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ABSTRACT

Brands increasingly take advantage of social media connectivity to foster organic consumer interactions and deliver personalised customer service in real-time. This leads to rising demand of instant gratification, as consumers expect brands to respond and offer support timely and conveniently. Real-time service has taken personalisation of service beyond merely providing relevant content to targeted consumers. Instant gratification or 'time' factor is of paramount importance to gain real-time engagement with highly-informed and connected consumers, and ultimately to achieve brands digital competitiveness. This exploratory study identifies how brands in tourism and hospitality utilise social media and digital technology to enhance consumer experience in real-time. Data collection was employed in three research phases. Firstly, online content analysis of real-time interaction between brands and consumers. Secondly, an in-depth case study of the Marriott MLive and finally, additional multiple case studies of four best-practice brands. The findings suggest that the integration of real-time consumer intelligence, dynamic big data mining, artificial intelligence, and contextualisation can inform service offerings to empower co-creation and enhance competitiveness for tourism and hospitality organisations.

Introduction

The experiential and dynamic nature of the travel, tourism and hospitality industries (Fotis, Buhalis & Rossides, 2012; Hays, Page, & Buhalis, 2012), rises an increasing expectation to focus service offerings to consumer needs using contextualised and highly personalised service and engagement. Consumers' personal preferences combined with external factors such as weather, traffic or season could inform contextual information needed to co-create value in real-time (Buhalis & Foerste, 2015; Prahalad & Ramaswamy, 2004b). Brands can set themselves apart from the competitors in the highly competitive marketplace by co-creating exceptional consumer experience (McKinsey, 2016). The emergence of social media and mobile technology have revolutionised the way brands and marketers reach consumers. Brands know much more about their consumers and their need, enabling them to improve the speed and agility of products and services (Del Rowe, 2016). Social media allow

consumers to directly interact with brands in a more personal way and to co-create personal experiences (Buhalis & Law, 2008; Law, Buhalis, & Cobanoglu, 2014). Brands also utilise private channels as a medium to communicate, engage and deliver messages, such as: WhatsApp, Facebook Messenger, Twitter DM, or email newsletter. Brands need understand how to leverage social media as a real-time interactive channel to co-create value with consumers and develop authentic engagement (Hanna, Rohm, & Crittenden, 2011; Howell, 2014; Prahalad & Ramaswamy, 2004a). A study by Evergage in 2014 shows that 76% marketers employ real-time marketing in their strategy and 48% of them utilise social platforms. Yet surprisingly, only seven percent of more than 250 marketers are able to provide data-driven and real-time engagement across both digital and physical touchpoints (CMO Council, 2017). Only a dearth of studies has strived to analyse how real-time data and dynamic effort, based on contextual data, could generate distinct value for stakeholders. This exploratory study aims to bridge the gap in the literature by contributing a novel knowledge on how social media and technology can enhance consumer experience in real-time. It examined how the combination of technology, time and contextual relevancy can assist brands to deliver higher value for the digitally savvy consumers (Buhalis & Foerste, 2015; Neuhofer, Buhalis & Ladkin, 2012). The objectives of this paper are to conceptualise 'real-time service' and real-time service ecosystem, and to explore real-time interactions between brands and consumer in social media.

Defining Real-time Marketing

The concept of real-time marketing has been coined for more than 20 years in the literature. It has been expanded through the course of time, with a fundamental discussion that flexible service offerings and dynamic timing can lead brands to achieve competitiveness (McKenna, 1995; Oliver, Roland & Sajeev, 1998; Reid, 2014; Rust & Oliver, 2000). There are various definitions of real-time marketing in the academic literature and best-practice industries (Table 1). Real-time marketing covers personalisation or mass customisation and relationship marketing (Rust & Oliver, 2000). Brands are expected to provide each consumer with service or product that are customised to their present needs, yet still have the flexibility to adjust to the changing demands (McKenna, 1997). Nevertheless, real-time marketing was only practically possible after the emergence of social media, particularly Twitter and Facebook (Fotis, Buhalis & Rossides, 2011).

Author/Institution(Year)	Definition
SmartFocus (Ca.2017)	"the ability to engage with your customers or fans instantly based on real-time information – like their actions and behaviour, changes to your own data or external news or events. It is instant, (mostly) automated, and targeted."
Econsultancy (2015)	"real-time marketing involves taking in real-time input from a customer and delivering a highly personalised, relevant and timely message back to them."
TranslateMedia (2015)	"Real-time marketing is a timely, agile style of promotion focused around current events and immediate feedback from customers"
Deutsch (2014)	"simply getting the message to the right person at the right instant. It is a way to interact with followers by focusing on something ongoing."
Lieb (2014)	"The strategy and practice of responding with immediacy to external events and triggers. It's arguably the most relevant form of marketing, achieved by listening to and/or anticipating consumer interests and needs."
Firebelly (2014)	"...what happens when a company uses real-time data to pivot their content, conversation, community and conversion approaches across social (owned, earned and paid) and other marketing channels to take advantage of time"

	sensitive opportunities. It could be an effort towards being relevant or it could have a number of different objectives.”
Smart Insight (2014)	“marketing that links into current events that are relevant to an audience in order to engage them with a brand.”
Garner (2013, p.3)	“a way of thinking and philosophy that requires businesses to meet the demands of an always-on digital world, and includes production, communication, organisation and infrastructure.” “...is about time, existence in time, and using search and social technologies to interact and strike with lightning speed and <i>laser-like efficiency</i> ”
Scott (2012)	“Real-time means news breaks over minutes, not days. It’s when companies develop (or refine) products or services instantly, based on feedback from customers or events in the marketplace. And it’s when businesses see an opportunity and are the first to act on it.”
Rust and Oliver (2000, p.55)	“Individually customised service product that tracks changing customer needs continuously and update itself to meet customer’s personal needs through interaction with the customer and environment.”
Oliver et al. (1998, p.31-32)	“The marketing approach in which personally customized goods or services and continuously update themselves to continuously track changing customer needs, without intervention by corporate personnel, often without conscious or overt input from the customer.”
McKenna (1995)	“replacing broadcast mentality that has long dominated marketing with a willingness to give consumers access to the company and to view their actions and feedback as integral to developing or improving products.” “focusing on real-time customer satisfaction, providing support, help, guidance and information necessary to win customer’s loyalty.”

Table 1: Definitions of Real-time Marketing

The use of social media to execute real-time marketing requires dynamic conversation with the targeted consumers and continuous engagement with the most influential audiences (Yoo & Gretzel, 2010). This meets consumer’s progressively high demand for instant gratification and the essence of the paradigm shift in service marketing, which has evolved into Service-Dominant (S-D) logic (Vargo & Lusch, 2004). This logic embraces the value-in-context as value driver and collaborative nature with consumers (multiple actors) through optimisation of value proposition (Chandler & Vargo 2011; Vargo, Maglio, & Akaka, 2008). Contemporary service marketing acknowledges that the increasingly connected, informed and knowledgeable consumers are taking the co-creator role in value and experience creation process (Prahalad & Ramaswamy, 2004). This enables them to customise the products or services they purchase based on personal needs and preferences. By having consumers at the centre of this strategy, brands are expected to build trust-based relationships as a source of value (Brogan & Smith, 2009; Christopher et al., 2002). Dynamic communications with them enables data mining to create meaningful real-time information from consumers. This can be used by brands to personalise service offerings based on internal and external contextual data (Buhalis & Foerste 2015). It is about co-creating value & experience with them at the right time, as well as shifting brand’s focus to channels where consumers are willing and ready to engage in real-time. Digital technology in general and social media & mobile applications in particular become the basis to fulfil the delivery of brand’s promise, utilising its interactivity and real-time nature (Wilson, Zeithaml, Bitner, & Gremler, 2012).

Therefore, real-time marketing can be defined as *marketing that provides personalised, individualised and contextualised products and services based on real-time dynamic engagement with customers and co-creation of experiences to optimise value for all stakeholders involved*. To perform real-time marketing there is a need to perform big data mining in real-time and also to employ Artificial Intelligence (AI) as well as Emotional

Intelligence and empathy, to identify what really matters on that particular moment. Increasingly, bots and AI are being used to understand context, interpret signals and facilitate communication with all stakeholders.

In industry best-practice, there are six use-cases for real-time marketing which fall into two axes (Figure 1) (Lieb, Groopman & Li, 2013). The highest control of real-time marketing occurs when efforts are categorised as planned/proactive quadrant. This includes *brand events* (e.g. product launches or conferences) and *anticipated events* (e.g. Starbucks prepared location-based and contextual-based promoted tweets to offer a hot coffee when a snowstorm hits North America) (Heine, 2013). *Location-based* triggers could serve highly relevant and personalised offers, combining location and physical factors (e.g. a restaurant or hotel) and real-time virtual data input (e.g. consumer 'check-in' in a particular location via their mobile device). For example, *Yelp* partners with business owners to offer personalised deals based on user's locations and check-in action via app, all in real-time (Yelp, 2010). The next one in upper left quadrant, *Predictive analytics*, applies predictive data to provide relevant recommendations to consumers based on their online journey. This can be combined with or complemented by consumer's location. Brands no longer possess any control of content and conversations when the situations fall in reactive/unplanned sector of the real-time marketing quadrant. *Breaking news* requires a real-time response in a relevant manner to unanticipated news or events, is arguably the most spontaneous and challenging for brands to implement as no advance planning could be prepared. The last one in the cluster, *customer interactions*, perform a critical role in real-time service as consumers are increasingly expect brands to respond to their online queries and complaints or praises instantly (Baer, 2013; Lithium, 2013). Customer interactions (which may include CRM, customer service, complaint handlings and community engagement) are increasingly becoming the focus of marketing strategy due to the very public, highly visible and sporadically viral nature of these engagements in social platforms (Lieb et al., 2013). Increasingly, the reputation of organisational and therefore their competitiveness, is assessed in their ability to co-create value in unplanned situations by understanding the deep motivations and desires of all actors in their ecosystem and dynamically come up with instant solutions that satisfy all.

Figure 1: Six Use Cases of Real-time Marketing (Source Lieb et al., 2013)



However, delivering the right content to the right consumer at the right time, especially on unplanned circumstances, is a lot more complicated than merely listening and creating expected service based on data. It is caused by each consumer's unique and dynamic personas based on their location, the chosen activity or purpose of the activity that should be considered by brands before executing any action (Girish, 2016). Thus, understanding consumer's behaviour motivations, preferences and desires against all elements of their internal and external context at a granular aspect is considered paramount. The relevancy and effectiveness of service can be achieved by complementing real-time data mining of consumer's online journey with contextual and situational factors that may affect their motivation and expectation, in order to meet the demand of highly personalised products

and information (Buhalis & Foerste, 2015). Proactively monitoring the situations in the planned journey, and dynamically analysing data, facilitate proactive analysis of unplanned events, risks and eventualities. For example, monitoring weather condition between departure and arrival points of a journey may result in the change of route or timing or even the cancellation of the trip and the dynamic arrangement of alternatives is required.

Real-time co-creation and competitive advantage

The process of value creation is transforming from a product-centric to consumer-centric approach. This aims to produce personalised experience, where “informed, networked, empowered consumers increasingly co-creating value” with brands (Prahalad & Ramaswamy 2004a, p.5). Co-creation which is defined as the “joint creation of value by the company and the customer” (Prahalad & Ramaswamy, 2004a, p.8) has become a principal concept in experience creation. Co-creation is about creating an experience environment where each member of the ecosystem is highly involved in the value creation and thus, enables consumers to co-construct their own unique personalised experience (Neuhofer, Buhalis, & Ladkin, 2015; Prahalad & Ramaswamy, 2004a). This interactive communication stream serve as process for the co-creation of value (Gensler, Volckner, Liu-Thompkins, & Wiertz, 2013) and collaborative products or services innovation opportunities (Prahalad & Ramaswamy, 2004b; Sawhney, Verona & Prandelli, 2005), leading to a more positive consumer behaviour towards the brand (De Vries & Carlson, 2014). Social media acts as a key medium for brands to engage directly with consumers (Malthouse, Haenlein, Skiera, Wege, & Zhang, 2013). This enables them to create dialogue, rectify any issue publicly and help shaping consumer journey dynamically, improving satisfaction, and benefitting the brands themselves (Court, Elzinga, Mulder, & Vetvik, 2009). Consequently, brands are faced with highly dynamic and unfiltered social conversations (Singh & Singhal, 2015). Real-time communication contributes distinctive value to consumer experience and considered pivotal to support their dynamic planning and decision-making (Chan & Guillet, 2011; Neuhofer et al., 2012). Thus it is important for brands to stay responsive by always listening, learning and adapting to consumer feedback and to be ready to tackle different scenarios (Sawhney et al., 2005). Brands which are able to implement real-time data-driven strategies can improve their competitive advantage and achieve better outcomes (Forrester, 2017; Lieb, 2014).

Brands can gain competitiveness by implementing differentiation or price strategy (Porter, 1989). Time and responsiveness in offering instant gratification is the third source of competitive advantage. This can be sustained by providing intangible attributes, innovation and the quality of service, to be the cheapest, the most unique and fastest service provider (Hunt, 2012). Only those who can provide compelling and rich experience to consumers can stay in the competition (Pine & Gilmore, 1999).

ICTs and social media facilitate dynamic service offering and agile consumer profiling for personalised experience creation (Buhalis & Foerste, 2015). However, consumers’ demand of instant gratification has sparked due the interactivity and real-time nature of social media. This challenges brands to perform both proactively and reactively in a timely manner. With this contemporary behaviour of consumers, price or differentiation strategy could be irrelevant without the ability to co-create unique value with consumers based on their real-time demand (Christopher, Payne & Ballantyne, 2002). These highly informed consumers are striving for better value and are willing to spend more money to get the value they expected instantly (Darmer & Sundbo, 2008; Pine & Gilmore, 1999). Lieb et al. (2013) argued that agile

service offerings and timing flexibility in service development can become a key factor for brand competitiveness. Brands which implement real-time data-driven strategy will have a competitive advantage and project better business results (Forrester, 2017). As consumers demand highly personalised products or services, they are only receptive to information which are related to them at that moment. A time-constrained contextual-based strategy are arguably the most pertinent method to tackle the constantly-changing consumers' demand. This strategy facilitates consumers with service offerings which are highly relevant based on their real-time context or situation. It also gives benefits to brands in gaining competitive advantage and amplifying revenue, for example through dynamic pricing strategy or real-time yield management (Buhalis & Foerste, 2015).

Real-time Motivation and Expectation

Real time marketing appears as a result of consumers' expectation for real-time connection with product or service providers. From the perspective of travel and tourism, consumers utilise social media to gain inspiration, collect and compare information, find desired product or services, share their experience, express feelings, provide input / output on the decision-making process or to inspire others (Hudson & Thal, 2013; Leung, Law, van Hoof, & Buhalis, 2013; Fotis et al., 2011).

Some examples related to these motives in the context of real-time service are shown in Table 2. Consumers have various expectations in order to improve their travel experience in different travel stages although real-time and 'now-ness' normally refers to the during-the-trip stage (Fotis et al., 2011; Neuhofer et al., 2012). As a result of the ubiquity of digital devices and the interactive nature of digital services and social media, consumers want their needs to be recognised and instant gratified by brands; fulfilling these needs 'now' (Patel, 2014). They also expect effortless access to real-time information, personalised suggestions, alternatives on travel consumptions and instant customer service (Buhalis & Amaranggana, 2015). This is particularly the case when there are disruptions due to unplanned events such as extreme weather conditions, terrorism attacks or unpredictable travel disruptions. Social media offer a strong tool to deliver or receive messages and facilitate interaction towards instant gratification. Most brands have published a widely accessible and visible social media channels and public usernames such as @Marriott or @Ryanair, and consumers expect to be able to use it to communicate as they did with call centres in the past.

They are therefore used by consumers to reach brands, especially during unexpected events and crises, such as cancellations of a flight, when rearrangements are required or when contextual conditions create disruptions. Consumers expect a timely response or quick service recovery from brands shortly after contacting them through their social channels, often in contrast to overloaded call centres that are nearly impossible to reach (Buhalis & Foerste, 2015; Hudson & Thal, 2013).

Table 2: Real-time Social Media Motives and Examples (Source: Adapted from Fotis et al., 2011)

Social Media Motivations	Example of real-time service (consumer-brand) motivation	Travel Stage
Search for information, look for price & availabilities, product / service features	Instead of browsing through complex information in the internet, or waiting on the line for hours on call centres, consumer may reach brand's social media channels directly to get specific information instantly.	Before, during

Self-expression	When feeling satisfied or disappointed (variety of emotions, both positive and negative), consumers may share their feeling via social media right away, even when the activity is still happening.	Before, during, after
Consumption and Post-consumption evaluation	During or after the consumption of experience, consumers may share a review about their (positive/negative) experience; whether to seek acknowledgement or solution from brands, or to notify other consumers (peer-to-peer) in real-time.	During, after

Brands are increasingly expected to have the ability to connect with consumers, to personalise products and services or by real-time engagement across social channels at the right moment (Lieb, 2014). Consumers expect their preferred brands to care for them, particularly at a time of crisis or distress. Thus it is paramount for brands to have a good sense of dynamic needs, to show empathy and deliver an adaptive response to consumers' changing demand, in order to be successful. Consumers are no longer only 'consuming' the service, but also increasingly participate in their own experience co-creation process. This behaviour provides valuable insights for brands to create and develop highly personalised service offerings based on specific needs in real-time, as well as to deliver higher value for consumers (Neuhofner, Buhalis, & Ladkin, 2013; Sashi, 2012). Following all contextual information and proactively making alternative arrangements requires agility, interoperability with all partners and smart tourism solutions to dynamically co-create itineraries and supporting customer needs.

Methodology

An exploratory qualitative research was conducted to examine how brands leverage technology and social media to enhance consumer experience in real-time. Qualitative approach is mainly being used in exploratory studies as it has the ability to characterise and describe the issues which are currently unexplored (Braun & Clarke, 2013). Inductive enquiry was implemented in this study, as the research started from observation to the development of theory (Farquhar, 2012). This qualitative research approach used the combination of secondary and primary data. The study started with the pre-research stage where secondary data from journal articles, books and industry best-practice coverage from digital marketing industry websites and reports were collected to support the conceptual definition of *real-time service*. This is followed by primary data collection by conducting a qualitative content analysis of real-time incidents in social media. An in-depth case study of Marriott MLive employed a semi-structured interview and direct observation methods. A multiple case study from secondary data (online passive observation and document analysis) was carried out in addition to the aforementioned methods, in order to strengthen the findings. The assessment of journal articles was supported with the analysis of best-practice real-time marketing coverage. The analysis of digital marketing on industry websites, industry report and statistics offered *real-time service* best practice. This pre-research stage helped form a holistic view of real-time marketing theory and practice. Additionally, with the synthesised data from the findings, a conceptual definition of *real-time service* could be formed. Empirical primary data was collected by analysing real-time incidents on social media and employing an in-depth case study of Marriott M Live.

Real-time Incidents on Social Media

Systematic analysis of social media posts which showed real-time interaction between brands and consumers was conducted. For the purpose of this study, the choice of social media channels examined are limited to Twitter and Facebook. The filtering of data process took three steps: 1) monitoring more than 20 different branded social media channels (e.g. British Airways, KLM, Marriott Hotels, Go Ape, JetBlue, Pret-a-Monger, Visit Scotland, Hilton Hotels) for a month to capture real-time service in practice, 2) employed hashtag search by brands' name, such as: #Marriott or #BritishAirways, 3) reviewed more than 100 Twitter and Facebook posts to capture the real-time interaction between consumer and brand. The criteria of social media content selected for further analysis was based on a response time of 24 hours or less. A codebook was developed manually using Microsoft Excel to analyse the motivation, sentiment and value of real-time interaction captured. Factors such as the immediacy of the reply, the sentiment of the text or images, motivation of engagement and the value co-created were analysed systematically. Initial codes were added to each data sample to create a pattern which would lead to clearer data categorisation and themes (Saldana, 2016). In the process of reviewing each data sample, a total of 31 data samples were omitted from data analysis, due to irrelevant context or inappropriate language. Out of 115 data samples which were filtered in the initial stages, a total of 72 tweets and 12 Facebook posts met the pre-defined inclusion characteristic (which cover 26 different brands from various industries) and were used for further analysis. In-depth analysis of each social media post was conducted and data saturation began gradually evident after the 48th post, which was shown through recurrence of prominent patterns and motives. The content analysis was conducted using Microsoft Excel, which allow researcher to perform a systematic data collection, employ filter options and better categorisation of each theme occurred.

In-depth Case Study of Marriott MLive

A case study was chosen for exploring, understanding and describing real-time best practice. It was used to generate a theory from the pattern of the data (Farquhar, 2012). A purposive sampling method was conducted to choose Marriott Hotels MLive as a unit of analysis. There are four main considerations to choose one best-practice company which has successfully implemented real-time service to enhance consumer experience: 1) Marriott International is one of the leading innovators of real-time service strategy, 2) Marriott has a dedicated real-time command centre (MLive) in four countries to engage with its worldwide audience 24/7, 3) Marriott utilises real-time intelligence with a core objective of 'Return on Engagement' and co-creation (experience enhancement), 4) Marriott received a gold award for Social Data and a silver award for The Use of Real-time Data categories at the Cannes International Festival of Creativity in 2017 (Marriott 2016, 2017).

Data collection and a semi structured, open ended interview was carried out. Initial contact was made via Twitter Direct Message to Marriott International Twitter handle, to agree the field-visit to the headquarters and interview two senior executives. Direct observation was conducted after the interview to have better understanding on how Marriott is handling real events in real-time. Upon the completion of interview transcription, an initial analysis of the interview data was carried out to underline emerging themes before conducting an in depth content analysis (Gribich, 2007). The interview textual data and the analysis of direct observation were filtered and reviewed further to address study objectives. Yet, a single case study carries weaknesses such as the contribution and credibility of findings (Yin, 2014).

Therefore, secondary multiple-case studies were implemented in the third research stage to achieve more credible findings.

Multiple Case Studies

Multiple case studies allow to compare and contrast cases of real-time service (Farquhar, 2012). A purposive sampling method was chosen to select appropriate best-practice companies which employ real-time service in their strategy. The companies chosen are required to meet the eligible characteristics, such as: 1) Company utilises social media and technology as part of online strategy, 2) Company is actively engages with consumers using social media or technology in real-time, 3) Company has employed the immediacy or real-time attributes in their service offerings. Four cases from various industries allowed cases variety for the cross-case analysis (Miles, Huberman & Saldana, 2014). Table 4 shows the chosen companies, the industry represented and the relevant real-time service applications. Secondary sources were collated from company websites, annual reports, online publications, public interviews and social media channels. The analysis of data was employed in two stages: an individual analysis of each case study and data integration from the cross-case analysis.

Table 3: Selection of Case Study Companies

Company / Brands	Industry	Real-time best-practice implementation
KLM Dutch Airlines	Airlines	Crisis management, Social media customer service tool
Visit Philadelphia	Destination	Real-time surprise and delight, combination of virtual and physical approach to enhance experience in real-time
Red Roof Inn	Hospitality	Highly contextual and personalised Advertisement
Pretzel Crisps	Gastronomical	Real-time listening, surprise and delight using keyword analysis

FINDINGS

The findings are elaborated firstly from each research stage (real-time incidents on social media, in-depth case study of Marriott MLive and multiple case studies), then followed with synthesised findings from data triangulation, and concluded with a conceptualisation of real-time service competitive advantage and ecosystem framework.

Consumer and Brand Dynamic Interaction

The finding from the first research stage reveals that consumers use social media to express their feelings, find information about product and service, and to co-create value and experience with brands (Table 4). The use of social media for expression of feelings in anticipation for a reaction in real-time appears as the major motivation in the data analysis. Various sentiments were found, comprising positive, negative and neutral sentiments. When consumers feel satisfied, they praise brands on social media in real-time, curating organic User Generated Content (UGC) and positive online Word-of-Mouth (e-WOM) for brands and potential new customers. The real-time communications and feedback from consumers, whether positive or negative, are the touchstones for brand's product and service improvement and are increasingly driven by consumer's preferences (McKinsey, 2016). A high

volume of information is received by consumers on a daily basis, and consumers contact brands through social media for instant customer service. The range of information sought by consumers are usually information about brand's specific product or service information, reconfirm uncertain information, seek explanation about real-time cases or communicating requests for particular facilitation. These are captured under three main categories which are: seeking assistance (need an action), seeking validation (need assurance) and seeking specific brand's information (need convenient response).

Several evidences reveal that consumers use social media as a result of unsatisfactory service via other channels such as call centre, email or physical encounter. For example, one consumer repeated a question to brand via Twitter which he had previously asked via call centre but didn't get a sufficient answer. Consumers also utilise social media to provide suggestion or notify brand when particular feature of their service did not meet consumer's expectation. The real-time data shared by consumers about their experience or feeling, whether it is positive or negative, are valuable sources to rectify overlooked problems and develop even better service offerings for consumers in the future (Sorenson 2017).

The nature of interactions found within content analysis supported the knowledge gained from literature review. These always-connected consumers demand fast and simple solutions (Law et al., 2014). Lastly, the third theme emerged from content analysis is the co-creation of value and experience (Prahalad & Ramaswamy 2004a). Consumers engage dynamically with brands on a real-time basis, allowing them to have 2-ways interaction, contribute or receive feedback, as well as share preferences (Gensler et al., 2013). Often they are proactive at fetching information from the external context and communicate it to users at the right time. For example time and location offers from restaurants or alerts from transportations when disruptions or delays happen.

Table 4: Overarching Themes from Real-time Incidents on Social Media

Themes Emerged	Meaning / Characteristics	Evidence example from the data
Expression of Feelings	Consumers share both positive and negative feelings to express their emotion towards their interaction/experience with brands.	"Loved the European style breakfast at @achotelirvine, but will come back because all the staff is fabulous!" [57]
Need of Information	Consumer approach brand to seek particular information about brand's service or their experience enhancement process.	"@British_Airways hi how many hours before my flight can I use the Concorde Room in Singapore?" [23]
Co-creation of value & experience	Brand's dynamic interaction with individual and personalised service offerings based on relevant demand, as well as consumer's active participation in creating/enhancing their own experience.	"Notes on Seoul hotels - @Marriottintl Yeouido front desk & restaurant staff remembered / welcomed me by name after being gone 3 days #CX" [47]

Marriott MLive: The Agility of Data-Powered Real-time Service

Marriott MLive, through control centres, reveals that engaging with consumers at the right moment is crucial in the experience enhancement process (Neuhofer et al., 2015). Brands need to ensure that the personalisation of service is delivered based on specific needs and preferences at that particular moment (Buhalis & Foerste, 2015). It was evident from the case

study that flexibility and an adaptive approach to an ever-changing consumer demand are critical to create authentic engagement.

Table 5: Marriott MLive Real-time Service Scenarios

Scenarios	Key Performance Indicators
M Live finds a story about a backpacker from New Zealand who was traveling the world with his Lego figurines and posting their experience on social media. Marriott contacted the Lego backpacker and offer to host him at the AC Hotel Ciudad de Sevilla.	This action has resulted in a fresh content for the AC hotel and the additional 370,000 social followers joining the conversation.
A traveller posted on Twitter asking for a hotel recommendation for Nashville Girls weekend. MLive noticed (despite not mentioned or tagged) and promptly took action, giving not only relevant hotel advices, but also sharing content regarding local nightlife to enhance her experience beyond just staying at the hotel.	Within 13 minutes of the conversation, the traveller posted on Twitter sharing that she had booked a room with Marriott.
M Live identifies a tweet from guest at the Domes of Elounda Autograph Collection Hotel in Greece. The team exceeded the guest’s expectation by creating on-property breakfast moment and granting Marriott Rewards points as a surprise	The guest shares his excitement on Twitter and produce positive user generated content for the Autograph Collection Brand and hotel.
M Live jumped into perfect opportunity to utilise the Pokémon Go craze around the world by engaging Nick Johnson, the first gamer to catch all 142 Pokémon within two weeks in the United States, right before he becomes the worldwide trending topic as a result of his achievement. Marriott offered him to travel around the world to catch the remaining rare Pokémon in Asia, Australia and Europe.	<ul style="list-style-type: none"> - Earned organic PR coverage worldwide, including news coverage by USA Today, CNN, BuzzFeed, Business Insider and Adweek. - More than 800 global news outlets covering the story, 281 millions of total PR impressions. - Driving brand buzz across social media channels (increased by 40%) with around 9 million global Twitter impressions. - Earned Gold Distinction in real time response from the 9th Annual Shorty Awards 2016

The findings indicate that social media, digital channels and mobile applications, provide consumers with immediate response (instant gratification nature) from brands which underpin the co-creation process. The following statement, from one of the interviewees, emphasises the importance of co-creating value in a manner that consumers can feel the authenticity of the engagement:

“So it is important that, social is not just about 1 on 1 interaction, it’s also about that kind of content strategy that you see the opportunities as they evolve, the trends as they evolve and start to say what can we do, how can we be involved in that as a brand, without really being seen as paid for.”

(Interviewee 1)

The case study has also revealed that the utilisation of social media as medium to engage with consumers is not to draw attention to brand itself but rather to put the consumers at the centre of the stories, with brands as facilitator of the enhanced moment creation. Consumers become prosumers and advocates of brands they believe in. This way, brands can gain a position as part of the community and achieve a two-fold loyalty beneath personal relationship (Sorenson, 2017). Furthermore, based on the data triangulation from document analysis, interviews and direct observation, the case study has also revealed *real-time triggers* (Table 6). These live triggers were capitalised effectively to engage with any requests, compliments, complaints, important or viral news to influencer collaboration opportunities,

which helps Marriott to stay ahead of their competitors. Although M Live is mainly capitalising real-time data based on geolocation and geo-fencing, Marriott Hotels still utilise other real-time triggers to ensure sufficient coverage and relevancy. These triggers vary from UGC from influencers, sentiment, specific keywords or hashtags (Buhalis & Foerste, 2015) related to brands or events, brand mentions, to breaking news or real-time events (Lieb et al., 2013) which are relevant to Marriott and its consumers.

Table 6: Real-time Triggers

Real-time triggers	Implications
User-Generated Content	Consumers post and share content about brands, or having social conversation with peers about particular experience with brands. Marriott Hotels set up a real-time alert to notify them any influencers in social media who are relevant to the brands. They prioritise proactive engagement with consumers who meet their criteria, such as having certain numbers of followers, relevant tones of content, and so on.
Location / geolocation & geo-fencing	The proliferation of mobile devices allows brands to capture relevant content which is posted at targeted location automatically in real-time.
Sentiment	Consumers are increasingly sharing their emotion and feelings in social media, whether positive, negative or neutral. Brands can analyse consumer's sentiment based on tones of content or particular words used. Praised should be acknowledged and encouraged towards creating advocacies. Criticism and complaints should be addressed instantly to improve experience and regain confidence.
Keywords	Brands could capture opportunities to engage with consumers by leveraging keyword tracking, either querying trending social conversation about viral events or brand's related news (e.g. using 'Marriott' as keyword tracking).
Mentions	When consumers mention brand, it shows that they want to engage with brands intentionally, whether for sharing experience or feeling, need of assistance or information, complaints, or simply the need of acknowledgement from brands.
Hashtags	Consumers use hashtags to indicate particular topics or want to be part of a specific subject. Hashtag tracking is arguably one of the most convenient to track particular event, topic or campaign. It also allows tourism companies to theme activities and target special interest tourism or relate to event.
Breaking news or events, Political or regular social events	Real-time monitoring on commercial issues, breaking news or even viral internet stories could help brands to stay relevant among stakeholders. The real-time knowledge about a particular crises or negative situations could prevent brands from creating or sharing irrelevant content which may be inappropriate for affected members of public. Conversely, brands real-time decision-making in seizing a viral story is highly effective to achieve authentic engagement and valuable advocacy. For example, utilising positive events like royal wedding for promotion and themed campaigns.
Occasions	When brands proactively acknowledge consumers' important occasions (e.g. birthday or special celebrations), it can give <i>surprise and delight</i> experience and leads to positive advocacies and conversations.

Marriott MLive enables the company to improve its agility and manage its brands in real-time. It is listening to consumers and also to the context in geo-fenced areas and take instant action to proactively ameliorate its service in real-time. Consumers get an answer or a positive surprise 'now', co-creating their experience.

Best Practice in real-time service

The findings from multiple case study reveal that all four companies (KLM, Visit Philly, Pretzel Crisps and Red Roof Inn) has the ability to recognise consumer needs proactively and co-

create value with them. These brands are actively reaching out to their targeted or relevantly influential consumers to enhance their experience in near real-time. This has benefitted brands with authentic interactions, conversion to sales, organic PR coverage or service recovery. The main similarities among these four brands are their dynamic, engaging interaction with consumers and how they personalise and contextualise their service offerings.

KLM is committed to respond to all online enquiries via social media within an hour, 24 hours a day. Visit Philadelphia and Pretzel Crisps utilise *surprise and delight* to enhance consumer's experience by integrating physical and virtual interactions. Red Roof Inn are able to convert crisis situation into a profitable business by identifying their targeted consumers' critical needs before other competitors do. They provide a real-time solution to consumers' demand at the exact time they need it, using the most convenient channels that consumers actively engage with. It is evident from the case studies that the ability to integrate real-time knowledge of consumer demand, geo-data, contextual elements, online search behaviour and other relevant factors can give a competitive advantage and add higher value in consumer-brand engagement.

The multiple case studies reveal five factors of real-time service best-practice and the value created in each category (Table 7). Brands' best-practice implementation of real-time service range from an optimised co-creation (e.g. personalised surprise and delight), differentiation (e.g. providing personalised recommendation in real-time to improve experience), facilitation (e.g. providing 24/7 service using social channels), recovery of bad experience (e.g. flight delays), to a crisis or a very negative occurrence (e.g. natural disaster or terrorism).

Table 7: Five Factors of Best Practice Real-time Service

Factor	Characteristics and Implementation	Value for stakeholders
Experience optimisation & Co-Creation (customisation, personalisation, contextualisation)	<ul style="list-style-type: none"> - Brands implementation of active listening and dynamic interaction with consumers to co-create new, unique and memorable experiences - Identification of sentiment, proactive approach and engagement with consumers who are contextually relevant with brands objectives and value - Empathy and authentic engagement drives increasing value 	<ul style="list-style-type: none"> - Brand loyalty - Positive e-WOM - Brand awareness - Consumer Satisfaction - Enhanced experience - Increase sales - Creating advocates
Differentiation (Specialisation, Satisfaction, segmentation)	<ul style="list-style-type: none"> - Active engagement with consumers, combination of virtual and physical interaction to create a more personal touch to consumer's experience enhancement process. - Tailored recommendation to fit each individual's needs and preferences - Utilisation of Machine Learning and/or Artificial Intelligence (AI) to filter big data. This implementation helps to quickly translate consumer's need in a more sophisticated way as well as to simplify consumer's effort to achieve those needs. This drives better segmentation and identification of potential needs. For example for football fans or divers or tennis players. 	<ul style="list-style-type: none"> - Enhanced experience - Consumer satisfaction - Positive e-WOM - Organic Engagement - Authentic User Generated Content
Facilitation / Re-engineering of process	<ul style="list-style-type: none"> - Expectation Management (e.g. KLM auto-update waiting time in social media) - Facilitate consumers with 'out of normal office hours' service, active/responsive interaction with consumers 24/7 (e.g. KLM customer service) - Flexibility of service via consumer's most preferred communication channels 	<ul style="list-style-type: none"> - Expectation management - Complaint management - Convenience for consumer - Enhanced experience - Instant gratification

	<ul style="list-style-type: none"> - Learn from real-time data for product & service improvement - Increase predictability from frequent occurring instances, e.g. complaints or praise and re-engineer processes. 	
Recovery of bad experience (Assistance)	<ul style="list-style-type: none"> - Combination of capturing real-time need, knowledge of consumer's itinerary & online behaviour, geo-data and targeted queries enable brands to provide highly relevant & accurate solution - Timely response of negative enquiries or complaints by providing logical and comforting explanation or differentiate solution to prevent escalation of the issue - Now-ness means that the consequences of service breaking down is minimised as it is addressed XXX and it is raised either directly with the organisation from management or indirectly in social media. Agile organisation intervenes and takes proactive action. - Balance combination of public and private interaction for investigation purpose and protection of privacy & sensitive information - Real-time data analysis of emerging issue triggers improves/changes/investigations in real-time 	<ul style="list-style-type: none"> - Realistic perception - Complaint handling - Service recovery - Problem-solving - Proximity / location-based offerings - Consumer satisfaction - Improved experience - Consumer engagement - Creating advocates
Crisis (Reduce Pain) and identification of alternatives	<ul style="list-style-type: none"> - Utilisation of social media to provide critical information in real-time - Responsive to emergency inquiries in real-time - Utilisation of keyword and sentiment analysis to mitigate crisis situation which has direct or indirect effect for brands - Identify alternative plans in real-time 	<ul style="list-style-type: none"> - Crisis management - Increase trust - Increase perceived value - Improved experience

Real-time Service Enablers

To facilitate the service of now and real-time requires data triangulation of all enablers for *real-time service*. The data analysis shows both essential and useful (supplementary) enablers. The essential enablers are divided into two main factors which are the external and internal enablers (Table 8). The former includes brand's *online presence*, the utilisation of *analytic, listening and monitoring tools* as well as the implementation of *data-driven strategy*. While the latter consists of *real-time creative and decision making, employee's empowerment* and *company's operational flexibility*. The supplementary factors (which include *Artificial Intelligence, Machine Learning, beacon, Virtual Reality* and *paid advertising*) act as the catalysts which help to enhance *real-time service* performance based on brand's specific objectives.

Table 8: Real-time Service Enablers

Essential		Useful/Supplementary
	<p>Online presence: Interconnected social channels (e.g. Facebook, Twitter, Instagram, Google+, Snapchat, etc.), interactive and responsive websites, and/or brand's mobile apps.</p>	

External enablers	<p>Analytic, listening and monitoring tools:</p> <ul style="list-style-type: none"> - Built-in monitoring or search tools in social media (e.g. Twitter Advanced Search, Facebook for Developers, etc.) - Third-party tools (e.g. Hootsuite, Google Alerts, Sprout Social, Mention, Keyhole, Netbase, etc.) 	<ul style="list-style-type: none"> - Artificial Intelligence (AI)
	<p>Data-driven strategy and data relevancy:</p> <ul style="list-style-type: none"> - Real-time data mining (relevant data for brands and consumers) - Combination of internal (consumer's individual preference) and external contextual context (e.g. location or weather) 	<ul style="list-style-type: none"> - Machine Learning (ML) - Beacon
Brand's internal enablers	<p>Real-time creative and decision-making:</p> <ul style="list-style-type: none"> - Intuitive, quick capture of trends and real-time content curation - Choice of interaction, whether via private or public, or combination of virtual and physical interactions 	<ul style="list-style-type: none"> - Virtual Reality - Targeted paid advertising
	<p>Employees' empowerment:</p> <p>Well-trained, predictive-scenario management (problem solving ability or individual-based decision-making power), adequate knowledge of product and service (general & specific), personal touch (e.g. avoiding 'robotic' or 'copy-paste' type of responses), approachable manner</p>	
	<p>Flexibility beyond operational fixation:</p> <p>Highly adaptive to emerging trends (e.g. flexible tactics based on real-time data), highly responsive to constant changes in consumer behaviour</p>	

Definition and Characteristics of Real-time Service

The conceptual definition of *real-time service* is derived from real-time characteristics, which emphasise the criticality of leveraging ‘now’ (*now-ness*). The definition is conceptualised based on the integration of initial definition and research findings. Thus, *real-time service* can be defined as:

“The service of now – a consumer-centric, agile practice of performing real-time, relevant, personalised and contextualised action (proactive and reactive) to maximise the value co-created for all stakeholders.”

For the purpose of this study, ‘*the service of now*’ or ‘*nowness*’ is used to reflect the *immediacy* nature as the agility of brand’s performance towards contemporary competitiveness and the importance of leveraging ‘now’. In line with above definition and findings from three research stages, *real-time service* reveals four interconnected characteristics: *real-time, co-creation, data-driven, consumer-centric and experience enhancement* (Table 9).

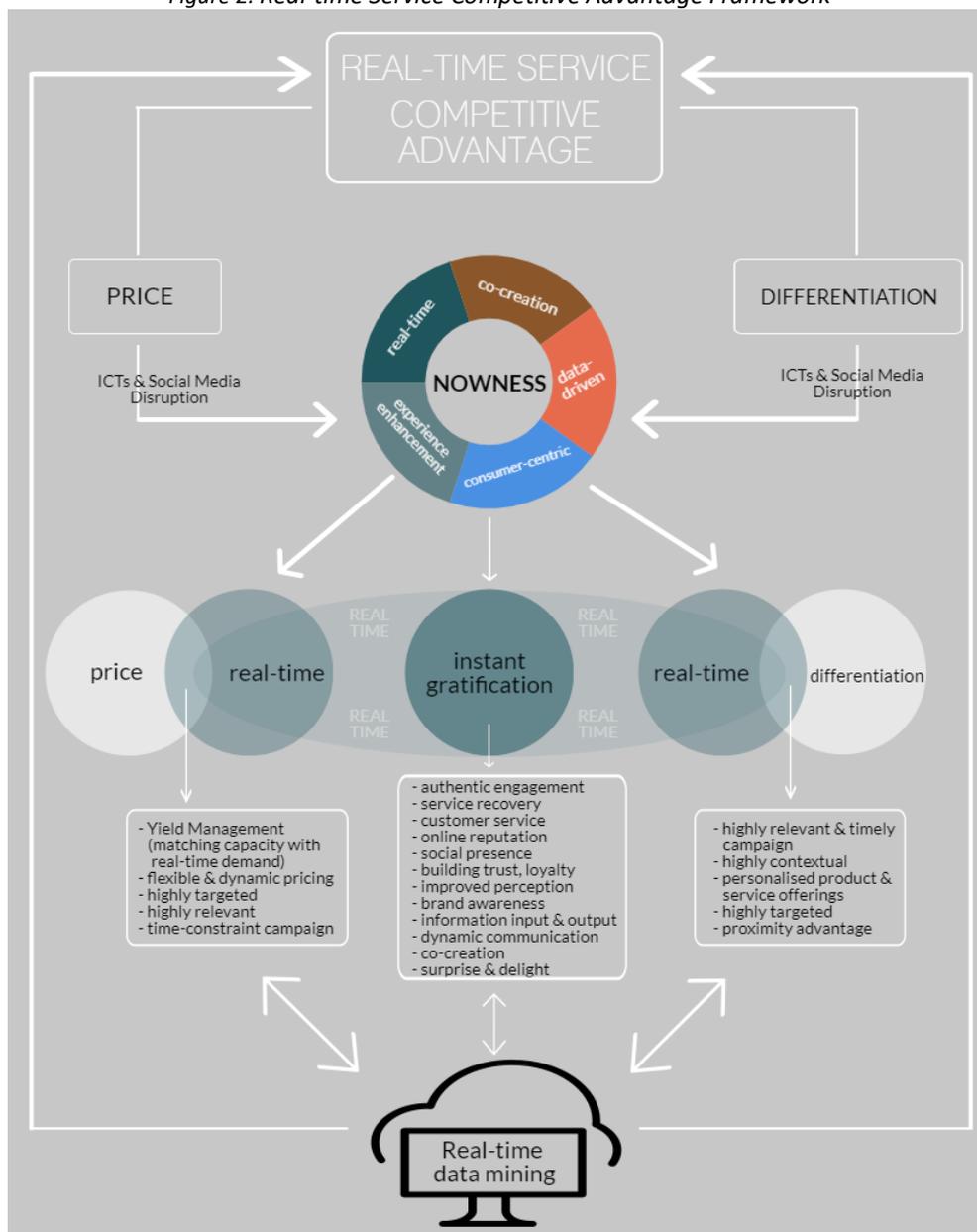
Table 9: Interconnected Characteristics of Real-time Service

Real-time	Immediate and relevant Dynamic environments and delivery types (can be performed in virtual or physical environment, public or private, online or offline)
Co-creation	- Brands empower consumers with resources to co-create their own experience (collaboration) - Value co-creation, active engagement with consumers - Brands as a facilitator of product and service re-engineering
Data-driven	Tailor products or services uniquely based on consumer’s needs & external context (personalisation and contextualisation): - Differentiation of service offerings in real-time - Dynamic or flexible pricing in real-time
Consumer-centric	Identification of different consumer’s persona based on particular context (<i>Customer Intelligence</i>), such as: combination of <i>historical data</i> (such as purchase history or previous relevant interaction), <i>current data</i> (such as consumer’s social profile or real-time updates) or <i>predictive data</i> (analysing combination of historical behaviour with current context to provide relevant personalised service offerings)
Experience enhancement	Focus on real-time experience enhancement: not only co-creating utilitarian or functional gratification for consumers but strive to deliver hedonic gratification (exceed expectation) and memorable experience

Conceptual Framework of Real-time Service Competitive Advantage

The framework shows that the components of real-time service characteristics, namely: contextually relevant *real-time*, *co-creation*, *data-driven*, *consumer-centric*, and *consumer experience enhancement* are catalysts for dynamic, flexible, and responsive performance for both brands and consumers. Beyond the two sources of competitive advantage (price and differentiation), 'real-time' plays a critical role in the experience enhancement process. This is due to its high relevancy with consumer ever-changing needs and expectation of instant gratification. This disruptive behaviour can be catered with the right utilisation of ICTs, where brands are able to analyse and recognise unique needs of each individual dynamically, and tailor their service through real-time data mining to gain mutually beneficial value.

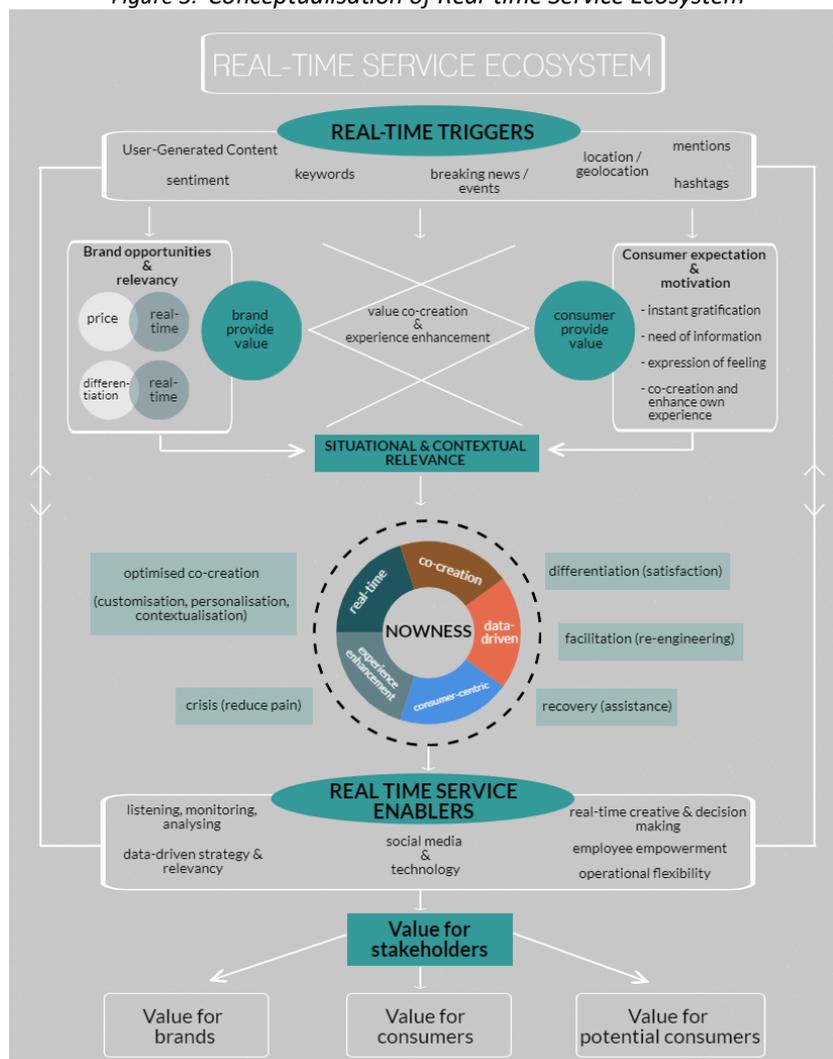
Figure 2: Real-time Service Competitive Advantage Framework



Conceptual Framework of Real-time Service Ecosystem

The conceptual framework of *real-time service* ecosystem amalgamates the different elements elaborated above (consumer and brand dynamic interactions, real-time triggers, five factors of real-time service best practice, real-time service enablers and characteristics). The process starts from real-time triggers, which open opportunities for brands to co-create with consumers and enhance their experience in real-time by exchanging mutually beneficial values based on consumer’s individual needs and persona, as well as external relevance. The service delivery focuses on five *real-time service* characteristics, which reflects the agility of performing various scenarios from very negative (crisis) to highly positive (optimised co-creation). The next pivotal stage is the optimisation of the essential real-time service enablers as brand’s pre-requisites in service offerings: *listening and monitoring* phase (identify, analyse and filter real-time data) and *deliver and engage* phase (real-time content curation / creative, real-time decision making and employee empowerment for seamless & dynamic interaction) using social media and technology. The feedback loop shows the interrelations of these enablers with real-time triggers. The components in the triggers perform interchangeably and dynamically as part of the enablers, particularly in the listening and monitoring phase. The implementation of this process leads to the achievement of optimum value for all stakeholders.

Figure 3: Conceptualisation of Real-time Service Ecosystem



Conclusions and Recommendations

This exploratory study reveals that *real-time service* provides a cutting-edge approach to co-create value with consumers, often across multiple platforms. Interactions occur in real-time, at the exact moment when consumers are willing to engage with brands. It shows that *real-time service* adds value to brand's competitiveness by utilisation of real-time big data from consumers, supplemented with contextual information which is relevant for both parties as well as timely execution of product formation via channels that consumers preferred the most. Consumer's unprecedented access to information and the constantly changing demand towards a highly personalised service have effectively disrupted and re-engineered the service ecosystem. Brands are able to increase their performance effectiveness and efficiency by dynamically engage and perform timely actions based on real-time consumer intelligence and contextual data. They can also expand their virtual size by engaging with other principals to expand their service scope and offer holistic experiences. The Marriott MLive case study reveals the emerging trends of using social influencers as brand ambassadors to create a more 'subtle' promotional approach. Online consumer behaviour has shown to be more receptive to marketing messages or recommendations from the people they know or trust (Del Rowe, 2016; Nielsen, 2015).

Apart from the theoretical contribution, the practical knowledge obtained from this research provides immediate relevance to the tourism industry including: hospitality, airlines and destination sectors, as well as wider industry scope such as gastronomical or general service marketing sector. Although the scope of the study was mainly under service industry, other business domains (such as product-based) may benefit from the concept of *real-time service* to establish engagement with consumers and dynamically adjust service / product offerings based on real-time contextual data. Moreover, adhering to the variety of case study examples, it was indicated that the implementation of *real-time service* is not only limited to big corporations, like Marriott Hotels with its dedicated real-time command centre or KLM with its ML and AI implementation. Small, Medium Enterprises (SMEs) can also seize the opportunities by utilising widely available free monitoring tools or simpler tracking strategy to enhance consumer experience in real-time.

Limitation and Future Research

Future research could expand the unit of analysis and study more in-depth from consumer's perspective by conducting a survey or interview. There is a need to gain more holistic understanding of consumer's motivation and expectation of *real-time service*. Future research may look into benchmarking *real-time service*, or potentially analyse the weaknesses or failure examples and create empirical benchmarks. It should also look into how social influencers are transforming the way brands engage with consumers, and the impact on the competitiveness of tourism and hospitality organisations.

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