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Revisiting the Task Media Fit model in the era of Web 2.0: Twitter use and interaction in the Healthcare Sector.

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Abstract

Advances in technology have led to the development of social media and subsequently new channels of communication. This paper refines the established Task Media Fit model in light of such changes, using business marketers' use of Twitter and followers' responses to tweeted messages for this preliminary conceptual development. Results show that business marketers use different embedded media according to the function of a tweet message. Follower responses to those messages do not vary with the task performed by the tweet, while responses differ with the type of embedded link. Findings from this investigation are used to develop a modified version of the Task Media Fit model specifically for Twitter.

Key words: task media fit, social media, B2B, twitter, healthcare

1.0 Introduction

Communication is essential in business markets, aiding an organization's market and relationship handling activities (Holden & O'Toole, 2004). As a relatively new means of communication, social media are transforming exchange in the business-to-consumer (B2C) context and have attracted considerable academic and practitioner attention. Such practice and research interest is less readily apparent in the business-to-business (B2B) context and this paper aims to address this.

Social media enable information sharing between multiple users and communication can be initiated and accessed by numerous parties, necessitating the rethinking of communication theory and practice to reflect increasingly interactive means of exchange evident since the advent of Web 2.0 (Wiersema, 2013). We use McGrath and Hollingshead's (1993) Task Media Fit model to understand the nascent use of social media by the business marketer, focusing on the utilization of Twitter. Our exploration of the various communication behaviors manifested in Twitter activity and more specifically the tasks for which Twitter is used, leads us to revise the Task Media Fit model. The paper starts by introducing social media, connecting this to the Task Media Fit model before going on to examine the use of Twitter in B2B markets. The method section explains the approaches taken for content analysis and sampling as well as subsequent data analysis. Results cover overall Twitter functions, types of links and their use, and follower responses to messages. Discussion centers on the applicable tasks that can be performed by Twitter and ways in which the Task Media Fit model could be revised. The paper concludes with managerial implications and avenues for future research.

1.1 The Use of Social Media in B2B Markets

Social media are digital communication platforms and services that allow parties to connect with one another, to share information and engage in dialogue. Information can be made available via content-sharing platforms such as SlideShare and YouTube while short messages are typically sent via networking sites such as Facebook, Google+ and LinkedIn or micro-blogging services such as Twitter. Organizations and individuals post content and messages to engage participants and to interact with others by contributing to their discussions (Huotori et al., 2015). Industry research shows social media in B2B markets to be increasingly important, moving from 66%

in 2011 (Anonymous, 2011) to 93% in 2013 (Anonymous, 2013). The most commonly used platforms and services are Twitter, Facebook, LinkedIn, and YouTube. In terms of their purpose, social media are identified as contributing to a number of communication tasks, including corporate reputation and brand management (Abratt & Kleyn, 2012; Bruhn et al., 2014; Jussila et al., 2014), supporting customer acquisition and service provision (Brennan & Croft, 2012; Castronovo & Huang, 2012; Sashi 2012; Toppi et al., 2011) and enabling different stages in the sales process (Anonymous, 2013; Michaelidou et al., 2011). Organizations can also use social media as an educational platform (Schultz et al., 2012) as well as for product development and supporting customer participation in research and development (Kietzmann et al., 2011, Ylimaula & Ulkuniemi, 2013). When it comes to satisfaction with using social media, industry and academic findings are mixed. For example Ramos (2009) found only 8% and 5% of marketers considered social media to be effective for brand awareness and lead generation respectively. Such assessment might be caused by factors such as a lack of knowledge on how to use social media (Helfenstein & Pentillä, 2008; Siamagka et al., 2015) or difficulty in measuring its effect (Siamagka et al., 2015), including its direct contribution to different communication tasks (Schultz et al., 2012). Equally, communications content has to be of interest to stakeholders (Brennan et al., 2014) and parties have to feel comfortable in using digital technology for communication purposes (Keinãnen & Kuivalainen, 2015). Irrespective of the challenges that companies face, the central tenet of social media platforms and services is that they should encourage openness and support the sharing, exchange and distribution of information between different interested parties (Bruhn et al., 2014; Duncan & Moriarty, 1998; Sashi, 2012; Ylimaula & Ulkuniemi, 2013).

1.2 Matching Communication Task and Media

A critical communication task for the business marketer is the signaling of problem-solving ability and expertise via information contained in messages which are transmitted through different media (Aarikka-Stenroos & Kaakkala, 2012; Ford et al., 2002). Using the media most suited for a particular communication task is therefore essential as this can determine satisfaction with the exchange process and outcome and the potential to elicit a response. For some time, two frameworks, namely the Media Richness theory and the Task Media Fit model, have guided the combining of

communication medium and task. Media Richness theory identifies a hierarchy of media arranged from a low level of richness, such as flyers, to a high level of richness, such as face-to-face interactions (Lengel & Daft, 1988). The level of richness is determined by three criteria, the capability of the medium to transmit *multiple cues*, the availability of *instant feedback* and the *personal focus* of the medium (Daft & Lengel, 1984; Lengel & Daft, 1988). This theory suggests that when the task information processing requirements are matched with a communication channel able to convey the richness of information, task performance is enhanced. Media Richness theory was modified by McGrath and Hollingshead (1993), and the resulting Task Media Fit model is designed to indicate the most appropriate media for different tasks (see Figure 1). The diagonal (top-left through bottom-right) represents the best fit between the task and the type of media; task media combinations above the diagonal are too rich whereas ones below are not rich enough. Research testing the Task Media Fit model found computer text systems to be appropriate for exchanging information for idea generation (Murthy & Kerr, 2003) but less suitable for other tasks such as negotiations (Dubrovsky et al., 1991; Fortune & Brodt, 2000).

Task Type Increasing richness required for task success	**Communication Media** Increasing richness of information			
	Computer text systems	Audio Systems	Video systems	Face to face communication
Generating ideas and plans	Good fit	Marginal fit	Poor fit	Poor fit
Choosing correct answer: intellective tasks	Marginal fit	Good fit	Good fit	Poor fit
Choosing preferred answer: judgement task	Poor fit	Good fit	Good fit	Marginal fit
Negotiating conflicts of interest	Poor fit	Poor fit	Marginal fit	Good fit

Figure 1: McGrath and Hollingshead's (1993) Task Media Fit Model

Given the expansion of digital technology and Internet connectivity, the suitability of these frameworks in understanding communication behavior requires re-examination. Social media could simplistically be categorized as a computer text system according to McGrath and Hollingshead's (1993) framework. Yet substantial change has occurred within this category influencing the criteria that determine media richness and so the appropriateness of the tasks performed through different media. With regard to the ability to transmit *multiple cues*, computer text systems have been considered poor in conveying tone and body language compared to other systems such as audio and face-to-face (Walther & Parks, 2002). However, a variety of media sources such as videos and photos can now be seamlessly integrated enhancing the richness of computer text systems, and thus altering their potential use for different tasks. *Feedback* can now be immediate as well as delayed and very brief in the case of tweets or extensive for email. The degree of *personal focus* is similarly variable, as information can now be transmitted to an individual, a selected group or openly to the general public. Such inferences are reflected in Kaplan and Haenlein's (2010) conceptualization of the Task Media Fit model in relation to social media. Considering specifically the consumer context, Kaplan and Haenlein (2010) suggest that text-based collaborative projects and blogs are the least rich media, content communities and social networks (such as YouTube and Facebook) demonstrate medium richness (as they enable the sharing of photos, videos and other content), while virtual social worlds are the richest because of their capacity to replicate face-to-face interactions. Clearly such inferences and conceptualizations require empirical investigation to determine the continued suitability of the Task Media Fit model for communication in business contexts. Therefore, *the overall aim of this paper is to determine the continued relevance of the existing the Task Media Fit model for business markets in light of advances in digital communication and social media use.*

The nature of such conceptual exploration leads us to focus our investigation on one medium in particular, namely Twitter. This choice is guided by the fact that while 73% of the Fortune 500 companies reportedly use Twitter (Barnes et al., 2012) and 77% of the Fortune Global 100 have at least one Twitter account (Malhotra et al., 2012), its function within organizational communication activities varies (Swani et al., 2014). Added to this is our observation that other than Swani et al.'s (2014) investigation of factors likely to affect message strategy and Twitter use, research has

not yet developed communication frameworks specifically for social media in business contexts.

1.3 Twitter and Task-Media Fit

As a micro-blogging site, Twitter enables information exchange via short messages (up to 140 characters) and links, for example, to marketing content and company websites. A central feature of Twitter is that it enables different parties to post messages (tweets) and interact with or follow the dialogue of others, thus forming a network of associations. There are 284 million monthly active users and 500 million daily tweets in approximately 35 languages (Twitter, 2015). A user's tweets are distributed automatically to self-selected followers. Tweets can contain '@' preceding a username in order to identify a specific user and bring them into the conversation, and/or a hashtag, '#', preceding a word (or several conjoined words) to identify the tweet as part of a wider topic. This signaling within the message enables searches according to topic and user, making visible discussion threads or specific participants' contribution to a dialogue. Users can indicate tweet liking (by clicking "favorite"), retweet a tweet to their own followers or add their own thoughts to an issue. In the B2C context Twitter is used by marketers to engage with consumers and increase word-of-mouth, relying on retweets to signal a degree of endorsement (Malhotra et al., 2012), strengthening the user's brand association in their wider network (Tsai & Men, 2013).

In business markets, Twitter appears to be used by customers to guide final supplier selection and by marketers to influence early stages in the buying process (Anonymous, 2013; Kumar & Mirchandi, 2012; Rapp et al., 2013) and for brand management purposes. Exploratory investigations suggest that Twitter is used to build trust in B2B markets (Brennan & Croft, 2012), while in B2C contexts retweeting and the sharing of URLs (links) embedded in tweets to other social media are used to infer audience engagement with a brand and determine message reach in Twitter interaction (Malhotra et al., 2012; Tsai & Men, 2013). Despite the scope to reach a large potential audience, the high number of links and hashtags contained in messages implies the need to convey more information than can be condensed into a tweet and consequently to direct recipients to marketing content elsewhere. Such apparent shortcomings in message length and depth present a conundrum for Twitter's

potential efficacy as a B2B communication tool, thus necessitating closer examination of the communication tasks that can be facilitated through Twitter.

McGrath and Hollingshead's (1993) model suggests that Twitter – a computer text system - would be too constrained for negotiation or judgment tasks due to the restricted use of characters, the lack of cues, the potential for a delay in feedback and its public accessibility. Meanwhile intellective tasks may be a marginal fit for Twitter given that whilst it is restricted initially, embedded links may provide the necessary further information. Regarding idea generation, its public accessibility may render Twitter a poor fit and even though private messages can be sent via Twitter, tweets lack depth and cues, thus richness is limited. A critical aspect of the McGrath and Hollingshead (1993) Task Media Fit model is its focus on selected tasks involving communication between parties to indicate the most appropriate media through which to perform collaborative tasks. This is reflected in previous research e.g. Suh, 1999; Benbunan-Fich, Hiltz & Turoff 2002, which has focused on satisfaction with the process and outcome of tasks as an indicator of media and task fit. In comparison, investigations of Twitter use show that its deployment for functions such as brand management are intended to elicit interaction between parties rather than collaboration. If Twitter is intended to enable interaction (rather than discrete tasks), then metrics such as retweets, number and type of media embedded and whether a link is given to provide further interaction opportunities might be used as indicators of media and task fit.

In light of existing Twitter knowledge and practice, our investigation seeks to

- understand tasks performed by tweets, links contained within them and follower responses to twitter posts
- explain tasks, links and follower interaction according to media fit and richness.

By exploring these two areas, we seek to address our overall aim, namely *to determine the continued relevance of the Task Media Fit model for business markets in light of advances in digital communication and social media use*

2.0 Method

Tweets placed by companies are public by default and can contain text, photographs, videos, and URLs. Tweets can also be shared further for wider engagement with other users. The 140-character limit for each post on Twitter makes it amenable to study for a reasonable time period without becoming overloaded, while producing sufficient data for meaningful analysis. Non-participant observation was used as it involves the study of behavior without the presence of the researcher(s) affecting the natural interaction of research subjects (Liu & Maitlis, 2010). Researchers did not directly or indirectly interact with the research subjects. Whilst online ethnographic studies have merit (e.g., Croft, 2013), such an immersive approach is not suitable when the aim is to identify how companies interact with one another.

This study comprised preliminary and main investigative phases. The preliminary phase identified suitable Twitter accounts for the investigation of B2B use of Twitter and developed the coding framework for the investigative phase. Sampling guidelines were drawn from Kozinets's (2010) sampling procedure. Although netnographic analyses were not conducted, this valid sampling procedure allowed for the identification of appropriate samples; Twitter accounts were selected that were relevant, active (i.e. the account holders posted frequently providing a sample size adequate for analysis), interactive (containing tweets that were favorited, retweeted and to which replies were received from other users) substantial, heterogeneous (having a sufficient number of different followers), and data-rich (having tweets and URL links with enough content for meaningful analysis). Tweet Archivist Desktop was used to search and collate public tweets from B2B companies. In addition, annual brand performance analysis published by InterBrand (www.interbrand.com) was used to identify leading global companies operating in business markets. Of the 100 brands evaluated in 2013, 31 operate in business markets providing engineering and serviced-based solutions (e.g. communication; consulting; financial and IT) to different industrial markets.

The Twitter accounts of 10 firms (two from engineering, communication, consulting, financial and IT solutions providers) were initially examined. The structure and number of accounts for each company were also scrutinized; companies often have multiple Twitter accounts for different purposes or geographical areas. Accounts were selected and examined for their appropriateness and relevance to the research aim.

From these firms, six accounts were selected for the preliminary phase (one consulting, one healthcare consulting, two engineering, one financial, and one risk consulting). Thus, we were able to further ascertain the appropriateness of different sectors and whether accounts of companies operating in multiple areas (e.g. Company X Healthcare) would be appropriate, rather than the wider company Twitter account (e.g. Company X).

Using Tweet Archivist Desktop tweets from each of the six accounts (n=189) were collected over a 10-day period (03/09/14-12/09/14, inclusive). These data were then reviewed. The disparity in the nature of Twitter functions and the activity observed according to each sector led the researchers to focus attention on Twitter activity serving one specific industry sector: healthcare. Selecting one industry sector reduced exogenous constraints of sector specific communication style, activity and norms of social contract when communicating. Specifically, the healthcare sector was chosen as the nature of the identified accounts represented communication between B2B users, (with the products and services offered by each company being relevant only to other sector-specific users), but also maintains a reasonable range in company type (consulting, engineering). Subsequently, tweets from three engineering-based and one consulting-based solutions providers (n=493) were collected over a 16-day period (10/11/14-25/11/14, inclusive).

This second dataset was examined for tweet content (message) and function (e.g. signaling problem-solving ability, endorsement, sales/subscription, information sharing, dialogue and public relations activities) using an inductive thematic analysis. Three raters coded the same sample of tweets (n=32) to identify rater agreement before each rater then individually rated subsets of the remaining tweets. Using Light's Kappa for three raters of a fully-crossed design (for details see Hallgren, 2012), slight agreement was found between the three coders (Light's Kappa=.156). The thematic analysis was refined through discussion to derive the final coding framework, within which the tweets in the main investigation were categorized. Two issues required addressing before the main study. Due to the low agreement of the three raters, the rating in the main investigation was conducted until 100% agreement was reached, avoiding concern over reliability between raters. Second the type of company investigated was balanced within the healthcare sector to reduce any bias in

the behavioral/posting patterns observed. Thus, four twitter accounts were selected for the main investigative phase: two engineering-based and two consulting-based healthcare solutions providers.

For the main investigation, tweets from each company were collected over a 49-day period (25/11/14-12/01/15, inclusive), this generating 838 twitter posts (Company A, n = 151; Company B, n = 339; Company C, n = 285; Company D, n = 63). Having established a final coding framework using thematic analysis, quantitative content analysis was performed to allow "the systematic assignment of communication content to categories according to rules, and the analysis of relationships involving those categories using statistical methods" (Riffe et al., 2014, p.3). In addition to the content and function of tweets, embedded media and follower responses to tweets were analyzed.

3.0 Results

General Twitter account information for each company can be observed in Table 1; tweet functions are shown in Table 2.

Table 1: An Overview of the Companies' Twitter Accounts

	Company A	**Company B**	**Company C**	**Company D**
Date of first tweet	June 2009	September 2011	July 2008	February 2014
Total number of Tweets sent	4,673	10,216	7,250	866
Following	1,161	1,429	666	287
Followers	41,493	25,966	36,847	49,930
Total number of photos and videos posted	286	838	263	180

[Data accurate on 9th February 2015]

Table 2: Functions of the Tweets

Function	**Tweets with that function (%, n)**	**Tweets without that function (%, n)**
Problem-solving - generic	14.6 (122)	85.4 (716)
Problem-solving with a specific customer	1.8 (15)	98.2 (823)
Problem-solving specific across industry	0.8 (7)	99.2 (831)
Problem-solving specific company not a customer	0.1 (1)	99.9 (837)
Information sharing about customer	17.2 (144)	82.8 (694)
Information sharing about industry	33.9 (284)	66.1 (554)
Information sharing about events	37.9 (318)	62.1 (520)
Information sharing opinion	5.0 (42)	95.0 (796)
Information sharing about product/service	15.9 (133)	84.1 (705)
Public Relations (PR)	12.8 (107)	87.2 (731)
Sales/subscription	1.3 (10)	98.7 (827)
Customer endorsement	1.4 (12)	98.6 (826)
Conversation	0.6 (5)	99.4 (833)

Looking first of all at *tasks performed by Twitter* (see Table 2), results show that information sharing was a common function especially regarding information about events (37.9%), while signaling problem-solving, customer endorsement and PR were also common functions. For the purposes of further analysis, the functions of the tweets were condensed into the three most prominent categories: information sharing, problem-solving, and PR. Employing a chi-square test to determine Twitter usage across different tasks showed that information sharing was the dominant function (χ=6,297.85, df=2, p>.05; n=623), while problem-solving was less prominent (n=145), and PR minimal (n=35).

From the tweet messages themselves, we now examine the *links contained within twitter posts*. Of the tweets, 74.8% featured embedded links (n=622), while 25.2% (n=216) had none. The most popular link type found in tweets was that which directed users to a company webpage (see Table 3). Company websites with multiple links represented 14.4% (n=86) of the embedded links in tweets, and included a number of different link types: videos, reports, and other pages within and outside of the site. Links to PDFs made up 14.2% (n=85) of the website links, these containing reports with comprehensive information on the subject highlighted. Employee company blogs made up 14.0% (n=84) of the links (typically focusing on a specific topic), while YouTube videos accounted for 9.0% (n=54) of the links.

A chi-square test (see Table 3) found the *type of link* embedded in the tweet was influenced by the *link function*. Both problem-solving and information sharing functions are predominantly facilitated by various links to the company website, whereas the PR function is facilitated by a link to the company website and the use of links to external websites that may or may not have a contribution directly from the company. YouTube is used slightly more for problem solving and a private LinkedIn group was used solely for the function of problem-solving.

Table 3: A Cross Tabulation of the Link Function and the Link Type

Link Type	**Link functions**			**Total**
	Problem-solving *n* (%)	Information sharing *n* (%)	PR *n* (%)	***n* (%)**
Company website	21(18.4)	164 (35.5)	5 (22.7)	190 (31.8)
Company website and PDF	19 (16.7)	66 (14.3)	0 (0.0)	85 (14.2)
Company website with links	20 (17.5)	62 (13.4)	4 (18.2)	86 (14.4)
Video on company website	6 (5.3)	10 (2.2)	0 (0.0)	16 (2.7)
Employee company blog	14 (12.3)	70 (15.2)	0 (0.0)	84 (14.0)
Online brochure	1 (0.9)	1 (0.2)	0 (0.0)	2 (0.3)
External website with contribution from company	13 (11.4)	26 (5.6)	4 (18.2)	43 (7.2)
External website with no contribution from company	3 (2.6)	12 (2.6)	7 (31.8)	22 (3.7)
YouTube	15 (13.2)	37 (8.0)	2 (9.1)	54 (9.0)
LinkedIn restricted group	2 (1.8)	0 (0.0)	0 (0.0)	2 (0.3)
Webcast	0 (0.0)	14 (3.0)	0 (0.0)	14 (2.3)

Total	114 (100)	462 (100)	22 (100)	598 (100)
Chi-square	95.346; df=20; p<.001			

Regarding *follower response*, this was scrutinized in relation to the twitter posts and their embedded links. Examination of variation in follower interaction in terms of the number of favorites, retweets and comments was undertaken according to twitter function using a negative binomial regression to determine whether one function elicited greater responses than others. The number of favorites, retweets and replies are not significantly influenced by the function of the tweet (see Table 4). Also, the test for number of comments shows a significant omnibus test (p =.048), but the effect of the three categories of tweets was non-significant (p = .066), so the function of the tweet did not influence the elicited reaction.

Table 4: The Functions of the Tweets and the Number of Favorites, Retweets and Comments.

Function of Tweet	**Categorized number of favorites received by tweet**				**Total**	**Goodness of Fit (Value/df)**	**Omnibus Test (Model Effects)**
	0	**1-5**	**6-10**	**11-155**			
Information Sharing	25	104	12	4	145	1.446	p = .139 (p = .134)
Problem-Solving	150	413	41	19	623		
PR	9	22	3	1	35		
Total	184	539	56	24	803		
	Categorized number of retweets received by tweet				**Total**	**Goodness of Fit (Value/df)**	**Omnibus Test (Model Effects)**
	0	**1-5**	**6-10**	**11-161**			
Information Sharing	5	102	30	8	145	0.955	p = .451 (p = .445)
Problem-Solving	56	420	106	41	623		
PR	3	20	9	3	35		
Total	64	542	145	52	803		
	Categorized number of comments received by tweets				**Total**	**Goodness of Fit (Value/df)**	**Omnibus Test (Model Effects)**
	0		**1**	**2-12**			
Information Sharing	129		14	2	145	0.720	p = .048 (p = .066)
Problem-Solving	528		75	20	623		
PR	30		2	3	35		

Total	687	91	25	803		

From follower response to the tweet, we now examine *variation in elicited response resulting from interaction between the embedded link and its function*. Of the links embedded in tweets, 81.5% (n=501) could be shared, while 18.5% (n=114) could not. Negative binomial regressions were conducted to determine whether the link function and link type influenced the number of Facebook likes, Twitter favorites, LinkedIn likes and Google+ likes (see Table 5). A requirement of the comparison of each parameter within the tests is the use of a baseline (control category). For link type, external website with no company contribution was used as it was distinct from all other categories having no company input. For link function the baseline used was PR.

Table 5: The Number of Facebook, Twitter, LinkedIn and Google+ Likes by the Type of Link and the Function of the Link.

	Link Type	**Facebook**	**Twitter**	**LinkedIn**	**Google+**
Link Type	Company Website	-6.596±	-3.211*	-9.693±	-27.731***
	Company Website & PDF	51.917***	-32.597±	-76.468***	-2.079*
	Company Website with Links	-5.749***	-30.815***	-16.175±	-27.729±
	Video on Company Website	57.380***	-0.665±	-76.468***	-26.912±
	Employee Company Blog	54.322***	-0.712±	-1.853**	-1.416±
	Online Brochure	N/A	N/A	N/A	N/A
	External Website with Contribution from Company	-2.648***	-0.203±	-1.911**	-1.099±
	External Website with No Contribution from Company±±	Baseline	Baseline	Baseline	Baseline

Link Function	Problem-Solving	-18.665±	0.047±	-2.674*	-27.558±
	Information Sharing	-57.834***	-0.572±	-0.409±	-0.405±
	PR[±±]	Baseline	Baseline	Baseline	Baseline
Fit and Sig.	**Goodness of Fit (Value/df)**	2.610	1.841	3.395	0.947
	Omnibus Tests (Likelihood Chi-Sq)	373.968***	307.233***	410.283***	50.179***
	Model Effects (Wald Chi-Sq)	Link Type=118.645***; Link Function=3.887[±]; Link Type*Link Function=30.874***	Link Type=70.970***; Link Function=0.881[±]; Link Type*Link Function=3.824[±]	Link Type=39.739***; Link Function=5.412[±]; Link Type*Link Function=17.101**	Link Type=15.301**; Link Function=1.979[±]; Link Type*Link Function=5.733[±]
±N.S. *p<.05 **p<.01 ***p<.001 [±±]Control Category N/A = insufficient valid cases					

For the Facebook likes model, the interaction between link type and link function was significant (see Table 5), but parameter estimates show only two significant predictors: Company Website*Information Sharing (B=62.042, p<.001); and Company Website & PDF*Information Sharing (B=62.697, p<.001). This shows that in comparison to PR*external websites with no company contribution (the baselines for each main effect), information sharing through both company website and company website with PDF receives significantly more Facebook likes. The LinkedIn model was the only other significant model for the interaction between link type and link function. However, in comparison with the control categories, no significant predictors were found. Whilst link function was non-significant for the various social media, the type of link was significant across all of them. The external company website with no contribution is liked significantly more than other types of links across the social media, the exception being that on Facebook it is liked less than the company website with PDF, video on company website and employee company blog.

Negative binomial regressions were conducted to determine whether the number of YouTube likes varied across the functions of problem solving, information sharing and PR. PR videos received significantly more likes than problem solving videos (see Table 6). There is no significant relationship for information sharing videos and YouTube likes.

Table 6: The Link Functions and YouTube Likes.

	Link Type	**YouTube Likes**
Link Function	Problem-Solving	-2.2021*
	Information Sharing	-1.189±
	PR±±	Baseline
Fit and Sig.	**Goodness of Fit (Value/df)**	1.926
	Omnibus Tests (Likelihood Chi-Sq)	9.278**
	Model Effects (Wald Chi-Sq)	Link Function=8.173*
	±N.S. *p<.05 **p<.01 ***p<.001 ±±Control Category	

Having scrutinized business marketer use of Twitter and followers' responses to messages tweeted, we now examine the significance of these findings in relation to existing understanding of computer mediated communication.

4.0 Discussion

We consider possible explanations for our results pertaining to Twitter and the interactions elicited. The discussion is framed by the Task Media Fit model (McGrath and Hollingshead, 1993) with reference to the criteria of the capability of transmitting *multiple cues*, availability of *instant feedback* and the *personal focus* of the medium (Daft & Lengel, 1984, 1986; Lengel &Daft, 1988). This leads us to propose modifications to the Task Media Fit model for Twitter and its use in business markets (see Figure 2).

The Task Media Fit model incorporates media that are distinct from each other. Whilst it incorporates computer text systems, this media category has undergone considerable technological developments since 1993. Twitter is just one of the media that falls into the computer text system category and our study shows that it can be

used for a number of tasks. It can be used both on its own and in conjunction with other media, thus influencing richness criteria and consequently suitability for performing different tasks.

Looking first of all at *Twitter functions*, our investigation found that Twitter was used for three broad functions, namely information sharing, problem solving and PR. These tasks differ from those in the Task Fit Media model, which concentrated on collaborative tasks between specific participants (individuals, groups and organizations). The tasks of information sharing and PR via Twitter are less collaborative and are focused more on eliciting responses from followers. Whilst problem solving is a collaborative task, the constraints of Twitter in terms of content restriction, public accessibility and lack of instant feedback make such collaboration difficult. As Twitter tasks do not involve direct collaboration with specific individuals and organizations then its foremost purpose is to elicit responses from followers to the business marketer's signaling of its problem-solving ability. In order to do so the type of tweet and link needs to be appropriate for the task.

Twitter was used by itself on only 25.5% of occasions. Considering the criteria of the Media Richness theory and the Task Media Fit model, this might be explained by the fact that, alone, Twitter is a poor fit for information sharing due to its restricted content and for signaling problem solving ability because of its limited content, public accessibility and lack of instant feedback. Whilst Twitter might be considered a marginal fit for PR, its capacity to reach different stakeholders can be considerable (see Figure 2). Twitter's shortcoming as a standalone medium was overcome with the majority of tweets (75.5%) incorporating embedded links, thus enhancing the richness of the media and its appropriateness for performing tasks.

The *type of embedded link* contained in a tweet was influenced by the function of the link. For information sharing links were predominantly to company websites with further links or PDFs elaborating on the initial tweet. The elaboration of content combined with the public accessibility and lack of need for feedback make these media appropriate for the task. Links used for signaling problem solving ability also contained links to company websites with further links and PDFs. With regard to generic problem solving, use of these media to provide in-depth content is appropriate

but is less suitable for customer specific problem solving, given the characteristics of public accessibility and lack of personal feedback. Beyond company websites, embedded links to video content on YouTube and company websites and to LinkedIn user groups were evident in problem-solving. Regarding video content, this can further enhance the richness of twitter due to the additional audio and visual cues that enable the demonstration of problem resolution. As with company websites that contain further links and PDFs, video content have a public focus and potentially delayed feedback making them reasonably suited for the task (see Figure 2). Regarding LinkedIn, followers with the necessary expertise applied to be in thematic or issue specific groups. Such groups enable more in-depth discussion of a problem and combined with the increasing specificity of the target audience and ability for instant feedback further enhances the richness of the media and suitability for problem-solving tasks (see Figure 2). For PR, tweets contained links to both company and external websites with and without a contribution from the company. The links to external websites may provide more credence to the content due to their independence. This quality along with the ability to reach a range of stakeholders and the opportunity for feedback makes these media suitable for the PR task (see Figure 2).

Overall the *interaction* elicited from Twitter activity was low. We might surmise that followers do not find the tweets sufficiently stimulating or beneficial to trigger their interaction or warrant the time to engage in dialogue. Followers demonstrated no preference for tweet *function*, responding similarly to information sharing, problem solving and PR tweets. Tweets embedded links provided multiple opportunities for followers to "like" via Facebook, LinkedIn, Twitter, Google+ and YouTube. Followers, when choosing which media to share their response through, appear to be considering the audience and to a certain extent they are also considering the function i.e. whether the tweets embedded link is sharing information, solving problems or focused on PR. Via Facebook, followers tend to like links to company websites, and company websites with PDFs, especially information sharing ones (see gray shading on Figure 2). This may be due to Facebook being a social network, which is predominantly used to maintain contact with friends and family. Followers may choose to share content on Facebook for homophilous reasons i.e., people may have friends and family who work in the same company or in the same industry who will

find the shared links of interest. Links to external websites elicited a greater response via LinkedIn, Twitter and Google+ (see gray shading on Figure 2). These social networks may be more likely to contain colleagues, line managers and contacts from other companies in the sector therefore followers may use these links which have more credibility in their independent perspective of the company, to enhance or maintain their professional image. Finally, regarding PR content placed on YouTube, this received significantly more likes than problem solving content, possibly due to PR material being designed to be more entertaining (see gray shading on Figure 2).

	Task Type		
	PR	**Information Sharing**	**Problem Solving**
Twitter	Marginal fit	Poor fit	Poor fit
Twitter with Co. Website	Poor fit	Good fit	Medium fit
Twitter with Co. Website +PDF	Poor fit	Good fit	Medium fit
Twitter with Co. Website + Links	Poor fit	Good fit	Medium fit
Twitter with Video on Co. Website		Marginal fit	Marginal fit
Twitter with Employee Blog			
Twitter with Online Brochure			
YouTube	Good fit	Marginal fit	Medium fit
Twitter with LinkedIn Group	Poor fit		Good fit
Twitter with Webcasts	Poor fit	Good fit	
Twitter with External Website with no Co. contribution	Good fit	Marginal fit	Poor fit
Twitter with External Website + Co. contribution	Good fit	Marginal fit	Poor fit

[Gray shading indicates a higher level of follower response]

Figure 2: A Revised Task Media Fit Model: Twitter and Embedded Links.

5.0 Conclusion and Further Research

In this final section we consider the revised Task Media Fit model in terms of managerial implications, limitations and suggestions for further development. Technological developments mean that companies have a large variety of media to choose from when performing certain tasks, with Twitter just one of them The amended model details tasks performed using Twitter identified in this study. These vary according to richness requirements, with PR requiring the least rich and problem solving the richest media. The tasks are less collaborative than those of the original Task Media Fit which influences the requirements from the media. Analysis shows how Twitter can be combined with other media to enable the provision of in-depth information and include multiple cues which alters the richness of a communication channel, subsequently influencing appropriateness for task performance as identified in Figure 2. Less collaborative task suggests that two factors need to be considered; the amount of information and specificity of content. The selected media should ensure followers receive sufficient specific information for the task without being overloaded. Followers' elicited responses to media may be determined by their audience and what media they use rather than the appropriateness of the fit between the task and the media. The necessity for- and the immediacy of- feedback needs to be considered to improve the appropriateness of the media for the task. Thus the revised Task Media Fit model provides managers with a frame of reference for Twitter use. Managers can identify combinations of task and the types of embedded links that are task appropriate and might facilitate effective performance. Furthermore, using the the framework they can identify media which elicit higher follower response and therefore enhances message reach, while also making managers aware that responses are also dependent on who followers wants to reach. An increased understanding of Twitter through the revised model will enable managers to more effectively utilize their resources.

Besides providing a frame of reference for managers, this revised Task Media Fit model offers a number of lines for further research. The tasks listed in the revised model differ from the original as they are not collaborative and are limited in number, including some for which results to support propositions were insufficient. Future research should therefore explore whether Twitter is an appropriate medium for the intellective and judgment tasks contained in McGrath and Hollingshead's (1993)

framework and the more specific tasks highlighted in Figure 2. This would enable further modification of the revised model. Whilst this research did not find a relationship between the function of the tweets and the degree of the response, future research could examine whether there is a connection between the appropriateness of media, the task and the elicited response, i.e., a greater degree of response might be expected if a suitable media is used for a task. Furthermore, the characteristics of the message could be investigated to determine what encourages interaction with Twitter and the links embedded within tweets. This would enable companies to better tailor tweets to audience requirements. Finally, this study focused specifically on Twitter in relation to the Task Media Fit model. Further investigations are necessary to determine its relevance and necessary adjustment in relation to other social media and digital communication in general.

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