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Abstract

Through an in-depth survey of scholarly research studies and practitioner reports this study examines the extent to which current scholarly research addresses the challenges and impacts of Enterprise 2.0 (E2.0) being faced by organisations. Our findings reveal that whilst there is a growing body of work about E2.0, the first stream of research has focused primarily on providing an overview of E2.0 and its adoption and use. Our analysis of the practitioner literature reveals a different set of imperatives clustered around information management and compliance issues, the identification and measurement of benefits and the integration of social software into organisational business processes and business software. To address this misalignment of research imperatives we propose a second stream of research that moves attention from the initiation and exploration of E2.0 to its institutionalisation and integration.

Keywords: Enterprise 2.0, Social Business, Web 2.0, adoption, integration, research agenda

1 Introduction

It is now almost ten years since the term Web 2.0 entered into common usage following the Web 2.0 Conference of 2004 (O'Reilly 2005). O'Reilly and Batelle (2009) used the term Web 2.0 to describe emerging capabilities of the web as a platform, support for rich content development and increased participation between individuals. Web 2.0 applications were already available more than ten years ago, for example, content syndication through RSS feeds, blogs for sharing user-generated content and Wikipedia for both information sharing

and collective intelligence. These were followed soon after by the emergence of large-scale subscriber social media platforms (such as Facebook, flickr, Twitter). From the very beginning there was considerable interest in using Web 2.0 applications and social software in organisations and in their potential contribution to business activities and business value (Bughin et al 2009). This led to the emergence of terms such as: Enterprise 2.0 (E2.0) and Social Business to describe the use of Web 2.0 in business (McAfee 2006, Cortada et al 2012) and Enterprise Social Software (ESS) to describe behind-the-firewall applications of Web 2.0 technologies (e.g. IBM Connections, Atlassian Confluence, Liferay Portal). The potential significance of E2.0/Social Business over the next years is immense; the global market for ESS is forecast to grow from $US721.3 million in 2012 to $US6.18 billion in 2018 (MarketsandMarkets 2013).

However, despite significant interest in E2.0, the widespread adoption of ESS and clear expectations of continued growth in the ESS market, organisations remain uncertain about the business contribution and long-term management of E2.0. To address this uncertainty, and in line with the theme for this year's Bled conference, this paper *examines the challenges of E2.0 for organisations*. Our goal is to identify the research imperatives for the next stream of research into E2.0 in order to assist organisations to meet these challenges.

Our aims are as follows:

1. To conduct a review of the growing body of research in the area of Enterprise 2.0 and social business and to identify and chart the *key research themes* to date evident in the scholarly literature.

2. To examine the professional and practitioner literatures to identify and classify the *current issues and challenges* that organisations are experiencing relating to E2.0.

3. To compare and contrast the primary research themes from the scholarly literature with the issues and challenges organisations are facing with regard to E2.0 in order to *establish future directions for E2.0 research*.

Our findings provide an outlook on the next stream of E2.0 scholarly research and the imperatives for future research relevant for the purpose of assisting organisations to address their current E2.0 challenges.

The paper is organised as follows. First we present an overview of our research design. We use an iterative literature survey and thematic coding approach comprising two streams of analysis: i) to identify themes in the research literature and ii) to identify issues and challenges in practice. This is followed by a presentation of findings from the two streams of research and synthesis and evaluation of these findings. The findings are used to design an agenda and outlook for future research.

2 Research design and approach

In our research study we adopt an exploratory and interpretive approach. We address the following research questions:

RQ1a: What are the key research themes evident in the body of E2.0 research to date?

RQ1b: What challenges are organisations currently facing with respect to Enterprise 2.0?

RQ2: To what extent are the challenges of practice being addressed by existing E2.0 research?

RQ3: How can future research be formulated and shaped to better address the challenges of practice?

These research questions are addressed through the research steps shown below in Figure 1. In Phase 1 we address RQ1 by conducting an analysis of the research literature and practitioner reports/surveys to i) identify the key themes that have shaped research into E2.0 to date and ii) to identify the issues that are challenging practitioners engaging in E2.0 related activities.
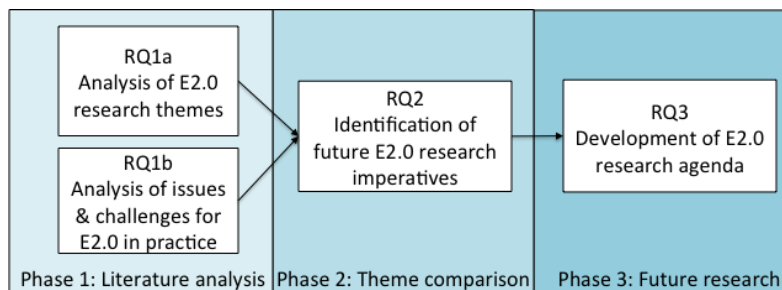

Figure 1: Research steps

In Phase 2 a comparison and evaluation of the key research themes/practice issues is undertaken to assess the extent to which the issues of practice are being addressed by current research and to identify areas that require further research attention. Finally in Phase 3 we present an outlook for future E2.0 research

2.1 Data Collection and Data Analysis

Our source of data is the body of research and practitioner literature on E2.0. The process for the collection and analysis of this data is shown in Figure 2 below.
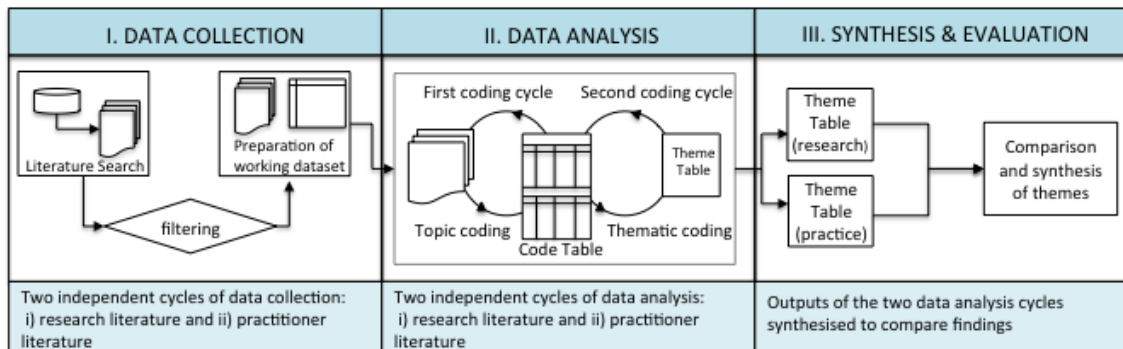
Figure 2: Data collection and data analysis process

Our literature survey strategy follows an iterative process of search, review, selection and analysis (cf. Webster and Watson, (2002) Huff (2009)).

With the *research literature* we limited our search results to include only scholarly, peer-reviewed articles (journal and conference papers) and books. As Enterprise 2.0 is an interdisciplinary topic area we searched widely in both the business and technology literatures using the keywords: *"enterprise 2.0"; "social business"; "enterprise social software"* and the compound query (*"web 2.0" AND (business OR organi*ation))*.

We identified relevant research literature as follows.

- keyword search of the EBSCOHost, ProQuestCentral, IEEE Xplore, ACM Digital Library,, Springerlink databases and Google Scholar.

- forward citation analysis (using Web of Science) of key articles. It should be noted that in this case only the McAfee (2006) article yielded any usable results. This may be due to the fact that the field is relatively young and there has been little forward citation to date.

After filtering the results to remove non-research papers (e.g. book reviews) and removing duplicates the resulting dataset comprises 112 articles.

With the *practitioner literature* we searched industry and government reports, white papers and surveys. We included only reports available in full text in our dataset.

We identified relevant articles through a keyword search of the:

- research databases of business research advisory companies (OVUM, Gartner and Forrester)

- research databases of government and international non-profit organisations that report on industry trends (OECD, EU)

- research databases of relevant professional associations (AIIM, ISACA)

- websites of professional services companies (PWC, Deloitte, IBM)

The resulting dataset comprises 23 reports, white papers and surveys.

2.1.1 Data analysis

Each of the selected research papers and practitioner reports was analysed and encoded using an interpretive coding approach. The encoding process was organised into two coding cycles; the first cycle is concerned with identifying the basic codes and the creation of a list of identified codes (the code table).

For the research literature basic codes are the aspects of E2.0 under investigation. For example, aspects such as: adoption, knowledge sharing, security, collaboration were identified. For the practitioner literature the basic codes are issues and challenges organisations are experiencing in practice. For example, aspects such as archiving content, information compliance, and governance were identified.

In the second coding cycle a process of thematic coding (Miles and Huberman 1994, Saldanã, 2009) was used to organise the initial codes into meaningful groupings or themes. The coding process was again iterative. The study's researchers worked independently to sort the codes into groupings. The emergent groupings were then reviewed and discussed in order to arrive at a final agreement about the key themes and their labelling.

2.2 Synthesis and evaluation

The final step involved the comparison of the research themes arising from the research literature with the issues/challenges themes arising from the practitioner literature. The aim is to identify areas where current research is addressing the concerns of industry/practice and areas where future research is required.

3 Key Themes in the E2.0 research literature

The analysis of the research literature provides a reflection on the research that has been conducted around the topic of E2.0 to date and, through the thematic analysis classifies the research into key topic groupings. After several coding iterations of the 112 items the following five themes were identified: *overview, adoption, use, impact,* and *other*. Table 1 provides a summary of the themes.

Overview	Adoption	Use	Impact	Others	N = 112
26	26	46	18	19	

Table 1: Results of coding analysis

The reason the sum of the values in the five columns in Table 1 is greater than 112 (the number of items) is that some papers cover more than one theme. Therefore, some items were

assigned to two or more categories. For example, the book "Enterprise 2.0" by Eberspächer and Holtel (2011), provides a broad overview of the field and therefore falls into the category *overview*, but also addresses aspects of the *adoption* process and *usage* scenarios.

3.1 Detailed analysis and discussion about key research themes

We now present a more detailed discussion of the five broad themes/research groupings.

Our analysis revealed a significant number of papers that discussed the field of E2.0 in general terms. We have classified these papers as *overviews*. For example papers that discuss the field of E2.0, debate definitions and terminology and provide general introductions. This group of papers, whilst not presenting empirical research serve to illustrate the newness of the field. In general these papers are think pieces rather than reports of empirical studies. The remaining four themes, *adoption, use, impact* and *other* comprise multiple dimensions and subcategories and it is to these that we now turn our attention.

Adoption. The adoption of E2.0 emerged as a key research theme. Around one quarter of the articles analysed addressed aspects of the adoption of E2.0. The theme includes all aspects of the introduction of E2.0, including for example cultural aspects including the need for cultural changes within an organisation when introducing E2.0, the adoption process itself, possible barriers to adoption and adoption success factors. Papers in this category are largely based on case study research (often single cases), surveys and interviews. They examine and describe aspects of the adoption process or seek to establish models that characterise aspects of the adoption process (cf Raeth et al 2010, Saldana and Krishnan 2010).

THEME: ADOPTION	Sub-categories: ADOPTION
	Cultural aspects
	Business readiness
	Adoption process and frameworks to guide the adoption process
	Barriers to adoption
	Success factors
	Acceptance
THEME: USE	Sub-categories: USE
	Usage models
	Activities (use-for) e.g.: Knowledge management & knowledge sharing, Communication, Collaboration, Content creation/user-generated content, Innovation
	Functional areas (use-in) e.g.: marketing, OD, HR etc.
	Company characteristics (use-in) e.g. Company size eg microbusinesses; Industry e.g health, government
	Tools: studies of the use of a specific tool e.g. microblogging, wikis, mashups, etc.
THEME: IMPACT	Benefits arising from E2.0
	Risks arising from E2.0
THEME: OTHER	These topic areas were identified but not yet sufficiently developed as themes in themselves
	E2.0 Business models
	Strategic management
	Business implementation/integration
	Change
	Business process management

	Information management issues and challenges
	E2.0 Governance, Risks and Compliance
	Security issues
	Technology implementation
	Technology integration
	Functional analysis and comparison of tools

Table 2: Key themes in E2.0 to date in the E2.0 research literature

Use. The largest category of research to date is clustered around the theme of E2.0 *use.* Aspects of use include studies of usage models, where the research aims to understand different types of use scenarios and strategies for usage as well as developing usage models for E2.0 (cf. Corso 2008). The majority of *use* papers focus on studying the use of E2.0 for specific activities, for example: for knowledge management and knowledge sharing (cf. Jackson 2010; Schneckenberg 2009) for communication (cf. MacNamara and Zerfass 2012). We classify this type of research study as *use-for*. A number of papers also examine use in a particular industry functional area, for example marketing, HR etc (cf Constanidis and Fountain 2008) or company/industry type (Barnes et al 2012), which we classify as *use-in*.

It is not surprising that to date the majority of research has investigated the themes of adoption and use. E2.0 is in its early stages and organisations have been going through the process of making the decision to adopt it and to introduce it in to the organisation. Further, the emergence of new applications and tools requires organisations to examine and understand how these tools can be used, and for what purposes. Hence the research focuses on use-for and making sense of E2.0 in use.

Impact. There is a small cluster of papers that examine the impact of E2.0. The cluster of papers on impact examines the benefits that E2.0 bring to an organisation or to individual workgroups (cf. Huy and Shipilov 2012). Impact also includes research that reveals risks that arise from engaging in E2.0 (cf. Rudman 2010). This is an area of research that is likely to grow as the adoption process ends and organisations are able to gather data that measures the impact of E2.0. To date most of the studies on impact are on expected impact and descriptive accounts of realised benefits, few studies have addressed the measurement and management of benefits.

Other. In addition to the clearly observable categories of adoption, use and impact we identified a number of papers that did not fit into the existing clusters and were not sufficiently developed as themes in themselves. These include research topics such as business models and strategic management, business integration and change, information management, risk and security and technology implementation and integration.

In summary, of the 112 papers the two major themes in research to date are focused around the adoption and use of E2.0 within organisations. A third theme, Impact was sufficiently notable to be classified as a theme in itself. The remaining theme, *Other* captures a range of lesser studied topics that largely relate to the longer term business and technology issues. Currently there are too few studies in each of these areas to form separate themes.

4 E2.0 issues and challenges for organisations

In this section we present our analysis and findings about E2.0 issues and challenges for organisations as evidenced in the practitioner literature. Naturally, there may be issues and challenges that are not yet captured in the practitioner literature. To address this potential limitation we are also conducting in-depth case studies of E2.0 in organisations. However, for the purposes of this paper we begin with a focus on the latest practitioner literature, to provide a preliminary understanding of the issues organisations are experiencing. Our analysis of the practitioner literature followed a similar method to that used for analysing the research literature. However, whereas with the research literature our concern was identifying key research themes, with the practitioner literature our aim here is to identify and thematically classify the issues on which industry is currently focusing attention. To do this we examined practitioner reports to identify themes and concerns within the practitioner discourse. The outcome of the coding and clustering activity revealed seven thematic groupings as presented in Table 3. Practitioners have also engaged in extensive discussion about the nature and definition of E2.0 similar to the *Overview* category of the research literature (cf. Frappaolo and Keldsen 2008; Matuszak 2007).

THEME: ADOPTION	Sub-categories: ADOPTION
	Cultural aspects
	Business readiness
	Adoption process and Frameworks to guide the adoption process
	Barriers to adoption
	Success factors
THEME: USE	Sub-categories: USE
	Internal v external use
	Activities (use-for) For example: knowledge sharing, Communication, Collaboration, etc.
	Functional areas (use-in) For example: marketing, OD, HR etc.
	Strategies for E2.0 use
	Monitoring of usage and development of usage policies
THEME: IMPACT	Sub-categories: IMPACT
	Identifying benefits
	Measuring/quantifying benefits
	Deriving long term value
THEME: TECHNOLOGY	Subcategories: TECHNOLOGY
	Technology implementation
	Technology integration esp. w. other systems (e.g. ERP, CRM, ECM)
	Security issues
	Functional analysis and comparison of tools
	Market analysis of enterprise social software and software delivery models
THEME: INFORMATION/CONTENT	Subcategories: INFORMATION/CONTENT
	Search, findability and retrieval
	Management of social content
	Managing large volumes of new content
	Archiving practices
	Retention and records requirements
THEME: INTEGRATION	Subcategories: INTEGRATION
	Integration with existing business processes
	Optimising social business processes

	Integration with other business software
THEME: GOVERNANCE, RISK AND COMPLIANCE	**Subcategories: GOVERNANCE, RISK AND COMPLIANCE**
	Governance of E2.0 systems
	Governance of E2.0 content
	Relevant standards/laws e.g. privacy, freedom of expression, records management
	Risk assessment and risk management
	eDiscovery – discoverability of E2.0 content (esp. social content), legal hold reqs.
	Records Management issues: recordness, retention requirements.

Table 3: Current E2.0 issues and challenges for practice

Adoption and Use. As can be seen in Table 3 there is significant interest in the *Adoption* and *Use* of E2.0 with a similar range of subcategories to those identified in the research literature. In the theme *Use,* there is a more detailed focus on understanding the differences between the internal and external use of E2.0 and on developing strategies and policies for use. Likewise, practitioners are interested in the *Impact* of E2.0, however their attention has moved from identifying benefits to finding ways of measuring/quantifying benefits and deriving long-term value (cf. Wilkins and Baker 2011). They are seeking practical guidance in measuring and monitoring use.

Several further themes are clearly identifiable as concerns for practitioners, these are: *Technology, Information/content, Integration* and *Governance, risk and compliance*. Aspects of some parts of these categories are beginning to appear in the research literature in the grouping *Other*. However they are not yet major themes in academic studies.

Technology. Organisations are also concerned with understanding the functionality of different forms of enterprise social software (ESS), in order to select the most appropriate tools and applications (cf. Frappaolo and Keldsen 2008). In addition there is a strong interest in understanding the ESS market and the benefits of different software delivery models. Security is a major concern of organisations, in relation to securing the technology (e.g. access rights and user roles) and protecting of information within the system (i.e. preventing loss of knowledge/intellectual property)(Ernst & Young 2012, KPMG 2012, Protiviti 2013).

Information/content. Aspects relating to the management of the information arising from E2.0 formed the major theme in the practitioner literature. Concerns exist regarding management of the large volumes of content arising from ESS. Significant issues were identified with regard to bringing social content into the organisations existing enterprise information management practices. "Like any other content, therefore, social content needs to be managed, from creation, through communication, and over its useful lifetime, to disposition." (cf. Miles, 2011b)

Issues such as: search and retrieval and how to include social content within existing enterprise search; archiving and retention requirements and questions regarding the status of social content as a business record. Miles (2011a) posits that "content creation outside the ECM/RM process" is one of the biggest issues with E2.0.

Governance, risk and compliance (GRC). Significant attention in the practitioner literature is given to aspects of GRC. Issues include: governing E2.0 systems and content and the assessment and management of risks relating to E2.0 activities, systems and content. Miles (2011a) points out that "governance is still sadly lacking in most organizations, with less than

half keeping their own history record or searchable archive of content that has appeared both on internal social sites and, more worryingly, public sites such as Facebook, LinkedIn and Twitter". There is also considerable uncertainty for organisations regarding relevant laws and standards and, for example, the legal discoverability of social content (e.g. posts in corporate blogs). Tziahanas and Crespolini (2011) draw attention to the risks that ESS brings with regard to "memorializing interactions"; fleeting business conversations become persistent, stored in digital messages and available for legal discovery. As identified also in the Information/Content theme, there are issues regarding the status of E2.0 content as a business record and compliance with records and retention requirements. Clarke (2012) argues, "even if there are not any specific compliance requirements, social content should still be included in corporate governance policies".

Integration. In addition to the themes described above, organisations are currently facing issues of integrating E2.0 into the wider organisational infrastructure, processes, practices and policies. For example, integrating ESS with existing enterprise systems such CRM and ERP systems (cf. Wilkins and Baker 2011). There are also issues of integrating E2.0 into existing business processes and workflows and managing this integration (cf. Wilkins and Baker 2011). These are issues that are arising as organisations move from introductory and pilot projects to embedding E2.0 into the business infrastructure.

5 Discussion of findings and conclusions

The aim of our research study is to examine the extent to which current scholarly research addresses the challenges and impacts of E2.0 being faced by organisations. In the previous two sections we analysed the research and practitioner literatures to identify key research themes and issues/challenges of E2.0 in practice. In comparing the two groups of themes (Tables 2 and 3) it is noticeable that the scholarly research has focused primarily in the areas of adoption and use of E2.0 This is not unexpected as
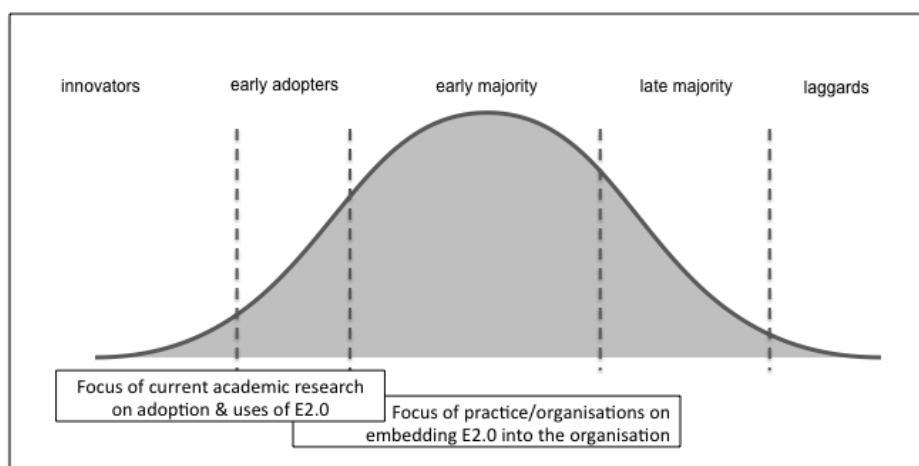

Figure 3: mapping the focus of the research and practitioner literatures

E2.0 is a new innovation in a relatively early stage. If we view this in terms of Rogers' adoption curve (Rogers 1995), we can see two distinct, but overlapping sets of imperatives (Figure 3). The research literature is largely looking back at early implementations of E2.0, to understand its nature (Overview), the ways it is being adopted and *what* it is being used for, and *why.* Whereas organisations are currently and primarily interested in addressing issues of *how* E2.0 can be embedded and integrated into their existing infrastructures; making it sustainable, supportable and compliant.

Moore (1991) argued that there are differences between innovators/early adopters and the majority, creating a chasm in the adoption curve. This metaphor would seem apposite for describing our findings about E2.0 research. The point of inflection on the adoption of innovations curve between early adopters and the early majority can also be seen as the border between the research and practitioner literatures. To successfully cross Moore's 'chasm' requires a change in focus of E2.0 research from the first stream of studies focusing primarily on initiation and adoption to a second stream of studies that provide an in-depth examination of the institutionalisation and integration of E2.0 in organisations (Figure 4). Thus, addressing the issues practitioners are currently facing in dealing with embedding E2.0 into mainstream business activities.
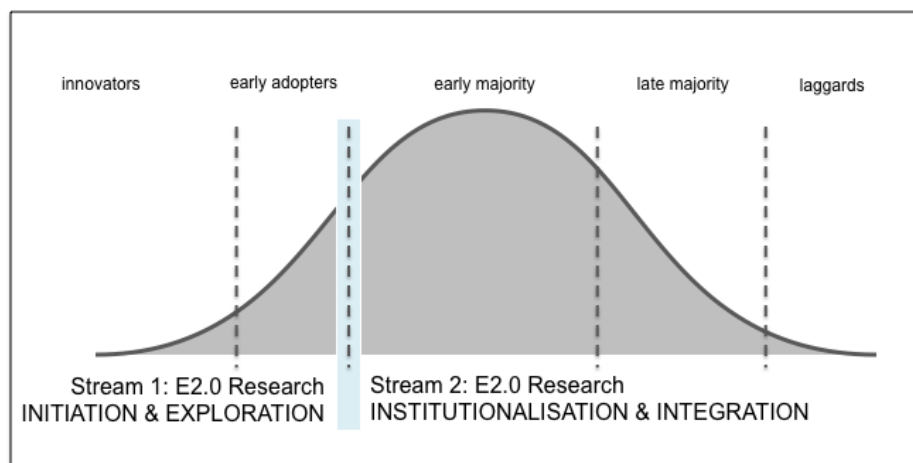

Figure 4: Streams of E2.0 research

In conclusion, as we have seen previously with other streams of innovation, there is a point where understanding the new phenomenon and exploring and describing its possibilities must turn to a more focused examination of its use on a large scale and its sustainability over time. We argue that we have reached this point with E2.0 research. To date research has been largely descriptive and exploratory, seeking to understand the emerging phenomenon of E2.0 and its adoption. Our analysis of the E2.0 issues reveals a number of areas that are challenging organisations and are not currently being addressed in any significant depth by academic researchers, for example in the areas of GRC, integration and information/content management. It is now time to embark on a second wave of research that provides a more nuanced scrutiny of organisations' experiences with E2.0. To provide both a theorisation of E2.0 as a disruptive technology (or not) and to provide practical guidance to assist organisations to meet the challenges of E2.0 integration and change and addressing the grey areas of legal and compliance issues.

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