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Technology's Impact on the Marketing Function

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Abstract
This paper provides an overview of classical subjects contained in the Marketing discipline, with an emphasis on the impact of technology on the functional roles of Marketing Management within a firm. The significance of Marketing, rooted in its power to influence customers, to increase the value and demand for an entity (or person) and its service or good, create exceptional cash flow, and deliver a market premium, through differentiation from the competition remains unchanged. Behind the buzz and dazzle of such huge topics as social media and internet technology, there are further reaching changes being caused by a plethora of new technologies that are being applied inside the Marketing organization. The future of technology promises to transform traditional marketing functions. Several of these technologies and their impact on the marketing function are reviewed and dissected in order to provide insight as to the benefits they can provide, the most significant of which are decision support technologies, and closely behind demand planning and sales team management tools. Specifically, to what extent is technology supplanting the "set of disciplines and responsibilities", encompassed in classical marketing functions? How is the function being transformed with superior, affordable technology based processes that better target demand, allowing individuals to achieve what an entire "set of institutions" toiled to execute? These technologies are available today and the firms that master these technologies will have clear competitive advantages, ensure that the customer's expectations are fulfilled in a more personal, customized process, in a more efficient manner that benefits both investors and customers.

Keywords
Decision support technology, neuromarketing, market intelligence, collective intelligence, predictive analytics.

Introduction

This paper provides an overview of classical subjects contained in the marketing discipline, with an emphasis on the impact of technology on the functional roles of marketing management within a firm. Behind the buzz and dazzle of such huge topics as social media and internet technology, there are further reaching changes being caused by technology being applied inside the marketing organization. The future of technology promises to transform traditional marketing functions. Several of these technologies and their impact on the marketing function are reviewed and dissected in order to provide insight as to the benefits they can provide, the most significant of which are decision support technologies, and closely behind demand planning and sales team management tools. The American Marketing Association (2016) maintains its definition as: "**Marketing** is the activity, <u>set of institutions</u>, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large." The significance of marketing as a field of study is rooted in its power to influence customers, to increase the value and demand for an entity (or person) and its service or good, create exceptional cash flow, and deliver a market premium, through differentiation from the competition. Marketing as both a profession and an art form helps customers, entrepreneurs, consultants, financiers, and politicians

This paper explores to what extent technology is supplanting the "set of institutions", underlined above, and transforming them with superior, affordable technology based processes that better target demand, allowing individuals to achieve what an entire "set of institutions" toiled to execute.

1. Analyzing markets and identifying opportunities

"The aim of Marketing is to make selling superfluous"

(Drucker, 1974)

Marketing Analytics is a growing set of tools and processes that leverage the boom in consumer data to better understand all aspects of marketing responsibilities: current and potential customers, competitors, products, services, and new ways to measure the effectiveness of marketing activities themselves. The American Marketing Association, in their 2014 edition of their annual marketing analytics survey found that these tools allowed marketing teams to better target their marketing campaigns, but only 31% of firms surveyed had fully them integrated into their marketing processes (Sullivan, 2014). Julie Davis, in the AMA Marketing Insights, listed what she sees as the top four trends for marketing in 2015, each of them is based on the application of data driven: customer focused insights, entire teams focused on obtaining the insight, and sharing within an institution, and finally, the growing impact of mobile technology as the source for the data and outlet for marketing campaigns (Davis, 2014).

Situational Analysis has different schools and advocates of different approaches to answer the same questions: where are we and what are the opportunities that are available to us. Theoretical approaches, changing toolsets, and common goals make people want a product or service. Quantitative and qualitative analysis, the methods for each of the 5C model: collaborators, customers, company, competition, context. (Ohmae, 1991) Further, technology is also affecting the implementation of Porter's five forces approach, as well as the classic Strengths-Weaknesses-Opportunity-Threat (SWOT) approach to analyzing the status quo.

1.1. Learning about your Customer

"*We find that ... millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first"*

(McKay, 1852)

Leading marketing organizations have renewed their focus on understanding the motivations of customers and what has "**meaning**" to them has driven the field of qualitative research and success at focused studies on tribe and group behaviors conducted by staffs of sociologists, anthropologists, and historians helping the likes of Adidas, Lululemon, Lego better understand what their markets want and desire, and how to securely place their products in these precious situation (Madsbjerg & Rasmussen, 2014).

Analysis of the Customer in the analytical, quantitative sense, is the methodical study and approach to making a customer recognize and value a product or service, and understanding the mechanics of the process of recognition and value, the psychology and the behaviors which are the foundation upon which the customer makes their decision to value, want, and desire. **Customer Relationship Management** (CRM) is one technology toolset that has revolutionized the process of analyzing customers, both current and hopeful, using a highly sophisticated and disciplined approach to gathering both internal and external information about the customers. **Predictive Analytics Technology** (PAT) that allow enhanced access to sophisticated algorithms and data tools, such as RapidMiner, allow firms to integrate and utilize customer models in real-time.

Neuromarketing as a new approach to trying to understand what drives customer behavior has gained popularity, with even dedicated departments such as the Neuroscience wing of Emory University. Neuromarketing and the Buyology study conducted by Lindstrom combines market research, behavioral psychology, with the exciting field of brain scan medical imaging (Lindstrom, 2008). By interpreting the visual representation of the human brain response to specific topics and situations, marketing gurus believe they have uncovered new techniques to understand the impact of marketing and to improve the effectiveness of marketing.

Combining Neuromarketing, CRM, and Predictive Analytics, enables new efforts in the field of **Behavioral Economics.** Behavioral Economics is dedicated to the learning and understanding behind the actions of customers. There is a spectrum of beliefs and leading theory's into what drives most people, most of the time. This ranges from the rational school to the motivational approach. The rational approach says that the customer behaves in a way that follows is the Standard Economic Theory of maximizing utility and optimization per budget constraint. The motivational approach says that people are more impulsive, driven by their unconscious and uncontrolled motivations. The Behavioral approach says that people have limited capacity for analysis, take short cuts by relying on the experiences of others; word-of-mouth, personal referrals. Prospect Theory says that people have imbalanced sensitivities and may treat losses or bad purchases differently from gains or good purchases (Areily, 2010). Three concepts from prospect theory are reference pricing, framing, and loss aversion (need references). Daniel Kahneman and Vernon Smith won the Nobel Prize for trying to explain idiosyncrasies in people's decision making processes (Thaler & Sunstein, 2009).

1.2. Competitive Analysis

Competitive analysis is yet another of the many aspects of marketing that has been transformed by technology. One form of technology dubbed "**Market Intelligence Technology**" automates and facilitates the collection of information from both the internet and internal sources on competitors, competitor's products, and developments that may affect a firm's prospects in the marketplace. Market intelligence technology integrates web news feeds **RSS** and **XBRL** machine readable, web financial statements, and captures all internal competitive information that a multinational firm collects every day – and hosts it back to the hundreds of people who can benefit from better information. The executives who have such technologies available to them are better informed about potential opportunities and developments, and are notified daily or continuously, instead of perhaps randomly stumbling on information days or weeks after the general public was informed. Global organizations are able to gather internal knowledge, host, and share out the information on their businesses obtained from all corners of the world in private meetings, in ways that were impossible previously.

Competitive analysis and a firm's ability to monitor real-time positional advantages have been totally transformed by data providers such as Google. In a recent blog post and article titled "What to change in 2015 using **Google Analytics Benchmarking**", Christopher Penn demonstrates the ease of use and instant ability to log into a system to see immediately how your firm is competing against another, and areas for immediate action or reinforcement of a successful strategy (Penn, 2014).

With technology of the internet and online businesses, and speed with which these companies can quickly dominate an entire national, regional, or global market, concerns have surfaced that tech startups are a threat to competition and stability of markets (The Economist, 2014a, 2014b).

Michael Porter's Five Forces (Porter, 1979) is a tool and construct that facilitates the analysis of a market place and determines if it is attractive, profitable, or comfortably protected from competition. Porter identifies profitability as the key criteria to measure the success of a firm, rather than sheer size, and defined competition as five competitive forces. Porter's five forces are: 1) Buyers always want to pay less, 2) Suppliers want to be paid more, 3) Substitute products and services, 4) New entrants are another disturbing force, and finally the force of your existing competition (5).

The identification of competitors is a subject unto itself that is not always correctly analyzed; particularly given the impact of modern technology and every increasing availability present a permanent disruptive threat. Other significant factors such as market structure (monopoly, oligopoly, monopolistic competition, pure competition) market type (regulated, unregulated, high barriers to entry, cost structure) are important to consider in competitive analysis.

1.3. Company Analysis

Most manufacturing, technology, and service companies, when looking inwardly to understand their strengths and weaknesses, will utilize the classical tools such as the four-quadrant "Strength-Weakness-Opportunity-Threat" (SWOT) analysis, and the application of the disciplines of Lean Management, Six-Sigma Process Quality, and Operational Excellence and 360-degree evaluation programs. These programs are mostly internal in focus and other tools such as corporate mission setting and benchmarking to standards are commonly used to measure one's performance vis-a-vis their competitors. Firms such as General Electric under Jack Welch led under the mantra of being top global firm of choice in whatever segment it was participating in, were well led and successful, but not without limitations or consequences of marching to achieve a single dimensional goal. This led to the introduction, by thought leaders such as Robert Kaplan, of the **Balanced Scorecard** initiatives as a way of balancing out priorities and better reflecting the mission of the enterprise, using multi-dimensional metrics.

All of these measures of internal performance have technology products available to the firm that automates and conducts and warehouses information about process quality, quality audits, compliance audits, 360 degree evaluations of personnel, management dashboards, all with real-time instant availability to literally the "palm-of-your-hand". Big data, Data analytics, and **business analytics** will transform this further, until the "age of brilliant machines" begins to augment decision making (Dobbs, Ramaswamy, Stephenson, & Viguerie, 2014).

1.4. Context: Interpretation and Decision Making

Over the last 20 years, technology has evolved that is beginning to aid management and leaders challenge their decisions and obtain better insight into potential outcomes. The market leader in this technology is Hypermind.com, based on prediction market technology, provides tools to leverage and harness the collective intelligence of the organization (Servan&Schreiber, Wolfers, Pennock, & Galebach, 2004). Based on mass intelligence, with an automated learning capability, this **decision support technology** is seen to be transforming the future of corporate leadership, including marketing (National Public Radio, 2014). In a recent study, the firm Lumenlogic found "that prediction markets provide superior results in 67% of the forecasts, reduce average error by approximately 15 percentage points, and reduce the error range by over 40%" (Lang, Bharadwaj, & DiBenedetto, 2010). Additionally, these tools provide a forum and marketplace for superforecasters – individuals who have an exceptional ability to study a situation and accurately predict outcomes – and a tool for the organizational leadership to leverage their talents (Tetlock & Gardner, 2016).

An important part of the theory of customer behavior is the study of the commonly made errors in interpretation or decision making, due to the following errors (Hartley, 1995):

- False consensus: assuming that everyone is like you
- Overconfidence: believing you are more right than you really are

Tactics, structures, and strategies to help individuals and organizations avoid these decision making errors have been discussed by Marks and Miller (Marks & Miller, 1997) and their work on false-consensus, and studies on reducing overconfidence (Arkes, Christensen, Lai, & Blumer, 1987). However, the state-of-the art and future of organizational decision making lies in technologies to assist and improve recommendations as recently predicted at the 50th anniversary of McKinsey & Co's Quarterly journal (Dobbs et al., 2014). The ability of collective intelligence tools to span large populations and demographics presents and approach for leaders to avoid or mitigate the "echo chamber" effects, of particular significance in a digital society where individuals filter and tailor their exposure to unwanted interruptions (Jaimeson & Capella, 2008).

1.5. Psychological Value and Brand Value

"Today's marketplace is no longer responsive to the strategies that worked in the past. There are just too many products, too many companies, and too much marketing noise"

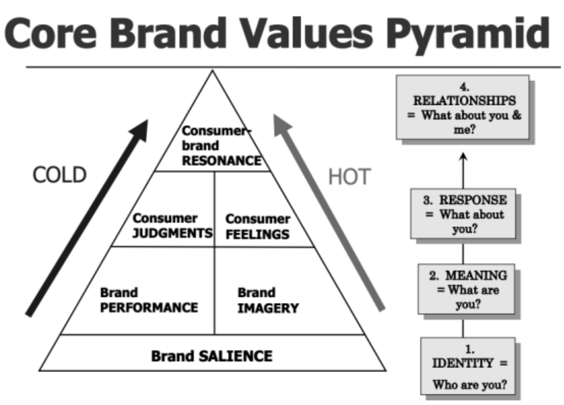
(Ries & Trout, 1981).

A brand is a name, symbol or sign that identifies the unique attributes of a seller or service provider or person. The brand becomes a mutual shared set of expectations between the brand owner and the brand consumer, regarding quality, standard of service, and loyalty. Identification presupposes memory and recognition, and displacement or priority in recall and remembering (Lindstrom, 2008) Today Brands can be designed by competing groups of designers, from all over the world, through such **websources** as crowdspring.com and designcrowd.com and surveys and opinions can be had automatically via **webtools** such as zoomerang.com or surveymonkey.com.

There are many popular quotes and examples illustrating how brands influence customers' perceptions and decision making (Ries & Trout, 1981). Brand value equates to financial power and reward in both the consumer marketplace as reflected in product or service pricing power and also in financial markets through firm value. Consumer based brand value equates to loyalty and reduced price sensitivity in the consumer goods arena. Brand equity in the product market differentiates and builds a protective barrier against inferior, unbranded and new entrants, and also enables easier entry into new markets or segments. The financial market focuses its attention on well-known brands and rewards them with generous availability of funding, higher valuations (Srivastava, Shervani, & Fahey, 1998) and higher price-to-equity ratios than unbranded firms – justified by the accumulated investment in establishing and maintaining a brand – although subject to volatility and difficult if not impossible to value using a single method or approach (Mizik & Jacobson, 2008, 2009).

Brands are not unlike delicate plants, which can require a specific regime of care and feeding and environmental conditions. Examples of Brand disasters from the US such as Schlitz beer and clear brand contrast on twin products such as the vehicles the GM Geo Prizm (Aaker, 1992) and Toyota Corolla in the 1980's – built in the same factory with identical components, with Toyota outselling GM 5:1 (Sullivan, 1998).

The Brand Value Pyramid created by Kevin Keller and shown below can be used in strategizing on building brands, and brand owners can have paths that follow either side of a two-sided pyramid: the cold, technical performance path, or the hot, emotional, psychological paths. Made of four levels, Keller's model has four layers: Brand Identity, Brand Meaning, Brand Responses, and Brand Relationships. Examples of the cold path to technical recognition can be the example of Cadillac vehicles in the US, and the hot, emotional path to the Mastercard "priceless" campaign (LaSalle, & Britton, 2003).



Picture 1 Brand Value Pyramid
Source: Keller, 2001

Brand Communities (McAlexander, Schouten, & Koenig, 2002) are a concept whereby a group of consumers share a consciousness, share rituals or traditions, and a sense of responsibility and morality. Many internet websites and mobile technologies have worked to build powerful and dynamic and ever changing assortment of communities of buyers, consumers, and social networks.

Brands have also played a role in the changing competitive landscape as globalization affects every market, and opens the world to everyone's products. This is discussed in Gabor Rekettye's paper on Hide and Seek in pricing, where predatory or marginal loss pricing of an increasingly global and transparent market has an impact on the competition. In further works, Rekettye discusses the impact of discounters mass private label brands and their growth and significance in the 2008 downturn and their impact on classical premium brands as shoppers turn to value purchasing (Rekettye, 2013, 2014).

The process of creating a brand is a critical process with regards to new product introductions. An excellent example of how technology is lowering the costs of entry and making branding easier is the revolution in craft product sales and marketing created by the website ETSY and its enormous population of trade craftspersons, each of whom is establishing their own brands day by day, customer by customer (Abrahams, 2008).

Another example of brands being created en masse via another web technology are the **crowdfunding** websites such as Kickstarter.com and Fundable.com which use crowdfunding to turn concepts and ideas into real products and services, via advanced funding from the customers advance purchases, donations, and social support for their products.

In an interview with the head of Google, Inc.'s BrandLab, it was mentioned how all companies that come to Google to try and learn more about how to use Youtube to reach out to their customers, the most popular topic is the "**viral video**" and finding new, exciting, amusing ways to connect, and the case of the Volvo Epic video series was an overwhelming success (Drell, 2014). Additionally, in the US, the football superbowl weekend holiday weekend is dedicated to video commercials that "go viral", as has also become a tradition in the UK around the first of December, with the beginning of the Christmas shopping season (Taube, 2014)

2.0. Marketing strategy

The marketing plan summarizes the assessment of customer, product, service, and value, pricing, marketing strategy, advertising strategy, as an action plan for approval, consensus for action and finally implementation. For small companies, and the even smaller startup, the marketing plan is also essential to the funding and launch of the company. The theoretical foundation and thought leadership in the development of marketing plans starts with the 4 P's Pricing, Product, Promotion, Place (McCarthy, 1964)

2.1. Product

There are many types of new products and services, and the analysis of new products, how they relate to existing products, existing consumer bases, competition, and the customers is a complicated and important aspect of the science of marketing.

Companies introduce new products to enhance the sales of existing products. Some of these introductions can be strategic in order to take advantage of what has been termed the asymmetric dominance effect, which may pull-down or undermine a competitor (Huber, Payne, & Puto 1982). The compromise effect occurs when a product is positioned as an intermediate option or an extreme option, with differing outcomes (Shafir, Simonson, & Tversky, 1993).

Customers adopt new products because of the characteristics described in the mnemonic "ACCORD": Advantage, Complexity, Compatibility, Observability, Risk, and Divisibility (Meijer, Samuels, & Terpstra, 2002).

Calantone & Cooper (1981) enumerate the common reasons that new product launches fail as:

1. better product not wanted
2. fail to differentiate from strong market leader
3. technical fault or inferiority
4. better product came to market
5. price pressure
6. failure to understand the market

The product marketplace has been segmented into innovators, early adopters, early majority, late majority, and laggards (Moore, 1991). It can also be sliced into profitability phases of the product life cycle: the introduction, profit growth phase, maturity, and decline. Segmenting the customer population allows a firm to identify strong and weak customers, desirable or undesirable populations, or in ways that allow targeted marketing to be customized and more successful than a blanket, single approach, message, or campaign. This can benefit both the seller and consumer, by allowing more customized product or service offerings that are tailored to the needs of a smaller population, which should result in better customer satisfaction.

Product or service differentiation, in order to obtain a unique perceived or real advantage in the marketplace, and allow efforts to be more successful.

This combines with positioning as a strategic decision, where a firm establishes its products and services in a unique position relative to its competition, be it for a service or a product. Positioning strategies are often describes in a bipolar format – with poles aligned in both a vertical, same market sense, where things such as smaller cheaper and faster are values along this dimension. Horizontal positioning is used to describe alignment across disparate or disconnected dimensions, such as family status, or country/continent.

Long term, high accuracy **Demand Planning** is something that is also benefiting from technology. Although it may seem a common function of the Enterprise Resource Planning (ERP) or Manufacturing Information Systems (MIS), long-term planning is something that is not often done in full detail of the existing product portfolio, and seldom linked to other information that exists within a company's databases, such as future product pricing captured in quotes provided to customers, product designs, future product costs, commonly contained in computer-aided-design (CAD) and Product Lifecycle Management (PLM) systems. And are very rarely connected with any detail regarding future manufacturing processes and associated changes in manufacturing costs. This is where niche software firms are stepping into the realm of the ERP market. Linamar, founded by a Hungarian, is Canada's second biggest car parts manufacturer and uses such software to map and control its future profitability in ways that give it a strict competitive advantage.

2.2. Price

Price is the amount of currency sought after and ultimately received in the sale of a good or service. Pricing, the process of setting the price, is such a significant topic that it exists as its own discipline. It is an organizational process that is often oversimplified as determined by Fabiani's study of 11,000 European firms and over half of which used cost-plus pricing models (Fabiani, et al., 2005). Kotler & Keller (2005) catalogue the main pricing strategies to include the following:

1. cost plus
2. reference pricing
3. last price paid
4. competitor pricing / positioning
5. expected future price
6. usual discounted price
7. adaptive pricing, smart pricing

8. destructive competition and marginally negative pricing/predatory pricing

An Economic Value to the Customer (EVC) based pricing strategy bases pricing on the value to the customer can be defined in three part model made of a psychological, and economic, and a functional value component (Kotler & Keller, 2005). Functional value to the customer is commonly assessed via a multi-attribute analysis or conjoint analysis. Psychological value is often part of brand analysis extending the brand and valuing the brand

Methods and approaches to attempt to quantify the economic value of a product or service to the customer is a discussion that allows one to estimate the economic value of a specific program, segment or service. Research and work in this area spans the globe (Slater & Narver, 2000; Ravald & Grönroos, 1996). The value to the customer can be made of functional, economic, or emotional/psychological benefits (Smith & Colgate, 2007).

The multi-attribute model (Wilkie & Pessemier, 1973) of functional value to the customer describes functional value as the sum of the product of all features and the customer's individual value for each of the features.

One common approach is determine EVC is to dive in and quantify the economic value of a purchasing decision, where TOC is Total Ownership Cost, and is defined by Khalifa (2004) as the difference between the TOC of a current product, less the TOC of the new and better product:

$$\begin{aligned} \mathit{Economic\ Value\ to\ Customer} \\ &= \mathit{TOC\ of\ Existing} \\ &- \mathit{TOC\ of\ the\ New} \end{aligned}$$

Economic Value to the customer can be decomposed into components of cost and value that match to the product or service selection and replacement process, including for example transaction costs, installation costs, maintenance costs, energy efficiencies, etc.

Another important quantification of the value of a customer is the value of the customer over the lifetime of the relationship (Rust, Zeithaml, & Lemon, 2001) with them is defined as the "customer lifetime value", and is the net present value of all future profit streams that result from the business with this customer.

2.3. Promotion – Going Viral

New trends in marketing, mostly driven by a landscape of incredibly fast changing technologies and mass preferences for the latest technology that fits in the palm of their hand or onto the screen of their smartphone. Early on, firms specializing in selling "**Adwords**", a term introduced by Google, allowed sellers to make their advertisements appear on the computer screens of people looking on the internet for specific words, search terms. Given the small amount of visual space or "real estate" on the screen, established a smart way of allowing advertisers to try to outbid their competition for a presence on that scarce monitor real-estate. The search tools such as Google and other Internet media have become the heart of marketing as traditional channels such as broadcast television and cable television become obsolete, and are no longer used by affluent, ambitious, and classes with large purchasing power. This has evolved through the creation of social networking, applications and sites that allow individuals, generations, cultures, and niche segments to connect together in ways that were never before possible. The speed with which these sites rise and fall from popularity is breathtaking (Elmani, 2013). The increase in the ability of an internet firm to grow organically and cover the globe has become a model for marketing that is best embodied by the firm and viral software called "**The Plague**" which "infects" the people immediately closest to the person "sending" a message (Walker, 2014).

2.4. Place – There are no more borders

2.4.1. Where to grow by challenging the competition

Strategies to take on competition include attacking the market leader, challenging firms of similar size with specific weaknesses, or pursuing small local or regional firms – all dependent upon resources and ambition (Kotler & Keller, 2005)

Another strategy to grow market share or footprint would be to find a synergistic partner or a way to complement players in the existing market. Indeed, one school of thought that has been made illegal is the concept of cooperation between competing firms to balance out supply and demand, and avoid destructive competition. Although taboo and fringe, the term "**coopetition**" combines the concept of competition and cooperation (Tsai, 2002). This goes back to the insights from Alexander von Humboldt, who took Darwin one step further by realizing that the environment determines which traits or characteristics will dominate in Darwin's survival of the fittest capitalistic evolutionary model.

2.4.2. International Markets

Entry into Foreign Markets can be both rewarding and dangerous. It has transformed economies and built global leaders when pursued as a national strategy (Kim, 1996). Deciding to go global can be both rewarding and dangerous. In a recent interview with the former CFO of Kuss Filtration, a successful manufacturer of automotive air filters, the company expanded into China, mispriced its product and underestimated the start-up costs, driving losses for the parent that became insurmountable, causing loan covenants to be violated and the company to be put into quasi-receivership.

Regional free trade zones can be a benefit to expanding globally. Several strategies exist: licensing, joint ventures, acquisitions, and direct investment are all proven methods of expanding abroad. Product or service adaptation to local markets is a decision that needs to be made, requiring a cost-value analysis comparing the options of adaptation. Branding changes and branding strategy are additional decisions that companies need to consider in going global.

2.4.1. Multi-Sided Demand Markets

Two-sided demand markets such as newspapers and software providers exist where a product is given away free, or at a subsidized, lower price, which is offset by revenue from another market, i.e. advertisers, content creators, and software firms such as Google's free search paid for by advertisers (Rochet & Tirole, 2006).

2.5. Ethics and Social Responsibility

Holistic marketing (Kotler & Keller, 2005), a term for growing trend in approaches to managing marketing organizations. Included in the holistic approach is the topic that has become important since the turn of the century: Corporate Social Responsibility. Corporate Social Responsibility consists of:

- Responsibility to meet and operate within legal guidelines.
- Responsibility to operate in an ethical manner, including having a written code of ethics to better ensure compliance and prosecution of transgressions
- Responsibility to be socially responsible for others, the community and environment, greater good.

Technology to support the dissemination of policies and the code of ethics and statement of social responsibility are commonplace, as are additional tools such as whistleblower hotlines and anonymous reporting mechanisms for transgressions or worse, help ensure that management is made aware of issues in ways that allow them to fulfill their responsibilities in a timely and competent manner.

Summary

Marketing as a function within the enterprise is a vast, multi-faceted responsibility area. Every aspect of this function can, and will be transformed by technology. Current technologies such as Market Analytics and Customer Relationship Management (CRM) provide quickly available well-disciplined infrastructures to capture and manage all information related to customer inquiries and future customer pursuit strategies. Market Intelligence Technology (MIT) allows a firm to collect and publish both internal and external information about competitors, customers, products, and technologies. With a more universal scope, Decision Support Technology (DST) is transforming the fundamental task of decision making by using prediction markets to harness the organization's collective intelligence and the superforecaster's predictions on most likely outcome on decisions ranging from product planning, product placement, and branding and advertising decisions. High accuracy long-term demand planning tools exist today to manage a product portfolio at levels of detail and future durations that are unprecedented, and are linked into the product and process design models, capturing all modifications and improvements over the entire lifecycle of the product. Viral video campaigns, brands, logos can be developed competitively via crowdsourcing websites, thereby driving down costs and increasing the number of alternatives explored. Crowdfunding and crowd promotion techniques will increase the availability to market earlier in the product development cycle and increase the speed with which a global audience will adopt new products and services. Neuromarketing and predictive analytics of consumers' emotional responses will improve targeting of Corporate Dashboard and Balanced Scorecard tools monitor and track performance through all levels of an organization. Each of these technologies are available today and the firms that master these technologies will have clear competitive advantages, ensure that the customer's expectations are fulfilled in a more personal, customized process, in a more efficient manner that benefits both investors and customers. SM

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