Mature Enterprise Architectures Improve the Success of Social Media Strategies

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Abstract

Businesses are going under substantial transformation with entrance of social media platforms such as Facebook, Twitter, LinkedIn, etc. This research paper discusses using Enterprise Architecture (EA) as a primary tool to create effective social media strategies in an organisation. There is no doubt about the criticality and impact of decisions made by stakeholders in today's organisation relating to information systems given the size of the investments and their complexity. Hence EA ensures that the process of designing, procuring, developing and implementing information systems in line with business goals and strategies is achieved. Many organisations are facing another big challenge and major question: How to align their business objectives with social media strategies? This paper illustrates the impact of enterprise architecture on social media strategies which will enable key EA professionals to make efficient and informed decisions. The objective of this research paper is to determine whether mature organisations find it easier to successfully implement social media strategies and whether it is possible to measure the ROI on these initiatives in large companies. This was achieved through a literature review and a case study analysis of a large retail US company.

Keywords: Enterprise Architecture, Social Media Strategies, Enterprise Architecture Maturity, ROI

1 Introduction

The decision to choose this topic is based on its importance in modern information systems (IS) and the fact that social media and business analytics are disruptive technologies. It is evident that social media is fuelling an exponential increase in information flow (McKinsey 2012) thereby making business intelligence and analytics critical in the design of Enterprise Architectures.

Enterprise Architecture (EA) is a framework for business processes and information technology infrastructure. EA's main objective is to provide a map for an organisation's future information systems and a design for the flow of business processes all while aligning to organisational goals.

Historical trends show an accelerated uptake of new technologies like the Internet and social media compared with past technologies like radio and TV where the uptake was in the order of decades. Figure 1 illustrates this acceleration in terms of how long it took for each technology to reach 50 million users (McKinsey 2012).

From an organisational perspective, significant strides are being made to implement social media strategies to drive marketing efforts. A McKinsey report suggests that businesses are slower at adopting social media. Figure 2 shows an average 56% penetration of social media technologies for consumers compared with 35% for business.

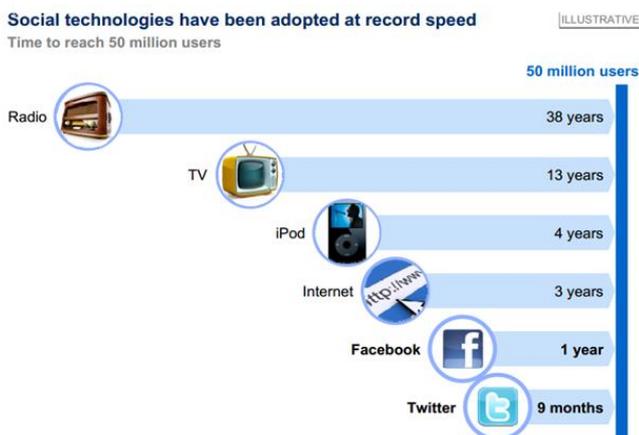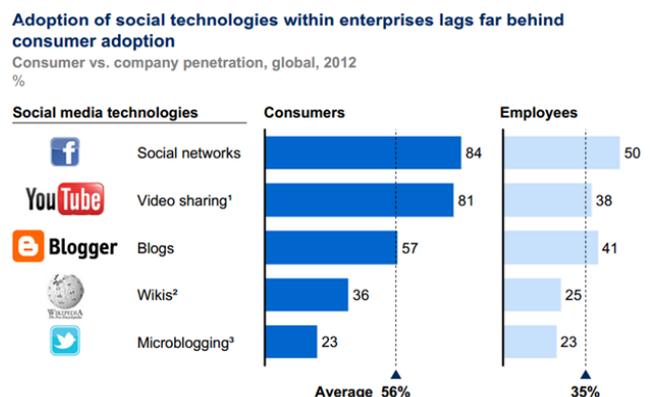Research suggests that mature organisations, those that

Figure 1: Take up of technologies (Source: McKinsey & Co, 2012)

Figure 2: Social media - Consumer Vs Business (source: McKinsey & Co, 2012)

integrate information systems into business operations, are best placed to maximise the benefits of social media strategies. This is similar to the concept of 'absorptive capacity' (Culnan et. al. 2005, page 249) where an organisation exploits the knowledge it derives from their customers. Ravichandran, T. and Lertwongsatien, C. (2005, page 244) suggests that Walmart, the focus of our case study, meets the criteria of an organisation that considers IS an integral part of their business.

In a broader sense, there is a greater variety of social technologies available to business than simply Twitter and Facebook. In their report, McKinsey (McKinsey, 2012) suggests that there are at least ten (10) social technology applications available to businesses and consumers as illustrated in Figure 3. The report states that "While 72% of companies use social technologies in some way, very few are anywhere near achieving the full potential benefit."

Figure 4: The Range of Social Technologies

McKinsey suggests that in order for organisations to take full advantage of social technologies, they need to recognise that there are a range of applications available and they need to connect to the right audience at the right place using the right social media strategies, for example:

1. Public social networks - Facebook, Twitter, YouTube, Pinterest, LinkedIn

2. Company managed, customer centric networks - Feedback Forms, Wikis, Blogs, Support Portals

3. Intra-company social networks - Yammer, Salesforce Chatter

So by applying the right combination of these technologies and integrating them into existing organisational systems and processes, businesses can form an integrated social media strategy and transform their business into a true "social enterprise" (McKinsey, 2012).

There are three key concepts covered throughout this paper - Enterprise Architecture, Social Media and Return on Investment. Each concept is discussed in turn to establish the theoretical base for this paper.

Enterprise Architecture

Enterprise Architecture (EA) is a critical element for large businesses (Ross, et.al., 2006). A number of EA frameworks such as Zachman (1999) and TOGAF (The Open Group) have been introduced to guide organisations to implement Enterprise Architecture (van't Wout, et. al., 2010). The main purpose of EA is to optimise and integrate an organisation's fragmented processes and systems to support business strategies in effective ways (Ross, et. al., 2006).

Social Media

Social media enables people to communicate, understand and share content with each other (Bryfonski, 2012) but more importantly it's had a large impact on organisations. Social media strategies have become one of the greatest challenges in the business world in recent times. It has dramatically altered the views of senior managers about how they should run their businesses. Figure 4 from simplyZesty demonstrates the broad and deep impact that social media has on an organisation's marketing and business strategies. Furthermore, different frameworks for social media strategies are starting to emerge (Lardi & Fuchs, 2013).

Figure 3: Influence of Social Media by simplyZesty

Return on Investment (ROI)

Show me the money or better still, show me the Return on Investment (ROI). ROI is ubiquitous in business because it's the cornerstone for sound financial decision making. While the term appears self-explanatory, it's important to understand what it means and framing it in the context of social media and information systems. The second part of ROI, 'Investment', is easy to quantify from the traditional business perspective of investments – it's how much the business outlays to acquire and operate an asset, which in the case of information systems is usually a

suite of software applications along with the resources necessary to run it (infrastructure, hardware, people, etc).

How do you measure the investment in social media? Except for someone's time and effort, it costs very little if anything to set up a Facebook page or sign-up to Twitter. However, the set-up costs are not necessarily as important as what a business does with the large volumes of unstructured information that comes into the organisation from the myriad of social media sources. This question is addressed in the literature review and case study.

2   Methodology

The methodology used in this paper is a combination of a literature review and case study. The literature review was predominately based on peer reviewed academic journals from the early 1990's until today.

A major case study is presented and we set out to determine if a company's social media strategies yield growth in sales and/or profits. Walmart was selected from three case studies presented by Culnan et. al. (2010, Page 250-253).

Why Walmart? First, they are a large global retail business so the implementation of social media strategies on a very large scale to millions of customers ticks a lot of boxes for this research report. Secondly, being a publically listed company makes it easy to obtain financial reports for Walmart. Finally, there is a lot of research on Walmart given their success over decades and the way they do business. Further research was conducted on Walmart by analysing their annual reports over the period from 2009 to 2014 to see if there is a correlation between IS/social media investments and growth in sales or profits, i.e. is there evidence of ROI?

Our hypothesis is that mature organisations with mature enterprise architectures will improve the chances that their social media strategies will be successful. We set out to test this hypothesis both theoretically through the literature research and empirically through the Walmart case study.

3   Literature review

This section provides a literature review of social media, EA and their role in organisations. The focus was to find evidence and research on how organisations use social media to differentiate their products and services, where social media technologies fit within the pace-layered model (Gartner, 2013) and if having mature enterprise architectures assists in successfully implementing social media strategies.

Social media as systems of differentiation

Social media has become part of life and people are willing to share personal information such as preferences, feedback and comments (Bryfonski, 2012) through this media. The popularity of smart phones makes it easier to share information anytime, anywhere and this takes social

media to a higher level (Barker, 2012) allowing real time, instantaneous information feeds. This provides businesses with huge opportunities (Sweeney & Craig, 2012). To demonstrate the importance of social media applications for an enterprise, the EA Pace-Layered Application model (Gartner, 2013) has been applied to some key enterprise applications. Refer to figure 5 below.

The emergence of Facebook in 2004 was considered an innovation that revolutionised social media and it had an immediate impact on society globally (van Dijck, 2013). Qualman (2013) gives further examples to prove the importance of social media for business. As organisations come to realise the power of social media, it has begun to move down the 'system of innovation' layer in the pace-layered model to the bottom of that layer by 2009 (van Dijck, 2013).
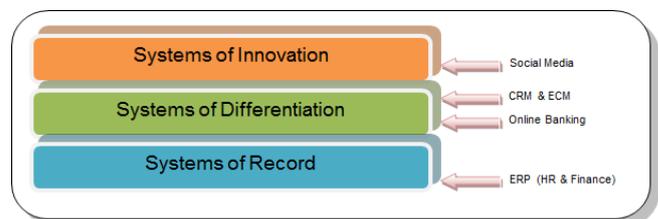
Figure 5: Major applications mapped against the Pace-Layered Framework at 2009

By 2014, social media applications have moved further down to the middle layer of the pace-layered model - 'systems of differentiation'. Research has shown that businesses are starting to use social media to differentiate themselves from their competitors (Luttrell, 2014). From the current trend, it's likely that social media applications will move towards the 'systems of records' layer (refer to figure 6). At that point it can be argued that an organisation would struggle without data from social media (Moutinho, et. al., 2014).
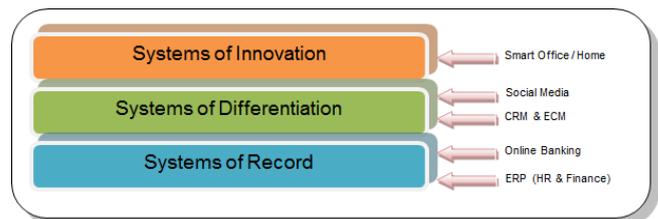
Figure 6: Major applications mapped against the Pace-Layered Framework at 2014

From a business perspective, social media can improve communications within the organisation and provide closer connections between a company and their customers in order to better understand customers' needs (Friedrichsen et. al., 2013). More importantly, businesses are using the large volumes of social media data, sometimes referred as 'big data' (Lovett, 2011) into their Enterprise Architectures to gain competitive advantage. The companies that utilise and integrate social media data effectively in their Enterprise Architectures will be able to advance with Business Intelligence initiatives (Hinchcliffe & Kim, 2012) allowing them to make the right and smart decisions at the

right time. This is vital in an environment of rapidly changing fast-paced markets (LaValle, et. al, 2011).

Enterprise Architecture Maturity and Social Media Alignment to Business

IS projects and investments need to be strategically aligned with business strategies (Chan, 2002). Likewise, social media strategies need be aligned with business strategies and goals. In fact, social media has to be carefully considered and planned as its impact on enterprise architecture is significant normally requiring state of the art business intelligence/analytics tools. Multiple studies have emphasized the importance of the opportunities of social media, their benefits and success stories (Qualman, 2013; Culnan et.al., 2010; Katona & Sarvary, 2014). On the other hand, studies also highlight the risks presented by social media along with failure stories (Barnes & Barnes, 2009; Bolloju & Liang, 2011; Culnan et. al, 2012). Throughout the literature, one main factor between success and failure of social media has almost always been attributed to poor strategic alignment.

For successful implementation, organisations need to consider social media strategically by developing a clear strategy describing its purpose (Barnes & Barnes, 2009; Safko, 2010; Turban, Bolloju & Liang, 2011). The purpose can vary from marketing initiatives to improving organisational workflow and social networks. The purpose has to be aligned with the business strategy and needs.

Moreover, the strategy should determine which websites, applications and/or services should be implemented (Barnes & Barnes, 2009; Kietzmann, et. al., 2011). This is important for both legal and technical reasons. From a legal perspective, laws differ from country to country thereby having implications on workflows - how information is stored, managed and accessed (Privacy Laws) and compliance reporting requirements (tax and corporate filing). From a technical perspective each application/service has a different requirement for integration, bandwidth capacity and network performance.

Successful implementation should also consider risk minimisation. This includes employees wasting time on social media (Hoover, 2007; Turban, Bolloju & Liang, 2011), sensitive information leaks (Barnes & Barnes, 2009; Turban, Bolloju & Liang, 2011) and conflict with work processes and corporate culture (Meske & Stieglitz, 2013).

Given the impact on enterprise architectures, social media strategies need to be carefully considered when designing enterprise architectures to leverage their capabilities and minimising risks (Turban et al, 2011). For example, organisations need to review and if required, redesign their processes in order to successfully implement social media technologies (Meske & Stieglitz, 2013). Failing to do so could result in the misuse of social media which exposes the organisation to risks ranging from reputation damage to complete erosion of competitive advantage (Meske & Stieglitz, 2013).

4 Case Study

Culnan et. al (2010) conducted research on America's Fortune 500 company's adoption of social media platforms. They discovered that many businesses found it challenging to measure the value and benefits of implementing social media strategies. The research recommended three criteria to be successful with social media strategies:

- Make mindful decisions in adopting social media
- Build communities
- Develop "absorptive capacity"

The last point has the greatest impact on Enterprise Architectures. The researchers focused on three large US businesses - Walmart, Hewlett-Packard and Coca-Cola where they assessed the adoption of social media by collecting data from public websites and social media applications (Culnan et. al., 2010).

Research (Culnan et. al., 2010) suggests that Walmart has achieved 'absorptive capacity' since they respond to social media posts and have rules for processing messages. While this research was limited because it was from an *external perspective looking into the company*, it does provide an insight into the level of maturity of Walmart's information systems and social media initiatives.

We chose to focus on Walmart for two main reasons. First, they are a large retail business and one of America's largest companies with millions of customers so their reach with social media is widespread. Secondly, it's easy to obtain historical annual reports for a publically listed company, which was important for the second part of the case study where we crunched some numbers for Walmart. Finally, Walmart are a diverse retail business with physical and on-line stores operating on a global scale.

Taking the Walmart case study further, we conducted an analysis of their financial performance over a period of time by reviewing their annual reports from 2009 to 2014 (summary provided in Table 1). Specifically the focus was on:

- Key Financials – sales, profit and expenditure on information systems
- Notes/discussions around social media, information systems and other technologies
- Determining if there is a link between changes in IS investment and implementation of social media strategies with company financial performance.

Year	Net Sales ($US Billion)	Net Sales Incr (%)	EBIT (Profit) ($US Billion)	IS Investments ($US millions Est.)[2]	Notes/Figures on IT/IS expenditure[1]	Comments on Social Media/IS/IT
2014	**$476.3**	**1.6%**	**$16.02**	**$850**	• Global eCommerce experienced sales growth of 30% to around $13 Billion. • Capital Expenditure on Info systems, distribution, e-commerce & other - $US2.54B	• Social Media used to promote new store openings, Sam's Club, at an accelerated rate. • Annual report 'buried' the discussion of technology unlike previous years.
2013	**$469.1**	**5.0%**	**$16.99**	**$970**	• Capital Expenditure on Info systems, distribution, e-commerce & other - $US2.92B	• Whole section (page 10) dedicated to Global eCommerce initiatives. • Annual report mentions Big Data, Social Media and Mobile tech strategies.
2012	**$443.8**	**5.9%**	**$15.69**	**$950**	• Allocation of Capital for IS, Distribution & other – 21%. Payments for Property & equipment - $13.51B (page 22, 2012 AR)	• Whole section (page 12) in annual report dedicated to Global eCommerce initiatives. • Discusses Social Media along with Mobile and Online strategies.
2011	**$418.9**	**3.4%**	**$16.39**	**$800**	• Capital Allocation for IS, Distribution & other – 19%. Payments for Property & equipment - $12.70B (page 22, 2012 AR)	• Consolidated global eCommerce in 2010 and announced Global eCommerce strategy. • No mention of Social Media or Big Data. Some discussion around Online activities.
2010	**$405.0**	**1.0%**	**$14.37**	**$930**	• General discussion on investing in technology to drive efficiencies and be more innovative. • Capital Allocation - IS, Distribution & other – 23%. Property & equipment - $12.18B (pg 23, 2010 AR)	• No discussion in the annual report around eCommerce, Social Media or Big Data.
2009	**$401.2**	**7.2%**	**$13.38**	**$770**	• General discussion on technology investments with a focus on ROI to increase efficiencies and better use of capital. • Capital Allocation - IS, Distribution & other – 20%. Property & equipment - $11.5B (pg 23, 2010 AR)	• No discussion in the annual report around eCommerce, Social Media or Big Data.

Table 1 – Analysis of Walmart Financial Reports 2009 to 2014

Notes:

1. Annual report includes information systems and e-commerce capital expenditures along with distribution and other. We've assumed IS & e-commerce investments are 33% of total capital expenditure in this category.
2. Actual figures were provided in the 2014 and 2013 annual reports. This wasn't the case in early annual reports as they stated capital payments for 'Property & Equipment' only and provided % expenditure for Allocation of Capital for IS, Distribution and other. Therefore, the capital expenditure figures for IS Investments was derived as follows:
   - Multiply the Payments for Property & Equipment by the % Allocation of Capital for IS, Distribution & other. For example, in 2012, Payments for Property & equipment = $13.51B. Allocation for IS, Distribution, other 21% = $13.51 x 21% = $2.84B.
   - Assume 33% for IS only (i.e. exclude Distribution & other) = $2.84 x 33% = $950 million.

Walmart didn't highlight social media strategies until the 2012 annual report. The first dedicated discussion around IS in the annual reports was around 2011 when they embarked on a Global e-Commerce strategy. However it is clear from research (Culnan et. al., 2010) that Walmart had already implemented Twitter, Facebook and Blogs before 2010 as they had well established social media strategies evidenced by their 1 million plus Facebook fans.

Walmart set out to centralise its Global e-Commerce in 2011 as stated in their annual reports. The 2010 annual report shows Walmart achieving growth ranging from 7.3% to 11.6% per year over 2005 to 2009, when social media was in its infancy. This was a period of strong economic growth in the USA and globally. However, growth slowed considerably over the 2010 to 2014 period and ranged from 1% to 5.9% per year.

While it's clear that Walmart's growth slowed since 2010 compared with earlier years, how did they perform against with their competitors? One study (Ravichandran, T. and Lertwongsatien, C. 2005) suggests that many of Walmart's competitors have tried to copy what they've done with information systems without much success. This is supported by Charette R. (2005, page 46) and the case of Kmart embarking a $1.4 billion IT modernisation program in the year 2000 to compete more strongly with Walmart. They failed after writing off $130 million 18 months after

starting the program and then the company filed for bankruptcy a few months later. Other research shows (Ross, et. al., 2006) that companies like Walmart are better at executing their strategies because they have better information systems foundations and have embedded technology into many of their core processes.

So it appears that Walmart is a mature organisation with a knack of extracting maximum value from IS investments and has been doing so over a long period of time to improve their supply chains, procurement and inventory (Ravichandran, T. and Lertwongsatien, C. 2005). Culnan et. al (2010) support this point of view and agree that Walmart has a strong reputation in their use of information systems. Ross, et. al (2006) goes further by suggesting that companies like Walmart are not only growing but are also more productive than their competitors, get a better return on their investments and have more success with their strategies. Perhaps there's no substitute for experience, know-how and endurance.

So while the Walmart case study doesn't necessarily show a clear ROI on social media initiatives, there are many examples where measuring the return of social media have been demonstrated.

Qualman (2013, Page 203-206) provides a number of excellent examples of businesses, both large and small, that have achieved enormous growth and success by focusing on social media as their prime marketing strategy – refer to Figure 7 for an example.

Gary Vaynerchuk's Wine TV Library
Marketing Effort Returns

Direct Mail: $15,000   200 new customers
Billboard: $7,500   300 new customers
Twitter: $0   1,800 new customers

Business grew from $4 million turnover to $50 million using Social Media (Qualman 2013 page 203).

Figure 7: Short Case Study: ROI on Social Media & Traditional Marketing Investments (Qualman, 2013)

Interestingly, Qualman (2013, 202-203) suggests that assessing social media investments simply through the lens of ROI is not appropriate for a number of reasons including the fact that it's not a traditional marketing media and that it touches all parts of a business. Alternatively, there is evidence that some organisations find it difficult to derive any business value from social media initiatives (Culnan, 2010)

Following the presentation of the case study and the earlier discussion on ROI, the next step for a business in undertaking a social media strategy and assessing its impact on Enterprise Architectures is to prepare a business case. While the details of preparing a business case are outside the scope of this paper, from experience we suggest that it contains the following elements:

- ▪ Purpose/Background
- ▪ Proposed Options & SWOT Analysis on each option
- ▪ Recommended option based on SWOT Analysis
- ▪ Risk Analysis on preferred option
- ▪ Cost-Benefit Analysis for preferred option
- ▪ Recommended action plan and next steps

In the next section, a discussion on the case study results and the literature review is conducted in attempt to answer the core research question – does having a mature EA help an organisation successfully implement social media strategies?

5 Discussion

So does having mature Enterprise Architectures help an organisation successfully implement social media strategies and is it easy to determine whether large companies can achieve a ROI from their social media initiatives?

Case Study Results and Analysis

From our analysis, there appears to be no direct link between Walmart's implementation of social media strategies and the financial performance of the company. However the 2014 annual report suggests that social media helped Walmart accelerate the growth of Sam's Clubs. Given that Walmart's Sam's Clubs generated around $57 billion in revenue in 2014, over 10% of the company's revenue, it's a significant part of Walmart's business. Other important points include:

- ▪ IS investment increased over 2009-2010 (around $160 million) yet sales growth fell 7.2% to 1.0%.
- ▪ IS investment fell over 2010-2011 (around $130 million) yet sales growth increased 1.0% to 3.4%.
- ▪ IS investment increased 2011-2012 (around $150 million) and sales growth increased 3.4% to 5.9%.

Based on the above information, which is summarised in Table 1, it is difficult to pin the financial performance or ROI of IS investments or social media initiatives in large companies. There are many events that have an impact on a business. In Walmart's case, they experienced growth organically and through acquisitions as highlighted in the annual reports. The recession that started in 2009 would have contributed to slowing growth and blunting the return on just about any investment made by the company.

Research Findings

Based on the evidence presented in literature a summary of our research is discussed.

1. Social media is a disruptive technology trend

Social media is a trend with disruptive impact on enterprise architecture. We consider social media as disruptive technology because it complies with Moore's (2002) definition of technologies that change workflows and practices. It also meets Bower & Christensen's (1995) definitions. As explained earlier, social media has a disruptive impact on enterprise architectures. Disruptive technologies open the threat of new market entrants

because of the ability of new and small firms to easily leverage social media's capabilities (Walsh, Kirchhoff & Newbert, 2002).

2. *Social media applications are becoming systems of differentiation*

The literature and case study emphasize that social media applications are moving quickly towards the bottom of the pace-layer model. Because of the relatively slower frequency of change, systems of differentiation tend be more stable and mature. The same applies to social media applications as they mature to systems of differentiation.

3. *Enterprise architecture maturity is essential for successful social media adoptions*

As discussed earlier, social media should be considered strategically and should be aligned with business strategies and goals. Walmart's case study further empirically proves that organisations with mature enterprise architectures and with sound IS investments are likely to achieve their business goals using social media strategies. On the other hand, haphazard implementation of social media application and services can result in serious risks to the business and potential failures.

6 Conclusion

Our research set out to determine if there is a link between enterprise architecture maturity and success in implementing social media strategies. Although social media can provide cost effective marketing, some organisations find it difficult to quantify the business benefits of social media investments while others manage to derive great benefits and outstanding growth. There was a common theme in how leading companies manage to get the best out of their information systems mainly by having a long history of strategic investments and digitising their core processes. It is highly likely that these organisations have evolved to mature enterprise architectures even though our research didn't necessarily find evidence that they used any of the well-established frameworks such as Zachman or TOGAF.

In addition, our research determined that it isn't easy to quantify ROI on either social media or IS investments in large companies. However leading companies have a proven track record of sustained high levels of technology investment and automated/digitised core processes which allows them great flexibility to execute new technological initiatives like social media much better and faster than their competitors. This allows them to not only stay well ahead of their competitors but also continue to grow their businesses more profitably.

In terms of future research, we suggest a focus on the importance of developing robust business models when organisations look to implementing mature enterprise architectures and more in depth studies around social media business intelligence and analytics.

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