Innovation of eParticipation Strategies Using Living Labs as Intermediaries

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Abstract: The paper explores whether Living Labs, acting as open innovation intermediaries, can address some of the challenges surrounding the sustainable adoption of eParticipation tools and methods. We begin by analysing the existing literature on Living Labs and Open Innovation, and the extent to which Living Labs can act as innovation intermediaries as envisioned by Chesbrough (2006), Wolpert (2002) and others. We then consider the research on eParticipation, and in particular some of the risks and challenges surrounding the sustainability of innovation in this area. In the second part of the paper, focusing on the PARTERRE project, we present the methodology and key findings of six eParticipation pilots. Further comments and analysis based on these findings is provided, examining issues such as inter-cultural barriers, technological factors, organisational concerns and participant feedback. Finally, we present some conclusions in the light of the findings.

1. Introduction

The TRAIL Living Lab, based in the University of Ulster, is focused on the development of user-centred techniques to improve services and product development. As a partner of the PARTERRE project, TRAIL has been piloting new eParticipation technologies within Northern Ireland. The pilots, utilising the Electronic Town Meeting system, have been taking place in partnership with local stakeholders and have addressed a broad range of public policy issues.

In the following sections we consider the role of Living Labs as "innovation intermediaries" particularly in the context of open innovation as defined by Chesbrough (2003). We look at the challenges around sustainable eParticipation, including generic issues around embedding innovation within organisations, as well as the specific obstacles that are faced by eParticipation. Finally, we explore the role of Living Labs in supporting sustainable eParticipation in the light of findings from the PARTERRE project.

2. Literature review

2.1 Living labs

The concept of the Living Lab originated in MIT, where it was originally developed by William J. Mitchell to involve citizens in urban planning issues (Mitchell, 2003). Within Europe, the idea of involving citizens in innovation and design was subsequently adopted by a number of research groups. The European Network of Living Labs (ENOLL) was formed in 2006, and now includes over 250 Living Labs in its membership.

A survey was carried out by the authors on living labs in 2011(Mulvenna et al. 2011; Mulvenna and Martin, 2012). The findings of that survey are usefully illustrative in describing the characteristics of the phenomenon. Most living labs provide support for product and/or service development, primarily related to using new technologies. While they began as an urban phenomenon, almost two-thirds of living labs are now 'territorial', that is, they primarily operate at a regional level. Responses indicate that universities and private sector organisations are well embedded in the activities of living labs and it was interesting to note that a third of respondents reported universities being very committed to their living lab. It was also interesting, albeit perhaps not so unexpected, that a quarter of respondents answered that they had not tried to develop relationships with national government. This response supports the findings that living labs are a regional phenomenon and many national governments are quite disconnected from living labs and do not have well-developed policy frameworks relating to living labs. A majority of living labs said that the translation process from end users to products or

service change was difficult. It was interesting to note that some respondents found that the reason was a kind of 'lost in translation' effect, for example: "it can be hard to get constructive and instructive comments from users that are not used to giving feedback". Most living labs are inter-connected in some way with at least four other labs and communicated at least quarterly with the other labs with the main reason for this networking being to share experiences and knowledge.

The top challenges to living labs were given as funding; getting more partners and/or end users; and expanding activities and embedding user-centric activities in partners. The survey respondents indicated that funding their activities was a problem with most funding being project-based; sourced primarily from non-private sector sources including public and academia. Most living labs simply didn't know how sustainable their lab would be over long time periods. This may reflect the relatively precarious position of living labs, that while many benefit from the European Commission's support for organisations to form partnerships through research-funded activities, their position is not underpinned by national legislation, their governance is a partnership of differing and sometime competing interests and they are often regional actors with a regional remit and outlook with all that this entails.

Living Labs often utilise a wide range of innovative tools, techniques and methodologies to enable user engagement. Some examples include automatically collected behavioural data, focus groups, observation and ethnographic research (Gowans et al. 2009). While there is a great deal of variety in terms of the processes employed, it is useful to consider them as belonging to a development spectrum, moving from idea creation to stakeholder engagement, data collection and evaluation of results and methods. In other words: co-creation, exploration, experimentation and evaluation (Mulvenna et al. 2009). This spectrum can also be described as a form of "innovation value chain" (Følstad, 2008). The three main stages of the innovation value chain are idea generation, conversion and diffusion, where conversion includes ide selection and development. What is novel about the Living Lab approach is that it converts what is commonly thought of as a process that takes place within a single organisation into a process involving a variety of stakeholders with varying areas of expertise.

The distinguishing characteristics of Living Labs from traditional institutions have been described as Value, Sustainability, Influence, Realism and Openness (Bergvall-Kareborn et al., 2009). The open approach is therefore key, but it also represents special challenges in addressing issues such as intellectual property rights.

2.2 Open innovation

The Open Innovation model as developed by Chesbrough (2003) describes how organisations can manage strategic collaboration with external stakeholders. Suitable appropriation regimes can enable the firm to utilise innovation from external sources, while at the same time creating value by opening up the non-differential parts of its own intellectual property portfolio. This model has attracted increasing levels of attention from both academics and practitioners. Chesbrough's 2003 book gained more than 1,800 citations in just seven years and a wide range of disciplines, including economics; psychology, sociology, and even cultural anthropology have shown interest in it (Huizingh, 2010).

While open innovation can overcome barriers between stakeholders that often form an obstacle in traditional innovation strategies, openness in itself poses difficulties for commercialisation, particularly with regard to ownership and exploitation of intellectual property.

2.3 Living labs as innovation intermediaries

One solution proposed by Chesbrough (2006) is that of the "open innovation intermediary". Despite the fact that Chesbrough treats that term as if it had been newly "coined", there is a significant amount of research that pre-dates his 2006 book (Galbraith and McAdam, 2010). Literature reviews by Howells (2006), Winch and Courtney (2007) and Amico-Roxas (2010) explore this in some detail, and demonstrate that the term "innovation intermediary" can refer to a range of organisations including brokers, third parties and agencies. While the internet has undoubtedly enabled the growth of many new forms of innovation intermediary, Licthenthaler and Ernst (2008) and others have pointed out that little is known about their performance and that the firms themselves are not very forthcoming about their operation.

Wolpert (2002) defines the key challenge for organisations in the following broad terms: *"How do you break down the barriers to sharing information across companies so you can create more generalized sustainable innovation markets without giving your competitors an advantage?"* He points out that a solution has existed since at least the Middle Ages: that of relying on trusted middlemen to share confidential information without compromising clients' interests. He gives the example of executive search firms, and makes an analogy with "innovation headhunters".

Indeed, it can be seen from a review of the literature that research on innovation intermediaries has been developing since the 1990s (e.g., Bessant and Rush, 1995). As the concept of innovation evolved from the linear model to more complex, networked models, so interest grew in the roles and interactions between various actors. As Stewart and Hyysalo (2008) put it: *"when the producer company lost its position as the privileged source of innovation, it became urgent to understand how the knowledge from a range of actors flowed into the innovation process."* Despite this, they point out that the literature is lacking in terms of a detailed examination of the wide range of intermediaries and intermediation activities that exist in different "ecologies of intermediation".

In this context, and given the importance open innovation approaches to the Living Labs model, we might therefore view Living Labs as a form of "open innovation intermediary" (Chesbrough, 2003). It has been noted that Living Labs often act as "innovation facilitators" or "innovation catalysts" (Schurmann et al. 2011, Mulvenna et al., 2010), acting as brokers of the relationship between producers and users, the large firm and its SME partners, or indeed between stakeholders from different sectors – for example the "triple helix" model (Mulvenna et al., 2009). The importance of this function is indicated by research which shows that the most lucrative and novel innovations are often developed by users in order to adapt products to their specific needs (Di Gangi and Wasko, 2009; Thomke and von Hippel, 2002; von Hippel 1998). Furthermore, many high-value products and services involve multiple stakeholders in the innovation process (Luthje et al., 2005; Morrison et al., 2000).

2.4 Overview of eParticipation

According to Sanford and Rose (2007), eParticipation*"involves the extension and transformation of participation in societal democratic and consultative processes, mediated by information and communication technologies (ICTs)"*. Generally, it is intended to promote and support an engaged citizenship using modern technologies, especially internet-based technologies. Although understanding the emerging field of eParticipation is not straightforward – given the lack of an agreed definition and unclear research boundaries – recent emerging technologies, government reports and academic programmes demonstrate an increasing level of interest in the subject (Sæbø et al., 2008).

It has been observed by Habermas (1996), Van Dijk, (2000) and others that democracy and related political processes depend on effective communication and informed decision-making by citizens, politicians, officers, and other stakeholders. Motivations for governments to promote participation include improving efficiency and strengthening the legitimacy of political processes. From the other side, citizens, non-governmental organizations, lobbyists, and pressure groups are likely to push for increased participation in order to further their own interests. As technologies have evolved, multiple platforms with the potential to support participation have become available, including social media, chat technologies, discussion forums, electronic voting systems, group decision support systems, and blogs. This combination of motivated actors and improvements in technological infrastructure has resulted in a proliferation of eParticipation projects (Bekkers, 2004; Best and Krueger, 2005; Curwell et al., 2005).

While eParticipation as a term is not yet mature and is still evolving in the literature (Chang, 2005; Dutton et al., 1984; Macintosh and Smith, 2002), it is likely to continue to emerge as a distinctive research area. As Sæbø et al. (2008) point out, many factors point to its growing importance, including government programmes, government reports (Fagan et al., 2006; Jansen et al., 2006), the emergence of companies specializing in eParticipation, and targeted research programs.

2.5 eParticipation as a form of open innovation

Chesbrough's original definitionof open innovation refers to "is the use of purposive inflows and outflows of knowledge to accelerate innovation" (Chesbrough et al, 2007). While Chesbrough focuses

on the needs of businesses, the principle that organisations can accelerate internal innovation by reaching beyond organisational boundariescan also be applied to the public sector.

The need for innovation in the public sector has been widely discussed. Some authors state that public sector innovation is required so that governance can meet the challenges of modern society (Singlaub, 2008; Moore and Hartley, 2008). Particular challenges include: include growing demand for responsive government (Vigoda-Gadot, Shoham, Schwabsky and Ruvio, 2008); more client-led and individualized public service delivery (Bowden, 2005; Carter and Belanger 2005); the need for policy instruments to stimulate sustainable development (Foxon, Gross, Chase et al., 2005) and narrowing the gap of citizen's discontent with performance of public sector organizations (Termeer et al, 2005).

At the same time public sector innovation presents particular challenges. Government often appears to lag behind the private sector in terms of innovative capacity (Nauta and Kasbergen, 2009). It can also be argued that within the public sector the punishment for mistakes is more severe than the reward for excellence, which discourages experimentation and risk-taking and strengthens the tendency towards bureaucracy (Stuiveling, 2007).The political meaning of innovation is also considered by Nauta and Kasbergen (2009), who point out that the "civil service machine" is expected not to think, but to carry out political decisions in a neutral way (Koch et al. 2006), and that innovation may come into conflict this principle.

Moore (2005) astutely observes that some of the assumptions about public sector innovation may be problematic: "[...] A key assumption in this model [the 'outdated' model of breakthrough innovation, alluded to on page 5] was that public organizations were eager to find means to improve their performance, and were constantly scanning their environments to find better means for achieving their desired results. There was also an assumption that the organizations that developed the ideas had no proprietary interest in holding onto them, and they would be happy if other organizations wanted to imitate them. There was even an expectation that organizations would be willing to spend their own resources to provide the technical support other organizations needed to implement the innovative idea. In practice, this occurred much less often than seemed desirable".

In the same way that open innovation mayhelp businesses to accelerate internal innovation,it might be assumed that public sector innovation couldalso benefit from the model. Chesbrough and Appleyard (2007) propose that companies should interested in open innovationshould practice an "open strategy", with users and user contributions providing ideas and momentum for new products.In the context of the public sector, "users"becomecitizens,"products"becomepublic policies and services, andeParticipation become a mechanism for enabling citizens to participate in an open innovationprocess.

2.6 Challenges for sustainable eParticipation

As with any form of innovation, sustainability is a key challenge for proponents of eParticipation – that is, ensuring that the organisational and cultural changes become fully "embedded". It has been estimated that failed innovation projects cost Fortune 1000 companies nearly $60 billion annually in wasted development efforts (Atkins, 2010). In the context of current pressures on spending, it is incumbent on both private and public bodies to avoid such waste.

A number of approaches have been suggested in the literature on innovation to address this challenge, for example:

- shifting organisational structures towards customer-driven innovation (Desouza et al., 2008);
- identifying champions of innovation and developing trans-organisational communities of innovation (Coakes and Smith, 2007);
- supporting external collaboration and establishing cultural frameworks (APQC, 2008);
- creating technological niches, i.e. protected spaces that allow experimentation with technology, user practices, and regulatory structures (Schot et al., 2008).

As well as the generic problems that can affect any form of innovation, eParticipation faces its own specific issues. The OECD (Macintosh and Coleman, 2004), a UK local eDemocracy study (Pratchett, 2004), as well as a number of other sources and position papers have identified particular challenges

for eParticipation relating to political, organisational, social or technical factors (Wimmer and Kramer, 2006)

Living Labs, acting as open innovation intermediaries by connecting cross-sectoral stakeholders, and maintaining a strong focus on user engagement, may be wellpositioned to help organisations deal with such issues.

3. Methodology

3.1 TRAIL living lab

The TRAIL Living Lab, based at the University of Ulster, was the first Living Lab to be established in Northern Ireland, and was invited to be a member of the European Network of Living Labs (ENOLL) in 2007. TRAIL represents the development of the University's research thinking across several key disciplines including business, information & communication technologies, occupational therapy, art, health care, social care and clinical medicine. It supports a diverse set of stakeholders in the development of new technologies, research perspectives, processes and integrated service solutions that deliver real value to users, particularly individuals and communities in the North of Ireland, as well as users across Europe.

TRAIL has adopted the Living Labs approach of supporting partnerships between public and private entities, with the strong involvement of user communities. The Lab is strongly focused on placing people at the centre of service and product development and innovation. As an ENOLL member, it is connected to a powerful innovation network that includes high-tech corporations and global researchers.

3.2 PARTERRE project

The overarching objective of the PARTERRE project is to deploy ICT to enhance the direct participation of citizens, stakeholders and civil society in democratic decision-making processes using two specific electronic tools:

1. The Electronic Town Meeting (eTM), a deliberative democracy methodology and toolset combining small-groups discussion with the advantages of electronic communication. The methodology and toolset have been previously deployed in another Preparatory Action on eParticipation, in partnership with two members of the project consortium, the Region of Tuscany and the Italian consultancy Avventura Urbana.

2. The DEMOS system, which was successfully deployed by one project partner (TuTech Innovation GmbH) in the context of a Preparatory Action on eParticipation, entitled "LexiPation", and by the coordinating organisation (Regione Toscana) as an evaluation forum for its newly approved law on participation. To address the specific needs of a formal participation process in spatial development the DEMOS system has been refined into DEMOS-Plan which integrates workflows for spatial planning and includes standards-based GIS integration.

The role of TRAIL within PARTERRE focused specifically on trialling the eTM toolset, which is described below.

3.3 Electronic town meeting (eTM) toolkit and methodology

The Town Meeting is a form of structured participation in local government practised in the New England region of the United States since colonial times, and in some Western States since at least the late 19th century. There an entire community was invited by government officials to gather in a public place to formulate suggestions or provide feedback on specific policy issues.

In its modern version - the Electronic Town Meeting – the use of ICT enables citizens to participate either directly or indirectly in the debate. The basic characteristics of an Electronic Town Meeting are as follows: after information on a given topic has been provided, participants can express themselves individually within small groups (typically round tables). Instant minutes of the tables discussions are kept by facilitators - using electronic means – with the aim of enabling opinions and views to emerge

from the debate, without any attempt to formulate a unitary (or compromise) vision. A central team (known as the "Theme Team"), composed of domain experts, collects and reviews the minutes, clustering the issues that emerge – with a special eye on conflicting perspectives – and then provides rankings of statements which are finally submitted to a collective vote by all participants. The voting mechanism is typically supported by the provision of numeric keypads to each participant in the eTM. At the end of the day an "Instant Report" is drawn up and distributed to all participants, summarizing the general aims of the debate, the process undertaken and the main results of the work done, particularly issues prioritised through the collective vote.

As a member of the PARTERRE Consortium, the TRAIL Living Lab undertook to pilot the Electronic Town Meeting within Northern Ireland. A series of six pilot events were organised with a variety of external stakeholders to validate the eTM as a means of supporting regional territorial development.

4. Findings

4.1 Presentation of findings

4.1.1 Case study one

Strategy for Allied Health Professionals in Northern Ireland, 12 August 2011
Discussion themes
- Promoting Person-Centred Care   - Delivering Safe and Effective Care   - Maximising Resources for Success   - Supporting and Developing the AHP Workforce
Number and profile of participants
90 (allied health professionals, academics, government)
Key findings
- Population demographics and profile are important to understand if you are planning the workforce.   - Person-centred is the first thing to be dropped when services have been cut.   - Vision should explain how AHPs bring value to health and social care.   - Training for all staff is required to enable innovation and motivation.   - Greater leadership and entrepreneurship taught in undergraduate programme required in order to be better able to maximise resources.   - Training requirements: economics of how this strategy can be delivered within resources, or on how to manage resources so that AHPs can be more proactive rather than reactive.   - Health is still politically influenced rather than population led.   - Coordinated approach between health service and private sectors, especially when DHSSPS put service delivery out to tender and private practice are awarded this work.

4.1.2 Case study two

Open Government – Making Open Data Real, 23 September 2011

Discussion themes
- An enhanced right to data   - Setting transparency standards   - Corporate and personal responsibility   - Meaningful Open Data   - Government sets the example   - Innovation with Open Data
Number and profile of participants
50 (industry representatives, local and regional government, policy-makers, academics)
Key findings
- There is a question about what data is relevant to the public.   - We establish stronger rights for individuals, businesses and others through legislative and regulatory systems.   - One problem is that of commercial intellectual property (IP) associated with data and this provides reasons for not making data open.   - Privacy and security are important.   - Inputting data in a standardised way is hard to control.   - On all NEW data collection - ask is there any reason why this data shouldn't be shared.   - Raw data is so vast how do people get a meaning from it?   - FOI requests are publishable to all in Canada; often (Freedom of Information) FOI requests are similar often duplicated. Record the questions and answer and let it go public. On top of that there should be standards set up on how you publish information.   - FOI requests are expensive for organisations to collate.

4.1.3 Case study three

Partnerships for Business Innovation – Engaging for Growth, 4 November 2011
Discussion themes
- Awareness and Identifying Need   - Meeting the Need and Identifying Gaps in Current Provision   - Identifying Inhibitors for Businesses Seeking to Innovate   - Overcoming Barriers to Ensure that Engagement Benefits Everyone
Number and profile of participants
60 (SMEs, industry representatives, regional government, policy-makers, academics)
Key findings
- Every business has different levels of need, no one size fits all – need a process for the different sectors.   - Businesses only seek help when they have identified a problem, rather than looking at initiatives which might improve their products.   - Challenge for businesses is to move from fighting fires to initiating new ideas to expand their markets.   - Owner managers need support to explore innovation.   - NI is slow to react because of bureaucracy.   - Tension between governance / accountability versus flexibility.   - Businesses are unclear about the advantages of innovation and how to access the knowledge base of the universities and colleges   - Bureaucracy is a massive barrier that is damaging all parties

4.1.4 Case study four

Worklessness Within North Belfast, 18 November 2011
Discussion themes
- Reflections on Mid-term Review for North Belfast   - What Works, What Doesn't – What Now?   - The Impact of Work on Family Life   - Moving Beyond Generational Worklessness
Number and profile of participants
80 (community representatives, local and regional government, charitable and voluntary sector, policy-makers)
Key findings
- Statistics have not changed - gaps in educational attainment remain compared to non-neighbourhood renewal areas.   - Streaming affects attainment levels - stigma attached to secondary schools.   - Schools in the area are not skilling children for high-paid employment.   - Statistics are not improving due to the teaching and the actual schools but that only amounts to 15%. The other 85% is crucial and that is the general environment.   - Closure of libraries has had an impact on reading levels   - Parents must be involved.   - ICT skills are essential but are not compulsory subjects in schools   - Too many obstacles for small employers to take on staff.   - Young people from deprived areas will face barriers to University education due to fees.   - Most people would work if they can but people don't have the skills or education.

4.1.5 Case study five

Maximising Social Value Through Public Sector Procurement, 17 February 2012
Discussion themes
- Development and the Commissioning Process   - Measuring Social Value   - Compulsory Competitive Tendering and Social Enterprise
Number and profile of participants
65 (academics, charitable and voluntary sector, procurement practitioners, policy-makers)
Key findings
- There is a tension about money first and best value for money.   - There is little recognition for local NI businesses that contribute to the local economy.   - Need to look at wider context - what are we aiming to achieve?   - Corporate Social Responsibility could be weighted more highly in a contract tender.   - There needs to be distinction between commissioning and procurement.   - Social value is not the same for every organisation.   - It is difficult to define social value in financial terms.   - There are too many models and too many different approaches.   - There is a problem having different measures - as a commissioner - how to judge between bids if organisations are using different scales.

4.1.6 Case study six

Innovation in Sustainable Construction and Energy Management, 7 March 2012
Discussion themes
- Drivers for Sustainable Construction   "Fabric First" design and retro-fit   - Effective Energy Management
Number and profile of participants
75 (SMEs, large corporates, academics (further and higher education), local and regional government)
Key findings
- At present legislation is not forcing houses to be built more energy efficiently.   - Legislation is only a benchmark at this stage.   - NI is lagging behind GB in enforcement of legislation.   - Legislation is a small driver, cost is the main driver.   80% of our housing stock will need to have retrofit applied to them to future proof.   - Ministers positions changes depending on who is in power   - While the principle of PassivHaus delivers an extremely efficient product, the cost of a fully PassivHaus design is very high - almost unachievable.   - People want easy methods and methods they can relate to, for instance energy management systems should incorporate text messaging and wireless.   - Education is vital, we must first understand how much energy is being used.

4.2 Comments and analysis

4.2.1 Cultural issues

It was clear from an early stage that it would not be possible to exactly replicate the Italian eTM model within Northern Ireland, primarily for cultural and demographic reasons. The biggest challenge in implementing the Electronic Town Meeting system in Northern Ireland is in organising larger events. In Italy events of 500-1000 are not unusual; achieving such numbers in Northern Ireland is almost impossible. Firstly, the population is much smaller and more dispersed – Northern Ireland having a comparatively rural population. Secondly, persuading citizens to take a day's leave to attend a meeting on public policy is very challenging, particularly given the political history of Northern Ireland and traditionally low levels of democratic engagement. These issues were identified at an early stage, and the pilots in Northern Ireland therefore focused on more frequent, small-scale, "targeted" events.

Once the pilots were underway, it became apparent that participants within Northern Ireland generally found the experience and outcomes useful, and this was reflected in the participant feedback. Indeed, the experience of the organisers was that each pilot triggered additional expressions of interest from potential user organisations, and that there was overall a significant growth in demand for eTM-related services over the course of the project.

4.2.2 Technology

From the point of view of participants, the hardware and software provided by Regione Toscana generally worked well, providing participants with a discrete, unobtrusive and responsive system for recording their comments and opinions. From organisers' perspective, the technical design of the eTM system meant that a significant amount of time was required in advance of the pilot for the technical "setup" – i.e., the installation of server and client hardware. This was quite technical and time-consuming, and added significantly to the expense of running an eTM. As well as requiring additional time from technical support staff, it meant that the event venue had to be reserved for two days instead of one.

In order to reduce these costs, the TRAIL team experimented with a modified version of the system that enabled the use of wireless "tablet PCs" in place of the wired netbooks and USB keypads that

were originally provided. This allowed table facilitators to type comments on the tablet during the discussion sessions, and to pass the tablet round to record votes during the polling sessions. Using this approach, the setup for an event could be completed in approximately 30 minutes, just before the event. Initial feedback from participants indicated that the tablet-based system worked well.

4.2.3 Organisational factors

Some small changes were required to the eTM methodology in order to make the system effective at the smaller scale of the Northern Irish pilots. For example, instead of printing out copies of the "Instant Report", it was found to be more cost-effective to send copies of the report via email. In general, efforts were made by the TRAIL team to keep the cost of running a pilot to a minimum. This was done for two reasons: firstly, to facilitate the running of multiple pilot events within the project scope, and secondly to confirm the feasibility of the eTM system in the context of local market that is unlikely to be able to afford expensive large-scale events.

4.2.4 Other comments

A number of challenges became clear during the pilots in terms of implementing the eTM methodology effectively and ensuring the maximum benefit for participants. In terms of how the system enabled the recording and reporting of discussions, the majority of feedback from participants was very positive. One concern that arose was that the Table Facilitators and Theme Team had a great deal of power to "shape" the reporting of the discussion. In general, participants were keen to be re-assured that the reporting of comments would be fair and inclusive. While polling was generally felt by participants to be a useful aspect of the system, participants tended to be sensitive to the phrasing of questions. In particular, they objected to questions which were perceived to be leading or ambiguous.

The TRAIL team felt that these were important lessons for fine-tuning the eTM methodology, with consequences for the training of eTM implementers. While the system makes it easy to implement a successful event, some skill is required in order to ensure that optimal outcomes are achieved.

5. Discussion& future research areas

eParticipation is still maturing as a research field (Chang, 2005; Dutton et al., 1984; Macintosh and Smith, 2002), but is steadily growing in importance as an European policy issue (Sæbø et al., 2008). In order to ensure that investments in this policy area are sustainable, it will be essential to engage users and effectively involve cross-sectoral stakeholders within the innovation process (Desouza et al, 2008; Coakes and Smith, 2007; Schot et al., 2008).

GivenChesbrough'sfocus on the importance of users within open innovation processes, and given also the particular challenges of public sector innovation, it is perhaps unsurprising that eParticipationis increasingly seen as an important component of government innovation strategies. The literature suggests that open innovation intermediaries can play a valuable role in supporting these strategies.Living Labs, while still a relatively new phenomenon, are an increasingly well-established form of open innovation intermediary, with a strong track record of supporting triple and quadruple helix innovation partnerships (Schurmann et al. 2010, Mulvenna et al., 2010). A review of the literature suggests that Living Labs are well positioned to address some of the key challenges surrounding sustainable innovation in general, and sustainable eParticipation in particular.

The experience of the TRAIL Lab piloting eParticipation technologies within Northern Ireland suggests that there is a useful synergy between the eDemocracy agenda and the user-centric Living Labs model, particularly in terms of cultural values, technologies and methodologies. International linkages enabled by the European Network of Living Labs can facilitate the diffusion of specific innovations, and can also assist in recognising and addressing inter-cultural challenges such as those described in section 4.3. In conclusion, within Northern Ireland at least the prospect for sustainable eParticipation appears to have been significantly enhanced by the application of the Living Labs model.

Some challenges remain in applying the open innovation model to a public policy / eParticipation context. Much of the literature is strongly focused on the private sector, and focuses on intellectual property as a core asset. In recent years ideas drawn from Open Source Software have become

increasingly important (e.g. Gruber & Henkel, 2006; West & Gallagher 2006), and the term itself is still under debate. Many authors agree that open innovation has a much broader application than first proposed by Chesbrough (e.g. Piller&Walcher, 2006), and some have gone so far as to state that "Chesbrough's version of open is simply a marketplace for IP" (Fredburg et al, 2008)

One of the more influential ideas has been the concept of "free revealing" as developed by Von Hippel and Von Krogh (2006) as part of their research into User Innovation. They suggest that free revealing is practised far beyond the confines of open source software development. Henkel (2006) argues that smaller firms with less internal resources are more likely to make use of revealing. Similarly, in the context of eParticipation, citizens are typically asked to share their ideas freely, and those ideas are often publicly shared by the government. Such transactions might be considered as a form of "non-pecuniary" open innovation (Dahlander and Gann, 2010), or as a type of "untraded interdependency" (Storper, 1993). Instead of ideas being an asset to be protected, they become a form of "public good" (Samuelson, 1954).

One opportunity for further research might be to explore how this distinction (between ideas as a public good and ideas as protected intellectual property) might contribute to the better design of sustainable eParticipation strategies, and whether it might be possible to emulate the successful practices of other commons-based innovation ecosystems.

References

APCQ (2008) Successfully Embedding Innovation: Strategies and Tactics; APQC Publications, Houston, Texas

Atkins, M. (2010) Five Key Concepts for Sustainable Innovaiton. Industry Week, July 2010, Vol. 259 Issue 7, p53-54

Bekkers, V. (2004). Virtual policy communities and responsive governance: Redesigning on-line debates. Information Polity, 9(3/4), 193−203.

Bergvall-Kareborn, B., Ihlstrom Eriksson, C., Stahlbrost, A., and Svensson, J. 2009.A Milieu for Innovation - Defining Living Labs. Paper read at The 2nd ISPIM Innovation Symposium - Stimulating Recovery - The Role of Innovation Management, 6-9 December 2009, at New York City, USA.

Bessant, J. and Rush, H. (1995) Building bridges for innovation: The role of consultants in technology transfer. Research Policy, 24: 97–114.

Best, S. J., & Krueger, B. S. (2005).Analyzing the representativeness of Internet political participation. Political Behavior, 27(2), 183−216.

Bowden, A. (2005) Knowledge for Free? Distributed Innovation as a Source of Learning. Public Policy and Administration, 20; 56-68.

Chang, W.-Y. (2005). Online civic participation, and political empowerment: Online media and public opinion formation in Korea. Media, Culture and Society, 27(6), 925−935.

Chesbrough H. (2003) Open Innovation. Harvard University Press: Cambridge, MA.

Chesbrough, H. (2006) Open Business Models. Harvard Business School: Boston, MA.

Chesbrough, H.W., Vanhaverbeke, W. and West, J. (eds), (2007) Open Innovation. Researching a New Paradigm. Oxford: University Press.

Chesbrough, H. M. and Appleyard, M. (2007) Open Innovation and Strategy, California Management Review 50(1):57-76

Coakes, E., Smith, P., (2007) Developing communities of innovation by identifying innovation champions, Learning Organization; 2007, Vol. 14 Issue 1, p74-85.

Curwell, S., Deakin, M., Cooper, I., Paskaleva-Shapira, K., Ravetz, J., &Babicki, D. (2005) Citizens' expectations of information cities: Implications for urban planning and design. Building Research and Information, 33(1), 55−66.

Desouza, K. et al, (2008) Customer-driven Innovation, Research Technology Management; May/Jun2008, Vol. 51 Issue 3, p35-44

Di Gangi, P.M., and Wasko, M. (2009) Steal my idea! Organizational adoption of user innovations from a user innovation community: A case study of Dell IdeaStorm. Decision Support Systems 48 (1):303-312.

Dutton, W., Steckenrider, J., Rosschristensen, D., Lynch, L., Goldfarb, B., Hirschberg, L., et al. (1984).Electronic participation by citizens in US local government.Information Age, 6(2), 78−97.

Fagan, H., Newman, McCusker, & Murray (2006). E-consultation: Evaluating appropriate technologies and processes for citizens' participation in public policy. Final report from the eConsultation research project. Retrieved July, 2006, from http://www.e-consultation.org/files/ecrp_report.pdf

Følstad, Asbjørn, Living Labs for Innovation and Development of Information and Communication Technology: A Literature Review, Electronic Journal for Virtual Organizations and Networks Volume 10, "Special Issue on Living Labs", August 2008.

Foxon, T.J., R. Gross, A. Chase et al. (2005). UK innovation systems for new and renewable energy technologies: drivers, barriers and systems failures. Energy policy, 33 (16): 2123-2137.

Galbrath, B., McAdam, R. (2011) The promise and problem with open innovation, Technology Analysis & Strategic Management Vol. 23, Iss. 1

Gowans, G., Campbell, J., Astell, A., Ellis, M., Norman, A and Dye, R., 2009. Designing CIRCA (Computer Interactive Reminiscence and Conversation Aid). A multimedia conversation aid for reminiscence intervention in dementia care environments. Dundee: University of Dundee - School of Design.Habermas, J. (1996). Between facts and norms: Contributions to a discourse theory of law and democracy. Cambridge, Mass: MIT Press.

Howells, J. (2006) Intermediation and the role of intermediaries in innovation.Research Policy, 35(5): 715–28.

Huizingh, E., (2011) Open innovation: State of the art and future perspectives, Technovation, Volume 31, Issue 1, Pages 2-9

Jansen, G., Dowe, C., &Heimann, U. (2006). Facilitating active citizenship, E-participation in UK and Germany. Berlin: British Council Germany Retrieved January, 2007, fromwww.britishcouncil.de/e/society/e_participation.htm

Lichtenthaler, U. and Ernst, H. (2008) Intermediary services in the markets for technology: Organizational antecedents and performance consequences.Organizational Studies, 29: 1003–38.

Luthje, C., Herstatt, C., and von Hippel, E. (2005) User-innovators and "local" information: The case of mountain biking. Research Policy 34 (6):951-965.

Macintosh, A. & Coleman, S. (2004) Promise and Problems of E-Democracy, Challenges of online citizen engagement, OECD

Macintosh, A., & Smith, E. (2002). Citizen participation in public affairs.In R. T. a. K. Lenk (Ed.), EGOV 2002 (Vol. LNCS 2456, pp. 256–263). Berlin: Springer-Verlag.

Mitchell, William J. (2003) Me++ : the cyborg self and the networked city, MIT Press, Cambridge, Mass.

Moore, M. H. (2005). Break-Through Innovations and Continuous Improvement: Two Different Models of Innovative Processes in the Public Sector. Public Money & Management, 25 (1): 43-50

Moore, M. H., J. Hartley (2008) Innovations in governance. Public Management Review, 10 (1): 3-20.

Morrison, P.D., Roberts, J.H., and Von Hippel, E. (2000) Determinants of User Innovation and Innovation Sharing in a Local Market.Management Science, 13-15.

Mulvenna, M., Bergvall-Kåreborn, B., Galbraith, B., Wallace, J., Martin, S., (2010) Living Labs Are Innovation Catalysts, Innovation through Knowledge Transfer, Springer Berlin Heidelberg

Mulvenna, M., Galbraith, B. and Martin, S. (2009) Enriching the Research & Development Process Using Living Lab Methods: The TRAIL Experience. eChallenges-2009 Conference Proceedings,. (Eds: Cunningham, P and Cunningham, M), IIMC International Information Management Corporation, pp. 63-71. Mulvenna, M.D., Martin, S., McDade, D., Beamish, E., de Oliveira, A., Kivilehto, A., (2011) TRAIL Living Labs Survey 2011: A survey of the ENOLL living labs, University of Ulster, 40 pages, ISBN-978-1-85923-249-1.

Mulvenna, M.D., Martin, S., (2012) Living Labs: Frameworks and Engagement, In: Howlett, R.J.; Gabrys, B.; Musial-Gabrys, K.; Roach, J. (Eds.), Innovation through Knowledge Transfer, Springer.

Nauta, F. &Kausbergen, P. (2009). OECD Literature review.Public sector innovation.Lectoraatinnovatie rapport.

Pratchett, L. (2004) Barriers to e-Democracy, Local government experiences and responses, http://www.icele.org/downloads/Researchreport.pdf

Sæbø, Ø., Rose, J., Flak, L. (2008) The shape of eParticipation: Characterizing an emerging research area, Government Information Quarterly, Volume 25, Issue 3, July 2008, Pages 400-428.

Samuelson, Paul A. (1954) The Pure Theory of Public Expenditure, Review of Economics and Statistics 36 (4): 387–389.

Sanford, C. and Rose, J. (2007) Characterizing eParticipation, International Journal of Information Management, Volume 27, Issue 6, December 2007, Pages 406-421.

Schot, J., Geels, Frank W., (2008) Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. Technology Analysis & Strategic Management; Sep2008, Vol. 20 Issue 5, p537-554.

Schuurman, D., De Moor, K., De Marez, L., Evens, T. (2011) A Living Lab research approach for mobile TV, Telematics and Informatics, Volume 28, Issue 4

Singlaub, K. (2008) Innovation in Public Management: What the Future Will Demand of Us. Public Management, 90 (6): 8-14.

Stewart, J. and Hyysalo, S. (2008) Intermediaries, user, and social learning in technological innovation, International Journal of Innovation Management, 12 (3) (2008), pp. 295–325

Stuiveling S.J. (2007) Van Slingelandt-lecture 2007: Hardopdenken (Thinking out loud). The Hague: The Netherlands Court of Audit.

Termeer, C.J.A.M., Wesseling, H. and Zouridis, S. (2005) De knop om: innovatie in de publieke sector (Switching the knob: innovation in the public sector). Bestuurskunde (Public Administration), 7/8: 9-12.

Thomke, S., and von Hippel, E. (2002) Customers as Innovators: A New Way to Create Value. Harvard Business Review, Harvard Business School Publication Corp.

Van Dijk, J. (2000). Models of democracy and concepts of communication. In K. L. Hacker, & J. Van Dijk (Eds.), Digital democracy, issues of theory and practice. London: Sage publications.

Vigoda-Gadot, E. A. Shoham, N. Schwabsky and A. Ruvio (2008). Public sector innovation for Europe: a multinational eight-country exploration of citizens' perspectives. Public Administration, 86 (2): 307–329.

vonHippel, E. (1998) Economics of product development by users: The impact of `sticky' local information. Management Science 44:629-644.

Wimmer, M.A. & Kramer, A. (2006) Deliverable 1.1: "Challenges and Barriers of eParticipation Research and Practice", Retrieved March 2011 from http://www.demo-net.org/what-is-it-about/research-papers-reports-1/demo-net-deliverables/pdfs/DEMO-net_D1.1.doc.pdf

Winch, G. and Courtney, R. (2007) The organisation of innovation brokers: An international review. Technology Analysis &Strategic Management, 19(6): 747–63.

Wolpert, John, D. (2002) Breaking Out of the Innovation Box, Harvard Business Review; Aug2002, Vol. 80 Issue 8, p76-83.