschen, 2013). If marketers want to provide their customers with excellent experiences, they will have to find the gems in this data and translate them into better business offerings (Colony et al., 2013). Moving beyond discrete, unrelated bits of customer interaction data is the first step in understanding voice of the customer data and being able to respond to the new insights (Hewlett-Packard). Only customer-obsessed enterprises will prosper, and be able to increase market share, revenue, and profit in the age of the customer (Colony et al., 2013).

Customer Experience (CX)

More and more, the customer's experience **is** the firm's brand (Brinker, 2014). It is by far the greatest driver of a companies' business value (Sitecore, 2014). Forrester Research data show that a strong correlation exists between the quality of a firm's customer experience and the likelihood of customers buying from the company again (0.71), or recommending that firm to another (0.64) (Business Impact Of Customer Experience). Traditionally, marketing has been the owner of the customer experience function (Topinka, 2014). This approach no longer makes sense. As each distinct customer interaction is an ingredient in the overall customer experience (CX), (Hewlett-Packard) today's operating model for CX management requires a collaborative approach in order to be effective (Topinka, 2014).

The implications of CX for the CIO are huge. As consumer activity increasingly takes place in the digital realm, nearly every touch point is supported by - and information gathered must be managed by - technology in some way. Improving CX is a top priority for CIOs as CEOs turn to IT leaders to help shape positive CX through digital technologies (Fenwick, 2013). If organizations are judged by CX (Brinker, 2014), and technology influences CX, it follows that market share and customer satisfaction will depend on the quality of the firm's customer technology (Colony et al. 2013).

Journey maps visually illustrate a customer's processes, wants and needs, and experiences over the course of their relationship with an organization. These documents highlight the various things customers do as they seek to satisfy their needs. Empowered customers can no longer routinely be moved down a specific path. They move through markets as fits their needs and schedules. Customers take many paths during their purchase journey, often triggering business capabilities in unpredictable ways (Burris, 2013). Because of this, every moment of engagement, each interaction, is a test of the business. A great brand requires great experiences at every stage along the customer journey – from the very first touch point onward (Brinker, 2014). CIOs must be able to translate customer journeys – whether by search, social media, mobile apps, or a growing collection of digitally-powered devices – into reliable and predictable systems of engagement that will transform the business.

To accomplish this task successfully will require marketing's help (Burris, 2013).

3. THE CIO-CMO RELATIONSHIP

In today's uber-connected digital world, everything that a business does – the entire CX that it delivers – is now the purview of marketing. Marketing is taking over the business, and technology, in turn, is taking over marketing (Brinker, 2014). Forrester Research suggests a totally new perspective, Business Technology (BT), is necessary to bring together these two realities. Forrester defines BT as: "Technology, systems, and processes to win, serve, and retain customers." CIOs and CMOs will have to work together to successfully carry out the BT agenda (Colony et al., 2013).

CMOs and CIOs alike must acknowledge that technology and marketing are now intimately entwined (Arthur, 2012). In a perfect world, what's possible with technology should inspire what's desirable for marketing, and vice versa (Brinker & McLellan, 2014). CIOs must understand how to adapt technology management to suit this rapidly changing world (Colony et al., 2013), and CMOs must be comfortable integrating technical talent and capabilities into the marketing organization and managing them at a high level (Brinker, 2014). Differently said, CMOs should become more tech savvy, while CIOs become more marketing savvy (Reubens, 2013).

The CMO role is clearly becoming more data driven, and with data comes power (Vance, 2012). By necessity, CMOs and CIOs will team up to become a businesses' dream team; a "C-suite power couple" (Mullins, 2014). According to IBM's 2013 Global Survey of Marketers, "managing, collecting and making use of internal and external data" is one of the top five challenges marketing professionals face (Pratt, 2014). CMOs and CIOs can join forces in understanding and unleashing the power of data to make marketing initiatives more impactful (Florentine, 2013).

The notion of BT is more than an IT transformation of better back-office technology. It is the channel whereby front-office experiences are delivered and the customer's voice is heard (Brinker, 2014). Effective engagement must include the capacity to listen and react to customers' inquiries, demands, and feedback (Belissent, et al. 2014). Today, people don't just visit websites to gain information.

They go expecting to interact with functional applications (Brinker, 2014). Keeping a modern website running well is demanding, but imperative for keeping customers satisfied in a hypercompetitive, technology-driven business world (Florentine, 2014). Technology can make a customer transaction painfully slow or incredibly fast (Fenwick, 2013), which will affect CX and loyalty. According to CEB Analytics, 96% of customers are more disloyal after a high-effort experience, as opposed to only 9% who become disloyal after a low-effort interaction (Accelerating Digital Marketing, 2013). IT professionals must become experts in seeing that CX lives up to the marketing promise (Fenwick, 2013).

Integration challenges

As one might surmise, these incredible technological advancements bring with them strategic and management challenges (Brinker, 2014). As marketing becomes more dependent on technical solutions for customer engagement, and IT's directive expands to include front office enablement, both functions are busy looking for their own solutions. Despite common goals, their initiatives are often not as integrated as either of them might wish (Baird & Ban, 2013).

Executive-level cooperation is not sufficient if true integration is to be realized. The integration must go deeper and address structural differences at the organization support level, and the disconnect between IT and marketing staff's objectives (Accelerating Digital Marketing, 2013). A primary reason for the lack of integration between the two functions is an inherent difference in perspectives.

Two major drivers of BT are speed and agility, neither of which have traditionally been IT's forte (Pratt, 2014). As Forrester analyst Sheryl Pattek says: "Marketing wants the tools delivered yesterday, while IT generally prefers a more deliberative approach." (McLellan, 2014) Marketers need speed and flexibility. They also need consistency and integrated systems that reveal truths in the data – regardless of the source – to enable a seamless CX, and provide for better customer insight and performance measurement (Accelerating Digital Marketing, 2013).

Today, marketing is more of a science than an art (Vance, 2012). All the afore mentioned forces – social media, viral marketing, omni-channel customer engagement, big data – are

each generating new key performance indicators, which are used to determine how effectively a particular message or medium may be performing (Pratt, 2014). In this world of media convergence, the customer is the organizing focus (Brinker, 2014).

Chief Marketing Officers are charged with maximizing a customer's total lifetime value, which requires all customer interactions to be fully optimized (Pratt, 2014). Siloed marketing, customer service, IT and other functions makes it difficult to achieve alignment around, and target relevant messages to, the appropriate audience. Cross-functional collaboration can solve this problem by providing a shared view of the customer (Arthur, 2012). Customer journeys, systems of engagement, and business capability networks may be familiar concepts in either marketing or IT arenas, but rarely both. The IT and customer-facing groups must exchange knowledge and ideas with these concepts to encourage the collaboration necessary to win, serve, and retain customers through technology (Burris, 2013).

Another key disintegration factor is risk. Managing multiple brand campaigns across different platforms poses incredible risks for businesses in all industry sectors. Everything from mundane password policies for social media accounts, to new industry regulations, as well as laws governing consumer privacy and other security concerns must be considered (Five Years From Now). Marketing tends to view these concerns, and the IT policies that address them, as obstacles (Accelerating Digital Marketing, 2013). However, if personal customer data is not adequately protected, ignoring these policies could lead to serious legal problems, as well as an extremely negative CX (Reubens, 2013). CMOs must not discount process discipline, which is essential to the successful deployment and management of technology; CIOs must understand that CX is non-negotiable (Vance, 2012).

How to solve

Spending on technology outside the IT department is growing rapidly, and is now adding an average of 40% to companies' IT budgets (Goodwin, 2014). Laura McLellan, Research VP for Gartner, predicted that CMOs will outspend CIOs on technology within five years (Gartner, 2012).

While it is inevitable that marketing will exert considerable influence over technology spending in the future, doing so without a strong cross-functional collaboration with IT makes no sense (Arthur, 2012). Gartner's "Digital Transit Map" (Appendix A) illustrates the bewildering number of technology platforms available from which to choose, and a marketing organization can easily get caught up with the bells and whistles of one or another platform or application (Pratt, 2014).

This maze of digital marketing needs and varied solutions (Appendix B, C) has led to confusion at a time when organizations most need clarity (Sorofman et al., 2007). CMOs want to experiment with different technologies to find the ones that work, but they don't have the expertise – or desire – to run them at scale (Accelerating Digital Marketing, 2013). IT organizations must take the lead in digital transformation (Topinka, 2014) by utilizing its expertise in vendor selection experience, integration skills, and security awareness to meet the business needs of the CMO (McLellan, 2014).

Regardless of who signs the checks, CIOs will hold significant responsibility for delivering digital experiences. To paraphrase Mark Twain, the reports of the CIOs demise at the hands of the CMO have been greatly exaggerated (Fenwick, 2013).

One way to avoid conflict and ensure collaboration between CMOs and CIOs is to combine the two functions in the hands of one person (Pratt, 2014). Many organizations are moving towards increasingly blurred leadership and titles for the two functions (Pratt, 2014). When asked about steps taken to support digital marketing, 38% of executive respondents replied that they had increased marketing technology expertise in IT, with an equal number saying they had increased technology expertise in marketing (Henschen, 2013).

Science hypothesizes that evolution does not happen slowly and steadily over time. Instead, "new species tend to arise in bursts of evolutionary activity, triggered by major disruptions in the environment" (Brinker). Whatever the title, a new species is emerging at the center of the digital transformation: one that is part strategist, part creative director, part technology leader, and part teacher (Brinker & McLellan, 2014). These hybrids can be marketers who have developed technical skills or

technologists who have embraced the marketing concept (Brinker, 2014).

To grasp how far the notion of a combined marketing and technology function has come in a relatively short time span, consider that the role of a chief digital officer or chief marketing technologist was, at best, a niche subject in 2008 (HBR). Yet, by 2015, Gartner predicts that 25% of businesses will have embraced the role (Laskowski, 2014). No matter the name, the role essentially acts as a bridge between marketing and IT, ensuring that technical and marketing requirements are met, and that marketing's systems adhere to IT policies (McLaughlin, 2014).

Summary Thoughts on the Revolution

Disruption is not new. Throughout time innovation has changed the formula for success (Belissent, et al. 2014). Marketing is and always has been about communicating a value proposition, educating people, and explaining the value of what you can do to help them (American Marketing Association, 2013). How this is accomplished now is what is different. Successful marketers recognize the difference between "digital marketing" and "marketing in a digital world" (Chris Cox, senior manager of global digital marketing for The Hershey Company Mar 3, 2014 iMedia Content Summit; Brinker, 2014).

While technology is and always has been a critical business function, successful technology leaders in the future will know more about the customers and, more importantly, have a passion for attracting, retaining, and serving them (Larry Bonfante CIO Bench Coach, author). This is an exciting shift in the technology profession (McLellan, 2014), and may turn out to be the best part of the CIO's job. "Most CIOs and CTOs didn't intend to be the mechanic in overalls who deals with the complex stuff nobody wants to pay attention to," Forbes contributor and CTO for CITO Research Dan Woods reasons. "But too often, for many reasons, that is what happened" (Laskowski, 2014).

The bottom line is that IT can be a true business differentiator when it is focused around the voice of the customer (Mullins, 2014).

4. IMPLICATIONS FOR IS EDUCATION

It is obvious that radical shifts are occurring in both the Marketing and IT fields (Henschen,

2013). Many academic institutions have updated their course offerings accordingly, but more must be done if students will have the skills employers need when they enter the workforce and beyond.

One way Marketing education has responded to these changes is by updating the traditional 4Ps model. (Appendix D, E) Information Systems (IS) education needs to do the same.

In academia as in business, both Marketing and IS must collaborate, but also exist separate from one another. They attract and require professionals with different mind sets. Just as businesses should not have their Marketing team making technology decisions (for all the reasons previously noted), colleges and universities should not have their Marketing faculty teaching IS and vice versa. However, both disciplines need to understand and respect the work of the other.

Many colleges and universities are developing specialized programs in analytics, data quality and data management (<http://data-informed.com/how-to-find-the-right-analytics-education-for-you/>). Graduate degree programs focused on technology management have begun to proliferate. These programs incorporate analytics, general management, and soft skills (collaboration, team building, communication, emotional intelligence, and non-linear thinking) in various ways to help close the professional development gap that exists among many technology professionals (Schiller, 2011). Other programs offer students a dual specialty degree in some area (technology, analytics e.g.) along with a MBA so as to provide both depth in a specific area and breadth of general business management. This is a start, but truly integrated coursework needs to be developed in order to produce graduates with the skills in demand by businesses today.

One thought is an integrated course on Marketing Technology, co-developed and taught by both IS and Marketing faculty. Another possibility is to have Systems Integration curriculum incorporate mobile and social aspects into the curriculum, thus addressing the "Systems of Engagement" needed by Marketing.

5. CONCLUSIONS

Marketing's embrace of technology to the extent that the discipline's core values and assumptions are changing should not be seen as a threat.

Rather, the paradigm shift in marketing begs for another discipline, such as IS, as a partner to drive and realize the systems, software, and technologies that have become the lifeblood of marketing.

Dell CIO Andi Karaboutis suggests that in business, the way to succeed is "putting the customer at the center of everything, and gaining insights at the speed of the customer, not the speed of IT" (High, 2014). She further says, "There are technology savvy marketers and Marketing savvy IT people. You bring that together, and you can disrupt and really win in the marketplace. . . It's a culture change and then a drive toward understanding Marketing and technology together and what they can deliver" (High 2014).

These concepts apply equally in academia. Substitute "student" for "customer", identify - or create - tech savvy marketing students and marketing savvy IS students, bring them together and you have a graduate with valuable skills, who will excel in the workplace, and a winning program for a school.

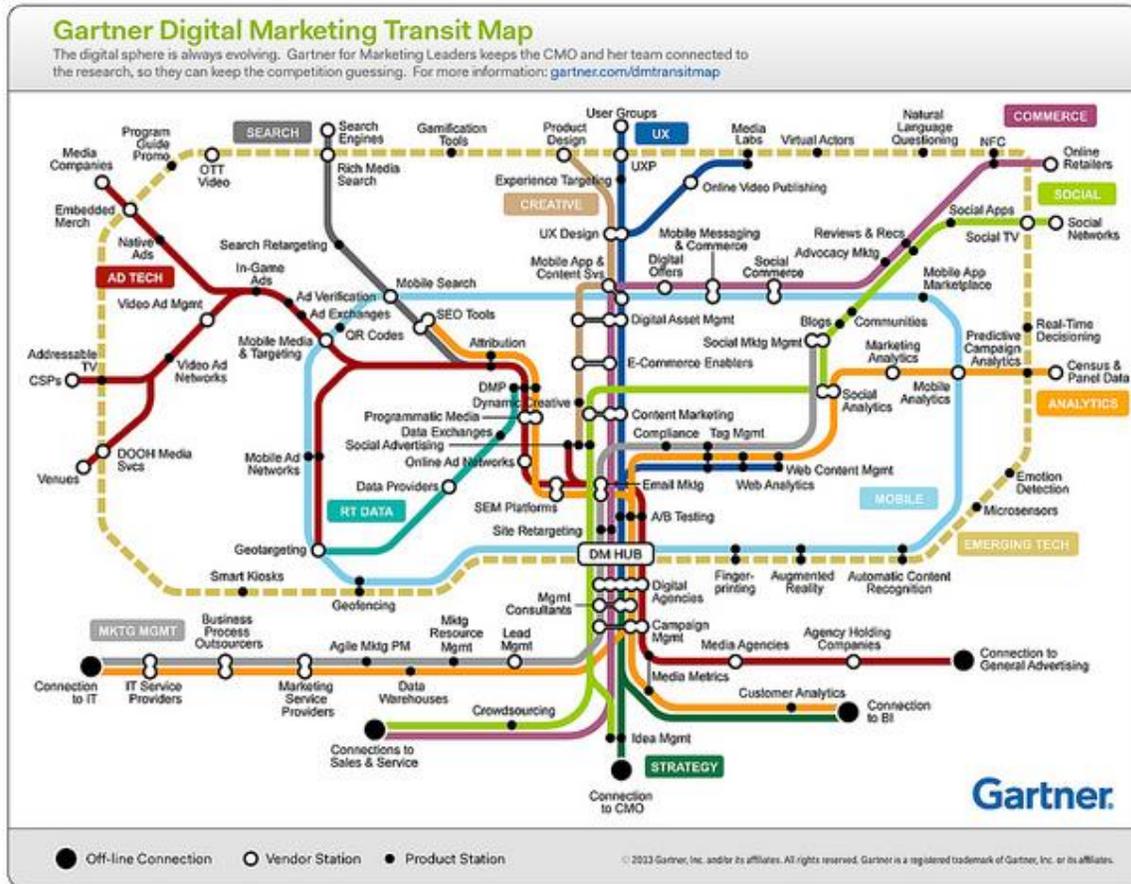
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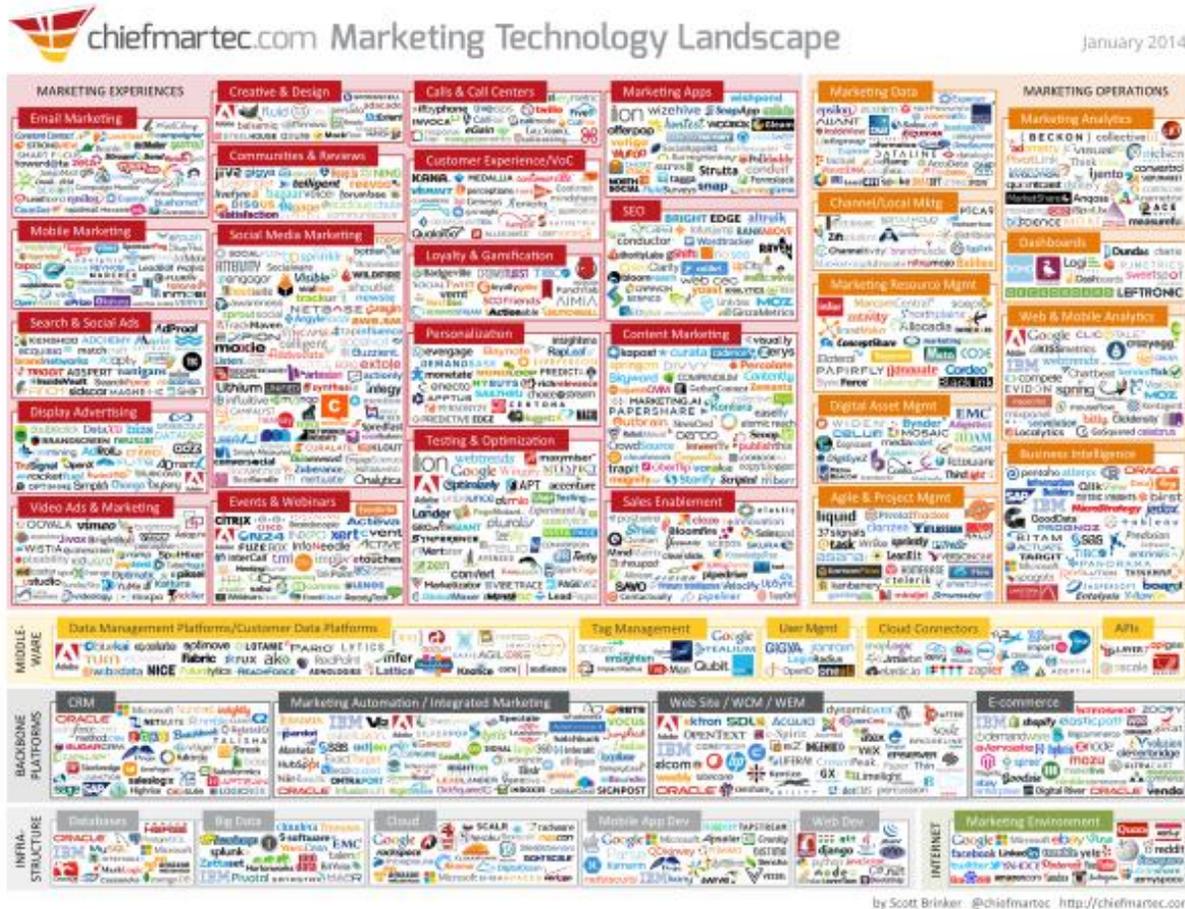
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Appendix A: Digital Transit Map



(Gartner, 2013)

APPENDIX B: Marketing Technology Landscape



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(Brinker, 2014)

Appendix C: What Marketing Technology Buyers Need

What Marketing Technology Buyers Need

| GROUP | KEY NEEDS | REPRESENTATIVE TECHNOLOGIES |
|------------------------------------|---|--|
| CMO and other marketing leadership | Focus on all aspects of marketing. Key areas include measurement, strategy and marketing optimization. | <ul style="list-style-type: none"> > Marketing performance management > Marketing mix modeling > Attribution |
| Brand marketer | Focus on building the brand and creating compelling brand content. Work with agencies, media buying firms and creative shops. | <ul style="list-style-type: none"> > Brand measurement > Marketing resource management (planning) > Asset management and localization |
| Marketing operations | Central organization that focuses on budgets, processes, vendor relationships and fulfillment. | <ul style="list-style-type: none"> > Marketing finance management > Marketing resource management (workflow) > Production and fulfillment management |
| Relationship marketers | Emphasize customer insight development and direct communications. | <ul style="list-style-type: none"> > Descriptive and predictive analytics > Campaign mgmt. and marketing automation > Interaction mgmt. and contact optimization > Event-based marketing |
| Interactive marketers | Focus on digital advertising, interactive marketing and emerging media strategy. | <ul style="list-style-type: none"> > Email, search, display, social and mobile > Web analytics and online testing > Behavioral targeting and recommendations > Audience management |

Data: Forrester Research
 Source: InformationWeek, Feb 11 2013

(Henschen, 2013)

Appendix D: The New 4ps Model



(Fetherstonhaugh, 2009)

Appendix E: Save Model



(HBR, 2013)