Università
Ca'Foscari
Venezia

Master's Degree
in International Management

Final Thesis

Customer Data and Marketing Decision Making: Finding the Right Balance between Human-centredness and Artificial Intelligence

A First Survey on the RIR Clusters in Veneto

Supervisor
Ch. Prof. Monica Calcagno

Graduand
Valentina Sandrin
Matriculation number
856413

Academic Year
2020 / 2021

TABLE OF CONTENTS

Introduction

The present work originates from a personal interest about current dynamics characterizing marketing innovation. For several years now, all of us have been overwhelmed by the permeation of digital technologies and platforms in so many aspects of everyday life: digitalization has changed the way we work, learn, entertain, interact, act, and consume. The renowned Artificial Intelligence is increasingly becoming an integral and embedded part of a lot of activities; we cannot say *all* activities yet, but I believe it is just a matter of time.

These trends do not only impact people's lives, but also business and economic activities, among which particular attention is here dedicated to the marketing sphere. The role of marketers has revolved around customer behaviour and market movements since ever: the emergence of the traditional "Four Ps" model, although obsolete, was the first sign of organized and reasoned commitment to the marketing function, which had previously been overshadowed by firms' focus on production and efficiency. Nevertheless, an evolution of the paradigm can be observed throughout the years: companies have gradually shifted the core of their marketing strategies towards the customer, conceived from various points of view over time. Increased emphasis on personalization and a progressive closeness to the individual have underlied such transformations: businesses understood that the key to competitive advantage and success was establishing relevant and tailored relationships with customers and users, who should have been treated as human beings, with their own emotions and perceptions, rather than as product or service users. Thereby, from initial mass production, businesses started to turn their marketing philosophy into mass customization, open innovation, co-creation, and human-centredness.

These changes have been driven by several contingencies occurring during the years; however, the key transformational factor analysed in this work is technological development and innovation. Thanks to advancements in ICTs, firms and marketers have dramatically enhanced their opportunities to communicate, interact, and get to know their audiences. One need only think about how many advertising, promotion, and placement messages he sees every day on his smartphone or laptop, across different devices and web sites, in relation to prior searched queries or items: these channels have impressive reach and engagement potential. Companies are now able to monitor and explore how people actually interface and connect with their brands: in this sense, sophisticated tools of Artificial Intelligence and Big Data analytics allow

marketing specialists to gain a detailed and comprehensive picture of the journey a customer goes through as he simply visits company's web site or completes a purchase. This information is often incorporated in product recommendations, online ads, targeted e-mails, and different sorts of interactions aimed at eliciting customer interest, supposedly driving him or her towards a tailored value proposition. By way of example, all Netflix users have experienced the capability of the entertainment platform to suggest movies and TV series according to user's viewing history, or to current most popular shows in user's geographical area. Likewise, Zalando's consolidated strategy as a multi-brand marketplace is founded on the use of data science know-how and extensive media planning. The company grants its partners access to thousands of influencer profiles ("distributing inspiring image and video content for campaigns on Zalando") and millions of engaged followers that can be addressed with targeted, authentic concepts and tailored media plans (Zalando News and Media, 2019).
At the same time, it has been argued that customers are more empowered, knowledgeable, and emancipated thanks to the multitude of devices, networks, and platforms they can now utilize to "hire" brands and companies for the fulfilment of their personal needs and desires. Particular reference is made to customer authority gained through social media and online communities, where users coalesce and share their opinions and experiences with brands, presumably determining their future or doom.

In light of all these considerations, the present work is centred on a critical reflection that tries to connect all the points just described. Through a historical excursus of the personalization framework – from mass customization to open innovation and design thinking, until current days -, I will attempt to highlight how marketing strategies and focus have changed, triggered by digital and technological innovation. The main objective is to gain an understanding of how modern marketers are effectively leveraging technologies (namely, Big Data and Artificial Intelligence) in defining their mission and value proposition. The rationale behind this aim is to look at digital innovations in the marketing field with a critical eye: brands are constantly claiming their commitment to fulfil the needs of every single customer, to serve individual requirements on the basis of each one's personal identity, and to foster self-expression and uniqueness. Theoretically, these achievements should build on personal data and information customers share and exchange through online activities (either voluntarily or unknowingly). Yet, it is interesting to ask (1) whether brands' claims are mirrored by actual marketing actions, meaning whether design, communication, and promotion activities are indeed tailored to users' interests, relying on knowledge acquired from their data; or (2) if such statements conceal widespread,

data-driven standardization, which ends up re-directing and manipulating customer intentions and purchasing decisions. The argument is that marketers are struggling with the use of Big Data and Artificial Intelligence, and they have not found an appropriate balance between technological opportunities and the need to heighten the human dimension as driver of their decision-making process yet.
In order to support or refute these arguments, a survey analysis has been developed on a sample of companies operating in the Veneto region. The purpose of the survey is to investigate and find out how marketing departments are dealing with the struggle proposed right above in concrete terms. The goal of survey questions was twofold: first, to give a representation of current marketing practice in Veneto, with particular focus on the degree of technological advancement in this realm; such representation should be useful to appraise to what extent marketers are effectively collecting and working with customer data technologies and how much strategic relevance is attributed to data-driven activities. Second, questions explore the real intentions underlying the use of data: I wanted to find out what kinds of marketing objectives are achieved thanks to customer information, i.e., if the latter is implemented as a tool for personalization, elevating the central role of the user, or as an instrument to retarget purchasing choices and trigger specific actions.

The thesis is organized as follows: the first chapter is centred on Mass Customization, as a first step towards personalization strategies pushed by the introduction of product platforms and modular architectures, which simultaneously enabled cost efficiencies and customization.
Afterwards, diffusion of the Internet and digitalization represented a new spark for the importance and centrality of the customer (now, *user*): firms began to recognize that huge innovation and information opportunities resided within the customer site; such opportunities could be grasped and leveraged by exploiting digital interfaces and social platforms for user involvement. To this end, Co-creation and Open Innovation models took hold. Moreover, growing awareness of the meaningfulness of personalization and empathy brought about an emphasis on the specific context and human dimensions of each customer, paving the way for Design Thinking. These phases represent the subject of the second chapter.
The third chapter addresses personalization and user-centredness in current days, when they appear to be major concerns for companies in every industry worldwide. Big Data and Artificial Intelligence provide necessary capabilities and resources to leverage the huge potential of the Internet and social networks, as pools of information and knowledge about customers' needs, preferences, and actions. A discussion is proposed on whether these technologies are deployed in the best interest of people,

or whether they represent a form of customer surveillance in marketing decision making.

The last part of this work deals with survey analysis on the current marketing landscape in Veneto, with specific reference to the relationship with smart systems and the relative role of “the human customer”.

CHAPTER I
Mass Customization: the First Approach to Personalization Strategies

1.1. Introducing Mass Customization

After the Industrial Revolution, the advent of mass production affirmed the pillars of the new economy: standardized products and operations enabled companies to leverage advantages deriving from economies of scale and division of labor, which dramatically lowered production costs. At the time, consumers were satisfied with standardized products available at relatively low prices, even though that meant giving up some of their preferences (Sheth, Sisodia, Sharma, 2000). From a marketing perspective, the core for companies was promoting, pricing, and distributing products to the mass market: basically, supply drove demand.

However, over time, markets in many industries began to mature and saturate, shifting firms' attention to consumers rather than products. Since creating a satisfied customer was starting to be considered a pivotal objective of business, market orientation and segmentation practices emerged: the existence of different demand functions required products and marketing efforts to be adapted to selectively accommodate these differences. Firms thus started to organize to serve these market segments, inducing a proliferation of product variants, brands, and distribution channels; consequently, competition intensified (Sheth et al., 2000). Market segmentation unfolded into customer orientation: organizations (1) put customers' interests first, (2) had the capabilities to generate and use information about customers and competitors, (3) coordinated resources in such a way to deliver superior customer value (Harzer, 2013). CRM (Customer Relationship Management) and the diffusion of information technologies enforced this holistic approach to value creation: previously established market segments progressed into mass customized markets, where each customer was treated individually, as a market of one (Gilmore, Pine, 2000).

Individualization of demand led economy and consumption culture to a shift away from a relatively small number of mainstream products and markets (hits), positioned at the head of the demand curve, towards a huge number of niches in the tail (Harzer, 2013). Thus, if previously profits came from selling large quantities of hit products to mass markets, now millions of unique products were sold in relatively small amounts to market niches; advances in production, distribution, information, and communication technologies further strengthened this trend.

Mass customization was well-suited to address these requirements, with its promise of delivering highly customized products at affordable prices. Several companies can be cited as first adopters of the mass customization strategy:

- Lutron Electronics (Pennsylvania) designs and provides lighting systems which customers can adapt and select according to the atmosphere they want to create at home.
- Planters Nut & Chocolate (now owned by Hormel Foods) used to produce and distribute nuts and peanuts packages in different sizes, to fulfil the dissimilar merchandising requirements of its retail clients.
- ChemStation (Ohio) analyses washing needs and usage patterns of customers, to automatically deliver appropriate cleaning detergents at the right time and in the right amount.
- In the fashion and footwear industries, firms like Levi Strauss, Nike, and Adidas offer customization services and platforms (both in-store and online) to personalize size, design, and styling of jeans and sneakers.

Over time, consumers are intensifying their interest in these niche products and the benefits they can provide, creating an incentive (if not an imperative) for many companies to revise their strategies accordingly.

1.2. Origins and Evolution of the Concept

The idea of Mass Customization started to take hold during the 1980s and may be viewed as a natural evolution of developing flexibility and optimization of products and processes, taking place in organizations at the time; also, this perspective appeared as a new alternative to differentiate companies in increasingly competitive and fragmented markets.

The first formulation of the concept was attributed to Stan Davis (1987, 1996):

> "Mass customization of markets means that the same large number of customers can be reached as in the mass market of the industrial economy, and simultaneously they can be treated individually as in the customized markets of pre-industrial economies […] The ultimate logic of ever-finer differentiation of the market is markets of one, that is, meeting the tailored needs of individual customers and doing so on a mass-basis." (Davis, 1996, p.177)[1]

He conceived it in broad terms, as an organization's ability to provide individually designed products and services to each customer, thanks to agile, flexible, and

[1] Retrieved from Bardakci A., Whitelock J. (2003), Mass-customisation in marketing: the consumer perspective, *Journal of Consumer Marketing*, Vol. 20, No. 5, pp. 463-479.

integrated processes (da Silveira, Borenstein, Fogliatto, 2001). In this sense, mass customization was a production strategy, a means to reach mass markets[2], at the same time treating customers individually and specifically (with customized offerings, as in pre-industrial economies).

During the 1990s, as the Internet and new ICTs (Information and Communication Technologies) appeared and diffused at impressive speed, other authors took up and evolved the definition of mass customization, proposing a narrower conception. In addition to already settled flexible processes and lean production systems, fledgling technologies became the main input of mass customization strategy: they could provide companies with huge amounts of insights and data, previously unimaginable, about specific, heterogeneous needs of individual customers, at negligible cost. Such information could then be used to shape market segmentation and targeting, addressing each segment with a different market offering. As a consequence, the marketing function began to gain a front-row position in the mission and vision of organizations at the time. In this context, mass customization started to be related, before all, to personalization strategies[3] (Kotler, 1989; Westbrook and Williamson, 1993; Pine, 1993; Kay, 1993; Hart, 1995; Tseng and Jiao, 2001).

In more recent years, mass customization has been referred to as a collaboration strategy involving both customers and producers in the design process of products and services. According to Piller (2005a):

> "Mass customization refers to a customer co-design process of products and services, which meet the needs of each individual customer with regard to certain product features. All operations are performed within a fixed solution space, characterized by stable but still flexible and responsive processes. As a result, the costs associated with customization allow for a price level that does not imply a switch in an upper market segment." (Piller, 2005a, p. 315)[4]

Advances and innovations in ICTs led to the outbreak of social networks, online blogs and forums, and online communities of customers. These environments represented an invaluable source of insights and feedback about what customers want and need, how they use products in their everyday lives, how they perceive, rely on, and evaluate brands. However, social platforms could be used not only to observe, study, and monitor customers, but also to connect and interact with them. Recalling the ultimate goal of personalization, mass customization was implemented by exploiting the virtual proximity provided by digital tools: customers had the opportunity to express their

[2] The term "mass market" is resumed from the mass market economy, which refers to the production of standardized goods or services on a large scale, for a significant number of end consumers.

[3] Indeed, in the same period, marketing paradigms centered on individual customers and the relationship between customers and companies were becoming popular, like one-to-one marketing, relationship marketing, experiential marketing, and so on.

[4] Piller, F. T. (2005a), Mass Customization: Reflections on the State of the Concept, *International Journal of Flexible Manufacturing Systems*, Vol. 16, No. 4, pp. 313-334.

ideas, needs and desires, to participate and collaborate with designers and marketers in developing products and services tailored to them (having the possibility to claim a stake in the process). Therefore, the term “mass customization” began to be substituted with co-design, participatory design, user/open innovation, and crowdsourcing.

The wide variety and numerosity of frameworks regarding mass customization make it difficult to derive a commonly accepted definition: in fact, this idea has been associated with all kinds of strategies related to high variety, personalization, and flexible production. Also, it is not clear whether it should be characterized as a manufacturing system, a marketing tool, or an innovation process (Harzer, 2013).
What is certain is that mass customization involved a paradigm shift for organizations, compared to the already established mass production economy. Companies needed to integrate:

- Benefits of extant production processes, i.e., economies of scale and standardization.
- Customer requirements and preferences, which were increasingly heterogeneous and volatile, therefore demanding higher variety in product and service offerings.

From a manufacturing perspective, the solution resided in the implementation of agile, flexible, and innovative production processes: modular architectures and product platforms were introduced to allow manufacturing of standardized but interchangeable components, which could be reconfigured and assembled into different solutions according to specific customers’ desires. “Build to order” production capabilities did not need any finished-goods inventory, which reduced carrying costs (Zipkin, 2001). The aim of this system was twofold: on the one hand, to ensure cost advantages deriving from scale production and standardization of product parts; on the other hand, to reap the benefits associated with economies of scope, i.e., lowering production costs by expanding the range of products and services to be offered. By using the same facilities, equipment and technologies, a producer could increase diversification and variety while maintaining a reasonable level of costs (Tseng et al., 2017).
From the customer perspective, mass customization strategy offered a wider set of alternatives responding to very different needs and desires, without necessarily resulting in a price premium[5]. In general, customization could be carried out on three levels:

[5] A major customer advantage of mass customization resides in the opportunity to purchase customized products without incurring in higher prices. However, empirical evidence shows that, in some cases, customers might be willing to pay a price premium in order to receive a product that is

1. Style (aesthetic design), comprising modifications linked with sensual or optical senses, e.g., the selection of colours, styles, flavours, etc.
2. Fit and comfort, namely adapting the product to dimensions and measurements of the recipient.
3. Functionality, the customization of product functions and interfaces.

Such benefits had to be weighed against potential drawbacks: "build to order" systems required a certain lead time for the product to be finished and delivered; additionally, the rationale behind mass customization implied customers' needs and preferences to be well-defined, but evidence has frequently shown that this is the exception rather than the norm (Zipkin, 2001).

In sum, mass customization identifies the process of delivering goods and services that are designed and tailored to the needs of a specific customer; mass customization can be considered both a manufacturing technique and a marketing strategy, which combines flexibility and personalization of product design with low costs typical of mass production (Dollarhide, Anderson, 2020).

1.3. Main Drivers of Mass Customization

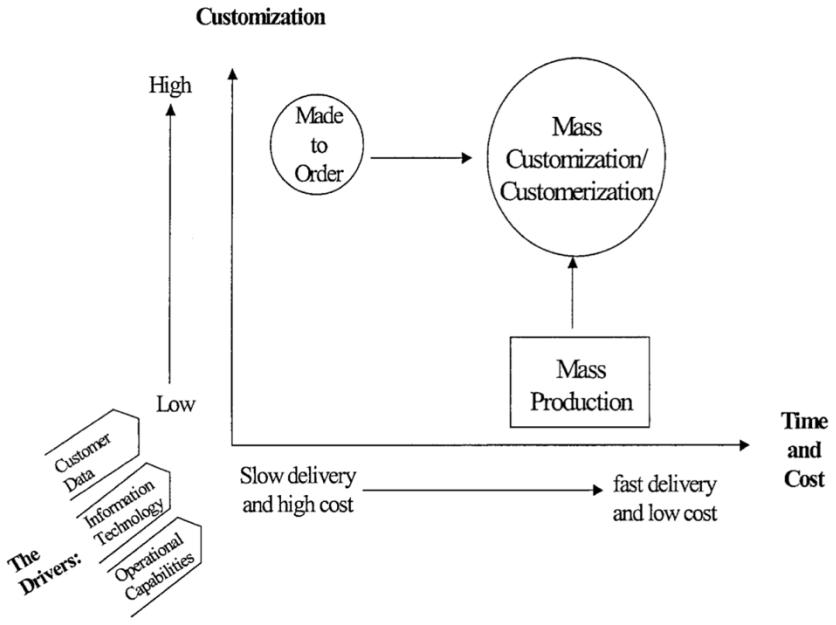


Figure 1 – The Mass Customization paradigm
Source: Wind, Rangaswamy (2001), Journal of Interactive Marketing

specifically tailored to their requirements, e.g., when they are given the possibility to co-create the product or service through mass customization toolkits (Franke, Piller, 2004; Schreier, 2006).

The justification for the development of mass customization systems is based on a combination of different occurrences (Fig. 1).

First, there has been an increasing demand for product variety and customization: the traditional approach of "one size fits all" (both to production and marketing) was appropriate in large markets or market segments where demand was relatively homogeneous (Schreier, 2006). However, as mentioned before, growing heterogeneity and volatility of customer needs result in a higher degree of market fragmentation, with niches of customers exhibiting unique characteristics and very specific requirements; in such a context, the traditional approach becomes obsolete. Heterogeneity and variability hinder predictions for demand levels, which become uncertain and change rapidly (Bardakci, Whitelock, 2003), making the "made-to-stock", forecast-driven production paradigm ineffective. These phenomena result in the shortening of product life cycles and expanding industrial competition, leading to the breakdown of many mass industries, and increasing the need for production strategies focused on individual customers (da Silveira et al., 2001).

Second, consumers have shifted their purchase objectives. The mass production era was product-centred, focused on designing products and services for the average requirements of a large market, and selling them through marketing techniques aimed at reaching the crowds (Bardakci, Whitelock, 2003). However, when mass customization started to take hold, customers were seeking more than functionality in products and services, shifting their demand towards other types of attributes – emotions, symbols, status, luxury, innovation. Firms needed to build a mindset that took into account the new dimensions customers were asking from product and service offerings: this involves producing exactly what customers want, and bringing it to them when, where and how they want (Hart, 1995).

Third, the advent of new manufacturing and production technologies has enabled production systems to deliver higher variety at lower cost: agile and lean manufacturing, modularity, and co-creation tools are some examples, where organizations integrate mass production efficiency with personalization goals, meeting expectations of the market without bearing the elevated expenses of tailored, high-end offerings.

Finally, the emergence of new ICTs has entailed a transformation in the way firms and customers interact. Traditionally, mass media and marketing practices were based on appealing the whole market and ignoring the presence of different customer segments: companies had total control over information, and they aimed at reaching the largest number of people possible by broadcasting a message directed to the masses. These methods have been trivialized by the diffusion of the Internet and the Web 1.0 (the first World Wide Web) at the beginning of the 1990s: such environment created completely new opportunities for customers to become more conscious, to

acquire control over their own consumption experiences, therefore reducing information asymmetry and transforming knowledge flow from a one-way, firm-customer communication to a two-way, reciprocal exchange. Novel ICTs have played an important role in the evolution of mass customization: companies have recognized their beneficial impact on collaboration processes, fostering the development of methods to customize products and services based on co-creation, co-design, and co-production with customers.

Together, all these factors have been responsible for the establishment of mass customization as a production technique and a marketing strategy. Starting from the product-centred, efficiency-oriented firm of the mass market economy, the competitive landscape has been subjected to different contingencies that have changed companies' attitude and behaviour. The new competitive advantage is customer-oriented, focused on personally involving buyers in design and production processes, meeting their needs on an individual basis, and delivering a higher-than-average value proposition that the customer perceives as superior.

1.4. A Firm-based and a Customer-based Perspective on Mass Customization

Analysis of the literature on mass customization[6] highlights the existence of two different streams of research. On the one hand, much of the frameworks have focused on operational and managerial aspects, taking a firm-based perspective. At the beginning, such studies considered the impact of modular product architectures, flexible production platforms, and lean organizational structures on the fabrication, assembly, and distribution of customized products and services. Attention revolved around how companies could adapt their offerings to meet the specific, heterogeneous needs of individual customers, at the same time keeping a near-mass production efficiency. For example, Pine (1993) suggested five stages, spanning from customized services (higher degree of personalization, implemented at the design and development phases) to modular production (where customization takes place only as the product reaches the customer). Hart (1995) identified four pillars of mass customization (customer sensitivity, process amenability, competitive environment, and organizational readiness), which aims at ascertaining the range within which a product or service can be meaningfully customized from the customer's perspective. However, these accomplishments can only be reached with an already implemented, top-to-bottom commitment to quality in the organization, a prerequisite to customer focus. Lampel and Mintzberg (1996), instead, defined a continuum of mass

[6] The literature mentioned here refers to those studies related to the origin, development, and consequences of mass customization as concept and strategy.

customization levels, from pure standardization to pure customization, across the design, fabrication, assembly, and distribution stages of the value chain: the more the stages that are customized, the higher the level of customization.

Over time, development and diffusion of new ICTs have enhanced opportunities for firms to observe, analyse, and know their customers, in order to understand explicit and latent needs, and to predict future requirements. The role of marketing and market research, together with importance attributed to the relationship with customers, have come to prevail as priority elements of mass customization.
In this context, Gilmore and Pine (1997) identified four distinct approaches to mass customization (collaborative customization, adaptive customization, cosmetic customization, and transparent customization): a company should choose which approach is the most appropriate, considering the level of collaboration the customer desires, his ability to customize and adapt the product or service on his own, the amount of knowledge about customers' needs and preferences available, and the ability to predict and monitor such needs and preferences. Each approach offers a combination of different degrees of customization and different stages along the value chain (design, fabrication, assembly, packaging, promotion, distribution).
Kaplan and Haenlein (2006) proposed a more dyadic distinction between traditional mass customization and electronic mass customization, according to three variables: (1) whether customization is applied to a product or a service; (2) at which step of the value creation process the customer is involved in a collaboration with the producer; (3) which parameters related to production costs and final price are needed to compare the mass-customized good with a mass-produced one. The authors distinguished the traditional approach to mass customization as characterized by a process of value co-creation between the company and the customer (either at the fabrication/assembly stage, or at the design stage of operations); the goal is delivering customized products at a cost and price similar to those of mass-produced products, or following a hybrid strategy combining cost leadership and differentiation[7]. They also recognized that advances in manufacturing and communication technologies had broadened the range of mass-customizable products, leading to the emergence of another interpretation – electronic mass customization: here, at least one of the three market dimensions involved in value co-

[7] Approach to mass customization as a hybrid strategy stems from Porter's theory of generic strategies, according to which any company has to choose among overall cost leadership, differentiation and focus. In this context, value for the customer can be created by offering a low price given a standard degree of differentiation, by offering highly differentiated products given a certain price, or by focusing on a particular buyer group, segment of the product line or geographical market (Porter, 1980). With mass customization, however, these options are not seen as substitutes but rather as complementary, resulting in the definition of mass customization as a hybrid strategy (Kaplan, Haenlein, 2006).

creation (players, product, or process) is digital. Therefore, not only tangible, physical products can be customized and personalized, but also services and intangibles can be tailored to individual customers, thanks to the use of digital interfaces.
Miceli, Ricotta and Costabile (2007) stressed the importance of conjointly understanding customer preferences in terms of content (product attributes to be customized) and interaction (how value co-creation should be performed). Recognizing once again the contributions of new flexible manufacturing systems and ICTs, the authors developed a personalization continuum, where mass customization is positioned as an approach featuring high product variety and low interactional flexibility, with the customer being involved in the late stage of product design. Such framework "[…] integrates multiple dimensions that capture customer heterogeneity and consequently enable firms to profile e-customers for personalization purposes" (Miceli et al., 2007).

As the role of marketing and customers gained more and more relevance, other streams of research have taken the customer perspective in delineating mass customization frameworks: indeed, delivering customizable or even personalized experiences entails letting the customer proactively specify one or more elements of the marketing mix (Pallant, Sands, 2020). Moreover, the simplification of customization practices brought about by digital platforms and improved interaction technologies, has increased customer control and power in the decision-making process.
Wind and Rangaswamy (2001) acknowledged the appearance of a new type of mass customization redefining marketing and business strategies. According to them, whereas mass customization is more related to the production side, customerization (this is how they called the new approach) goes a step further encompassing marketing activities too, where company's ability to produce numerous product options is translated into customized shopping, purchasing, and consumption experiences. In fact, they believed customizability of marketing to be the next necessary step for realizing further benefits from mass customization. Customerization extends beyond catering to heterogeneous markets by delivering customized products at reasonable prices; it represents "a business strategy to recast a company's marketing and customer interfaces to be buyer-centric" (Wind, Rangaswamy, 2001). It prescinds from the manufacturing capabilities of a company (which are not an essential prerequisite to this approach); it is IT-intensive and inherently dependent on the Internet and related technologies to be implemented economically (it qualifies as an appropriate strategy especially when dealing with products with a large amount of digital content); it begins with customers, who are offered more proactive control in the collaboration and exchange process. Customerization is driven by the reconfiguration of the relationship between a firm and

its customers, where the former acts as a facilitator in the process of value co-creation, ultimately generating a unique, cheaper, and more engaging consumption experience.

Bardakci and Whitelock (2003) also conceived mass customization as a demand-driven process, rather than one depending on operational capabilities of the firm. From a marketing point of view, potential for the development of an effective mass customization strategy is dependent upon customers' readiness for mass customization[8], customers' willingness to wait a reasonable period of time to receive the customized product, and customers' willingness to invest their time and resources to specify their preferences. Interaction in co-creating value is crucial, thus prioritizing the role of customers and learning relationships[9] in the mass customization process.

Salvador et al. (2009) viewed mass customization as a strategic journey for aligning an organization with the idiosyncratic needs of its customers, rather than a destination where a company achieves some ideal state of knowledge about customers' needs and wants. The marketing group should assist customers during the articulation of their own solutions, "filter" customer needs, and find exploitable commonalities, instead of purely focusing on spotting differences to categorize market segments. Likewise, design should seek out synergies between different product architectures, designs that share parts and processes of the solution space, to reach maximal uniqueness and use ad hoc parts with minimal cost. The fundamental message is "customizing the mass customization strategy" consistently with the requirements of the customer base, the state of competition, and available technology.

More recently, Loef et al. (2017) have built from previous research and developed a customization model based on three dimensions of value co-creation with customers (the object of change, the party in control of the co-creation process, and the means through which the customized offering is delivered to buyers). Combining these three dimensions, the model shows that the most attractive mass customization strategy to both firms and customers is co-creating customization: this strategy is characterized by customization of all product features, through a process equally controlled by the firm and the customer in a collaborative effort. In fact, cultivating collaborative and learning relationships has a twofold advantage: companies gain customer insights which can be translated into appropriate offerings, enjoying a more sustainable competitive advantage and a significant degree of innovation. Simultaneously,

[8] Here, this readiness is called "customer customization sensitivity", which takes into account the uniqueness of customers' needs and the customer sacrifice gap: uniqueness of needs increases the likelihood that customers will be interested in innovative and customized offerings, thereby determining the success of a mass customization strategy. The sacrifice gap is defined as the discrepancy between the features of desired products and those of products already available in the marketplace; the wider the gap, the higher customer sensitivity, and the more customization is a desirable approach (Bardakci, Whitelock, 2003).

[9] Learning relationships enable companies to gain knowledge about customers and to strengthen the relationship with them, leading to customer retention and loyalty (Bardakci, Whitelock, 2003).

customers can receive what they really need and want, also gaining added value from emotional involvement in the design of meaningful experiences.

The frameworks presented here are only a part of the literature that attempted to delineate a structure for the mass customization concept: some took a firm perspective, others were more centred on the customer; at the beginning, authors tended to consider only manufacturing and operational aspects - making the application of mass customization dependent upon firm capabilities and technology availability – whereas, over time, research has begun to recognize the relevant impact of the marketing function and the customer as key elements for sustainable competitive advantage. In any case, the emergence of mass customization as a new concept has important implications. Ultimately, it is a balance between:

- A differentiation option, the competitive advantage yield by offering buyers what they truly want and need, where, when, and how they want it (customization).
- A cost option, meaning efficiencies deriving from production flexibility, innovative technologies, and modern information systems.
- A relationship option, established and nurtured with the customer through information and knowledge flows during the individualization process (Piller, Müller, 2004).

Piller et al. (2004) called the resulting advantage "economies of mass customization", new cost savings resulting from integrating customer information into value creation and from the on-demand manufacturing approach.
Acknowledging that putting customers' needs and preferences ahead of cost efficiencies might be an innovative source of competitive advantage breaks the mould of mass production, triggering the development of a new mindset and new tools to mine and explore such needs and preferences. These reasons underlied the resulting prominence of the marketing function inside organizations.

1.5. The Evolution of the Marketing Function

According to the definition of the American Marketing Association (AMA, 2017)[10], marketing is "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large". This is quite an advanced and sophisticated conceptualization, if considered in the context where this discussion begins. Indeed,

[10] This is the latest definition provided by the AMA, approved in 2017. However, scholars revise/reapprove it every three years. (www.ama.org)

given the product-centric perspective focused on mass production and cost efficiency, the role of marketing was rather tactical: formulating an appropriate combination of the "Four Ps" of the marketing mix (Thomas, 2020) in order for a product to be accepted by the market at large. Starting from a pre-defined product (designed and manufactured according to mass efficiency constraints of the firm), marketers' task was to launch it through promotion and placement strategies aimed at reaching large markets indistinctly; pricing had to enable firms to make a profit while being attractive to the mass market (both higher- and lower-income consumers). In that context, value creation occurred inside the enterprise and through all value chain activities, but the market[11] was conceived as a place where value was exchanged and extracted – it had no role in the creation process (Fig. 2). Interaction with customers did not represent a source of value, thus communication and the flow of information were also one-way processes (Prahalad, Ramaswamy, 2004). In essence, marketers acted as pure salespeople, with the purpose of selling as many units of product as possible to a unified market, where customers' needs and wants were treated homogeneously (refer to the notion of "average requirements" in section 1.3). Therefore, since the product was supposed to appeal to mainstream masses, market targeting and segmentation parameters were considered unnecessary.

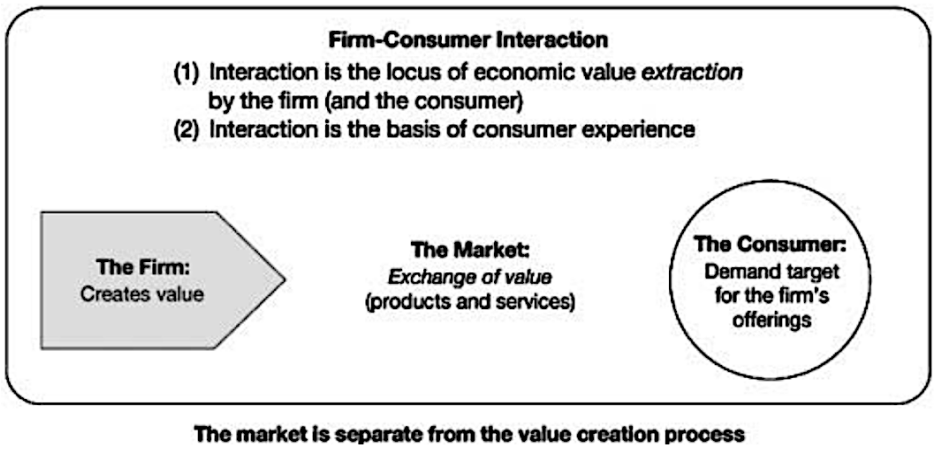


Figure 2 - The traditional concept of Value Creation
Source: Prahalad, Ramaswamy (2004), Journal of Interactive Marketing

At the time when mass customization began to take hold as a competitive strategy, companies were moving from product orientation towards market- (first) and customer- (later) orientation. Giving up personal needs and preferences only to reap

[11] Here, the market represents either a locus of exchange or an aggregation of consumers, the target for firm's offerings (Prahalad, Ramaswamy, 2004).

price advantages proved unsatisfying to consumers, who started to demand more from purchased products and services; moreover, technological improvements both on demand and supply side were transforming buying behaviour and choice mechanisms, giving rise to fragmented demand patterns in many sectors. In fact, convergence of industries and technologies was leading to accelerated commoditization of products and services, where companies could not survive adopting a firm-centric view. Recognizing these changes meant that the marketing process had to concern itself with "determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors" (Kotler et. al, 1996, p.16[12]). Hence, marketing took a more strategic function, dealing with the development of positioning concepts, attention and orientation towards single customers, and delivery of unique and superior value propositions (Thomas, 2020). Companies responded to the new expectations of markets with strategies such as mass customization and personalization[13]. Compared to the perspective typical of mass production environments, emphasis was now put on designing high-quality interactions where the individual customer could be able to co-create unique value with the organization: the solution space where value co-creation took place was the market, now an integral part of the entire process. Here, marketers worked as facilitators: marketing research instruments like focus groups, consumer surveys, and other tools for probing customer needs and wants were used to collect information and data about the level of interaction and offer individualization required by each customer. Insights gathered thereby could then be used to segment the market and serve customers not only based on socio-demographic characteristics, but also on deeper needs and preferences. Identifying "points of common uniqueness", i.e., dimensions along which customers differed, served as a key criterion to drive segmentation and subsequent selection of the most appropriate customization approach (Gilmore, Pine II, 1997). In this way, an offering was adapted and customized taking into account the attributes that each customer considered more valuable. In mass customization, the sale did not represent the end of the

[12] Kotler P., Armstrong G., Saunders J., Wong V. (1996), *Principles of Marketing*, European edition, Prentice-Hall Europe, Glasgow.

[13] Personalization refers to the collection of customer information from internal and external sources, with the aim of delineating a customer profile on which basis the marketing mix is specifically customized, to provide the customer with more convenience, lower cost, or some other benefit. Oftentimes, the process relies on the prediction of what customers want or need: it does not necessarily require active collaboration, and it can also be initiated by the firm alone, without direct intervention or awareness of the customer (Peppers, Rogers, Dorf, 1999; Wind, Rangaswamy, 2001; Vesanen, Raulas, 2006). The mass customization construct, instead, is associated with a deeper and closer interaction between the firm and the customer, which is the source of value co-creation, and where active and conscious participation is required on both sides.

marketing activity: Peppers (1995)[14] described it as letting customers teach the company what they want so it can be given back to them (Bardakci, Whitelock, 2003). This point properly epitomizes the innovation that occurred in marketing, as discipline and practice, during the years of transition from mass production towards mass customization and personalization formulas. Involvement of individual customers in their own terms, i.e., based on how they wanted the interaction with the company to happen, and growing closeness of firms and audiences were the first signals of a trend towards the convergence of consumption and production (Prahalad, Ramaswamy, 2004). Both at business and macro-environmental level, several factors turned firms' attention and modified their priorities. Revolving strategy around products was not enough anymore: the real cutting-edge was being people-driven.

1.6. The Idea of a Customer-Centric Enterprise

Before the arrival of mass production, the "craftsman economy" was dominant: high quality of products made them considerably expensive, thus only available to upper-end groups of consumers who retained purchasing power. Marketing was essentially individualized and personal, constituting a part of the transaction process, and every customer was treated as a segment of one. With the Industrial Revolution though, standardization of operations and products entailed a drastic reduction of costs for firms; the consequent price fall enabled mass population to afford goods and services in an increasing number of industries, giving rise to the mass consumption society (Sheth, Sisodia, Sharma, 2000). In this environment, organizational forms were product-centric, and the marketing purpose was to price, promote, and distribute products designed to indistinctly meet the demands of very large market segments, which were treated as homogeneous. Hence, certain customers presenting very unique needs that could not be amalgamated in such homogeneous segments remained, to some degree, unserved.

With product variety and proliferation constantly growing over time, competition significantly intensified, leading firms at the end of the 1950s to redirect their attention towards the market. A rational and precise method to adapt products and marketing efforts to consumers' requirements was found in segmentation[15]: it started as a socio-

[14] Peppers D. (1995), How technology has changed marketing, *Forbes*, Vol. 155 N. 8, April 10, pp. 76-81; Peppers D., Rogers M. (1995), A new marketing paradigm: share of customer, not market share, *Managing Service Quality*, Vol. 5 N. 3, pp. 48-51.

[15] Kotler et al. (2017) refer to segmentation as "the practice of dividing the market into homogeneous groups based on their geographic, demographic, psychographic, and behavioral profiles". It is typically followed by the practice of targeting, in which the firm selects one or more segments to commit to, based on their attractiveness and fit with firm's value proposition (Kotler, Kartajaya, Setiawan, 2017, p.47). Wedel and Kamakura (2002) instead, define segmentation more in the customer interest, as the attempt to distinguish "homogeneous groups of customers who can be targeted in the same manner because they have similar needs and preference" (Wedel, Kamakura, 2002).

demographic division of customers according to variables such as age, sex, and income, but later became more refined, based on lifestyles and previous purchasing behaviour, leading to the generation of market niches. This meant firms needed information on customers' needs, habits, and desires (Piller, Ihl, Vossen, 2010), an activity to be carried out by the marketing unit through market research[16].

The growing sophistication in customer needs' discrimination soon replaced market orientation with customer orientation. The difference was subtle, mainly residing in a stronger emphasis on individual customers as new target of the marketing mix; providing customer value had to be a priority for all business functions and units, where marketing represented the main connection between firm and customer (Fig. 3 shows the evolving perspective, orientation, and organizational form, from mass-market economy to customer-centred economy).

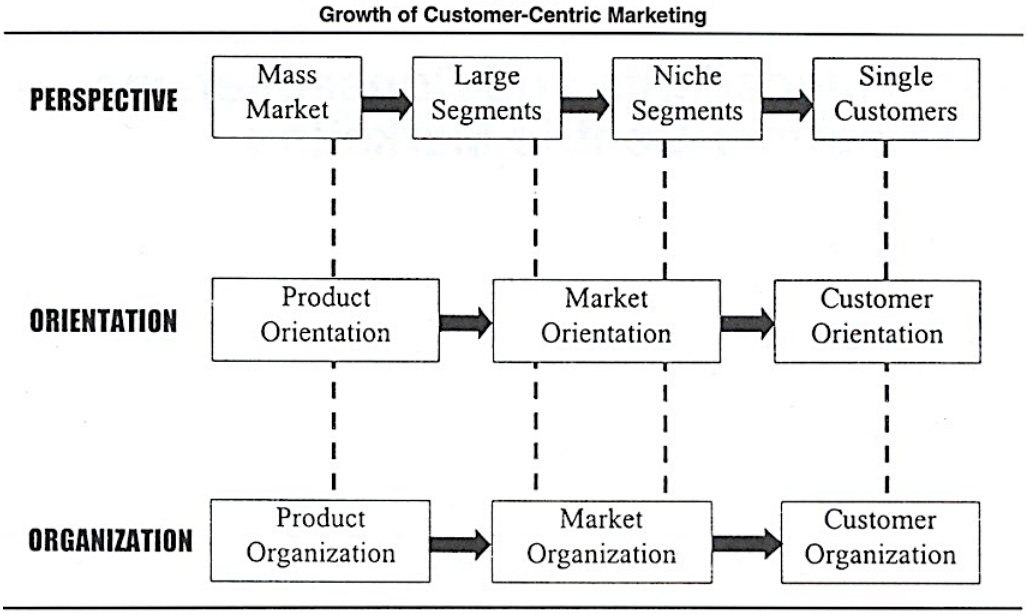


Figure 3 - The growth of customer-centric marketing
Source: Sheth, Sisodia, Sharma (2000), Journal of the Academy of Marketing Science

The rise of mass customization at the end of the 1980s was a response to the acknowledgement of a new idea: every customer is in different markets at different times and different places. This led to a re-conception of the term "market" as "the bringing together of a customer and a provider to fulfil that customer's unique needs

[16] Marketing (or market) research is here referred to as the function linking consumer, customer, or public to the marketer through information, as well as the whole process involved in collection, analysis and use, management, and measurement of this information in marketing activities (AMA, 2017, www.ama.org).

as they exist at the present time and under the current circumstances" (Gilmore, Pine II, 1997). In this sense, a company could work with single customers to identify the different markets they could be in, the different times, and the different circumstances, in order to draft distinct profiles for each possibility.

The idea of customer centricity was built on these foundations: a customer-centric enterprise assesses each customer individually deciding, according to customer's specific necessities, whether to customize the product or other elements of the marketing mix, or whether to deliver a more standardized offering. The aim is maximizing both efficiency and effectiveness at customer level, designing and delivering a superior value proposition where the customer is treated as an individual (Sheth, Sisodia, Sharma, 2000).

Customer centricity means people become more and more empowered in their individuality, rather than as a group or a market segment: they purchase a product or service that exactly fits their needs and desires, and they want to do this as simply and smoothly as possible; value assessment and resulting fulfilment are based exclusively on their own perspective. On firms' side, the mission becomes to look at each customer as a single person and proactively develop a product that caters to his expectations, at a price he is willing to pay, avoiding long waiting times. Convenience and cost effectiveness of operations are surely important, but the main target is on providing customer value and benefits (and, as mentioned before, mass customization has emerged as a leading idea in the last decades to combine these objectives).

As a result, there is a turn in the marketing perspective from demand to supply side. Traditional product-centred enterprises were seen as pools of resources and competences, where the core value proposition lied in developing products and services to please the largest number of consumers possible; marketing had to adjust demand through marketing mix activities, in order to meet product sales goals of the organization. However, since volatility of customers' needs makes their behaviour less predictable, the customer centricity view requires firms to adapt their capabilities to respond to a constantly evolving demand (Piller, Ihl, Vossen, 2010). Thus, instead of influencing people regarding what, when, and how much to buy, the marketing function is expected to become an interface between customers' desires – the starting point in the development of an offering – and capabilities and resources of the organization in terms of product design, production, and supply chain management.

Customer centricity encompasses a shift from understanding customer wants and translating them into a suitable product or service, to actively engaging customer competences in a collaborative dialogue and developing customer intimacy; here, the product or service is intended as an instrument that conveys value generated

during the co-creation process to the parties (Lamberti, 2013). The active involvement of both marketers and customers in aspects of the design, production, and consumption of a product or service is termed co-creation marketing: collaboration, cooperation, and communication come to represent the meaningful foundations of interactions between the firm and its customers (Sheth, Sisodia, Sharma, 2000). Another component associated with customer centricity is the capability of companies to generate customer intelligence, defined as the process of gathering and processing data and information to build comprehensive data storages about customer-firm interactions, with the goal of supporting customized or personalized marketing activities (Lamberti, 2013). Implementing a customer intelligence system requires information and data to flow throughout the entire organization, integrating and interconnecting all functions beyond departmental boundaries: hence, a customer-centric company inherently rejects the traditional, siloed organizational structure.

	Product-centric Approach	Customer-centric Approach
Basic philosophy	Sell products/services to whoever will buy them (mass markets)	Serve customers as the starting point of every decision
Business orientation	Transaction-oriented	Relationship-oriented
Product positioning	Highlight product attributes and advantages	Highlight product attributes and benefits in terms of meeting individual customer needs
Organizational structure	Product-based business silos, accountability and management	Customer-based functions, CRM, customer segment-based accountability
Organizational focus	Internally focused, market share growth, customer management only in the marketing department	Externally focused, customer relationship development, customer-based cross-functional coordination
Performance metrics	Number of new products, profitability per product, market share by product	Customer share of wallet, satisfaction, lifetime value, equity
Management criteria	Portfolio of products, product lines and related extensions	Portfolio of customers and customer segments
Selling approach	Reach the largest number of customers possible with the same product	Propose as many products as possible to a single customers based on his/her specific needs/wants
Customer knowledge	Customer information and data as performance measurement and control mechanisms	Customer knowledge as a valuable asset underlying every marketing and production decision

Table 1 – A comparison between the Product-centric and the Customer-centric Approach
Source: adapted from Shah, Rust, Parasuraman, Staelin, Day (2006), Journal of Service Research

In the end, adoption of customer centricity implies a comprehensive coordination of marketing and non-marketing activities towards satisfaction of the customer: his/her requirements do not simply concern basic, functional benefits, but he/she also expects to receive emotional, social, and ethical self-fulfilment from a product or

service. This drives companies' focus to the whole consumption experience, encompassing several aspects that are intimately relevant to the individual self of each customer (Lamberti, 2013). As stated by Pine (1998, p.14): "customers don't want choice. They want exactly, what they want". From a marketing perspective, this means to offer not any longer a product, but the capability to deliver an individual solution (Piller, Müller, 2004): the customer becomes a co-creator of his/her own unique solution, hence the importance of viewing overall experience in a holistic way, besides the product or service in itself. Applying mass customization not only to the product or service, but to the whole marketing process as well, denotes a customer-centricity mindset.

1.7. Concluding Remarks

This chapter proposed a series of considerations on mass customization, which is here considered as the starting point of personalization strategies, and the context where organizations turned their focus on customers for the first time after almost a century of mass economy, standardization, and homogenization. In its earliest days, mass customization was almost exclusively concerned with physical and tangible goods: modular product architectures, reconfigurable production platforms, and flexible processes allowed customization of products based on the specific requirements of each buyer. Emerging techniques of market segmentation and targeting allowed companies to organize and (only to some extent) predict future demand trends.

Nevertheless, it is well known that the pace of technological innovation is incredibly fast, which is why companies found themselves to cope with new challenges only a few years after the diffusion of mass customization. The revolution headed by ICTs and the Internet has provided new tools and opportunities, but it has also raised a modern awareness: customers do not simply buy products to fulfil functional or basic needs, they are actually looking for solutions to their personal, individual problems, they seek experiences. Hence, from customization of tangible goods, organizations and marketers have started to shift to personalization of services, product platforms and systems – which, combined together, can provide solutions. This of course requires a substantial progress in marketing approach, which has to overcome the historical conceptualization of customers as mere buyers and rethink the relationship between firms and them. This will be the subject of the next chapter.

CHAPTER II
The Importance of the Human Dimension: Personalization and Customer Involvement in Co-Creation, Open Innovation, and Design Thinking

2.1. From Mass Customization to Individualization

Opportunities related to mass customization have been widely acknowledged, with several cases of entrepreneurial success. However, after its emergence, important limitations could be found in the state of diffusion and development of such practice, which has been mainly restricted to a few examples of large-scale implementation or start-ups entering already mature markets. It is possible to identify different stages in the evolution of mass customization (what Piller called “a mass customization S-curve”; Piller, 2005, p. 329).

- The first generation, which approached at the beginning of the mass customization discussion (late 1980s), originated as a consequence of flexible machinery (cells and robots) and computer integrated manufacturing; these companies built on the benefits of efficient flexibility, offering high variety mostly in business-to-business markets.
- The second generation of mass customizers went beyond manufacturing efficiency and cost-based advantages, recognizing that the main driver was customer interaction. Indeed, they reaped the opportunities linked to the World Wide Web capability to reduce communication costs, while interacting and engaging with millions of customers. The offers of this second generation of companies were primarily aimed at consumer markets, and this was a significantly innovative boost compared to previous years. Nonetheless, firms belonging to the second generation of mass customizers were the ones recording the highest rate of failure (Piller, 2005): they just focused on providing customization, but lacked technological, organizational, and strategic capabilities to make value creation sustainable over time, and to effectively nurture relationships with customers.
- The third generation adopted a different approach: they utilized mass customization principles to deliver custom products for a demanding premium segment of customers, often not adequately served yet (Piller, 2005). Also, they specialized in creating value from better customer knowledge on a large scale,

connecting mass customization with open innovation[17]: in this case, co-design toolkits are available to customers to configure mass customizable products, as well as to create radically new solutions that represent sources of innovation for the company.

The first generation was mainly concerned with the customization of physical products, which can be considered the lowest level of customization[18]: manufacturers took advantage of production platforms and modular architectures to create items that were easy and cheap to reconfigure and reassemble, according to the specific requests of each client. The solution space where mass customization took place, i.e., the range of available variety, was flexible but limited by physical constraints and feasibility (Piller, 2005).

The second generation of companies operated in an environment that opened more windows in terms of customization criteria: market segmentation techniques categorized buyers (now in consumer markets too) depending on their needs and wants, psycho-demographic factors, purchasing behaviour, product/service usage patterns, geographic locations, buying habits, and other characteristics (Simonson, 2003). At the beginning, due to economic considerations and limited available information, buyers were not addressed individually, but classified in segments according to predefined dimension(s): the assumption was that members of each segment tended to be similar on the dimensions used in such segmentation process. Yet, within any segment, significant differences could still be observed, which caused the dissatisfaction of certain groups of customers. Technological advancements in ICTs, however, allowed marketers to collect richer and deeper information, to refine their segmentation formulas and narrow the breadth of each segment: the ultimate level of segmentation is referred to as “individual marketing”, “segments of one”, “customized marketing”, “one-to-one marketing”, or “personalization” (Simonson, 2003).

Practices related to individual marketing and personalization had been implemented for years, but new technologies enabled to extend mass customization and personalization to an increasing number of products, processes, and most importantly, services (intangible by definition). In the case of services and digital

[17] The term was theorized for the first time in 2003 by American economist Henry Chesbrough, in his essay “The Era of Open Innovation”: he defined open innovation as a paradigm in which firms can and must adopt both internal and external ideas and sources of technological and innovative capabilities. These external sources can be found in suppliers, partners, customers, start-ups, research centers and universities, advisors, and non-competitor companies. An open-innovation business model exploits internal resources and skills, but also external capabilities, competences, and tools, looking at paths to market that may be external to the boundaries of the company or alternative to the current business vision (www.blog.osservatori.net).

[18] Commodities are not considered because, by definition, they cannot be subjected to customization options.

products, customization possibilities were potentially infinite: the solution space was not restricted to the physical dimension, but it was represented by the digital platform or interface in which the entire process occurred. A fundamental part of mass customizing a product involved assisting customers in defining exactly what they want, then designing, producing, and delivering the exact item that fits each individual customer's requirements in a particular moment in time. Companies figured out they needed to establish a dialogue with individual customers, to help them articulate their needs, to choose the appropriate offering to satisfy those needs, and to customize products and services accordingly (Gilmore, Pine, 1997). This also brought to light the importance of experiences: they represented a new way to value creation, as people developed new, higher expectations towards products and services in the novel digital world. The customization of a service to the specific desires of a customer over a duration of time turns such service into a memorable event that will affect the life of the individual in a touching, unforgettable way – hence, an experience (Pine, Gilmore, 2013, p. 22-23). Firms realized this new type of value proposition could be a successful and untapped means to differentiation.

Elicitation of information from single customers about their needs and preferences was also the basis of one-to-one marketing: this paradigm emphasizes the role of creating a "learning relationship", an ongoing connection between the producer and the customer, that becomes smarter as the two interact, collaborating over time (Pine, Peppers, Rogers, 1995). A learning relationship moves forward compared to mass customization: in a learning relationship, interactions and feedbacks between the company and the customer are iterated cyclically, with the customer investing time and energy to provide more and more details and specifications about his or her preferences. Ultimately, he or she will receive a constantly refined, personalized product or service; at the same time, the company will have so much information about that specific individual to be able to generate a profile, that can be used to further improve customization, to make recommendations and to predict future requirements.
The collection and storage of customer data and profiles gave rise to CRM (Customer Relationship Management): it entails a business uses information about customers' demographics, preferences, purchase histories, and behaviours, to build up digitally stored databases which can be sourced to develop increasingly accurate and comprehensive customer profiles. Although early CRM focused on call centres and sales force (Simonson, 2003), current practices refer to technologies, strategies, and processes that use customer profiles to improve the suitability of overall marketing strategies and relationships with customers and prospects (www.salesforce.com).

Those strategies of personalization that emerged contemporarily and after mass customization, were mainly implemented using segmentation procedures based on information collected through market research, interviews to customers and surveys, focus groups, etc. Mass customization was viewed as a vision, where a firm organizes operations and strategies "in a truly customer-centric manner, resulting in products or services that are corresponding to the needs and desires of each individual customer" (Piller, 2005, p. 329). The rise of ICTs, social media, and the Internet brought important changes in such practices, redefining the meaning of customization and personalization: they enlightened modern paths to success that could be tailored to the specific situation of each company and its customers in a particular market.

2.2. The Digitalization Wave: New Opportunities for Firms and Customers

The last two decades of the 1900s have been full of important occurrences in terms of technological progresses, which fall under the concept of digitalization.

More specifically, a first wave was represented by digitization: it has been defined as "the encoding of analog information into a digital format (i.e., into zeros and ones) such that computers can store processes, and transmit such information" (Verhoef et al., 2021, p. 891). For businesses, digitization brought the integration of IT and the first World Wide Web into existing procedures and routines, without impacting or changing value-creating activities.

A second wave was digitalization, which entailed an advanced stage of development compared to the preceding phase. Drawing on prior improvements, digitalization was characterized by a modification of existing business processes due to the introduction of IT and digital technologies; such modification affected not only production, but also communication, distribution, and relationship management, requiring modern sociotechnical structures with digital artifacts. Digitalization affected companies' internal and external dynamics, going beyond cost savings and efficiency improvements and involving the enhancement of customer experiences too (Verhoef at al., 2021, p.891). Driving technologies of the digitalization process were all connected with the Internet, e.g., broadband connectivity, mobile phones and smartphones, Web 2.0/3.0, cloud computing, automatic and online payment systems, the introduction and diffusion of e-commerce web sites, and the earliest examples of social media and social networks[19].

[19] The third and most pervasive stage of advancement is digital transformation: it constitutes a company-wide revolution that drives the introduction of new business models, completely rearranging underlying entrepreneurial logic and value creation processes. Digital transformation is inherently associated with strategic changes that result from the implementation of advanced digital

These contingencies had important consequences on the relationship between firms and customers: the creation of new online and mobile communication channels changed traditional interactions offering new opportunities (and new threats too). At a first glance, connected consumers are more aware and conscious:

1) They can access an increasing amount of information about products, services, and companies, thereby making more emancipated decisions.
2) They can compare offerings, almost limitlessly expand their set of choices, evaluate different price alternatives, and easily switch from one brand to another.
3) They can decide whether to buy online or in store.
4) They have the chance to gather knowledge and advice from peers in blogs, forums, and online communities, where they can also coalesce and be encouraged to speak out.
5) They can be more selective in deciding which brands they will attribute their value and loyalty to, and they become much more sensitive about whether and how businesses fulfil their requirements and expectations.

In sum, the Internet seems to make consumers more empowered and critical-minded, favouring market transparency and offering them more space to talk and act.
On the other hand, companies (marketers in particular) discover new ways to reach and engage with the audience:

1) They have new channels for their promotion and communication strategies, like e-mails, social networks, online advertising, and so on.
2) They can provide several products and services to several customers simultaneously, enriching experiences while increasing revenues.
3) They can acquire more information and data about customers' decision making: as the latter are constantly online, they produce digital footprints and content that companies can track and monitor to understand purchasing behaviours and trends.
4) They can rapidly collect feedback on market adoption, rate of success, and engagement after a product launch.

For companies, ICTs come to represent a fundamental tool to cope with presumed consumer empowerment, providing novel ways to integrate information about market needs and patterns through new forms of Web-based collaboration and interaction.

In the context of personalization strategies, the Internet became the new focal point. If, in previous years, the pillars of mass customization lied in flexible processes and

technologies, e.g., hardware and software that enable AI, Machine Learning, Internet of Things, and robotics (Verhoef et al., 2021, pp. 891-893). This phase will be analyzed with further detail in Chapter 3.

reconfigurable products, now Web 2.0 was the core resource: it represented a platform – a modular architecture – for integrating everything that was available online into a dynamic network, one that could be tailored to each individual who accessed it (Pine, 2007[20]). In fact, the very same definition of Web 2.0 points to this dynamic dimension, and describes it as comprising all those web sites which emphasize user-generated content, ease of use, interoperability for end users and participative culture[21]. The main advantage of using an online platform to manage the production and delivery process resides in the ability to handle a growing number of users at low or negligible costs, and to provide personalized interfaces and value propositions to everyone at the same time; moreover, an increase in the number of users improves the attractivity of the platform to other users[22] (Eisenmann, Parker, Van Alstyne, 2006). E-commerce and (later) social commerce[23] also contributed to a re-definition of the role of companies: the content available on the Internet was not created and led by them anymore; rather, users and consumers generated it, turning companies into facilitators, intermediaries between the audience/producers and the platform (Pine, 2007).
In other words, the digitalization wave encompassed the realization that "anything that can be digitized can be customized" (Pine, 2007). Customization could be performed instantaneously and not only on the offering per se, but also on the process to create that offering, or on information about the offering. This meant a company could reach any potential customer in the world with a digitized model of the offering and could change the representation of the model, and the actual offering, to fulfil the needs of that specific person.

These changes opened a new spectrum of possibilities in terms of customization and personalization strategies. However, as stated in the previous chapter, value and innovation cannot come from a company-centred, product-and-service-focused perspective anymore. If organizations want to effectively and successfully capitalize on the huge potential of innovative technologies, they have to allow individual customers to actively co-create their own consumption experiences through personalized interactions, thereby generating inherently unique and personal value for themselves (Prahalad, Ramaswamy, 2003).

[20] Pine II B.J. (2007), *The State of Mass Customization and Why Authenticity in Business is the next Big Issue*, Interview in Piller F.T., "Mass Customization & Open Innovation News", 04/01/2007.
[21] Definition of Web 2.0, www.wikipedia.org (accessed June 2021).
[22] This phenomenon is known as network effect, whereby increased numbers of participants improve the value of a good or a service (in this case, of a platform). As participants produce more content, information, and services, other users are stimulated to connect and interact with each other. An increase in traffic results in the platform offering more value, leading to a network effect (Banton, Mansa, 2021).
[23] Social commerce is the Web 2.0 evolution of e-commerce: it allows a higher degree of interactivity and participation of customers through blogs, virtual communities, and co-creation software.

The shift towards a more people-focused perspective on business strategies was witnessed by an evolution of the terminology used in literature. The core of mass customization was the provision of customized value propositions for each specific customer or for targeted customer segments, in a cost-efficient manner; this strategy brought to light the sustainable benefits that both firms and customers could grasp from certain degrees of personalization of products and, later, services. Integrating the possibilities of the Internet with this framework unleashed another awareness: the personalization dimension could be applied to products and services, but it could be broadened to entire experiences as well. Directly involving customers in the ideation, production, and marketing process was both the most profitable way for companies, and the most satisfying way for customers, to reach that level of uniqueness. Hence, after the huge buzz around mass customization that characterized papers and articles during the 1980s and 1990s, a new line of thought can be observed at the turn of the century. Concepts like mass customization, one-to-one marketing, and the like, started to evolve and to be substituted with co-creation/co-design, open innovation, human-centred design, and specific forms of personalization.

2.3. The Customer as Partner: Co-Creation, Co-Design, and Open Innovation

The socio-technological changes brought about by digitalization have had significant consequences on market structure and competition too. Companies are required to accelerate innovation speed while reducing costs, shorten products' time-to-market, develop highly personalized value propositions that anticipate market volatility (Filieri, 2013). New technologies, customers' increasing requirements for customization and personalization, and declining economies of scale in R&D investments (Greer, Lei, 2012) have pushed firms towards the adoption of modern forms of collaboration and innovation. Various approaches have been conceived and adopted to face these challenges while exploiting digitally driven advantages. Here, considerations focus on the intertwined processes of co-creation, co-design and participatory design[24], and the open innovation paradigm.

[24] The terms co-creation and co-design are often used interchangeably in business-related works, as they are in the present one; however, it is appropriate to clarify the distinction between the two concepts from a design perspective. More specifically, co-creation refers to "any act of collective creativity, i.e., creativity that is shared by two or more people" (Sanders, Stappers, 2008, p. 6): it is a very broad term applied to multiple disciplines, from the material to the abstract. Co-design is instead a specific instance of co-creation, in which creativity of designers and non-designers is jointly applied in the design development process (Sanders, Stappers, 2008). Interestingly, the best-known proponents of co-design/co-creation come from business and marketing, not from design practice. Participatory design (also, cooperative design in the US version) can be defined as a 1970s, Scandinavian predecessor of the other two constructs, a concept used to refer to user participation in cooperation with designers, researchers, and developers, during an innovation project (Thrischler, Pervan, Kelly, Scott, 2018).

2.3.1. Co-Creation and Co-Design

Co-creation, or co-design, exists when customers are directly involved by the company in the process of value creation, by defining, configuring, matching, and modifying an individual solution; in this way, customers transfer their needs and preferences into a concrete product or service specification, through an interaction with the manufacturer who provides the custom solution (Kristensson, Gustafsson, Archer, 2004; Piller, 2005; Hoyer et al., 2010). Such an approach establishes an exclusive contact between the producing company and the recipient of the solution, with opportunities to further build up a long-lasting relationship and acquire reciprocal knowledge (Piller, 2005). Traditionally, competitive advantage derived from the ability to provide an appropriate set of choice options for the targeted market. Now, interaction skills and matching personalization alternatives with what a single person really needs during the co-creation process, are the fundamental sources of competitive advantage (Piller, 2003a). Prahalad and Ramaswamy (2003, 2004) highlight how the purposeful interaction of an individual with a network of companies and consumer communities can enable personalized experiences: the proactive role of the customer is intrinsic in the co-creation experience, which they propose as the new frontier of innovation (Prahalad, Ramaswamy, 2003, p. 14). According to the authors, involvement of active, connected, and conscious customers in co-creation initiatives is necessary to accommodate the heterogeneity of people and their contexts, and to spark innovations that are "experience-based"[25] (Prahalad, Ramaswamy, 2003, p. 16). Moreover, individual differences should be addressed with distinctive combinations of products, services, and channels, i.e., flexible interfaces that can be specifically and easily personalized to each customer (what Prahalad and Ramaswamy call "the experience environment", 2003, p. 15).

The perspective that companies (marketing people in particular) should go beyond thinking in terms of taking goods to the market is also advocated by the service-dominant logic (S-D logic; theorized by Vargo and Lusch in 2004, then revised and updated in later works). It assumes that marketers should concentrate on the services associated to products, rather than on products themselves, in the process of value generation: such process involves multiple actors, who participate as "resource integrators" (Vargo, Lusch, 2008, p. 9), and always includes the beneficiary of the service. Treating the customer and other stakeholders as co-creators implies a reciprocal exchange (Vargo, Maglio, Ataka, 2008) that ignores usage or consumption settings, but rather occurs through interactions (Jacob, 2015). Consequently, a

[25] A conversion to the experience-innovation perspective entails a focus not only on the product/service space or the solution space, but on the total experience, where companies can differentiate based on their capabilities to co-create unique environments with customers, suppliers, partners, etc. (Prahalad, Ramaswamy, 2003).

company may lead new product development and marketing based on the exchange of knowledge and competences with customers, to develop only products and services a customer wants or desires ("value in exchange"; Filieri, 2013, p. 43) in a collaborative way (in fact, according to this view, an enterprise cannot *deliver* value, it can only *offer* value propositions).

Involving and working closely with the customer to identify current and potential needs is a successful way to obtain deep insights to be translated into valuable products and services (Liu, Moultrie, Ye, 2019). Yet, traditional market research approaches are not enough to import the "voice of the customer" (Nishikawa, Schreier, Ogawa, 2013), because they are too focused on collecting need-centred information (e.g., what is the problem?). Instead, the heterogeneity, complexity, and volatility of customer needs require a solution-focused approach, which collects information about how a certain problem could be addressed (e.g., what is possible? What should a product/service do?) (Liu et al., 2019). Moreover, information about people's needs and preferences is sticky, difficult to transfer via traditional methods, and consumers are often not even aware of their deeper, latent needs, so that they construct explicit preferences only when they are asked to make a decision. In this case, preferences become contingent on the framing of options, the specific decision task, and the choice context (Simonson, 2005): therefore, they might not correspond to what customers really want, eventually leading to product and service failure.
When integrated with user-friendly digital interfaces and tools, co-design embeds an important element of innovation: in fact, online interactions boost the capability of a firm to acquire market knowledge (Prandelli, Verona, Raccagni, 2006), at a lower cost, easily, and at a more granular level. Conventional methods of collecting customer needs information have been revised for use on the Internet, giving rise to techniques such as crowdsourcing (Howe, 2006; Allen, Chandrasekaran, Basuroy, 2018), virtual communities and forums, and design toolkits. As a result, customers become active partners (Prahalad, Ramaswamy, 2000) and easily translate their favourite tastes, design patterns, and functionalities, into personalized solutions; concurrently, companies can transfer and transform sticky information into explicit, useful knowledge. This knowledge can then be aggregated to produce better market research data and to envision future needs and preferences more accurately. Customer involvement in co-creation can also result in lock-in effects, for customers who invest their own resources to collaborate to a certain product, service, or platform, create information assets bound to these sites; thus, it is unlikely that they

will transfer these assets and lose the investment, and this increases their potential loyalty to the firm[26].
In this view, organizations should change their idea of customers to that of co-creators: they should focus on user-centred issues (solution-focused approach) through appropriate methods for understanding people, so that not only product/service strategies, but also communication and relationship management become extremely relevant for design and marketing departments (Grefè, 2011).

An early example of a co-creation strategy comes from the Italian automaker Fiat, for the launch of its model Punto in 1993: the company wanted to test new design concepts, so they decided to invite potential customers to navigate their web site and select from a range of features. As thousands of people participated, Fiat was able to capture important insights into their preferences, test different prototypes at low cost, and end up with a model that corresponded much more to what customers actually wanted (Kambil, Friesen, Sundaram, 1999).
Similarly, the Danish toy company LEGO Group responded to the competitive threat of videogames with the development of the LEGO "Mindstorm": the firm used the signature-piece bricks and supports, but the core of the product was a software, which customers could use to autonomously program their own personal brick robots. Mindstorm helped the company achieve revenue growth and broadened its customer base to older children and adults (Deserti, Rizzo, 2014).
In 2002 Muji, a Japanese consumer-goods brand, launched a user-driven piece of furniture, the "Floor Sofa", whose design and development were based on the collection of customer pre-orders; together with subsequent customer-generated products, they resulted in a fivefold increase in company's revenues, and were observed to be more likely to survive than company-generated products over a three-years period (Nishikawa et al., 2013).
In the world of e-commerce innovators, cases of co-creation and co-design constantly multiply, thanks to the possibilities of online platforms and communication devices: as goods and services in which information is a key component become increasingly valuable, the role of customer-generated content, knowledge, and opinion is essential.
In sum, the paradigm of co-creation implies a development of marketing thought and practice. At the turn of the 2000s, the "Four Ps" model of the marketing mix was looked at with growing reservation, with the understanding that a marketing-to philosophy was not appropriate anymore to guarantee a sustainable competitive advantage for

[26] It is questionable whether these ties are always beneficial to the individual, and whether companies invest on such relationships in the best interest of customers.

companies, and to live up to customers' expectations. A marketing-with philosophy better reflected the new business environment: customers are considered endogenous actors in the marketing process, partners in the co-creation of value; they perceive and determine value in the context of use, taking the lead in the definition of value propositions; interactions and relationships with people are the new cornerstones for organizations (Lusch, 2007).

> "Marketing is the adaptive process by which firms learn about their customers and markets, and collaborate with customers and partners to create, deliver, and sustain value for all stakeholders" (Lusch, 2007, p. 265)[27]

2.3.2. The Open Innovation Paradigm

The open innovation model was theorised for the first time by Henry Chesbrough in his 2003 book, and discussion has grown rapidly over the years, so that this first definition has been subsequently revised by the same author and other colleagues, to provide a more updated and comprehensive conception.

Chesbrough's idea was that corporations should conduct innovation activities in an open environment: compared to more traditional frameworks[28], open innovation is built on the notion that sources of knowledge, technology, and expertise are distributed in the economy, thus reside outside a firm's boundaries. R&D departments can augment and enrich their innovative potential by tapping into such external pools of ideas and technologies; at the same time, they can expand business opportunities by releasing internal knowledge for external use, seeking new markets.

An important antecedent for Chesbrough's theory was the work of von Hippel (1976, 1978, 1986, 1988), who documented the fundamental role of users in driving successful innovations. He argued that the innovation process is not enclosed within R&D labs, but rather its scope should be enlarged to include users: in this way, companies would have access to the sticky, tacit information that individuals have gathered in their experience of a particular problem space or situation, and that is often difficult to articulate and transfer. Sticky user information is generated on the user site and needs to be embedded into new or existing products by producers and developers. Thus, the strategic relevance of this information constitutes added value that only users can provide to the firm and its new product development processes (von Hippel, 2005)[29].

---

[27] This definition was actually formulated by Sawhney (2006), but never published in an official source that can be cited.

[28] Traditional models of innovation emphasized the importance of knowledge and technology sources inside the firm and its R&D department, which should keep information internal and maintain full control over the whole innovation process (Nambisan, Siegel, Kenney, 2018).

[29] Von Hippel identifies these capabilities in a particular type of users, who are better able to collaborate to innovations with R&D departments: lead users. Lead users tend to experience the needs felt by the

Chesbrough drew on these earlier discussions which questioned typical, closed innovation models, proposing that organizations can benefit from external knowledge and technology to accelerate internal innovation and enhance their absorptive capacity (Chesbrough, Bogers, 2014). Knowledge can flow either outside-in (inbound innovation) or inside-out (outbound innovation): in the former case, a company opens up its own innovation process to various external inputs, generating an inflow of knowledge, expertise, capabilities, and resources that aims to accelerate internal innovation. In the inside-out approach, organizations release under-utilized ideas, knowledge, and assets outside firm boundaries, in order to discover new market opportunities for external use (Chesbrough, 2003)[30].

Nowadays, open innovation is defined as "the distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" (Chesbrough, Bogers, 2014, p. 12). In this case, a third approach can be highlighted, which combines characteristics from both outside-in and inside-out methods: coupled open innovation. It involves two or more partners that manage reciprocal knowledge and technology flows across their boundaries, in the attempt to increase R&D productivity and success while simultaneously seeking novel ways for the commercialization of innovations (Bogers, 2011; Aitamurto, Holland, Hussain, 2015). This current definition of open innovation extends the traditional framework (from 2003) from upstream R&D activities to more downstream departments too, such as manufacturing and marketing, emphasizing the importance of all business functions to create *and* capture value from inventions and technologies (West, Bogers, 2013; Chesbrough, Bogers, 2014). With an open innovation strategy, an organization can shift towards a platform business model, where value and revenues are co-created with collaborators and partners by sharing complementary resources. An open innovation philosophy moves a step forward compared to other collaboration strategies, overcoming the classic dyadic interaction between two actors involved in co-creation, and fostering the formation of network environments (West, Bogers, 2013). Collaborators for open innovation can be found in several stakeholders outside the firm: supply-chain relationship partners – i.e., customers, suppliers,

overall market in a specific activity or context more intensively and long time before the others, representing an important source of early insights. Also, they usually have deeper knowledge and expertise on certain topics or products compared to average consumers/users. Finally, they expect beneficial gains in actively contributing to innovate and improve their situation (von Hippel, 1986, 2005).

[30] Practical examples of inbound open innovation are: scouting, collaborations with suppliers, customers and intermediaries, university research programs (Chesbrouhg 2003, 2006). Later studies have included additional mechanisms too, like crowdsourcing, communities, and competitions (Chesbrough, Bogers, 2014). Outbound innovation mechanisms, instead, are represented by technology licensing, corporate venture capitals, joint ventures, alliances, and corporate incubators (Chesbrough, Bogers, 2014).

intermediaries, non-competitors -, potential customers or users, technological start-ups, universities, research centres, science parks, and advisors.

Various development factors have driven the diffusion of open innovation:

1) Social and economic changes in working arrangements due to globalization, such as increased division of labour and workers mobility.
2) Relevant improvements of market institutions and regulations for trading intellectual properties and inventions, combined with growing access of start-ups to venture capital, and enhancement of universities and research hubs (Huizingh, 2011). This framework favoured knowledge brokering by firms' internal R&D.
3) Augmented customers' and consumers' roles in their relationships with companies: they were becoming more demanding but also more knowledgeable, often experimenting with new combinations of products and offerings; they possessed deep expertise, strong personal motivation, awareness of favoured product features and design flaws; they were subjected to several shortcomings in their ability to articulate and transfer tacit information in conventional manners.

Nevertheless, the most influential occurrence was represented by the rise of the Internet and social media, which brought access to knowledge, information, and sharing capabilities of firms' internal ICT networks to the World Wide Web (Chesbrough, Bogers, 2014). As a global medium with unprecedented reach and very low costs, the Internet constituted a powerful platform to reduce geographical and communication barriers between firms and partners, thanks to its (supposed) principles of transparent information generation, information sharing, and network effects (Mladenow, Bauer, Strauss, 2014). In the context of open innovation, the Internet has played a fundamental role in enhancing companies' absorptive capacity to obtain market knowledge: it enabled searches for external sources and brokered relational dynamics, by facilitating technology intelligence, online communities, crowdsourcing and social involvement, and interactive platforms (West, Bogers, 2013).

A great deal of attention was increasingly dedicated to collaborative innovation with customers and users: while customer involvement in new product development had been highlighted since the days of von Hippel, the opportunity to create proper virtual environments where companies could tap into customer knowledge and insights through an ongoing dialogue without limitations was starting to be recognized. Drawing on the conception of customers as proactive participants – not as mere consumers, but also as producers or developers – in the process of value co-creation and capture (Prahalad, Ramaswamy, 2004; Sawhney, Verona, Prandelli, 2005), and in consideration of the perceived empowerment of consumers and users provided by

the Web and social media (Fuchs, Schreier, 2011), companies began to leverage online platforms and virtual communities to involve customers in their innovative projects. If traditional market research had always sought to capture "the voice of the customer", Internet-based platforms allowed to engage customers more broadly, more richly, and more speedily (Sawhney, Verona, Prandelli, 2005): they shifted the open innovation approach from integrating external ideas and know-how to involving social crowds in new product development by online mass participation (i.e., crowdsourcing; Mladenow, Bauer, Strauss, 2014). Social crowds are characterized by rapid communication and broad information dispersion in the network, so that processes of idea generation, conceptualization, design, and testing are dramatically enhanced (Mladenow, Bauer, Strauss, 2014). Companies access customer information about their needs and preferences through exploration and analysis of online communities, forums, blogs, and social media, populated by user-generated content; they can also engage in active information gathering by assigning users a dedicated task at various stages of the new product development process. Collected insights are then implemented to develop innovative products and services, and both firms and customers benefit from this Internet-mediated collaboration.

Several mechanisms exist that interface companies and users sharing ideas and expertise: at the beginning, suggestion boxes, virtual communities, advisory panels, online surveys, and market intelligence software were early means for involving customers in upstream, front-end stages of new product development and innovation, namely idea generation and concept development. Toolkits for user innovation, open-source mechanisms, and Web-based product testing were instead utilized to enhance back-end, downstream stages, like product design and testing (Sawhney, Verona, Prandelli, 2005). Central to the process in all these cases was the presence of a virtual community: a company could establish lasting relationships with people who might be customers, fans, or potential users, who share an interest or a passion for the company's products. These people are willing to be involved in collaboration and to provide useful and innovative insights (Liu, Moultrie, Ye, 2019). Online interactions between the company and the community, and among community members, fuelled iterative cycles of idea sharing and suggestion of novel concepts and content, which could then be evaluated by internal design and production departments and ultimately be translated into tangible products. Coordination with virtual customers could be carried out at later stages too, such as prototype testing or market feedback collection: the final outcome was a product or a service that highly fitted market requirements, at the same time being profitable and successful for the firm.

Later on, advancements in digitalization, and evolution of processing power, connectivity, and interfaces have brought huge proliferation and increased use of smarter technologies: in this context, the potential of the Internet of Things and Big Data as triggers and inputs for the open innovation process has become paramount. In some cases, literature has even pointed at Big Data approaches and tools as necessary for firms to acquire additional knowledge and skills in their innovation strategies (e.g., Del Vecchio et al., 2016; Trabucchi, Buganza, Dell'Era, Pellizzoni, 2017; Trabucchi, Buganza, 2019). The Internet of Things, a network of interconnected sensors and objects enabled by the Web, produces impressive amounts of Big Data and provides instant and remote access to information and knowledge from different sources (like social networks, web sites, online blogs, and so on) and about physical objects. This information can be utilized as a source of insights for the development of innovative products, processes, and services, as well as to identify and connect with external partners in an open innovation environment (Del Vecchio et al., 2016). The application of Big Data in the open innovation approach has driven the emergence of platform-based business models and ecosystems (Enkel, Bogers, Chesbrough, 2020). Platforms provide a common, virtual architecture for a wide range of actors to converge in creating and delivering value to their customers, generating both economies of scale and scope in innovation (Nambisan, Siegel, Kenney, 2018). They allow a broad set of partners with heterogeneous knowledge, capabilities, and resources to participate in complementary activities, fostering open environments while sharing risks and costs. In the context of platforms, companies can focus on real-time Big Data to reach faster and better creative solutions, facilitating problem solving through open flows of ideas and the diffusion of a knowledge-sharing, cooperative culture (Del Vecchio et al., 2016). Data about customers' and users' needs, preferences, and behaviours are collected, aggregated, and stored through various techniques[31], creating valuable insights for competitive advantage, customer intelligence, and effective marketing campaigns. For example, Artificial Intelligence can be used for innovation in downstream phases, like marketing and sales, because availability of real-time feedback throughout products' lifecycle provides solid information about how products function and perform during actual customer use and about users' reactions. Data from CRM systems can be integrated to seek new connections for collaboration and to cross-fertilize specialized knowledge in various fields. In upstream phases, R&D and design can benefit from cloud computing and platform architectures to facilitate the open innovation process across distance. Virtual and rapid prototyping and digital simulation are useful to test products and

[31] Techniques and methodologies related to Big Data collection, storage, and processing will be the subject of Chapter 3.

services with a broad audience, avoiding to develop physical prototypes, thus reducing costs and time while improving validity and reach of results. Big Data can lead outbound innovation too, enabling exploitation processes that catch new business opportunities for internally developed projects outside the firm, for instance in secondary markets (Del Vecchio et al., 2016).

Open innovation, as originally conceived, has been a fundamental factor in the development and diffusion of the user-driven paradigm, bringing the critical role of users and consumers in innovation processes to light. User-driven innovation relies on the proactive and personal involvement of users to invent and prototype new products and services, based on the logic that the needs and desires of those who will benefit from the innovation by using it, not by selling it, should lead the entire process (Shah, 2000; Bogers, Afuah, Bastian, 2010). This philosophy has been later supported by the emergence of human-centred design and design thinking (see Section 2.5). These conceptualizations propose a broader view of the user, beyond a deep understanding of his needs (typical of the user-centred perspective): in fact, being immersed in a specific lifestyle and cultural context, each individual user will interpret the same product/service in different manners according to his own personal environment. Thus, conceiving a product/service around *humans*, and not users, allows comprehensive consideration of emotional and symbolic values too, that would be otherwise ignored (Lojacono, Zaccai, 2004). Digital technologies have considerably boosted individuals' opportunities to share personal ideas, stimuli, and solutions to enrich and push innovation projects; hence, they should have also helped to facilitate interactions and collaborations between consumers and firms, providing more touchpoints and interfaces that could be leveraged to explore personal emotions and values through empathy.
Yet, from a critical point of view, Big Data, the Internet of Things, and related technologies have posed major doubts in these regards. As stated by von Hippel in his theory of democratized innovation (von Hippel, 2005), one of the most powerful elements of innovation with users is their capability to share experiences and opinions on web sites, blogs, and social networks, assuming an active, prominent role in value co-creation. These channels generate a quantity and variety of Big Data that organizations, platforms, and data brokers can capture and manipulate to obtain insights about business opportunities. This process often occurs in the absence of the consumer or user, without him/her knowing what is actually being done with his/her information: data are virtually free, a by-product of the consumption of physical and Internet-connected products and services. Trabucchi et al. (2017), for example, performed a case study analysis of four online platforms – Twitter, Spotify, Strava (a health and fitness app), and Deliveroo – where users interact with the service and

leave behind digital marks of their activities. In such situations, customers have no problem leaving digital information behind as it is a pre-condition to enjoy the service. Digital footprints are then pulled together by companies to extract valuable insights about users' requirements and habits, utilized in both inbound and outbound innovation processes: in the first, they foster the creation of new services for different stakeholders and unveil new opportunities to add value for ecosystem partners directly involved in the service, in a multi-sided perspective (Trabucchi et al., 2017). In the second, companies sell their databases to other organizations that would benefit and profit from them in their open innovation processes (Trabucchi et al., 2017). In each of these cases, users are not completely aware of their contribution and are denied access and control on shared information: therefore, the same rationale behind open innovation, advocating user involvement and active customer participation, is completely lost in favour of cheaper, deeper, and faster data-driven insights.

Modern digital technologies have helped create new opportunities and contexts for innovation: on the one hand, firms have discovered new possibilities to engage partners and external collaborators, particularly consumers and users, throughout the whole innovation funnel, experimenting with different solutions and ensuring technologies and knowledge are used to maximum degree. On the other hand, people have realized their own potential for intervention and opinion sharing as major constituents in product/service development. Innovation technologies are increasingly influencing how knowledge is constructed, shared, and used on the basis of data and information: these are not only exchanged, but also manipulated and exploited more or less creatively in a distributed innovation process. As highlighted above though, the same tools that should make innovation open and distributed and help manage user involvement in the process, are also constraining the active component of user participation. Such emerging considerations will be further elaborated with reference to the relative importance of the human and the digital dimension in marketing decision making.

2.4. Harnessing Technologies and Data for Personalization

The new millennium has ushered in a new technological landscape, in which modern information and communication systems are helping businesses to gather and analyse massive amounts of data about customers and consumers. These pools of information-intensive data represent a precious tool to make smarter decisions and obtain strategic superiority: this is not only restricted to improved internal efficiencies

or more innovative production processes, but it may also extend to marketing and CRM activities (Manyika, Roberts, Sprague, 2007).
Mass customization has uncovered the secret for economically serving more market segments while better addressing individual needs: an inventory of product parts (not assembled whole products) with great variety, where customers are free to select their preferred choices about product assembly (Huang, Lin, 2005).
The idea of personalization is to go beyond tailoring products and services, "to tailoring every interaction between customers and the firm, from marketing promotions to after-purchase customer service" (Huang, Liu, 2005, p. 26). The perception of personalization has evolved over time: at the beginning, it was associated with exclusivity, where personalized products were status symbols, a way of making consumers feel special thanks to their bespoke design, enabling them to stand out from the crowd; exclusivity has traditionally been expensive. As personalized communications, products, and services became more affordable and accessible, personalization has entered the realm of co-creation and open innovation, leading to a sort of "democratic egotism": everyone should have the right to feel special and put his or her own mark on a product, service, or brand (Bainbridge, 2013).
Nowadays, personalization means dynamically curating experiences to single customers in a seamless manner across channels, including all possible interactions (Accenture Interactive, 2016, p. 4). It takes place when information objects are selected and filtered for an individual, by using data about that individual (i.e., the customer profile) and negotiating the choice between alternatives with him or her (Piller, 2007, p. 634). Thereby, personalization can be accomplished through a set of recommendations of customer-specific options, which match information about products and services to information about customers (stored in CRM databases as customer profiles). It does not necessarily require active user involvement: indeed, personalization has also been defined as the anticipation of customers' needs before they even become aware of having such needs (Landolt, 2002). Businesses can individually produce every aspect of a market offering on the basis of specific customer features and requests; they also try to use customer profile data to predict future individual trends and serve customers better and faster. If successfully implemented, personalization is a differentiation strategy not easily replicable for competitors: it boosts sales and conversion ratio, enhances customer loyalty, strengthens the relationship between a firm and the audience (Huang, Lin, 2005).

The rapidly growing number of users surfing the Internet and spending time online has increased companies' possibilities to get in touch with people individually and enrich their data pools with more personal information (e.g., e-mail addresses and phone numbers). Online shopping and e-commerce, then, made customers'

purchasing history available: at this point, personalization extended to the *targetization* of customers with personalized products and services based on their browsing and online journey data. This degree of offer personalization represented an alternative to brick-and-mortar shops and channels, saving customers' time, effort, energy, and often even money (Fenech, Perkins, 2015). As concluded in a 2007 report by McKinsey, "the more a company knows about [its customers], the better able it is to create offerings they want, to target them with messages that get a response, and to extract the value that an offering gives them" (Manyika et al., 2007, p.7). In more recent years, organizations have made important investments to equip themselves with advanced marketing capabilities, including personalizing e-mail and social media (e.g., subscriptions to newsletters allowing targeted notifications, advertising and promotions), communication campaigns, geographical personalization (customization of web pages based on a consumer's location, or sending of specific messages about special offers and discounts at shops close-by), IP address and account customization, and related-content personalization. All these channels follow the same underlying logic: customers provide a growing and more refined amount of personal data and information, ranging from simple e-mail addresses and demographic details to credit card number and individual preferences; marketers can analyse and harness it to target communications, promotions, and content, and to make recommendations. Web sites, social media accounts, and smartphone apps have increasingly become important sources of data to aggregate accumulated information about customers and visitors, thanks to the use of cookies[32]. This especially holds true for online-based firms in different industries.

- Amazon has founded its competitive advantage on online personalization since ever: its recommendation engine associates purchase histories of single customers with purchase histories of other people who bought similar items, proposing suggestions that the target individual might like[33] (i.e., related content personalization).
- Similar to Amazon, My Virtual Model provides online services for fashion retailers and the appliance industry. Customers can build themselves a virtual model, where they specify their body type, physical characteristics, size and measurements, and the kind of fit they prefer; thus, suggestions do not only match the appearance of the customer, but also the way they might feel inside the garment.

[32] Cookies are small text files that are stored by a user's browser and allow a web server to maintain memories about that user: they basically save information about users' identification numbers, shopping carts, preferences, etc. Businesses primarily use cookies to track users' online journey and record their activities on the company web site (Montgomery, Srinivasan, 2002, p. 13).
[33] It is worth saying, however, that unanimous agreement is yet to be reached about the value of recommendation engines, and whether they represent real personalization or just a fictitious endeavor, hiding a subtle standardization strategy.

- In the travel industry, web sites like Expedia.com, Priceline.com, or Orbitz.com use recommendation systems to suggest personalized destination packages or airfares: the system records a user's travel history and new preferences through a form, combining information from both sources in a unique travel product (Lee, Lehto, 2010).

Overwhelmed by data, organizations have to deal with their complexity, and often struggle to deliver a comprehensive, consistent and seamless experience to their customers: the priority should be to connect all platforms and channels, attributing the same importance and attention to both physical and digital touchpoints, and have a unified customer data pool to personalize the overall interaction (Fenech, Perkins, 2015). In parallel, consumers seem to have a powerful position in terms of more choice options and increased access to information (refer to section 2.2): through social networks and online communities in particular, they can dictate what they want, when and where they want it. Perhaps most importantly, they can explicitly express their opinion about firms and brands: if they come up with disappointing experiences, word-of-mouth will spread so easily and rapidly on the web to impact a company's image and reputation over the long term. Moreover, considering proximity and convenience provided by digital tools, consumers have risen their expectations and demand more personalization at every touchpoint with a brand.

Marketers fiercely compete for consumers' attention and engagement: according to a PPC Protect research (2021), in the 1970s an average consumer saw between 500 to 1600 ads per day – when the Internet did not exist yet, and the only communication channels were billboards, newspapers, and TV. In 2021, the average person is estimated to be exposed to between 6000 to 10.000 ads every day (more than double the figures of 2007)[34] (Carr, 2021). The information overload generated by such intensive marketing approaches often leads to too many, poorly targeted communications, sometimes to the point of undesirability. In response, consumers try to avoid brands by unfollowing their social media accounts, cancelling subscriptions, or blocking phone numbers.

In this kind of social and competitive environment, companies need the capability to deliver relevance. Merging offline products and systems with online platforms to enable co-creation and customer participation has been a competitive means to convert consumer interest in customization into profitable sales for several years. However, businesses are expected to get beyond investments in customization technologies, rethinking their engagement and segmentation approaches in favour of true personalization: relevance means offering the right content to the right customer in the right way (Fenech, Perkins, 2015). An enhanced focus on key principles like

[34] The research specifies there are no official figures for year 2021 yet (www.ppcprotect.com, 2021).

treating customers as individuals, connecting interactions and touchpoints across their journeys, and leading digital transformation with trust and values, may support organizations in shaping their customer strategies. In so doing, the likelihood that the customer will respond positively and want to repeat the experience is higher: customers are in fact willing to pay a premium for a great experience (Salesforce, 2019), and a driving factor in purchasing decisions is, indeed, whether a company provides a good experience (Clarke, Kinghorn, 2018).

Yet, these goals require a different focus in perspective: a growing use of analytics and technologies enables better knowledge and adaptation to customers' needs and desires, but companies are supposed to be more committed to demonstrate the value they can offer with these tools. They should reassure consumers that personal information and insights are leveraged to deliver personalized experiences, forging a long-term relationship based on reciprocal trust and transparency. The motivation to achieve high levels of closeness and intimacy has spurred interest in new marketing frameworks originating from design academia and practice: these principles are encompassed in human-centred design and design thinking.

2.5. Design Thinking and Personalization

Design thinking and human-centredness are two related and strongly debated concepts, which have gone through various readings in academic literature and practice over the years. Therefore, this paragraph is subdivided as follows: first, a theoretical outline of design thinking will be described; second, the basic principles underlying the concept will be presented mentioning different design thinking models; finally, the third subparagraph will frame how design-thinking methodologies can be used for purposes of personalization.

2.5.1. An Overview of the Design Thinking Construct

The birth of design thinking can be traced back to the 1960s and the concept has gone through several reinterpretations over the years: at the very beginning, it was a topic exclusively related to the design profession, as a way of creating new knowledge (Simon, 1969) and new forms and artifacts (Alexander, 1971), a "designerly way of knowing" (Cross, 1982, 2007) in terms of the nature of design problems.

Later on, it was addressed as a thinking process that enabled designers to unravel particularly uncertain and messy situations thanks to their creativity and intuition (Schön, 1983). These ill-defined, ambiguous, "wicked" problems (Buchanan, 1992) could be tackled and solved with abductive reasoning, i.e., building plausible

solutions from incomplete information, synthesizing aesthetic, cultural, and technological trends with the needs of people (Elsbach, Stigliani, 2018).

More recently, interest in the way designers think and work has started to move from the scope of engineering and design subjects to the field of management, giving birth to a practitioner literature[35], where design thinking is conceived as a collaborative synergy between design and business leading to valuable innovation (Collins, 2013). The two most relevant contributions in this realm come from IDEO's[36] Tim Brown and Roger Martin from the Rotman School of Management at the University of Toronto.

- Brown (2008, 2009) explicitly refers to "design thinking" as a methodology that uses the designer's sensibility and methods to "match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Brown, 2008, p. 2). In this view, design thinking is a human-centred approach to problem solving, creativity, and innovation, which is powered by a deep understanding of what people want and need in their lives, what they like or dislike, what preferences they have about a product's packaging, marketing, sale, and support (Brown, 2008). Brown also provides a framework of this exploratory process (Brown, 2009), which follows three stages – inspiration, ideation, implementation – in a non-linear, scalable, iterative, and human-centred manner. Adopting a design thinking approach entails embracing empathy, optimism, creativity, interdisciplinary collaboration, and ambiguity (www.ideo.com).
- Martin (2009) has a more cognitive perspective on design thinking, which he defines as the interplay of abductive, inductive, and deductive reasoning, which ultimately leads to a balance between exploration of new knowledge – innovation – and exploitation of extant knowledge – efficiency (Martin, 2009; Kimbell, 2011; Elsbach, Stigliani, 2018). If organizations are able to maintain this balance across the entire knowledge funnel[37], not only will they reduce the typical biases affecting the uncertain innovation process; they will also acquire the capability to develop breakthrough innovations, creating sustainable value and reinforcing their competitive advantage.

[35] This separation has been acknowledged, among others, by Johansson-Sköldberg et al. (2013), who distinguish between "designerly thinking" to describe professional designers' practice and mindset, and "design thinking" as design practice and competence utilized by non-designers in management contexts (Johansson-Sköldberg, Woodilla, Çetinkaya, 2013).

[36] IDEO is a global design and consultancy company which has long been at the forefront of creating change through design and innovation centered on people and humans: indeed, they are the strongest advocates of human-centered design (www.ideo.com).

[37] Martin identifies the knowledge funnel as the path from pinpointing a market opportunity (mystery), to devising a market offering in response to that market opportunity (heuristic), to lastly codifying operations in a fixed formula (algorithm). It is a model for how businesses can advance knowledge and generate value (Martin, 2009, p. 4).

In general, particular emphasis is placed on the human-centred and empathic nature of design thinking as an innovation approach (Kimbell, 2011): companies face problems that need to be solved through innovation, and all such problems have people at their heart; thus, they require a human-centred, creative, and practical method to develop the most appropriate solutions (Brown, 2008) and foster users' real satisfaction.

Available research provides consistent evidence that adopting design thinking as a managerial philosophy may yield important benefits in terms of value and innovation (e.g., Cooper, Junginger, Lockwood, 2009; Brown, Martin, 2015; Rauth, Carlgren, Elmquist, 2015). A branch of research is more focused on the significance of professional designers' knowledge, capabilities, and way of thinking (Kimbell 2011; Dorst, 2011), and their impact on innovation (Verganti, 2008, 2009; Dell'Era, Verganti, 2009; Tschimmel, 2012; Liedtka 2011, 2014; Nakata, 2020). Differently, proponents of managerial design thinking (from IDEO and the Rotman School of Management) stress the possibility that this practice can be applied beyond innovation processes, as mindset and work methodology, across different functions, such as strategy, product development, or organizational renewal (Ravasi, Lojacono, 2005; Chen, Venkatesh, 2013; Carlgren, Rauth, Elmquist, 2016). Cultivating a design-thinking organizational culture would stimulate a new, user-centred approach to problem solving, generate new breakthrough ideas thanks to interdisciplinary collaboration, and facilitate a better balance between exploration and exploitation (Dunne, Martin, 2006; Brown, 2008, 2009; Martin, 2009; Beverland, Wilner, Micheli, 2015).

2.5.2. Different Models with a Single Focus: the User

The conceptual fragmentation and ambiguity of the design thinking discourse is due to the fact that searching for a single meaning and a unified framework would be an oversimplification (Johansson-Sköldberg et al., 2013): in fact, when the idea is introduced in organizations, the different contexts and use situations shape it in various ways (Carlgren et al., 2016; Schiele, Chen, 2018). As a result, different design thinking normative models have been developed, which usually present a set of stages and related tools as guidelines for designers, marketers, and managers in organizations, to arrive at a final, user-centred solution (Fig. 4) (Liedtka, Ogilvie, 2010; Liedtka, 2011; Tschimmel, 2012; Jacob, 2015; Brenner, Uebernickel, Abrell, 2016; Price, Wrigley, 2016). For example, the d.school at Stanford University (2010) proposes a sequence of activities that should be performed iteratively, as a loop: Empathize (collecting data based on ethnographic research and user observation in real-life contexts), Define (synthesising insights to refine problem understanding),

Ideate (creatively suggesting multiple ideas through activities like brainstorming or sketching), Prototype (developing tangible and experienceable models of ideas for better communication and sharing, such as 3D models, storyboards, etc.), and Test (trying out prototypes with potential end users and customers to gain feedback for improvement and refinement)[38].

The Rotman School of Management (Fraser, 2006) highlights the strategic dimension of design thinking: in its model (the "three gears of design thinking"), after the "big idea" is developed, prototyped, tested, and refined, it is also important to implement a strategic business structure that will deliver value to users, but also competitive advantage and profit to the company (Fraser, 2006). This strategic perspective is in line with what Brown defines "business viability" (Brown, 2008, p.2).

Other models include the Double Diamond (Design Council, 2005)[39] and the IDEO's "3 I's" model previously described (Brown, 2008).

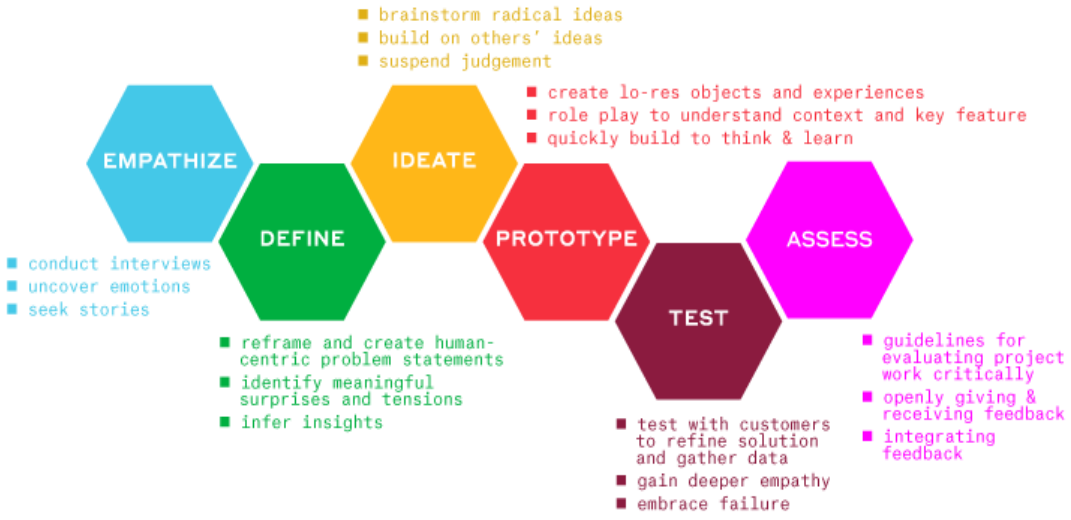


Figure 4 – The design thinking process model (note that it is not necessarily linear)
Source: Hasso Plattner Institute of Design at Stanford University (2019)

Throughout the years, numerous examples exist showing that effective design has stood behind many successful commercial goods: firms like Apple, Samsung, and Dyson have embraced design thinking principles to translate technological innovation into compelling products, services, and experiences, connected with consumer needs (Gruber, de Leon, George, Thompson, 2015). Companies have realized design

[38] The model presented here is probably the most famous. Another version has been provided by the Hasso Plattner Institute in Potsdam (Germany), an associate of the Californian university: in this case, the "empathize" step is more explicitly explained, distinguishing between an "understand" phase and an "observe" phase (Carlgren, Rauth, Elmquist, 2016).
[39] British Design Council (2005*), Eleven lessons: managing design in eleven global brands – A study of the design process*, 2005, Design Council, London (www.designcouncil.org.uk).

can be applied in more and more contexts, as a strategic resource to outperform competitors (Dumas, Mintzberg, 1989; Verganti, 2003, 2009; Holloway, 2009): since design goes far beyond the simple aesthetic appearance of a physical product, its tools can be adapted and extended to other dimensions and improve entire user experiences. The customer or user experience is indeed the primary objective in design thinking, and everything from products and services until the entire business model should be arranged with the purpose of ensuring such experience.
The role of design and design thinking has gained even more relevance as a response to the increasing complexity of modern technologies and value propositions: people need their interactions with the digital world and other systems to be simple, intuitive, and pleasurable (Kolko, 2015). High-performance companies are constantly creating compelling, if not abductive, experiences by design, especially in the consumer electronics and digital services industries. Not only do they exploit industrial design to increase product attractiveness, but they seek the expertise of different kinds of designers to transform the human-computer interface and overall experience provision in both physical places and online platforms (Gruber, de Leon, George, Thompson, 2015).
The philosophy and tools at the roots of design thinking represent a disruptive change for those businesses who are farsighted enough to grasp the potential of these practices: for the purposes of this work, analysis will focus on the integration between design thinking and marketing strategies, particularly personalization.

2.5.3. Devising Personalization Strategies through a Design-Thinking Lens

Personalization is surely a powerful tool to drive customer engagement and user adoption, and all types of organizations have embarked on personalization strategies, especially since businesses have access to a multitude of tools for providing richer insights about consumers' information and behaviours. However, CRM databases, analytical and targeting cookies, or in-store loyalty programs alone do not ensure real differentiation in the eyes of the customer, nor do they boost retention and conversion rates (Stevenson, 2019). Simply greeting a user as he or she opens a mobile app or targeting online and offline messages to specific customers are quite surface-level implementations: indeed, these tactics constitute the norm in most businesses nowadays, so that the differentiation they offer is being eroded. Sustained business advantage is determined by user-driven personalization: the provision of options and tools for customers to shape their own products and services, and the design of a solution to the unique and specific problem of the individual user, in a way that treats him or her as a person and acknowledges his uniqueness (Stevenson, 2019). Acquisition and analysis of data is not enough: they need to be leveraged to resolve

users' frustrations and hurdles in an effective manner (www.salesforce.com). A design thinking approach would push company's marketers to go deeper and consider how true personalization can be realized in designing total solutions, tailored to individual needs and preferences, to add meaningful value to each user's experience.

First of all, a focus on the person is required: an understanding of the user, the problem he or she is trying to solve, the context in which he or she is embedded, and all factors that have an impact on it, in a holistic way. The human-centred approach to marketing places people at the core of every value proposition, and relies on intense observation, empathy, and user involvement to better understand the essence of people's needs and motivations. As previously stated, conventional market research instruments try to answer the "who, what, where, when, and how" of customers' decisions and behaviours, by using demographics, market trends, geographical information, and current business performance (Price, Wrigley, 2016). Human-centred marketing, instead, uses ethnographic and empathic methods to focus also on the "why" of customers' interests (Price, Wrigley, Straker, 2015): this allows companies to develop an intimate shared understanding of latent, current, and future needs of the customer (Bucolo, Matthews, 2011), and to reveal gaps that are not related to the product or service itself, but to social and financial influences. Ethnographic research[40] has been widely used in the past, involving observation techniques combined with qualitative methods, e.g., in-depth interviews, surveys, and informant diaries (Carlgren et al., 2016; Micheli, Wilner, Bhatti, Mura, Beverland, 2018). In the digital era, marketers integrate such methodologies with new technologies and the Internet:

- Social listening uses software to proactively monitor social media, online communities, and peer-to-peer forums to understand what is being said about a brand on the Web. It excels at capturing explicit and hidden insights about customers' perceptions and tastes, exploring natural conversations occurring in customers' own environments, where they spontaneously articulate their deeper feelings. Social listening overcomes the major obstacles to traditional market research reliability.[41]

[40] Ethnographic research is an anthropology-related, qualitative method, where researchers observe and interact with participants in their real-life environments. Within the field of user-centered design, the aim of ethnographic research is to better understand the design problem, the relevant domain, the audience and their needs/goals, the context, by getting in close contact with the people who are potential end users of the design solution (www.spotless.co.uk).

[41] In traditional market research methods (face-to-face or phone interviews; online, e-mail, and in-store surveys and questionnaires; focus groups with customers), customers are often not capable of expressing their needs and preferences (Price et al., 2015), or are influenced by the presence of marketers and tend to hold back what they really think or do. Also, conventional group-based investigations fail to absorb social dynamics of real customer communities (Kotler, Kartajaya, Setiawan, 2017, p. 111). This limits the possibility to provide new insights and ideas outside the research setting and may result in value propositions which fail in the market because customers do not find them appealing (Trott, 2001).

- Netnography (Kozinets, 2002) adapts the practice of ethnography to the unobtrusive understanding of human behaviours in online communities and settings. In this case, the researcher himself becomes a member of the community, immersing in the relationship with other members and actively engaging with them. Because netnography requires the marketer to reflect on his observations and personal feelings inside the community, this method demands a high level of empathy.
- Empathetic understanding has a crucial role in the process: it is a means to take the user perspective and understand what he or she regards as meaningful, collecting deep insights about the problem and the required solution (Micheli et al., 2018). It goes beyond simple knowledge, allowing the researcher to establish an emotional connection and completely relate to the user, understanding reasons behind his/her behaviours, choices, and values (Kouprie, Sleeswijk Visser, 2009). This research method is very close to traditional ethnography, as it involves participatory observation and identification with customer's context.

Observation techniques have been proven enlightening in learning that, most of times, values that are important to customers are not the values that are important to a company (Beckman, Barry, 2009). The focus should be the emotional resonance of a value proposition, at least as much as utility and functional requirements are (Kolko, 2015).

Understanding a marketing offer in terms of UX (User Experience)[42] dimensions can facilitate human focus and holistic point of view, beyond a pure sale perspective: creating a UX entails building a proper journey made up of past, current, and future touchpoints between the person and the company (Jacob, 2015). The UX assumes a comprehensive, integrative approach comprising all aspects of the interaction between the end user and the firm, its products and services, its brand (Norman, Nielsen, 2021); attention is placed on the subjective, ongoing, and dynamic nature of the experience, where the user is immersed and plays a central, proactive role. Human-centred marketing demands companies to pursue the functional and emotional fulfilment of individual needs throughout all touchpoints, ensuring that both physical and digital interfaces are strongly connected in a coherent and seamless

[42] The concept of UX emerged in the early 1990s, when Donald Norman (one of the main contributors) was working at Apple. The UX includes all the emotions, perceptions, preferences, psycho-physical responses, and behaviors a user experiences in interaction with a company's value proposition, taking into account not only the moment of use, but also the moments and points of contact before and after it (ISO 9241-210, 2010). In other words, UX embraces all the experiential and emotional factors, the attribution of meaning and value linked with a product or service, and with the interaction with it and the surrounding context; moreover, utility, ease of use, ease of memorization, and efficiency of the system are key factors of a UX. An exemplary UX meets the exact needs of the person who relates to it, without fuss or bother, not focusing on enhancing the product per se, but rather the relationship between the user and such product (Norman, Nielsen, retrieved in June 2021; www.usability.gov).

manner (Calabretta, Kleinsmann, 2017). In this regard, tracing and visualizing the journey a person goes through when engaging with a company produces fundamental insights for personalization of the experience: representational tools such as personas, journey or experience mapping, and empathy maps[43] may be helpful (Price et al., 2015; Price, Wrigley, 2016).

A customer journey is marked by three distinctive phases – pre-purchase, purchase, and post-purchase (Lemon, Verhoef, 2016) – in which an individual gets in touch with company's products, services, interfaces, information, etc. These touchpoints can be physical and direct, such as a store or customer service, or digital, like a web site, a social media account, online advertising, e-mail marketing, feedback and third-parties reviews, and so on. Given that the Internet has relocated many interactions to the virtual world, it is important to give special consideration to the exploration and understanding of off-stage customer perspectives, behaviours, and attitudes: exclusively focusing on direct touchpoints can foreclose up to 40% of the entire customer journey (www.qualtrics.com). To this end, buyer-personas come into play: they are plausible representations of the typical user, which facilitate the human-centred and empathic approach towards a solution (Liedtka, Ogilvie, 2010; Micheli et al., 2018). Buyer-personas give more tangibility to potential users, embodying all their characteristics and personal inclinations (age, sex, education, origin, socio-cultural level, lifestyle, goals, careers, needs and desires, etc.) (Fumagalli, 2019). They allow a finer and more empathic level of customer knowledge, which could not be achieved through traditional segmentation (Jacob, 2015). In defining buyer-personas, analytics and data capabilities aid at collecting information and insights.

Special attention is also dedicated to detecting the so-called "pain points" - critical moments throughout the journey that can be difficult to handle, present obstacles, or feature uncertainty and tension - and sparking improvements that reduce them (Liedtka, Ogilvie, 2010), improving the overall UX. A deep comprehension of these moments of frustration is an important driver of competitive advantage: in order to preserve customer satisfaction and loyalty in the long term, the ultimate mission of human-centred personalization is to design and deliver a unique experience that is as smooth, simple, and coherent as possible. In his definition of UX, Norman refers to the entire cycle of a user relationship with a product or service, from initial discovery and awareness, to consideration and choice, to usage and feedback: this means, providing the user with the possibility to easily reach, understand, and utilize a product, service, or interface (Asara, 2018).

[43] Empathy maps are collaborative visualizations used to articulate information about what a particular type of user might think, feel, say, or do. They are very useful to create and communicate a shared understanding of a user's needs, with the aim of developing a successful solution for him or her (Gibbons, 2018).

Journey and experience mapping offers a systematic technique to better understand user attitudes and uncover hidden needs, predicting customers' requirements and matching expectations. Since focus is shifted from the product to the user, journey maps enable marketers to identify (1) how customers are relating to company's value propositions, in comparison with company's desired interaction; (2) which questions, thoughts, uncertainties, feelings do users have and how they change across different stages of the journey; (3) whether a company is making decisions based on wrong assumptions about its customers (Fumagalli, 2019). Importantly, the final goal is not to segment a market and select a target group; the human-centred approach aims "to generate deeper insights into the various kinds of experiences that customers are having and to help generate innovative ideas about how to improve those experiences" (Liedtka, Ogilvie, 2010).
As an illustration, a customer journey map of Lancome is presented here:

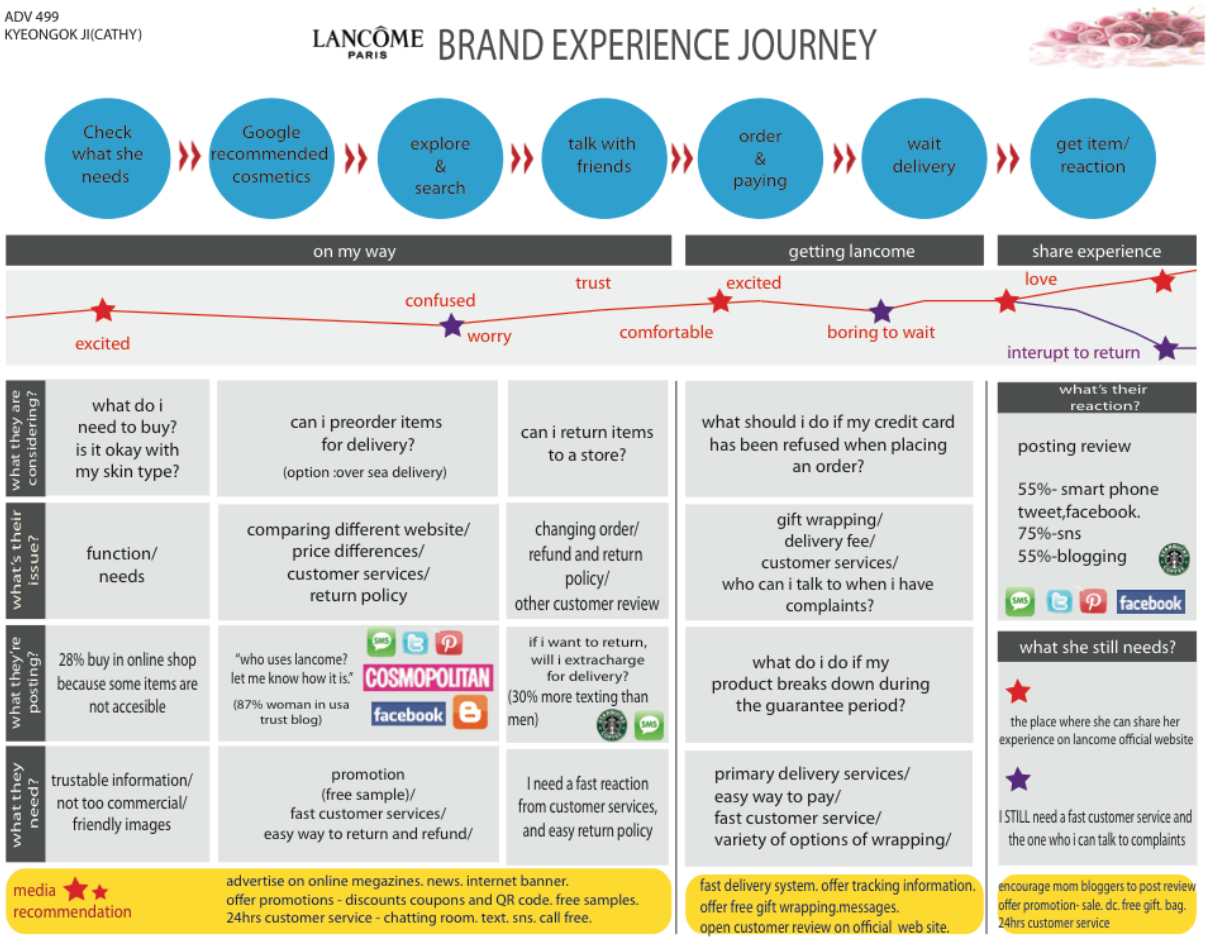


Figure 5 – Brand Experience Journey at Lancome
Source: Wojcicka (2020), www.uxeria.com

In this case, the company tries to identify a customer's thoughts and actions that arise along the journey to a new purchase: different emotions are associated to the different stages from need recognition to product delivery and reaction, pointing out the moments in which negative feelings may arise to develop improvements and give further support to the customer. Moreover, they analyse social media platforms and online magazines to get insights about how customers feel throughout the whole experience, what questions they are asking, which devices they are using to post reviews. In the bottom part, suggestions are offered, based on the collected information; the brand also gives evidence to post-purchase services, trying to understand what a customer might still need after receiving the product.

Identification of buyer-personas and customer journeys is the input to problem framing: at this stage, marketers need to put their traditional view of products and services aside, prioritizing a perspective based on interactions and systems that should be designed to solve a problem the user is facing. The development of a solution that encompasses all aspects that users consider relevant and appealing, depends on how the problem is tackled: in fact, a design thinking attitude assumes the problem space is widened, challenged, and reframed, to explore every possible alternative and come up with the most promising idea (i.e., from divergent to convergent thinking; Brown, 2008; Brenner, Uebernickel, Abrell, 2016). This mindset enables the simultaneous development of a deeper understanding of the problem context and the identification of relevant insights, not just about a specific product or service, but in relation to the total experience of a user, holistically (Gruber et al., 2015). By first seeking to understand the problems people are facing and then working to primarily solve such problems, "people are no longer treated as stakeholders to be managed into a predetermined solution; […] instead [they] become users of solutions to their problems" (Stevenson, 2019).

Design thinking is also about learning in real time (Dalton, Kahute, 2016): personalized value propositions work only if they are early and iteratively tested with the users they are supposed to tailor to. Internet platforms, social media, and online communities can be a fast and low-commitment way to easily communicate with customers and stakeholders and try a UX, to gain additional insights and real-time information about perceived strengths and weaknesses (Micheli et al., 2018), but also to enrich the company's data pools and build up cumulative knowledge to further refine the experience in the future.

2.6. Personalization with a Purpose: Putting People before Data

The digitalization wave has brought modern challenges to customers worldwide: in broad terms, the necessary hurdles to learn and get used to the permeation of technologies and digital devices in every aspect of life; more narrowly and business-related, an overwhelming and confusing number of choices in everything people do. When confronted with too many options, customers are more prone to make poor decisions, be less satisfied, and even entirely switch to other brands or channels (Accenture Interactive, 2017): they leave companies' web sites, abandon their purchases, feel disappointed about online experiences in general. Conversely, if a company recognizes them, remembers their preferences, and provides relevant recommendations on these bases (Fig. 6), they are more likely to conclude a transaction.

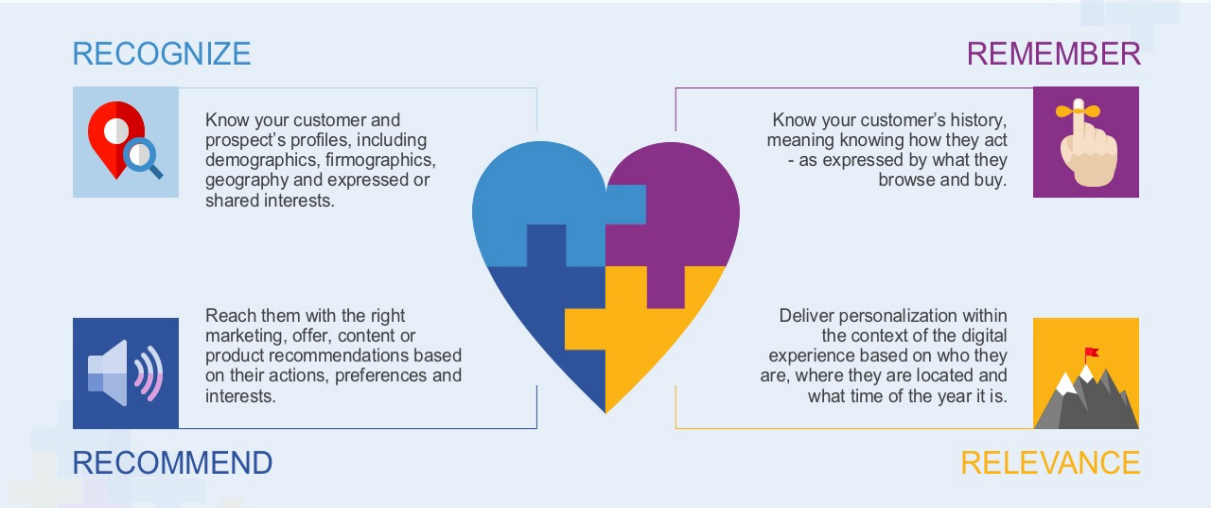


Figure 6 – The 4Rs of Personalization
Source: www.slidemodel.com, adapted from Accenture Interactive (2016)

The development of personalized experiences is a priority for marketers (see e.g.: Evergage, 2018; Gartner 2018; PwC, 2018; Deloitte Digital Survey, 2020; Moorman, 2020; Accenture, 2020[44]): however, personalization is successful when it makes it easier and less burdensome for customers to engage, purchase what they want, and interact, like a personal shopper who actively listens and serves the requirements of the client. In contrast, the concept of the salesperson trying to push the right product,

[44] See: Evergage (2018), *2018 Trends in Personalization*, Researchscape International, Evergage Inc.; Pemberton C. (2018), *Key findings from the Gartner Customer Experience Survey*, Gartner Inc., 16/03/2018; Accenture Voices of Change (2020), *Growth: it comes down to experience - Moving beyond CX to the Business of Experience*, Accenture; Deloitte Digital (2020), *From now on: come far ripartire l'Italia? Il punto di vista dei CMO*, Deloitte Italia; Moorman C. (2020), *Covid-19 and the State of Marketing – Highlights and Insights Report*, The CMO Survey – Highlights & Insights Report, June 2020.

at the right time, and in the right place is pretty outdated. The old-fashioned focus on understanding how a technology could increase diversification in products and services should be replaced by using a technology to come up with a product that shapes itself to single users' needs, while evolving over time as users do. Achieving this goal should be facilitated by Internet and advanced analytics, a pool of resources through which companies can become more knowledgeable about customers' proficiencies, passions, and needs. Using technology to accommodate differences between people is, in fact, a personalization strategy (Piller, Tseng, 2009): marketers need to "listen, learn and absorb this valuable intelligence" (Prahalad, Ramaswamy, 2002, p. 7) to be innovative and consistent with customers' preferences and expectations, and deliver highly meaningful experiences.

If done right, it is a win-win strategy and provides a superior outcome for both firms and customers: brands that offer personalization by combining advanced digital technologies and proprietary data have already seen revenue increases, two to three times faster than those brands that do not offer the same (according to a BCG research, revenue increase is estimated between 6% to 10%; Abraham et al., 2017). Digital natives have obviously had a head start in this individualization age: they have founded their business models on collecting data to respond to customer needs, using both traditional methods (e.g., loyalty programs) and more innovative practices (e.g., "free" delivery, automatic replenishment, convenient subscription plans, and others). The resulting deeper and direct connection allows these companies a more comprehensive understanding of their customers' needs and wishes, and consequently, new ways to serve them (Abraham et al., 2017). Chinese giant Alibaba offers a multitude of personalization options across its platforms: from tailored storefronts and products, to personalized search results and recommendations, newsfeeds, display ads, product reviews, and user-generated content; it also offers direct chats between sellers and buyers, and merchants' physical stores can send personalized offers to customers located close-by.

Next to digital natives, traditional incumbents have caught up fast, merging physical and digital channels to deliver an integrated personalized experience and extend knowledge capabilities. The personal-care brand Nivea tested the display of different online storefronts based on whether a user is recognized as a first-time visitor, a new buyer, or a loyal customer: first-time visitors and new-buyers were attracted and engaged with low-cost products, whereas loyalists were offered higher-value items and bundles to increase basket size. Experimentation results showed that such personalization improved conversion rates and more than doubled transactions. Starbucks developed interactive games through e-mail and mobile app as an appealing way to reward customers, intrigue them with new products, and foster store visits; these games have been increasingly personalized over time thanks to data

gathered from previous visits and digital interactions (www.hbs.edu, 2020). In the entertainment industry, guests of the Walt Disney Resort in Orlando are given bands to be used for park attractions, hotel rooms, and purchases: Disney can then collect data from the bands to explore customers' favourite spots and less pleasing activities (www.hbs.edu, 2019).

Successful personalization leaders adopt a design thinking approach, looking beyond data insights (surely important, but secondary) to define people-centred value propositions that can be implemented at scale: they think across the whole customer journey, using design thinking to draw out unmet needs that could represent personalization gaps, and combine these insights with information about behavioural and performance drivers. They ask questions that prioritize pain points, needs, and opportunities, rather than financial or business indicators. Eventually, these leaders come up with differentiated, personalized systems of products, services, information, experiences, and marketing activities that ensure fulfilment and added value for the customer (Abraham et al., 2017).

Depending on the degree of personalization offered, advancements in analytical and marketing tools imply data collection and aggregation from multiple customer touchpoints, reaching a significantly deeper level of exploration than simple customer journey tracking. For years, customers have been progressively more willing to and comfortable with sharing their data through online purchases, in-store credit card usage, loyalty promotions, and so forth: for instance, in a 2015 Consumer Review by Deloitte, only one in five consumers was happy about businesses using his information to offer a personalized experience (Fenech, Perkins, 2015). Some time later, in a 2016 study by Accenture Interactive, four in five consumers (80%) stated to be comfortable with this practice; in 2018, the percentage rose to 83% (Accenture Interactive, 2018). However, there are remarkable signals that the trend is reversing, and this raises important questions regarding whether the provision of extremely detailed information might be more worrying than beneficial, what is the actual use that data acquirers make of personal details, and what is the extent to which consumers might be aware and explicitly agree with these practices. Three principles should be imperative for companies: they have to operate with transparency, in such a way that the customer is aware that data are collected and stored; the customer has to be in control of sharing, removing, or modifying information according to his own terms; data have to be used in the best interest of the customer, to enhance personalization and improve his or her experience (Accenture Interactive 2017, 2018). Since consumers have become more and more conscious and informed, they have also raised their expectations towards companies' authenticity and truthfulness, establishing it as the main criteria by which they choose what to buy and which brands they will devote their loyalty to.

Businesses can thrive in this highly demanding, competitive landscape by driving the fundamental shift towards a personalization mindset that involves an interactive, ongoing, two-ways conversation between the marketer and the consumer. Reliance on predefined targeting should give way to letting customers identify and choose their experience while interacting with the brand, assisting them in defining their personal journeys. Creating personalization with a purpose, then, and taking a thoughtful approach to data that puts people on top of every strategic and marketing action.

CHAPTER III
When Human-Centredness faces Algorithms: Personalization in the Age of Big Data and Artificial Intelligence

3.1. A New Marketing Model for the Digital World

The emergence and empowerment of new channels, new technologies, and resulting new capabilities and resources, has profoundly transformed the environment in which companies and marketers operate: they are now required to develop fundamental expertise in domains of data and analytics, customer experience, content, multichannel, and personalization. Consequently, a new marketing model that combines traditional marketing pillars and digital elements is necessary (Friedlein, 2017). Econsultancy (2017) proposes the Modern Marketing Model (M3), which brings together different marketing dimensions in a contemporary and holistic way, clarifying organizational expectations towards the marketing function and helping to overcome siloed hierarchies and departments (Fig. 7). The purpose of M3 is not to create a totally new vision of marketing concept and practice, but rather to highlight those realms of marketing that have changed in importance because of digital; it does not cover just the marketing mix (the traditional 4 Ps), but it includes other important areas like strategy and brand.

Figure 7 – The Modern Marketing Model (M3)
Source: Econsultancy (2017)

As shown in Figure 7, "Price" (a core element of the original marketing mix) has been removed since, nowadays, it is rarely under direct control of the marketing function. Also, "Market/Customer Orientation" and "Customer Insight" emphasize focus on customers and on generating relevant insights, not just market research: digital insights are very dynamic, real-time, ongoing, and immediately actionable (Friedlein, 2017), and their value can then be translated in personalized targeting and positioning. "Product" has been replaced with "Customer Experience", which is a broader description holistically comprising products, services, development and innovation, customer journey, and the whole experience around the product itself. Compared to the classic "Place", "Distribution" is more suitable to the digital world, where the idea of place is not limited to physical contexts, but it extends to platforms and interfaces. "Data & Measurement" is the newest element: data has become a marketing asset, demanding higher consideration and dedicated roles and capabilities in terms of analytics, measurement, and optimization (Friedlein, 2017).
Table 2 gives a more detailed overview of the different key elements that make up the M3.

	Element	Key Challenge	Marketing competencies and capabilities required
Marketing Strategy	Marketing Strategy	How marketing will help deliver on business strategy	Articulation of marketing approach and key decisions around the elements below and the resources required for execution
Marketing Analysis	Market/Customer Orientation	Alignment and capability to succeed in the market	Focus on market and customers, avoidance of product/service or sales orientation
	Customer Insight	Defining who are the customers, their needs and expectations	Methods and techniques for customer understanding and insights analysis: qualitative, quantitative, face-to-face, digital, etc
	Brand & Value	Unique value proposition, brand positioning and perception	Brand dimensions and core elements of the value proposition
Marketing Planning	Segmentation & Targeting	Defining market segments	Selection of target markets based on classic (geo-demographic, behavioral, psychographic) and digital (contextual) segmentation, relevance and attractiveness
	Positioning	Identifying product/service positioning strategy according to the different targets	Exploitation of digital opportunities to do real-time, individual-level positioning via dynamic personalization, through data attributes, automation, and dynamic content. Aim at personalized digital experiences
Marketing Execution	Customer Experience	Mapping the customer journey, highlighting different touchpoints and supporting them with the appropriate content	Development and innovation of product and service, mapping of target and multichannel customer journeys using personas, aim at assisting customers in achieving personal goals, improving their experiences
	Distribution	Choosing the places where customers will find the company	Management of channels and partners, use of online distribution platforms and aggregators, adoption of a user-powered approach
	Integrated Marketing Communication	Reaching people with personalized and suitable messages	Inclusion of all forms of digital and traditional advertising, marketing, and promotion activities
	Data & Measurement	Identifying which data are needed to support the marketing strategy, to measure and optimize performance	Definition of data sources, data typologies, metrics to be used, data governance and privacy policies. Provision of timely reports, analysis, and insights, to improve performance and enable more efficient data-driven marketing

Table 2 – Key Elements of the Modern Marketing Model (M3)
Source: Adapted from Econsultancy (2017)

Consumers experience the impact of digital transformation all the time – in the past ten or fifteen years alone, consumption models in industries like music, movies, photography, news, retail, and travel have been revolutionized. Large incumbents have been forced to give way to innovative, digitally empowered entrants (as in the competitive dispute between Blockbuster and Netflix), and sometimes even long-time renowned innovators have experienced the same defeat: Apple's iTunes, which had disrupted brick-and-mortar music retailers in the past, was outcompeted by the introduction of Spotify in 2006, and the company was forced to launch its own music-streaming service, Apple Music, to rival the Swedish counterpart (Kotler et al., 2017). Already in 2013, the McKinsey Global Institute listed top innovations that have had the most significant economic impact, among which mobile Internet, automation of knowledge work, the IoT (Internet of Things)[45], cloud technology, advanced robotics, 3D printing, and others (Manyika, Chui, Bughin, Dobbs, Bisson, Marrs, 2013). All these digital technologies are fuelled by data and interconnectivity, which are at the root of the new marketing paradigm. Digital interaction alone, however, is not sufficient; instead, a combination of online and offline relationships and interfaces between companies and consumers is required: in an increasingly online world, offline touch constitutes a strong differentiation, blending style with substance and delivering authenticity, the most valuable asset (Truelson, 2019). Companies need to leverage machine-to-machine connectivity and AI (Artificial Intelligence)[46] alongside human-to-human connectivity, improving marketing productivity and strengthening customer engagement.

3.2. Big Data and Analytics: Features, Benefits, and Applications

Following the digitalization wave analysed in Chapter 2, technologies brought about by the World Wide Web and the booming e-commerce have been accompanied by the omnipresence of Big Data in the last couple of decades: emerging digital innovations like AI, blockchain, IoT, and robotics, are having a huge impact on business models and entrepreneurial mindset. Of course, they affect consumer behaviour as well: consumers are shifting their purchases to online stores and brands, and digital touchpoints have a significant role in overall customer journey and experience, both online and offline (Kannan, Li, 2017); new search tools, social media, and online-interaction technologies enable consumers to have an active stake in the

[45] From now on, the abbreviation IoT will be used referring to the Internet of Things.
[46] From now on, the abbreviation AI will be used referring to Artificial Intelligence.

creation of value, by designing personalized products and becoming advisors through peer-to-peer reviews (Beckers, van Doorn, Verhoef, 2018); mobile devices are essential in every type of customer experience, in that they facilitate brand knowledge and information acquisition, and make showrooming activities easier and more engaging (Verhoef et al., 2021). Consumers are also increasingly relying on apps and AI-based smart systems and voice assistants, like Amazon Echo and Google Home, which are likely to intrinsically change how consumers shop and what they expect from brands.

For businesses, this latest phase of digital transformation is the most pervasive one: it leads to company-wide changes and utterly new business models, e.g., "product-as-a-service", digital platforms, and data-driven business models (Verhoef et al., 2021), deeply affecting organizational business logic, value creation processes, and culture, but also external interactions with suppliers, customers, and competitors. Digital transformation leverages traditional digital resources and newest technologies, like Big Data analytics capabilities: interactions on social networks, web sites clicks and visits, interconnected digital devices all generate a huge amount of data, significantly higher compared to a few years ago. These data are heterogeneous in source and format, are characterized by four distinctive features – volume, velocity, variety, and veracity – and can be analysed in real time. To companies, Big Data provide multiple avenues for innovation along the nature of offerings (what constitutes the actual value proposition), exchanges (communication and distribution), transaction settings (where and when sale occurs), and actors involved (Hagberg, Sundstrom, Egels-Zandén, 2016; Purchase, Volery, 2020). Big Data also entail a deeper transformation in the process of data collection and management, in technologies supporting data lifecycle, in new competences needed to enhance and leverage data potential.

This section will be dedicated to the description of Big Data fundamental features, related technologies, and how companies are employing them to achieve business objectives.

3.2.1. An Overview of the Digital Landscape

Business Intelligence and Analytics refers to the capabilities, techniques, technologies, systems, and applications aimed at analysing critical business data to better understand an enterprise's business, the market in which it operates, and to make more informed and timely decisions (Chen, Chiang, Storey, 2012). Consistently with the evolution of technologies and the associated progression of database

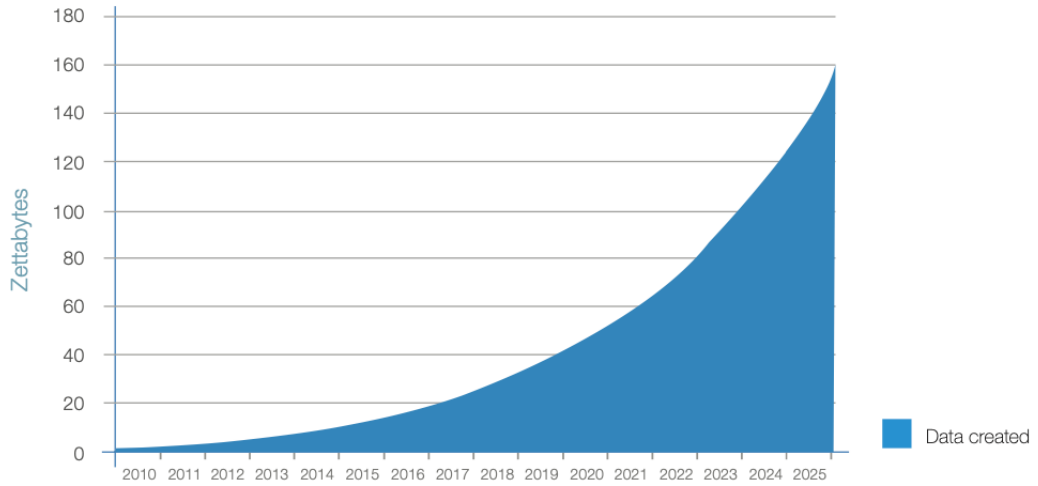
management, three development eras can be identified over the years (Chen, Chiang, Storey, 2012; IDC[47], 2017):

- The first era (before the 2000s; Chen, Chiang, Storey, 2012) was characterized by data residing almost exclusively in purpose-built datacentres, centralized mainframes in which data generation and use was basically business focused: data were mostly structured and collected in relational database management systems. Insights were primarily used for performance monitoring and evaluation.
- During the second era (beginning of the 2000s), the Internet and the Web began to offer unique opportunities in terms of data collection and analytics: search engines (e.g., Google and Yahoo) and e-commerce businesses (essentially Amazon and eBay) allowed companies to present their activities and transfer their products' information online while directly interacting with customers and prospects (i.e., web users). In conjunction, more detailed information about specific user searches and interactions became available, because digital devices had the ability to store and manage data for personal use by consumers: clickstreams, browsing and purchasing patterns, user-generated content in forums, blogs, online communities, social multimedia and networking platforms, even virtual games, represented a gold mine for understanding customers' needs and preferences (Chen, Chiang, Storey, 2012). These types of data – which are less structured and contain rich customer opinion and behavioural information – enabled businesses to listen to the voice of the market from various perspectives and consider all stakeholders in their own environments. At this point, datacentres evolved into centralized hubs that managed and distributed data across a network to end devices, enabling a "democratic distribution of data and computing power" (Reinsel, Gantz, Rydning, 2017). Web site design, product placement, customer transaction and market analysis, and product recommendation systems could be implemented and optimized using web analytics technologies.
- The third era (from the 2010s to today) is the result of the proliferation of wireless broadbands, fast networks, and expansion of datacentres into cloud infrastructures. In 2011, the number of mobile connections (phones and tablets) surpassed the number of laptops and PCs for the first time (Chen, Chiang, Storey, 2012); as in January 2021, this trend has not changed, with more than 66% of people worldwide recorded as unique mobile phone users (Datareportal, 2021). These changes in consumers' behaviour and habits have

[47] International Data Corporation, www.idc.com

a significant impact in terms of data availability: mobile devices and their "an-app-for-anything" ecosystems have remodelled different aspects of society and human life, introducing new ways of travelling, entertaining, training, and learning. In addition, Internet-enabled devices embedded with sensors, barcodes, and RFID systems (the so-called Internet of Things - IoT[48]) are establishing modern patterns of innovation; indeed, according to a study by Dell EMC and IDC, in 2014 two thirds of the "digital universe" were created by consumers, and companies could influence 85% of that portion (Dell EMC, IDC, 2014). Altogether, these dimensions push the distribution of computing power, so that data can be easily accessed from any screen and endpoint[49]; also, devices able to support highly mobile, location-aware, person-centred, and context-relevant operations and relationships, provide the right premises to exploit and enhance techniques of data collection, processing, analysis, and visualization at scale (Chen, Chiang, Storey, 2012).

Advances in data collection and management, computing power, and data storage and availability, have enabled completely new applications and locations for digital technologies and services, expanding data creation and warehousing from a business-only environment to everyday life. Ongoing increase of IoT devices both in consumer and enterprise environments and sustained expansion of Internet users, who represented more than half of worldwide population in 2019 (Statista, 2019), lead to explosive growth in the global datasphere (Fig. 8).



[48] The Internet of Things, or IoT, is the network of physical objects embedded with sensors, software, and other technologies, aimed at interconnecting and exchanging data with other devices and systems over the Internet. Combining these connected devices with automated systems, data can be gathered and analyzed to create an action or to learn from them. Examples of IoT applications can be found in the "smart home", like automatic lighting fixtures, smart appliances, thermostats, and security systems, as well as in healthcare systems and wearable devices (e.g., smart watches), or in retail shops, like beacons and smart mirrors (Burgess, 2018).

[49] The term "endpoint" refers to all devices on the edge of the network, such as PCs, phones, cameras, connected cars, wearables, and sensors (Reinsel et al., 2017).

Figure 8 – Annual size of the Global Datasphere
Source: IDC Data Age 2025 study (2017), www.idc.com

According to IDC (2017), this massive growth is leading to several shifts in the way data are used for business and personal purposes. Data are becoming more life- and business-critical, real-time and mobile, driving fundamental improvements in all aspects of life and essentially coming to represent the lifeblood of people's digital existence (Reinsel et al., 2017).

3.2.2. Main Features and Advantages of Big Data for Businesses

Traditionally, companies have used data in different manners to improve their internal operations and efficiency, or in certain customer-facing activities, such as customer service; to this aim, data analysts used to perform several analyses to extract information from such data and give a useful interpretation for the company (Camilleri, 2015).

Today, the situation is far more complex, starting from the definition of what Big Data is: the term "Big Data" has been used to express different concepts, such as huge amounts of data, social media analytics, next generation data management capabilities, and the like. Essentially, it can be defined as data sets whose size or type exceed the ability of traditional relational databases to capture, handle, and process the data in a short time (IBM[50]), and therefore is dependent on advanced and unique storage, management, analysis, processing, and visualization technologies (Camilleri, 2015). As organizations have begun to understand and conceive Big Data as a powerful source of economic and social value that, combined with a firm's assets and human capital, can yield significant competitive advantage, Big Data analytics are increasingly used. Big Data analytics can be defined as advanced analytical techniques utilized against Big Data sets comprising structured, semi-structured, and unstructured information, from different sources and in different sizes (IBM).

Four distinctive features characterize Big Data: three of them are intrinsic data attributes, proposed in 2001 by Douglas Laney in his "3Vs Model"[51]; the fourth feature, instead, has been suggested later, to emphasize the importance for businesses of addressing and managing the uncertainty typical of some sorts of data (Fig. 9; IBM Institute for Business Value, Saïd Business School at the University of Oxford, 2012; Piva, 2019).

[50] IBM, *What is Big Data Analytics?*, www.ibm.com, accessed July 2021.
[51] Laney D. (2001), *3D Data Management: controlling Data Volume, Velocity, and Variety*, Meta Group Inc. (now Gartner).

- Volume: the huge amount of data, which refers to the mass quantities of data that firms have to deal with in the attempt to improve organizational decision making. Data volume is constantly increasing over time (as shown in Fig. 8), but what actually constitutes *high* volume varies a lot by firm, industry, and sometimes even geography.
- Velocity: data are generated, acquired, and processed in motion. This is due to their real-time nature, together with the need to incorporate streaming data into business processes and decision making to maximize their validity. Today, data is continually created at a pace that is impossible for traditional systems to capture and process.
- Variety: it relates to the different nature and types of available data, which come from increasingly heterogeneous sources, and can be structured, semi-structured, or unstructured[52]. Businesses need to integrate and analyse data from an array of traditional and non-traditional origins, both within and outside the enterprise. As stated before, due to the explosion of smart devices, sensors, Internet networks, and social collaboration technologies, data can come in a myriad of forms, like text, audio, video, image, web data, sensor data, log files, and others.
- Veracity: data are characterized by uncertainty, and veracity relates to the level of reliability of certain types of uncertain data. Businesses need to accept and understand that some degree of unpredictability is inherent within data, and planning for it is important to ensure information is high-quality and treated cautiously.

[52] Structured data adheres to a predefined model, which makes it relatively easy to analyse and aggregate, and usually has a tabular format (with rows and columns); common examples are Excel spreadsheets or SQL databases.
Unstructured data is information that does not adhere to a predefined model or is not organized: it is typically text-heavy, but may also contain dates, numbers, and facts; the absence of a proper structure makes this data irregular and ambiguous for traditional programs (like relational database management systems): this is the case of images, audio, video files, PDF documents, and so on.
Semi-structured data is structured information that, however, does not conform to traditional predefined data models, but that contains tags and markers that make it quite straightforward to categorize and separate; XML is a form of semi-structured data (Enterprise Big Data Framework, 2019).

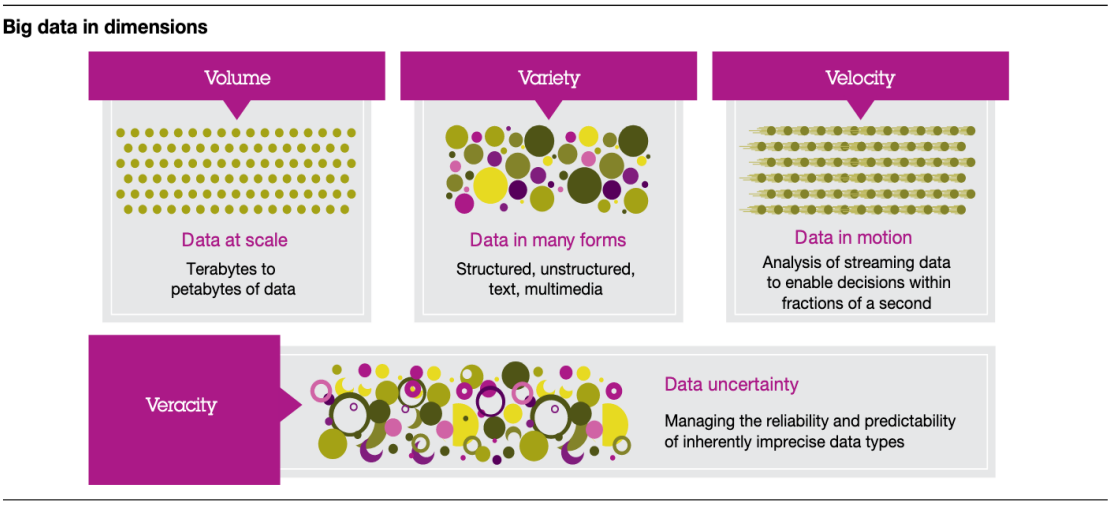


Figure 9 – Four dimensions of Big Data
Source: IBM Institute for Business Value, Saïd Business School at the University of Oxford (2012)

Big Data can come from different sources (Oracle, 2011):

- Traditional enterprise data, which include customer information from CRM databases, transactional ERP (Enterprise Resource Planning) data, online store and e-commerce transactions, general records.
- Machine-generated and sensor-generated data, such as call detail records, web logs, smart meters, manufacturing sensors, equipment logs, trading systems data.
- Social data, comprising customer feedback streams, blogging sites, social media platforms, online forums and communities, and so on.

It is clear how complexity and variety of sources of Big Data are augmenting compared to traditional data, as a consequence of the pervasiveness of digital technologies. AI, mobile devices, social media, and the IoT drive data generation through sensors, audio/video, apps, online interactions, web activities, etc., where the great majority of data is produced in real time and at a very large scale.

In business context, Big Data analytics can bring significant benefits in terms of competitive and economic value.

➔ Creating transparency: making Big Data more easily, timely, and economically accessible not only to the company per se, but also to stakeholders, means delivering more information and facilitating data communication and sharing between different parties (Manyika et al., 2011[53]).

[53] Manyika J., Chui M., Brown B., Bughin J., Dobbs R., Roxburgh C., Byers A.H. (2011), *Big Data: the next frontier for innovation, competition, and productivity*, McKinsey Global Institute, May 2011.

- ➔ Discovering hidden customers' needs and behaviours: real-time mobile data offers a detailed overview about customers' features and complex purchasing journeys, allowing the identification of behavioural models and shedding light on their deeper intentions (Michael, Miller, 2013). Marketers need to understand what customers are exactly looking for, what information they seek, which needs they are trying to fulfil, and data can give a considerable advantage in this. Combining data from multiple sources (e.g., transaction data with browsing and customer service data) helps in the identification of primary customers and leads, prioritizing the ones that have the highest potential to convey more value and that engage more frequently with the company. Analytics can boost acquisition of new customers as well, not only by selecting and targeting the most attractive prospects, but also by defining the virtual and physical places where they spend their time, which can represent reliable cues of their interests and preferences (Fiedler, Harste, Perrey, Pickersgill, 2013).
- ➔ Segmenting and personalizing actions: deploying sophisticated techniques for highly specific customer segmentation results in products and services precisely tailored to individual needs, personalized promotions, and targeted advertising (Manyika et al., 2011). True customer centricity is argued to exist when each customer is treated in a different but consistent and integrated way across various channels, and when data is used to deliver a personalized proposition in the best interest of the individual.
- ➔ Making predictions more advanced and refined: the use of predictive analytics - i.e., advanced technologies that perform data analysis and provide answers about future events and patterns - entails a huge advantage in terms of performance and decision making. Predictive equipment and machinery maintenance, customer churn forecast, demand planning, fraud detection, and travel optimization are only some ways in which predictive analytics can be implemented. For this purpose, an important resource resides in Machine Learning, which is the ability of algorithms to automatically learn and store information as they are progressively fed with data; algorithms record relationships between variables and produce outcomes that become more and more refined and precise as data are added as input to the system. Machine Learning allows predictive analysis on both structured and unstructured data (see definition in footnotes, p.68) - which constitutes an impressive advantage considering that the largest portion of customer data is indeed unstructured - and produces immediate feedback to timely correct actions (Di Deo, 2021).
- ➔ Supporting human decision-making processes: sophisticated analytics can automate and optimize decision-making activities related to all kinds of

organizational processes, from inventories fine-tuning to dynamic pricing in response to real-time sales monitoring. Decisions are not necessarily completely automated, but rather augmented by rapidly analysing huge datasets, assisting human decision makers that would otherwise have to review small samples of spreadsheet data, which may be not representative and comprehensive enough (Manyika et al., 2011).

- ➔ Creating innovative products and services, business models, and new types of enterprise: data about actual product and service usage can be harnessed to improve development and design of the following generation of products or services, boosting success factors and solving troublesome elements. The IoT is continuously generating a great deal of opportunities embodied in real-time data, location-based information, and usage patterns: sensors and associated technologies providing 24/7 streaming details about when, where, and how consumers use a product or a service, generate important insights for companies to ideate and adapt their strategies and activities accordingly, and to identify specific trends that are common to certain market segments or niches.
- ➔ Exposing variability and improving performance: the omnipresence of digital enables collection and storage of more transactional data, revealing reasons behind performance fluctuations and weak points, and supporting adjustment and improvement (Manyika et al., 2011).
- ➔ Boosting productivity and profitability: Big Data can ultimately lead to an increase in effectiveness and efficiency of production and marketing processes, and over the years, many data-driven companies have been observed to be more competitive and more productive compared to other firms in the same industries.

In sum, Big Data are able to generate new knowledge to make more informed and conscious decisions, from personalization to improvement of production processes' efficiency, to management of workflows and emergences. This is possible thanks to technologies that enable collection, acquisition, and storage of such highly unstructured, huge-volume, real-time data, but also thanks to rapid diffusion of innovative algorithms and methods to elaborate, integrate, analyse, and interpret underlying information. Several studies in the past have reported customer-centric outcomes as being the main objective of data usage in business[54]: marketers have progressively strengthened their power to hypertarget consumers with real-time,

[54] E.g.: Kiron D., Shockley R., Kruschwitz N., Finch G., Haydock M. (2011), *Analytics: the widening divide*, IBM Institute for Business Value, MIT Sloan Management Review; Schroeck M., Shockley R., Smart J., Romero-Morales D., Tufano P. (2012), *Analytics: the real-world use of big data*, IBM Institute for Business Value, Saïd Business School at the University of Oxford; Forbes Insights (2015), *Data driven and digitally savvy: turn the rise of the new marketing organization*, Forbes.

mobile ad campaigns, to leverage geo-location information to capitalize on leads at the right time, and to harvest valuable insights from advanced technologies (Camilleri, 2015).

3.2.3. Effects of Digital Transformation on Marketing and Business Practice

Digital transformation affects every facet of a firm's business model, completely reshaping how it creates value, introducing new processes and tools, and penetrating both internal and external relationships. Whereas, in past years, research has been mainly concerned with functional and technical aspects of the digital enterprise (e.g., Foss, Saebi, 2017; Nambisan, Lyytinen, Majchrzak, Song, 2017; Verhoef et al., 2021), more recent interest has been dedicated to the adoption of a multi-, cross-, or trans-disciplinary approach to digital transformation: its practices should not reside within siloed organizational functions, but rather new ways are needed to cross-fertilize insights from different development streams into a coherent firm-wide perspective (Storbacka, Moser, 2020). This has stimulated marketing scholars to tap into innovative avenues of value creation, questioning traditional boundaries of the discipline. The digital transformation of marketing, indeed, goes way beyond the concept of digital marketing, encompassing several spillover effects.

First of all, marketers have found themselves marketing things they never marketed before (Storbacka, Moser, 2020): products, services, experiences are being deeply innovated, increasingly comprehending benefits of flow, and entailing potential for profiling and quantifying value. What makes products and services flow-enabling systems is, essentially, technology. Sensor-rich offerings – smartphones, connected products, IP-addressed components, cloud-hosted services – connect a device with the customer as he or she uses it in daily life. Data are generated from users and customers activities, both online and offline: online services and platforms (i.e., e-mail service, GPS, social networks, apps, and web sites) are permeated with user information, user-generated and user-posted content. These data can be combined and matched with data deriving from personal devices usage and from offline interactions, that do not occur directly through digital tools, but still represent important sources of insights on consumers' behaviours and preferences: this is the case, for instance, of smartphone geo-location service, video surveillance registering consumer flows in a store, or electronic payment systems recording purchasing habits (AGCM, AGCOM, 2020). All these data are then collected and analysed to profile broader activity flows. Besides sensor-embedded items, another flow-enabling factor is the "software-controls-hardware logic" (Storbacka, Moser, 2020), where programmable software is increasingly expanding its control over typical hardware functionalities. Physical product lines are thus evolving into combinations of a

reconfigurable base with many alternative additions, to sustain usage flexibility. However, marketers have always been used to promote and place static products and related benefits; effectively marketing flows, instead, requires a much better understanding of how the customer uses what he or she is purchasing (i.e., a new level of customer centricity). Benefits of flow are not replacing products and services, rather they add new and differentiated value. This holds true either for B2C or B2B customers: marketing is about how new systems save time, improve productivity, make people happier, enable innovative outcomes, create amazing experiences, or help life advancements (Storbacka, Moser, 2020). Thanks to its flow benefit communication, Apple has converted product ads into short movies reproducing a person life flow based on what the product enables. This new marketing philosophy will emerge over time as a priority for customers and a competitive differentiator: a powerful brand will distinguish and protect itself by developing intelligence-based decision making, supported by software, Machine Learning and AI.

Second, in a world where flow is prioritized, a great customer experience is genuinely built upon customer's own behavioural change, in terms of user engagement and know-how. Marketers need to recognize and frequently reassess how buyers gather information, make decisions, prioritize benefits, and undergo the customer journey. New dynamics have come to light: on the one hand, consumers' purchasing paths have become circular and iterative sequences of touchpoints, less predictable due to the multiple channels through which interactions can occur; on the other hand, business-to-business selling is less linear too, as business buyers search, evaluate, select, and share experiences about products (Lingqvist, Plotkin, Stanley, 2015). In this context, the sale becomes the starting point, not the final stage, of a company's value proposition (Storbacka, Moser, 2020). Marketing needs to ensure customer flow success at every key point throughout the journey and, ultimately, not only customer satisfaction will raise, but growth will be accelerated; moreover, as more activities become trackable, the company will gain understanding of reasons and objectives driving customer usage and experiences. To this end, services are progressively designed that offer value in exchange for personal data access: another field of activity of modern marketing will in fact be the design, management, and promotion of these "value-for-data exchanges" (Storbacka, Moser, 2020, p. 302). Given these considerations, marketers will have to focus more on the second half of the customer journey (the one traditionally owned and controlled by the user), at least as much as they work on the upfront consideration and selection parts. Nevertheless, these initial phases are still crucial to reach the customer with a value proposition: to be relevant and appealing, such value proposition should convey differentiated meanings, and should also be enhanced by differentiated communicators. Digital and mobile ubiquity are elevating the role of influencers, who organically surround the

buyer and naturally attract attention more than company-sponsored campaigns; modern marketing will leverage the datasphere to better map and control influence dynamics and influencers' messages, investing in those that deliver the best results to the company.

Third, the digitalization wave has transformed marketing processes and culture, leading digital to become the default way of marketing and leaving other alternatives as exceptions (Storbacka, Moser, 2020). This shift is reflected in CMOs trends to mainly invest marketing budgets in digital channels, and in customers' tendency to spend time on digital media, which is dramatically growing over time (Deloitte Digital, 2020; Moorman, 2020). The biggest impact on marketers is the necessary migration from being one-way communicators of broadcast messages, to being two-way interlocutors focused on customer dialog and building human relationships: they seek to listen and understand what the customer needs, to then deliver a personal response supported by intelligence tools. Storytelling has not diminished in importance, but needs to embrace richer digital interactions, where communication should be conceived for mobile devices that enable to amplify messages in a way that could not be accomplished through traditional media. As social networking platforms come to be the preferred channels for conversations, marketers need to involve and welcome customers as participants and creators, allowing them to integrate in story production and individually modify the message. Content has to be adapted accordingly, as a support to marketing's capability to establish a conversation, where every element of the message is based on what the company has previously heard from customers. Companies are challenged to reimagine their content modules into new agile combinations, suitable to the digital world and usable to train algorithms to create content autonomously.

Fourth, a key enabler of these personal conversations is dynamic segmentation: it takes segmentation practices based on buyer personas and customer profiles one step further, at a more granular level, storing customer information singularly and combining it together when a certain segmentation scheme is needed. The result is availability of a large number of narrow segmentation criteria that can be appropriately selected throughout the customer journey, to serve a specific customer, at a specific time, and in a specific touchpoint (Storbacka, Moser, 2020). Dynamic segmentation ensures a holistic and comprehensive perspective on each customer, and it can be adjusted in consideration of customer behavioural fluctuations, which inevitably occur over time and across contexts. A tight integration between marketing and sales data pools is required, as the two functions need to coordinate and have a unified view of the customer, in order for conversations to be successful.

A fifth aspect in marketing digital transformation is the redefinition of partnerships and stakeholder relationships: the core objective is to make customer experience a seamless coordination along his/her journey, while improving results, thanks to shared customer visibility (Storbacka, Moser, 2020) – this means data and insights pooling not only between organizational departments, but also with channel partners[55].

Digital transformation brings about a modern marketing role, that goes beyond creating reputation for the company, to creating relationships and revenues: marketing is becoming the substance of business success. While instructing organizations about why consumers behave the way they do, it helps spotting consumer decision points where well-played strategies can make the biggest difference (Gordon, Perrey, 2015): with the support of new technologies, marketing can leverage information about customers and company's relationship with them, to shape delivery of functional benefits, all-embracing experiences, and development of new products and services, determining differentiation (Gordon, Perrey, 2015). Knowledge of what can be automated, when human judgment is required, and where specific talent can be better harnessed are becoming central features of effective marketing leadership (Gordon, Perrey, 2015).

Innovation has led to growing interest in transparency and customer-centricity (or better, human-centredness) among customers, who have raised expectations towards product and company performance. At Google, they try to fulfil these requirements by establishing a tight relationship between marketing department and product-development teams: these teams are coordinated to launch new products with very small lead times, and to collect insights from consumers in a cycle of testing, learning, and iterating. Marketers have a central role, in that they share their knowledge and expertise of user needs with the teams, which can translate these suggestions into how products are developed (Gordon, Perrey, 2015).

Digitally born giants have set very high standards in terms of speed and personalization, pressuring originally brick-and-mortar retailers to adapt and reach the same level; as an example, fast-fashion companies like H&M, Zara, or Uniqlo have recognized customer desire for high-fashion styles and designs, combining them with widely affordable prices. Also, smart products and services have made consumers more demanding towards product ability to automatically adapt to and predict what they want or need from it. Daimler understood how Big Data can be used to know everything that happens to their sensor-equipped Mercedes cars: for their car-to-go

[55] In B2C markets, channel partners are constituted by physical and e-commerce retailers; in B2B markets, they may be brokers, resellers, service providers, system integrators, or independent software vendors (Storbacka, Moser, 2020).

business, they analyse time slots, city spots, car routes, and customer location areas, to make sure there are enough cars to serve every person. They also introduced “Mercedes me”, an app that seamlessly integrates a customer’s smartphone and car, providing him or her with automated appointment booking, personalized financing, opportunities for idea suggestion, access to car data, and other options, significantly enhancing a highly digital customer experience (Gordon, Perrey, 2015; www.mercedes-benz.it).

In this environment, businesses commit to data analytics to predict future customers’ intentions about certain products or services, aiming at (1) making better and more personalized recommendations or offering discounts; (2) detecting causes of production failures, hurdles, and defects in real time, sometimes predicting and fixing potential mistakes before they happen; (3) understanding customer experiences with products and services by analyzing online consumer reviews, call center data, customer sentiment, and social platforms, ultimately improving product quality and innovation (4) developing quick and proactive responses to changes and unexpected contingencies (5) refining and streamlining internal processes, interfunctional communication and coordination (Grover, Chiang, Liang, Zhang, 2018). Data-driven marketing is indeed the process of collecting and connecting online and offline data, to rapidly analyze and gain cross-channel insights about customers, and then bring them to market via a personalized marketing campaign tailored to the customer at his or her point of need; companies can achieve marketing goals and measure results while engaging customers and delivering greater value to the business, leveraging digitalization opportunities (Teradata, 2015; Forbes Insights, 2015). Key domains for analytics application in this context, where data have by now assumed a central role, are (1) CRM, with methods that help acquisition, retention, and satisfaction of customers, building and maintaining customer relationships; (2) marketing mix, where models and algorithms support the allocation of resources for innovation and enhancement; (3) personalization of products, services, and whole experiences to individual customers, through the use of technological approaches that effectively manage market heterogeneity; (4) privacy and security issues (Wedel, Kannan, 2016).

3.3. Three Domains of Data-driven Marketing

For the purposes of this work, a more detailed discussion on the use of analytics in marketing will follow, with a focus on three closely connected domains: marketing mix optimization, personalization, and privacy[56].

Marketing mix optimization

Modelling the marketing mix in the era of Big Data signifies merging digital data on business and competitive intelligence with external trends. On one side, companies possess increasingly extensive customer data from internal processes, such as direct surveys, customer satisfaction metrics, records of customer behaviour in physical stores, web site and e-commerce, and apps. On the other side, information about customers and prospects can be gathered outside enterprise boundaries, and it can be even richer than internal information: for instance, measures of online word-of-mouth, reviews, clickstream data, or browsing histories, but also external data aggregators and market research firms, generate precious insights about customers' activities with competitors, customers' path to purchase, and brand perception. Moreover, analysis of clickstream data is useful to categorize customers as buyers, browsers, or searching visitors of the corporate web site, adjusting communication, promotion, and value proposition accordingly (Moe, 2003). With data platforms and digital marketing hubs, marketers can integrate internal data stores with external, third-party information sources[57]: a technology architecture brings multiple data sources into a single pool that provides a complete picture of the customer, his or her purchasing habits and preferences (Forbes Insights, 2015).

New channels and devices contribute to the creation of synergies between traditional mass communication and direct marketing strategies: a customer or prospect may interact with a company on many interfaces – responding to e-mails, through catalogues or mobile campaigns, via social media accounts, in physical locations, viewing videos (Forbes Insights, 2015). Examining how different channels affect one another, generating cross-media effects, and how they resonate with customers is

[56] This classification is retrieved from Wedel M., Kannan P.K. (2016), Marketing analytics for data-rich environments, *Journal of Marketing*, Vol. 80, November 2016, pp. 97-121.

[57] Company's internal data, or first-party data, refers to information collected directly from users and consumers, and thus belongs and is managed by the company itself. This data can be extracted from corporate web site, through the use of cookies, or from mobile apps, CRM databases, user feedback, in-store beacons, contact center and customer service, purchase histories, communication in salespoints, or other information the user has voluntarily and consciously released. First-party data is the result of the conversation between a business and its customers, a relationship based on trust and loyalty (Silverbullet, 2020).

In contrast, second- and third-party data are demographic and behavioral information collected from various sources: second-party data is basically a company's first-party data that can be bought and utilized by other marketers, whereas third-party data is generally aggregated from many different sources. Frequently, this data comes from organizations that do not have direct contact with users and consumers: they simply infer implicit information on the basis of past user behavior, where the user does not explicitly provide such information. Due to its nature, second- and third-party data has long been criticized for being sloppy, not representative, and obtrusive to privacy (Silverbullet, 2020).

determinant for marketing mix decisions. A granular level of analysis is here possible, thanks to the availability of individual path-to-purchase data across online channels (display ads, affiliates, referrals, search engines), multiple devices (computers, smartphones, tablets, and so on), and online and offline touchpoints; additionally, firms can become content creators and publishers themselves through social platforms and content marketing tools (Wedel, Kannan, 2016). Assessing the individual impact of specific channels on customers and sales is thus facilitated, more accurate, and supports the allocation of budget and resources across channels.

Big Data applications in marketing typically cover the following fields.

I. Direct and digital marketing

Direct marketing refers to all strategies allowing companies to selectively and purposefully communicate with the customer or final user, directly and in a personalized manner (Kenton, Anderson, 2020). On the Internet, direct marketing evolves into digital marketing, which assumes the form of display advertising, posted content on social media, YouTube video clips, personalized e-mails, and others. Digital marketing is obviously achieved thanks to the massive amount of information users leave behind as they routinely navigate the Web: it deploys multiple data techniques aimed at identifying the most profitable and most likely-to-respond customers, to profile them, and to possibly predict behaviour of unknown prospects. This profiling activity starts from millions of users and their online browsing history, which is tracked with cookies or other anonymous monitoring forms; data are collected through web sites, apps, CRM databases, mailing lists, or third-party data, and aggregated and stored in customer data platforms.

Recently, the most widely diffused techniques to explore customer web data are social analytics and visual listening, which monitor, analyse, measure, and interpret digital interactions and relationships between people, ideas, topics, and social content (Gartner[58]). Attention towards these practices is constantly growing in light of the competitive potential offered by these insights to develop effective marketing, CRM, and product development strategies (Lau, Li, Liao, 2014). Social analytics and visual listening can bring various significant benefits: (1) evaluation of brand credibility over time, based on customers' conversations and opinions; (2) customer needs identification, related to current product generations, but also to opportunities for future innovations that customers find desirable; (3) brand identity, which is more and more shaped by users' opinions and perceptions on the Web; (4) communication optimization, in terms of content, language, and channel; (5) influencer scouting, i.e., spotting people who are able

[58] Gartner Glossary, *Social Analytics*, www.gartner.com, accessed July 2021.

to engage with and influence others' vision and decisions thanks to their relevance, reach, and resonance; (6) competitor monitoring (Monti, 2016).

Then, marketers analyse customer and consumer behaviours and attempt to find correlations between products and user profile features: this procedure becomes the foundation for addressing more precise and narrow targets, to optimize marketing campaign outcomes and expenditure efficiencies. Direct marketing advantages include personalization around the final user, a 360-degrees view of the customer, identification of the most appropriate communication content, timing, and channel, and real-time adjustment of marketing decisions.

II. Customer micro-segmentation

Big Data has introduced new opportunities in terms of customer segmentation, with analytics development leading to availability of abundant and extremely granular information. Customers can therefore be categorized into micro-segments, to which very specific offers, products, and services can be tailored and personalized; in addition, smaller clusters are easier to monitor in real time, enabling predictive tracking of changes and shifts in customer behaviour and preferences. Micro-segmentation exploits activity-based data (clickstreams, purchase histories, call centre and customer service data, mobile data), social network accounts and interactions, sentiment data (deriving from the analysis of associations between a customer and a product or brand, for example through social media likes, follows, and comments[59]), and more traditional data (market research and transactions) (Offsey, 2015).

III. Price optimization

Marketing and sales departments can coordinate in leveraging pricing and sales data for price optimization: data about demand history, inventory stocks, current sales, and competing vendors are combined with statistical and forecasting models that monitor various sales channels (online and offline), setting the optimal price a customer is willing to pay and delivering personalized promotions or discounts for each product, based on his or her profile (Baker, Kiewell, Winkler, 2014). In this way, customers receive a price proposition that is personally appealing, while companies are able to prioritize profitable leads, boosting revenue, margins, and market share.

IV. Location-based marketing

Location-based marketing draws on personal location data generated by mobile devices (e.g., GPS, Wi-Fi connection, credit/debit card payments, RFID tags,

[59] Sentiment analysis is contextual text mining which identifies and extracts subjective information, used to understand social sentiment about a brand, product, or service, while monitoring online conversations (Gupta, 2018).

etc.) to send personalized advertising and promotions: for instance, when a customer is close to his/her favourite shop, he/she receives a message showing particular items that might be interesting to him/her; similarly, a company can send push notifications with coupons for drinks and food when a customer appears to be at a restaurant or in a bar. This marketing practice is particularly suitable to today consumers, as they are constantly using their smartphones to look for information about products and services, and thus they are more eager to receive and engage with context-relevant messages (Marketing Land, 2014).

V. In-store analysis

Another important application of Big Data in marketing is in-store analysis, which allows to track customer position, path, and behaviour inside a store, through streaming video cameras, Wi-Fi and Bluetooth, electronic payment systems, smartphone apps, etc. Insights are gathered to determine demographics, number and flow of customers in a particular time period, how they act inside the store, how they interact with products, which store area is the most visited, which items elicit more interest. The objective is, on the one hand, to improve customer experience adjusting store layout and characteristics, shelf-space, product mix and positioning, and the overall atmosphere that people encounter; on the other hand, companies are always pointing at enhancing their performance, using technologies to understand major sales opportunities, successful combinations of exposed products, reasons underlying churn rates, and necessary time to turn a prospect into an engaged customer (Monti, 2016).

VI. Cross-selling and up-selling

In this case, Big Data is used to amplify purchase size, proposing complementary products and services to be offered as a bundle with the main purchase (cross-selling), or showing higher-value items the customer might like (up-selling). Again, customer data platforms unify and integrate information from various sources that algorithms will use to automate prediction of different customer scenarios and responses.

Personalization

Personalization represents a step ahead from marketing mix modelling, as it aims at adapting and tailoring the product or service and related marketing mix elements to single user's needs, providing a personalized and unique marketing solution (Wedel, Kannan, 2016). Different methods and different degrees of personalization exist: Big Data offers firms the opportunity to choose the optimal level of personalization and the single marketing elements to which personalization is applied. From company's perspective, this means personalization is not necessarily optimized when it

addresses each customer individually, but rather it depends on performance goals of the business (Wedel, Kannan, 2016).
Companies may personalize a product or service only when a customer explicitly requests it; this strategy is very close to customization, as in the case of Guerlain: through its web site, the brand offers the possibility to select a fragrance from a set of options, and a 3D product configurator enables users to personalize their own perfume bottles, choosing the preferred size, colour, accessories, and even the text on the label (Fig. 10; Zhang, 2021; www.guerlain.com).

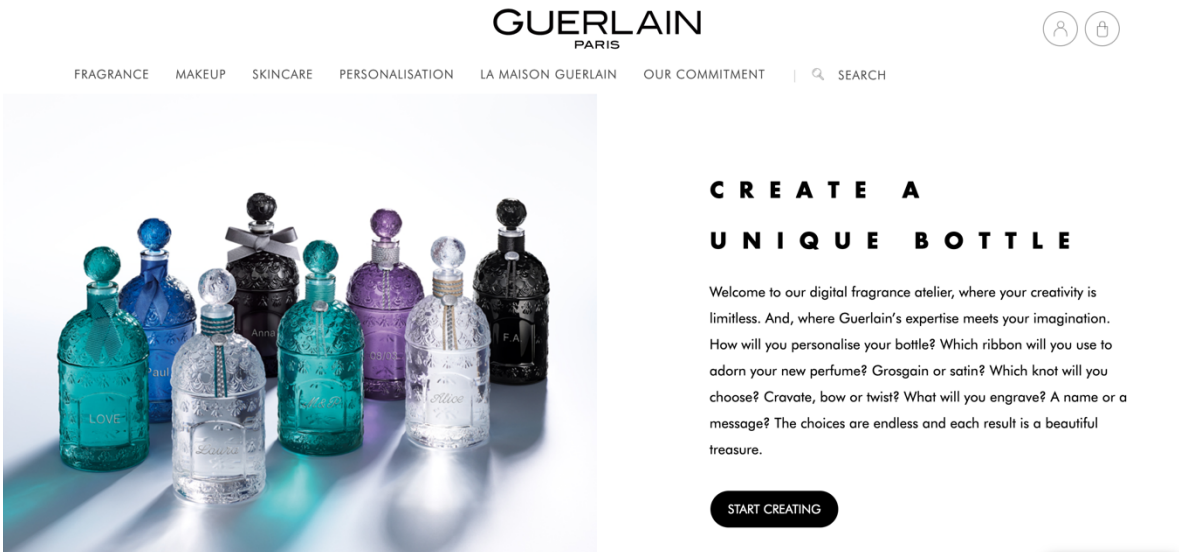


Figure 10 – Guerlain customization platform
Source: www.guerlain.com

Availability of Big Data, however, gives companies the means to implement a more advanced level of personalization: a firm can display personalized information about its products and services in response to related customer activities (tracked and analysed with data analytics), and the consumer is required to act on these personalized suggestions (Wedel, Kannan, 2016). Recommendation systems belong to this type of personalization: they can be based either on content filtering or collaborative filtering (hybrid recommendation engines combining features of both systems exist too). Content filtering makes recommendations based on the similarity between a customer's past preferences and purchasing histories; collaborative filtering aims at predicting a customer's tastes using similar consumers' past purchases or stated preferences recorded in an existing database. Best-in-class applications of recommendation engines are Amazon and Netflix: their algorithms use data obtained unobtrusively as input for online and mobile personalization of their

services; when the recommendation engine is automated, it produces a continuous cycle of suggestions, giving rise to adaptive personalization.

Adaptive personalization is highly dynamic, and sends personalized products, services, and information directly to the customer, without a specific request and in real time (Wedel, Kannan, 2016). In this case, data are not used to augment the decision-making process, but to automate it in a feedback loop: in fact, marketers track consumers' browsing behaviour, identify specific target customers and suggest them a personalized offer; then, they record consumers' response rates to evaluate performance and success of the recommendation, to further adapt their strategy. This practice allows simultaneous targeting across consumers, time, networks, and web sites, involving a high level of granularity. Adaptive personalization is expected to grow alongside the expansion of IoT and user interfaces, as consumers will provide more personal data to be used for predictions, personalization, and response rates evaluation. The beauty retailer Sephora wants to reproduce the hallmark personalized in-store experience online, personalizing product recommendations, optimizing digital channels cohesively, and improving the discoverability process. Among other things, the company aims at helping users seamlessly find the most relevant product for them: their recommendation engine results are based on three distinct strategies – "bought together", similar items, and automatic recommendation (Fig. 11) – as the company recognizes that the most successful approach varies by market and KPI. With adaptive personalization, the system crunches data and deploys the best

performing strategy in each different market, based on items added to carts and completed purchases (Dynamic Yield[60]).

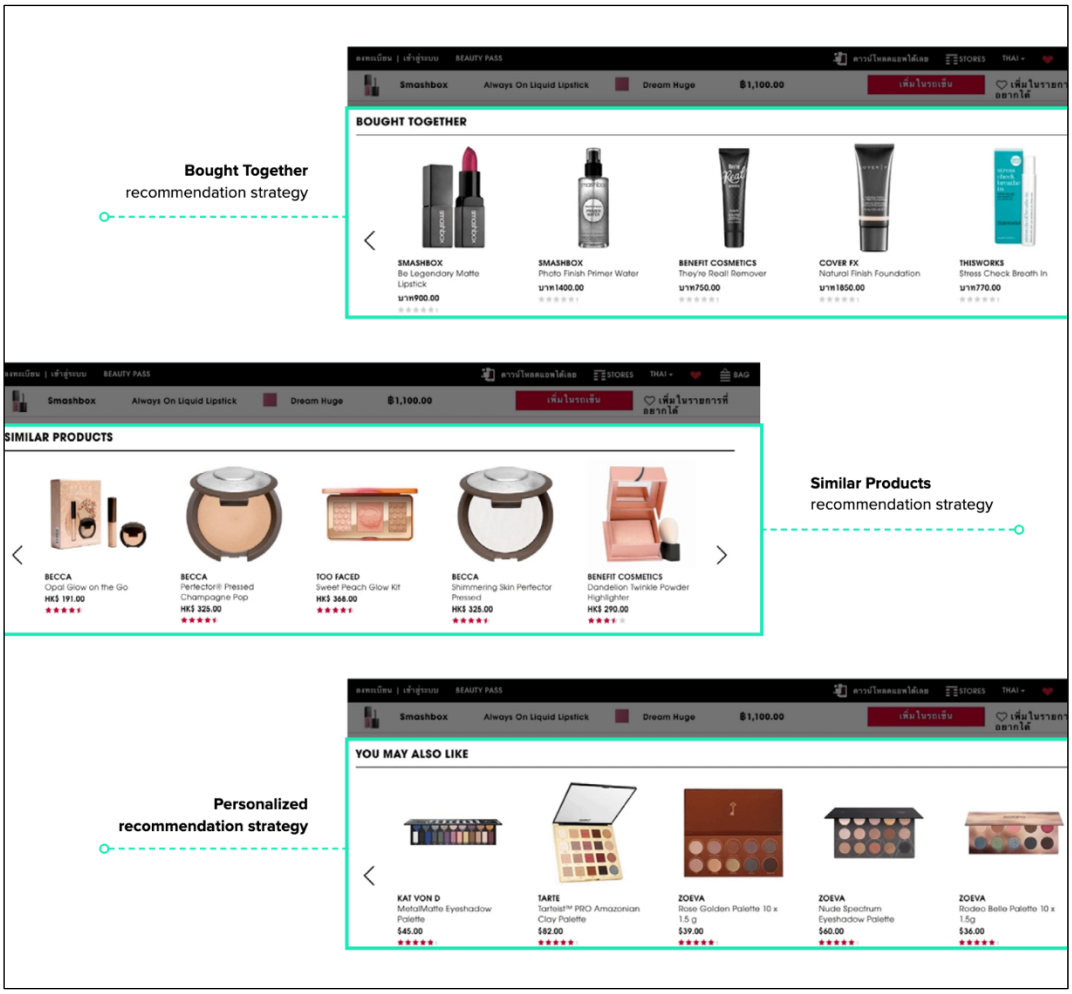


Figure 11 – Sephora recommendation engine
Source: www.dynamicyield.com

Privacy

Overall, it may appear that data-driven technologies are supporting marketing decision making, in that they improve interactive engagement with individual customers and contribute to the enhancement of customer-centricity with personalization. Companies constantly capture and analyse online and mobile activity of consumers, they identify interactions with brands and competitors through digital media, and detect changes in sentiment, preferences, lifestyle, and shopping habits (Kumar, Choi, Greene, 2017). Tech-savvy organizations have learnt how to take

[60] Dynamic Yield, *Case Study: Sephora Digital SEA personalized beauty*, www.dynamicyield.com, accessed July 2021.

advantage of on-demand, real-time information deriving from online tracking, sensor-embedded tools, and geo-location devices, to target and re-target individuals and communities across multiple channels, with personalized offers and instantaneous pricing (Camilleri, 2020). Indeed, many firms have evolved from a passive and product-centric state to a more dynamic, customer-focused attitude, all thanks to the use of Big Data analytics to monitor customers (Camilleri, 2020).

However, as personal data is increasingly available and the costs of storing and processing such data are dropping, privacy and security issues have become critical for marketers. Intensive collection and combination of data sets from a multitude of sources raises important worries in consumers, who most of times think that businesses and online advertisers own more information about them than they are comfortable with, and often lack transparency. The result is that, while consumers are most of times positive towards technology in general, they do not share the same attitude in relation to digital marketing (Myers, Lim, McCormick, Montgomery, Chan, 2020). According to a 2019 Consumer Pulse Survey by Accenture Interactive, many consumers perceive algorithmic recommendations based on demographics, past behaviours, and purchase histories, as not effectively reflecting their real intentions (Accenture Interactive, 2019). Moreover, they think brands often do not know the shopper at all and collect data without having a clear purpose, in an inconvenient way. These opinions are supported by customers reported experiences with brands' digital advertising. The pattern is pretty clear: customers frequently have to deal with (1) receiving an ad for something they talked about near a voice assistant, but never searched for; (2) receiving an ad following them across channels and devices; (3) chatbots accessing their past online shopping or past customer service interactions; (4) receiving an ad on a social media based on a recent shopping visit on another web site (Accenture Interactive, 2019). Another study by GroupM (conducted globally in 2020) revealed that, across 23 markets worldwide, more than half of consumers are concerned over data privacy and try to take some kind of action to restrict information companies can access about them (e.g., by changing privacy settings, deleting cookies or browser history more frequently, posting less information online, stopping using certain web sites or apps, and others). Additionally, marketers are required to be more cautious about how they use customer data, as this may deeply affect consumers' willingness to do business with a certain brand: as shown in figure 12, the

use of personal data to deliver personalized ads is the main reason for brand switching.

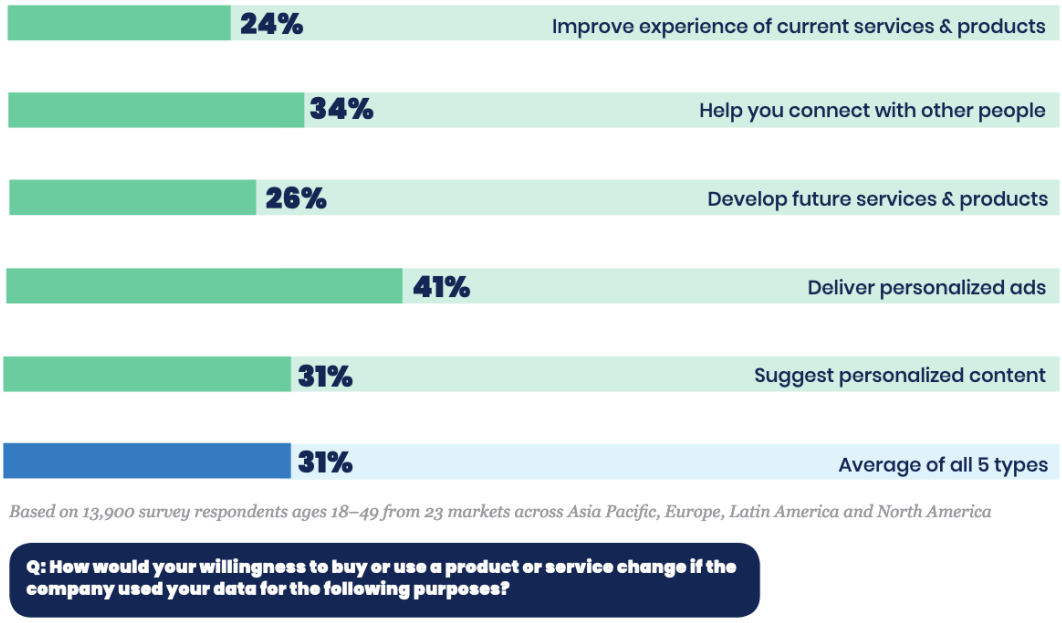


Figure 12 – Percentage of consumers who are less willing to buy or use a product or service if their data is used for the listed purposes
Source: Myers, Lim, McCormick, Montgomery, Chan (2020), GroupM

Besides that, the hype surrounding Big Data and analytics has led to an exhaustive exploitation of consumers' information: each time a consumer uses a rewards card, this information is recorded and in turn used to target and attract the attention of that customer with specific offers (Forbes Insights, 2015); likewise, an online purchase, or a buyer filling in a wish list, result in pop-ups and banner ads showing the products that person is interested in, and addressing that customer across different channels. These types of recommendation and communication produce outcomes on the basis of consumers' predicted preferences, using third-party cookies and data (see definition in footnotes, p. 77) for segmentation and targeting, but they are not necessarily based on predicted responses and reactions to such recommendations (Wedel, Kannan, 2016). Therefore, chances are high that this approach might be perceived as obtrusive by the customer, resulting in dissatisfaction and discomfort with the brand. Indeed, recent consumer trends show a tendency to oppose to these marketing practices, using ad blockers or rejecting cookies permission (Silverbullet, 2020). As consumers become more uncomfortable with practices of data collection and analysis, they will progressively see brands as being "too personal" and invasive, especially when they do not feel rewarded with value in exchange for their data;

ultimately, they will stop doing business with these brands and reconsider the relationship with them.

In spite of all this, most consumers continue to transfer their data online, giving rise to a "privacy paradox" (Gerber, Gerber, Volkamer, 2018; Naughton, 2019; Chakravorti, 2020) where their worries are not reflected by their behaviours. A clear example is illustrated by Facebook: the 2018 privacy scandal should have been a reputational tragedy for the company, which yet registered increased numbers of daily users and higher overall revenues (Naughton, 2019). Some may attribute the privacy paradox to users' lack of awareness about the ways their personal information is appropriated and used by online platforms like Facebook. Others rather point to a system's failure to grant digital agency and control, where data would be treated and protected as forms of personal property (Chakravorti, 2020). Another important aspect to consider is that consumers have very little leverage to negotiate their data in comparison to digital platforms or data aggregators, and thus remain stuck into structural power relations where they constitute the disadvantaged party.

As Big Data are coming to represent core resources for business strategies, new questions arise: will "customer surveillance" transform personalization goals into issues of consumer privacy protection? When do marketing purposes become a threat to customers' control over their own personal data? Is data being exploited to enhance the substance of marketing – the products, services, and experiences a company offers to its customers – for people's sake? The basic observation underlying these problems is that when a firm has access to detailed information about its customers, and the power and capabilities to design and shape every aspect of the interaction on the basis of this information, there is always potential for abuse (Ferguson, 2013). The main argument is whether companies are losing the focus on human-centredness, i.e., whether they exploit analytics and algorithms to identify lucrative patterns in data without taking into account the human dimension that should be intrinsic to personalization. Opportunities provided by analytical technologies, AI, and the IoT to get closer to the consumer and acquire better knowledge about him to deliver more relevant marketing solutions, may have been superseded by the panting race for grabbing larger amounts of data ultimately meant to jack up revenues.

3.4. The Double-sided Power of Big Data

Big Data creates a deeply penetrating view into consumers' and service users' lives – a single, unified, 360-degrees view, as previously defined. It draws on streams from social and online media, personal devices designed to share data, and pervasive mobility of customers, who are not constrained by laptops and computer screens

anymore but can be connected anywhere and anytime. Initially, data use by institutions was mainly a means to an end, i.e., leveraging available information for enhanced insights about how to best compete and make decisions: Big Data as a concept described management problems, IT requirements, and economic opportunities businesses faced as a result of digitization, expansion of the digital economy, and multiplication of Internet-mediated activities (Degli Esposti, 2014). For some companies however – say Google, Facebook, Twitter, etc. – data has rapidly become an end in itself (Ball, Di Domenico, Nunan, 2016), so that management and processing techniques have extended beyond the purposes of the activities that generate such data. The relentless pervasiveness of Big Data and analytics capabilities has raised attention on some crucial aspects related to acquisition and handling methods. In particular, it is argued that consumers exert decreasing control over their data flows as their ordinary consumption activities become highly scrutinized (Ball, 2016); plus, the introduction of more sophisticated algorithms for marketing purposes might lead to changes in consumers' choice contexts, with influential and redirecting consequences on demand for products and services (Ammannati, 2020).

As analytics capacities become competitive differentiators and constantly spread across enterprises, companies progressively devote their resources and build their legacy on what has been defined as customer surveillance (Pridmore, Lyon, 2011; Ball, 2016; Ball, Webster, 2020; Darmody, Zwick, 2020), dataveillance (Degli Esposti, 2014), or surveillance capitalism (Zuboff, 2015). It indicates the ability of reorienting or "nudging" (Yeung, 2017) individuals' future behaviour by means of recorded observation, identification and tracking, analytical intervention, and behavioural manipulation (Degli Esposti, 2014), i.e., typical procedures linked with analytical processes on customer data. The first two phases refer to the observation, recognition, and monitoring of the customer – or people in general, but also items, products, and services – to collect and store information, on which identification and tracking will rely in a second moment. The process of data collection and gathering is often passive and automated, not requiring active interaction of the subject involved: automatic sensors acquire information from individuals' daily usage of technologies, which is then used to make inferences about their behaviour; these inferences ultimately form business intelligence, that is implemented at scale for different purposes (Ball, Di Domenico, Nunan, 2016). Subsequently, identification and tracking specifically address data variety and streaming velocity, enabling to match different types of real-time data about a subject or an object.

Afterwards, analytical intervention aims at transforming gathered information into "actionable" knowledge (Gandy, 2012), connecting Big Data with value creation: subjects with similar profiles are clustered, and predictions about future trends are

made (Degli Esposti, 2014). This phase is particularly critical, as it involves the active role of analysts in creating and modelling new knowledge, which is thus intrinsically vitiated by the needs and interests of analysts themselves. Insights from disparate sources converge into digital representations of customers as quantifiable and measurable entities, that can be monitored and tracked to drive marketing practice and are rendered ever more intelligible (Pridmore, Lyon, 2011). Understanding the customer at this level of depth through data collection and examination represents an implicit manner to efficiently and accurately extract tacit knowledge from him, which enables to build more intimate, personalized interactions. Databases can be essentially considered the means by which consumers become aggregate, digital representations owned and controlled by the company: "knowing about" the customer is being substituted by "re-shaping" the customer on the basis of the profiles a company records, in ways that are desirable to the business (Pridmore, Lyon, 2011). As corporations' analytics capabilities grow day by day alongside the amount of available customer data, they produce a sort of vicious circle: on the one hand, customers intensively grant implicit permission to use their personal information to receive a progressively personalized and targeted solution; on the other hand, in this way, marketers are increasingly attributed the power to orchestrate everyday consumption routines and practices, linking a particular mix of individual tastes, allegiances, needs, income, location, etc. with a particular product or brand. Consumer engagement and interaction are gained through feedbacks, which are added to existing profiles in recursive learning cycles, making them more robust and accurate and improving customer visibility and knowledge. Pridmore and Lyon (2011) viewed this way of forming and treating customers as "organizational artifacts" (ibid. p. 121) in terms of "consumer branding": digital consumer brands are flexible and malleable; they can be configured and reconfigured constantly and dynamically; they can be shaped into marketing forms that lead to predicted behaviours and consumption trajectories; they are indicative of response levels to campaigns, costs of marketing intervention, and consumers' potential lifetime value (Pridmore, Lyon, 2011).

The formation of digital customer profiles, stemming from the integration of personal data with advanced analytics, becomes the ground for the last phase, behavioural manipulation. Manipulation is here used to simply define an intentional change of behaviour caused by external factors, of which the targeted subject may or may not be aware (Degli Esposti, 2014); therefore, the concept does not necessarily have a negative or a positive connotation. Inside organizations, marketing teams aim at deploying generated profiles to orientate and influence people's actions: applications can be found in targeted advertising, personalized promotion, price discrimination strategies focused on profit maximization, product or service innovation,

recommendations based on predictions. Customer profiled information is aggregated and compared across segments or clusters by algorithms, to connect different consumption patterns and social contexts, in order to make predictions and improve marketing efficiency and effectiveness. Accordingly, consumers' tastes can be shaped by presenting them with products and solutions designed to fit with their digitally presumed, prescribed life. Routine processes of gathering, sorting, and evaluating data to establish social correlations and assign them degrees of worth and importance, getting to know the customer at an intimate level, are precisely the foundations of theories of marketing as surveillance. This conception is centred on the following idea: in the digitalized world of social and web analytics, consumers are offered abundant opportunities and choices about products, services, channels, places, and interactions with brands; however, such a mode of consumption also very much directs consumers down specific predetermined routes, where their behaviours and proclivities are managed and modelled through forms of marketing discourse, to match business expectations (Pridmore, Lyon, 2011). The appearance of personalization is only the surface, but Big Data promises much more than simple personalized targeting, expanding into fields like making predictions revealing unanticipated and unpredictable trends in every sector of human life; this antagonizes the democratizing, empowering promise of Internet and social media, which were supposed to make new forms of comprehension more accessible to the many (Andrejevic, 2014).

3.5. Data-driven Marketing: Relevant Personalization vs Customer Surveillance

Marketing has been a data-intensive business branch since the emergence of marketing management and CRM in the 1970s. At the beginning, segmentation, targeting, and positioning required psycho-demographic and behavioural characteristics to highlight customer differences and leverage them for differentiation (Bosio, 2019), improving likelihood of repeat purchase and loyalty. Early surveillance models were rather limited, and could be found in direct marketing, one-to-one or individualized marketing, and database marketing. Later, a more focused orientation to the individual customer, his personal needs and preferences, and his dimensions as a human being, dictated an increasingly immaterial and experiential marketing paradigm, linked to the emergence of digital offerings; CRM systems and call centres routinely served functions like consumer monitoring and tracking. The underlying premise in all these cases was the opportunity for marketing to interview the consumer to effectively drive decision making (Bosio, 2019). Organizations have heavily invested in profiling customers and prospects with increasing granularity and detail, fuelled by steady decline in the costs of data storage and handling due to multiple

emerging sophisticated technologies, which enable the observation, survey, and profiling of very large populations in a very short time. Already in 2004, Zwick and Dholakia came up with the argument that the formation of sizeable, identifiable, and searchable customer profiles makes their codification, classification, and comparison possible: this leads to the formation of an individualized customer "…as a known and knowable object upon which the organization can act strategically" (Zwick, Dholakia, 2004, p. 218). Data and profiles can then be mixed and matched according to the knowledge needs of the marketer, constructing a multitude of different representations related to the same customer; the latter is turned into a digital simulation whose nature depends on the composition of the database. Even if consumers participate in the formation and population of their own data records with consumption, the formation of their digital identities occurs in the absence of the consumer subject: with improved online tracking and establishment of markets for selling and exchanging customer data, the consumer is no longer in control of what kind of information about him is stored, categorized, manipulated, exchanged, and acted upon by whom, where, and when (Zwick, Dholakia, 2004).

More recently, with further evolution and diffusion of analytics and intelligence technologies, the commercial logics underlying Big Data are grounded on promises of seamless enhancements of operational efficiency and more accurate decision making. In marketing, analytics seek to take advantage of IT innovations to create value from a wide array of new data-generating sources used by consumers. Predictive analytics, in particular, constitute a shift away from profiling and segmenting consumers into groups, moving towards the use of iteratively fine-tuned quantitative models that anticipate human behaviour on an individual level, enabling surveillance of *future* behaviour (emphasis in original; Ball, 2016).

Yet, concerns arise on how practices of Big Data analytics extend surveillance into the intimate and private spheres of individuals, and whether such practices are legitimised by data itself (Ball, Webster, 2020). While a branch of management practitioners justifies surveillance as another facet of operational efficiency and value creation enabled by Big Data (e.g., Erevelles, Fukawa, Swayne, 2016; Mikalef, Krogstie, Pappas, et al., 2019), others have focused on the consequences of data collection and use on customers' perceptions and life. The paramount importance of consumption coupled with ubiquity of digital technologies in today's society, ensure very little consumer choice about the integration of their data into systems of surveillance: since information availability is now universal, boundaries between different sources of data and different social domains disappear, allowing businesses to co-opt consumers into the surveillance of their own lives (Ball, Webster, 2020). Data are gathered, updated, and modified by companies all the time, and consumers are

solicited to divulge personal information to self-segment into groups and become individually recognizable human beings (Pridmore, Lyon, 2011).

This scenario gives rise to debates about the impact of marketing technological evolution on consumer subjects (Darmody, Zwick, 2020). The evolution from non-digital to digital marketing has been argued to mark a shift from asymmetrical modes of communication and manipulation to symmetrical co-creation and *prosumption*[61] (Cova, Dalli, 2009; Ritzer, Jurgenson, 2010), increasingly involving the consumer in design, production, and marketing processes, pointing at reaching the optimal level of personalization. Nevertheless, consumers are progressively losing control over personal and non-personal data sharing: new forms of data-driven activities are widening the structural divide and power imbalance between people who generate data and people who collect, store, and sort it (i.e., consumers and firms respectively). One of the problems is that even if users had access to their own data, they would lack the analytical capabilities and tools to mine databases and gain control over such data (Andrejevic, 2014). On the other hand, heavy reliance on Big Data and environmental surveillance provides companies with abilities to watch the market, predict and manipulate behaviours, and address consumers at a highly granular level.

Customer surveillance, or surveillance capitalism as Zuboff defined it (2015), is characterized by the creation, collection, manipulation, and valorisation of information about customers. The goal is the totalization of reality as data reality - always accessible, knowable, and changeable – which marketers use to predict and shape human behaviour to produce revenue and control the market (Zuboff, 2015; Lyon, 2014). Relationships between businesses and customers are individualized and singularly managed at scale, thanks to automated marketing practices relating to product formats, pricing, content, communication, etc. Customer databases and algorithm-supported decision making enable the design of a specific and personalized choice context for the customer, so that the marketer can drive him into preferred directions. Yeung (2017) refers to the practice of "nudging", the suggestion of a particular choice architecture that modifies people's behaviour in a predictable way, but without any explicit form of restriction to the individual, representing a soft practice of design-based control (Yeung, 2017, p. 119). In this realm, Big Data are impressively powerful due to their networked, constantly updated, dynamic, and pervasive nature, so they can create choice frameworks and targeted consumer realities in real time. Business giants like Google, Spotify, Netflix, Amazon, and Apple

[61] Prosumption, as the term suggests, involves the customer as both producer and consumer of a product or service (Ritzer, Jurgenson, 2010).

stand at the forefront of algorithmically generating unique realities for each single consumer on the Internet.

Think about Amazon: beyond being a simple marketplace platform, its primary business is extracting and processing data. In the digital economy, platform companies collect data about users and visitors, utilizing them as boosters of competitive differentiation; additionally, they might sell data to third parties, directly or through products and services informed by those data (West, 2019). Amazon started as a simple online retailer, but soon understood the value of data and implemented its recommendation engine based on collaborative filtering (see definition p. 81), in order to predict future purchases and thereby offer personalized suggestions. To this end, the company gathers huge amounts of data about online consumers' behaviour – meaning purchases, saved items or wish lists, page clicks, time spent on pages, searches, opened e-mails, user reviews and ratings, top trends, location, etc. – to create predictive algorithms for collaborative filtering and make products and services ever more appealing for consumers (Retta, 2019). For instance, if 80% of running shoes buyers also bought a fitness band, the recommendation algorithm will suggest fitness bands to buyers of running shoes in the future (Buckley, 2015). The company's declared core business is humanizing digital experiences through personal recommendations, personalization, and data-driven advertising (Retta, 2019). Besides its recommendation engine, the importance of data to Amazon is clearly illustrated by two other services the platform offers. The first one is Amazon Prime, which encompasses a subscription-based membership service, including several benefits added to the standard value proposition[62]: it builds on trackable loyalty programs, namely logistical media like loyalty cards, digital coupons, and digital payments, that track customers' movements and transactions, constituting a preferred channel for customer surveillance (Rossiter, 2016). Moreover, Prime encourages to engage with as many activities and purchases as possible in the Amazon domain, driving sales increase and contributing to individual consumers' full data picture (West, 2019). The value offer resulting from these data, in turn, creates further incentives to stick with the platform and not even explore competing propositions. Considering that there are estimated 200 million Prime members worldwide today, the significance of data becomes clear (Digital Commerce 360, 2021). Prime is an example of how Amazon collects data customers generate while using its services; at the same time, the online retailer has also designed services whose main purpose is the intensive collection of consumer data itself, leveraging IoT

[62] Depending on the national market, Prime includes free one-day shipping; movie, video, and music streaming; e-book subscriptions; discounts at company-owned Whole Foods Market; and more.

and AI to extend surveillance capabilities. The culmination of such capabilities is the family of Echo devices, a wide-ranging surveillance infrastructure connected to the cloud run by Amazon, and coordinated by the intelligent, interactive-voice service Alexa: similar to Apple's Siri or Google's Assistant, Alexa is a digital voice assistant with much more visibility, global market penetration, and greater integration with other IoT devices (West, 2019), and it is a part of the company's promotion of "smart home" products. With this campaign, Amazon is basically selling "surveillance as a service" (West, 2019, p. 28): in the first place, it is selling products and services to conduct surveillance of domestic and private spaces; secondly, it increasingly offers surveillance as a key element for personalization, whereby devices like Alexa learn and record details about home environments and owners' habits, to maintain a sense of familiarity and be more efficient in building unique relationships with customers. Put differently, Amazon acquires the capability to watch and listen to its customers, and this capability is presented as a feature to them, rather than a downside.
In sum, platform businesses like Amazon are positioned to provide personalized convenience on a massive scale, where preferences, habits, and information can be integrated into a seamless service experience: the company serves customers by deeply knowing them in every aspect of their personal sphere, creating intimacy between brand and consumer through the feelings of being heard, seen, and known. Similar to the retail giant, Spotify, the largest on-demand music service in the world, historically focuses on personalization of user's listening experience, through the use of algorithms, AI, and Machine Learning that monitor and process consumer actions in real time (Marr, 2017). Every user profile illustrates a unique choice context adapted specifically to that user based on their music preferences, listening habits, moods, and other identifiers (Peterson, 2015): the "Discover Weekly" playlist is created with this recommendation system. The choice context is therefore manipulated uniquely to each user based on previous actions and perceived emotional states, so that future listening choices will highly depend on the environment created by the company (Darmody, Zwick, 2020). It is worth noting that Spotify is a leader in consumer manipulation through surveillance, but it is also the worldwide leader in the music industry, with 158 million paying subscribers as of the beginning of 2021 (Statista, 2021). The company allows a consumer to feel in control of their listening experience, even if machines co-create and co-control it.

These two examples may suggest that data-driven, automated, algorithmically guided decision-making does not manipulate or enslave the consumer (Ball, Di Domenico, Nunan, 2016; Prey, 2017; Yeung, 2017; Bilic, 2018), but rather empowers and grants him or her autonomy. A natural contradiction emerges, which sees the theory of

customer surveillance as the basis of digital marketing on the one hand, and the technologically empowered consumer in control of his own decisions on the other.
Darmody and Zwick (2020) propose an interesting viewpoint: they argue that marketers tend to resolve the contradiction by using the notion of relevance, or "hyper- relevance" (as Accenture Strategy puts it; Wollan, Barton, Ishikawa, Quirin, 2017), as a symbolic act. Innovations have impacted marketing philosophy more than anything: compared to pre-digital age, contemporary marketing is way more centred on flexibility, collaboration, consumer engagement, and generation, sharing, and monetization of information. Consumers, for their part, have acquired opportunities to be more social, engaged, interactive, and productive: they are seen as increasingly empowered, self-directed, using their creative and intellectual resources to communicate, collaborate, develop ideas, and do things in innovative ways. Marketers have always sought to redirect these consumers' capabilities for marketing purposes throughout history, as witnessed by approaches like open innovation, co-creation, crowdsourcing, user involvement, and so forth, to harness data and value consumers can produce. Revolving around rapid technology innovations, digital marketing can broaden the scope of marketers' reach by overcoming barriers, and simultaneously narrow their focus to the point of understanding individual consumers at a granular level and tailoring precisely targeted offers (Ryan, 2017). By exploiting advanced skills and technologies in data storage, algorithmic management, automation, and profiling, companies are able to refine and enhance tools for customer identification, interaction, selling and servicing - namely the tools for ubiquitous customer surveillance (Darmody, Zwick, 2020). The difference between these forms of data processing and pre-digital, non-interactive methodologies is that consumers' identities are now constantly updated, following their digital footprints and dynamic behavioural data (Wollan et al., 2017): the final result is a customer profile free of gaps, which ensures accurate future projections in such a way that marketing response (either as a new product, a price point, an ad, or whatever) is perceived as relevant by the target.
Relevance is the justifying rationale underpinning digital marketing and surveillance (Darmody, Zwick, 2020), a comfortable term suggesting a market where consumers choose those businesses that excel in surveillance and automated, targeted decision-making technologies (Darmody, Zwick, 2020). The definition of relevance is somewhat fragmented among marketing and management experts, generally associated with a mixture of meaningfulness and personalization (Wollan et al., 2017), immediacy in serving the customer in the moment (Zeally, Wollan, Bellin, 2018), appropriateness (Zoratti, Gallagher, 2012), and contextual connection with the customer, understanding and matching his or her intentions and needs in relation to interactions or experiences (Albee, 2015). With particular reference to companies whose business

models significantly depend on massive collection, mining, and use of customer data, relevance is something offered to consumers in exchange for their data: it is the outcome of tracking consumers across multiple channels, extracting their personal information from conversations and actions, and evaluating it, to convey relevance in the form of better targeted, personalized, more intelligent marketing actions. Through this lens, manipulation and co-creation of consumers' choices is understood as an augmentation, rather than a loss, of agency, autonomy, and power. As explained in the Amazon case, becoming relevant means becoming intimate advisors of people in their everyday lives (Karakayali, Kostem, Galip, 2018; West, 2019), encouraging them to entrust their data to marketers, who know exactly what they feel and want. For marketers, intimacy is achieved when they manage to penetrate consumers' routines to such an extent that they are perceived as co-producers of current and future experiences (Ritzer, 2015). This argument is further reinforced by the fact that consumers themselves reward companies like Google, Amazon, or Facebook for their marketing practices, even when these aim at co-constructing, if not totally controlling, their rationality. If marketers are able to provide value (i.e., relevance) in exchange for data, to be transparent in ensuring that such data will not be used improperly, and to approximate human touch through automation delivering a better customer experience, consumers are willing to share more personal information and will devote their loyalty to these brands (Accenture Interactive, 2019).

The co-existence of hyper-relevance and customer surveillance as complements, supported by the relevance discourse, is essentially a façade where ubiquitous digital marketing is a promise of network optimization, consumer surveillance, automated accuracy, user experience design, and contextual modulation, towards a world specifically designed for each individual (Charitis, Zwick, Bradshaw, 2018). As surveillance and automatic data analytics become more sophisticated, marketing assumes an omnipresent role, continuously monitoring, assessing, and responding to consumers' actions, to such an extent that it anticipates behaviours and choices before they occur (Zuboff, 2015). It follows that individual autonomy and agency might be severely limited: once consumers are embedded in personalized algorithmic environments and automated feedback loops, marketers do not need to know them better to make predictions anymore, but they will directly influence and shape consumers' intentions and subjectivity (Darmody, Zwick, 2020). From a critical point of view, consumer surveillance loses every positive shade, and translates into the erosion of privacy, consumer autonomy, and radical manipulation: choices are no longer attributable to an entirely self-determined and autonomous cognitive process and intentions become co-created outcomes of a process that now includes marketers (Yeung, 2017). Hence, the consumer subject becomes a manufactured artifact of marketers and intelligent systems.

3.6. Algorithmic Decision Making: when The Machine leads The Human

The debate on customer surveillance and profiling practices sheds light on the relationship between consumers and digital operators: the latter own and control huge amounts of data, which are many times retrieved without the consumer being aware of the process and through the exploitation of cognitive biases in his decision-making journey. As profiling algorithms are constantly fed with highly detailed data, products and solutions specifically tailored to the individual consumer bind him or her in a loop of inertia, discouraging him from seeking alternatives due to important informational switching costs (Ammannati, 2020). Furthermore, if it is true that analytics and profiling algorithms aid in spotting differences and unique elements that are distinctive of particular consumers, it is also possible to reconfigure these systems in such a way to highlight common elements and similarities, on which basis homogeneous clusters of consumers are extracted (Ammannati, 2020) and marketing strategies implemented. Consequently, a person's freedom of choice and self-determination is narrowed to certain markets or segments, constructed on the basis of her profile or of a target group's monitored interests and preferences. On the record, resulting value proposition offers what the consumer truly desires or needs; off the record, it could also be said that the consumer is led to desire what the algorithmic recommendation suggests him (Ammannati, 2020).

Netflix has founded its business model on harnessing Big Data and AI since ever, completely overturning the media landscape. The movie streaming platform has always claimed not to compete in the media and entertainment industry, but rather to be in the business of personalization and recommendation (Gavira, 2018). Numbers speak for themselves regarding the success of the company: as of the first quarter of 2021, it can count more than 207 million subscribers worldwide (Statista, 2021). Netflix has a subscription-based business model, so that revenue is closely related to rates of customer acquisition, churn, and return. 80% of stream time is achieved through an accurate recommender system, which is powered by a software infrastructure that gathers data and trains algorithms, driving the creation of personalized streaming experiences for each user, based on his or her behaviour (Verganti, Vendramelli, Iansiti, 2020). Every aspect of the service experience is algorithmically adapted: the rows selected for the homepage sorting movies and TV shows by genre, the titles selected for the rows, the visuals utilized for each show, the recommendation rankings (e.g., personalized video rankings, the "Top-N Videos" ranker, the "Trending now" ranker, or the "Continue watching" ranker), etc. Every innovative feature of the user interface is tested with members, from finding new ways to increase relevance and precision of search results, redesigning the entire interface for a new type of device, to adding new functionalities, such as showing a user what his Facebook friends are

watching (Gavira, 2018). Differently from traditional TV channels, which segment audiences using standard demographic ratings, Netflix tracks viewing habits of its subscribers, and has so far created around 2000 dynamic clusters ("taste communities"): recognizing that people are complex beings and are in different moods at different times, the company usually assigns subscribers to few different taste communities contemporarily. Algorithms use a specific member's viewing history combined with contextual information (e.g., time of the day, day of the week, type of device, location) to produce a predictive outcome of what that member might play next (Chong, 2020). Personalization is not only applied to content recommendation, but also to how recommendations are displayed: one of Netflix's key features is the promotion of movies and TV shows with images, the so-called artworks. The artwork is adapted to each member to highlight aspects of a title that are specifically relevant to him or her, according to his/her data: analysing a user's viewing history, the displayed artwork is personalized, for example showing an actor a specific user has been observed to like, or a dramatic scene that conveys the essence and the genre of the movie/TV show (Fig. 13; Chandrashekar, Amat, Basilico, Jebara, 2017). This results in hundreds of millions of personalized images continuously tested among taste communities and subscribers.

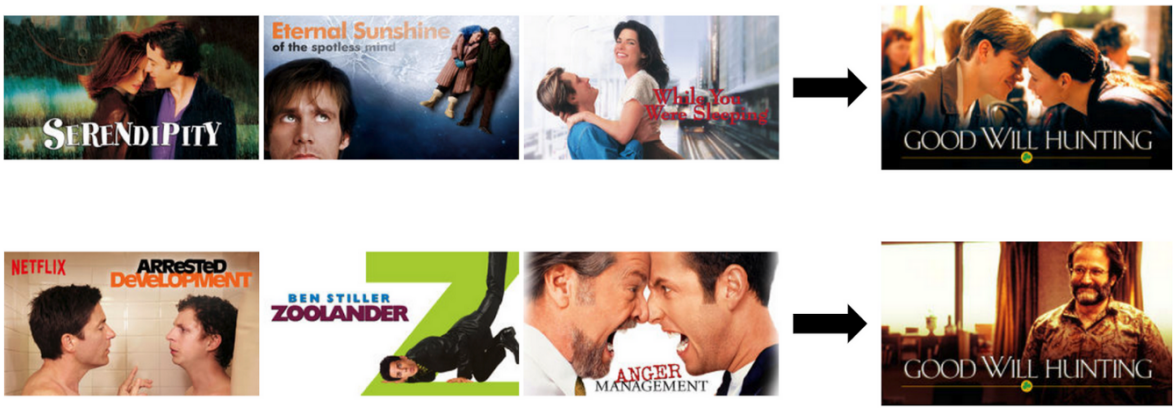


Figure 13 – An example of artwork personalization for the movie "Good Will Hunting" based on users' viewing histories
Source: Chandrashekar, Amat, Basilico, Jebara (2017), www.netflixtechblog.com

To build user experience metrics, a "view" is created by the data system every time a member starts to watch a show, which collects a large number of information and events around each viewing session. These metrics are used to define the success of a show and to monitor what percentage of subscriber base has been interested in that show (Gavira, 2018). When gauging a show's performance, Netflix considers not only the size of the audience or show's cost effectiveness, but also whether the show

is performing well across multiple genre categories, since that means it is reaching several taste communities (Adalian, 2018).
As more content is added, new subscribers are lured to join the platform, and existing ones are triggered to spend more hours on it: consequently, the company can collect more information on viewing habits, preferences, trending interests and topics, time and place in which shows are turned on and off, etc (Adalian, 2018). Data entails further precision in personalization, as it connects a certain show with the audiences that are going to like it most; thereby, the algorithm figures out which taste groups a member is in, and then pushes content to the top of his home screen, based on what shows those members are predicted to enjoy.

Netflix's personalization algorithm, however, has not been free from criticism regarding, in the first place, the use of data-driven analytics to optimize visual displays, which has gone beyond the original aim of creating a layout fit (Brincker, 2021). A post on Netflix Innovation Blog of 2016 reported the results of a consumer research conducted by the company itself a couple of years earlier: the study found that artworks were the biggest influencers to member's content selection, representing their main focus while browsing the web site; moreover, the study assessed how little time Netflix had to capture a member's interest (users spent 1.8 seconds considering each title they were presented with) (Nelson, 2016). Given this enormous power of artworks, the company rolled out its personal artwork selection algorithm. Yet, in 2018, social media attention was drawn on the phenomenon of image personalization: several Black people reported they had been presented with cover images showing Black actors, suggesting a movie would have been centred on a mirror story for the Black community; however, movies turned out to be just the latest stories starring white actors (Iqbal, 2018). This implied Netflix could be targeting members based on their race, gender, or ethnicity[63], at the same time showing imagery that was misleading in terms of product features; critics were further amplified by how the deception drew on the desire for Black content, recognized by the algorithm and then utilized to serve more white, mainstream culture (Brincker, 2021). A more recent artwork scandal unfolded around *Cuties*, a French movie about a group of teen girls which was ideated to criticise hyper-sexualization of pre-adolescents: in this case, the movie was presented on Netflix using personalized cover images which focused on sexualization of minors (Rosen, 2020). The general perception was that the algorithm was promoting the program with images predicted

[63] In the specific case presented here, this means some Black people had been targeted with those artworks not because of being consumers of Black content, but because of being Black viewers. However, the company has always denied this, defending its targeting strategy based only on past viewing history.

to have the highest success rate (i.e., minors dancing suggestively), trivializing such a delicate topic and exploiting it for commercial purposes (Brincker, 2021). Eventually, the company apologized for this inconvenience.
From these two incidents, it might appear that the algorithm is built to create artworks aimed at generating clicks, even when content is not compatible with member's interest or creator's intent. Knowledge of personalization also translates into awareness that people see different interfaces between one another, but considering that such personalization is not completely transparent, it becomes difficult to discern personalized situations from collectively shared contexts; in other words, diverse interfaces prevent users from knowing whether and when what they see is also what others see (Brincker, 2021).
If these statements were to be true, it is clear how Netflix's personalization claim would be just fictitious, revealing profitability goals that underlie its recommendation system.

The current phenomenon seeing progressive replacement of human decision making with data-driven, intelligent algorithms raises some questions: the main concerns regard the actual benefits of such technology-led consumption and the potential harms; moreover, if Big Data and AI induce important changes in design and management processes of products and services, it becomes paramount to understand whether such changes put the fundamentals of design practices – especially human-centredness – at risk (Verganti et al., 2020).
From an optimistic perspective, important advantages may reside, first of all, in the fact that specific solutions with which individual consumers and users interact are the outcome of autonomous, real-time, data-driven problem solving. Once these solutions are generated, data are continuously collected, fuelling the algorithm that, in turn, will improve its predictions and create better solutions over time. These problem-solving iterations operate in a totally independent way, requiring human capital only at the outset, to conceive the foundations of the offering; hence, they are easy and cost-effective to scale, and they can provide a variety of solutions without large investments (Verganti et al., 2020).
Second, as automation is brought directly into problem solving, significant decision-making advancements can be achieved: this means, strategic choices related to which interface to show to a specific user, which content to create, or how to position and price a product, are made by AI in real time, allowing contextual adjustment (Verganti et al., 2020). Ongoing data exploration performed by the algorithm ensures the possibility to iteratively reframe the initial solution as new patterns of tastes and preferences are found, even after a product or service is launched.
Third, the machine-led development of solutions can be activated for each individual user in the precise moment he requires it; this allows to leverage the latest available

data and learning, creating more accurate and novel solutions. Ultimately, this enables the achievement of even higher levels of human-centredness, because the focus on single individuals can be scaled without limitations on the number of users and complexity (Verganti et al., 2020). In the context of digital offerings, processes of design, delivery, and consumption happen almost simultaneously: to retrieve the Netflix example, decisions about which titles to show, how to visualize them, which pictures will represent them, and similar, are made in the moment when a user logs in and starts to browse his personal Netflix homepage.

Notwithstanding these advantages, a more precautionary approach is required, with a focus on the new risks that "algorithmic consumers" would face (Ammannati, 2020). As discussed in the previous paragraphs, when Big Data and algorithms are set up with manipulative or influential intentions, limitations to agency and freedom of choice may emerge, as well as possible discrepancies between consumers' immediate preferences and algorithms' decisions. Data-driven profiling activities might thus enhance information asymmetry on users' side.

3.7. Concluding Reflections: the Struggle to Reconcile Technology and Human-Centredness

In light of all the considerations exposed above, increasing and almost exclusive reliance on algorithms may marginalize more creative, empathetic marketers, as their function to generate insights through qualitative market research and professional expertise is replaced by machines (Krajicek, 2014), which are faster and timelier. Advocates of the data-intensive enterprise foresee a human role devoted to problem finding: while machines will perform problem-solving tasks and develop solutions, humans will focus on the understanding of what problems should be addressed, what innovation is meaningful, and will set up algorithms and data infrastructures consequently (Verganti et al., 2020).

In recent years, attention has been mainly focused on implementation of new research methodologies (software, algorithms, apps, etc.), and little interest has been shown in finding innovative frameworks to read and understand the modern consumer through intelligent technologies; in other words, a massive amount of available information is produced, but there are only a few (if any) keys of interpretation to manage complexity and truly leverage the potential of these resources (Bosio, 2019). Some refer to a sort of customer-centricity paradox (Riedmann-Streitz, 2018): although the customer is claimed to be the essence of organizations, at a second glance he seems to be reduced to a set of data points, a "product" rather than a beneficiary of marketing efforts. In this view, customer information and decision making is led by hyper-personalization, which actually directs the consumer where

the company aims to have him. This trend is backed by pervasive digitalization and automation, especially as profiling and predictive capabilities become more and more sophisticated: eventually, a product or service will be delivered even before the customer considers it, only because the company thinks he might be interested in it.

The quality of the connection between marketers and people is the raison d'être of marketing: the promotion of visions and insights about the customer inside an organization is tied to data-based activities of research and monitoring to collect necessary information. These activities demand marketers to bond with the customer, based on two different relational aspects: one aspect aims at acknowledging customer centrality as human being, thoroughly understanding his point of view, drawing on the lessons learned from the design thinking school; the other is more focused on taking advantage (often implicitly) of the customer as an information provider, who is not necessarily aware of his disclosing position (Bosio, 2019). The two sides of the relationship clash with one another, giving rise to tensions (Fig. 14).

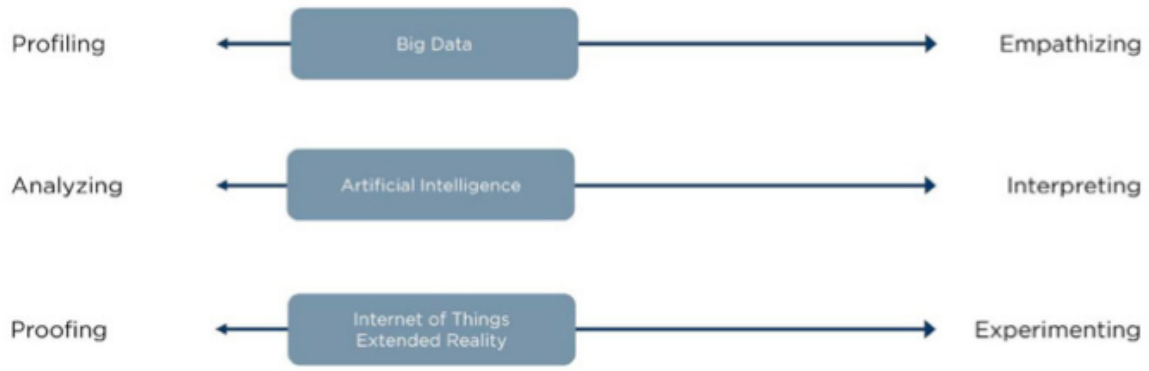


Figure 14 – Main Tensions in the Manipulation of Disruptive Technologies
Source: Cautela (2019), Conferenza Universitaria Italiana del Design

The first one is centred on the exploitation of Big Data to profile users' behaviour and systems of preferences in socio-economic and business contexts (Fan, Lau, Zhao, 2015). If the profiling process is performed according to the final goal of the marketer in a specific moment, it will not reflect the real interests of the customer subject. Furthermore, data analytics are closely related to statistically relevant results, and tend to ignore the importance of soft data – i.e., data that is difficult or impossible to measure, quantify, and express in key figures (it is often unstructured, thus descriptive); it is qualitative, subjective, and requires interpretation (www.evolutionizer.com). On the other hand, there is empathizing, which sees the

marketer getting in close connection with the user as the most appropriate way to acquire context-relevant information, deep diving into user feelings, hidden desires, and latent needs. The empathizing activity is certainly supported by analytical information deriving from Big Data, but gives more prominence to soft data (Cautela, 2019).

The second tension relates to AI, which is used as a means to augment and automate analytical and statistical capabilities of business intelligence (Zeng, Chen, Lusch, Li, 2010). Business analytics are enriched, accelerated, and enhanced to support automation of decision making which, at last, should be performed in an iterative way by algorithms. Giving the intrinsic characteristics of Big Data (the 4Vs), exclusively relying on analytics may cause paralysis and bottlenecks if data becomes "too much" and too complex. At the other extreme, interpretation and sensing (Cautela, 2019) aid marketing people in shifting focus on the wider context, the timeline, the nature, and the recipient of the value proposition, preventing them from getting overwhelmed by data.

The last domain is IoT: data from smart products and sensor-embedded items are often exploited to test functionalities and appeal, especially when products or services are new to the market. Managers are provided with continuous flows of information in real time to monitor usage and application patterns, frequency of use, and other feedback about the experience of the user. In a pure business approach, this data flow would be utilized to meet profitability and efficiency standards (Cautela, 2019), where insights are leveraged to enhance product appeal or performance, push market penetration, and increase revenues. The trade-off is counterbalanced by experimentation, where acquisition and storage of data from moments of use is functional to explore new paths and spot novel opportunities for disruption (Cautela, 2019).

These tensions contain the gist of this work, i.e., attaining a representation of state-of-the-art marketing strategies and how marketers are attempting to reconcile advantages of smart technologies and human-centredness when they interface with customers and users. The next chapter will try to provide a response through the analysis of a survey investigation conducted on a sample of companies.

CHAPTER IV
The Role of the Customer and Intelligent Technologies in the Current Marketing Landscape: A Survey Analysis on the RIR Clusters in Veneto

4.1. Summing up: Consequences of Big Data from Firms' and Customers' perspective

The previous chapters of this work have dealt with a sort of historical description and overview of the personalization paradigm, highlighting how marketers have changed their approach to markets and consumers over the years; technological innovation has been the main lever sparking this evolution.

Starting from mass economy, considerations have moved to mass customization as a first signal of an increased interest in consumers as individuals, who cannot be completely fulfilled with a one-size-fits-all value proposition; the introduction of lean, flexible, more efficient manufacturing processes and reconfigurable product platforms and architectures have favoured the implementation of mass customization in design, production, and (later) marketing.

The rising importance of individualization and customer centricity has led to the emergence of collaborative relationships with customers that acknowledged their proactive role in value generation, namely co-creation and open innovation; early versions of the World Wide Web and social networks represented the background to these approaches, enabling closer and frequent connection with people, and allowing their involvement despite distance. Growing awareness of the meaningfulness of personalization brought about an emphasis on the human dimensions of customers and consumers, and empathy, paving the way for the design-thinking school.

In the final stage, analysis arrives to modern days, where personalization and customer experience appear to be the main concerns of companies in every industry worldwide: data-driven technologies provide necessary capabilities and resources to leverage the huge potential of the Internet and social networks. Big Data, as previously defined through the 4Vs, have a pervasive power, in that they link technologies like IoT - that fuel Big Data - and AI – that works with Big Data to obtain more accurate and useful outcomes – fostering hyper-connectivity. Big Data's main advantages can be configured either from a firm or a customer perspective:

- ➔ Firms can achieve higher operational efficiency and effectiveness, optimizing the use of resources and human capital in a cost-intelligent manner. They can deliver higher-quality products, services, and solutions, since they can exploit the availability of real-time, comprehensive, in-depth insights. They can also

use such insights to propose a better offering in terms of marketing variables (like product and customer experience, distribution, communication, and promotion): to this end, Big Data can be deployed to perform predictive analyses for personalization and targeting, resulting in more precise decision making. Moreover, information is a valuable source of innovation, as it unveils explicit and latent market needs and desires, which are always a precious source of inspiration and enhancement. Ultimately, if the customer receives a personalized and fulfilling experience, firms might see growth in conversion rates, increased numbers of web site visitors and users, improved online/offline reach, augmented customer retention and acquisition rates, a boost in marketing ROI and KPIs. All this means organizational benefits in terms of higher sales and revenues.

➔ On the customer side, data-driven value propositions can trigger a double effect. Positive aspects relate to receiving personalized content, communication, recommendations, and products/services, which should increase satisfaction, thereby creating engagement with and loyalty to specific brands. With modern technologies, customers have the possibility to interact with brands and offerings whenever they want and wherever they are, through a multitude of channels and devices; in this way, they exchange their information for personalization, and obtain company's recognition as single individuals. Digital platforms also enable easier and faster service delivery, that customers can often handle autonomously, without necessary intervention of the company (e.g., reserving a restaurant via web site, buying groceries online while going to work, or self-service check-outs).

Yet, negative aspects need to be mentioned as well, which mainly reside in the widely discussed concept of customer surveillance: companies take advantage of Big Data and extensively accessible information about consumers to predict and optimize the impact of marketing actions, observing customers' and clusters' behaviour, and influencing their choices through personalized, targeted strategies. Hyper-relevance and hyper-personalization do not always represent sufficient grounds to justify the omnipresence of surveillance practices, so that firms end up being perceived as obtrusive and harmful.

In light of these reflections, a practical analysis has been conducted, with the aim to understand how companies are leveraging customer data for marketing purposes, and whether these strategies are designed and enacted in the best interest of the customer himself or whether, instead, they represent just the latest fad in marketing as a way to meet profitability targets.

4.2. Sample Presentation: the RIR clusters in Veneto

The research activity underpinning this work has led to the finding of several earlier studies[64], from which I drew inspiration to define the sample and design the structure of my investigation.

First, I looked for and examined discussions about the level of digitalization, ICT penetration, and innovation in Italian companies: two studies by Istat (the Italian National Institute of Statistics) have focused on these topics in recent years. The first study, conducted in 2020, analyses the relationship between Italian enterprises and ICTs: the use of a *Digital Intensity Index*[65] reveals that organizational complexity and firms' size are closely related to various degrees of firms' digitalization and to the type of implemented technologies (Istat, 2020), among which AI, Big Data, IoT, and e-commerce/online sales.

The second study traces back to 2016-2018 and explores Italian enterprises' propensity for innovation. Here, innovation is intended as the implementation of ideas into new products, services, processes, solutions, systems, and social interactions. It does not only refer to the launch of new products to market or a new process technology, but it can also be expressed by (1) a radical cultural transformation in how core and support processes work; (2) pervasiveness of ICTs in all routines and procedures inside an organization and along the entire supply chain (upstream and downstream); (3) new ways to serve customers, to offer them value, to work, to build partnerships and alliances, to create resources and competences, to establish a competitive position (Confindustria, 2020). Again, the report shows a positive correlation between propensity for innovation and firm's size, as big enterprises exhibit the highest innovation rates; however, an interesting trend is observed among SMEs (Small and Medium Enterprises)[66], which have been recently increasing their

---

[64] Istat (2019), *Rilevazione statistica sull'innovazione nelle imprese – Anni 2016-2018*, www.istat.it, 04/10/2019; Salesforce (2019), *State of Marketing – Fifth edition*, www.salesforce.hsm360.com, January 2019; Unioncamere Veneto (2019), *Focus digitalizzazione 2019*, Veneto Congiuntura, 13/11/2019; Confindustria (2020), *Questionario per l'innovazione 2019-2020 – Sezione B*, Premio "Imprese per l'Innovazione", Confindustria; Deloitte Digital (2020), *From now on: come far ripartire l'Italia? Il punto di vista dei CMO*, Deloitte, May 2020; Ipsos (2020), *Primo osservatorio Imprese e Covid*, www.ipsos.com, 17/09/2020; Moorman C. (2020), *Covid-19 and the state of marketing - The CMO Survey*, Deloitte, June 2020.

[65] The Digital Intensity Index 2020 is an indicator that measures the use of 12 different digital technologies by enterprises; the final value of the index ranges from 0 to 12, determining four levels of digital intensity based on the number of technological activities implemented by companies (e.g., download speed, presence of a web site, online services offered, use of cloud infrastructures, use of robots, analysis of Big Data, etc.; Istat, 2020).

[66] According to the European Commission (2016), SMEs are defined taking into account three criteria: staff headcount, annual turnover, and annual balance sheet total. Consequently, there are three main categories of SMEs.

1) Micro enterprises: they have less than 10 employees, and annual turnover or balance sheet total lower than € 2 million.
2) Small enterprises: they have less than 50 employees, and annual turnover or balance sheet total lower than € 10 million.
3) Medium-sized enterprises: they have less than 250 employees, and annual turnover below € 50 million, or annual balance sheet total lower than € 43 million.

propensity for innovation, showing significant signals of growth (+7,7% compared to +3,1% of big firms). Another outcome of the research is the predominance of the industrial sector in terms of propensity for innovation, where 65,7% of companies have launched innovative projects, with chemical, electronics, computers, and telecommunications as leading industries.

In light of these outcomes, I decided to focus my analysis on SMEs. These businesses are the backbone of the entire production system in Italy, in numerical, productive, and financial terms: in fact, they constitute more than 99% of the national entrepreneurial fabric, they are responsible for 41% of total turnover generated in Italy, they employ 33% of working people and contribute 38% of country's total added value (Osservatori.net – Digital Innovation Blog). Not least, SMEs represent the bulwark of craftmanship, high quality, and Made in Italy, three cutting edges of Italian products and brands that are globally recognized.
I chose to focus on a specific geographical cluster to reduce complexity, in the attempt to produce a sample that could be as representative as possible. The Veneto region has been thus selected as the setting of this paper: located in North-Eastern Italy, this region is characterized by an entrepreneurial structure primarily composed of SMEs, which employ 77,2% of working people and constitute 99,8% of active companies in industry and service sectors (Rapporto Statistico, 2020). These firms establish their competitive advantage on quality and expertise, on product and service diversification, and on productive flexibility. They leverage opportunities deriving from collaborative relationships aimed at the creation and long-term sustainability of value and competitiveness, and the definition of innovative paths of development. In the latest years, an important intensification of investments in technology and innovation has been observed, especially considering that Italy in general has always been a slow adopter of new technologies: Veneto has been one of the top regions to promote such investments, exceeding national average and exhibiting strengths in product and process advancements, but also in organizational and marketing innovation (Rapporto Statistico, 2020).

In this regard, it is important to spend some words about the RIR (Reti Innovative Regionali – or Regional Innovative Networks)[67], from which the sample of companies surveyed in this work has been obtained.
The RIR is an investment project for the development of the Veneto region that originated in 2014, as a result of economic evolution: it gave rise to forms of networks

Beyond these thresholds, companies fall in the category of big enterprises (European Commission, 2016).
[67] From now on, the acronym RIR will be used to indicate Regional Innovative Networks.

of enterprises which are not tied to specific geographical boundaries, due to their nature and business objectives. The term “Rete Innovativa Regionale” identifies a system or aggregation of enterprises, together with private and public subjects and institutions, that are present inside defined territorial boundaries – in this case, of Veneto – but are not necessarily contiguous, and that operate in various industries to develop a coherent set of projects and events, giving relevant contribution to the regional economy (www.venetoclusters.it). These subjects act on a trans- and multi-sectoral scale, actively involving knowledge institutions (e.g., universities and research centres) and science parks: the goal of the network is to operate in the innovation realm in diverse industries, pursuing trajectories of enhancement and development to the collective benefit of the regional strategic policy. Important elements for a network to be comprised in the RIR framework are:

- Being headquartered and having operating centres inside the jurisdiction of the Veneto region;
- Establishing a collaborative partnership with research centres, universities, knowledge institutions, in favour of programs and projects aimed at transferring knowledge, competences, skills, and capabilities;
- Being coherent and consistent with regional objectives in fields of research and innovation;
- Devising a specific program schedule and roadmap, highlighting the following points:
    - Who are the participants involved, what is the added value deriving from the formation of the partnership, which is the shared vision, and what is the valorisation of respective contributions (in financial, organizational, and knowledge expertise terms).
    - The measurable and realistic goals to be achieved.
    - The suggested projects to be realized.
    - The project resulting outcomes and possible future scenarios, in line with stated objectives and intentions.

As of January 2021, there are twenty officially recognized RIR, which are classified into four specialization fields; each field comprises different RIR, resulting in a further subdivision, as shown in Figure 15.

SMART AGRIFOOD	SMART MANUFACTURING	SUSTAINABLE LIVING	CREATIVE INDUSTRIES
RIBES per l'Ecosistema Salute e l'Alimentazione	SINFONET - Smart & Innovative Foundry Network	Venetian Smart Lighting	EUTEKNOS
INNOSAP - Innovation for Sustainability in Agrifood Production	IMPROVENET - ICT for Smart Manufacturing	Foresta Oro Veneto	Venetian Innovation Cluster for Cultural and Environmental Heritage
RIAV - Rete Innovativa Alimentare Veneto	Veneto Clima ed Energia	ICT for Smart and Sustainable Living	Sicurezza e Protezione nel Lavoro e nello Sport
Cluster Biologico Veneto	Veneto Green Cluster	Venetian Green Building Cluster	FACE DESIGN
	M3 NET		SMARTLAND - Smart Destinations in the Land of Venice, Mission 2026
	RIVELO		
	AIR - Aerospace Innovation and Research		

Figure 15 – The Four RIR Clusters and related subdivision

1) SMART AGRIFOOD

The first network involves the agricultural and the food and beverage industries, with enterprises operating in wine, olive oil, fruits and vegetables, milk and milk products, and confectionery supply chains, and pursuing four major technology and development trajectories:

a) Sustainability of the agri-food sector: the primary goals of this trajectory are the development of precision agriculture and animal farming, of more efficient products and equipment, and of enabling technologies for organic agriculture; innovation and optimization of eco-friendly cultivation and production systems; introduction of technologies and co-marketing projects that favour integration between the agri-food sector, tourism, and environmental protection, for the socio-economic enhancement of the local territory.

b) Smart management of natural and energy resources: this path is concerned with the recovery and recycling of sub-products of agri-food production and transformation activities; the design of innovative and more sustainable packaging solutions for agri-food products; the improvement of consumers' health and wellness through higher-quality, beneficial foods, which provide useful and functional nutrition facts, promoting better dietary habits.

c) Innovation and sustainability of transformation processes: in this case, the network is oriented towards the evolution of modern systems for food transformation, transportation, and storage processes.

d) Traceability and protection of supply chains: the last group of Smart Agri-food enterprises aims at the ideation and implementation of procedures and ICT solutions for complete traceability of products and supply chains, from raw materials to the final consumer; recognizability and communicability of products are emphasized throughout the entire user experience.

2) SMART MANUFACTURING

This RIR is made up of companies majorly committed to increase penetration of ICTs and innovations in several fields of the manufacturing and industrial sector, allowing themselves to be more productive, more competitive, and more reactive along the entire process and value chains.

a) New organizational and production models: this trajectory fosters industrialization, digitalization, and introduction of IoT models, for the production of machinery, equipment, and consumption goods, both in terms of design and functionalities; special attention is dedicated to process customization and personalization.
b) Sustainability of production processes: the focus of this network is on sustainability and implementation of "green" supply chains, achieving at the same time high performance, waste reduction and recycling, energy savings, rational use of resources, and renovation of products' lifecycle.
c) Advanced design and technologies for production: in the context of Industry 4.0, this network is formed to plan and carry out new systems and paradigms for integrated, innovative, and multi-scale design of components, products, and procedures, combining the use of ICT technologies and smart raw materials.
d) Introduction of cognitive systems and automation: in this case, solutions for advanced management of maintenance, quality, and logistics aid in decision making, including support and optimization of the process in complex environments; adoption of sensors, IoT devices, human-machine interfaces, cloud infrastructures, IT platforms, data analytics, and Machine Learning underpins the development of digital, integrated, reconfigurable production architectures; smart machines, advanced automation, and robotics improve and refine activities.
e) Innovation and inclusion in working environments: this objective is more centred on people compared to previous trajectories, attempting to innovate internal organization of enterprises and to emphasize human-centredness, active participation, and inclusion, especially with regard to human-machine relationships.

3) SUSTAINABLE LIVING

This cluster is characterized by the presence of enterprises in the field of lighting systems and items production, as well as electronics and "smart home" or home automation: the mission is the ideation of new integrations of hardware and software to facilitate access and use of smart living systems for all citizens, with special attention to the elderly and people with disabilities.

a) Individual wellness and sustainability of living environments: this trajectory proposes innovative solutions in indoor and outdoor contexts, through human-centred flexibility and adaptation of products and systems based on people's needs, thanks to the use of ICTs and automation.
b) Smart and sustainable buildings and cities: this network revolves around the generation and enhancement of materials and arrangements for the realization of smart cities, green buildings, and energy-intelligent facilities, in a perspective of circular economy and consumption monitoring.
c) Architectural recovery, renovation, and restoration: innovative technologies are set out and deployed for the preservation and valorisation of cultural and artistic heritage.
d) Safety and health in private life: security in living spaces is the major concern of this innovation trajectory, directed towards a more autonomous way of living and more concerns about privacy protection and respect.

4) CREATIVE INDUSTRIES

Enterprises belonging to this RIR do business in industries like fashion, leather goods, design, artistic and cultural heritage, and locally traditional handmade production. Development and innovation paths are related to the following areas of intervention:

a) Innovation and digitalization of marketing processes: the aim is to embrace and integrate digital technologies for innovative marketing systems, to ensure product traceability and authenticity, and to improve presentation and valorisation tools (e.g., through virtualization).
b) Innovation of materials and biomaterials: this project deals with encouraging research and development in the field of innovative materials for the creative industry – for creation, improvement, and preservation of the outcomes of craftwork – and textile productions – to stimulate use of smart fabrics and wearable technologies that increase ergonomics, comfort, and functionalities.
c) Adoption of new business models: implementing a business model that focuses on personalization of design, production, promotion, and commercialization of products and services, conveys added value and favours the association and linkage of a product or brand culture with the image and reputation of its territory (also with a view to integration with touristic attraction strategies in Veneto).
d) Launch of artistic projects and initiatives: this goal refers to the introduction of modern and innovative technological systems that back ideation, artistic and industrial design, modelling, prototyping, and personalization, especially in fashion and furniture spheres.

e) Technologies for accessing and benefitting of cultural heritage: the innovative distribution and enjoyment of cultural and museum heritage includes, for example, adoption of VR, AR, and other visualization techniques that bring novelty and appeal to artistic and historical resources and, more broadly, to tourism activities.

The sample of companies that participated to my investigation has been selected starting from the list of firms belonging to the different clusters forming the RIR: given the purpose of this paper, i.e., understanding how companies leverage consumers' data for their marketing strategies, it was important that firms involved have some key characteristics.

- ➔ First, they have to be registered as companies, meaning they need to carry out a business that is identifiable as a production activity. An initial screening has been conducted on the basis of ATECO codes, leading to the elimination of a series of institutions which do not pursue an activity of economic production: science parks, universities, research centres, scientific organizations, market research agencies have been removed from the consideration set.
- ➔ A second screening has been performed subsequently: in this case, organizations that do not represent enterprises in the strict sense have been excluded, as well as businesses that do not focus on marketing activities. Firms operating in utilities sector, logistics, finance and insurance, education, public healthcare, accounting, consultancy, and architects' and engineers' offices have thus not been comprised in the sample.

The outcome of this two-stage screening is a sample of 333 enterprises, mainly SMEs, operating in different industries in the Veneto region. The total number of investigated enterprises is distributed between the four RIR clusters as follows (Fig. 16):

- 103 companies (30,9%) belong to the cluster "Smart Agri-food".
- 92 companies (27,6%) belong to the cluster "Smart Manufacturing".
- 60 companies (18,1%) belong to the cluster "Sustainable Living".
- 78 companies (23,4%) belong to the cluster "Creative Industries".

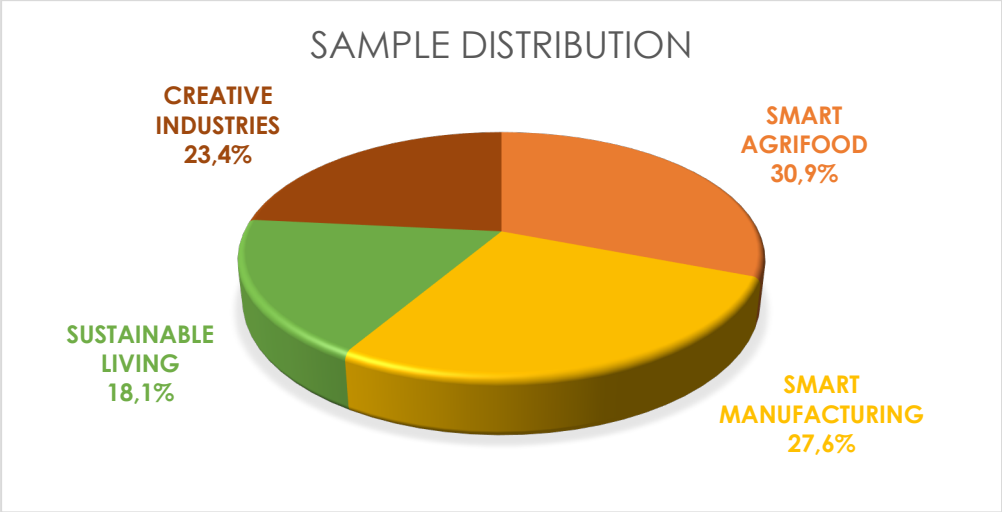


Figure 16 – Sample distribution

Analysis on these companies has been conducted in the form of a survey, whose structure will be described in the following paragraph.

4.3. Survey Presentation: Structure and Questions

The survey methodology has been chosen for this work, to provide a general overview of a specific territory (Veneto) and to capture potential patterns among various enterprises and industries. The survey has been formulated using Google Form, as this tool allows automatic merging and categorization of responses, facilitating observation, analysis, and insights extraction. It has been submitted via e-mail (when available on company's web site) or using firms' online contact form.

Four sections make up the survey under consideration, each of them comprising a certain number of questions in various forms: multiple-choice and check-box formats have been used, as well as 5-points scales where each participant could measure and assign a value to an object, from 1 (not important at all) to 5 (extremely important); this gave respondents enough freedom, ensuring accuracy and reliability, and avoiding constraints in the representativeness of answers. Blank spaces and "Other" options have been provided for those participants who were willing to add some comments or share interesting cues.

The first section of the survey is dedicated to personal and registry office information: company name (optional), headquarter city/town, activity field (as from ATECO code) and brief description of the business area, firm's size (micro, small, medium, or big), possible presence in international markets, and job position of the person filling in the

survey. The aim of this part is to frame companies' background and understand whether it might influence the strategic decisions addressed herein.

The second section deals with the examination of the marketing function in each company: questions relate to the organization of the marketing department (in qualitative and quantitative terms), the degree of integration between marketing and modern technologies, primary marketing objectives, innovation levers, and KPIs used to measure and evaluate how much marketing innovation contributes to overall performance. At the end of this part, participants are asked to define their firm either as a B2B or a B2C/B2B2C business: this question redirects them to one of the two following sections, splitting the survey into two different paths and requiring to fill out only one of them on the basis of the answer.

The last two sections therefore contain the same questions, but each of them is specifically tailored and adjusted based on whether the company operates in a B2B or a B2C market, as indicated in the sorting question. Here, a deeper level of detail is reached, exploring the role of new technologies (Big Data in particular) and the customer in marketing decision making: several variables are considered in this phase, that help to assess the degree of centrality and importance assigned to the customer, the CRM tools used to manage relational dynamics, the techniques and methodologies implemented for profiling customers and analysing personal data, and the strategic purposes for which such information is leveraged.
A final glance is dedicated to each company's perspective on the role of marketers in the future, and to the impact the Covid-19 pandemic has had on marketing strategies: the suddenly vital role of digital technologies to overcome lockdowns and social distance barriers; the reallocation of resources and competences to meet and fulfil customers' completely new needs; changes in product, communication, and promotion strategies, and in the core values of the marketing vision of a company.

The survey has been submitted between June and July 2021, with a couple of follow-ups in August and September as reminders for the companies who did not participate in the first session. Results and discussion of collected answers are presented below.

4.4. Survey Analysis: Results and Discussion

4.4.1. A Descriptive Overview of Survey Participants

The object of this paragraph is a brief presentation of the companies that participated in the survey. 333 companies formed the initial sample that received the survey:

among these, 105 agreed to participate, constituting 31,5% of the total. It is important to highlight that this number cannot be considered properly representative, but it might offer a good starting point for further studies and discussions.
Padova is the Venetian city where participating companies are concentrated the most, followed by Treviso, Vicenza and Verona (Fig. 17[68]): looking at the distribution of companies between the four RIR clusters by city (Fig. 18), it is possible to notice that the majority of them is part of the "Smart Agri-Food" and "Smart Manufacturing" networks, while the presence of representatives from the "Sustainable Living" and "Creative Industries" groups is lower. Probably, this is due to the fact that the initial sample itself is more populated by enterprises in the first two clusters rather than in the second ones.

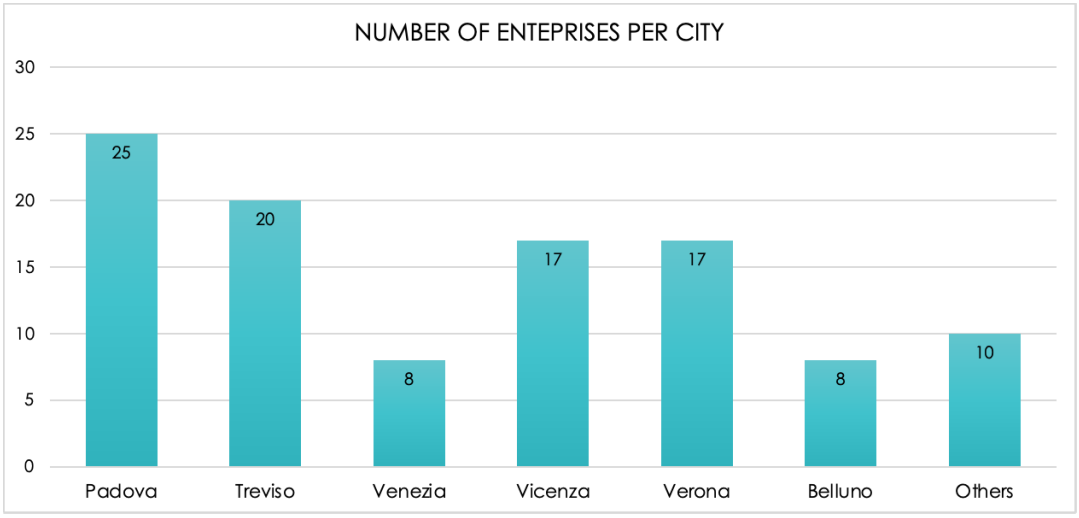


Figure 17 – Number of enterprises per city

[68] The "Others" element will be used to group together those cities that:
- Are not represented by a significant number of companies (like Rovigo).
- Are not geographically located in Veneto, but where some companies are present that belong to the RIR clusters (i.e., Pesaro-Urbino, Trento, Pescara, Udine).

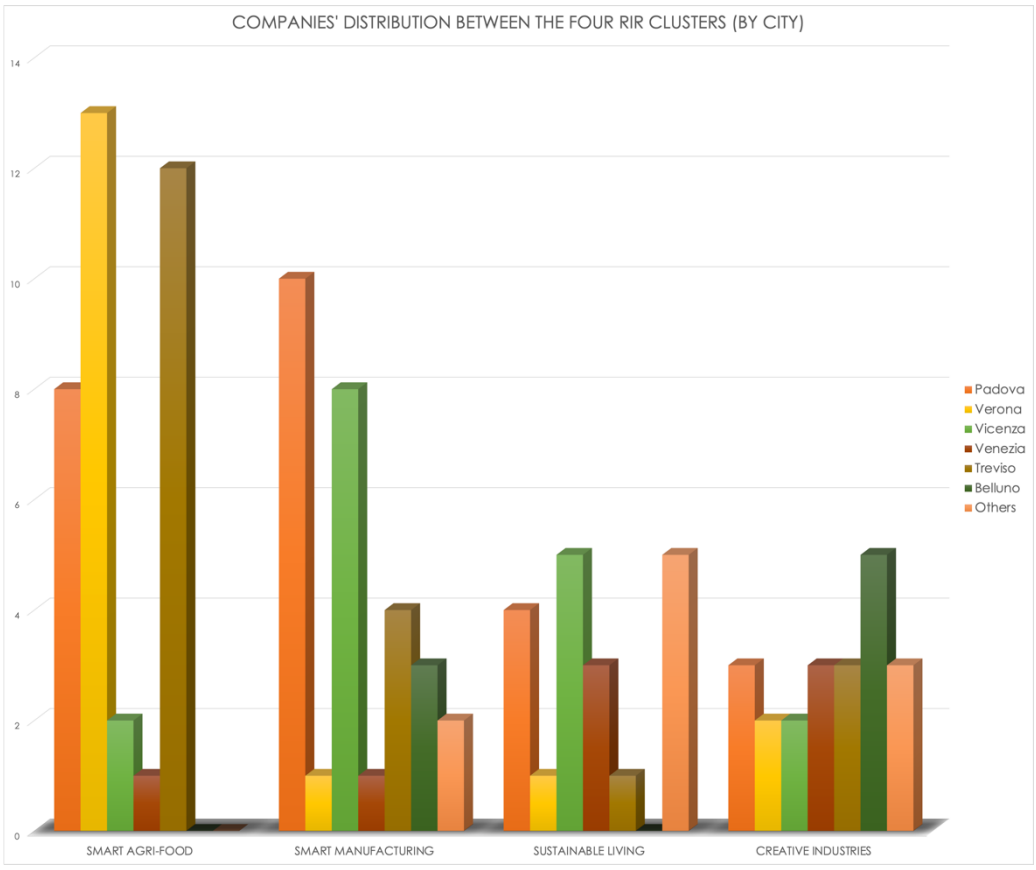


Figure 18 – Companies' distribution between the four RIR Clusters by city

In the agri-food sector, companies that joined the investigation undertake activities related to the production and distribution of food and beverages, and the construction of machinery and equipment for agriculture and animal farming. In the field of beverages, businesses are almost totally focused on winegrowing and winemaking: indeed, Veneto is one of the most famous and major regions in the production, bottling, and commercialization of wines and spirits, with its land intensively populated by vineyards and wine estates; Verona and the Valpolicella territory report the highest number of enterprises in this industry (the yellow bar in the graph). Companies in Treviso also have a significant share of the agri-food business, but they are more distributed across different sectors, for example in the milk and dairy products industry, in bakery production, and in confectionery.

Regarding the Smart Manufacturing cluster, Padova and Vicenza (orange and green bars, respectively) are the most important representatives, but no specific pattern is detected across enterprises: in other words, participants belonging to this second group are quite heterogeneous, and they operate in several segments of manufacturing and mechanics in the context of Industry 4.0 – this means, they implement innovations and new technologies to improve and enhance production

processes, working procedures, and efficiency, with a strong commitment to reduction of environmental impact and industrial emissions. In addition, they aim at integrating ICTs, robotics, and smart systems into traditional plants and machinery.
The lighting industry is the most prominent business in the Sustainable Living cluster, with 11 on 19 respondents operating in design and production of lighting systems. *Smart lighting* is defined as the set of technologies that enable a conscious and efficient use of light, in a sustainable and energy-wise way. Such companies aim at promoting new business opportunities in this area, fostering product visibility, supporting international market entry, raising awareness on the importance of integrating domotics and IoT in lighting and design businesses.
Finally, the cluster "Creative Industries" is a mixture of various companies, where respondents are active in fashion/textile, furniture/interior design, leather, wood, and eyewear. Particularly renowned in this last segment is the industrial district in Belluno, where a relevant number of SMEs is located, that design and develop innovations and commit to sustainable projects in the eyewear business.

As explained in the paragraph dedicated to sample presentation, the Veneto region is characterized by a preponderance of SMEs, a precious resource for the development, implementation, and diffusion of innovations in a wide variety of environments. This feature is reflected in the present study, as 29,5% and 38,1% of respondents constitute small and medium enterprises[69], respectively; the remaining part of the sample is almost equally split between micro businesses (19%) and big corporations (13,3%) (Fig. 19).

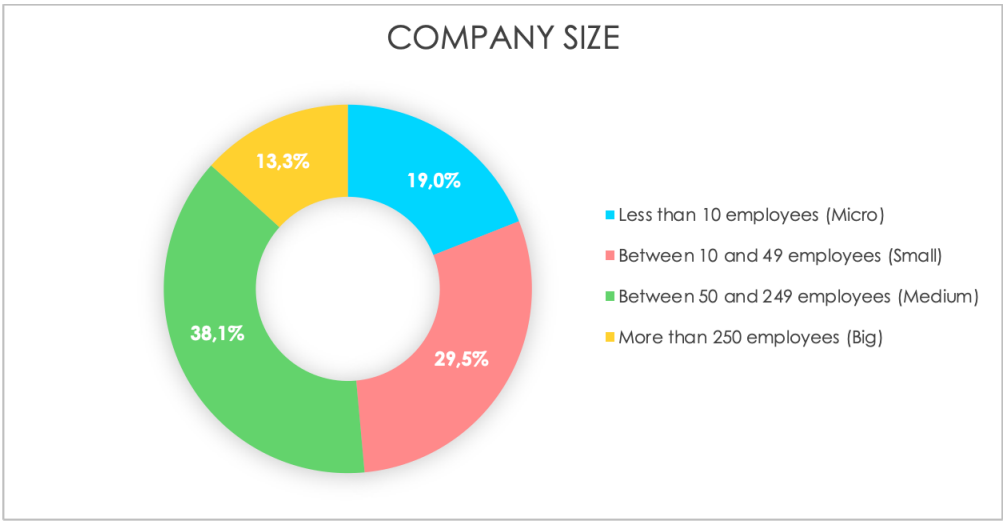


Figure 19 – Companies' distribution by size

[69] Linking to the definition of SMEs previously outlined in footnotes, respondents were asked to indicate their firm's size choosing between micro, small, medium, and big; the subdivision was explicitly based on the number of employees, for convenience. Annual turnover and balance sheet total were not required.

With the aim of providing the fullest possible picture, participants also needed to briefly illustrate whether their companies have a presence in international markets and (if applicable) where: results show that basically all of them operate internationally, if not globally, either with export activities or with branches and subsidiaries.
The last question of this section specifically asked the job position of the physical person who answered the questionnaire, as this was explicitly submitted to the attention of the marketing staff: 43 surveys on 105 have been filled in by employees who are not part of such department, nor of the sales team, but rather hold other working positions, mainly production managers and executive/administration managers.

4.4.2. The Marketing Function inside Each Firm

This part aims at assessing the relevance of the marketing function in sampled companies, trying to grasp the value assigned to innovation in this branch of business; considering that the main argument of the present work revolves around Big Data and Intelligent Technologies, questions have also been formulated that focus on the level of integration between marketing and digital. This section is identical for all participants, independent on whether they are B2B or B2C businesses.

In the first place, companies have been asked to evaluate the amount of budget and financial resources allocated to the marketing department, related to total enterprise budget: the goal was to understand the weigh, therefore the strategic value, attributed to this function. The evaluation scale ranged from 1 (not important at all) to 5 (extremely important). Results show that three quarters of total respondents have assigned a value of 2 (39%) or 3 (36,2%): this trend might signal an average (if not relatively low) consideration of the role of marketing as a core division inside the organization. This variable might be influenced by two intrinsic characteristics of the sample:

- Limited organizational dimensions, especially for micro and small enterprises; this hypothesis is further supported by the fact that the majority of participants (90,4%) employ less than 5 people in the marketing department, sometimes relying on the expertise of external consultants and specialized professionals outside the organization. One of them even reported that the marketing department in his company can count “more or less half an employee”. Furthermore, the only firms with considerable marketing staff (from 30 to 500 people) are indeed big corporations, with more than 250 employees.
- Type of business background, as many local enterprises in the Veneto region are family-run: they are tied to traditional ways of doing business and to an

entrepreneurial heritage that sometimes might constrain expansion and development of relatively modern functions (e.g., marketing and branding) in favour of production and manufacturing processes, more focused on products and quality.

Nevertheless, investigated companies record a satisfying and promising degree of integration between marketing and new technologies[70]: in fact, more than half of them exhibit a medium level of integration, where digital technologies are adopted in performance evaluation and product/service monitoring, but they also extend to promotion and communication activities. In the remaining half of respondents, 21% report a high level of integration, which means digital implemented in all stages of the marketing process, from initial market research to product/service monitoring and market feedback collection (Fig. 20). Which technologies are effectively implemented and for which purposes they are used will be the subject of the following sections. At the same time, firms showing a low or absent degree of integration also tend to allocate scarce budget and human resources to the marketing department, probably because they attribute more strategic importance to other organizational divisions.

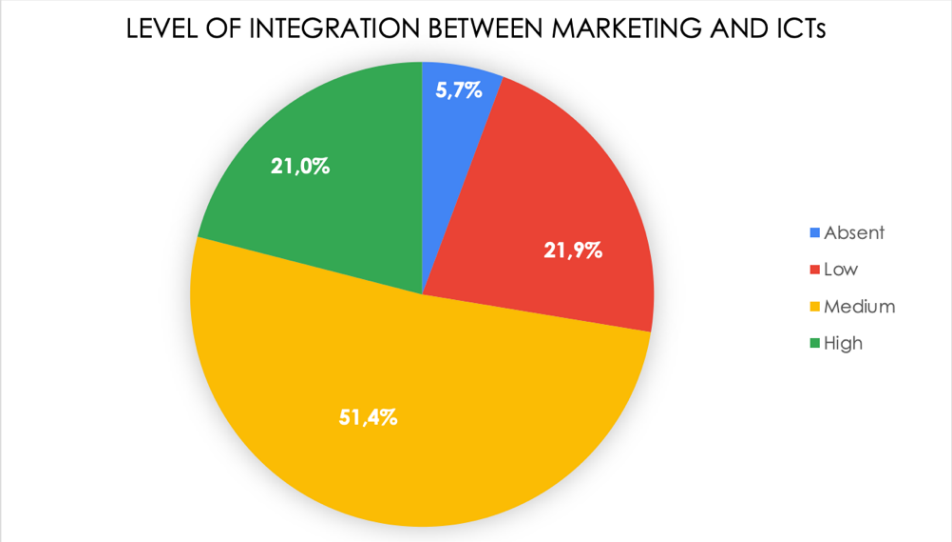


Figure 20 – Companies' distribution according to the Level of Integration between Marketing and ICTs

For the purposes of the thesis, a statistically relevant part of this section concerns innovation projects related to the marketing field: it would not make sense to get straight to the analysis of Big Data implementation without first gaining an overview of

[70] As specified in the survey, new technologies refer to all digital tools that represent ICTs (web sites, social media, e-mail, chats, blogs and forums, etc.), but also more recent technological introductions, such as Big Data, Web Analytics techniques, CRM databases, AI, AR (Augmented Reality) and VR (Virtual Reality), and so on.

whether and how companies commit to innovative and digital-related marketing initiatives. Surveyed companies have been asked to rate their focus on different marketing innovation levers[71]:

- Product performance: development and introduction of marketing solutions that have unique features and functionalities, aimed at new markets that no one has addressed in the same industry yet.
- Product system: development of linked, connected solutions that can be integrated with one another.
- Process: application of distinctive competences in the design and development of marketing offers.
- Service: provision of additional features and solutions as part of the marketing offer, such as web site, customer support service, and the like.
- Channel: research and adoption of different channels that can be combined in complementary ways to promote value propositions to customers and users with original approaches.
- Brand: definition and continuous enhancement of a distinctive, clear, unique identity, totally recognizable compared to others in the same industry.
- Customer engagement: capability to develop a marketing offer that conveys a specific identity, status, or sense of recognition to customers and users, leading to loyalty and retention.

The aggregation of responses (Fig. 21) reveals an entrepreneurial picture primarily centred on providing additional services and improving brand identity and reputation: companies offer comprehensive solutions that encompass the product and strengthen the brand, but also enable the firm to be available and connect with the customer and his/her requirements – e.g., via web site and supplementary services. The high value assigned to innovation in branding activities suggests interest in perceptions, feelings, and image customers have about the company's brand. However, channel and customer engagement, two factors that are linked with service and brand, do not record the same successful ratings: in my opinion, this might denote participants already have a well-established customer base, where customers demonstrate loyalty and trust, maybe backed by long-time business relationships. Discrete adoption of innovation levers in communication and promotion channels will be examined more deeply in the section dedicated to the role of technologies and Big Data. Product performance and process are other two interesting areas of commitment: the implementation of technologies related to Industry 4.0 and digitalization allows applications in products' features and functionalities, as well as

[71] The list provided here includes variables that have been explicitly suggested in the survey; the "Others" option was also present, to specify additional details if necessary, but no answer has been recorded for it.

in designing and developing marketing strategies to deliver such offers to customers. Resulting value propositions will display original and unique elements that can adequately serve existing and potential markets.

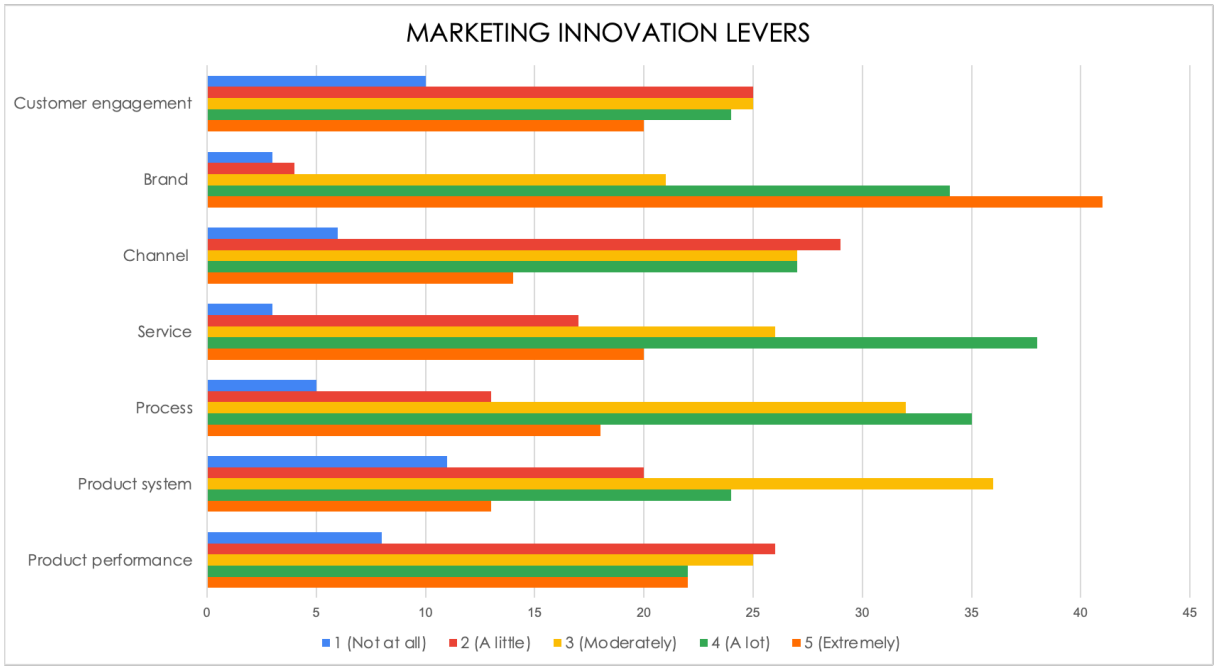


Figure 21 – Key Marketing Innovation Levers
Q: Which marketing innovation levers is your company focused upon?

In order to obtain a holistic vision of the general degree of innovation, two additional questions have been put forward, which consider the use of KPIs that measure and assess contribution of marketing innovation to overall business objectives and to customer satisfaction. The first question asked respondents to assign a value of importance (again, from 1 to 5) to the use of indicators that help to map out how much companies are practically focusing on marketing innovation. The largest share of responses is distributed between the values 2 (36,2%) and 3 (31,4%) meaning that, generally, firms tend to invest few or moderate resources on the evaluation of marketing innovation. Those companies that selected a value equal or higher than 2 have also been required to point out the different marketing innovation KPIs upon which they rely[72] (Fig. 22): as the graph illustrates, most of them utilize three or more KPIs to measure innovation contribution in relation to overall business objectives and customer satisfaction, even though they do not consider it a prior activity. Among the 86 firms that have provided an answer to this question, the following indicators exhibit greater success:

[72] A check-box list of alternatives has been provided, with an "Others" option for further specifications.

1) KPIs that monitor and track customer acquisition rate, new segment penetration, and new market entry (57%). Of course, these goals are directly influenced by marketing strategies and decision making, thus their success rate is tightly linked with innovations and interventions in all stages of the marketing process. In turn, they determine fluctuations of market share, another aspect that very much attracts companies' attention: 40,7% of them employs performance measures to ascertain the impact of marketing innovation on market share growth.
2) KPIs that measure customer degree of satisfaction in terms of, for example, customer engagement, customer equity, customer lifetime value, etc (54,7%). Customer satisfaction is indeed a prerequisite to build competitive advantage, therefore its strategic relevance for organizations is clear. ICTs and Web analytics tools offer important support, speed, and accuracy in monitoring factors related to customer satisfaction, especially considering that customers and users tend to share a great deal of personal opinions about products and brands online. Resulting advantages are reflected in the fact that basically all companies stating they use KPIs for the measurement of customer satisfaction also exhibit medium or high levels of integration between digital technologies and marketing[73].
3) KPIs related to innovative activities in design, product configuration, and additional services (45,3%). In this case, companies assess enhancements and improvements in the range of products, services, and solutions deriving from innovative projects, defining their rate of contribution.

In addition, it is worth noting that KPIs measuring performance of innovative promotion, communication, and commercialization strategies – the core activities in marketing – are only adopted by 29 on 86 companies, i.e., 27,6% of total respondents. In this realm, innovation refers to the use of advanced ICT systems to coordinate interaction strategies. Such a low rate of KPIs diffusion might denote limited interest in promotion, communication, and commercialization innovation. However, these 29 firms intensively focus on channel, brand, and customer engagement as innovation levers, which are closely related to activities of promotion, communication, and CRM. These assumptions will be discussed in further detail later, as these are usually the main fields of application of Big Data.

[73] 39 companies on 47 that selected this group of KPIs.

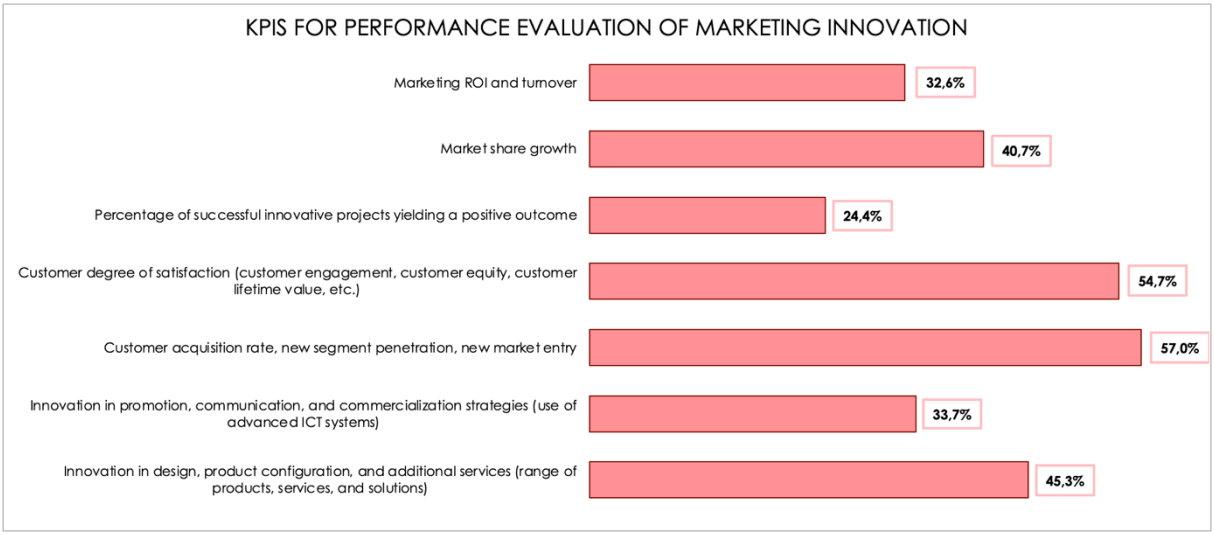


Figure 22 – Main KPIs for Performance Evaluation of Marketing Innovation
Q: Which KPIs are used to measure and evaluate the contribution of marketing innovation to overall business performance and customer satisfaction?

To conclude this first section, it might be interesting to understand and spot possible correlations between marketing innovation and marketing objectives.
As shown in the graph below (Fig. 23)[74], surveyed firms are mostly concerned with consolidating brand positioning and brand value on the marketplace, but also on acquiring new customers to broaden competitive opportunities. These trends are in line with the elevated importance given to brand as an innovation lever, and with intensive measurement of customer acquisition rate and customer degree of satisfaction through innovation KPIs. Moreover, 64,2% and 59,7% of companies strongly aiming at acquiring new customers are likely to invest on product and process innovation respectively, introducing and applying distinctive and renewed capabilities, skills, and procedures to design and develop unique marketing solutions, to appeal potential customers in a differentiated way compared to other industry competitors.
In the great majority of cases (75%), a focus on brand consolidation and enhancement is accompanied by an advanced stage of integration between marketing and digital technologies: this might signal that the new brand experience is more "smart", more immersive, revolving around the use of web tools and digital channels to connect with customers. This idea is further confirmed by the fact that

[74] The evaluation scale is the same used for previous ratings, namely a 1-to-5 points scale where 1 indicates the lowest degree of importance and 5 is the highest. In the graph "Primary marketing objectives", the lightest colors correspond to a value equal to 1, whereas the darkest colors relate to a value equal to 5 (from the bottom to the top of the graph). Also, numbers are reported in absolute terms, not in percentage. The bar "Others" is dedicated to additional specifications expressed by respondents.

these same companies commit to channel innovation, searching for original and modern approaches to communication and promotion of their value propositions. A shift towards more digital and diversified channels entails an increasing number of touchpoints to be managed, both online and offline; indeed, the modern user experience is naturally set in the virtual world, but marketers need to nurture human connections and interactions in the physical world too. Such a vision is particularly decisive considering the impact of the Covid-19 pandemic on social dynamics and working environments, where building and managing relationships based on the digital dimension has become fundamental.

Previously, I have also assumed that respondents who tend not to prioritize customer engagement (among innovation levers) might have a well-established customer base, therefore they place higher relevance on strategies of customer acquisition. Looking at marketing objectives, the two goals are quite at the same level: even though acquisition of new customers received more “extremely important” points, enhancement and fidelization of current customers is the third most important marketing goal, consistently with the concern for satisfaction and retention. A positive correlation can be observed between the importance of fidelization and innovation of the service element, i.e., additional provisions that complement and make the marketing offer more comprehensive (59,2% of total participants show consistent evaluations for these factors). When a company takes care of secondary but distinctive services, the customer is more likely to have a positive perception and image of the brand, and he/she is more stimulated to establish a lasting interaction, ultimately building trust.

For the aim of the present work, personalization of the marketing offer and introduction and development of digital/technological capabilities are the two variables of greatest interest. The question on marketing objectives is useful to give an overview of how companies deal with them: at a first glance, these two topics seem to raise average concern, as firms attribute moderate to great importance but do not properly prioritize them. An encouraging pattern, however, can be found in the fact that almost half of companies currently having a low or medium (but improvable) degree of integration between marketing and digital technologies (40,3%), show a strong intention to innovate and evolve in their digitalization process, which they consider a core marketing goal. Dimensions of personalization and digitalization will be deeply analysed in the second part of the survey, where specific trends within and between these two variables will be highlighted and discussed.

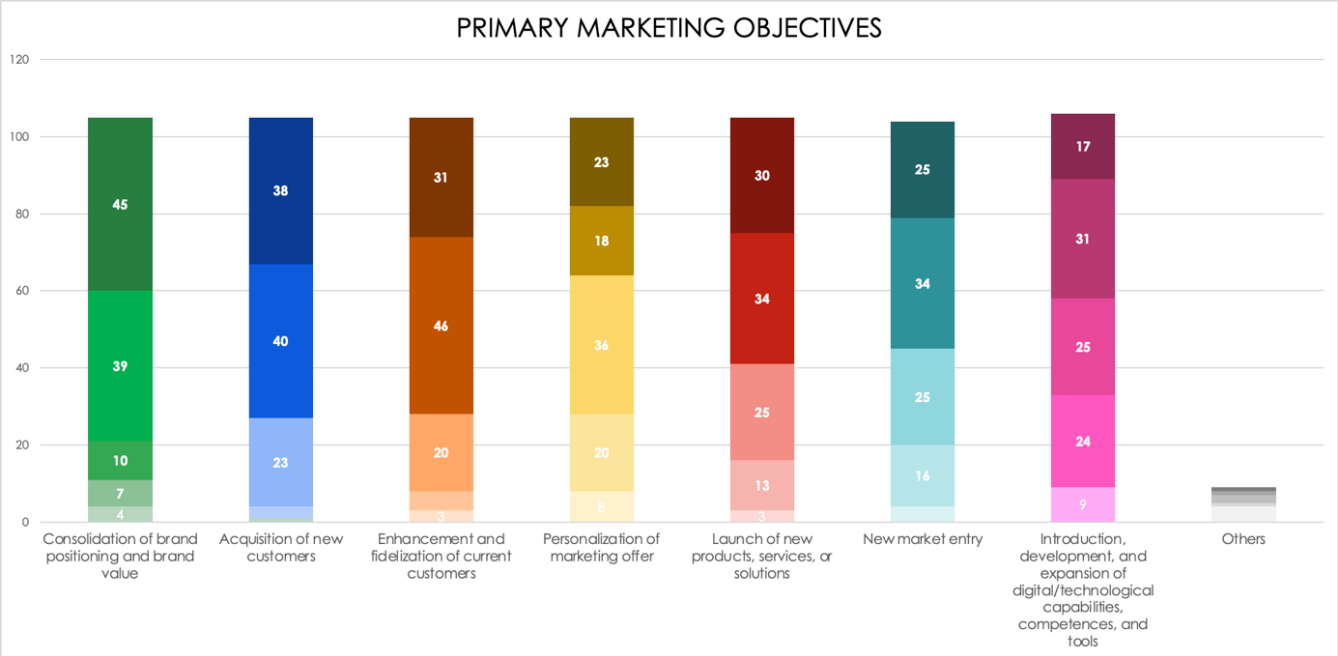


Figure 23 – Primary Marketing Objectives
Q: What are the primary marketing objectives in your company?

Before delving into detailed analysis of personalization and digitalization frameworks in sampled companies, respondents have been asked to indicate whether they operate in B2B or B2C/B2B2C environments. The rationale underlying this question is that dealing and working with business customers entails different dynamics compared to those typical of interactions with consumers. Since the present work targets both types of business activities, it was important that questions were tailored to the specific context of each enterprise, even though the essence of the investigation is the same in both cases. In this sample, 66,3% (70) of total companies identified themselves as B2B organizations, while 33,7% (35) operate in either B2C or B2B2C industries.

At this point, the survey splits up in two parts (the answer to the B2B/B2C question automatically redirected respondents to their specific section); in both sets of questions, the purpose is to investigate the role played by new digital technologies – Big Data in particular – in strategic decision making of marketing departments in sampled SMEs. Special attention is dedicated to the centrality or marginality of the customer in this process, with a focus on tools, routines, and vision leading marketing activities and implemented to effectively manage relational dynamics, market expectations, and customer information.

4.4.3. The Role of the Customer and Technologies in Marketing Decision Making

I decided to arrange this second part of survey analysis as follows: in the first place, B2B and B2C companies will be discussed separately, focusing on those questions that were formulated in a specific way for each group. In the subsequent phase instead, results from the two groups will be examined together in a comparative way, as I believe it would be the most useful approach to this investigation.

B2B enterprises constitute the majority of total respondents, and they are distributed among the four RIR clusters more or less equally:

- 30% represent Smart Agri-food enterprises
- 31,4% represent Smart Manufacturing enterprises, the highest share of total respondents in this section
- 18,6% represent Sustainable Living enterprises
- 20% represent Creative Industries enterprises.

B2C/B2B2C enterprises are instead distributed as follows:

- 42,9% represent Smart Agri-food enterprises, the highest share of total respondents in this section
- 20% represent Smart Manufacturing enterprises
- 17% represent Sustainable Living enterprises
- 20% represent Creative Industries enterprises.

The Role of the Customer: B2B Enterprises

The opening question focuses on the degree of customer involvement, asking participants whether and what kinds of initiatives are taken to pursue collaboration with customers in product, service, solution, or process innovation[75]. The degree of customer involvement can be a meaningful indicator of how much consideration is given to the customer and its role in design and development of marketing strategies. In a B2B context, collaboration is more feasible than in consumer markets, and it should be conceived as a desirable technique to come up with personalized and tailored solutions more easily and economically; moreover, advantages in terms of reciprocal trust and knowledge translate into longer-term commitment. Among the list of collaboration options provided, the most successful and diffused are promotional events and tradeshows or expos (82,6%,), namely exhibitions where companies have the opportunity to introduce new products and services to current customers and

[75] Collaboration with customers is here related to all activities in the marketing field, included promotion, communication, branding, etc.

prospects. These business gatherings represent an important launch pad in terms of brand visibility and recognition (which is one of the main foci of companies in this investigation, as already highlighted); however, they are characterized by limited closeness to customers, and recently, they have been deeply affected by the pandemic. Therefore, diverse initiatives should be privileged, which allow more in-depth exchanges: partnerships and interactions via online/virtual tools are other two widely adopted collaboration practices (41,4% and 35,7% respectively). In these cases, a closer connection is created between firm and customer, generating significant transfers in terms of information, knowledge, physical and intellectual resources, sometimes even financial means (as in the case of partnerships). This should imply that the innovative outcome deriving from these kinds of projects is way more likely to fit and match customers' expectations and requirements; the company, in turn, can collect and store precious details about its partner, to be leveraged for the refinement of future interactions and projects. A good portion of B2B enterprises is also committed to cooperation agreements (34,3%), where firms and customers collaborate and cooperate as part of a commissioned project[76]. 35,9% of companies that adopted one or more of these collaborative initiatives also reported personalization as a top-priority marketing objective: it is thus possible that a correlation exists, whereby firms seek close and immersive interactions with their customers in order to design and develop more personalized products, services, and solutions. Additionally, they seem to recognize the innovative potential and expertise of customers, as 60% of businesses focused on collaboration activities aim to introduce new products, services, or solutions to market, for which they might be relying on customer knowledge and ideas.

A core element in the development of products and marketing strategies is awareness and knowledge of customers' primary needs and expectations. Participants have been asked to assign a value (from 1 to 5) to a list of factors, with the possibility to add supplementary insights. Aggregated answers are shown in the graph below (Fig. 24): in B2B contexts, half of companies (45,7%) believe their customers are especially looking for long-term relationships based on trust, and this information is reflected in the adoption of collaboration practices discussed just above. In my opinion, it is also consistent with expected low concerns for privacy issues and protection, which characterize the majority of firms: if customers expect interactions to be built on trust and reliability, they do not worry about improper or obtrusive uses of their confidential data.

[76] Among possible answers, this was the deepest form of customer involvement.

Second, personalization is assumed to be of considerable interest for customers, and this seems reasonable in B2B markets, where products and services need to have a high degree of fit with their requirements. Indeed, all enterprises that have assigned elevated values to personalization (73% of total B2B companies) also emphasize the importance of delivering high-quality and outstanding value propositions; this can be accomplished through intensive acquisition of customer knowledge in a cooperative and involving manner. One of the respondents – a company belonging to the creative industries, involved in the design and production of high-end, modern home appliances – has provided an additional specification, reporting that its customers expect "constant service, precise and immediate responses, and technical expertise at customer support".

With regards to those aspects that have received lower ratings, besides privacy protection, price reductions and digital experience are not deemed so critical; the latter factor might imply that the digital/virtual dimension is not conceived as a core feature yet, and this opinion is shared among more than half of companies in this section (55,7%). With respect to the consequences of Covid-19, this is a little discouraging in relation to the digitalization discourse: if businesses believe their clients are not searching for a more digital, interconnected experience, they are less likely to make efforts for innovation and development in this sense.

Finally, firms believe customers place moderate importance on commitment to sustainability, safety, and social engagement, with 60% of them attributing a value of 3 (moderately) or 4 (a lot) to these features.

When customers' expectations and needs (as companies perceive them) are compared with primary marketing objectives (analysed in the previous paragraph), the outcome is quite curious. On the one hand, a high degree of consistency exists between:

- Customers' expectation of trust and long-term relationship building, and companies' focus on fidelization and strengthening of current interactions.
- Customers' expectation of high-quality products and services, and companies' focus on consolidation and enhancement of brand value.

On the other hand, however, acknowledged importance of personalization as a customer requirement lacks a match with personalization as a marketing objective: in fact, only 40% of companies reported consistent evaluations in both questions. This reflection needs further evidence to draw conclusions thereon.

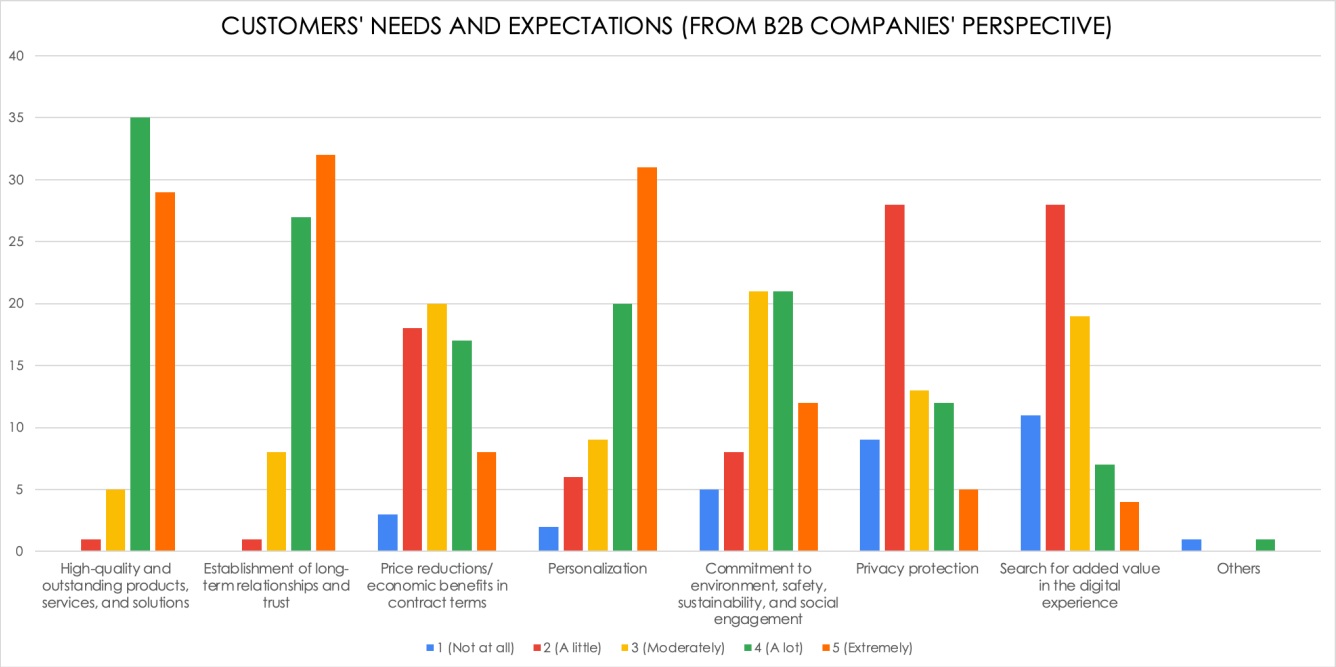


Figure 24 – B2B Companies' perceptions about Customers' needs and expectations
Q: In your opinion, what are customers' primary needs and expectations towards your company?

The Role of the Customer: B2C/B2B2C Enterprises

In parallel to B2B companies, B2C[77] enterprises have also been surveyed about the presence and scope of direct interactions with customers and consumers, and the role they play in the ideation and development of marketing offers. In this case, those forms of customer involvement typical of B2B firms (e.g., partnerships, exclusive digital interactions, cooperation agreements, and so on) cannot be implemented, due to evident physical and time constraints. Thus, the concept of "deep customer insights" has been used to address the broad idea of involving consumer crowds in the marketing process. The term refers to certain market research methodologies based on (1) observation of the customer/consumer in the context of use; (2) creation of scenarios and personas that work as representational models of customers and prospects; (3) realization of product or service prototypes. In principle, all this aims at designing a value proposition that is as bespoke and tailored to the individual who will use it as possible, i.e., a marketing offer that allows consumers to tackle and solve a specific problem they are facing, in a way that feels personal and suitable to them. Observation of customers and users in the context of use is the most widely adopted technique (found in 48,6% of companies in the B2C sample): direct involvement in design, development, and marketing processes (as in the B2B context) is replaced

[77] In the remaining of this work, the concept of B2C will be used to refer to both pure B2C and B2B2C enterprises, i.e., those companies that do not access consumer markets directly, but via another business intermediary, either as e-commerce or offline.

with collection of insights in the field, where customers behave spontaneously and become important sources of knowledge about strengths, weaknesses, and core elements of a value proposition. Insights generated by observation can become the foundation for the creation of scenarios and buyer-personas and the construction of customer journey maps (reported by 20% and 5,7% of respondents, respectively): representing a potential interaction between the customer and the brand, integrating all information along path to purchase and at single touchpoints, is instrumental to gain a holistic view of the entire customer or user experience. Furthermore, these practices also constitute a useful and empathic manner to deeply understand and listen to the customer's point of view. Acquiring market knowledge from such sources generates precious feedback to improve and enhance customer experience, for example by applying collected data and ideas to product, service, or solution prototyping – which is diffused in 28,6% of B2C businesses. Firms that tend to put in place techniques for deep customer insights exhibit medium or high levels of integration between marketing and ICTs, as these technologies facilitate the entire process and make it more efficient and convenient. Three quarters of them also prioritize innovations in product design and promotion, communication, and commercialization strategies – for which advanced information about customer preferences is necessary. Accordingly, B2C companies seem to care about and focus on perspectives and needs of their customers in the creation of marketing strategies, even though they reveal weaknesses in the adoption of more complex deep customer insights techniques. For example, customer journey maps and trial-and-error processes based on customer feedback are implemented only by 2 and 3 companies respectively, which are characterized by design-focused production and highly structured products.

To support this conclusion, it is necessary to highlight possible links or discrepancies between these outcomes and other two sets of variables: perceived customer needs and expectations, and brand core values. While, for B2B companies, personalization, relationship building, and quality stand out (Fig. 24), B2C companies do not exhibit the same high-impact results (Fig. 25). In the first place, high-quality and outstanding value propositions gather the highest consensus as primary customer requirements, with 88,6% of enterprises assigning a value of 4 (a lot) or 5 (extremely). Predictably, this is common to both groups of firms: every type of customer would like to receive a product or service of high quality, characterized by differentiation and outstanding performance compared to other options in the same competitive sector. One of the participants highlighted the fact that sometimes customers' expectations for high quality are accompanied by a claim for low prices, which appear to be linked with the idea of "Made in Italy" because of unfair competition. This company works in the design and craft production of apparel and fashion accessories, an industry where

fast fashion trends are having a huge impact on customer decision making and product selection; concurrently, handmade products are increasingly coming to represent niche markets for high-end customers.
Fidelization is another aspect B2B and B2C companies agree upon: both believe customers expect them to take actions and develop CRM and branding dynamics that increase satisfaction, thus engagement and loyalty. However, differently from the B2B context, B2C customers are assumed to be more concerned about brands' commitment to sustainability, safety, and social issues: 68,6% of companies, in fact, view these topics as paramount expectations. Consumers are increasingly speaking out on the importance for brands of being sustainable, careful about environmental consequences of business production; moreover, recent occurrences have also brought to light the need to take a stand in political and social causes, such as race and gender inclusion or the fight against discrimination based on sexual orientation. Thereby, companies' widespread statements of sustainability endeavour and support to social issues. Likewise, privacy protection and digital experience should be taken into account way more, becoming part of companies' core vision: on the one hand, delivering a digital-first experience is of paramount importance in today's world, especially to B2C consumers, who tend to be more attached and loyal to state-of-the-art brands. On the other hand, intensive adoption of digital devices also requires caution and consciousness about how available customer information is utilized, which is indeed a burning and debated topic. Yet, privacy protection and digital experience are not considered top-priority requirements by B2C firms, at least not in a remarkable way; it is also worth noting that B2C businesses estimate lower privacy concerns among customers compared to B2B ones. This factor might actually point out weaknesses in observing real-life social environments and generating actionable insights, a gap preventing companies from understanding customers' genuine interests.

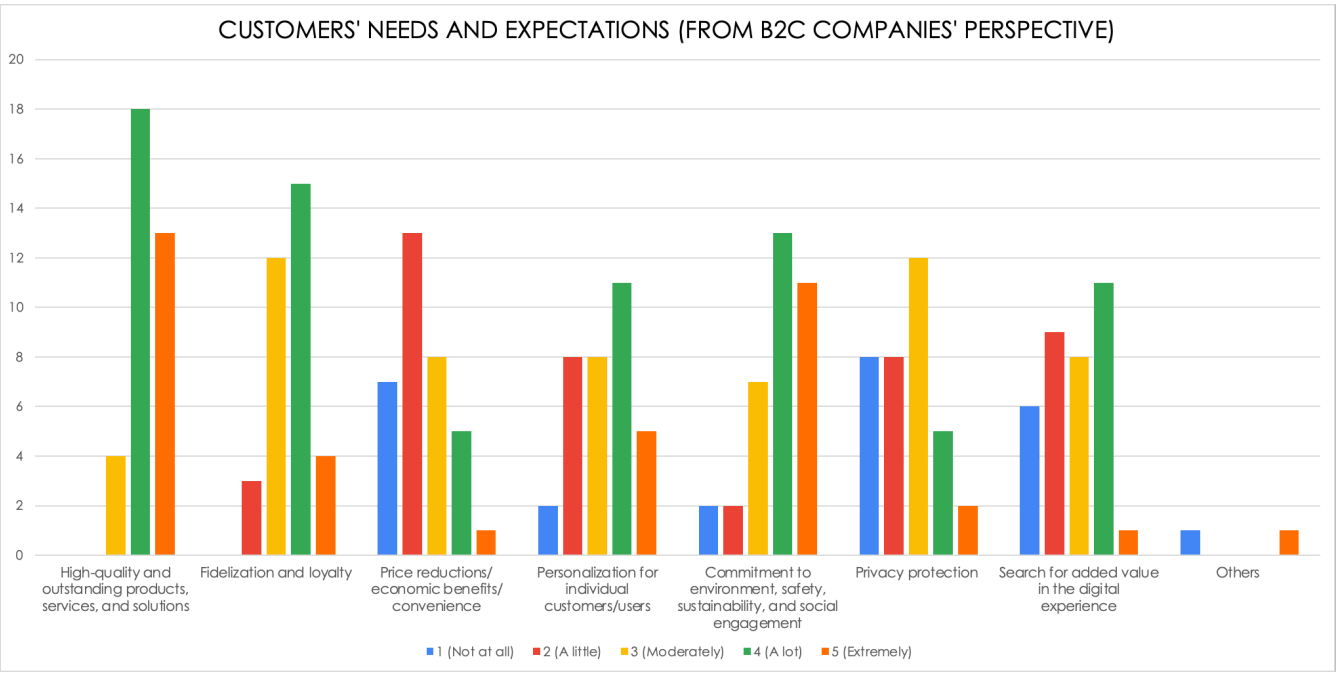


Figure 25 – B2C Companies' perceptions about Customers' needs and expectations
Q: In your opinion, what are customers' primary needs and expectations towards your company?

In addition to these aspects, B2C enterprises have been specifically asked to assess which topics and values they focus on in brand communication, channel choice, and content selection. In this case, high values are generally assigned to all alternative answers, as shown in the graph below (Fig. 26[78]). Sustainability, 360-degrees innovation, and enhancement of the "Made in Italy" brand are the most diffused core values when companies design their brand strategies: this is in line with the nature of competitive advantage of Venetian SMEs, as these aspects are crucial to achieve differentiation. To a lower degree, but still remarkably, 62,9% of B2C companies emphasize uniqueness and centrality of each customer as a single individual, which is reflected by combined adoption of several deep customer insights activities. Consistently, being close to the customer, delivering empathy, conveying trust and emotional connection, and customer protection are viewed as major core values by three quarters of enterprises. The absence of physical interactions imposed by the recent health crisis has given a new meaning to proximity, a modern need to be present but remotely; managing relationships with customers has become more complex, as the latter are now more aware, more conscious, more sensitive to

[78] The evaluation scale is the same used for previous ratings, namely a 1-to-5 points scale where 1 indicates the lowest degree of importance and 5 is the highest. In the graph, the lightest colors correspond to a value equal to 1, whereas the darkest colors relate to a value equal to 5 (from the bottom to the top of the graph). Also, numbers are reported in absolute terms, not in percentage. The bar "Others" is dedicated to additional specifications expressed by respondents, even though no further insight has been provided for this question.

necessities that were previously latent. Hence, companies seem to (actually, have to) acknowledge these changes and strive to emphasize the "human touch" in content creation and communication. Finally, digital-first experience and omnichannel represent core values of their communication strategies only partially, consistently with the belief that consumers' expectations are not centred on digital.

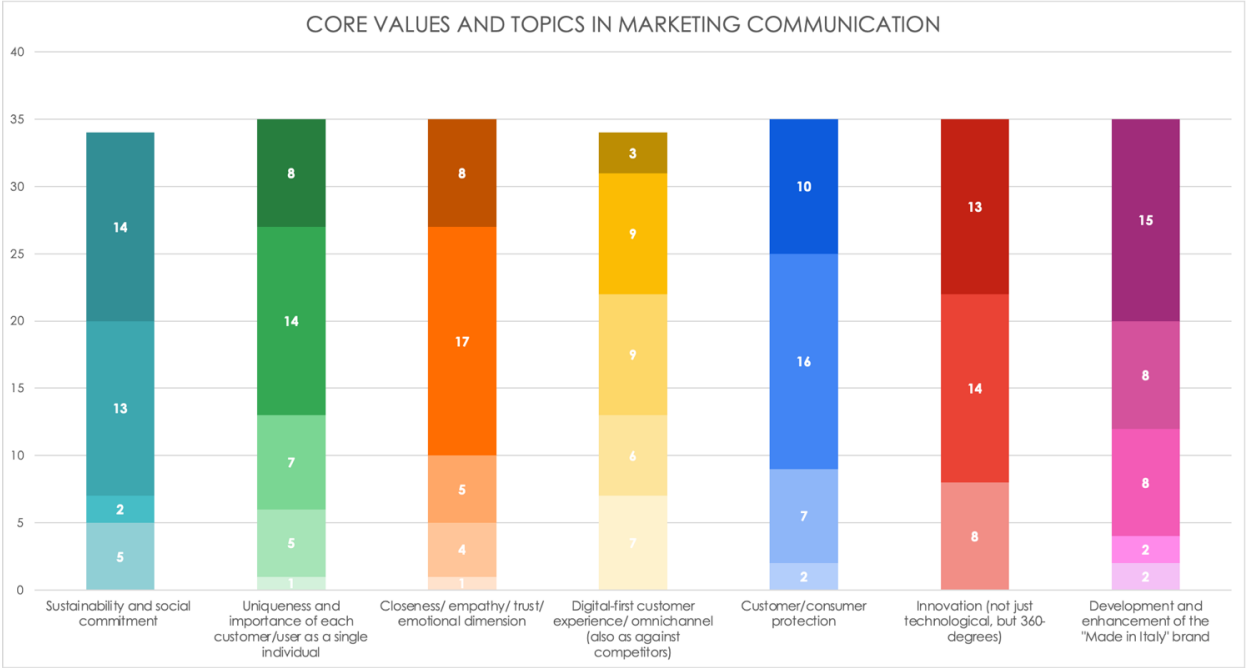


Figure 26 – Core Values and Topics in Communication and Branding strategies of B2C Companies
Q: What values and topics does your company focus on in brand communication, content selection, and channel choice?

As specified at the beginning of this paragraph, results of the remaining questions will be presented through a joint, comparative explanation of B2B and B2C enterprises.

The Role of Big Data and Smart Technologies

Since the purpose of the present work is closely related to the technological and digital realm, both B2B and B2C companies have been asked about:

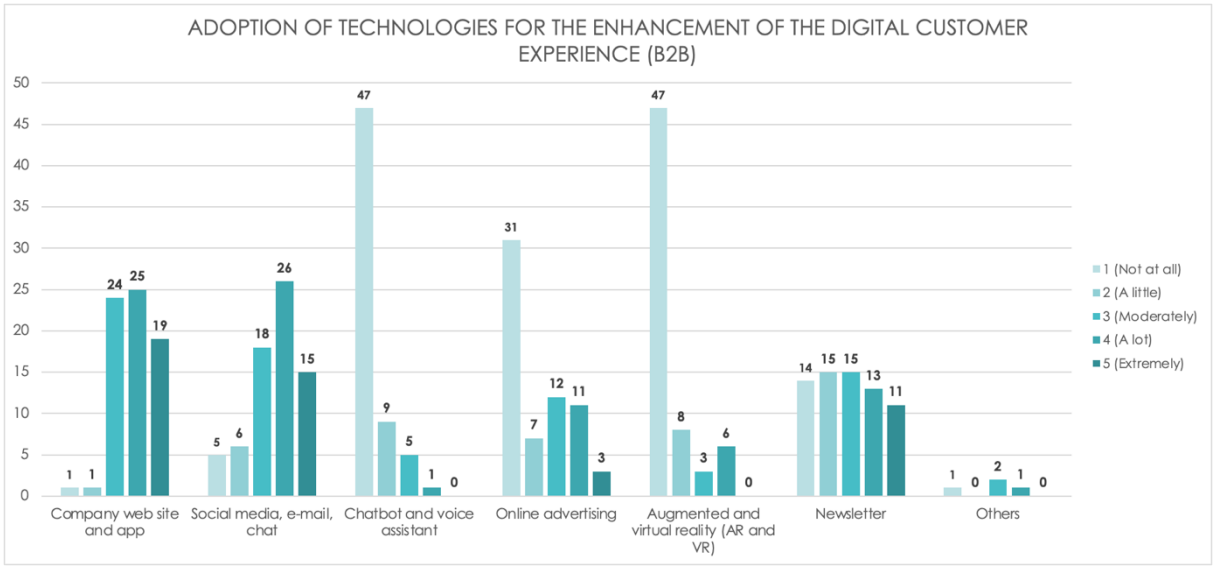
A. The tools and technologies used to enhance the digital experience of customers.
B. The relative preference for traditional vs more digital and technological marketing channels.
C. The data insights and analysis systems they leverage the most, in order to profile customers and users in the creation of marketing strategies.
D. The purposes for which data and information deriving from profiling and targeting activities are used.

Analysis of answers will attempt to point out the rationale behind customer data use and their relevance in the definition and implementation of marketing strategies: the aim is to identify possible correlations between the degree of personalization companies argue to adopt and factual purposes of profiling and targeting activities based on Big Data and AI.

To these ends, adoption of digital tools and technologies for the development and improvement of the digital customer experience can be a first significant indicator. Moreover, according to what has been said in previous chapters about digital footprints and customers' information availability, the level of adoption of these tools can be linked to the potential access and amount of data about business customers and consumers available to firms.
Through the usual 5-points evaluation scale, participants have been asked to rate their reliance on different kinds of technologies: some of them are rather old, basically regarded as core ICT assets for a company by now, such as web sites and apps, newsletters, e-mails, or social media; others are more cutting-edge, tendentially found in highly innovative enterprises, like chatbots and voice assistants or augmented and virtual reality (AR and VR). In percentage terms, B2C companies record higher positive values compared to B2B ones, but it is worth reminding that the two groups have different dimensions (70 B2B compared to only 35 B2C), therefore relative proportions need to be weighed against overall numbers.
B2B and B2C businesses exhibit quite homogeneous trends: both groups are strong in the provision of web sites and apps, and they also have a well-established social media presence (Fig. 27). Nevertheless, businesses dealing with consumers exploit these channels more than business-oriented enterprises: while the former tend to exhibit peaks along the evaluation scale, marking a more intensive use, the latter are more distributed on lower values. This might also depend on the fact that B2C firms leverage blogs, forums, and other platforms that typically host consumers and users rather than business customers, and they are considerably more involved in practices like online advertising and influencer marketing compared to B2B counterparts[79].
Delivering added value and a seamless digital experience is not only about broadly addressing customers through as many channels as possible; rather, it is extremely important to speak to and connect with each of them providing solutions they are looking for. In other words, being creative to serve the needs of the audience at different touchpoints. One of B2B respondents has specified its company adopts this type of strategy, i.e., inbound marketing. In the B2C group, instead, a business

[79] As the graph shows, influencer marketing has been analyzed only in the B2C context, as it is generally a more diffused strategy in these companies, rather than in B2B environments.

operating in the lighting industry has highlighted they themselves have designed and developed a software to integrate all marketing functions with the need to make their products' lifecycle longer, with a view to sustainability and quality enhancement.
On the other hand, low adoption rates are recorded for advanced technologies (chatbots, voice assistants, AR/VR): those who invest in this field are equally split between B2B and B2C and generally integrate digital in both back-end and front-end marketing activities.
To sum up, delivering an immersive, rich digital experience appears to be more a B2C rather than a B2B feature, and the average degree of digitalization in this realm is more advanced for B2C enterprises. Surprisingly, small- and medium-size firms are the most innovative and leading-edge in the sample, representing 80% of adopters of modern digital interfaces; big corporations investing in these tools, instead, constitute only 20% of them.



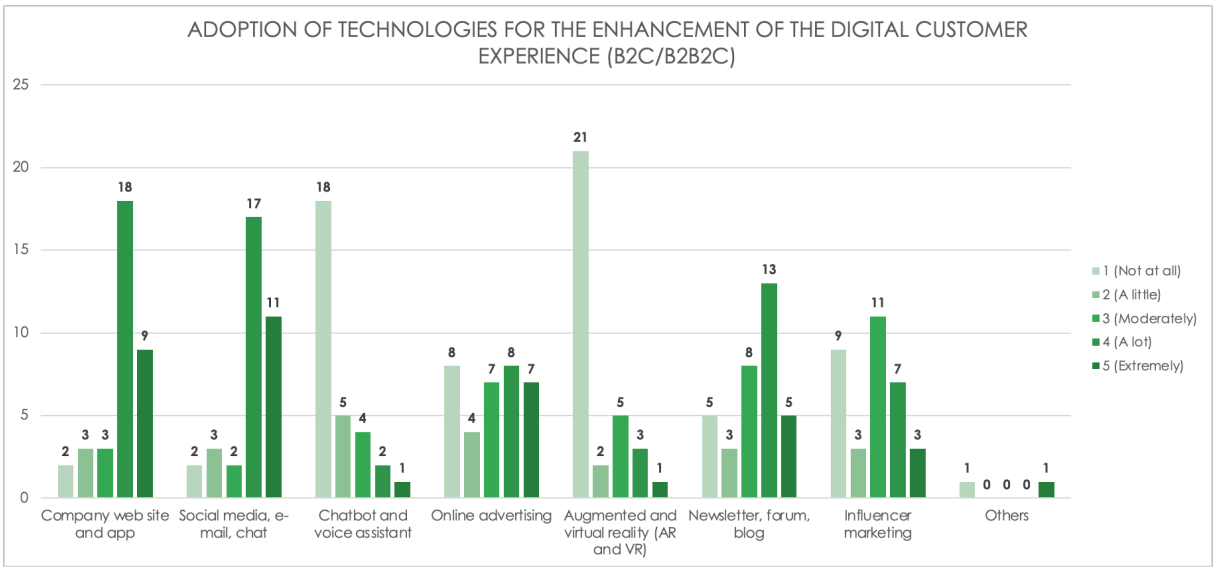


Figure 27 – Adoption of Digital Technologies and Social Platforms to enhance the Customer Experience in B2B (top) and B2C (bottom) companies
Q: Which tools and technologies does your company utilize to enhance the digital customer experience?

With reference to this topic, a second feature to be analysed is the relative prevalence of traditional marketing channels[80] compared to more digital and technological tools. It can be seen that the patterns highlighted above are a little mitigated here (Fig. 28): B2B companies exhibit a lower incidence of traditional marketing channels compared to digital interfaces, with 50,7% of them stating the former constitute less than 25% of total channel adoption. Differently, only 37% of B2C companies have reported the same proportion. Looking at situations where traditional marketing channels own larger shares of total channels, the trend recurs: as the relative use of traditional technologies for communication, promotion, and interaction increases (between 25% and 50%, between 50% and 75%, more than 75%), the B2B group shows a progressively sharper reduction of companies, marking a general propensity to digitalization. In the B2C segment, percentages diminish likewise, but still these firms tend to lag behind.

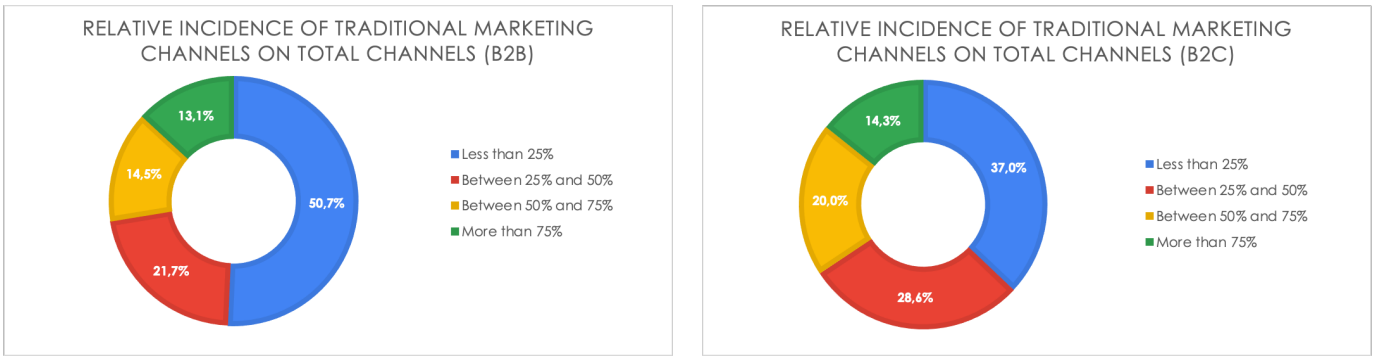


Figure 28 – Relative incidence of Traditional Marketing Channels on total channels adopted by B2B (left) and B2C (right) companies
Q: Referring to traditional marketing channels, what is their relative incidence compared to more digital and technological ones?

In my opinion, it is important to point out that when traditional channels are outnumbered, this is generally linked to high importance attributed to the digital customer experience: a strong presence of web sites, apps, social media, newsletters, and (to a lesser extent) online advertising can be observed in companies utilizing traditional marketing interfaces for less than 25%. However, there is a portion of businesses, mainly B2B, which adopt more traditional channels, but still commit many resources to various dimensions of digital experience.

[80] Traditional marketing channels refer to interaction and communication tools like TV and radio advertising, pamphlets and flyers, in-store promotion, banner ads, and so on.

In this respect, B2C companies have also been asked about the presence of an e-commerce platform. The split between “yes” and “no” is quite equal, with 45,8% of enterprises stating they already have a well-established e-commerce platform; 3 participants also gave further details – one of them runs a B2B-only e-commerce web site, one argued its company is working to develop a more advanced platform, and another said they have introduced a new e-shop since a few months, but they have to wait to gauge actual performance results. The remaining half is uniformly divided between those firms that do not have an e-commerce currently, but plan to develop one in the future (28,6%), and those which do not have it at the moment and are not planning to establish one either (25,7%).

The fact that digital technologies yield quite elevated adoption rates, and the presence of a well-established e-commerce platform in half of B2C enterprises, are particularly relevant in this analysis: when integrated with customer data platforms or CRM databases, they produce tons of detailed information about customers and users, that serve profiling and targeting processes.
Hence, the next stage of investigation relates to what kinds of data insights and data analysis systems are leveraged the most to profile customers and users in the creation of marketing strategies. As far as B2B companies are concerned, a quick overview of the graph is enough to outline the situation (Fig. 29a): companies implementing 360-degrees integrated systems are still scarce. Many of them report very low or absent adoption of data-driven technologies, especially regarding AI, Machine Learning, and collection of data from third parties; at the same time, those who implement such technologies generally indicate an average but not advanced stage of development of data management infrastructures. Traditional market research methodologies have received the highest ratings, with 57% of companies attributing a value from 3 to 5: this implies that, even though the merging process of marketing and digital technologies is already in place, B2B SMEs still have a long way to go. Some of them (24,3%) are not even adopting any kind of advanced data management system and keep remaining attached to standard procedures and routines. Apart from them, there are also several firms that feature significant innovative infrastructures: according to collected results, data mining and data analysis software (32,9%), first-party data (28,6%), and CRM databases (35,7%) are the most common forms of extracting and managing customer information in this set of companies. Such data are usually internal to the organization and derive from pooling and analytical processes on transactions, customers’ information and preferences, CRM activities and software (22 participants have explicitly indicated which CRM software/database they use, either as a SaaS or as an internally developed program). As specified by one of the

respondents, analytics on social media interactions and user-generated content constitute a further fundamental source of insights.
Considering only those firms that adopt 3 or more different data-driven systems (14), more than three quarters of them also report to undertake several collaboration projects with their clients: the two factors might be correlated, as information collected during such collaborative initiatives can be recorded and stored into databases, to be utilized in decision-making processes. Exploitation of third-party data is rather low and this can be seen as a positive trend in terms of privacy and data protection – the problem of customers losing track and control on their own information when this is sold by one organization to another has been discussed in previous chapters. 7 respondents report the adoption of Machine Learning and AI, where customer data deriving from above-mentioned sources are used as input for algorithms to predict future trends and strategic choices along marketing and sales pipelines.

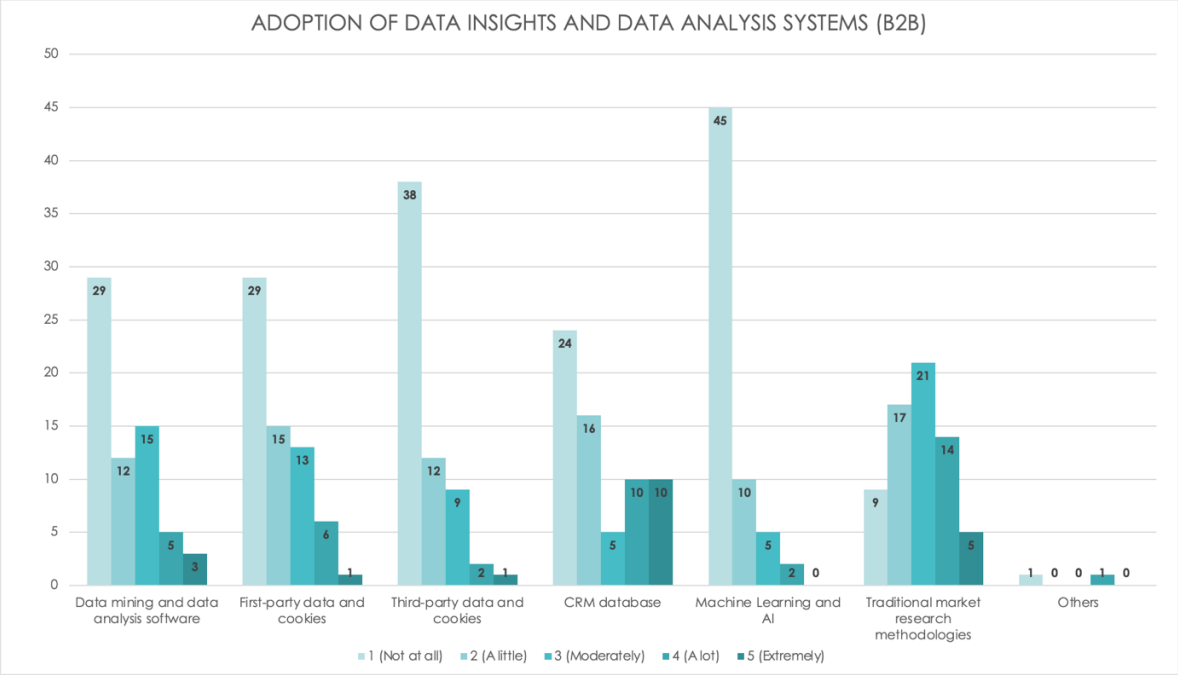


Figure 29a – Data insights and data analysis systems adopted by B2B companies
Q: Which data insights and data analysis systems does your company deploy to profile customers and users in the creation of marketing strategies?

The B2C landscape is quite different (Fig. 29b): in general, these companies are observed to approach data-driven marketing systems to a greater extent. In the first place, each single enterprise tends to go beyond conventional market research – which, however, still represents the heart of data collection techniques in the sample – and runs several data management platforms in an integrated manner. 13 on 35 companies (37% vs 20% of B2B activities) carry out three or more different

technologies, among which data mining and data analysis software, first- and third-party data, and CRM databases are diffused to the same extent across industries. At the same time, like in B2B companies, Machine Learning and AI earn the lowest values, with only 6 companies investing in algorithmic analysis and predictions. The adoption of many data-based systems and the presence of an e-commerce web site might imply that B2C firms develop enhanced technological infrastructures to monitor and improve the online experience of their customers and users, and then leverage data and information collected from digital platforms for their marketing decision making.

Considering the 27 most innovative firms (14 B2B, 13 B2C, all of them utilizing three or more data-management systems), the picture is rather diversified:

- On a cluster basis, 6 companies belong to the Smart Agri-food RIR, 10 to Smart Manufacturing, 4 to Sustainable Living, and 7 to Creative Industries.
- 70,4% of them has a leading-edge marketing vision, giving a lot of importance to innovation in this department and to performance evaluation related to overall business achievements and to customer satisfaction rates.
- All 27 SMEs intensively focus on innovating and evolving product/service design, but also on continuously renovating communication, promotion, and commercialization strategies.

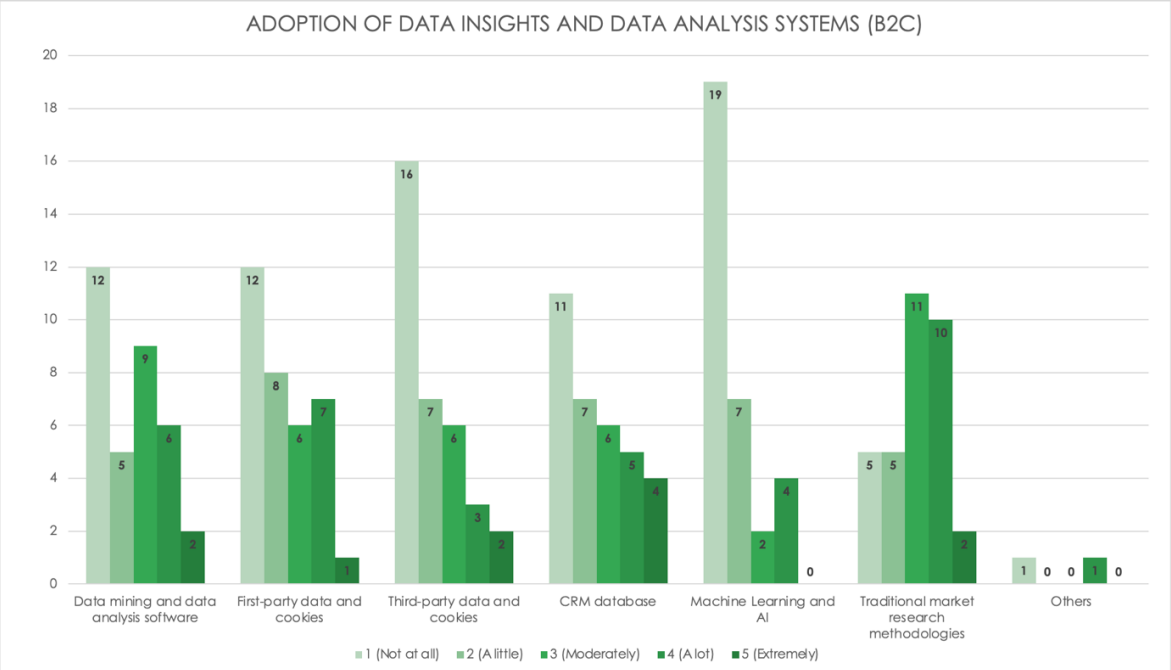
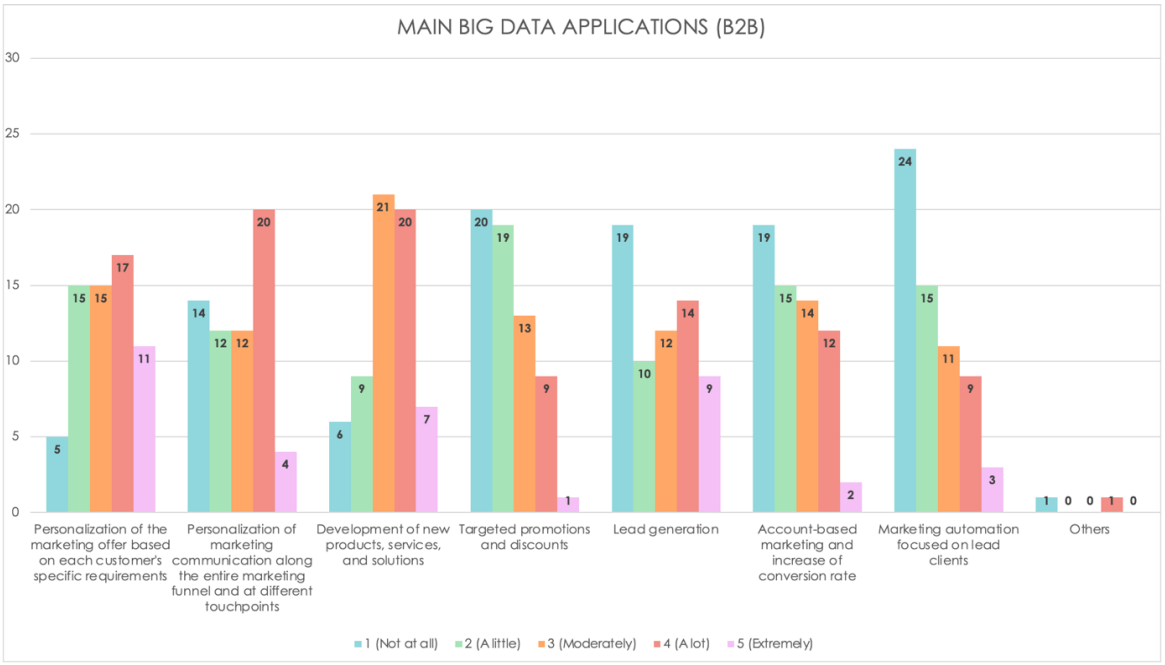


Figure 29b – Data insights and data analysis systems adopted by B2C companies
Q: Which data insights and data analysis systems does your company deploy to profile customers and users in the creation of marketing strategies?

The other chapters of this work broadly discuss types of customer data and different analytical techniques that can be applied to extract useful information from them. Hence, after reviewing survey insights about which data management platforms are mainly used in Venetian SMEs and to what extent, it is incumbent to lay out the real aim behind the use of such technologies. As a reminder, my argument is that the line between personalization and manipulation of customer information is very slight, and marketers are in fact struggling to enhance human-centredness, which is subtly being overpowered by technology. To find concrete evidence about this, the next part handles the purposes for which surveyed enterprises utilize customer data deriving from profiling and targeting activities (Fig. 30).



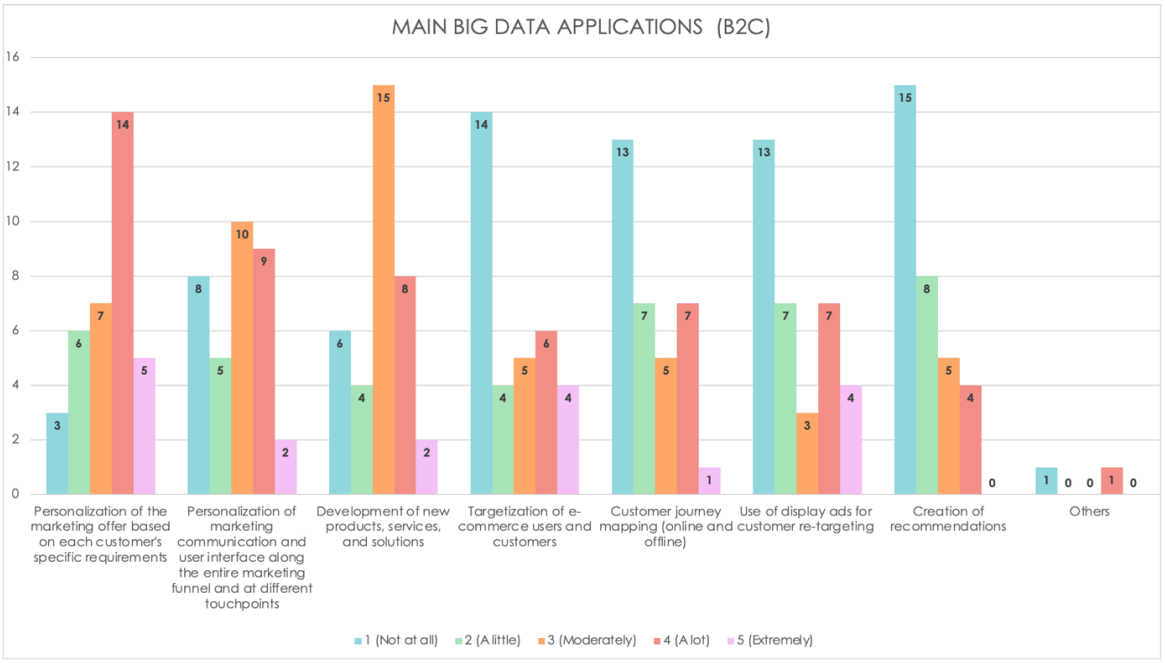


Figure 30 – Main applications of Big Data in B2B (top) and B2C (bottom) companies
Q: For what purposes does your company apply data from profiling and targeting techniques?

The first key issue is personalization: B2B firms consider personalization a core objective in marketing decision making, a prior application of customer profiled information. The latter is deployed in personalization of the marketing offer (product, service, or solution; 40%) and personalization of communication based on the unique requirements of each client along all different touchpoints in the marketing funnel (34,3%). This might be considered a typical trend in B2B markets, since companies often nurture direct relationships with business customers based on pre-defined orders, collaborative interactions, and production and marketing processes tailored to single clients. The same is not true for B2C firms, where customer relationships have a more volatile nature and are based on brand and product appeal, communication and promotion tactics, well-timed interactions, and so on. Yet, the trend does not change: personalization is viewed as a key element of marketing mission, and companies commit to leverage customers' and users' data for this aim (54,3% to personalize marketing offer, 31,4% to personalize communication).

A second point is related to targetization: it allows marketers to reach customers with extremely relevant messages, conveying all elements of a value proposition in the right way, at the right time, and in the right place. From a theoretical point of view, effective targetization generates hyper-personalization when it is done in the best interest of the business customer or the individual consumer. In the survey, B2B companies have been precisely asked about targeted promotions and discounts: only 14,3% of companies report considerable use of customer data to devise and deliver focused promotion, advertising, or price benefits, tailored to specific recipients. This insight might be interpreted in two manners: on the positive side, this could mean that marketers do not conduct targetization activities at all, relying instead on more direct connections and discussions with customers to bring new offers forward. In the present sample, this is a real possibility, because three quarters of companies not adopting targetization strategies for promotions and discounts (which constitute 55,7% of overall B2B participants) effectively commit to collaboration projects and customer involvement initiatives.
Importantly, targetization strategies are closely linked with and dependent on three other processes: lead generation, marketing automation, and account-based marketing.

- Lead generation refers to the process through which potential new customers and prospects are identified, exploiting digital technologies to prioritize the

most valuable leads and personalize marketing activities according to their requirements and preferences. 33% of sampled B2B enterprises leverage Big Data to improve accuracy and reliability of lead generation; when successful, this results in acquisition of new customers, which is indeed a top-priority marketing objective for firms focused on lead generation.

- Marketing automation comprises all algorithms, smart infrastructures, and modern technologies that optimize and automate marketing campaigns on digital channels, such as e-mail, social media, mobile devices, online advertising, and so forth. Marketing automation enables lead generation and assessment, monitoring of marketing strategies, and personalization of customer experience. In a B2B environment, automation is fundamental to nurture and strengthen relationships with customers (which can take a lot of time to build and manage), as it offers content and information targeted to specific strategic touchpoints along the path to purchase. The sample, however, exhibits low levels of marketing automation, which can be found in 12 companies on 70: these are basically the same companies that undertake lead generation processes. Therefore, it can be assumed that they collect customer insights that feed marketing automation technologies to create relevant cues for lead identification and generation.
- Account-based marketing leverages insights from targetization and automation processes to align marketing, sales, and service teams in a unified and shared vision about the prospect or client. By enabling an integrated collaboration between teams that engage with the customer at different touchpoints, account-based marketing identifies target customers (or *accounts*) that could potentially be addressed with a highly personalized communication. Again, results are interrelated and fit with the previous two points: companies that heavily rely on account-based marketing (20%) are prone to focus on lead generation and marketing automation too.

Regarding B2B enterprises participating to the survey, the following conclusion can be drawn: it is reasonable to argue that these firms are effectively using insights and information deriving from Big Data analytics to design and deliver personalized marketing offers, communication, and promotion. In fact, results show that almost all companies that rely on technologies for lead generation, marketing automation, and account-based marketing also place core importance on personalization, as both marketing objective and customer expectation. This finding was predictable, because B2B relationships are naturally grounded on tailored personalization and direct interactions between suppliers and customers.

Nevertheless, there are a few cases where this commitment is not clear: 5 businesses on 70 exhibit very high values in the use of customer data for generation of leads,

automation of marketing processes, and application of account-based marketing, but these are not coupled with a focus on personalization or with noticeable customer centrality. Two of them give preference to more company-oriented objectives, such as consolidation of brand positioning and brand value, acquisition of new customers to expand their client base, and introduction of new products, services, and solutions. In these cases, Big Data are likely to be a tool that marketers use to monitor how customers behave in the marketplace, how their purchasing processes work, and which relational and business elements are valued the most. The ultimate objective would be to find the perfect product placement and brand communication strategies that generate the highest reach, engagement, and sales.

Resuming from the targetization discourse, 28,6% of B2C companies state the use of Big Data and profiling techniques for targetization of e-commerce visitors, users, and customers. To gain a deep understanding of the meaning of these values, they need to be compared against three other data-driven marketing activities.

- Customer journey mapping deals with graphically outlining and visualizing all different touchpoints forming a possible scenario of interaction between a customer/user and a brand (see Chapter 2). As already discussed, this activity is particularly useful in producing comprehensive insights about individual paths to purchase, and it belongs to those sets of practices that identify with a customer-centricity mindset. Less than 23% of B2C respondents is applying customer data to this kind of activity.
- Use of display ads is an advertising technique that aims at re-targeting online customers and users, showing them specific products that should re-direct their attention and trigger certain calls-to-action. Developing displays ads based on customer data means, for example, addressing users with personalized messages that remind them of their abandoned carts or incomplete purchases. More than 30% of B2C businesses in the sample adopt display ads to re-target their online customers, to stimulate engagement and purchases, thus boosting sales.
- Creation of recommendations is another field of application of customer data: as discussed in Chapter 3, online buyers are monitored so that their preferences about product features, price ranges, shopping time and location, etc., are recorded and stored. Such information can then be leveraged to suggest similar products based on purchase histories or other criteria (see Chapter 3). Creation of recommendations is not considered a priority application of customer data by surveyed B2C companies, as only 4 on 35 state to implement them “a lot”, while 5 of them “moderately”. Such a low level of diffusion might be due to the fact that recommendations are usually

generated by algorithms, therefore require advanced Machine Learning technologies that only a few companies in this sample have introduced.

If survey results about these three data-driven activities are combined with results about the use of customer data for targetization, a fuller picture about the role of Big Data in B2C businesses can be obtained. First of all, targetization of e-commerce customers and users is averagely diffused, as 42,9% of companies adopts this strategy either moderately or intensively. Among these, 11 firms also leverage customer profiles to propose display ads and/or product recommendations, increasing targetization accuracy and reach. I believe this scenario can have two different avenues for interpretation:

1) When targetization, display ads, and recommendations are implemented in a context that favours 360-degrees personalization and stimulates a human-centred marketing vision, the use of Big Data can be considered beneficial, a lever to the advantage of customers and users. This is the case of those companies that align their personalization and targetization objectives with customer expectations (28,6% of total B2C), drawing on practices and routines that foster an integrated and holistic view of the customer experience (e.g., customer journey mapping). A look at stated core values and main topics in brand communication further confirms this conclusion: these customer-centred marketers appear to seize digital channels opportunities in a conscious manner and to be careful about conveying empathy and proximity, protecting customers' privacy, and recognizing uniqueness in each individual per se.
2) A second perspective relates to those companies that implement targetization, display ads, and recommendations based on customer information, but do not consider personalization a core marketing objective – although they perceive it as an important expectation on the part of consumers. In this regard, the exploitation of Big Data is not properly intended to enhance the digital experience itself; instead, it is possible that targetization, display ads, and product suggestions are utilized in favour of business-centric goals. This is reflected in the fact that these companies (5) are driven by a different marketing vision compared to the previous group, more oriented towards innovation and revival of the "Made in Italy" brand; probably, they are more focused on performance recovery after the pandemic. Reconnecting to the concept of customer surveillance analysed in Chapter 3, such enterprises are potentially utilizing Big Data in profiling and targeting processes to influence the path to purchase of their customers to the corporate advantage.

4.4.4. A Final Look: the Future of Marketing

This last paragraph of results analysis will be dedicated to the final questions that close the survey: participants have been asked to give their personal opinion about what function will characterize the role of the marketer in the future, taking into account the consequences of the Covid-19 pandemic, and eventually writing down suggestions and cues they found interesting or relevant. In this latter space, respondents have been invited to briefly (and optionally) describe how the health crisis has impacted all the different aspects analysed in the survey: (1) the suddenly crucial importance of digital infrastructures and technologies, due to lockdowns and social distancing; (2) the reallocation of resources and competences to proactively respond to the transformed needs of customers and consumers, who are now much more conscious, cautious, and demanding towards brand claims and promises; (3) the changes and adjustments of product, communication, promotion, and commercialization strategies, and novel core values characterizing the marketing vision of the company. Choosing between a set of four alternative options, respondents have indicated what function will prevail and be distinctive of the role of marketers in the future: as figure 31 shows, answers are distributed across the four options.

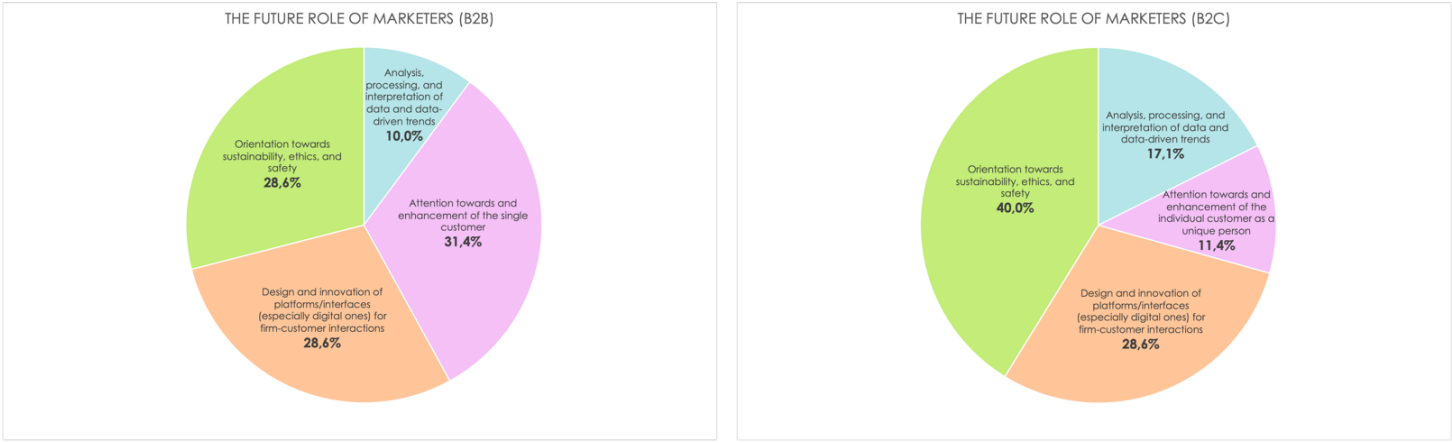


Figure 31 – The Future Role of Marketers according to B2B (left) and B2C (right) companies
Q: What function do you think will be predominant for the role of marketers in the future, also in the face of new dynamics and transformations generated by the pandemic?

In the B2B context (left part of the graph), "Attention and enhancement of the single customer" collects the highest consensus, with 31,4% of companies believing it should represent the heart of marketing decision making. Throughout the survey, the same companies have also given a lot of strategic importance to personalization in every aspect of their marketing offer – from product to communication and promotion -, to privacy protection, and to the construction of long-term relationships and trust.

Interestingly, all of them exhibit a rather low degree of application of advanced technologies for customer profiling and targeting: this might mark a preference for direct interactions with clients, backed by a strong presence of collaborative projects and customer involvement programmes. Hence, it is reasonable that these companies perceive the future of marketing as being focused on the customer as a specific entity, not only ideologically. One of these respondents has also shared his/her reflections about the consequences of the pandemic: in particular, the crisis has accelerated the digitalization process, which was already in place, but still at an embryonic stage. The company has benefitted from the accomplishment of the process, leveraging digital dynamics, tools, and platforms that have proved extremely useful in terms of communication and engagement with customers and prospects; furthermore, gains have emerged in relation to marketing ROI and efficiency of the commercial pipeline.

In comparison, B2C enterprises (right part of the graph) have a different view on the future of the marketing function, with only 11,4% of them envisaging "Attention towards and enhancement of the individual customer as a unique person" as a core element[81]. These businesses are all design-driven and operating in creative industries, where a focus on individual users is (or at least, should be) intrinsic to organizational and marketing mindset. Three of them show the same trends: they primarily focus on product and service personalization; they exhibit very low interest in the development of a digital-first customer experience and have not implemented any kind of Big Data analysis and storage system; they are committed to keep entrepreneurial traditions typical of the craft production world, and this translates in their core values, which are geared towards customer uniqueness, empathy, and devotion to Made in Italy. As in the B2B context, the rationale underlying all these features reveals the importance of the human dimension to these enterprises.

The fourth company forming that 11,4% is in contrast to these tendencies. With its huge business in the textile industry, it is way more innovative and up to date: its marketing vision is centred on enhancing brand image and positioning, expanding its customer base with new entries, providing a highly personalized value proposition that strengthens loyalty. The company invests a lot on digital interfaces and platforms that make customer experience more comprehensive, and it leverages Big Data opportunities to the benefits of its customers (personalization is the highest-priority application). Innovation, privacy protection, and promotion of Made in Italy are the core marketing values driving the brand. Notwithstanding its leading-edge vein, this company acknowledges the need to integrate personalized digital interactions with

[81] It is fundamental to remind that, given the dimensions of the B2C sample, a percentage of 11,4% corresponds to 4 companies on a total of 35.

an offline human dimension, especially in times when proximity and direct touchpoints are constrained more than ever.

“Design and innovation of platforms and interfaces for firm-customer interactions” is the second most cited role that B2B and B2C firms expect for marketers in the future: in both contexts, 28,6% of companies have chosen this answer. In this case, firms believe the future marketing function will predominantly revolve around the ideation, design, management, and development of interfaces to facilitate and nurture relationships with customers, either as businesses or consumers. Clearly, such interfaces will be mainly digital and virtual, reflecting the currently ongoing digitalization process. However, also in light of the previous point, the supremacy of digital-first interactions must not put the vitality of the human side of relations aside. Therefore, farsighted marketers will be the ones who are able to combine the two dimensions in an integrated manner, eventually providing proximity, empathy, and closeness through digital tools; in other words, delivering personalization and making the single customer feel unique and listened by tailoring every part of the interactional interface to the individual/organization. In this respect, one of the participants has pointed out its own answer instead of choosing between pre-arranged alternatives: his/her company believes the future marketer will need the capability to effectively merge traditional and digital tools and channels (which is precisely what I was referring to right above). B2B and B2C enterprises that have chosen this answer show consistent features among one another: each of them focuses on personalization, most of times together with customer fidelization and brand enhancement; they attach a lot of importance to digital experience, and tend to rely on channels and additional services (even if not exclusively) as innovation levers; regarding B2C companies specifically, the heart of their brands resides in core values like customer uniqueness, delivery of content based on empathy and emotional sphere, strategic relevance of omnichannel, and holistic innovation.
Many of these companies have added further contributions to the discourse about the consequences of the pandemic. A widely diffused impact has certainly been the introduction, improvement, and advancement of digital tools and platforms: many enterprises have suffered the lack of direct contact with their customers, normally used to attend tradeshows, meetings, visits, and promotional events; hence, they have understood the opportunity to compensate with social media, video calls, webinars, and online networks. In one case, a wine company has increased budget for social and Google sponsorships and has launched a re-branding program for its core brand, also arranging a streaming presentation event on its web site. All of them agree on the fact that digital marketing and communication tools surely provide more opportunities in terms of speed, effectiveness, and targetization, but they require a

clear vision and commitment, a well-planned outlining of marketing objectives. Broad acknowledgement of the importance of being more focused and committed to communication and CRM activities has been reported, especially by B2C companies: consumers and users need to be treated even more thoughtfully during hard times. E-commerce and online sales also have gained an essential role during lockdowns, pushing businesses to develop or upgrade their e-shops and, additionally, to establish their presence in other marketplaces and multi-brand platforms in their industries. These interfaces have an important function in post-sale support too, in consideration of mobility limitations.
Even though general sentiment is quite positive, the emergency has severely affected some companies: in particular, this happened to those B2B businesses whose marketing and CRM activities heavily relied on physical meetings and exhibitions, and whose products need to be experienced, analysed, and personalized first-hand. The abrupt lack of such opportunities and the consequent decline of demand have forced firms to reallocate financial and human resources elsewhere in the organization, reconverting workforce and setting marketing initiatives aside. For one company operating in the tanning industry, digital marketing has not proved useful in the past: their craft products address the B2B market, where they enrich their customer base and establish their sales network through direct contact with clients. They have already tried to implement a CRM software but had to withdraw it to prioritize production and sales achievements. They are aware their marketing department is at an initial stage of development, due to poor resource allocation and planning, but they are hopeful and proactive to set up a proper marketing renovation project in the future.

“Orientation towards sustainability, ethics, and safety” is expected to be the core purpose of marketers in upcoming years in 40% of B2C firms, whereas it elicits less interest among B2B companies. Looking at the two groups together, half of them (17 on 34) belongs to the “Smart Agri-Food” RIR cluster, namely they operate in the agricultural/farming sector, or in the food and beverage industry. This is quite logical: these industries are closely connected – both physically and ideologically – to the environment and the social life of communities, therefore such enterprises will tend to be more focused on activities and initiatives that have an impact on such contexts. This also explains why B2C firms place more importance on this field of intervention rather than to other marketing functions, compared to B2B ones: consumers have lately become increasingly interested and concerned with the impact of industrial production on nature and climate, and they claim the right to access information about products’ sourcing, processing, and packaging. Companies believe they will see stronger commitment to these issues, even if many have already begun to behave proactively: the majority of them have been focused on process innovation and

environmental duties for a while, and have not hesitated to make them core values in their communication and branding strategies. In this sense, they have recognized and embraced the important transformations in customers' purchasing decisions, especially in the furniture and food and beverage industries. In the former case, one of the participants has pointed out that the pandemic has shifted general attention towards health and high-quality living, which reflect in furniture and interiors buying choices as consumers have been forced to spend most of their time at home. Another enterprise, whose product has seen a sales boom during the emergency, especially on the e-commerce platform, has experienced a transformation in the way of doing promotion and advertising. The company exhibits an elevated integration of digitalization, which is omnipresent in its marketing routines; it employs a variety of digital interfaces to offer an omnichannel customer experience; it also utilizes many data-driven processes to collect and analyse customer data. Since the company has experienced a surge in demand, it has exploited this trend in combination with digital technologies to strengthen its business. For instance, they state, the use of display ads on social media and web sites has considerably enhanced brand visibility.

In the food and beverage business, several companies have increased their resources in social and digital communications and online sales platforms. One of them has highlighted how this last year has intensified people's attention to consume healthier and "more natural" foods and drinks, even in the market of alcoholic beverages, pushing companies towards organic production systems and greater diversification.

Social responsibility and safety are other key factors included in the concept of sustainability: in this regard, it is worth reporting the detailed reflections provided by one of the participating companies, a remarkable example of innovation in the lighting industry. Since its foundation, this company has always committed to deliver an innovative and outstanding product, but recently they have felt the need to be more proactive and sensitive to social and environmental issues: indeed, they have shared their Ethics Code with all their stakeholders and have drawn up their first Sustainability Report. They have embraced a "greener" business vision, in terms of more efficient and energy-wise infrastructures, developing safer and healthier procedures along their entire supply chain. They have also got closer to the community, focusing on delivering a brand image based on transparency, know-how, expertise, and shared values; including all stakeholders and communicating present and future company's projects is now paramount. Regarding competitive advantage, the firm has a solid core market (the hospitality sector) both in Italy and abroad, but it has diversified its production to satisfy additional market niches (e.g., dental clinics, naval production, horticultures, and wineries): to them, such a varied customer base represents a huge pool of business and innovative opportunities. The Covid-19 pandemic has posed

important challenges to this company too, but they have focused on preserving their relationships and contacts with customers: through digital communication systems, they have underlined their presence and closeness to the community. In sum, the firm has leveraged social media, web technologies, and data analytics to be more present, active, and collaborative, implementing its sustainability and social responsibility strategies.

"Analysis, processing, and interpretation of data and data-driven trend" is the last answer option, which is envisioned as the future main function of marketers by 10% of B2B and 17,1% of B2C companies in the sample. The terminology used here underlines the ongoing merging process between typical marketing activities and modern technologies, which represents the *fil rouge* of this whole work. Those companies that believe this function to be the future essence of marketing are already on their way there: they report medium to elevated stages of digital adoption, and one of their main objectives is the introduction and enhancement of novel tools and capabilities in this realm, with general commitment to improve and expand the digital-first experience as much as possible. Predominance of digital and modern interfaces over traditional ones is another distinctive feature, but advanced Big Data technologies are intensively adopted only in a few cases, while CRM databases tend to be the most common data infrastructure. Nevertheless, observed trends in the purposes for which data are used explain why these firms expect marketing to be much more data-driven in the future. In the B2B context, personalization, lead generation, and marketing automation represent the main applications of Big Data: companies have shifted their attention towards these marketing activities as a consequence of lockdowns and mobility restrictions, and plan to maintain and introduce new online and digital touchpoints in the future, recognizing this is a necessary path. Online communication and promotion have been and are still fundamental to keep track of and nurture relationships, to understand how customers are acting and what kind of decisions they are making when face-to-face contacts are limited. Yet, B2B companies are looking forward to when it will be possible to arrange in-person events and meetings again, as business customers rely on this kind of interactions and opportunities more than consumers do.
At the same time, B2C companies foreseeing marketing as a data-centred activity, tend to harness customer data for personalization, especially of communication and promotion, and targetization. As previously discussed, targeting consumers and users with specific messages, display ads, or product recommendations might yield considerable results in terms of reach and engagement; the integration of such targetization strategies with customer-centric activities, like customer journey mapping or deep customer insights practices, is likely to mark a true commitment to

personalization; this characterizes half of B2C companies in this group. Again, a large number of these firms have reported their focus on intensified digital and social communication during the pandemic, as a means to stay in close touch with consumers. A wine company in the sample has provided some insights about how they have dealt with challenges in that phase: authenticity, sustainability, and innovation have always been the pillars of expansion and business success to them. However, recently, they have also embraced the importance of being aware and regularly informed about new market dynamics and requirements: omnichannel has become a strategic must in order to know and keep up with consumers' purchasing choices. The diversification of touchpoints and sales platforms between physical and digital requires constant monitoring of each single channel, to be ready to meet customers and fulfil their needs anytime and anyplace. In such a way, this enterprise leverages technological and data-based opportunities to respond to different demands and forms of interaction, while maintaining consistency with its core values.

4.5. Conclusions and Research Limitations

The survey investigation presented in this chapter aims at providing practical evidence for the theoretical discussion highlighted in previous chapters. In particular, the purpose is to identify and lay out how companies in a specific geographical area – in this case, the RIR clusters in Veneto – are dealing with digitalization, innovation, and the juxtaposition between the prevalence of data and analysis and the focus on the human dimension of customers. In this concluding paragraph, key findings will be summarized and put together to gain a unified view of companies' main features[82].

First, among marketing objectives, surveyed SMEs primarily give attention to the brand, carrying out activities that favour its consolidation and enhancement. Customer acquisition and fidelization are indeed the top-priority goals in marketing strategies, as their success determines improvements in brand value and brand equity. Likewise, innovation revolves around these aspects: companies allocate a lot of resources and efforts to innovation in design, products, and services, and the most utilized KPIs to assess the contribution of such innovations measure customer acquisition and satisfaction. These trends are consistent with businesses' perspective about customers' needs and expectations towards them: providing outstanding, high-quality products and services is considered the most relevant element of value proposition, a trademark of Made in Italy that firms really care about. In this sense, the influence of a long-time entrepreneurial heritage is still alive in most cases, sometimes

[82] Key findings will be pinpointed for B2B and B2C firms together.

at the expense of newer and more innovative strategies and processes. Building trust and loyalty is another major marketing goal: acquiring new customers to expand competitive opportunities would not be useful without a commitment to CRM activities that nurture relationships and generate customer retention. In this regard, marketing innovation KPIs are utilized to gauge the degree of customer satisfaction, for example in terms of customer engagement, equity, and lifetime value.

A second aspect that comes into play is digitalization: integrating digital and ICTs with marketing processes has proved extremely beneficial in terms of customer observation/monitoring, performance results, and interaction possibilities. In the present sample, more than half of companies exhibit a medium degree of integration: this means they implement modern systems for performance measurement and product/service monitoring (which is considered the basic level of development), but they also extend them to promotion and communication strategies. The digitalization process can be implemented at different stages:

- Integration between marketing and digital might occur at customer level, representing a new way of delivering customer experience. Surveyed companies show high adoption of web sites, apps, social media, e-mails, and newsletters: these interfaces enrich the digital customer experience by providing close and constantly available touchpoints between the customer and the firm. They also allow proactive participation of customers, expanding promotion and communication opportunities in terms of diversified channels, broader reach potential, more engagement and involvement.

  Yet, given the exponentially increasing prominence of digital-first experiences, survey participants report rather low levels of adoption when it comes to more advanced technologies, such as chatbots, voice assistants, or virtual/augmented reality.
- Digitalization can be achieved more upstream too, i.e., the marketing department regularly deploys more or less innovative technologies to carry out back-end activities: in this case, the discourse refers to adoption of Big Data techniques and Intelligent Technologies. Again, surveyed companies show intense use of basic systems, with CRM databases, data mining and social analytics, and first-party data being the most common. Data mining and social analytics are used to collect data from online interactions on digital platforms and e-commerce web sites, from purchase histories and prior transactions, and so on – in other words, data generated by digital-first touchpoints. These are then stored in CRM databases that provide a unified and comprehensive profile of each single customer, guiding marketing decisions and strategies. The use of such information to train Machine Learning and AI algorithms to make predictions and automate decision making is mostly absent.

A third point needs to be highlighted, that combines the findings summarized so far: the scope of application of data-driven insights. First, analysed companies seem to leverage data-driven information to adapt and tailor their value propositions: personalization of the marketing offer in terms of product, service, price, and related factors, is the most cited application. Personalization of communication and promotion strategies comes in second place: customer information serves here to design and deliver valuable messages that are perceived as relevant and meaningful by recipients. This type of personalization does not come without empathy and acknowledgment of uniqueness in each customer: hence, the reported importance of fostering and nourishing the human dimension in the digital-first experience.

Weaker focus is placed on targetization activities. In the B2B context, targetization is referred to the use of customer data to identify key accounts and potential leads, subsequently applying automation technologies to marketing and CRM routines; in B2C, user information might be analysed to generate display ads, recommendations, and purchase re-direction. If, on the one hand, the majority of surveyed companies tend to primarily leverage customer data for personalization purposes, the same cannot be said for targetization. In other words, this investigation supports the argument that data-driven insights about customer needs and preferences are primarily used for marketing personalization by enterprises. The greatest part of respondents seem to leverage Big Data in the best interest of customers and consumers, to adjust their marketing offers and match demands, either in terms of product/service/solution personalization or tailored promotion and communication. There are only a few cases where some doubts may arise, a small number of companies that exploit data-driven knowledge to the business advantage, through the adoption of re-targeting and manipulation techniques.

Finally, these conclusions are corroborated by the role of future marketers as foreseen by survey respondents. B2B firms are mainly oriented towards giving more attention to and enhancing single customers: new dynamics created by the pandemic have triggered awareness and sensitivity to market requirements and relationships, inevitably transformed by the absence of social interactions and the pervasiveness of digital communication. Now more than ever, it is incumbent on B2B marketers to devote their whole mission to the customer and to personalization of relationships in a perspective of differentiation and exclusivity. At the same time, B2C firms face the crisis and the future in another way: mindful that sustainability, ethics, and safety are main concerns among consumers, they expect a stronger marketing and innovative commitment to these matters. Sustainability is also becoming a vital prerequisite of Made in Italy. In contrast, data analysis does not represent a key function or a focal strategic goal from companies' point of view, in line with what has been observed about current Big Data applications.

The outcomes of survey analysis are worth some final reflections. It is clear that this investigation has not led to new discoveries or particularly surprising conclusions: it has confirmed and supported what prior research and studies have largely reported. On the one hand, personalization, digitalization, and sustainability might be viewed as buzzwords that marketers harness to stay abreast of current trends. Such topics tend to attract consumers' attention and give a semblance of innovation, cutting-edge, and meaningfulness. Yet, the survey form does not allow to go into detail about actual cases of development in these realms: although blank spaces were left for participants to share possible interesting cues or stories, only a small part of them gave additional contributions; those who did, have not provided particularly insightful or ground-breaking witnesses. Marketers allege their philosophy and strategies are centred and devoted to the fulfilment of each customer: they strive to grasp differentiated individual details that impact the way a value proposition is ideated, designed, and delivered, and that eventually drive personalization and relevance. Expected marketing focus on single clients in the future, especially in B2B fields, is in line with the importance that each customer has for a B2B firm, where relationships and dynamics are managed in a bespoke scenario. Generalized proactiveness to expand and empower digital infrastructures is an obvious consequence of the pandemic; digital is increasingly replacing traditional channels and becoming the favoured (if not the only) interface to cultivate communication and connections, to enhance brand image and visibility, and to acquire knowledge about customer trends and habits. Sustainability is another mundane term: plenty of brands in every industry advocate endeavour towards more sustainable supply chains, greener production, social responsibility and inclusion, and this has been going on for a while now. The topic has basically become a core pillar in marketing and brand claims, as it has seen exponentially growing interest on the part of consumers and social crowds, both online and offline. Often though, it is just a statement that does not find effective or innovative applications in practice – nothing new.

On the other hand, and relatedly, the main discourse remains open: there is no practical, comprehensive evidence about the reconciliation of intelligent technologies and human-centredness in marketing activities. It has not been clarified whether marketers are truly struggling to leverage data science and intelligent know-how through a human-centred lens, with the aim of effectively providing solutions and offers tailored to the problems and context of each individual. Or, on the contrary, whether data-fed algorithms are coming to represent the latest tool that marketers can exploit to monitor trends and fads and propose products and services full-scale, indistinctly. A closer look at those participants who reported using data-driven technologies for marketing automation, re-targeting, and product recommendation purposes might unveil valuable stories about marketers' work and vision on the issue.

In an age when technology is imbued with control and competitive potential, determining to what extent it is supplanting human willpower and choice process in favour of profits, efficiency, and user reach should be paramount. A different study methodology would be probably more useful to this end: for instance, a case study analysis performed through interviews to a number of marketing executives in pioneering firms could tell a lot about what is happening in this strategic realm. Therefore, rather than properly answer to the central question of this work, survey results further deepen and stimulate debate.

This research does not mean to be exhaustive but has a rather exploratory intent, and some limitations must be mentioned to provide a useful interpretation of key findings. First of all, the starting sample was relatively small and convenient, made up of 333 enterprises located in the Veneto region: thus, geographical validity of this survey has to be considered with reference to the covered area. Second, companies that actually agreed to participate constitute one third of the sample, reducing the representative capacity of final outcomes. Lastly, respondents exhibit a moderate level of digitalization and use of data-related technologies: further investigations on more advanced corporations might reveal different patterns of Big Data and Intelligent Technologies adoption and applications.

Conclusion

Marketing is a business science: its traditional function was to push a product into the market, trying to find the most advantageous mix of features, price, and placement that could lead to as highest revenues and widest customer base as possible. But marketing is also a social science: academics and practitioners have increasingly stressed the crucial position of the customer, whose fulfilment has turned ever more complex and multi-faceted with time. Thereby, the diffused awareness that tailored focus on specific needs and inclinations would be the most valuable approach in strategies and relationship management.

In the present work, I outlined how this process has occurred, identifying three main phases that do not have sharp boundaries, but rather are interwoven with one another: mass customization, open innovation and co-creation, and design thinking. The underlying mechanism that caused transformations and shifts in perspectives is here found in technology and innovation development: initially, the transition to first digital infrastructures with the diffusion of Internet, social media, multiple platforms, and e-commerce; subsequently, the evolution towards advanced and intelligent systems, namely the era of Big Data, Artificial Intelligence, and the Internet of Things.
This last part is the major point of interest in my analysis. Digitalization has brought a myriad of new opportunities, previously unimaginable, both to marketers and consumers – this is a fairly trite subject matter. Several arguments have been proposed about how smart technologies have made people more empowered, knowledgeable, aware, offering them novel channels and tools to proactively get involved in firms' value-creation and innovation processes. In theoretical terms, such advancements allow companies to achieve a thorough understanding of consumers' requirements: digitally enabled capabilities to observe, listen, and follow up behaviours in real-life and online environments generate impressively valuable insights that would not be possible with traditional market research. Ultimately, marketers translate these insights in personalized design of products/services, interaction interfaces, and experiences.

My argument is, instead, to look with a more critical eye to these considerations, questioning the presumed totally beneficial nature of technology and taking into account its effects on human-centredness. Big Data and Intelligent Algorithms are claimed to reinforce several design principles: they enact the creation of solutions that are more user-centred, more creative, and that can be continuously updated

through learning iterations across the entire product lifecycle, enabling to constantly follow and adjust to changes in user tastes and trends (Verganti, Vendraminelli, Iansiti, 2020). Yet, if we move from theory to practice, various cases exist that raise some doubts about these positive claims; hence, I personally believe the actual situation is more complex and variable. A first challenge is constituted by technological development itself: adopting appropriate infrastructures that can support all functions and resource requirements for data-based algorithms to run, and for analytical outcomes to be leveraged as theory foresees, is extremely costly and complicated.
As an example, the majority of firms analysed in the survey present only partial or even absent implementation of such advanced systems. Second, marketers themselves do not always have the necessary data science competences and know-how to operate and extract meaningful information from Big Data and algorithms. Third, although it is already an established paradigm in marketing, the same adoption of a human-centred mindset might represent an obstacle for company-focused, profit-oriented executives. Therefore, marketers might actually find it very hard to seize on Artificial Intelligence and data-driven opportunities while at the same time emphasizing user-centredness and personalization. Moreover, as automation is increasingly boosted and enhanced by algorithms and data, the figure of "the active customer-partner" contributing to co-creation and innovation with his own knowledge and capabilities is progressively losing value. Artificial Intelligence performs the same information brokering function, but in an automated way, allowing firms tighter control over information flows and insights; hence, the customer ends up being a passive, unwitting data pool. This brings to light ambiguous monitoring and questionable purposes of customer data use, what has been referred to as customer surveillance.
I mentioned Amazon and Netflix as prime examples of this double side of data-driven marketing. They are considered pioneering giants in the use of Artificial Intelligence and Big Data for marketing purposes: their recommendation engines are renowned for their ability to suggest products (Amazon) and movies or TV series (Netflix) that are iteratively updated and refined to fit single users' interests. Their market success totally supports this view, making these two cases an epitome of data-driven user-centredness. Nevertheless, the competitive advantage of such platforms resides in the focus on collection and aggregation of data about users and visitors, which often takes place through implicit and concealed mechanisms, to the detriment of privacy protection. From this point of view then, it appears legitimate to ask to what extent such practices can still be traced back to human-centredness and personalization, and if so, how much consideration is effectively given to users' specific tastes in determining the degree of tailoring (or sameness) of value propositions.
The survey investigation presented here has not produced particularly novel contributions in this sense, but it is rather consistent with what existing research

states: companies seem to reap efficiency and personalization benefits of intelligent technologies for user-centred purposes. Emphasis on customers' human component is still perceived as a fundamental capability for marketers, and most of them do not envision their function to revolve around data analytics in the future. Underlined research limitations make room for further debate.

In sum, there is still a long way to go for literature and practice to capture the real consequences of intelligent technologies ubiquity on human-centredness and design principles in the marketing field. Marketers' competences will surely need to be reconfigured in light of ongoing developments: if firms aim at maintaining focus on people as the core of their activities, new means and visions need to be spurred that enable to manage automation coming from data science and the requirements of user-driven approaches. In my opinion, looking at the past and current evolution of such phenomenon, it will be hard to reach the point where these two dimensions will be equally enhanced and promoted. Technological capability to mediate and facilitate consumers' everyday life and business functions in a perspective of efficiency, timeliness, and differentiation, is constantly improving; I think its spectrum of action will become so broad and its pervasiveness so entangled that the distinction between Artificial and Human influence on decision-making processes will get slighter over time. Long-time advocated human and user centrality might then be outshined by algorithm supremacy.

References

Abraham M., Mitchelmore S., Collins S., Maness J., Kistulinec M., Khodabandeh S., Hoenig D., Visser J. (2017), *Profiting from personalization*, BCG Perspectives by the Boston Consulting Group.

Accenture Interactive (2016), *Orchestrate, organize and operationalize – Delivering on the promise of personalization @ scale*, Accenture.

Accenture Interactive (2017), *The art of knowing me – The customer genome and the new state of personalization*, Accenture.

Accenture Interactive (2018), *Making it personal – Why brands must move from communication to conversation for greater personalization*, Pulse Check 2018, Accenture.

Accenture Interactive (2019), *See people, not patterns*, Consumer Pulse Survey, Accenture.

Adalian J. (2018), *Inside the binge factory*, Vulture, 11/06/2018.

AGCM, AGCOM (2020), *Indagine conoscitiva sui Big Data*, www.agcom.it, 10/02/2020.

Ajtamurto T., Holland D., Hussain S. (2015), The open paradigm in design research, *Design Issues*, Vol. 31, No. 4, pp. 17-29.

Albee A. (2015), *Digital relevance: developing marketing content and strategies that drive results*, New York, Palgrave MacMillan.

Allen B.J., Chandrasekaran D., Basuroy S. (2018), Design crowdsourcing: the impact on new product performance of sourcing design solutions from the "crowd", *Journal of Marketing*, Vol. 82, March 2018, pp. 106-123.

Ammannati L. (2020), *La circolazione dei dati: dal consumo alla produzione*, in "Atti del 5° Convegno associativo ADDE su Mercati regolati e nuove filiere di valore", Università degli Studi di Bari, November 28th-29th, 2019.

Andrejevic M. (2014), The Big Data divide, *International Journal of Communication*, Vol. 8, pp. 1673-1689.

Asara M. (2018), *User Experience (UX) vs Customer Experience (CX): diversi aspetti del design*, www.talentgarden.org, 05/06/2018.

Bainbridge J. (2013), *Getting personal: how much further can the trend go?*, www.campaignlive.co.uk, 01/10/2013.

Baker W., Kiewell D., Winkler G. (2014), *Using Big Data to make better pricing decisions*, McKinsey & Company, 01/06/2014.

Ball K. (2016), *Consumer surveillance and Big Data*, St. Andrews University, North Haugh, UK.

Ball K., Di Domenico M., Nunan D. (2016), Big Data surveillance and the body-subject, *Body & Society*, Vol. 22, No. 2, pp. 58-81.

Ball K., Webster W. (2020), Big Data and surveillance: hype, commercial logics and new intimate spheres, *Big Data & Society*, January-June, pp. 1-5.

Banton C., Mansa J. (2021), Network effect, *Investopedia*, 03/04/2021.

Bardakci A., Whitelock J. (2003), Mass-customisation in marketing: the consumer perspective, *Journal of Consumer Marketing*, Vol. 20, No. 5, pp. 463-479.

Beckers S. F. M., van Doorn J., Verhoef P. C. (2018), Good, better, engaged? The effect of company-initiated customer engagement behavior on shareholder value, *Journal of the Academy of Marketing Science*, Vol. 46, No. 3, pp. 366–383.

Beckmann S.L., Barry M. (2009), Design and innovation through storytelling, *International Journal of Innovation Science*, Vol. 1, No. 4, pp. 151-160.

Beverland M.B., Wilner S.J.S., Micheli P. (2015), Reconciling the tension between consistency and relevance: design thinking as a mechanism for brand ambidexterity, *Journal of the Academy of Marketing Science*, Vol. 43, pp. 589-609.

Bilic P. (2018), A critique of the political economy of algorithms: a brief history of Google's technological rationality, *Triplec: Communication, Capitalism & Critique*, Vol. 16. No. 1, pp. 315-331.

Bogers M., Afuah A., Bastian B. (2010), Users as innovators: a review, critique, and future research directions, *Journal of Management*, Vol. 36, No. 4, pp. 857-875.

Bosio A.C. (2019), Consumer intelligence: una risorsa per il marketing?, *Micro & Macro Marketing*, Vol. 3, December 2019, pp. 521-536.

Brenner W., Uebernickel F., Abrell T. (2016), "Design thinking as mindset, process, and toolbox", in Brenner W., Uebernickel F. (2016), *Design thinking for Innovation*, pp. 3-21.

Brincker M. (2021), Disoriented and alone in the "experience machine" – on Netflix, shared world deceptions and the consequences of deepening algorithmic personalization, *SATS*, Vol. 22, No. 1, pp- 75-96.

Brown T. (2008), Design thinking, *Harvard Business Review*, June 2008, pp. 1-9.

Brown T. (2009), *Change by design: how design thinking transforms organizations and inspires innovation*, New York, Harper Collins.

Brown T., Martin R. (2015), Design for action, *Harvard Business Review*, Vol. 93, No. 9, pp. 57-64.

Buchanan R. (1992), Wicked problems in design thinking, *Design Issues*, Vol. 8, No. 2, pp. 5-22.

Buckley J. (2015), *Big Data and customer micro-segmentation: applications in media and e-commerce*, www.qubole.com, 14/01/2015.

Bucolo S., Matthews J. (2011), *A conceptual model to link deep customer insights to both growth opportunities and organizational strategy in SMEs as part of a design led transformation journey*, in Ip A., Cai J., Liu J., Tong G. (2011), "Design Management: towards a New Era of Innovation", Proceedings of the 2011 Tsinghua-DMI International Design Management Symposium, Hong Kong, pp. 243-250.

Burgess M. (2018), What is the Internet of Things? WIRED explains, *Wired*, 16/02/2018.

Calabretta G., Kleinsmann M. (2017), Technology-driven evolution of design practices: envisioning the role of design in the digital era, *Journal of Marketing Management*, Vol. 33, No. 3/4, pp. 292-304.

Camilleri M.A. (2015), "Using Big Data for customer-centric marketing", in Evans C. (2015), *Handbook of Research on Open Data Innovations in Business and Government*, IGI Global Publishing Company.

Camilleri M.A. (2020), The use of data-driven technologies for customer-centric marketing, *International Journal of Big Data Management*, Vol. 1, No. 1, pp. 50-63.

Carlgren L., Rauth I., Elmquist M. (2016), Framing design thinking: the concept in idea and enactment, *Creativity and Innovation Management*, Vol. 25, No. 1, pp. 38-57.

Carr S. (2021), *How many ads do we see a day in 2021?*, www.ppcprotect.com, 15/02/2021.

Cautela C. (2019), *Il designer di domani tra soft skill e hard skill*, in Tosi F. (2019), CUID – Conferenza Universitaria Italiana del Design. Atti del Convegno "L'offerta formativa in Disegno industriale e Design – Insegnare/orientare/fare Design", Firenze, May 22nd-24th, 2019, pp. 89-99.

Chakravorti B. (2020), Why it's so hard for users to control their data, *Harvard Business Review*, 30/01/2020.

Chandrashekar A., Amat F., Basilico J., Jebara T. (2017), *Artwork personalization at Netflix*, www.netflixtechblog.com, 07/12/ 2017.

Charitis V., Zwick D., Bradshaw A. (2018), Creating worlds that create audiences: theorizing personal data markets in the age of communicative capitalism, *Triplec: Communication, Capitalism & Critique*, Vol. 16, No. 2, pp. 820-834.

Chen H., Chiang R.H.L., Storey V.C. (2012), Business intelligence and analytics: from Big Data to big impact, *MIS Quarterly*, Vol. 36, No. 4, December 2012, pp. 1165-1188.

Chen S., Venkatesh A. (2013), An investigation of how design-oriented organizations implement design thinking, *Journal of Marketing Management*, Vol. 29, No. 15/16, pp. 1680-1700.

Chesbrough H. (2003a), *Open Innovation: the new imperative for creating and profiting from technology*, Boston, Harvard Business School Press.

Chesbrough H. (2003b), The era of open innovation, *Sloan Management Review*, Vol. 44, No. 3, pp. 35-41.

Chesbrough H. (2006), "Open innovation: a new paradigm for understanding industrial innovation", in Chesbrough H., Vanhaverbeke W., West J. (2006), *Open innovation: researching a new paradigm*, Oxford, Oxford University Press, pp. 1-12.

Chesbrough H., Bogers M. (2014), "Explicating open innovation: clarifying an emerging paradigm for understanding innovation", in Chesbrough H., Vanhaverbeke W., West J. (2014), *New frontiers in open innovation*, Oxford, Oxford University Press.

Chong D. (2020), *Deep dive into Netflix's recommender system*, www.towardsdatascience.com, 30/04/ 2020.

Clarke D., Kinghorn R. (2018), *Experience is everything: here's how to get it right*, Consumer Intelligence Research Papers, PwC.

Collins H. (2013), Can design thinking still add value?, *Design Management Institute*, Summer 2013, pp. 35-39.

Confindustria (2020), *Questionario per l'innovazione 2019-2020 – Sezione B*, Premio "Imprese per l'Innovazione", Confindustria.

Cooper R., Junginger S., Lockwood T. (2009), Design thinking and design management: a research and practice perspective, *Design Management Review*, Vol. 20, No. 2, pp. 46-55.

Cova B., Dalli D. (2009), Working consumers: the next step in marketing theory?, *Marketing Theory*, Vol. 9, No. 3, pp. 315-339.

Cross N. (1982), Designerly ways of knowing, *Design Studies*, Vol. 3, No. 4, pp. 221–227.

da Silveira G., Borenstein D., Fogliatto F.S. (2001), Mass customization: literature review and research directions, *International Journal of Production Economics*, Vol. 72, pp. 1-13.

Dalton J., Kahute T. (2016), Why empathy and customer closeness is crucial for design thinking, *Design Management Institute*, Vol. 27, No. 2, pp. 22-27.

Darmody A., Zwick D. (2020), Manipulate to empower: hyper-relevance and the contradictions of marketing in the age of surveillance capitalism, *Big Data & Society*, January/June 2020, pp. 1-12.

Davis S. (1996), *Future Perfect*, Addison-Wesley, Boston, MA.

Degli Esposti S. (2014), When Big Data meets dataveillance: the hidden side of analytics, *Surveillance & Society*, Vol. 12, No. 2, pp. 209-225.

Del Vecchio P., Di Minin A., Messeni Petruzzelli A., Panniello U., Pirri S. (2016), Big Data for open innovation in SMEs and large corporations: trends, opportunities, and challenges, *Creativity and Innovation Management*, Vol. 27, 2018, pp. 6-22.

Dell'Era C., Verganti R. (2009), Design-driven laboratories: organization and strategy of laboratories specialized in the development of radical design-driven innovations, *R&D Management*, Vol. 39, No. 1, pp. 1-20.

Deloitte Digital (2020), *From now on: come far ripartire l'Italia? Il punto di vista dei CMO*, Deloitte, May 2020.

Deserti A., Rizzo F. (2014), Design and the cultures of enterprises, *Design Issues*, Vol. 30, No. 1, pp. 36-56.

Design Council (2007), *Eleven lessons: managing design in eleven global brands – A study of the design process*, London, 20/01/2007.

Di Deo I. (2021), *Predictive analytics: come prevedere il futuro grazie ai dati*, www.blog.osservatori.net, 02/04/ 2021.

Dodgson M., Gann D., Salter A. (2006), The role of technology in the shift towards open innovation: the case of Procter & Gamble, *R&D Management*, Vol. 36, No. 3, pp. 333-346.

Dollarhide M.E., Anderson S. (2020), Mass customization, *Investopedia*, 20/10/2020.

Dorst K. (2011), The core of "design thinking" and its application, *Design Studies*, Vol. 32, No. 6, pp. 521-532.

Dumas A., Mintzberg H. (1989), Managing design, designing management, *Design Management Journal*, Vol. 1, pp. 37-43.

Dunne M., Martin R. (2006), Design thinking and how it will change management education: an interview and discussion, *Academy of Management Learning & Education*, Vol. 5, No. 4, pp. 512-523.

Elsbach K.D., Stigliani I. (2018), Design thinking and organizational culture: a review and framework for future research, *Journal of Management*, Vol. 20, No. 10, pp. 1-33.

Enkel E., Bogers M., Chesbrough H. (2020), Exploring open innovation in the digital age: a maturity model and future research directions, *R&D Management*, Vol. 50, No. 1, pp. 161-168.

Erevelles S., Fukawa N., Swayne L. (2016), Big Data consumer analytics and the transformation of marketing, *Journal of Business Research*, Vol. 69, pp. 897-904.

Fan S., Lau R.Y., Zhao J.L. (2015), Demystifying Big Data analytics for business intelligence through the lens of marketing mix, *Big Data Research*, Vol. 2, No. 1, pp. 28-32.

Fenech C., Perkins B. (2015), *Made-to-order: the rise of mass personalization*, The Deloitte Consumer Review, Deloitte.

Ferguson R.B. (2013), Is digital advertising a new form of market manipulation?, *MIT Sloan Management Review*, 24/09/2013.

Fiedler L., Harste R., Perrey J., Pickersgill A. (2013), *Under the retail microscope: selling your customers for the first time*, in "Big Data, analytics, and the future of marketing and sales", McKinsey & Company, March 2015, pp. 76-79.

Filieri R. (2013), Consumer co-creation and new product development: a case study in the food industry, *Marketing Intelligence & Planning*, Vol. 31, No. 1, pp. 40-53.

Fogliatto F.S., da Silveira G., Borenstein D. (2012), The mass customization decade: an updated review of the literature, *International Journal of Production Economics*, Vol. 138, pp. 14-25.

Forbes Insights (2015), *Data driven and digitally savvy: turn the rise of the new marketing organization*, Forbes.

Foss N.J., Saebi T. (2017), Fifteen years of research on business model innovation: how far have we come, and where should we go?, *Journal of Management*, Vol. 43, No. 1, pp. 200-227.

Franke, N., Piller F.T. (2004), Value creation by toolkits for user innovation and design: the case of the watch market, *Journal of Product Innovation Management*, Vol. 21, pp. 401-415.

Fraser H.M.A. (2006), Turning design thinking into design doing, *Rotman Magazine*, Spring/Summer 2006, pp. 24–28.

Friedlein A. (2017), *Introducing the Modern Marketing Model (M3)*, Econsultancy, 03/10/2017.

Fuchs C., Schreier M. (2011), Customer empowerment in new product development, *Journal of Product Innovation Management*, Vol. 28, pp. 17-32.

Fumagalli S. (2019), *Customer Journey Map: tracciare I percorsi degli utenti per migliorare la loro esperienza? Funziona!*, www.blog.axura.com, 08/03/2019.

Gandy O.H. (2012), "Statistical surveillance: remote sensing in the digital age", in Ball K., Haggerty K.D., Lyon D. (2012), *The Routledge Handbook of Surveillance Studies*, New York, Routledge, pp. 125-132.

Gavira M. (2018), *How Netflix uses AI and data to conquer the world*, Linkedin, 02/07/2018.

Gerber N., Gerber P., Volkamer M. (2018), Explaining the privacy paradox: a systematic review of literature investigating privacy attitude and behaviour, *Computers & Security*, Vol. 77, August 2018, pp. 226-261.

Gibbons S. (2018), *Empathy mapping: the first step in Design Thinking*, NN/g Nielsen Norman Group, 14/01/2018.

Gilmore J.H., Pine II B.J. (1997), The four faces of Mass Customization, *Harvard Business Review*, January/February 1997.

Gordon J., Perrey J. (2015), The dawn of marketing's new golden age, *McKinsey Quarterly*, No. 1, 2015, pp. 30-41.

Greer C.R., Lei D. (2012), Collaborative innovation with customers: a review of the literature and suggestions for future research, *International Journal of Management Reviews*, Vol. 14, pp. 63-84.

Grefé R. (2011), Experience design is the only design, *Design Management Review*, Vol. 22, No. 4, pp. 26-30.

Grover V., Chiang R.H.L., Liang T., Zhang D. (2018), Creating strategic business value from Big Data analytics: a research framework, *Journal of Management Information Systems*, Vol. 35, No. 2, pp. 388-423.

Gruber M., de Leon N., George G., Thompson P. (2015), Managing by design, *Academy of Management Journal*, Vol. 58, No. 1, pp- 1-7.

Gupta S. (2018), *Sentiment analysis: concept, analysis and applications*, www.towardsdatascience.com, 07/01/2018.

Hagberg J., Sundstrom M., Egels-Zandén N. (2016), The digitalization of retailing: an exploratory framework, *International Journal of Retail & Distribution Management*, Vol. 44, No. 7, pp. 694–712.

Hart C.W.L. (1995), Mass customization: conceptual underpinnings, opportunities and limits, *International Journal of Service Industry Management*, Vol. 6, No. 2, pp. 36-45.

Harzer T.S. (2013), *Value creation through mass customization: an empirical analysis of the requisite strategic capabilities*, Fakultät für Wirtschaftswissenschaften der Rheinisch-Westfälischen Technischen Hochschule Aachen (online website), June 10th, 2013.

Holloway M. (2009), How tangible is your strategy? How design thinking can turn your strategy into reality, *Journal of Business Strategy*, Vol. 30, No. 2/3, pp. 50-56.

Howe J. (2006), The rise of crowdsourcing, *Wired Magazine*, Vol. 14, No. 6, pp. 1–4.

Huang E.Y., Lin C. (2005), Customer-oriented financial service personalization, *Industrial Management and Data*, Vol. 105, No. 1, pp. 26-44.

Huizingh E. (2011), Open innovation: state of the art and future perspectives, *Technovation*, Vol. 31, pp. 2-9.

Ipsos (2020), *Primo osservatorio Imprese e Covid*, www.ipsos.com, 17/09/2020.

Iqbal N. (2018), *Film fans see red over Netflix "targeted" posters for Black viewers*, The Guardian, 20/10/2018.

Istat (2019), *Rilevazione statistica sull'innovazione nelle imprese – Anni 2016-2018*, www.istat.it, 04/10/2018.

Johansson-Sköldberg U., Woodilla J., Çetinkaya M. (2013), Design thinking: past, present and possible futures, *Creativity and Innovation Management*, Vol. 22, No. 2, pp. 121–146.

Kambil A., Friesen G.B., Sundaram A. (1999), Co-creation: a new source of value, *Outlook 1999*, No. 2, pp. 38-43.

Kannan P.K., Li H.A. (2017), Digital marketing: a framework, review and research agenda, *International Journal of Research in Marketing*, Vol. 34, No.1, pp. 22-45.

Kaplan A.M., Haenlein M. (2006), Toward a parsimonious definition of traditional and electronic mass customization, *Journal of Product Innovation Management*, Vol. 23, pp. 168-182.

Karakayali N., Kostem B., Galip I. (2018), Recommendation systems as technologies of the self: algorithmic control and the formation of music taste, *Theory, Culture & Society*, Vol. 35, No. 2, pp. 3-24.

Kenton W., Anderson S. (2020), *Direct Marketing*, *Investopedia*, 20/10/2020.

Kimbell L. (2011), Rethinking design thinking: part I, *Design and Culture*, Vol. 3, No. 3, pp. 285-306.

Kiron D., Shockley R., Kruschwitz N., Finch G., Haydock M. (2011), *Analytics: the widening divide*, IBM Institute for Business Value, MIT Sloan Management Review.

Kolko J. (2015), Design thinking comes of age, *Harvard Business Review*, September 2015, pp. 1-7.

Kotler P., Kartajaya H., Setiawan I. (2017), *Marketing 4.0 – Moving from traditional to digital*, John Wiley & Sons, Inc., Hoboken, New Jersey.

Kouprie M., Sleeswijk Visser F. (2009), A framework for empathy in design: stepping into and out of the user's life, *Journal of Engineering Design*, Vol. 20, No. 5, pp. 437-448.

Kozinets R.V. (2002), The field behind the screen: using netnography for marketing research in online communities, *Journal of Marketing Research*, Vol. 39, No. 1, pp. 61-72.

Krajicek D. (2014), *Big Data's next step*, Marketing Insights, January/February 2014.

Kristensson P., Gustafsson A., Archer T. (2004), Harnessing the creative potential among users, *Journal of Product Innovation Management*, Vol. 21, No. 1, pp. 4-14.

Kumar V., Choi J.B., Greene M. (2017), Synergistic effects of social media and traditional marketing on brand sales: capturing the time-varying effects, *International Journal of Information Management*, Vol. 34, No. 3, pp. 387-394.

Lamberti L. (2013), Customer centricity: the construct and the operational antecedents, *Journal of Strategic Marketing*, Vol. 21, No. 7, pp, 588-612.

Lampel J., Mintzberg H. (1996), Customizing customization, *MIT Sloan Management Review*, Fall 1996.

Landolt S.C. (2002), Preemptive service, *Credit Union Management*, Vol. 25, No. 6, pp. 26-30.

Laney D. (2001), *3D Data Management: controlling Data Volume, Velocity, and Variety*, Meta Group Inc. (now Gartner).

Lau R.Y.K., Li C., Liao S.S.Y. (2014), Social analytics: learning fuzzy product ontologies for aspect-oriented sentiment analysis, *Decision Support Systems*, Vol. 65, September 2014, pp. 80-94.

Lee J., Lehto X.Y. (2010), E-personalization and online privacy features: the case with travel websites, *Journal of Management and Marketing Research*, January 2010.

Lemon K.N., Verhoef P.C. (2016), Understanding customer experience throughout the customer journey, *Journal of Marketing*, Vol. 80, November 2016, pp. 69-96.

Liedtka J. (2011), Learning to use design thinking tools for successful innovation, *Strategy & Leadership*, Vol. 39, No. 5, pp. 13-19.

Liedtka J., Ogilvie T. (2010), *Ten tools for design thinking*, Technical note for the University of Virginia Darden School Foundation, Charlottesville, VA, No. 0550.

Lingqvist O., Plotkin C.L., Stanley J. (2015), Do you really understand how your business customers buy?, *McKinsey Quarterly*, 01/02/2015.

Liu W., Moultrie J., Ye S. (2019), The customer-dominated innovation process: involving customers as designers and decision-makers in developing new product, *The Design Journal*, Vol. 22, No. 3, pp. 299-324.

Loef J., Pine II B.J., Robben H. (2017), Co-creating customization: collaborating with customers to deliver individualized value, *Strategy & Leadership*, Vol. 45, No. 3, pp. 10-15.

Lusch R.F. (2007), Marketing's evolving identity: defining our future, *Journal of Public Policy and Marketing*, Vol. 26, No. 2, pp. 261-268.

Lyon D. (2014), Surveillance, Snowden and Big Data: capacities, consequences, critique, *Big Data & Society,* Vol. 1, No. 1, pp. 1-13.

Manyika J., Chui M., Brown B., Bughin J., Dobbs R., Roxburgh C., Byers A.H. (2011), *Big Data: the next frontier for innovation, competition, and productivity*, McKinsey Global Institute, May 2011.

Manyika J., Chui M., Bughin J., Dobbs R., Bisson P., Marrs A. (2013), *Disruptive technologies: advances that will transform life, business, and the global economy*, McKinsey Global Institute, May 2013.

Manyika J.M., Roberts R.P., Sprague K.L. (2007), Eight business technology trends to watch, *The McKinsey Quarterly*, December 2007, pp. 1-9.

Marketing Land (2014), *Infographic: how location-based marketing delivers ads to in-store shoppers*, www.martech.org, 10/02/2014.

Marr B. (2017), The amazing ways Spotify uses Big Data, AI, and Machine Learning to drive business success, *Forbes*, 30/10/2017.

Martin R. (2009), *The design of business – Why design thinking is the next competitive advantage*, Cambridge, MA, Harvard Business Press.

Miceli G.N., Ricotta F., Costabile M. (2007), Customizing customization: a conceptual framework for interactive personalization, *Journal of Interactive Marketing*, Vol. 21, No. 2, Spring 2007, pp. 6-25.

Michael K., Miller K. W. (2013), Big data: new opportunities and new challenges, *Computer*, Vol. 46, No. 6, pp. 22-24.

Micheli P., Wilner S.J.S., Bhatti S.H., Mura M., Beverland M.B. (2018), Doing design thinking: conceptual review, synthesis, and research agenda, *Journal of Product Innovation Management*, Vol. 0, No. 0, pp. 1-25.

Mikalef P., Krogstie J., Pappas I.O., et al. (2019), Exploring the relationship between Big Data analytics capability and competitive performance: the mediating role of dynamic and operational capabilities, *Information and Management*, Vol. 57, No. 2, pp. 1-15.

Mladenow A., Bauer C., Strauss C. (2014), Social crowd integration in new product development: crowdsourcing communities nourish the open innovation paradigm, *Global Journal of Flexible Systems Management*, Vol. 15, No. 1, pp. 77-86.

Moe W. W. (2003), Buying, searching, or browsing: differentiating between online shoppers using in-store navigational clickstream, *Journal of Consumer Psychology,* Vol. 13, No. 1/2, 29–40.

Montgomery A., Srinivasan K. (2002), "Learning about customers without asking", in Pal N., Rangaswamy A. (2002), *The power of one: gaining business value from personalization technologies*, Trafford.

Monti P. (2016), *Analisi comparativa degli approcci ai Big Data analytics nelle funzioni aziendali*, Politecnico di Milano.

Moorman C. (2020), *Covid-19 and the state of marketing – The CMO Survey*, Deloitte, June 2020.

Myers C., Lim D., McCormick N., Montgomery J., Chan A. (2020), *Consumer trust in digital marketing: do we have it? Why we need it. How we can build it*, GroupM, March 2020.

Nambisan S., Lyytinen K., Majchrzak A., Song M. (2017), Digital innovation management: reinventing innovation management research in a digital world, *MIS Quarterly*, Vol. 41, No. 1, pp. 223-238.

Nambisan S., Siegel D., Kenney M. (2018), On open innovation, platforms, and entrepreneurship, *Strategic Entrepreneurship Journal*, Vol. 12, pp. 354-368.

Naughton J. (2019), *The privacy paradox: why do people keep using tech firms that abuse their data?*, The Guardian, 05/05/2019.

Nelson N. (2016), *The power of a picture*, www.about.netflix.com, 03/05/2016.

Nishikawa H., Schreier M., Ogawa S. (2013), User-generated versus designer-generated products: a performance assessment at Muji, *International Journal of Research in Marketing*, Vol. 30, No. 2, pp. 160-167.

Offsey S. (2015), *Micro-segmentation in the age of Big Data*, www.marketbuildr.com, accessed July 2021.

Oracle (2011), *Oracle: Big Data for the enterprise*, Oracle White Paper, October 2011.

Pallant J.L., Sands S. (2020), The 4Cs of mass customization in service industries: a customer lens, *Journal of Services Marketing*, Vol. 34, No. 4, pp. 499-511.

Peppers D. (1995), How technology has changed marketing, *Forbes*, Vol. 155, No. 8, pp. 76-81.

Peppers D., Rogers M. (1995), A new marketing paradigm: share of customer, not market share, *Managing Service Quality*, Vol. 5, No. 3, pp. 48-51.

Peterson T. (2015), *Spotify to use playlists as proxy for targeting ads to activities, moods*, AdAge, 16/04/2015.

Piller F.T. (2005a), Mass customization: reflections on the state of the concept, *International Journal of Flexible Manufacturing Systems*, Vol. 16, No. 4, pp. 313-334.

Piller F.T. (2007), Observations on the present and future of mass customization, *International Journal of Flexible Manufacturing Systems*, Vol. 19, pp. 630-636.

Piller F.T., Ihl C., Vossen A. (2010), A typology of customer co-creation in the innovation process, *SSRN Electronic Journal*, December 2010.

Piller F.T., Müller M. (2004), A new marketing approach to mass customization, *International Journal of Computer Integrated Manufacturing*, Vol. 17, No. 7, November 2004, pp. 583-593.

Piller F.T., Tseng M. (2009), "Introduction - Mass customization thinking: moving from pilot stage to an established business strategy", in Piller F.T., Tseng M. (2009), *Handbook of Research in Mass Customization and Personalization*, Vol. 1, pp. 1-18.

Pine II B.J. (1993), Mass customizing products and services, *Planning Review*, Vol. 21, No. 4, pp. 6-13.

Pine II B.J. (2007), *The State of Mass Customization and Why Authenticity in Business is the next Big Issue*, Interview in Piller F.T., "Mass Customization & Open Innovation News", 04/01/2007.

Pine II B.J., Gilmore J.H. (1998), Welcome to the experience economy, *Harvard Business Review*, July/August 1998.

Pine II B.J., Gilmore J.H. (2013), "The experience economy: past, present and future", in Sundbo J, Sorensen F. (2013), *Handbook on the Experience Economy*, Edward Elgar Publishing, pp. 21-44.

Pine II B.J., Peppers D., Rogers M. (1995), Do You Want to Keep Your Customers Forever?, *Harvard Business Review*, March-April 1995, pp. 103-114.

Piva A. (2019), *Le 5V dei Big Data: dal volume al valore*, www.blog.osservatori.net, 27/03/2019.

Prahalad C.K., Ramaswamy V. (2000), Co-opting customer competence, *Harvard Business Review*, January/February 2000, pp. 79-87.

Prahalad C.K., Ramaswamy V. (2002), The co-creation connection, *Strategy and Business*, Vol. 27, pp. 50-61.

Prahalad C.K., Ramaswamy V. (2003), The new frontier of experience innovation, *MIT Sloan Management Review*, Vol. 44, No. 4, pp. 12-18.

Prahalad C.K., Ramaswamy V. (2004), Co-creation experiences: the next practice in value creation, *Journal of Interactive Marketing*, Vol. 18, No. 3, Summer 2004, pp. 5-14.

Prandelli E., Verona G., Raccagni D. (2006), Diffusion of web-based product innovation, *California Management Review*, Vol. 48, No. 4, pp. 109–135.

Prey R. (2017), Nothing personal: algorithmic individuation on music streaming platforms, *Media, Culture & Society*, Vol. 40, No. 7, pp. 1-15.

Price R., Wrigley C. (2016), Design and a deep customer insight approach to innovation, *Journal of International Consumer Marketing*, Vol. 28, No. 2, pp. 92-105.

Price R., Wrigley C., Straker K. (2015), Not just what they want, but why they want it – Traditional market research to deep customer insights, *Qualitative Market Research: an International Journal*, Vol. 18, No. 2, pp. 230-248.

Pridmore L., Lyon D. (2011), *Marketing as surveillance: assembling consumers as brands*, February 2011.

Purchase S., Volery T. (2020), Marketing innovation: a systematic review, *Journal of Marketing Management*, Vol. 36, No. 9/10, pp. 763-793.

Rauth I., Carlgren L., Elmquist M. (2015), Making it happen: legitimizing design thinking in large organizations, *Design Management Journal*, Vol. 9, No.1, pp. 47-60.

Ravasi D., Lojacono G. (2005), Managing design and designers for strategic renewal, *Long Range Planning*, Vol. 28, pp. 51-77.

Regione Veneto (2020), *Rapporto statistico 2020: il Veneto si racconta, il Veneto si confronta*, www.regione.veneto.it.

Reinsel D., Gantz J., Rydning J. (2017), *Data Age 2025: the evolution of data to life-critical*, IDC White Paper, www.idc.com, April 2017.

Retta L. (2019), *Two decades in the making – the powerful strategies behind the Amazon recommendation engine*, www.dynamicyield.com, 2019.

Riedmann-Streitz C. (2018), *Redefining the customer centricity approach in the digital age*, Proceedings of the 7th International Conference, DUXU 2018, "Design, User Experience, and usability: theory and practice", Las Vegas, NV, USA, July 15th-20th, 2018, pp. 203-222.

Ritzer G. (2015), Automating prosumption: the decline of the prosumer and the rise of the prosuming machines, *Journal of Consumer Culture*, Vol. 15, pp. 407-424.

Ritzer G., Jurgenson N. (2010), Production, consumption, prosumption: the nature of capitalism in the age of the digital "prosumer", *Journal of Consumer Culture*, Vol. 10, No. 1, pp. 13-36.

Rosen C. (2020), *Netflix apologizes for "inappropriate" Cuties poster that sexualized child stars*, Vanity Fair, August 2020.

Rossiter N. (2016), *Software, infrastructure, labor: a media theory of logistical nightmares*, New York, Routledge.

Ryan D. (2017), *Understanding digital marketing: strategies for engaging the digital generation*, New York, Kogan Page.

Salesforce (2019), *State of marketing*, 5th edition, Salesforce, January 2019.

Salesforce (2019), *State of the connected customer*, 3rd edition, Salesforce.

Salvador F., de Holan P.M., Piller F.T. (2009), Cracking the code of mass customization, *MIT Sloan Management Review*, Vol. 50, No. 3, Spring 2009, pp. 71-78.

Sanders E.B.N., Stappers P.J. (2008), Co-creation and the new landscapes of design, *Co-Design*, Vol. 4, No. 1, pp. 5-18.

Sawhney M., Verona G., Prandelli E. (2005), Collaborating to create: the Internet as a platform for customer engagement in product innovation, *Journal of Interactive Marketing*, Vol. 19, No. 4, pp. 1-15.

Schiele K., Chen S. (2018), Design thinking and digital marketing skills in marketing education: a module on building mobile applications, *Marketing Education Review*, Vol. 28, No. 3, pp. 150-154.

Schön D.A. (1983), *The Reflective Practitioner*, New York, Basic Books.

Schreier M. (2006), The value increment of mass-customized products: an empirical assessment, *Journal of Consumer Behaviour*, Vol. 5, July/August 2006, pp. 317-327.

Schroeck M., Shockley R., Smart J., Romero-Morales D., Tufano P. (2012), *Analytics: the real-world use of big data*, IBM Institute for Business Value, Saïd Business School at the University of Oxford.

Shah D., Rust R.T., Parasuraman A., Staelin R. Day G.S. (2006), The path to customer centricity, *Journal of Service Research*, Vol. 9, No. 2, November 2006, pp. 113-124.

Sheth J.N., Sisodia R.S., Sharma A. (2000), The antecedents and consequences of customer-centric marketing, *Journal of the Academy of Marketing Science*, Vol. 28, No. 1, pp. 55-66.

Silverbullet (2020), Ritorno al futuro del marketing – una guida al targeting contestuale oltre i cookie, www.wearesilverbullet.com, 2020.

Simon H.A. (1969), *The Sciences of the Artificial*, Cambridge, MA, MIT Press.

Simonson I. (2003), *Determinants of customers' responses to customized offers: conceptual framework and research propositions*, Research Paper No. 1794, Stanford Graduate School of Business, October 2003.

Simonson I. (2005), Determinants of customers' responses to customized offers: conceptual framework and research propositions, *Journal of Marketing*, Vol. 69, January 2005, pp. 32-45.

Stevenson M. (2019), Design thinking for business: personalization, www.uxdesign.cc, 03/12/2019.

Storbacka K., Moser T. (2020), The changing role of marketing: transformed propositions, processes and partnerships, *Academy of the Marketing Science Review*, Vol. 10, pp. 299-310.

Teradata, Forbes Insights (2015), *Global data-driven marketing survey: progressing toward true individualization*, Forbes.

Thomas J. (2020), *Marketing concept: examining AMA definitions, evolution, influences*, Seventeenth AIMS International Conference on Management.

Thomke S., von Hippel E. (2002), Customers as innovators: a new way to create value, *Harvard Business Review*, April 2002, pp. 5-11.

Thrischler J., Pervan S.J., Kelly S.J., Scott D.R. (2018), The value of codesign: the effect of customer involvement in service design teams, *Journal of Service Research*, Vol. 21, No. 1, pp. 75-100.

Trabucchi D., Buganza T. (2019), Data-driven innovation: switching the perspective on Big Data, *European Journal of Innovation Management*, Vol. 22, No. 1, pp. 23-40.

Trabucchi D., Buganza T., Dell'Era C., Pellizzoni E. (2017), Exploring the inbound and outbound strategies enabled by user generated Big Data: evidence from leading smartphone applications, *Creativity and Innovation Management*, Vol. 27, 2018, pp. 42-55.

Truelson M. (2019), *Marketing in the digital age*, www.marktruelson.com, January 2019.

Tschimmel K. (2012), *Design thinking as an effective toolkit for innovation*, Proceedings of the XXIII ISPIM Conference "Action for Innovation – Innovating from experience", Barcelona.

Tseng M.M., Wang Y., Jiao R.J. (2017), Mass Customization, *CIRP Encyclopedia of Production Engineering*.

Unioncamere Veneto (2019), *Focus digitalizzazione 2019*, Veneto Congiuntura, 13/11/2019.

Urbinati A., Chiaroni D., Chiesa V., Frattini F. (2020), The role of digital technologies in open innovation processes: an exploratory multiple case study analysis, *R&D Management*, Vol. 50, No. 1, pp. 136-160.

Vargo S.L., Lusch R.F. (2004), Evolving to a new dominant logic for marketing, *Journal of Marketing*, Vol. 28, January 2004, pp. 1-17.

Vargo S.L., Lusch R.F. (2008), Service-dominant logic: continuing the evolution, *Journal of the Academy of Marketing Science*, Vol. 36, March 2008, pp. 1-10.

Vargo S. L., Maglio P. P., Akaka, M. A. (2008), On value and value co-creation: a service systems and service logic perspective, *European Management Journal*, Vol. 26, No. 3, pp. 145–152.

Vargo S.L., Koskela-Huotari K., Vink J. (2020), "Service-dominant logic: foundations and applications", in Bridges E., Fowler K. (2020), *The Routledge Handbook of Service Research Insights and Ideas*, New York, Routledge, p. 3-23.

Verganti R. (2003), Design as brokering of languages: Innovation strategies in Italian firms, *Design Management Journal*, Vol. 14, pp. 34–42.

Verganti R. (2008), Design, meanings, and radical innovation: a metamodel and a research agenda, *Journal of Product Innovation Management*, Vol. 25, pp. 436-456.

Verganti R. (2009), *Design-driven innovation: changing the rules by radically innovating what things mean*, Cambridge, Harvard Business Press.

Verganti R., Vendramelli L., Iansiti M. (2020), Innovation and design in the age of Artificial Intelligence, *Journal of Product Innovation Management*, Vol. 37, No. 3, pp. 212-227.

Verhoef P.C., Broekhuizen T., Bart Y., Bhattacharya A., Dong J.Q., Fabian N., Haenlein M. (2021), Digital transformation: a multidisciplinary reflection and research agenda, *Journal of Business Research*, Vol. 122, pp. 889-901.

Vesanen J., Raulas M. (2006), Building bridges for personalization: a process model for marketing, *Journal of Interactive Marketing*, Vol. 20, No. 1, Winter 2006, pp. 5-20.

von Hippel E. (2005), *Democratizing innovation*, Cambridge, MIT Press.

Wedel M., Kamakura W. (2002), Introduction to the special issue on market segmentation, *International Journal of Research in Marketing*, Vol. 19, No. 3, pp. 181-183.

Wedel M., Kannan P.K. (2016), Marketing analytics for data-rich environments, *Journal of Marketing*, Vol. 80, November 2016, pp. 97-121.

West E. (2019), Amazon: surveillance as a service, *Surveillance & Society*, Vol. 17, No. 1/2, pp. 27-33.

West J., Bogers M. (2013), Leveraging external sources of innovation: a review of research on open innovation, *Journal of Product Innovation Management*, Vol. 31, 2014, No. 4, pp. 814-831.

Wind J., Rangaswamy A. (2001), Customerization: the next revolution in mass customization, *Journal of Interactive Marketing*, Vol. 15, No. 1, Winter 2001, pp. 13-32.

Wollan R., Barton R., Ishikawa M., Quiring K. (2017), *Put your trust in hyper-relevance*, Consumer Global Pulse Research, Accenture.

Yeung K. (2017), "Hypernudge": Big Data as a mode of regulation by design, *Information Communication and Society*, Vol. 20, No. 1, pp. 118-136.

Zalando News and Media (2019), *The ABC of ZMS: how Zalando Marketing Services (ZMS) works*, www.zalando.com, 26/09/2019.

Zeally J., Wollan R., Bellin J. (2018), Marketers need to stop focusing on loyalty and start thinking about relevance, *Harvard Business Review*, 21/03/2018.

Zeng D., Chen H., Lusch R., Li S.H. (2010), Social media analytics and intelligence, *IEEE Intelligent Systems*, Vol. 25, No. 6, pp. 13-16.

Zhang Y. (2021), *Mass customization: the new path for luxury industry*, www.hapticmedia.com, 26/04/2021.

Zipkin P. (2001), The limits of mass customization, *MIT Sloan Management Review*, April 15th, 2001.

Zoratti S., Gallagher L. (2012), *Precision marketing: maximizing revenue through relevance*, London, Kogan Page.

Zuboff S. (2015), Big other: surveillance capitalism and the prospects of an information civilization, *Journal of Information Technology*, Vol. 30, pp. 75-89.

Zwick D., Dholakia N. (2004), Consumer subjectivity in the age of Internet: the radical concept of marketing control through customer relationship management, *Information and Organization*, Vol. 14, pp. 211-236.

Web Sites

American Marketing Association (2017), *Definitions of Marketing*, www.ama.org, accessed March 2021.

Enterprise Big Data Framework (2019), *Data types: structured vs unstructured data*, www.bigdataframework.org, accessed July 2021.

Osservatori.net, *Guida alle PMI Piccole e Medie imprese*, www.blog.osservatori.net, accessed August 2021.

Osservatori.net, *Open innovation: cosa significa e come metterla in pratica*, www.blog.osservatori.net, accessed June 2021.

Wòjcicka D., *10 most interesting examples of customer journey maps*, www.blog.uxeria.com, accessed June 2021.

Datareportal (2021), *Digital around the world*, www.datareportal.com, accessed July 2021.

Digital Commerce 360 (2021), *Amazon Prime reaches 200 million members worldwide*, www.digitalcommerce360.com, accessed July 2021.

Digital Innovation and Transformation (2019), *Big Data behind Disney magic*, www.digital.hbs.edu, accessed June 2021.

Digital Innovation and Transformation (2020), *Starbucks: winning on rewards, loyalty, and data*, www.digital.hbs.edu, accessed June 2021.

Hasso Plattner Institute of Design at Stanford University, www.dschool.stanford.edu, accessed June 2021.

Dynamic Yield, *Case Study: Sephora Digital SEA personalized beauty*, www.dynamicyield.com, accessed July 2021.

Description of Soft Data, www.evolutionizer.com, accessed July 2021.

Social Analytics, www.gartner.com, accessed July 2021.

Guerlain, www.guerlain.com, accessed July 2021.

What is Big Data analytics?, www.ibm.com, accessed July 2021.

IDEO, *Design Thinking*, Blog online by Brown T., www.ideo.com, accessed June 2021.

Mercedes me, www.mercedes-benz.it, accessed July 2021.

Norman D., Nielsen J., *The definition of User Experience (UX)*, www.nngroup.com, accessed June 2021.

Cos'è il Customer Journey, www.qualtrics.com, accessed June 2021.

Salesforce Italia, *In cosa consiste la mappatura del customer journey?*, www.salesforce.com, accessed June 2021.

When and how to use ethnographic research, www.spotless.co.uk, accessed June 2021.
Annual size of real time data in the global datasphere from 2010 to 2025, www.statista.com, accessed July 2021.
Number of Spotify premium subscribers worldwide from 1st quarter 2015 to 2nd quarter 2021, www.statista.com, accessed July 2021.
Number of Netflix paid subscribers worldwide from 3rd quarte 2011 to 2nd quarter 2020, www.statista.com, accessed July 2021.
User Experience basics, www.usability.gov, accessed June 2021.
Regione Veneto, *Clusters and Industrial Networks*, www.venetoclusters.it, accessed August 2021.
Definition of Web 2.0, www.wikipedia.org, accessed June 2021.