



Customer Engagement in a Big Data World

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Customer Engagement in a Big Data World

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Customer Engagement in a Big Data World

STRUCTURED ABSTRACT

Purpose: We propose that the literature on customer engagement has emphasized the benefits of customer engagement to the firm and to a large extent ignored the customers' perspective. By drawing upon co-creation and other literature, this paper attempts to alleviate this gap by proposing a strategic framework that aligns both the customer and firm perspectives in successfully creating engagement that generates value for both the customer and the bottom line.

Design/methodology/approach: A strategic framework is proposed that includes the necessary firm resources, data, process, timeline and goals for engagement, and captures customers' motives, situational factors, and preferred engagement styles.

Findings: We argue that sustainability of data-driven customer engagement require a dynamic and iterative value generation process involving 1) customers recognizing the value of engagement behaviours and 2) firm's ability to capture and passing value back to customers.

Originality/value: This paper proposes a dynamic strategic value creation framework that comprehensively captures both the customer and firm perspectives to data-driven customer engagement.

Keywords: Customer engagement, Big Data, value creation, data-driven engagement

1. Introduction

Over the last few years “Big Data” has altered the business landscape creating opportunities and challenges for companies. In comparison to traditional data, Big Data is different in the nature of volume, variety, velocity, veracity and has the potential to create substantial value (Wedel and Kannan 2016). Navigating the potential of Big Data to enrich the process of creating, developing and nurturing deeper customer engagement has become a key business and research (MSI 2016). Information and communication technologies provide immense opportunities for organizations to engage with customers, because of their capabilities to capture, analyse and exchange an enormous amount of customer intelligence through Big Data approaches. Moreover, these approaches open numerous opportunities to capture value resulting from customer engagement behaviours, and at the same time lead to advanced competences, helping firms to sustain value creation over time.

Customer engagement has been long recognized as one of the key drivers of a firm’s financial success. However, despite the widely recognized importance of creating a highly engaged customer base, many companies still struggle to reach this goal. Although the possibilities provided by the new digital landscape seem to be endless, firms often find it challenging to leverage these opportunities in a sustainable and long-lasting fashion.

We propose that one of the main reasons is that the extant literature on customer engagement has overemphasized the benefits of customer engagement to the firm, while mostly ignoring the customers’ perspective. By drawing upon co-creation and the service literature in general, this paper attempts to alleviate this gap by proposing a dynamic

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3 strategic value creation framework that comprehensively captures both the customer and
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5 firm perspectives for data-driven customer engagement.
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8 This strategic framework identifies the necessary firm resources, data, process,
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10 timeline and goals for engagement, and captures customers' motives, situational factors,
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12 and preferred engagement styles. We propose that Big Data opportunities transform into
13
14 long-lasting success only for companies that focus on managing synergy between a firm's
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16 execution of engagement efforts and the customers' experience, motivation, preferences,
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18 and expectations.
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22 This research contributes to the literature in several ways. First, the framework we
23
24 propose is the first one to emphasize the challenge of balancing the needs of customer
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26 and firm associated with the engagement activities to ensure positive impact on both
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28 customer and firm values. Second, the framework differentiates between engagement
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30 value for the firm and the customer and shows how Big Data capabilities can be used to
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32 generate value for both parties. Third, the framework allows for dynamic interactions
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34 between firm and customer value capturing processes through several feedback loops. By
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36 integrating such loops into the framework, we emphasize the potential for both parties to
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38 optimize their approach and involvement in engagement activities over time in adaptive
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40 fashion.
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46 In the following sections, we explain the characteristics of a Big Data world and
47
48 illustrate briefly the current conceptual understanding of customer engagement and how
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50 we propose to enhance it. We then introduce our strategic dynamic framework, discuss
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52 resulting theoretical and practical recommendations, and conclude with an agenda for
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54 future research in customer engagement based on Big Data.
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2. The New Big Data Environment

The term used to describe the impact of the technologies and the nature of the new digital world is “Big Data.” Akter and Wamba (2016, p. 178) define it “as a holistic process that involves the collection, analysis, use, and interpretation of data for various functional divisions to (or “intending to”) gaining actionable insights, creating business value, and establishing competitive advantage.” Big data captures the intensity of the creation and movement of data but also, the variability, duplication, inconsistency, quality and compatibility issues that are emerging on a large scale (Anuradha 2015). “Big Data” has been characterized regarding five different dimensions, known as the 5Vs (Anuradha 2015; Wedel and Kannan 2016).

- The *Volume* dimension relates to the sheer amount of data that are generated in a given context (Anuradha 2015; Forbes 2015). One of the best examples of Big Data volume is in astronomy according to Wikipedia where new telescope technologies generate one exabyte of data every day.
- The *Velocity* dimension relates to the speed of data generation and frequency of data changes, which necessitates (near) real-time analysis and decision making (Anuradha 2015; Forbes 2015). For instance, businesses like Walmart handle one million customer engagement transactions per hour from their channels (Forbes 2015).
- The *Variety* dimension relates to the different formats that data is available (Anuradha 2015). The Big Data world is a multimedia world where data can be in structured or unstructured formats such as images, video, audio, text or mixed. For example, in Facebook, the content includes photos, videos, chats, calls, likes, emotions, etc. The

1
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3 increased variety of data in the Big Data world makes the integration of the various
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5 formats one of the most important challenges.
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- 8 • The *Veracity* dimension relates to data quality, context and accuracy and the plethora
9 of sources for data, meaning that it is difficult to understand where it comes from,
10 who the originator is, whether it is accurate/correct, what the meaning of data is etc.
11 (Anuradha 2015; Forbes 2015). For example, Twitter posts relating to company
12 products and services might originate from genuine customers but also from
13 competitors that are interested in negative marketing or “mudslinging.”
14
15 • The *Value* dimension relates to data helping to generate business value especially
16 within the context of data analytics and business intelligence (Chen et al. 2012;
17 Parmar et al. 2014). Return-On-Information (ROI) and has been arguably one of the
18 important considerations when businesses are involved with Big Data.
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34 Digital media has created over recent years an unprecedented capacity to generate and
35 capture customer Big Data in a variety of forms and through different channels. Such
36 data can provide businesses with opportunities for innovation in ways that can
37 significantly impact their business model and value proposition. However, while this
38 explosion of data availability has generated increasing interest by businesses to deploy
39 Big Data for deeper customer engagement, it has also challenged firms’ ability to capture
40 a more comprehensive understanding of the customer.
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50 One significant Big Data challenge for customer engagement stems from difficulty of
51 collecting and reconciling customer data from a variety of channels relating to customer
52 identity, profile, engagement history, preferences, decision making and consumer
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3 behaviour. Typically, this data is stored and managed within a firm's CRM system, but
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5 this might not be the case in a Big Data world, where data is often collected by external
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7 parties/platforms (such as Google, Facebook, cloud-based email systems). Consequently,
8
9 most of Big Data ends up being outside the control and ownership of the company,
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11 creating the challenge of getting access to, collecting and integrating the data within the
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13 CRM system and transforming into a dynamic 360° view of the customer. Moreover,
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15 accessing such outside customer Big Data is often further complicated by surrounding
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17 complexities related to ethical and legal issues.
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22 Nonetheless, analysing this data creates a plethora of possibly relevant insights that
23
24 can be acted upon. In the context of Big Data, these insights can be generated in real-time
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26 and directly through customer touch-points, leading to generation of sustainable value for
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28 the firm and customers.
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34 **3. Existing Perspectives on Customer Engagement**

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36 The concept of 'engagement' has been widely explored by scholars from different
37
38 disciplines, including management, marketing, and information systems. It is a
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40 phenomenon and a branding practice that stands at the crossroads of the relationship
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42 marketing (Brodie et al. 2011; Sashi 2012) and the value co-creation paradigms (Brodie
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44 et al. 2011; Sawhney et al. 2005). However, there is no consensus in the current literature
45
46 about the conceptualization and definition of customer engagement. The literature
47
48 indicates that there are three main perspectives from which researchers have defined and
49
50 studied the concept of 'customer engagement' in prior studies: psychological process
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3 (Bowden 2009), motivational psychology perspective (Brodie et al. 2011) and
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5 behavioural manifestation (Van Doorn et al. 2010).
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8 Bowden (2009) conceptualizes customer engagement as a psychological process
9
10 comprising cognitive and emotional aspects that lead to loyalty for both new and existing
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12 customers. On the other hand, some other studies conceptualize engagement as a
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14 psychological state that reflects a customer's particular psychological state induced by
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16 the individual's specific interactive experiences with a focal engagement object (e.g. a
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18 brand) (Brodie et al. 2011; Brodie et al. 2013; Vivek et al. 2012). For example, Hollebeek
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20 (2011, p. 785) defines customer brand engagement as "the level of a customer's
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22 motivational, brand related and context dependent state of mind characterized by specific
23
24 levels of cognitive, emotional and behavioural activity in brand." Similarly, Patterson *et*
25
26 *al.* (2006) define customer engagement as a psychological state that is characterized by a
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28 degree of vigour, dedication, absorption and interaction.
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34 Brodie *et al.* (2011) conceptualize customer engagement from a motivational
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36 psychology perspective and define customer engagement as "a psychological state that
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38 occurs by interactive, cocreative customer experiences with a focal agent/object (e.g., a
39
40 brand) in focal service relationships" (p. 260). In their understanding based on various
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42 literature streams, they stress that customer engagement is a multidimensional concept
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44 and subject to a context- and/or stakeholder-specific expression of relevant cognitive,
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46 emotional and/or behavioural dimensions. Thus, in this wide conceptualization besides
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48 observable customer behaviour, engagement also entails emotional and conative
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50 components.
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4 Alternatively, other studies focus solely on the behavioural aspects of customer
5 engagement in their conceptualizations. Van Doorn *et al.* (2010, p. 254) define customer
6 engagement as “behaviours [that] go beyond transactions, and may be specifically
7 defined as a customer’s behavioural manifestations that have a brand or company focus,
8 beyond purchase, resulting from motivational drivers”. Similarly, Verhoef *et al.* (2010, p.
9 247) recognize engagement as “a behavioural manifestation toward the brand or firm that
10 goes beyond transactions.” While other conceptualizations of customer engagement are
11 sometimes used to denote the highest form of loyalty (Bowden 2009; Roberts and Alpert
12 2010), this behavioural manifestation includes all kinds of behaviours, not only those that
13 are characteristic of high degrees of loyalty (Libai 2011). Customer engagement with a
14 behavioural focus recognizes that consumers carry out a number of company-related
15 behaviours of which many did not exist a decade ago. This type of customer engagement
16 is directly related to the emergence of new media and all the new ways in which
17 customers can interact with companies, including purchase and non-purchase behaviour
18 (Jahn and Kunz 2012; Libai 2011). Some later studies, e.g. Javornik and Mandelli (2012)
19 and Coulter *et al.* (2012) also adopt a behavioural perspective of customer engagement,
20 arguing that the emphasis on the behavioural manifestation highlights the active role of
21 consumers, as passive consumption does not reflect the reality any longer.
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45 While the importance of this behavioural approach has been emphasized, capturing
46 the active role of consumers through conventional methods and data was challenging in
47 the past (Vivek *et al.* 2012). This issue has been remedied with the increasing use of Big
48 Data analytics that allows both academics and practitioners to track consumer behaviour
49 across various platforms (Choudhury and Harrigan 2014). The interactive nature of new
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3 digital technologies enables both customers and companies to share and exchange
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5 information with one another and offers numerous opportunities to engage with others.
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8 The Big Data obtained from multiple sources including social and digital media offer a
9
10 much richer context in which behavioural aspects of customer engagement can be
11
12 captured and examined. Furthermore, with the help of Big Data, it is now possible not
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14 only to observe and record the types and volume of various customer engagement
15
16 behaviours but also to process and make sense of such behaviours (Akter and Wamba
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18 2016). Therefore, as we explain below, the behavioural approach to engagement and the
19
20 use of Big Data should go hand in hand to have a deeper understanding of customer
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22 engagement.
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29 **4. A Dyadic Framework of Customer Engagement**

30 *4.1 Customer Engagement as Co-Creation Process*

31 *The Co-Creation Process*

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36 Value creation is commonly seen as synchronous and interactive (Grönroos 2012;
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38 Vargo and Lusch 2016). “Value is not simply ‘added,’ but is mutually ‘created’ and ‘re-
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40 created’ among actors with different values” (Ramirez 1999, p. 50). Customers play an
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42 active role in this process (Prahalad and Ramaswamy 2000). Value is co-created by
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44 multiple actors, therefore the customer, as beneficiary, is always a co-creator of value
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46 (Vargo and Lusch 2016).
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51 Co-creation has been defined as “joint activities by parties involved in direct
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53 interactions, aiming at contributing to the value that emerges for one or both parties”
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55 (Grönroos 2012, p. 1520). As such, company and customer are acting together in a
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3 merged and interactive process that creates value for both parties (Grönroos 2012). Based
4
5 on a comprehensive review of earlier research, (Ranjan and Read 2016, p. 305) conclude
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7 that “value co-creation is a theoretical representation of an extended exchange process of
8
9 joint production and consumption of value.” In other words, value emerges in customers’
10
11 and companies’ separate but related processes and co-creation occurs where these
12
13 processes overlap (Heinonen and Strandvik 2015).
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17 The engagement co-creation process is nested in the value co-creation process. For
18
19 engagement co-creation to occur it thus means that both parties must be aware of the
20
21 intentions to co-create, i.e. both the firm perspectives of engagement are considered in the
22
23 evaluation and preparation phases of engagement.
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26 27 *A One-Sided Perspectives on Customer Engagement*

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29 One common theme across prior research of customer engagement has been a firm-
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31 centric perspective rather than a customer perspective. The nexus of firm-centric
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33 perspective is the company, focused on customers' positive and negative expressions
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35 related to the company and the benefits of customer engagement for the company. In
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37 other words, the main focus of customer engagement has traditionally been on what the
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39 company does in its domain to induce firm-beneficial engagement from customers.
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43 For example, studies that look at the effects of brand community engagement
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45 (Algesheimer et al. 2005) include variables like brand-related purchase behaviour and
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47 community recommendation behaviour as their outcome variables while the effects on
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49 individual customers have largely been ignored. This includes lack of customer focus in
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51 behavioural conceptualizations as well. Van Doorn *et al.* (2010) for example, discuss
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53 consequences of customer engagement for companies but do not include any explicit and
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3 direct benefits for customers (except for the financial gains through participation in
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5 reward- or loyalty-based programs). Similarly, in their conceptual model of customer
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7 engagement, Verhoef *et al.* (2010) focus primarily on the impact that customer
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9 engagement has on metrics like customer retention, customer lifetime value and new
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11 product performance, which in turn contribute to firm value.
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15 The value fusion concept as developed by Larivière *et al.* (2013) is one exception to
16
17 the dominant focus on firm-related outcomes. This concept argues that a joint focus on
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19 the value derived both by the firm and by the customer can produce an interaction in
20
21 which both parties benefit. Adopting this dual-focus including both customer and firm in
22
23 customer engagement, and understanding each party's potential benefits from
24
25 engagement behaviours could lead to synergies and better outcomes for all parties
26
27 involved. Awareness of customer-related benefits of engagement with companies could
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29 help maximize efforts aimed at building strong engagement with customers, and help
30
31 firm-focused outcomes as well. Larivière *et al.* (2013) provide examples showing how a
32
33 joint focus on the value derived both by the firm and by the consumer — called value
34
35 fusion — can produce an interaction in which both parties benefit. In this vein, it
36
37 becomes evident that customer engagement should be viewed and managed from a
38
39 combined approach that merges the customer's and firm's view. Similarly, Malthouse *et*
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41 *al.* (2013) suggest that the strategic objective of social CRM should go beyond just
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43 including multiple forms of value for the firm like customer referral or influence value,
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45 and should include value to the consumer as well.
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The Firm Perspective

When customers share, distribute and discuss their experiences, reviews, and brand enthusiasm or delight in interactions with others via social networks, companies can benefit on three distinct levels. First, at a firm level, they collect valuable market insight for managing their reputation, complaints, and intelligence for improving processes (Sigala et al. 2012). Second, at a market level, customers can become strong brand advocates and e-marketers of the brand, and companies can build an enduring relationship with them (Malthouse et al. 2013; Munzel and Kunz 2014; Sigala 2016; Wirtz et al. 2013). Finally, at a customer level, customers enhance their self-brand connection and brand usage intent (Hollebeek et al. 2014), the trust level attributed to the brand, their subsequent brand loyalty and customer-brand relations (So et al. 2016) as well as enriching and personalising their experiences (Campos et al. 2016). Customer engagement requires the companies to migrate from a transactional management mindset to a broader understanding and management of the customers and their value. In order to design an optimal customer engagement approach and effectively integrate customers into the company's value chain operations as value co-creators, companies need to answer the following critical questions:

- *Why* does the company need to trigger customer engagement?
- *What* are the considered engagement approaches?
- *Who* (e.g. employees, customers, online communities) should be empowered to participate in co-creation?
- Which channel will be used to engage customers (*where*)?

- At what stage(s) of the customer experience (before purchase, during consumption, after consumption) should the customers be engaged (*when*)?

The Customer Perspective

Many companies invest in engagement with the premise that this will lead to positive financial outcomes – but this depends to a large extent on an organization’s ability to cultivate these interactions effectively with its customers. To be able to do this, it is critical to understand the customers’ perspective on *why*, *how*, *where* and *when* they would like to engage. Such motivations or orientations can vary across customers, and a one size fits all approach is unlikely to yield desired outcomes. For example, the literature demonstrates that customers are motivated to communicate information based on disparate goals such as through sense of obligation, a desire to help others/altruism (Mazzarol et al. 2007), and/or a feeling of pleasure from telling others about products or gaining social capital. Customers can also be driven to engage with a company to justify their decisions (generate approval), achieve social status or to increase self-esteem, self-enhancement, and visibility (De Matos and Rossi 2008). Understanding these motivations and crafting an engagement strategy targeted to customers with different needs and motivations is likely to improve response.

It is also important to understand individuals’ innate preferences toward building relationships (Hazan and Shaver 1990): not every customer welcomes engagement efforts or prefers engaging in a particular way. Since relational orientations vary across customers, marketing activities should also be customized to individuals or market segments. Unfortunately, little is known about the underlying preferences for closeness that influence how customers want to engage. We propose that attachment styles—the

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2
3 systematic patterns of relational expectations, emotions, and behaviours that result from a
4 particular personal history—can help explain different motivations for customers to
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6 engage with companies (Hazan and Shaver 1990).
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10 The three customer attachment styles include 1) secure, 2) anxious and 3) avoidant
11 and are characterized by a combination of factors (Mende and Bolton 2011). Research in
12 psychology has shown that attachment styles are best conceptualized and measured along
13 two continuous, quasi-orthogonal dimensions called "attachment anxiety" and
14
15 "attachment avoidance" (Brennan et al. 1998). Attachment anxiety is the extent to which
16 a person worries that relationship partners might not be available in times of need, has a
17 need for approval and fears rejection and abandonment. Attachment avoidance, on the
18 other hand, is the extent to which a person has a need for self-reliance, fears depending
19 on others, distrusts relationship partners' goodwill, and strives for emotional and
20 cognitive distance from partners. Individuals who score low on both these dimensions are
21 considered having a "secure" attachment style and welcome building relationships and
22 interacting with others. Research finds that relationship or context specific attachment
23 style (such as customer attachment style) is a closer predictor of outcomes related to a
24 focal partner (such as a company or a brand) compared to general attachment styles
25 (Mende et al. 2013).
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46 This presents the opportunity for companies to include customer attachment measures
47 with other market segmentation variables and use the results to allocate resources and
48 tailor marketing activities (Mende et al. 2013). Managers can design engagement
49 programs to recognize attachment styles and customize how they implement such
50 programs. For example, those high on secure attachment (with low levels of attachment
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3 anxiety and avoidance) toward the company are likely to be receptive to engagement
4 efforts and are prime candidates for programs that are more focused on relationship
5 building whereas those high on avoidance may not necessarily welcome engagement
6 efforts. Furthermore, the goal and framing of an engagement initiative can be tailored to
7 match the customers' preferred situation specific attachment style.
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9

10 11 12 13 14 15 *The Dual Perspective*

16
17 To summarize, we argue that when the fit between customer expectations and the
18 execution by the company of customer engagement efforts is high, customers will
19 evaluate it more favourably, have a higher likelihood to engage in the activity, derive a
20 higher value from the engagement and have a higher tendency to re-engage in the future.
21
22 In line with Grönroos and Voima (2013) and Heinonen *et al.* (2010), we propose that
23 value creation in engagement initiatives occurs in three distinct domains: the firm
24 domain, the customer domain, and the joint domain (see Figure 1). Hence, value emerges
25 in the joint interaction between the customer and firm and more importantly in
26 customers' individual and social behaviour in the customer domain (Grönroos and
27 Gummerus 2014; Heinonen and Strandvik 2015). As a result, customer's perspective to
28 value can be used to supplement firm's perspective to value measured by outcomes such
29 as customer referral value (e.g. acquiring other new customers via referral programs),
30 customer influence value (e.g. spreading word-of-mouth) and customer knowledge value
31 (e.g. providing feedback to the company) (Kumar et al. 2013), to more fully capture value
32 generated by engagement.
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6 Furthermore, this presents opportunities for companies to increasingly integrate
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8 customers and their online communities in various operations along the company value
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10 chain (e.g. new product and service development processes) (Verleye 2015) and
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12 empower them to co-create value as co-designers, co-marketers, co-distributors and co-
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14 producers of products/services. Indeed, customer engagement in non-transactional
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16 activities expands the role of consumers as co-creators of value (Sashi 2012), and leads to
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18 creating, building and enhancing customer-firm relationships (Malthouse et al. 2013;
19
20 Sigala 2016; Vivek et al. 2012) and empowering customers to co-create their own
21
22 valuable, seamless and personalized experiences.
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26 27 *4.2 Typology of Engagement Using a Dual Perspective*

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29 Drawing on this firm-customer dual framework perspective to customer engagement,
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31 we suggest that there are different types of engagement activities that vary in terms of the
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33 level/depth of involvement from a customer as well as a firm perspective (Wirtz et al.
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35 2013). We propose a typology of four types of engagement that can be determined in a 2-
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37 dimensional model by the level of resources (e.g. time, money, efforts, passion, and
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39 manpower) each party is investing in the engagement activity (see Figure 2).
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43 The four engagement types underline the fact that engagement varies depending on
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45 the activity, the motivation of the customer and firm as well as the investment by both
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47 parties. The exact position of an engagement activity within the 2-dimensional model
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49 depends on the individual specification of the activity by the actors. Further, engagement
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51 approaches can develop over time. So, for example, some approaches could start rather
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53 passively, but can be later driven by the customer.
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PLEASE INSERT FIGURE 2 HERE

1. True collaborative approaches: These are engagement activities where there is a high level of investment and commitment from the customer as well as the firm. These type of engagement activities are of mutual interest and benefit for the firm and the customer. They require a firm to invest resources in the offer of an engagement activity and a customer to actively participate. This type of engagement activities is frequent in business contexts, where both parties need to be involved in generating real value (Weinberg et al. 2015). A good example is IoT (Internet of Things) in various contexts, including wearable devices, smart cities, and energy optimization. In these cases, both the providing firm and the customer need to participate to garner value. Other examples include crowdsourcing activities (such as ideation contests) or firm-offered online community and web forums. Although the firm invests heavily, success depends on the participation of the customer.
2. Customer driven approaches: This type of engagement activities is of direct benefit to the customers and does not require much support from the firm, alternatively customers prefer not to involve the firm in the engagement activities. As suggested by Van Doorn *et al.* (2010), customer behavioural manifestations related to WOM (word-of-mouth), customer blogging, helping other customers and writing online reviews are examples in which it is the customer driving the engagement. Importantly, relatively low firm involvement does not mean it has no value for the firm. For example, UGC (user-generated content) aggregation like a hashtag-based

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3 user contest often generates useful new resources that firm can leverage in own
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5 marketing activities.
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- 8
9 3. Firm driven approaches: This type represents engagement activities in which there is
10 a high level of investment by the firm but not necessarily by the customer. Examples
11 include online brand communities that companies create in order to actively
12 encourage customers to exchange opinions and information related to the brand
13 (Wirtz et al. 2013). The development of a firm profile/page on social networks (such
14 as a YouTube brand channel or Facebook Page), is another example of firm
15 investment in building an audience and customizing content to trigger engagement
16 and customer conversations related to brand content (Smith et al. 2012).
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18 4. Passive engagement approaches: Passive engagement approaches include minimal
19 investment from both the customer and the firm - such as collection of data generated
20 by past consumer engagements. In line with Maslowska *et al.* (2016), in this type of
21 activities, the customer is in a passive mode mainly as an observer of brand
22 communication activities (i.e. *monologues*).
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41 The proposed typology helps differentiate various engagement activities and
42 underlines the need to consider the customer and the firm jointly as co-creators in
43 engagement initiatives. Also another issue to consider is the potential lack of active
44 involvement of either party in the engagement activities, such as the case in firm-driven
45 or customer-driven engagement approaches. In the next section, we take a deeper look
46 into the potential of Big Data to enable dynamic feedback processes and suggest several
47 ways of improving customer engagement over time.
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4.3 *Dynamic Nature of Customer Engagement Framework Using Big Data*

We argue that Big Data capabilities, processes and related infrastructure play a crucial role in ensuring sustainable engagement activities that reinforce positive value creation for both customer and firm over time. Our model emphasizes an iterative improvement in value for both the customer and the firm. Specifically, the model is based on the customer motivation to derive additional value from engaging in firm-related activities (for customer value) and firm motivations to derive actionable insights from customer engagement behaviours (for firm value). Embedded in our general framework, feedback loops reflect the dynamic nature of the relationship across customer engagement outcomes over time (see Figure 3).

PLEASE INSERT FIGURE 3 HERE

We posit that Big Data is of critical importance for companies looking to introduce and support this reinforcing cycle of positive value generation. In every engagement episode, individual customer data is systematically stored in a data store and can be used on aggregated or individual level to optimize further engagement activities. In the remainder of this subsection, we outline our dynamic conceptualization by providing examples of various engagement-value feedback loops from both the customer and firm perspective (please see Figure 3, red arrows). In these feedback loops, the goal is to reinforce customer engagement behaviour by providing superior value based on individual and aggregated data.

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Individual data insights: Wearable devices like the Fitbit tracker or the Apple watch are good examples of how value can be generated by individual customer data. By engaging in a physical activity, customers automatically share their real-time multi-dimensional data with the company. The data is stored in the company's database and could be processed in real-time using Big Data analytics tools. Such tools allow companies to generate value for customers by offering them summaries of their daily physical performance based on their own individual data. These summaries tend to keep customers engaged, and lead to reinforcement of positive behaviours associated with physical activities. Therefore, it is essential that the company makes the customer aware of the personal benefit to be obtained by engagement and sharing data (Walker 2015).

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Aggregated data insights: Recommendation systems are a great example to illustrate how aggregated customer choices and preferences can be used to generate customer value and encourage reinforcement. Many major online retailers (such as Amazon) emphasize the importance of recommender systems in helping customers to simplify their decision making through providing personalized suggestions. The feedback loop starts with customer interactions providing valuable behavioural data. For example, by clicking on "Recommendations" link on Amazon website, customers can filter their recommendations by product attributes and rate the recommended products (Linden et al. 2003). This data is captured across a large number of consumers sharing their likes and dislikes, and used by Amazon as a marketing tool to support targeted product recommendations and email campaigns (Koren 2008).

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Customer decision support: Big Data analytics can support the customer evaluation process to make better-informed decisions. For instance, prior research has shown that

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3 many consumers do not choose mobile data plans optimally when compared to their
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5 actual usage, resulting in overpayment for services (Bar-Gill and Stone 2009). When a
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7 customer's data consumption can be monitored, and the service provider is able to help
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9 with choosing the right plan against the actual usage, the customer is more likely to be
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11 engaged and satisfied with the service provider and less likely to defect to a competitor
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13 (e.g., Lambrecht and Skiera 2006, Iyengar et al. 2007; Ater and Landsman 2013).
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17 *KPI system:* From the company's perspective, Big Data can improve the
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19 measurement of ROI resulting from engagement (Wedel and Kannan 2016). Advances in
20
21 digital marketing allow companies to receive real-time feedback on how successful their
22
23 marketing efforts are. This requires companies to establish reliable Key Performance
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25 Indicators (KPIs) to validate the incremental Return on Investment (ROI) resulting from
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27 customer engagement (Horst and Duboff 2015). Kumar *et al.* (2013) demonstrate the
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29 relevance of Big Data by running and capturing the ROI of a promotional campaign on
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31 Twitter and Facebook. The ROI on Big Data capabilities will allow companies to
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33 leverage new services and offer better and more personalized engagement opportunities
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35 for customers.
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41 For example, companies can perform sentiment analysis (Ordenes et al. 2014; Pang
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43 and Lee 2008) through real-time tracking of customer sentiment related to their brands,
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45 product, services, customers, activities, and resources. This can be achieved by investing
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47 into high customer interactivity in social media networks. Successful implementation of
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49 such KPI-based feedback loops would allow companies to adjust their strategy and tactics
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51 dynamically. Specifically, having such system in place would provide CMO with
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53 objective ROI-related data that is often necessarily for convincing the rest of senior
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3 management to continue investing in Big Data capabilities for enhancing customer
4 experiences.
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8 *Strategy Support:* Customer engagement behaviour data can support companies'
9 strategic marketing plans. For instance, companies can use the consumer perspective to
10 tackle innovation and product development problems by building online communities of
11 collaborators who can create their own solutions to business problems. This requires
12 companies to have open innovation structures in place, in order to increase customer
13 participation, collect innovative ideas and implement them in the organization (Dittrich
14 and Duysters 2007). Companies must have a system in place for collecting customer
15 ideas and the adequate structure to implement and reward successful innovation
16 collaborators (Repenning 2002).
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29 Crowdsourcing is a typical example of such a customer-based product innovation
30 feedback loop (Di Gangi et al. 2010). By enabling high customer participation through
31 providing relevant intrinsic (such as higher status in a brand-driven social community)
32 and extrinsic (such as monetary awards in contests) incentives, companies can overcome
33 the barrier of knowledge and innovation by getting creative ideas and solutions from own
34 customers.
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43 *Customization & Targeting:* Targeting customers through customized content
44 presents another important opportunity that companies can pursue using Big Data
45 infrastructure. Firms can use Big Data analytics to obtain data-driven insights for
46 developing narrowly targeted features or entirely new customized products based
47 on estimated customer preferences. For example, 3M's implementation of a
48 personalized content marketing strategy designed to reduce smoking and increase
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3 healthy behaviours has shown how content marketing can successfully change
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5 consumer behaviour and transform lives (Content Marketing Institute, 2015).
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8 Creating a positive feedback loop through a targeted content marketing strategy
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10 also helps companies to react dynamically to changes in consumer content
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12 preferences.
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14 15 16 17 18 **5. Conclusions and Future Agenda** 19

20 Customer engagement has emerged in the last years as a topic of great interest to
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22 managers across sectors and industries. With the rise of digital technologies and the
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24 diffusion of social media, many companies are attempting to use explicit strategies to
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26 foster customer engagement (Javornik and Mandelli 2012). But customer engagement
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28 also entails that firms reassess the ways in which they view and manage the customers
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30 and their communities, the processes of creating value, the use and design of technology,
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32 the scope and focus of interactions and the customer insights. Similar to the reasons
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34 behind the failure of CRM systems (Rigby et al. 2002), much of the firm-driven customer
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36 engagement efforts have historically been focused solely on the value to the firm,
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38 ignoring the value it creates for the customer.
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45 Our framework emphasizes a dualistic perspective of engagement on both the firm's
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47 expectations and activities, as well as the customer's experiences and goals. Thus, we
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49 propose customer engagement be thought of ,not only as a managerial value enhancing
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51 tool to strengthen the relationship with (non-)customers, but also as an individual
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53 experience for the customer as to showing the relevance of engagement in supporting key
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55 individual goals and generating customer value. In other words, our framework proposes
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3 customer engagement will increase if managers execute engagement activities that meet
4 or exceed the customers' expectations. Fortunately, Big Data analytics allows firms to
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6 measure both firm and consumer value in real-time and allows companies the opportunity
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8 to understand the customer through multidimensional profiles and dynamic adjustments
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10 of their marketing instruments, targets and budgets.
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16 Further, we argue the value generation process is dynamic and continuously evolving
17 through an iterative process starting with the customer recognition of the value of
18 engagement and continuing with the company's ability to discover further value adds
19 from the generated data. Therefore, our proposed framework is also dynamic in nature, as
20 it emphasizes the challenge of maintaining a dynamic balance between customer
21 expectations from engagement and companies ability to create value for both the
22 customer and themselves. Developing Big Data capabilities and processes would enable
23 firms to meet this challenge through dynamic generation of creative insights related to
24 new consumer engagement initiatives (Davenport et al. 2012).
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38 From a managerial perspective, the increased understanding of the customer using
39 Big Data analytics has the potential for companies to help their customer simplify choices
40 and make better decisions. This in turn encourages increased customer motivation for
41 engagement. Consequently, we suggest firms focus on the collection and analysis of
42 consumer data to develop strategies to educate consumers on how their collaborations
43 leads to value adds. In other words, it is important firms not only deploy data-based
44 approaches to improve consumer decisions but also actively position and communicate
45 consumer benefits associated with engagement tools. This would require managers to
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3 invest into finer behavioral segmentation of their customer base and enable a highly
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5 targeted approach to generate engagement.
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9 While most of the prior research on consumer engagement has focused on linking
10 customer actions to firm value, we argue ignoring the perceived value accruing to
11 consumers from their actions can be detrimental to companies in the current era of Big
12 Data. If customers do not perceive any value derived from their engagement with a firm,
13 the firm's risks losing customer engagement, threatening, in turn, firm's ability to learn
14 and innovate based on these important sources of Big Data. Companies that are not able
15 to maintain continuous improvement of the value-generating feedback loops might lose
16 their *share of engagement*.
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29 From a research perspective, more research is needed to fully explain the fit between
30 the firm's and the customer's engagement behavior, the dynamic nature of the feedback
31 loops and the of role Big Data. In Table 1 we identify potential areas for future research.
32 For instance, there is a need to understand under which circumstances customers
33 contribute and engage the best. In this context, our framework addresses the importance
34 of the fit between engagement approach, social media channel, customer expectation and
35 preferences. Given the plethora of existing social media channels and specific
36 engagement approaches, research should focus on how Big Data finds the appropriate
37 channels and engagement approaches. Further, Big Data analytics can relate customer
38 engagement to various customer variables such as demographics, psychographic, online
39 behavior and more. Future research should also consider how Big Data approaches can be
40 developed to focus on the right customer group for increasing engagement. Lastly, we
41 showed in this article different engagement approaches require different investment from
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3 company and customer. This raises the question who is driving the engagement processes
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5 over time and which contributions are essential for the long-term success of engagement
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7 initiative. How can big data analytics be used to help the manager to identify the success
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9 factor of a specific engagement approach?
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14 While this article is a starting point for a holistic customer engagement management
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16 that builds on the opportunities and challenges of Big Data, it is not without limitations.
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18 The concepts introduced do not account for the contextual and situational limitations that
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20 a company maybe experiencing as part of engagement efforts such as the challenges
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22 associated with gathering accurate and reliable data, the ability to integrate them
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24 successfully across various channels, company culture related obstacles, acquiring the
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26 necessary analytic skills and tools, and of course time and costs involved in undertaking
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28 these initiatives. Nevertheless, this framework has the potential to move the dial towards
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30 a conversation that recognizes the dynamic and intertwined nature of engagement so as to
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32 benefit both companies and customers.
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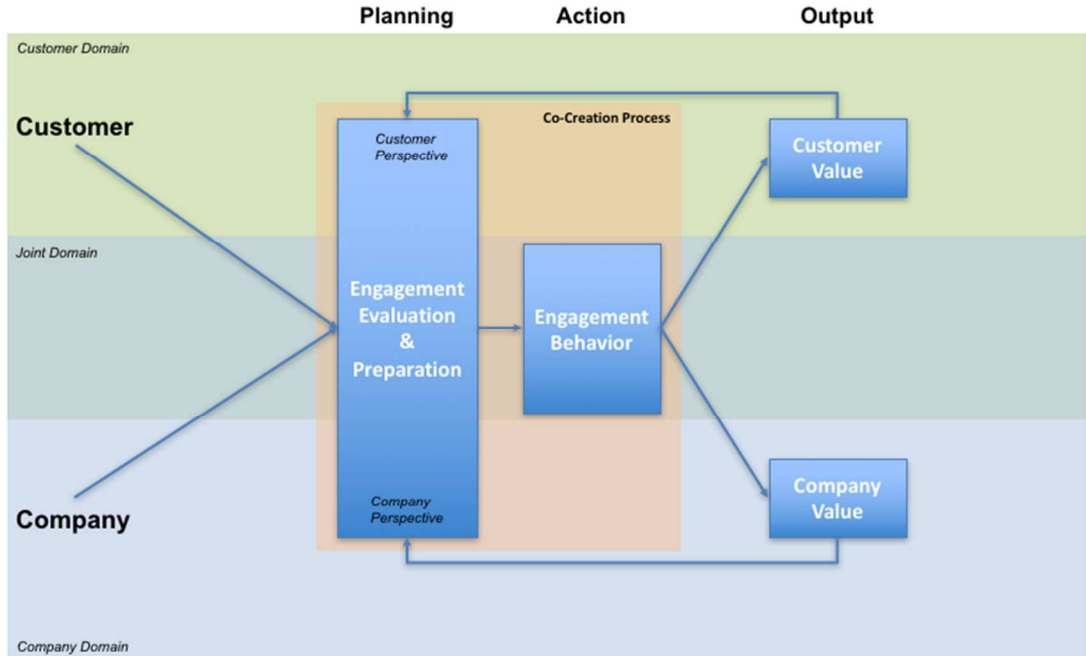
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Figure 1: Customer Engagement as a Co-Creation Process



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Figure 2: Typology of Engagement Using a Dual Customer-Firm Perspective

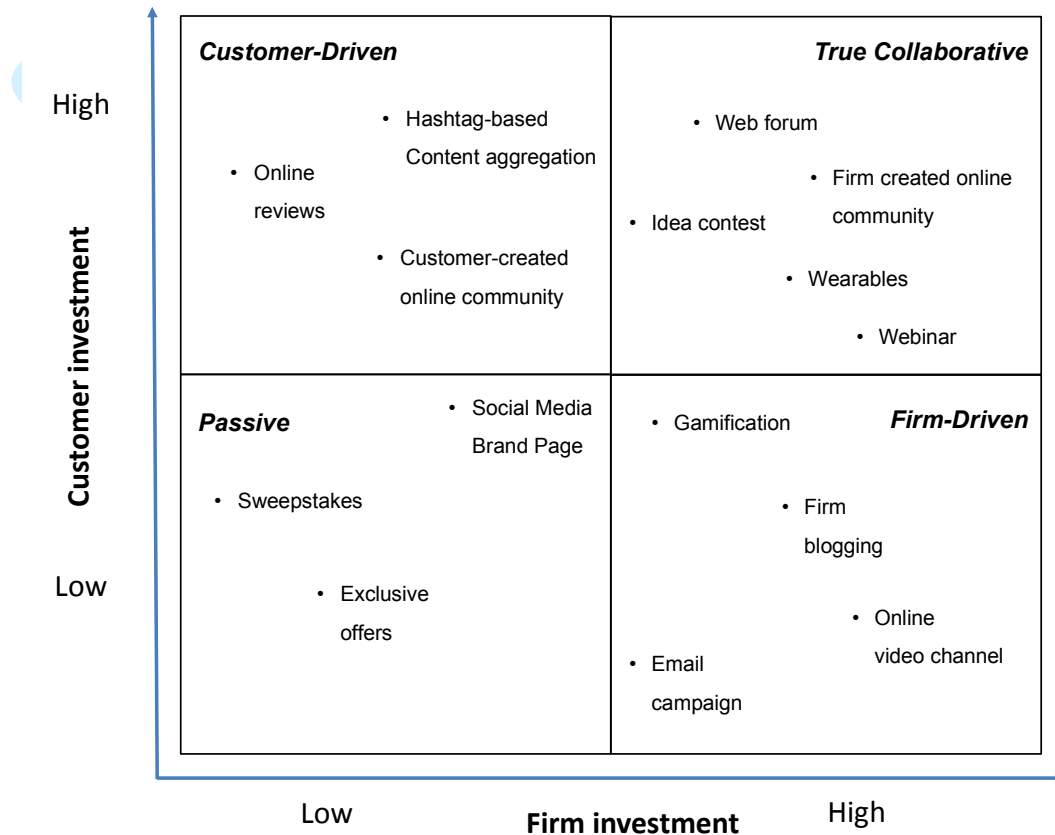
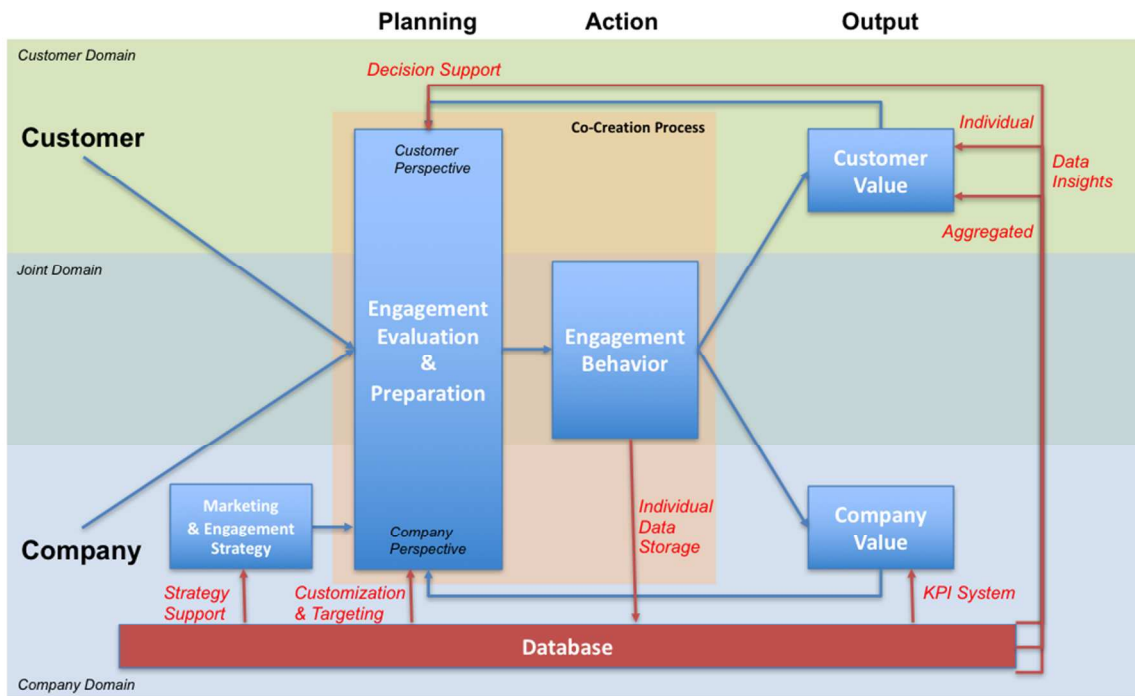


Figure 3: Dynamic Nature of Customer Engagement Framework Using Big Data



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Table 1: Future Research Opportunities

CHANNEL SELECTION	<p>How can Big Data help us identify the more effective touch points to create better engagement?</p> <p>Which data deserve more priority and are likely to be more valuable?</p>
CUSTOMER SEGMENTATION	<p>Which types / personalities of customers and with what attachment styles are more prone to get engaged?</p> <p>What metrics of customers should be used for selecting customers to be engaged?</p> <p>How do customer attachment style relates to the design of customer engagement activities and how do firms can match engagement activities to customer types?</p>
INTERPLAY BETWEEN CUSTOMER AND FIRM	<p>How can customer activities and experiences in their own domain be integrated and aligned with the firm's activities to enable mutual engagement co-creation?</p> <p>Does the origin of the engagement influence its success?</p> <p>Can Big Data help us understand if consumer-initiated engagement is more effective than firm-initiated engagement?</p>
HUMAN RESOURCE	<p>What are the analytical, interpretation and business skills that employees should possess in this new environment?</p> <p>How can business schools develop these skills in their graduates?</p>
PERFORMANCE MEASURES	<p>What are the effective analytics and measures that can be created using Big Data to measure the effectiveness of firm's engagement initiatives?</p> <p>How do competitors' engagement activities influence the companies own performance?</p>
ETHICS	<p>What are the ethics and privacy issues related to Big Data?</p> <p>What is the role of legislation?</p>