

Spring 4-9-2014

# Use Of ICT For Research Dissemination And Stakeholder Engagement

Eleni Dermentzi

*Newcastle University Business School, Newcastle University, Newcastle upon Tyne UK., e.dermentzi@newcastle.ac.uk*

Savvas Papagiannidis

*Newcastle University Business School, Newcastle University, Newcastle upon Tyne UK., savvas.papagiannidis@newcastle.ac.uk*

Follow this and additional works at: <http://aisel.aisnet.org/ukais2014>

---

## Recommended Citation

Dermentzi, Eleni and Papagiannidis, Savvas, "Use Of ICT For Research Dissemination And Stakeholder Engagement" (2014). *UK Academy for Information Systems Conference Proceedings 2014*. 52.  
<http://aisel.aisnet.org/ukais2014/52>

This material is brought to you by the UK Academy for Information Systems at AIS Electronic Library (AISeL). It has been accepted for inclusion in UK Academy for Information Systems Conference Proceedings 2014 by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# USE OF ICT FOR RESEARCH DISSEMINATION AND STAKEHOLDER ENGAGEMENT

**Eleni Dermentzi**

*Newcastle University Business School, Newcastle University, Newcastle upon Tyne UK.*

Email: e.dermentzi@newcastle.ac.uk

**Savvas Papagiannidis**

*Newcastle University Business School, Newcastle University, Newcastle upon Tyne UK.*

Email: savvas.papagiannidis@newcastle.ac.uk

## **Abstract**

*Information and Communication Technologies (ICTs) have the potential to act as research dissemination channel that facilitates sustainable relationships with stakeholders beyond academia. The current research uses the Technology-Organisation-Environment (TOE) Framework to examine factors that potentially affect universities' decision to adopt ICTs for research dissemination and community outreach. In order to evaluate the framework we propose following a case study approach by employing a triangulation of methods that will include interviews, document analysis and digital artefacts related to the selected Institutions' outreach and engagement activities.*

**Keywords:** research dissemination, academic engagement, ICT adoption

## **1.0 Introduction**

Research dissemination and knowledge exchange are long-established goals for universities, as they help them to engage with their communities (Bicknell et al. 2010). Dissemination entails an “aggressive” flow of information from the source that is targeted and tailored to the needs of the intended audience (Lomas 1993), while knowledge exchange has been described by the Economic and Social Research Council (ESRC) (2014) as a process of:

*[...]opening a dialogue between researchers and research users so that they can share ideas, research evidence, experiences and skills. This can involve a range of activities; from seminars and workshops to placements and collaborative research. By creating this dialogue, research can more effectively influence policy and practice, thereby maximising its potential impact on the economy and wider society.*

Conference presentations and peer-review articles have been traditionally the main methods for research dissemination within academia. However, the need for academia to engage with stakeholders beyond its boundaries and deliver economic and social impact has been lately intensified (James 2013; Reichenfeld 2011; Sharifi et al. 2013), with the 2014 Research Excellence Framework emphasising the importance of impact academic research can have on external audiences (REF2014, 2012). According to the REF, impact is defined as “*any effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia*” (REF2014, 2012). Impact can be seen as the end result of a public engagement process, during which the activity and benefits of higher education (HE) and research can be shared with the public. Engagement is a two-way communication process, involving public interactions and listening, with the goal of generating mutual benefits for all parties involved. As conference proceedings and scientific journals are not usually accessible by practitioners and the general public, new methods that make dissemination of research possible in a bigger scale and to wider audiences have to be adopted and their effectiveness examined.

Information and Communication Technologies (ICTs) are considered as strategic tools by contemporary organisations, creating new opportunities and challenges by changing the connectivity among people and devices, the capacity for distributed storage and processing of data, and the reach, range and rate of information transmission (Merali et al. 2012). In addition, they support transparency and democracy by creating a space for dialogue and participation in civil society (Lor and Britz 2007). Not surprisingly, higher education institutions have for many years used ICTs, such as electronic databases, email networks and dynamic web sites, for disseminating research findings in a more interactive and flexible way (Duffy 2000). ICTs can facilitate collaboration, informal scholarly communication and creative relationships among universities and their stakeholders (Duffy 2000; James 2013; Thelwall and Harries 2004). More recently, web 2.0, and especially social media, have enabled individual scholars to share, critique, improve and develop their research work by serving as participatory platforms (Veletsianos and Kimmons 2012).

The research objective of this paper is to examine the adoption of ICTs for engagement purposes, leading eventually to greater outcomes in terms of research dissemination and impact. The paper has two main research questions. Firstly, what are the motivating and inhibiting factors affecting the adoption of ICTs by universities and secondly, how can ICTs be used as a part of the research dissemination and stakeholder engagement strategy of universities?

## **2.0 Theoretical Framing**

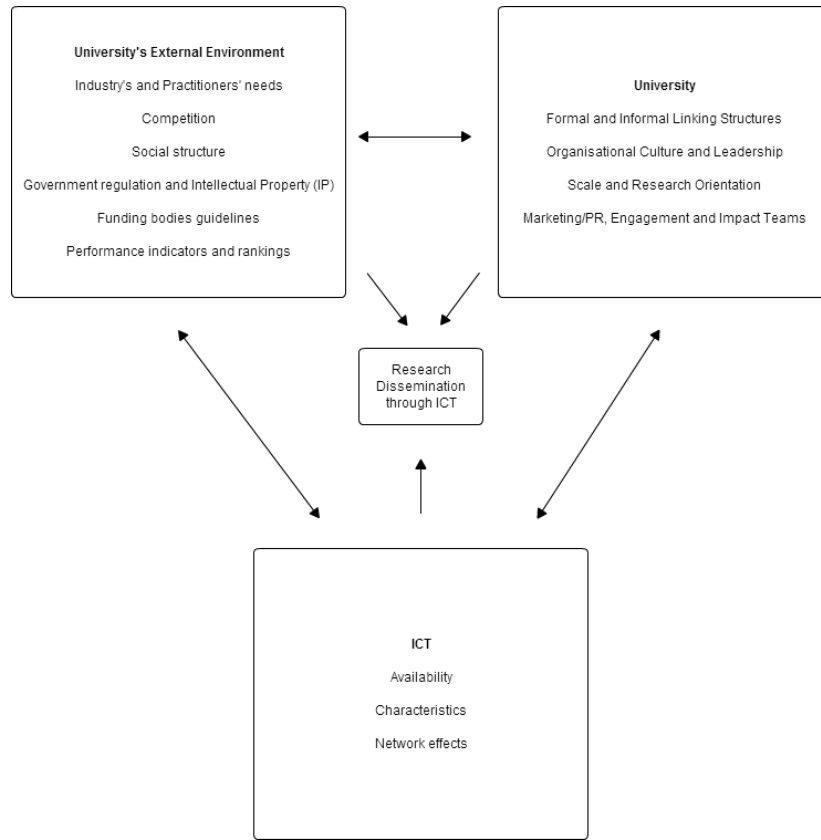
### **2.1 TOE Framework**

The TOE Framework is an organisation level theory proposed by Depietro et al. (1990) that focuses on the three contexts that affect a firm's decision to adopt an innovation, namely:

- Technology, which refers to both internal and external technologies relevant to the firm, including current practices, firm's equipment and available technologies.
- Organisational, which includes characteristics descriptive measures of the firm, such as size, managerial structure, quality of human resources, informal linkages and transactions among employees, decision making and internal communication.
- Environment, which is the ecosystem in which the firm operates and consists of the industry, competitors, suppliers and the government.

TOE has already been applied and successfully described the adoption decision in various contexts (e.g. the adoption of inter-organisational systems, e-business, electronic data interchange, open systems, general IS applications) and different industries (e.g. manufacturing, retail, financial services) (Baker 2012). In order to examine the research dissemination by universities, TOE has been adapted by reviewing the literature, taking into consideration the unique characteristics of higher education institutions. To this end, stakeholders that interact with a university in the process of research engagement and impact have been added (such as industry and society), along with factors that affect decision making in universities (e.g. funding bodies' guidelines and Performance Indicators and rankings). Similarly, in the organisational context we have added factors that reflect the notion that the use of ICT for research dissemination is a strategic change rather than an operational one (e.g. culture and leadership, research orientation). Finally,

as ICTs, which are the specific technologies used in our case, are tightly connected with network effects, we have added them in the technological context (Figure 1).



**Figure 1. Conceptual framework for university's research dissemination through ICTs**

## 2.2 Technology - ICT

According to TOE, the decision making regarding technology adoption is affected by the technologies that are available and their characteristics (Depietro et al. 1990). With regards to innovation characteristics, Diffusion of Innovation (DOI) theory suggests that there are five main attributes that can affect the diffusion process, namely relative advantage, compatibility, complexity, trialability, and observability (Rogers 1983, p. 211). These need to be considered carefully from both a user and a technological perspective, if the ICTs are to be adopted and implemented in the institution's operations and if the users are to accept them.

Externally, network effects have also been positively associated with ICT adoption (Zhu et al. 2006). According to Katz and Shapiro (1985) the term refers to the increased utility that a user derives from the consumption of a good when the number of users consuming the good is also increasing. Since the dissemination process aims at reaching as many practitioners and members of the public as possible, ICT tools with a large pool of users should be seen as more attractive by universities.

### **2.3 Organisation – University**

One of the main factors in the organisational context that affects adoption decisions is the institution's internal structure that consists of formal and informal linkage and communication (Depietro et al. 1990). Organisational linking structure, which includes informal internal linking agents like academics, plays an important role in university's engagement attempts as it can aid communication, information processing, coordination and alignment among university's members and stakeholders (Sharifi et al. 2013). Similarly, organisational culture and the positive or negative stance that top managers may hold regarding research dissemination and external communications can influence university's commitment towards exploring new and more effective ways of engagement (Depietro et al. 1990; Dopson and McNay 1996; Sharifi et al. 2013). Indeed, barriers may arise in institutions where managers are sceptical about Internet usage that goes beyond the strict limits of work-related usage (e.g. visiting Social Networking Sites), or engagement and knowledge transfer activities are seen as "Third mission" and therefore not important or even separated to the academic identity (Duffy 2000; Lockett et al. 2008; Reichenfeld 2011).

Scale, which is "*an indicator of the amount of work done in an organisation*", is also associated with the likelihood of adopting innovations (Depietro et al. 1990, p.162). Universities with strong research orientation may be more motivated to adopt new dissemination methods rather than teaching-oriented universities.

Finally, the existence of communication teams or academic engagement agents (such as Marketing/PR or engagement teams) inside the organisation helps towards the establishment of collaborative relationships between university and industry and the promotion of other third stream activities (Johnston et al. 2010; Reichenfeld 2011).

Communication practitioners in universities have already started to use social media as part of their communication programmes (Kelleher and Sweetser 2012).

## **2.4 Environment**

The Higher Education environment can be conceptualised using the Triple Helix model (Etzkowitz and Leydesdorff 1995) which examines the relations among university, industry and government in the context of the Knowledge Society. The model conceptualises industry as the location for production, government as the regulator of interactions and exchange, and the university as the creator of new knowledge and technology (Etzkowitz, 2003). The “Quadruple Helix” extended the original model, adding the dimension of the media-based and culture-based public (Afonso et al. 2012; Carayannis and Campbell 2009). The Quadruple Helix emphasises the need to exploit new media as an engagement and connecting tool to spread innovation culture and knowledge (Colapinto and Porlezza 2012). Industry, government and society are not perceived just as university’s stakeholders, but rather as equal players in the innovation ecosystem that can affect each other. ICT can support active, two-way engagement among the different actors, leading to the realisation of the Quadruple Helix notion.

In the context of ICT adoption for research dissemination and engagement, government, industry and practitioners, and the society can influence university in different ways. Apart from being the regulator of university - industry interactions, government can play the role of the facilitator through relative policies that would incentivise and make it easier for companies to collaborate with higher education (Lock 2010; Sharifi et al. 2013). Innovative partnerships among practitioners and universities have utilised ICTs in the past and in some cases, like the one of Cancer Control PLANET web-portal, the attempts have been sponsored by the side of the practitioners (Kerner et al. 2005; Kerner 2006). Besides, practitioners’ difficulty to get access to and understand scientific journals should motivate universities to use more easily accessed and popular media for research dissemination (Gera 2012; Mitton et al. 2007). The need to tailor the information disseminated to meet the needs of the targeted audience applies also in the case of society. For example, when the targeted audience consists of young people, popular

media, like social networking sites, are more appropriate for research dissemination instead of journals and newspapers (Vaughn et al. 2013).

Funding bodies are also among the stakeholders that are interested in universities' research activity as they expect outcomes in return of the funding they offer (Benneworth and Jongbloed 2010). Economic and Social Research Council (ESRC) in UK provides special guidance for academics regarding the use of digital communications (social media, blogs, podcasts etc.) for research dissemination (ESRC 2014). The type of funding that a university receives has also been associated with the stance towards research dissemination. Academics at private universities that are engaged in patenting and licensing are more often prompted by their institutions to disseminate their research than academics at public universities (Powers and Campbell 2011). However, Intellectual Property Rights (IPR) have also been reported as barriers to knowledge transfer and may restrain the open communication of research (Charles 2006; Lockett et al. 2008).

Finally, competition, Performance Indicators (PI) and rankings may also affect university's decision to use ICTs for research dissemination. This is especially true in the context of which this research takes place, as in the UK the REF 2014 exercise explicitly evaluates impact. Competition is considered to be one of the environmental determinants of innovation adoption in original TOE framework, although it is not clear whether its impact on innovation is positive or negative as the empirical results differ from industry to industry (Depietro et al. 1990). Competition between universities has highly increased as they have to compete for research funding from public and private sources (Matzler and Abfalter 2013). Performance Indicators and rankings intensify this competition since they are used as methods for assessing and evaluating higher education institutions (Matzler and Abfalter 2013). Pressure from competition may encourage universities to be more innovative in the ways they disseminate their research or follow the best practices of other universities in this area.

### **3.0 Methodology**

The study will follow a case study approach which allows "*the deep understanding of the actors, interactions, sentiments, and behaviours occurring for a specific process*" (Woodside 2010, p.6). We proposed undertaking this work within 5 Business Schools in



the North East of England. Business Schools have been selected as they are typically one among the biggest schools in British Universities. Selecting a specific region ensures consistency in the geographic context within which the 5 Universities are, although at the same time they are sufficiently varied in terms of research/teaching orientation and international/local focus. In order to research holistic and reliable conclusions, we will triangulate our methods, which is fitted for a case study research (Gillham 2000, p.21; Yin 2003, p.83). Our data collection will include interviews with key actors in the Schools (e.g. Directors of Impact, Directors of Research, Directors of Engagement, Marketing and Public Relations practitioners etc.), document analysis (policy statements, regulations and guidelines published by the Universities) and digital artefacts (e.g. university's webpages, official profiles in social media etc.).

The analysis of the qualitative data will be conducted by following the guidelines found in literature and will include techniques such as content analysis, pattern matching and explanation building (Gillham 2000, p.71; Miles and Huberman 1994; Yin 2003, p.120).

We expect that our research will have not only theoretical implications by contributing to a less explored topic in the literature, but also practical ones: the outcomes of such research can be utilised by universities for launching relative strategies that can address the stereotype of universities being a collection of academics in “ivory towers”.

## References

- Afonso, O., Monteiro, S. and Thompson, M. (2012) *A growth model for the quadruple helix*, *Journal of Business Economics and Management*, 13(5) 849-865.
- Baker, J. (2012) *The Technology–Organization–Environment Framework*, *Information Systems Theory: Explaining and Predicting Our Digital Society*, Vol. 1, 28(12) 231-245.
- Benneworth, P. and Jongbloed, B. (2010) *Who matters to universities? A stakeholder perspective on humanities, arts and social sciences valorisation*, *Higher Education*, 59(5) 567-588.
- Bicknell, A., Francis-Smythe, J. and Arthur, J. (2010) *Knowledge transfer: Deconstructing the entrepreneurial academic*, *International Journal of Entrepreneurial Behaviour and Research*, 16(6) 485-501.
- Carayannis, E. G. and Campbell, D. F. J. (2009) *'Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem*, *International Journal of Technology Management*, 46(3-4) 201-234.

- Charles, D. (2006) *Universities as key knowledge infrastructures in regional innovation systems*, *Innovation: The European Journal of Social Sciences*, 19(1) 117-130.
- Colapinto, C. and Porlezza, C. (2012) *Innovation in Creative Industries: from the Quadruple Helix Model to the Systems Theory*, *Journal of the Knowledge Economy*, 3(4) 343-353.
- Depietro, R., Wiarda, E. and Fleischer, M. (1990) *The context for change: Organization, technology and environment*, In Tornatzky, L. G. and Fleischer, M., eds., *The processes of technological innovation.*, Lexington, Mass.: Lexington Books, pp.151–175.
- Dopson, S. and McNay, I. (1996) *Organizational Culture*, In Warner, D. and Palfreyman, D., eds., *Higher Education Management: The Key Elements*, Bristol, PA: USA: The Society for Research into Higher Education & Open University Press, pp. 16-32.
- Duffy, M. (2000) *The Internet as a research and dissemination resource*, *Health Promotion International*, 15(4) 349-353.
- ESRC (2014) *Economic and Social Research Council*, available at: <http://www.esrc.ac.uk/funding-and-guidance/impact-toolkit/> (accessed 12 March 2014)
- Etzkowitz, H. & Leydesdorff, L. (1995) *The Triple Helix of university-industry-government relations: a laboratory for knowledge based economic development*, *EASST Review*, 14(1) 11-19.
- Etzkowitz, H. (2003) *Innovation in innovation: The Triple Helix of university-industry-government relations*. *Social Science Information*, 42(3) 293-337.
- Gera, R. (2012) *Bridging the gap in knowledge transfer between academia and practitioners*, *International Journal of Educational Management*, 26(3) 252-273.
- Gillham, B. (2000) *Case Study Research Methods*, London, UK: Continuum.
- James, R. (2013) *ICT's participatory potential in higher education collaborations: Reality or just talk*, *British Journal of Educational Technology*, 1-14.
- Johnston, L., Robinson, S. and Lockett, N. (2010) *Recognising "open innovation" in HEI-industry interaction for knowledge transfer and exchange*, *International Journal of Entrepreneurial Behaviour and Research*, 16(6) 540-560.
- Katz, M. L. and Shapiro, C. (1985) *Network Externalities, Competition, and Compatibility*, *The American Economic Review*, 75(3) 424-440.
- Kelleher, T. and Sweetser, K. (2012) *Social Media Adoption Among University Communicators*, *Journal of Public Relations Research*, 24(2) 105-122.
- Kerner, J., Rimer, B. and Emmons, K. (2005) *Introduction to the special section on dissemination - Dissemination research and research dissemination: How can we close the gap?*, *Health Psychology*, 24(5) 443-446.
- Kerner, J. F. (2006) *Knowledge translation versus knowledge integration: A "funder's" perspective*, *Journal of Continuing Education in the Health Professions*, 26(1) 72-80.
- Lock, D. (2010) *UK Higher Education Perspectives of Knowledge Transfer*, In Howlett, R., ed. *Innovation through Knowledge Transfer*, Springer Berlin Heidelberg, pp.27-38.

- Lockett, N., Kerr, R. and Robinson, S. (2008) *Multiple Perspectives on the Challenges for Knowledge Transfer between Higher Education Institutions and Industry*, International Small Business Journal, 26(6) 661-681.
- Lomas, J. (1993) *Diffusion, Dissemination, and Implementation: Who Should Do What?*, Annals of the New York Academy of Sciences, 703(1) 226-237.
- Lor, P. J. and Britz, J. J. (2007) *Is a knowledge society possible without freedom of access to information?*, Journal of Information Science, 33(4) 387-397.
- Matzler, K. and Abfalter, D. (2013) *Learning From the Best: Implications From Successful Companies for Higher Education Management*, In Altmann, A. and Ebersberger, B., eds., Universities in Change: Managing Higher Education Institutions in the Age of Globalization, New York: Springer, pp.137-154.
- Merali, Y., Papadopoulos, T. and Nadkarni, T. (2012) *Information systems strategy: Past, present, future?*, The Journal of Strategic Information Systems, 21(2) 125-153.
- Miles, M. B. and Huberman, A. M. (1994) *Qualitative Data Analysis: An Expanded Sourcebook, 2nd ed.*, California, USA: Sage Publications, Inc.
- Mitton, C., Adair, C. E., McKenzie, E., Patten, S. B. and Perry, B. W. (2007) *Knowledge Transfer and Exchange: Review and Synthesis of the Literature*, Milbank Quarterly, 85(4) 729-768.
- Powers, J. and Campbell, E. (2011) *Technology Commercialization Effects on the Conduct of Research in Higher Education*, Research in Higher Education, 52(3) 245-260.
- REF2014. (2012). *REF2014: A brief guide for research users*, available at: <http://www.ref.ac.uk/media/ref/content/researchusers/REF%20guide.pdf> (accessed 1 March 2014)
- Reichenfeld, L. (2011) *The Barriers to Academic Engagement with Enterprise: A Social Scientist's Perspective*, In Howlett, R., ed. Innovation through Knowledge Transfer 2010, Springer Berlin Heidelberg, pp.163-176.
- Rogers, E. M. (1983). *Diffusion of innovations*, Third Edition. New York, N. Y.: The Free Press.
- Sharifi, H., Liu, W. and S. Ismail, H. (2013) *Higher education system and the 'open' knowledge transfer: a view from perception of senior managers at university knowledge transfer offices*, Studies in Higher Education, 1-25.
- Thelwall, M. and Harries, G. (2004) *Do the Web sites of higher rated scholars have significantly more online impact?*, Journal of the American Society for Information Science and Technology, 55(2) 149-159.
- Vaughn, N., Jacoby, S., Williams, T., Guerra, T., Thomas, N. and Richmond, T. (2013) *Digital Animation as a Method to Disseminate Research Findings to the Community Using a Community-Based Participatory Approach*, American Journal of Community Psychology, 51(1-2) 30-42.
- Veletsianos, G. and Kimmons, R. (2012) *Networked Participatory Scholarship: Emergent techno-cultural pressures toward open and digital scholarship in online networks*, Computers & Education, 58(2) 766-774.
- Woodside, A. G. (2010) *Case Study Research: Theory - Methods - Practice*, Bingley, UK: Emerald Group Publishing Limited.
- Yin, R. K. (2003) *Case study research: design and methods, 3rd ed.*, California, USA: Sage Publications, Inc.

Zhu, K., Kraemer, K.L., Gurbaxani, V. and Xin Xu, S. (2006) *Migration to open-standard interorganizational systems: Network effects, switching costs, and path dependency*, MIS Quarterly, 30 515-539.