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Chapter 5: Real-time contextual marketing integration in digital product and service design

5.1. Introduction

Today's consumers demand that products and services are innovative, relevant to them, and performed dependably. At the same time, products, services, and user preferences are changing faster than ever before. Technology has made the integration of work around products and services instantaneous and globally-linked, to the point where a taste of this style is referred to as a miraculous instance of a "real-time" consumer experience. At the same time, users share that they are inundated with irrelevant information and advertising, and find that the quality and depth of product and service performance is very much less than what they expect (Li & Kannan, 2014; Grewal et al., 2017; Kumar et al., 2019).

Yet, innovation in products and services continues to treat the gathering and responding to user interests and needs in advance, and the deep performance of the product or service at the moment of interaction as two separate areas of work that need to be linked. The first is traditionally referred to as a marketing activity, where its focus is on collecting and interpreting user interest and building anticipation around an offer. These activities are referred to as market sensing, and the design and integration of user-centered product and service activities are appreciated as part of marketing management that designers get involved with upfront in the scope of hectic product development. The performance of the product and service at the moment of user-initiated interaction is a mechanical translation, often using automation, of the promise originally portrayed through the above marketing activities. If the performance is not relevant and there is a breach of trust, the interaction will most often be the last time (Wedel & Kannan, 2016; Thomaz et al., 2020).

5.1.1. Overview of Contextual Marketing Principles

Contextual marketing believes it is possible to identify and deliver relevant content to receptive individuals in real-time at any point in the world in cyberspace. When successful, these marketing interactions will be true "context-sensitive" at the moment of execution, being driven by signals from the marketer's product or service and through the close collection and analysis of vast amounts of data in real-time. Indeed, contextual marketing in this form can only happen in cyberspace, where current or future customer behavior is continuously tracked; where their propensities are modeled using computers; where marketing messages can be designed, approved, and delivered through automated processes in real time; and where the value of messages is continually validated, so that only the best is served. All of this can happen automatically, at a rate that surpasses anything that can be achieved by a human marketer today.

The first need of marketing in real-time through cyberspace is to define a strategy and set of principles for determining relevant content in a specific context. No company can afford to put people behind desktops, analyzing contexts and determining messages for every situation that occurs with each of its customers. Contextual marketing at scale must be executed through automated systems in real-time. The ultimate vision for real-time contextual marketing defines a system, methodology, and toolset to orchestrate contextual marketing interactions with customers and provide those critical to currently determining the best messages for marketing interactions in the context of a specific moment and established marketing objectives. These are based on empirical evidence for the impact of various factors at the moment.

Fig 5 . 1 : Contextual Marketing

5.2. Understanding Contextual Marketing

1. Definition and Importance

Computing innovation has transformed the way consumers communicate and share information, review potential purchases, compare price/service quality, assess experience value, and share post-purchase satisfaction/dissatisfaction. These radical changes challenge the long-established view of consumers as passive receivers and decoders of marketing messages from manufacturers or distributors. While many support or refute the merits of these concerns, few question that new communication modalities present both tremendous challenges and outstanding opportunities for marketers. Superimposed on this is the increasing insignificance of traditional product/service differentiation. Consumers increasingly see little difference among product/service offerings with regard to quality or service content. This has forced providers to search for new, often intangible, product/service characteristics via which consumers can be swayed to a particular manufacturer or supplier.

Contextual marketing represents one alternative that can be successful in both these realms. This present contextual marketing also offers exciting opportunities in the traditional domain of advertising—the creation and delivery of messages and offerings precisely matched to the receivers' task and context. Yet, this has historically received little attention. This paper seeks to increase awareness of these important issues and develop a rich research agenda around them. This is accomplished through a four-step process: discussion of the concept of context and a proposed taxonomy; a marketing perspective on context; an analysis of the role of context in the traditional domains of product/service design, operations, advertising, and channel functions; and a proposed approach to the execution of contextual marketing.

2. Historical Evolution

Marketing historically has been based on the notion of products/services as bundles of attributes that appeal to the market's demographics. Product attributes and demographics induce preferences which in turn become the basis for consumer self-selection into segments. These segments are then targeted via generally fixed messages or product/service characteristics at some time in the future. Contextual marketing is a departure from this paradigm. It recognizes that two basic component sets, message, and offering, are variable over time and across receiver tasks and contexts. About timing, sender choices are not only time-dependent but also sensitive to the context of the target receiver—how the message content and offering components interact with the other knowledge the sender has about the receiver's context.

5.2.1. Definition and Importance

Contextual marketing allows marketers to build a proactive relationship with their target customers by supporting their buying journeys with relevant and targeted messages. Contextual marketing can be identified as proactive or reactive. Proactive messages are untargeted—they are sent regardless of any history of interaction with the brand. In contrast, reactive messages incorporate contextual information about recent interactions made by the customer and are sent as a direct reaction to a potential trigger event. Reactive marketing messages have the potential to transform an anonymous web navigator into a known customer with the goal of higher conversion of web visits into purchasing transactions. Just-in-time advertisements enable the brand to be present when most needed, which increases customer engagement since timely messages are more likely to be processed by consumers than general messages that interrupt the user while they are immersed in another activity. The growing diffusion of smartphones, combined with advances in location determination technologies and the availability of context-aware applications on mobile platforms, allows advertisers to target users when they are visiting a competitor or when they are within the vicinity of the point of interest. Marketers often refer to digital touchpoints as micro-moments. By drawing on the increasing amounts of data on past behaviors, marketers are increasingly able to respond to micro-moments with relevant ads that engage users while building their relationships with them. Contextual marketing is important since it helps capture these moments of highest interest. Companies can use contextual information about both external and internal factors influencing their customers' needs at different times to customize their service offers.

5.2.2. Historical Evolution

Contextual marketing can be traced back to traditional marketing’s focus on engaging customers and addressing their thoughts, beliefs, wants, and needs, even prior to awareness of the company’s products or services. With the advent of mass manufacturing and distribution, the adoption of one-to-many promotional strategies took precedence and was enhanced from the vantage points of psychology and behavioral economics, especially through advertising. Over the last few decades, the field of marketing has shifted substantially towards a hierarchical model that includes customer engagement, attention, communication, and retention as specific components of purchase and repurchase behaviors. Moreover, as more of the purchase journey became controllable by consumers, marketers adopted an understanding of customer data, behaviors, and predictive analytics to enhance targeting strategies. There was also an increasing focus on aligning promotional timing to evolutions in the customer lifecycle or behavioral shifts triggered by different types of events. However, each of these

evolutions has not explicitly focused on overlaying these elements to each other across both the customer journey and lifecycle, and measurement of the effectiveness of these types of customers: product/service coupling designs have not gained precedence. The insufficiently satisfied needs of customers and businesses necessitate the evolution of contextual interactions across the customer journey and lifecycle to a degree where these dimensions are purposefully integrated into, and seamlessly enhanced and experienced through, the design of digital products and services.

5.2.3. Key Components

In its first customer-centric and needs-oriented interpretation, marketing is about the totality of activities that directly point to the use of goods and services in the satisfaction of human wants. These efforts will be successful only if they take the possibility of exchange as given. Exchange means here that the relationship is of mutual benefit; in other words, a transaction -- the smallest permanent unit of marketing -- at least involves the transfer of payment. Not only will marketing activities change, but also their use within the infrastructure of specific industries. Here marketing has the task of legally implementing or controlling the structure of supply and its content -- that is the totality of all offers -- in such a way that the degree of competition, represented by time- and cost-efficiency increases, and the stability of demand increases, lowering the risk for customers. In other words, in this interpretation, the supply must be able and willing to turn customer needs and willingness to pay into a product at a price that covers all costs of production, distribution, marketing, and sales. It is indeed the responsibility and interest of the marketing demand variable to develop and produce new products which meet the challenge of time and reward Taste, and Price of all customers at risk appropriately.

From this it follows that for customer and corporate expectation satisfaction, contextual marketing connects the individual elements of the marketing mix -- product, service, distribution, and promotion -- with time, customer, offering, and physical place, together with a specification of the interior structure of any mix. Four core connected components define the what, how, and when of the contextual marketing concept: need fulfillment, benefit, timing, and access. Need fulfillment is the derivation of products and services from customer segments according to their demand whenever wanted. Benefit on the content of the benefits is that the customer must perceive the product or service as best meeting his needs at the moment his decision is made, time refers to the time of transaction according to its costs to the customer, within the existing business. According to its cost state of tension, offering means that the likelihood of supplying these at the external offer structure must be high, and as regards access, the spatial gap between supply and demand must be zero or small, relative to demand time.

5.3. Digital Product Design

Digital product design plays a significant role in the digitalization of society and the economy and presents companies with constant new challenges. It refers to the visual and functional development of a digitally accessible product such as an app or web store. As an interface between customers and digital services, digital products are often part of a company's offer chain. While in physical products the appearance and functionality are two parallel tracks in product design, the visual design of digital products is often a second step because of the architecture of software systems. External appearance only can be designed when at least the essential functions have been identified and created in prototypes.

For a long time, the focus of digital product design has not been on the perceived value of the products but on optimizing user processes. Usability engineering describes this and aims at making external digital products easy to use, while when designing business-oriented software systems software ergonomics also focuses on functional completeness and system performance. The software systems at the backbone of functional digital products and the resulting processes were optimized rather than the perceived customer value. This has changed with the introduction of smartphones. Since then, digital products have been part of a company's value chain. More than in physical products, companies are interested in the perceived customer value of digital products which has led to a flourishing business of app designers or designers of web presence.

As we have seen in the previous section are part of every company's financial success. Companies have to invest considerable amounts of money in digital product design to optimize Financial Success Measures. Financial Success Measures consist of indicators that lead to companies increasing their business over the course of time. For comparative purposes, Financial Success Measures can be aggregated into monetary metrics such as operating revenue or total assets. Since digital products such as apps are becoming more and more important for many companies, this area of research is also relevant when implementing Contextual Marketing.

5.3.1. Principles of Digital Product Design

Digital Product Design is the preparation of user-facing digital environments, systems, and applications that integrate required functionality with desirable user interaction. The primary purpose of product design is to design digital environments that enable functionally required use through usability principles that ensure ease of interaction. Digital Product Design is also a process of collaboration intended to create a new product by making decisions in the digital environment development. Consequently, product design entails more than mere aesthetics but considers the product usability experience,

how it looks, how it works, and how users pay attention to the digital solution while bringing it to the market. The holistic approach to Digital Product Design herein means involvement in the complete Digital Product Development Process from design conception to product delivery. Digital interface design requires that the designer has an understanding of the various aspects of the media itself, including the fact that all words, images, and design elements are composed of pixels, that movement is an on-off effect created by the animation of a series of still frames, and to a lesser extent, digital design explains and embodies the nature of the communications technology. In Digital Product Design, the product is generally conceived of as a hardware model or software prototype with components that represent the salient features and functions of the digital product. To achieve success in Digital Product Design, integrated stakeholders must be involved in a Design-In Process that is adaptable to current knowledge with timely exchanges of data and intellect while utilizing concurrent engineering strategies. While it is essential that the design addresses aesthetic appeal and persuades customers of the product's desirability, doing so is secondary to achieving an overall product that inherently accomplishes the key customer design goals of usability and functionally required performance.

5.3.2. User-Centered Design

Digital products and services have different characteristics from traditional goods or services. They can facilitate enhanced interaction, customer engagement, and co-creation of value and thus strengthen customer loyalty, switching costs, etc. Digital products and services can better help constitute an environment for customer interaction and engagement than other kinds of products and services. Through their intelligent product design, they can facilitate a community for customers, so that they can share their experience (both negative and positive) and innovate with other community members. Digital products and services are different kinds of artifacts as they are designed not only to be valuable to the customer but also to foster more efficient and effective interactions with other actors in the business ecosystem. Moreover, when digital products and services are designed to connect customers and promote social collaboration among them, they can add value to customers and their affiliations, encourage them to seek experiential benefits either individually or collectively and minimize the individual-collective discomfort and tension that exists in many experiential consumption situations. Therefore, the design of digital products and services requires not only traditional design knowledge about functionality, manufacturability, usability, assembly, disassembly, reliability, maintainability, etc. but also knowledge about how to augment the interactive marketing process in the complete business ecosystem with carefully designed digital products and services. The way a product or service is designed will determine what functions it will have, and whether

and how well those functions can be performed. To facilitate the customer interaction process and enhance value generation and delivery, digital products and services should be designed not only with traditional tangible attributes but also with behavioral and relational dimensions.

5.3.3. Integration of Marketing Strategies

Creating a digital product can no longer solely be the responsibility of the designer or marketing teams. Digital design is increasingly about collaboration, often referred to as co-development, between design and marketing. The shift from models that privilege individual expertise to those enabled by social participation is supported by the notion of collective intelligence, highlighted by the idea that we can no longer afford to operate as individuals. Co-development is, furthermore, known to produce a product that is far more likely to succeed than one developed in isolation. The integration of real-time marketing strategies in the design process therefore goes beyond harvesting and exploiting data on the consumer and involves collaboration with the consumer through an ongoing dialog. The consumer becomes the brand ambassador; their needs and wants have a pivotal influence on the final brand expression.

A fully informed product design process involving data-driven, co-developed marketing activities enables the digital product to become a more intelligent branding and promotion tool. Empirical research has shown that brands can develop and maintain deeper and more meaningful connections with consumers when they engage with them through co-created products, which can later serve as promotional vehicles for the brand's marketing efforts through word-of-mouth publicity. By integrating marketing strategies at the design stage, market insight can also be used to ensure that a digital product fits seamlessly into the complete brand ecosystem of functional products, identities, and communications. An idea presented here is the integration of real-time, contextual marketing strategies into the design development process.

5.4. Service Design in the Digital Age

A user-oriented digital product and service development has become imperative, as services have developed into reactive and interactive service ecosystems featuring cross-channel connectedness, mass customization, and collaborative user interaction. Digital devices are increasingly integrated into service design, eroding the existing boundaries between product and service, designed and used, service phase structures, users, and producers. Moreover, users have shifted from service recipients to co-creators of value, leading to expectations of customized quality with minimum inputs.

As a consequence, existing service development frameworks need to be adapted to the specific characteristics of service ecosystems in the digital age. Cumulatively, existing frameworks and toolkits do not seem to hit the mark in the digital products and services domain, because they are predominantly interpretation and description models. Therefore, there is a need for prescriptive frameworks with guidelines, action steps, and tools featuring quick deployment for the specific domain. These frameworks should also interrelate with related disciplines in product and experience design, reflect technological capabilities, and be directed to service interaction phases and experience design. In response to these challenges, we provide a general view of the service design in the digital age, address the need for future conceptual development in the area of service design frameworks and toolkits, describe the role of technology, and elaborate on customer journey mapping as a prescriptive tool for experience design.

Existing service design frameworks emphasize both strategic and operational collaboration perspectives but describe the service components and phases, interdependencies, and exchange processes. In addition, several tools facilitate the service design process. While these existing frameworks and tools are suitable for traditional service development, the challenge is to adapt them to the specific characteristics of service ecosystems in the digital age, where devices increasingly integrated into the service affect the service's core elements. Hence, they are developing collaboration models describing connected interaction activities throughout the service's core elements.

5.4.1. Service Design Frameworks

New Service Design Frameworks are needed to help design interdisciplinary Digital Products and Services, with real-time integration of current Contextual Marketing Strategies. The Valley of Death is still present and exacerbated by the increasing level of digital technology-enabled automation in Service Designs. The prescriptive models reported in this section propose the inclusion of different types of Innovation Silos in Digital Product and Service Designs, without enough guidelines on how to orchestrate the different Silos' elements into a coherent piece of work.

The first model visualizes the digital product and service innovation as a funnel, where stages in the funnel represent major categories of specialized knowledge activities driving new digital product and service development efforts. Building on a Framework which includes Elements, Customers, Resources, Spirit, and Design Context for a successful digital product and service design. A new model includes digital and interactive touchpoints in every Design Zone Stage, which considers different phases of the Digital Product and Service Co-creation. The last prescriptive model proposes the use of the design archetype selected from the Digital Product and Service Design

Interdisciplinary Design Space to set the responsibilities of the design teams working on the Design Process.

The Digital Products and Services Design Silos and Archetype Models highlight that successful Digital Products and Services need to provide not only satisfiers and delighters at different levels across the Value Level Model, to create real Emotional Connections with Users or Customers, but also User-friendly and easy-to-navigate, to increase Customers' Satisfaction Levels, high Engagement with the Product, and a Long Duration of Relationship. The Conceptual Models are currently not validated with Industry Practice, nor are their guidelines defined are used in the Industry.

5.4.2. Role of Technology

In recent years, the idea of service-at-the-core has proliferated into new frontiers, ranging from lifecycles of products and services to corporate environmental and social governance policies that guide corporate responsibility to the elusive promise of service-oriented architecture in information technology. At its core, service design addresses the how of transformation, i.e., how we innovate services at the interface of technology and people. The promise of interdisciplinary integration that service-at-core offers has driven the growth in demand for service design expertise and education. The confluence of a maturing field of service design theory and pedagogy with this growing demand for interdisciplinary expertise and education is the opportunity for advancing service design to the next level.

Enabling growth and competitive advantage through technology has long been the strength of senior information technology executives. With greater complexity and uncertainty in business and markets today, the role of technology has expanded from being a support function to a driver of innovation and growth. It is no longer seen simply as a cost to the business, but rather as a strategic asset that can deliver measurable business value. Technology is a source of differentiation and a generator of new business models. Many companies are recognizing the potential for transformational change enabled by information technology. IT is a set of systems and capabilities for capturing, processing, and storing information about the current and past state of the enterprise activities. More importantly, IT generates and acts on information regarding the enterprise's future interactions with customers and partners about the production and delivery of services.

5.4.3. Customer Journey Mapping

The customer journey is the roadmap that describes each customer's experience with a service, product, or brand—before, during, and after a purchase. It is a visual representation of the customer's process and captures the thoughts, emotions, and motivations of customers at every stage of a journey. It also touches on the requirements customers have the issues they face at those stages and the channels used to fulfill their needs. A typical customer journey will contain 5–15 milestones for each customer segment; in the most detail, it should reflect the more nuanced journeys of a handful of distinct customers. Moreover, the customer journey helps to identify strengths, weaknesses, and gaps in the current customer experience related to a specific goal. It is a foundation for a more in-depth customer experience analysis. An organization's customer journey mapping process can offer more value to the organization when it uses a foundational customer experience model. The model informs the creation of future-state journeys, visualizations that help the organization's employees and leadership think differently about the experience customers have during their purchase process with products and services.

Customer journey mapping is an important part of digital service and product design as it builds a cohesive approach to developing the right product at the right place at the right time for the right customer. As many institutions have their definition of the customer journey, the service journey currently lies in the research and development stage with more refinement and specification of its stages required. Various names and motives define the journey of customers and services, such as the mission and craft of travel. The difficulty of customer identification comprises a multitude of travel purposes for many segments of customers. The travel cycle is widely mentioned as a sequence of phases describing the services identified with their segments but relies on external customer requirements. As the travel cycle is a generic description, it does not contain the detail that is of business dimension-level importance.

5.5. Real-Time Data Utilization

In today's fast-paced environment, people have grown accustomed to immediate rewards. Digital product and service designers must therefore use a data-driven approach to capitalize on these instant responses, subsequently reinforcing or shaping consumer behavior. Enhancing the value of the product or service offering, besides using real-time data for more personalized and relevant experiences, can be another goal of these designs. The findings from exploratory interviews indicate that designers favor integrating real-time data in their work, motivated mainly by commercial reasons. Increasingly sophisticated technology support for real-time data capture, processing, analysis, and presentation has facilitated this trend.

Fig 5 . 2 : Real-Time Data

However, it is important to acknowledge that not all designed solutions encourage improved or altered behavior. Companies may generate online revenues through manipulation, misusing digital design artifacts to engineer customer actions. Furthermore, in many companies, mobile application designs follow a different agenda. These products are persistently monetized through their data. Therefore, utilizing real-time data in these designs can be core to a company strategy at these companies. Overall, the usage of real-time data creates a dimension of additionality, resulting in the creation, co-creation, or shape-in of value-in-no-use as well as value-in-use for the customer and the company. To sum up, real-time data are integrated into product and service design for commercial and value-related reasons. This section first presents the origin and types of data designers use, followed by methods, tools, and techniques for data processing and the subsequently gained insights, before discussing assumptions on data usage ethics.

5.5.1. Data Sources and Types

A wide variety of tools and devices are used in the creation, collection, and analysis of data. There are different types of sources of data, many of which have overlapping definitions and characteristics. A major source of data utilized in product and service design is a high-speed data stream coming from the sensors of connected devices and objects, both wearable and hand-held. For example, a wearable sensor is used to gather individual data on heart rate and physical activity. More commonly known Internet of Things (IoT) devices also monitor all manner of behavioral data and are used to control processes in smart homes and workplaces. Over time, data gathered from sensors

embedded within products, sometimes called product telemetry data, has also demonstrated tremendous value in informing product and service design as well as real-time marketing. Products such as commercial jet engines utilize telemetry to optimize product performance and inform service delivery. Embedded sensors that track heart-rate variability are a key feature of many smartwatches, which provide biometric data used by app developers to deliver insight and real-time interventions to users.

Additional categories of user-generated or external data are gained from social media, video, text processing, and web-behavior. User-generated, visually-centric data found on platforms popular among consumers has been used in product and service design. More generally, social media platforms, with their accompanying hashtags, have made it easier to engage with users and validate concepts – related to both products and services. Businesses are tapping into the colloquial and specialized information in their social streams to optimize advertisements, create better customer experiences, and co-create products and services.

5.5.2. Analytics Tools and Techniques

Data analysis is used to extract useful information from massive amounts of data to support decision-making. The increasing size and complexity of data being generated at an unceasing and accelerating rate has created a data deluge. This aspect has and will continue to lead organizations to develop and invest in increasingly complex analytics tools to process these big data sources and provide useful timely insight. The categories of tools and techniques for real-time data analytics, model-driven and application-driven, aim to help companies serve custom needs and approach deeper insight more quickly. The most commonly used real-time analytic tools are Machine Learning, data visualization, Natural Language Processing, Text Mining and Sentiment Analysis, Social Media Analytics, etc.

Machine Learning automates analytical model building and leverages data to train predictive models. It is one of the most promising and exciting sets of tools used in real-time analytics. These algorithms identify patterns and correlations in massive streams of seemingly unrelated data and use these findings to make predictions in real time. Visualization tools enable analysts and decision-makers to see and explore data quickly in order to extract actionable insights from the data before they are too late to influence important decisions. They help directly address the fundamental aspect of the real-time data deluge challenge at the analysis and understanding stage. The application of specialized visualization software packages also makes it easy for non-technical decision-makers to explore, visualize, and interact with the data. Dashboards summarize key indicators from multiple sources and present them visually. Data visualization has

also rapidly gathered momentum as various hosting and enterprise solutions now support interactive visualization through the use of a feature-rich set of APIs.

5.5.3. Privacy and Ethical Considerations

The potential for real-time data utilization in the design of digital products and services raises a collection of privacy and ethical concerns. For instance, the usage of real-time user behavior data could easily infringe on a user's privacy, particularly if it is used to point out decisions, such as to increase the rates of an individual user, based on his/her real-time behavior. Similar decisions based on user's data or digital fingerprint, especially if related to any kind of discrimination, could be considered highly unethical. Due to the core nature of CMI and the emphasis on real-time and multi-dimensional user behavior data, privacy and ethical concerns are heightened. Businesses are wise to tread lightly into the depths of real-time utilization of behavioral data, especially as government and legal actions against privacy infringers become more and more frequent.

Governments across the globe are becoming tougher and tougher with data privacy and other regulatory issues. New, strict laws may have increasingly large impacts on the ability of companies to take full advantage of CMI data. The reduction or elimination of the ability for companies to utilize the wealth of available user behavior data, especially for transparency and linkage, as a trusted basis for building respect and credibility with users will challenge the expansion of CMI, especially in areas relying on actively soliciting user feedback. Legal concerns about data security can also place restrictions on data use, thereby potentially restricting the potential usefulness and financial return of CMI. Businesses may find that many useful CMI fresh in the minds of their users, or involved in a recent particular experience, are unable to be collected.

5.6. Integration Strategies

Envisioning a future where real-time contextual marketing informs various applications throughout a user’s interaction with digital products and services, this paper’s goal is twofold. First, present, guide, and discuss recent developments and opportunities for further research provided by new technologies for the work being done at the intersection of service design, product design, HCI, and marketing. Second, introduce the reader to a small collection of strategies, tools, and principles relevant to real-time contextual marketing. We conclude with the proposal of a user-centered future for real-time contextual marketing. Our argument is based on a review of literature, a forecast of emergent technologies, and two case studies of successful digital product-service systems.

Integration is necessary to achieve all of the advantages of real-time contextual marketing. This section presents choice strategies or tools from the marketing communication, product design, and service design worlds. We want to emphasize that future developments in and new technological capabilities of both digital products and services will create unexpected and new opportunities and that companies will act out of necessity to respond because users will expect that companies think and act ahead of their requests. A typical integration strategy in marketing is cross-channel marketing, in which messages are presented differently or combined or contrasted through special-channel marketing mix decisions to achieve uniqueness or synergy effects. However, the tasks of marketing messages in reactive contexts are not shouldered by marketing communication policy alone. Each touchpoint of a customer journey needs to be managed with care, anticipating user expectations and desires and facilitating gratification.

5.6.1. Cross-Channel Marketing

Marketing channels are the ways that the innovations (products and services) are marketed to customers. Different marketing channels are needed because customers are reachable through different communication devices. The most popular communication devices are, at an imperfect level, mobile phones, physical stores, computers, televisions, and outdoor networks. This research claims that the best results in terms of customer acceptance of the promotional offer will be obtained when the content of the promotional offer is synchronized between the different channels that are close to each other.

Research in multi-channel systems has been focusing on how to optimize specific marketing activities and forwarding strategies within each channel separately, even which individual customer events are considered relevant for sending. Nevertheless, the majority of customers are using multiple channels simultaneously or successively, which creates multiple touchpoint interactions. These interactions can result in synergistic effects on demand, digital commingling, or conflicts over time. The messages that the client receives over time can originate from different touchpoints. The feedback effect that can make it more or less likely for the customer to accept a subsequent promotional offer depends on the message content synchronization. The more similar the messages are in terms of their content, offer type, timing, and discount structure, the bigger the synergetic effect will be.

Cross-channel marketing is marketing synchronization at the communication device or touchpoint level. This kind of channel marketing integration is played out when customers are simultaneously, or nearly so, connected to multiple devices. It has been demonstrated that such coordination creates a unifying experience that enhances

business results, while too much communication of a different message type leads to requests for disconnection.

5.6.2. Personalization Techniques

Segmenting customer behavior based on observed intent or action is another common approach to personalization. Four user intents motivate online activity: navigation to known destinations, exploration of new destinations, information gathering, and transaction execution. Shoppers performing different functional tasks are differentially responsive to various site features. Customers look for different levels of site engagement or feature richness depending on whether they are searching for information about products or they are ready to consummate a purchase. The former set of shoppers prefers landing pages with large numbers of products portrayed in an easy-to-scan grid layout, while the latter want pages that provide shopping convenience by showcasing the products without clutter. The provision of user support features is also likely to be more useful to information searchers, so that an optimal balance can be struck between feature richness and clutter, depending on shopper intent. Better attention to differences in user stages could help improve shopping behavior.

Another behavioral segmentation approach considers the sequence of actions taken before the user reaches a landing page. The landing pages that gather the most traffic are often those connected to shopping or transaction pages. The channels through which users have arrived are also very useful to analyze, as users arriving through pay-per-click ads tend to be much less willing to accept distractions before they buy than other users. These explicit differences in shopping attitudes or intent based on user channels have been used to increase site sales and advertising effectiveness. However, it is possible that such behavioral segmentations are not rich enough to account for a different balance of root cause and objective differences in user segments or for differences in the subjective experience and outcome value of users within a single channel.

5.6.3. Case Studies

We consider partnerships, as well as digital app stores and digital payment platforms, along with other banking services. In both cases, the collaboration of product design and service design enables the whole ecosystem to multitouch, creating new digital integrated ecosystems that penetrate the broader environments of its users through integrated contextual experiences. Mobile apps are examples of possible products and services that may be used in collaboration. The collaborative products and services, going beyond distribution, use their tech platforms as digital marketing machines. Attention and triggers, such as info and transactions, memberships and payments, ads

and services, go through these algorithmsized apps, and no outside marketing touchpoint is comparable in effect or figurative cost. In short, they integrate, with a capacity never before imagined, the product and service design with the contextual marketing function, real-time feedback, services, triggers, and a whole wealth of structured and unstructured data about what's coming, who uses what product or service for what purpose, and why, etc.

They did not aim to create new multitouch ecosystems, or ecosystems multitouch, but highly optimized marketing touchpoints, collaborative trustworthy product and service design, and marketing tech platforms, to make business-to-business and business-to-consumer transactions more efficient and accelerate transactions through their shared, os usage integrated, digital marketing innovative multi-algorithms. The case study proofs of concept for the collaboration projects are primarily through the design of customized applications.

5.7. Future Trends in Contextual Marketing

The discussion of contextual marketing so far in this book has primarily focused on the promise and value of applying digital technologies to enable real-time marketing for consumer products and services. However, as with all digital technologies, there are limits to the extent that these technologies can augment the product and service offering. We believe that there are three interconnected themes that will increasingly over time offer both constraints as well as opportunities in the area of contextual marketing: the emergence of new advanced digital technologies, shifts in consumer behavior and attitudes, and the growing emphasis on sustainability and ethical issues in marketing.

Emerging Technologies

Contextual marketing traditionally has relied primarily on consumers' interactions with digital technologies and applications for triggering marketing messages and activities. For example, simply by accessing a mobile coupon via an app, consumers indicated their desire to shop for an item nearby and expect to receive timely promotional messages. Later, the digitization of products and services and the integration of technological capabilities allowed marketers to deliver even more directly aligned contextual marketing messages via the encroaching technological integration with everyday lives, using devices such as motion sensors and cameras. With the rapid commercialization of the Internet of Things and its platforms, brands, and marketers are accelerating the personalization of contextual marketing by integrating data from multiple smart products and services that consumers increasingly engage in. This will increasingly enable data sharing and interaction between various IoT devices, allowing marketers to deliver proactive marketing messages and moves to provide better consumer experiences.

5.7.1. Emerging Technologies

The fields of Artificial Intelligence and in particular Machine Learning, Augmented and Virtual Reality, the Internet of Things, and Natural Language Processing are currently transforming the overall marketing landscape. Although contemporary marketers are already using some advanced technologies to various extents in their marketing activities, more sophisticated interactions are likely to happen shortly.

To begin with, the advanced capabilities of Artificial Intelligence and in particular Machine Learning allow marketers to analyze large amounts of data with many data points and predictive algorithms to enhance real-time contextual marketing initiatives, among others, in product and service design; they can optical recognize images, record customers' every online movement, and engage in intelligent conversations with customers. The use of Augmented Reality, in which digital layers are overlaid on a real-world view, and Virtual Reality, in which all users' senses are fully immersive into a synthetic reality, are enhancing customer experiences in unique ways, supporting both customers' pre- and post-sales experiences through various modalities, such as visual stimuli, tastes, smells, haptics, sounds, and emotions. These technologies are offering customers unprecedented sensory experiences, including trips to far-flung places, and extraordinary sensory experiences of brand products and services, such as new perfumes.

The Internet of Things is becoming a widespread technology allowing interconnected smart devices to automatically gather and share data, without requiring any human intervention. Connected cars, smart homes, and smart cities are examples of these connected devices in various industries; they can communicate with each other and collect and communicate data about individuals' daily actions. By focusing on customer context in real-time, brands can design better products and services and build long-lasting relationships with consumers. Natural Language Processing systems are jointly working with AI and Machine Learning to understand and generate natural human languages. Also called Conversational AI, they are allowing computers to have human-like conversations in a fully scripted, partially scripted, and fully non-scripted mode.

5.7.2. Consumer Behavior Shifts

Consumer behavior is also changing in what consumers expect from products and services. The shift is no longer from pulling meaning to what products and services do for consumers, but to contributing meaning to the consumer's self-actualization. Consumers then seek to stand out from others, to be different. Consumers wish to feel that providers care about them and promote their participation. Products are not merely all-encompassing, their meaning needs to be co-created with the consumer before any such commitment. These shifts are connected to the increased diffusion of collective

digitalization, whereby consumers have more access and ways to curate and share unique experiences with a myriad of people like them.

This has implications for business. Amidst the multitude of online options for comparison and customization, product and service attributes are no longer sufficient. The provider has to engage consumers to co-construct experiences that will validate their search for unique meaning in a distracted world. Providers need to amplify the consumer's voice, not drown it in homogeneous experiences tailored to market segments. Market segments are meaningless in a digital setting where the costs of disconnecting from one provider and connecting to another are essentially zero. In this era of hyperserver diversity, providers need to be both responsive and tolerant. They need to be agile enough to enable real-time co-creation of differentiated experiences for each consumer. Yet, they also need to be tolerant enough to allow various collaborations to play out to generate multiple meanings for a single experience, recognizing that the same experience can co-exist on two axes, different dimensions, and different people sharing dimensions without negatively impacting each other.

5.7.3. Sustainability and Ethical Marketing

As long as there is culture and society, humans will communicate and collaborate, thereby developing knowledge and culture. The exchange of products and services is a natural extension of human collaboration, creating value and assets. Today, marketing is a critical factor in innovating the manner in which the exchange of value operates. Marketing is a blend of science and art, technology and human consciousness, shedding light on the direction of the organization in the way its products and services evolve, how it interacts with customers, and how the network of actors involved with it evolves. In turn, the products and services produced and created stimulate the market for communication and transmission through information.

The novelty of the approach we outlined is viewing market development as a flow of socio-cultural communications and external interactions of humans with products, brands, markets, products, and services. These discussions inevitably introduce obstacles and tools that have an eco-sustainability impact, and ethical aspects of marketing become a necessary condition for the existence and long-term development of markets and products. Marketing cannot force society to buy what is not needed because, in the long term, it simply would not work. The temporary success of companies that fill a trough with what is best avoids awakening desire, consumer study, product, and advertisement design, happens only if they are suitable for the style, culture, tradition, ideas, ethical and sustainability canons of the audience to be induced to consume.

5.8. Measuring Success

Although the successful contextualization of marketing depends heavily on identifying the real-time user context, the execution itself is not trivial. The contextual content needs to be dynamically blended during the design and creation process of any specific product or service. This requires information exchange mechanisms to evaluate what the current knowledge space consists of and how distributed expertise in the community of users and other parties involved can help in closing any gaps that need to be considered. It is equally important to not only initiate the collaborative, interactive marketing process during the design phase but also to monitor it continuously during other phases, such as service delivery and user support because people obtain knowledge as they execute tasks and about only the specific circumstances and also need to exchange it with others before it can be effectively used.

Thus, the continuous monitoring of the marketing process must take place in order to measure its success and assess whether it has achieved its goals. If not, the necessary modifications must be made in real-time, which requires highly agile tools for continuous communication. Here we distinguish three different ways to monitor real-time contextual marketing processes. The first way is to identify key performance indicators. The second way is to embed feedback loops in the marketing and product and service design processes. The third way is to perform a longer-term impact analysis to overcome possible short-term focus issues. These different ways lead to different solutions regarding the required tools, technology, and implementation. They can serve different target groups interested in different contexts and aspects of success measurement.

5.8.1. Key Performance Indicators (KPIs)

Key Performance Indicators (KPIs)

This section provides a brief overview of potential KPIs relevant to real-time contextual marketing integration. While the current list is not exhaustive, we hope that it serves as a useful resource to marketing practitioners and academicians. To enable evidence-based marketing and service design research, we emphasize the need for more granular longitudinal,–long-term tracking of marketing and service variables necessary to identify and measure true-attributed effects.

E-commerce sales assist in verifying the state of financial performance and is one of the simplest forms of marketing effectiveness tracking. Increased online sales can be attributed directly to a digital product or service placement either through reward members or through unique coupon codes. However, care needs to be taken when measuring e-commerce sales. Over a promotional period e-commerce sales tend to spike.

Therefore, performance attribution needs to account for seasonality and macroeconomic indicators such as growth employment, inflation rate, interest rate, disposable income for consumers, etc.

Sales relative to expertise and demographic group of affiliate partner sites reflect relative ROI. Digital mobile contextual marketing assists in communicating the relevant individual customer offer, not dependent exclusively on on-site content. Such site demographic groups and expertise can be useful in determining the offer relevance of time-sensitive SEM and Optimization search ranking. The profitability of the company's online affiliate partners needs to support a reciprocal relationship with a reward member system. Care needs to be taken that consumers are not solely making purchases to collect reward points. An alternative view is that such online purchases should be encouraged to build an e-loyalty relationship. Such behavior guidance would also help marketing service design strategic planning and tactical execution.

5.8.2. Feedback Mechanisms

From a management perspective, feedback mechanisms allow for two important functions. Strategy identification and operative adjustment. On the strategy identification level, relatively stable feedbacks between goals and actions reveal the overall structure for business operations. Such structures are normally captured by market-based strategies or business models. On the adjustment level, specific feedbacks between customer reactions and marketing actions enable marketers to develop feedback-adjustment mechanisms that reflect customer choice modeling and choice predictions. Such mechanisms are key components of adaptive or feedback-based strategies and models. Business managers have quite naturally adopted this reciprocal view between feedback and business strategy. The importance attached to such an iterative view of business strategy is reflected in the proliferation of emergent strategy concepts in the organizational sciences. In fact, due to the attention economy, any business model or strategy that we might design is subject to constant feedback.

Feedback mechanisms provide a relatively simple perspective that side-steps the multitude of involvement, satisfaction, knowledge creation, and value co-creation theories. The feedback that producers and other interested players receive from customers socializing their consumption are simple messages concerning the watch-out processes of value capture. These feedbacks can be aggregated. In the day of big data, marketers can assess new product success, design new marketing actions, and detect defects in products and services in real time. All this real-time information is perceived by the sending customer at no cost. It is therefore simpler to design adaptive marketing managers' feedback-adjustment mechanisms now than it was a few decades ago.

5.8.3. Long-Term Impact Assessment

One of the greatest advantages of the proposed digital product and service production methodology is its resilience to rapid and radical change. Unlike virtually all other accelerated product-launch methodologies, the current development approach first establishes measurable responses to radical change, such as State Activity or State Expectancy pathways leading to drastically altered customer attitude distributions and behaviors, identified with longitudinal or multi-profile and multi-level timeline or contact and cohort lifetime value analytics. Only then are potentially fatal temporal disequilibria brought within acceptable thresholds or error tolerances by initiating virtual or augmented emotional anchoring through 3D exposure to emotionally activating real or animated objects and virtual semantics randomly embedded in real space.

Intense real-time or contextual market interactions reinforcing overly positive and negative behaviors can lead to consumption control feedback loops and temporally sequenced polarisation control feedback loops for demand or customer activation impacts on hard and soft need intensity pathways. Considering such interacting feedback loops over long periods and long pipeline lifetimes increases the probability of false attribution of trust demand, reward, and loyalty intensity behaviors. Accordingly, complex demand recognition and demand design template matching must be used to identify and create permanently stored impressionability profiles for trusted and feared market state requests or provide signalizes, preparing and preliminarily preconditioning impacted market segment persona response and salience parameter identifications to relevant emotional stimuli demand.

5.9. Conclusion

The purpose of this essay has been to critique existing frameworks for digital product and service design in the light of chaotic unpredictable customer behavior, searching for a better integrated, more comprehensive holistic "action frame" that would address many of the elements of design efficiency required for mass digital design. In so doing, a wide set of sources from design science, service-dominant logic, business services management, interactive marketing, service design, communication strategy, visual design, software design, process design, persuasive technology, interactive engagement, digital advertising, marketing communications, UI design, UX design, and other domains for the components of the proposed solution has been marshaled. The reasons for the chaos have also been outlined -- the impact of time poverty, lack of information, cognitive overload, and the information dissemination effects of the era of social media teaming with user-generated content.

It is believed that the proposed framework, a model of real-time, contextual marketing integration into the design, represents a more comprehensive, efficient basis for the emerging interdisciplinary domain of mass digital design. This would be an important contribution, impacting both the nature of future classroom debate and the challenges of corporate audit. It is hoped that it will spur innovation and scholarship at this important intersection of working lives. The seamless integration of increasingly interactive products and services and the traditional, one-way monologue of advertising and other marketing communications is the holy grail for both marketers and designers alike. The model proposed fits the need. Sales grow when seamless integration reduces chaos and creates order. Order increases the supply of products and services that help people live happier, less stressful lives. It also grows profits, enabling corporations to provide high-quality products and services while employing -- not exploiting -- their workers. The world becomes a better place.

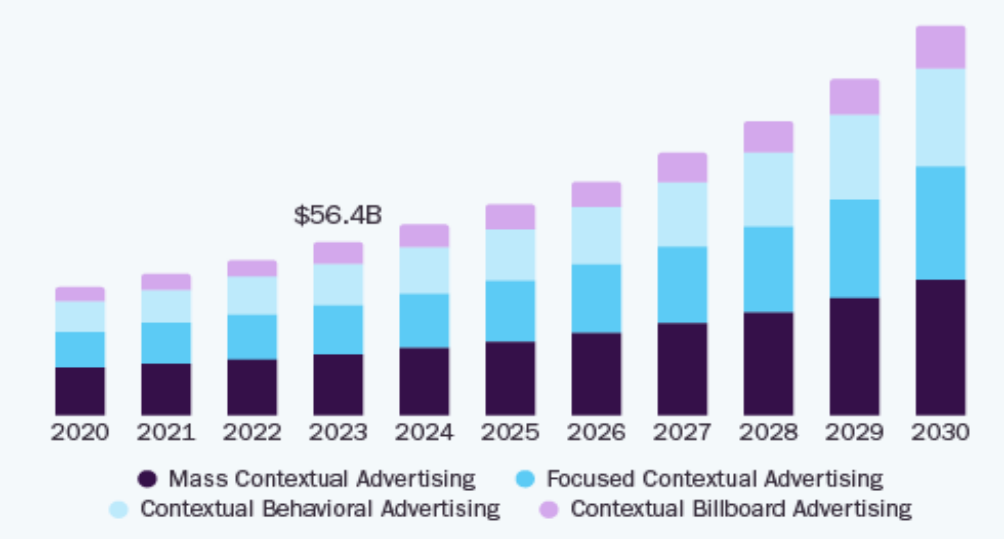

Fig 5 . 3 : Contextual Advertising Market Size

5.9.1. Final Thoughts and Implications for the Future

Contextual marketing serves as a valuable conceptual framework for guiding businesses to strategically create moments of value delivery in consumers' lives. Beyond distribution, price, and product attributes, the timing or context of marketing communication delivery is integral to marketing's effectiveness. Unfortunately, it would appear that far too few businesses prioritize, or at least realize, the importance of considering consumers' evolving contextual states throughout their decision journey. Part of the issue is that many businesses are incapable of doing so due to a lack of relevant data access, technology, and operational know-how. It is also apparent that

many still consider digital marketing as only the paid promotion or advertising of products. This is an increasingly narrow conception of what digital marketing means, especially with the rapid growth of the increasingly achievable application of digital presence in broader marketing mix areas beyond advertising.

Overcoming these barriers to strategic contextual marketing in enriching the product and service offered at all consumer interaction touchpoints would mean embracing the reality that contextual marketing integration has implications for the design of digital products, services, and journeys. These implications extend beyond digital marketing as a revenue-generating, sales-driven cost center. For contextual marketing to be positively impactful toward achieving enterprise goals – be they revenue or otherwise – consumer insight drawn from data-driven analytics must be at its core. The endemic philosophies of customer focus and consumer empathy should be universal throughout the organization and customer experience should be a collaborative, corporate-wide effort. Impulsively pushing the promotional button at tactical moments in time in isolation, or at the last touchpoint, is neither strategic nor responsible. By taking a data-driven approach to understanding consumers' contextual states at each marketing journey touchpoint, businesses can achieve optimal design for engagement at each moment associated with the wisdom of marketing always being present, but, often invisibly so.

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