Customer Engagement in a Big Data World

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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

strategic value creation framework that comprehensively captures both the customer and firm perspectives for data-driven customer engagement.

This strategic framework identifies the necessary firm resources, data, process, timeline and goals for engagement, and captures customers' motives, situational factors, and preferred engagement styles. We propose that Big Data opportunities transform into long-lasting success only for companies that focus on managing synergy between a firm's execution of engagement efforts and the customers' experience, motivation, preferences, and expectations.

This research contributes to the literature in several ways. First, the framework we propose is the first one to emphasize the challenge of balancing the needs of customer and firm associated with the engagement activities to ensure positive impact on both customer and firm values. Second, the framework differentiates between engagement value for the firm and the customer and shows how Big Data capabilities can be used to generate value for both parties. Third, the framework allows for dynamic interactions between firm and customer value capturing processes through several feedback loops. By integrating such loops into the framework, we emphasize the potential for both parties to optimize their approach and involvement in engagement activities over time in adaptive fashion.

In the following sections, we explain the characteristics of a Big Data world and illustrate briefly the current conceptual understanding of customer engagement and how we propose to enhance it. We then introduce our strategic dynamic framework, discuss resulting theoretical and practical recommendations, and conclude with an agenda for future research in customer engagement based on Big Data.

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

increased variety of data in the Big Data world makes the integration of the various

formats one of the most important challenges.

- The *Veracity* dimension relates to data quality, context and accuracy and the plethora

  of sources for data, meaning that it is difficult to understand where it comes from,

  who the originator is, whether it is accurate/correct, what the meaning of data is etc.

  (Anuradha 2015; Forbes 2015). For example, Twitter posts relating to company

  products and services might originate from genuine customers but also from

  competitors that are interested in negative marketing or "mudslinging."

- The *Value* dimension relates to data helping to generate business value especially

  within the context of data analytics and business intelligence (Chen et al. 2012;

  Parmar et al. 2014). Return-On-Information (ROI) and has been arguably one of the

  important considerations when businesses are involved with Big Data.

Digital media has created over recent years an unprecedented capacity to generate and

capture customer Big Data in a variety of forms and through different channels. Such

data can provide businesses with opportunities for innovation in ways that can

significantly impact their business model and value proposition. However, while this

explosion of data availability has generated increasing interest by businesses to deploy

Big Data for deeper customer engagement, it has also challenged firms' ability to capture

a more comprehensive understanding of the customer.

One significant Big Data challenge for customer engagement stems from difficulty of

collecting and reconciling customer data from a variety of channels relating to customer

identity, profile, engagement history, preferences, decision making and consumer

behaviour. Typically, this data is stored and managed within a firm's CRM system, but this might not be the case in a Big Data world, where data is often collected by external parties/platforms (such as Google, Facebook, cloud-based email systems). Consequently, most of Big Data ends up being outside the control and ownership of the company, creating the challenge of getting access to, collecting and integrating the data within the CRM system and transforming into a dynamic 360° view of the customer. Moreover, accessing such outside customer Big Data is often further complicated by surrounding complexities related to ethical and legal issues.

Nonetheless, analysing this data creates a plethora of possibly relevant insights that can be acted upon. In the context of Big Data, these insights can be generated in real-time and directly through customer touch-points, leading to generation of sustainable value for the firm and customers.

3. Existing Perspectives on Customer Engagement

The concept of 'engagement' has been widely explored by scholars from different disciplines, including management, marketing, and information systems. It is a phenomenon and a branding practice that stands at the crossroads of the relationship marketing (Brodie et al. 2011; Sashi 2012) and the value co-creation paradigms (Brodie et al. 2011; Sawhney et al. 2005). However, there is no consensus in the current literature about the conceptualization and definition of customer engagement. The literature indicates that there are three main perspectives from which researchers have defined and studied the concept of 'customer engagement' in prior studies: psychological process

(Bowden 2009), motivational psychology perspective (Brodie et al. 2011) and behavioural manifestation (Van Doorn et al. 2010).

Bowden (2009) conceptualizes customer engagement as a psychological process comprising cognitive and emotional aspects that lead to loyalty for both new and existing customers. On the other hand, some other studies conceptualize engagement as a psychological state that reflects a customer's particular psychological state induced by the individual's specific interactive experiences with a focal engagement object (e.g. a brand) (Brodie et al. 2011; Brodie et al. 2013; Vivek et al. 2012). For example, Hollebeek (2011, p. 785) defines customer brand engagement as "the level of a customer's motivational, brand related and context dependent state of mind characterized by specific levels of cognitive, emotional and behavioural activity in brand." Similarly, Patterson *et al.* (2006) define customer engagement as a psychological state that is characterized by a degree of vigour, dedication, absorption and interaction.

Brodie *et al.* (2011) conceptualize customer engagement from a motivational psychology perspective and define customer engagement as "a psychological state that occurs by interactive, cocreative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships" (p. 260). In their understanding based on various literature streams, they stress that customer engagement is a multidimensional concept and subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and/or behavioural dimensions. Thus, in this wide conceptualization besides observable customer behaviour, engagement also entails emotional and conative components.

Alternatively, other studies focus solely on the behavioural aspects of customer

engagement in their conceptualizations. Van Doorn *et al.* (2010, p. 254) define customer

engagement as "behaviours [that] go beyond transactions, and may be specifically

defined as a customer's behavioural manifestations that have a brand or company focus,

beyond purchase, resulting from motivational drivers". Similarly, Verhoef *et al.* (2010, p.

247) recognize engagement as "a behavioural manifestation toward the brand or firm that

goes beyond transactions." While other conceptualizations of customer engagement are

sometimes used to denote the highest form of loyalty (Bowden 2009; Roberts and Alpert

2010), this behavioural manifestation includes all kinds of behaviours, not only those that

are characteristic of high degrees of loyalty (Libai 2011). Customer engagement with a

behavioural focus recognizes that consumers carry out a number of company-related

behaviours of which many did not exist a decade ago. This type of customer engagement

is directly related to the emergence of new media and all the new ways in which

customers can interact with companies, including purchase and non-purchase behaviour

(Jahn and Kunz 2012; Libai 2011).Some later studies, e.g. Javornik and Mandelli (2012)

and Coulter *et al.* (2012) also adopt a behavioural perspective of customer engagement,

arguing that the emphasis on the behavioural manifestation highlights the active role of

consumers, as passive consumption does not reflect the reality any longer.

While the importance of this behavioural approach has been emphasized, capturing

the active role of consumers through conventional methods and data was challenging in

the past (Vivek et al. 2012). This issue has been remedied with the increasing use of Big

Data analytics that allows both academics and practitioners to track consumer behaviour

across various platforms (Choudhury and Harrigan 2014). The interactive nature of new

digital technologies enables both customers and companies to share and exchange

information with one another and offers numerous opportunities to engage with others.

The Big Data obtained from multiple sources including social and digital media offer a

much richer context in which behavioural aspects of customer engagement can be

captured and examined. Furthermore, with the help of Big Data, it is now possible not

only to observe and record the types and volume of various customer engagement

behaviours but also to process and make sense of such behaviours (Akter and Wamba

2016). Therefore, as we explain below, the behavioural approach to engagement and the

use of Big Data should go hand in hand to have a deeper understanding of customer

engagement.

4. A Dyadic Framework of Customer Engagement

4.1 Customer Engagement as Co-Creation Process

The Co-Creation Process

Value creation is commonly seen as synchronous and interactive (Grönroos 2012;

Vargo and Lusch 2016). "Value is not simply 'added,' but is mutually 'created' and 're-

created' among actors with different values" (Ramirez 1999, p. 50). Customers play an

active role in this process (Prahalad and Ramaswamy 2000).Value is co-created by

multiple actors, therefore the customer, as beneficiary, is always a co-creator of value

(Vargo and Lusch 2016).

Co-creation has been defined as "joint activities by parties involved in direct

interactions, aiming at contributing to the value that emerges for one or both parties"

(Grönroos 2012, p. 1520). As such, company and customer are acting together in a

merged and interactive process that creates value for both parties (Grönroos 2012). Based

on a comprehensive review of earlier research, (Ranjan and Read 2016, p. 305) conclude

that "value co-creation is a theoretical representation of an extended exchange process of

joint production and consumption of value." In other words, value emerges in customers'

and companies' separate but related processes and co-creation occurs where these

processes overlap (Heinonen and Strandvik 2015).

The engagement co-creation process is nested in the value co-creation process. For

engagement co-creation to occur it thus means that both parties must be aware of the

intentions to co-create, i.e. both the firm perspectives of engagement are considered in the

evaluation and preparation phases of engagement.

A One-Sided Perspectives on Customer Engagement

One common theme across prior research of customer engagement has been a firm-

centric perspective rather than a customer perspective. The nexus of firm-centric

perspective is the company, focused on customers' positive and negative expressions

related to the company and the benefits of customer engagement for the company. In

other words, the main focus of customer engagement has traditionally been on what the

company does in its domain to induce firm-beneficial engagement from customers.

For example, studies that look at the effects of brand community engagement

(Algesheimer et al. 2005) include variables like brand-related purchase behaviour and

community recommendation behaviour as their outcome variables while the effects on

individual customers have largely been ignored. This includes lack of customer focus in

behavioural conceptualizations as well. Van Doorn *et al.* (2010) for example, discuss

consequences of customer engagement for companies but do not include any explicit and

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direct benefits for customers (except for the financial gains through participation in reward- or loyalty-based programs). Similarly, in their conceptual model of customer engagement, Verhoef *et al.* (2010) focus primarily on the impact that customer engagement has on metrics like customer retention, customer lifetime value and new product performance, which in turn contribute to firm value.

The value fusion concept as developed by Larivière *et al.* (2013) is one exception to the dominant focus on firm-related outcomes. This concept argues that a joint focus on the value derived both by the firm and by the customer can produce an interaction in which both parties benefit. Adopting this dual-focus including both customer and firm in customer engagement, and understanding each party's potential benefits from engagement behaviours could lead to synergies and better outcomes for all parties involved. Awareness of customer-related benefits of engagement with companies could help maximize efforts aimed at building strong engagement with customers, and help firm-focused outcomes as well. Larivière *et al.* (2013) provide examples showing how a joint focus on the value derived both by the firm and by the consumer — called value fusion — can produce an interaction in which both parties benefit. In this vein, it becomes evident that customer engagement should be viewed and managed from a combined approach that merges the customer's and firm's view. Similarly, Malthouse *et al.* (2013) suggest that the strategic objective of social CRM should go beyond just including multiple forms of value for the firm like customer referral or influence value, and should include value to the consumer as well.

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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systematic patterns of relational expectations, emotions, and behaviours that result from a

particular personal history—can help explain different motivations for customers to

engage with companies (Hazan and Shaver 1990).

   The three customer attachment styles include 1) secure, 2) anxious and 3) avoidant

and are characterized by a combination of factors (Mende and Bolton 2011). Research in

psychology has shown that attachment styles are best conceptualized and measured along

two continuous, quasi-orthogonal dimensions called "attachment anxiety" and

"attachment avoidance" (Brennan et al. 1998). Attachment anxiety is the extent to which

a person worries that relationship partners might not be available in times of need, has a

need for approval and fears rejection and abandonment. Attachment avoidance, on the

other hand, is the extent to which a person has a need for self-reliance, fears depending

on others, distrusts relationship partners' goodwill, and strives for emotional and

cognitive distance from partners. Individuals who score low on both these dimensions are

considered having a "secure" attachment style and welcome building relationships and

interacting with others. Research finds that relationship or context specific attachment

style (such as customer attachment style) is a closer predictor of outcomes related to a

focal partner (such as a company or a brand) compared to general attachment styles

(Mende et al. 2013).

   This presents the opportunity for companies to include customer attachment measures

with other market segmentation variables and use the results to allocate resources and

tailor marketing activities (Mende et al. 2013). Managers can design engagement

programs to recognize attachment styles and customize how they implement such

programs. For example, those high on secure attachment (with low levels of attachment

anxiety and avoidance) toward the company are likely to be receptive to engagement

efforts and are prime candidates for programs that are more focused on relationship

building whereas those high on avoidance may not necessarily welcome engagement

efforts. Furthermore, the goal and framing of an engagement initiative can be tailored to

match the customers' preferred situation specific attachment style.

The Dual Perspective

To summarize, we argue that when the fit between customer expectations and the

execution by the company of customer engagement efforts is high, customers will

evaluate it more favourably, have a higher likelihood to engage in the activity, derive a

higher value from the engagement and have a higher tendency to re-engage in the future.

In line with Grönroos and Voima (2013) and Heinonen *et al.* (2010), we propose that

value creation in engagement initiatives occurs in three distinct domains: the firm

domain, the customer domain, and the joint domain (see Figure 1). Hence, value emerges

in the joint interaction between the customer and firm and more importantly in

customers' individual and social behaviour in the customer domain (Grönroos and

Gummerus 2014; Heinonen and Strandvik 2015). As a result, customer's perspective to

value can be used to supplement firm's perspective to value measured by outcomes such

as customer referral value (e.g. acquiring other new customers via referral programs),

customer influence value (e.g. spreading word-of-mouth) and customer knowledge value

(e.g. providing feedback to the company) (Kumar et al. 2013), to more fully capture value

generated by engagement.

PLEASE INSERT FIGURE 1 HERE

Furthermore, this presents opportunities for companies to increasingly integrate customers and their online communities in various operations along the company value chain (e.g. new product and service development processes) (Verleye 2015) and empower them to co-create value as co-designers, co-marketers, co-distributors and co-producers of products/services. Indeed, customer engagement in non-transactional activities expands the role of consumers as co-creators of value (Sashi 2012), and leads to creating, building and enhancing customer-firm relationships (Malthouse et al. 2013; Sigala 2016; Vivek et al. 2012) and empowering customers to co-create their own valuable, seamless and personalized experiences.

4.2 Typology of Engagement Using a Dual Perspective

Drawing on this firm-customer dual framework perspective to customer engagement, we suggest that there are different types of engagement activities that vary in terms of the level/depth of involvement from a customer as well as a firm perspective (Wirtz et al. 2013). We propose a typology of four types of engagement that can be determined in a 2-dimensional model by the level of resources (e.g. time, money, efforts, passion, and manpower) each party is investing in the engagement activity (see Figure 2).

The four engagement types underline the fact that engagement varies depending on the activity, the motivation of the customer and firm as well as the investment by both parties. The exact position of an engagement activity within the 2-dimensional model depends on the individual specification of the activity by the actors. Further, engagement approaches can develop over time. So, for example, some approaches could start rather passively, but can be later driven by the customer.

PLEASE INSERT FIGURE 2 HERE

1. <u>True collaborative approaches:</u> 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. <u>Customer driven approaches</u>: 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

user contest often generates useful new resources that firm can leverage in own

marketing activities.

3. <u>Firm driven approaches:</u> This type represents engagement activities in which there is

a high level of investment by the firm but not necessarily by the customer. Examples

include online brand communities that companies create in order to actively

encourage customers to exchange opinions and information related to the brand

(Wirtz et al. 2013). The development of a firm profile/page on social networks (such

as a YouTube brand channel or Facebook Page), is another example of firm

investment in building an audience and customizing content to trigger engagement

and customer conversations related to brand content (Smith et al. 2012).

4. <u>Passive engagement approaches</u>: Passive engagement approaches include minimal

investment from both the customer and the firm - such as collection of data generated

by past consumer engagements. In line with Maslowska *et al.* (2016), in this type of

activities, the customer is in a passive mode mainly as an observer of brand

communication activities (i.e. *monologues*).

The proposed typology helps differentiate various engagement activities and

underlines the need to consider the customer and the firm jointly as co-creators in

engagement initiatives. Also another issue to consider is the potential lack of active

involvement of either party in the engagement activities, such as the case in firm-driven

or customer-driven engagement approaches. In the next section, we take a deeper look

into the potential of Big Data to enable dynamic feedback processes and suggest several

ways of improving customer engagement over time.

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.

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).

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).

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

many consumers do not choose mobile data plans optimally when compared to their

actual usage, resulting in overpayment for services (Bar-Gill and Stone 2009). When a

customer's data consumption can be monitored, and the service provider is able to help

with choosing the right plan against the actual usage, the customer is more likely to be

engaged and satisfied with the service provider and less likely to defect to a competitor

(e.g., Lambrecht and Skiera 2006, Iyengar et al. 2007; Ater and Landsman 2013).

KPI system: From the company's perspective, Big Data can improve the

measurement of ROI resulting from engagement (Wedel and Kannan 2016). Advances in

digital marketing allow companies to receive real-time feedback on how successful their

marketing efforts are. This requires companies to establish reliable Key Performance

Indicators (KPIs) to validate the incremental Return on Investment (ROI) resulting from

customer engagement (Horst and Duboff 2015). Kumar *et al.* (2013) demonstrate the

relevance of Big Data by running and capturing the ROI of a promotional campaign on

Twitter and Facebook. The ROI on Big Data capabilities will allow companies to

leverage new services and offer better and more personalized engagement opportunities

for customers.

For example, companies can perform sentiment analysis (Ordenes et al. 2014; Pang

and Lee 2008) through real-time tracking of customer sentiment related to their brands,

product, services, customers, activities, and resources. This can be achieved by investing

into high customer interactivity in social media networks. Successful implementation of

such KPI-based feedback loops would allow companies to adjust their strategy and tactics

dynamically. Specifically, having such system in place would provide CMO with

objective ROI-related data that is often necessarily for convincing the rest of senior

management to continue investing in Big Data capabilities for enhancing customer

experiences.

Strategy Support: Customer engagement behaviour data can support companies'

strategic marketing plans. For instance, companies can use the consumer perspective to

tackle innovation and product development problems by building online communities of

collaborators who can create their own solutions to business problems. This requires

companies to have open innovation structures in place, in order to increase customer

participation, collect innovative ideas and implement them in the organization (Dittrich

and Duysters 2007). Companies must have a system in place for collecting customer

ideas and the adequate structure to implement and reward successful innovation

collaborators (Repenning 2002).

Crowdsourcing is a typical example of such a customer-based product innovation

feedback loop (Di Gangi et al. 2010). By enabling high customer participation through

providing relevant intrinsic (such as higher status in a brand-driven social community)

and extrinsic (such as monetary awards in contests) incentives, companies can overcome

the barrier of knowledge and innovation by getting creative ideas and solutions from own

customers.

Customization & Targeting: Targeting customers through customized content

presents another important opportunity that companies can pursue using Big Data

infrastructure. Firms can use Big Data analytics to obtain data-driven insights for

developing narrowly targeted features or entirely new customized products based

on estimated customer preferences. For example, 3M's implementation of a

personalized content marketing strategy designed to reduce smoking and increase

healthy behaviours has shown how content marketing can successfully change

consumer behaviour and transform lives (Content Marketing Institute, 2015).

Creating a positive feedback loop through a targeted content marketing strategy

also helps companies to react dynamically to changes in consumer content

preferences.

5. Conclusions and Future Agenda

Customer engagement has emerged in the last years as a topic of great interest to

managers across sectors and industries. With the rise of digital technologies and the

diffusion of social media, many companies are attempting to use explicit strategies to

foster customer engagement (Javornik and Mandelli 2012). But customer engagement

also entails that firms reassess the ways in which they view and manage the customers

and their communities, the processes of creating value, the use and design of technology,

the scope and focus of interactions and the customer insights. Similar to the reasons

behind the failure of CRM systems (Rigby et al. 2002), much of the firm-driven customer

engagement efforts have historically been focused solely on the value to the firm,

ignoring the value it creates for the customer.

Our framework emphasizes a dualistic perspective of engagement on both the firm's

expectations and activities, as well as the customer's experiences and goals. Thus, we

propose customer engagement be thought of ,not only as a managerial value enhancing

tool to strengthen the relationship with (non-)customers, but also as an individual

experience for the customer as to showing the relevance of engagement in supporting key

individual goals and generating customer value. In other words, our framework proposes

customer engagement will increase if managers execute engagement activities that meet or exceed the customers' expectations. Fortunately, Big Data analytics allows firms to measure both firm and consumer value in real-time and allows companies the opportunity to understand the customer through multidimensional profiles abd dynamic adjustments of their marketing instruments, targets and budgets.

Further, we argue the value generation process is dynamic and continuously evolving through an iterative process starting with the customer recognition of the value of engagement and continuing with the company's ability to discover further value adds from the generated data. Therefore, our proposed framework is also dynamic in nature, as it emphasizes the challenge of maintaining a dynamic balance between customer expectations from engagement and companies ability to create value for both the customer and themselves. Developing Big Data capabilities and processes would enable firms to meet this challenge through dynamic generation of creative insights related to new consumer engagement initiatives (Davenport et al. 2012).

From a managerial perspective, the increased understanding of the customer using Big Data analytics has the potential for companies to help their customer simplify choices and make better decisions. This in turn encourages increased customer motivation for engagement. Consequently, we suggest firms focus on the collection and analysis of consumer data to develop strategies to educate consumers on how their collaborations leads to value adds. In other words, it is importantfirms not only deploy data-based approaches to improve consumer decisions but also actively position and communicate consumer benefits associated with engagement tools. This would require managers to

invest into finer behavioral segmentation of their customer base and enable a highly targeted approach to generate engagement.

While most of the prior research on consumer engagement has focused on linking customer actions to firm value, we argue ignoring the perceived value accruing to consumers from their actions can be detrimental to companies in the current era of Big Data. If customers do not perceive any value derived from their engagement with a firm, the firm's risks losing customer engagement, threatening, in turn, firm's ability to learn and innovate based on these important sources of Big Data. Companies that are not able to maintain continuous improvement of the value-generating feedback loops might lose their *share of engagement*.

From a research perspective, more research is needed to fully explain the fit between the firm's and the customer's engagement behavior, the dynamic nature of the feedback loops and the of role Big Data. In Table 1 we identify potential areas for future research. For instance, there is a need to understand under which circumstances customers contribute and engage the best. In this context, our framework addresses the importance of the fit between engagement approach, social media channel, customer expectation and preferences. Given the plethora of existing social media channels and specific engagement approaches, research should focus on how Big Data finds the appropriate channels and engagement approaches. Further, Big Data analytics can relate customer engagement to various customer variables such as demographics, psychographic, online behavior and more. Future research should also consider how Big Data approaches can be developed to focus on the right customer group for increasing engagement. Lastly, we showed in this article different engagement approaches require different investment from

company and customer. This raises the question who is driving the engagement processes over time and which contributions are essential for the long-term success of engagement initiative. How can big data analytics be used to help the manager to identify the success factor of a specific engagement approach?

While this article is a starting point for a holistic customer engagement management that builds on the opportunities and challenges of Big Data, it is not without limitations. The concepts introduced do not account for the contextual and situational limitations that a company maybe experiencing as part of engagement efforts such as the challenges associated with gathering accurate and reliable data, the ability to integrate them successfully across various channels, company culture related obstacles, acquiring the necessary analytic skills and tools, and of course time and costs involved in undertaking these initiatives. Nevertheless, this framework has the potential to move the dial towards a conversation that recognizes the dynamic and intertwined nature of engagement so as to benefit both companies and customers.

PLEASE INSERT TABLE 1 HERE

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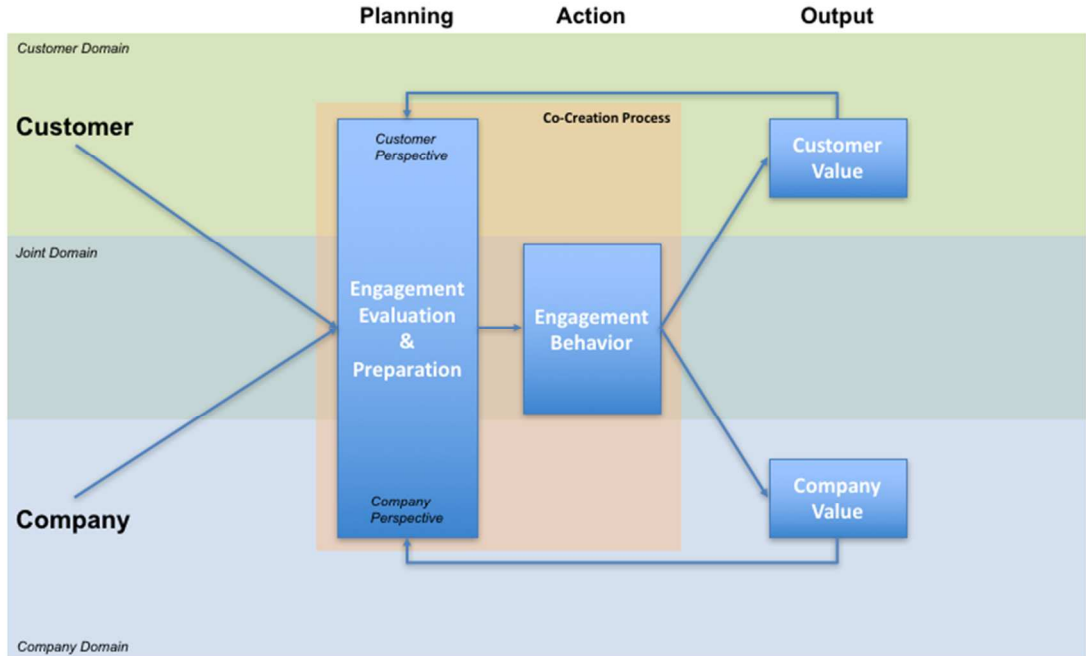Figure 1: Customer Engagement as a Co-Creation Process

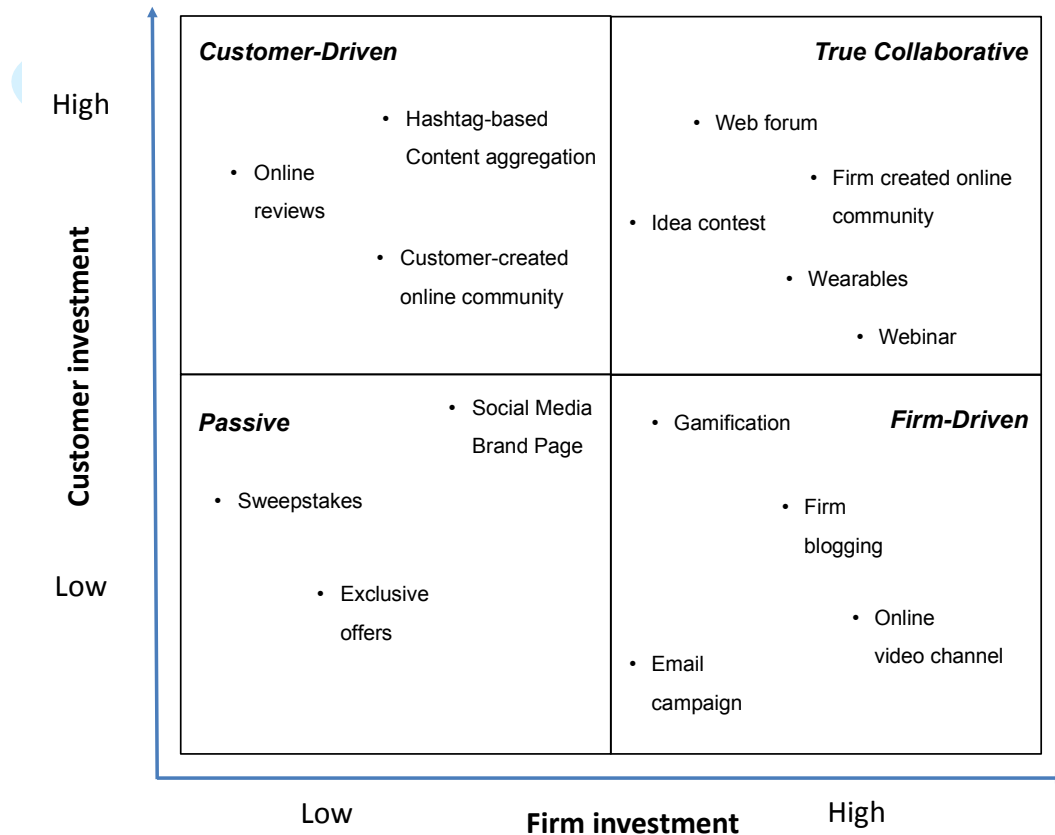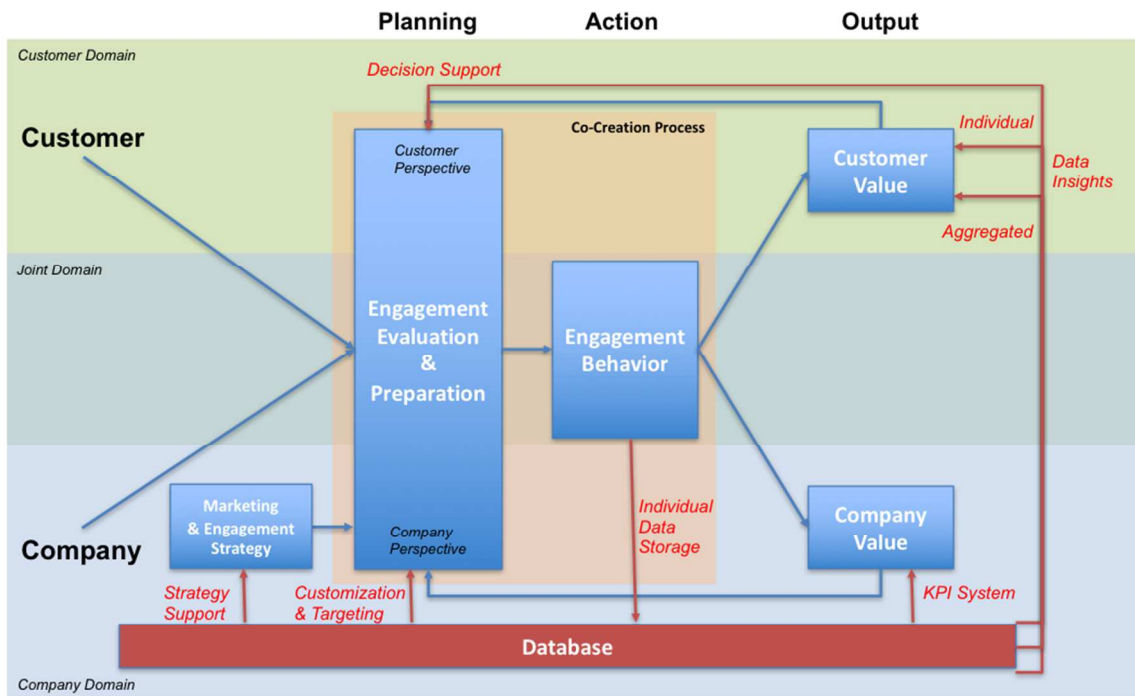Figure 2: Typology of Engagement Using a Dual Customer-Firm Perspective

Customer investment

Firm investment

Customer-Driven

- Online reviews
- Hashtag-based Content aggregation
- Customer-created online community

True Collaborative

- Web forum
- Firm created online community
- Idea contest
- Wearables
- Webinar

Passive

- Social Media Brand Page
- Sweepstakes
- Exclusive offers

Firm-Driven

- Gamification
- Firm blogging
- Online video channel
- Email campaign

High

Low

Low

High

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

Table 1: Future Research Opportunities

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