

**Title:** A provisional framework for analysing relationships between social innovation and digital technologies

### **Summary**

In this developmental paper we identify that whilst the relationships between social innovation and digital technologies are being explored in policy and practice, these relationships remains relatively unexplored in the academic literature. Having identified this gap in the literature we develop a provisional analytical framework that seeks to capture the complex and reflexive nature of the relationship. We propose that the framework may be applied in detailed empirical analyses of activities which seek, through the use of digital technologies, to better address social needs and enhance society's capacity to act. In developing the framework we draw on theories of socio-technical transitions, to understand the nature of digital technologies as 'configurations that work' and as constituents of multi-level socio-technical structures which mediate social innovation processes. We concluded by identifying key issues to be addressed in further research.

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There is growing interest, across policy making and practitioner communities, in the potential of social innovation to help address the major, and potentially intractable, challenges facing societies; including climate change, inequality and social and economic exclusion, and major demographic changes. Within the discussions around social innovation terms such as “digital social innovation” (The Young Foundation, 2010) and “social tech” (The Nominet Trust, 2013) have emerged. For example, the Nominet trust has identified 100 of “The World’s Most Inspiring Social Innovations Using Digital Technology” (The Nominet Trust, 2013) – including Wikileaks, Raspberry Pi and Kickstarter. Terms such as digital social innovation seek to capture the sense that harnessing the transformative and disruptive potential of digital technologies has a role to play in addressing societal challenges. The European Commission has played a prominent role in fostering activity in digitally mediated forms of social innovation. For example, commissioning a project to map digital social innovations across Europe (NESTA, 2014), and establishing funding programmes for Collective Awareness Platforms for Sustainability and Social Innovation (The European Commission, 2013). Such interventions take place in the context of wider efforts to create a social economy.

Whilst the relationships between social innovation and digital technologies are being explored in policy and practice, these relationships remains relatively unexplored in the academic literature. In this developmental paper we sketch a provisional conceptual framework for analysing relationships between social innovation and digital technologies, drawing on theories from the socio-technical transitions literature (Rip and Kemp, 1998, Geels, 2002, Geels, 2005). We propose that the framework may be applied in detailed empirical analyses of activities which seek, through the use of digital technologies, to better address social needs and enhance society’s capacity to act. Before sketching this framework though, we provide a brief overview of key relevant literature.

### **Social innovation towards a social economy**

The definition of social innovation is contested and the subject of an ongoing debate across academic, practitioner and policy making communities. Engaging with such debate remains beyond the scope of this paper. Instead, for the purpose of this paper we draw on the results of an extensive review of contrasting disciplinary perspectives on the definition of social innovation (The Young Foundation, 2012) and adopt the following definition:

*“Social innovations are new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society’s capacity to act.” (The Young Foundation, 2012: 17-18)*

Based on this definition we suggest that social innovations can be viewed an effort to establish a (more) social economy. Like social innovation, the concept of a social economy has manifold meanings. In one sense, all economies are social economies in that there is a moral sentiment between counter-parties engaging in market transactions. The tendency to monopoly, market failure and non-optimal outcomes challenge this assumption in contemporary economies. As a consequence, a revival of interest in social economics and the construct of social economics has emerged. A simple definition suggests:

*“the economy is not limited to the market, but includes principles of redistribution and reciprocity” (Laville et al., 1994)*

These principles suggest that increased social integration will play a central role in establishing a social economy. We argue that both social innovation and digital technologies open up possibilities for greater social integration by addressing social needs, and generating external network effects, respectively. Moreover, the external network effects of digital technologies are in (general) accessible to actors regardless of their position in society. Hence we suggest that digitally mediated forms of social innovation are a key component of the wider effort to establish a social economy.

### **Social Innovation and digital technologies**

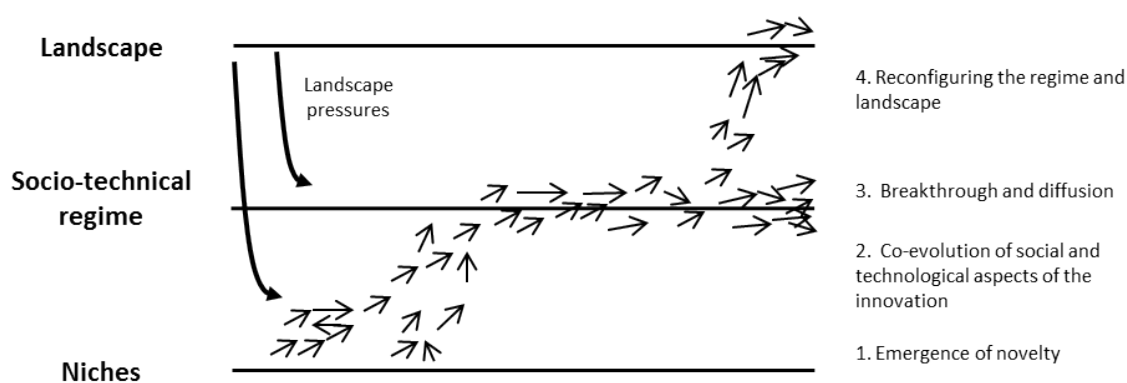
The literature exploring the relationships between social innovation and digital technologies is somewhat limited, but does include at least three distinct perspectives on the nature of the relationships. First, digital technology can act as an enabler for social innovation. For example, Millard et al. (2013) identify six types of online social networking platforms with the potential to enable social innovation. A second perspective suggests that the relationship between social innovation and digital technologies is reflexive and complex in nature. Grimm et al. (2013) suggest a bi-directional relationship exists whereby digital technologies act as enablers to social innovation and that these same technologies are shaped by the innovation

process. A third perspective emphasise that it is a mistake to overlook the technological aspects of social innovation. In exploratory research Degelsegger and Kesselring (2012) apply fundamental concepts from Actor Network Theory (Latour, 2005) to the study of social innovation. The authors conclude by arguing that a common process underpins both social and technological forms of innovation.

Whilst the relationships between social innovation and digital technologies remain underexplored, there are extensive opportunities to engage with related bodies of knowledge to develop further understanding of these relationships. For example, theory on innovation in a world pervaded by digital technologies (Yoo et al., 2010) may yield insight into the nature of digitally mediated social innovation. In this paper we choose to engage with theory from technological transitions literature, specifically the multi-level perspective (MLP) (Rip and Kemp, 1998, Geels, 2002, Geels, 2005) which provides insight into the dynamics of transformative innovation in complex socio-technical systems. We adopt this perspective as it is within such systems that social innovations and digital technologies interact, interrelate and co-evolve. From the multi-level perspective, complex socio-technical systems are conceptualised as consisting of 3 levels (as shown in Figure 1):

- the landscape - consisting of the structures, rules (normative and explicit) and artefacts that are deeply embedded in the fabric of a society - e.g. political values, systems and institutions, economic paradigms and socio-cultural values;
- the socio-technical regime – consisting of the rules and current practices which established and now maintain the prevailing socio-technical system;
- and the niche – sheltered environments in which innovations can develop outside the mainstream.

In this model both innovation and system stability arise from the dynamic interactions of social and technical factors, taking place within and between each level. For example, pressures from the landscape level influence the structure and dynamics of the regime and niches.



**Figure 1:** The Multi-Level Perspective - adapted from Geels (2005)

## **A provisional framework for analysing relationships between social innovation and digital technologies**

Before we explore the nature of the relationships between social innovation and digital technologies further, we first need to outline how we are conceptualising each of these phenomena.

### ***Social innovation***

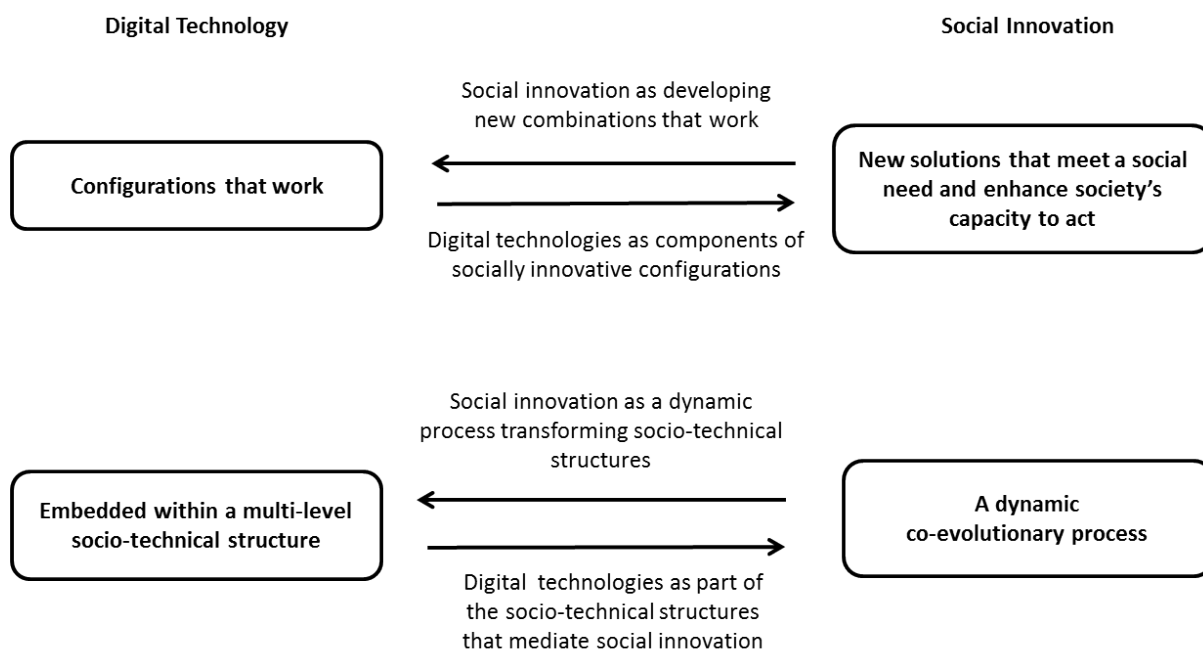
In conceptualising the nature of social innovation we employ the theoretical constructs from the MLP and seek to integrate insight from social innovation research. Within the definition of social innovation we have adopted (see above) there is an implicit and iterative process-outcome model. The outcomes of the innovation are a social need that is addressed, and the empowerment of actors engaged with the innovation which in turn enhances society's capacity to act. Adopting a multi-level perspective a social innovation can also be viewed as a complex co-evolutionary process (Haxeltine et al., 2013) of social learning, where novel socio-technical configurations evolve. Furthermore, some novel configurations break-through and diffuse into the existing regime, thereafter potentially shaping the wider socio-technical landscape (as shown in Figure 1).

### ***Digital technologies***

We employ a conceptualisation of digital technology grounded in the theory of technological change which underpins the MLP (Rip and Kemp, 1998). This theory seeks to capture the multi-faceted nature of technologies as artefacts embedded within social structures. In their mostly tangible manifestation technologies are “configurations that work” (Rip and Kemp, 1998); more specifically, configurations that include tangible artefacts, the skills of technologists and users, and the interfaces of the artefact with the wider technical infrastructure. Such configurations are shaped by the dynamic socio-technical structures (i.e. the regime and landscape) within which they develop and are used. In this paper we focus on digital technologies – i.e. those technologies which store, manipulate and exchange data using discrete representations.

### *A provisional framework*

Having developed conceptualisations of social innovation and digital technologies, we now sketch a provisional model for analysing relationships between digital technologies and social innovation. In Figure 2 we identify four key perspectives on the relationship, each of which are described briefly below.



**Figure 2:** Four perspectives on the relationship between social innovation and digital technologies

Social innovation can create new, and restructures existing, configurations incorporating digital technologies that work to meet social needs and enhance society's capacity to act. For example, Carbon Coop (Carbon Co-op, 2014) seeks to reduce energy consumption and empower communities by realising novel configurations of collaborative activities and energy efficient technologies (including digital technologies such as open source energy management systems). Conversely digital technologies can be viewed as integral components of the social innovative configurations that work.

Social innovation is also a process which transforms the socio-technical structures which shape the development and use of digital technologies. For example, social innovations, such as Wikipedia, can democratise the processes of developing and managing technology and knowledge. Conversely, digital technologies are also an integral part of the socio-technical structures that mediate social innovation. These mediating structures shape the social needs to be addressed, the innovation process and outcomes, and the nature of the empowering impact of the innovation. Taking the shaping of social need as an illustrative example, the pervasive spread of digital technologies in consumer electronics has contributed to creating social need. This arises from both the adverse environmental impacts associated with unsustainable demand for finite resources used in the manufacturing of consumer electronics (e.g. rare earth metals), and adverse social impacts associated with the extractions of these resources.

### **Research issues to be explored in future work**

Ahead of the presentation at the BAM 2014 conference we will further develop the provisional framework presented above, by drawing more extensively on the theory of socio-technical transitions. Such theory remains somewhat techno-centric and places limited emphasis on the role of agency and politics in innovation processes (Smith et al., 2010). Indeed these shortcomings are evident in our transitions theory based framework presented above. So in our ongoing research we are identifying and integrating alternative theoretical perspectives to capture the inherently political nature of social innovation. Empirical testing of the framework is also a central component of our ongoing research. We are currently developing a set of case studies exploring emerging and more established forms of digital mediated social innovation. Initial research has focused on two cases: first, communities developing open source technologies to support more sustainable consumption practices (e.g. [Open Energy Monitor](#)); and secondly, online free reuse communities (e.g. [Freecycle](#) and

[Freegle](#)) which enable people to directly give unwanted items to others in their local area. This empirical research adopts an interpretive perspective and seeks to address the research question – how do citizens participating in digital mediated forms of social innovation experience the tensions inherent in the interrelationships between digital technologies and social innovation?

We have also identified the need for further developments in approaches to evaluating the impact of digitally mediated social innovations. Historically a tendency to techno-optimism has accompanied information and communication technology (ICT) enabled or driven social and economic development, of which digitally mediated social innovation is merely one of the most recent examples. It is perhaps unsurprising then, that the evaluation of such developments has been largely uncritical and relatively limited (Meehan et al., 2012). We will provide a critical perspective on digitally mediated social innovations by developing an impact evaluation framework (IEF). This framework will adopt a broad set of measures to evaluate the ‘public value’ (Cowling, 2006, Horner et al., 2007, Meehan et al., 2012, Talbot, 2008) created, and thus move beyond on narrow focus on monetary value.

## **Summary**

We have sought to develop a provisional analytical framework that captures the complex and reflexive nature of the relationship between social innovation and technologies. We aimed to move beyond the instrumental narratives that often characterise the discussion of digital technologies as enablers of social innovation. We have drawn on theory on socio-technical transitions, to understand the nature of digital technologies as ‘configurations that work’ and as constituents of multi-level socio-technical structures which mediate social innovation processes. In doing so we sought to strengthen the emerging linkages between the social innovation and socio-technical transitions literatures (Haxeltine et al., 2013) (Seyfang and Haxeltine, 2012). We concluded by identifying key issues to be addressed in further research including the need for new approaches to evaluate the impact of digitally mediated social innovation.

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## References

- Carbon Co-Op. 2014. *About Carbon Co-op* [Online]. Available: <http://carbon.coop/about-us> [Accessed 19th February 2014].
- Cowling, M. 2006. *Measuring public value: The economic theory*, Work Foundation.
- Degelsegger, A. & Kesselring, A. 2012. Do Non-humans Make a Difference? The Actor-Network-Theory and the Social Innovation Paradigm. In: FRANZ, H.-W., HOCHGERNER, J. & HOWALDT, J. (eds.) *Challenge Social Innovation*. Springer Berlin Heidelberg.
- Geels, F. W. 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, 31, 1257-1274.
- Geels, F. W. 2005. *Technological Transitions and System Innovations: A Co-evolutionary and Socio-technical Analysis*, Cheltenham, UK, Edward Elgar Publishing.
- Grimm, R., Fox, C., Baines, S. & Albertson, K. 2013. Social innovation, an answer to contemporary societal challenges? Locating the concept in theory and practice. *Innovation: The European Journal of Social Science Research*, 26, 436-455.
- Haxeltine, A., Avelino, F., Wittmayer, J., Kemp, R., Weaver, P., Backhaus, J. & O'riordan, T. 2013. Transformative Social Innovation: A Sustainability Transitions Perspective on Social Innovation. *Social Frontiers*. London: The next edge of social innovation research.
- Horner, L., Fauth, R. & Mahdon, M. 2007. *Creating public value: Case studies*, Work Foundation.
- Latour, B. 2005. Reassembling the social-an introduction to actor-network-theory. *Reassembling the Social-An Introduction to Actor-Network-Theory*, by Bruno Latour, pp. 316. Foreword by Bruno Latour. Oxford University Press, Sep 2005. ISBN-10: 0199256047. ISBN-13: 9780199256044, 1.
- Laville, J., Bélanger, P., Boucher, J. & Lévesque, B. 1994. *L'économie solidaire : Une perspective internationale*, Paris, Desclée de Brouwer.
- Meehan, A., Budd, L., Grimsley, M., Horrocks, I., Minocha, S. & Walker, S. 2012. eGovernment for You (EGOV4U) Impact Evaluation Framework (EC deliverable 7.7.1. Project # 250509). Brussels.
- Millard, J., Nielsen, N. C. & Thaarup, R. K. 2013. "Report on the role of communities and networks in social innovation, and the role that online networking tools are playing", a deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE). Brussels.
- Nesta. 2014. *Digital Social Innovation* [Online]. Available: <http://digitalsocial.eu/> [Accessed 29th January 2014].
- Rip, P. D. A. & Kemp, D. R. P. M. 1998. Technological Change. In: Rayner S., Malone E.L. (editors). *Human Choice and Climate Change. Vol. II, Resources and Technology*. Columbus, Ohio: Battelle Press.
- Seyfang, G. & Haxeltine, A. 2012. Growing grassroots innovations: exploring the role of community-based initiatives in governing sustainable energy transitions. *Environment and Planning-Part C*, 30, 381.

- Smith, A., Voß, J.-P. & Grin, J. 2010. Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges. *Research Policy*, 39, 435-448.
- Talbot, C. 2008. Measuring Public Value. *The Work Foundation, London*.
- The European Commission. 2013. *Collective Awareness Platforms for Sustainability and Social Innovation* [Online]. Available: <http://ec.europa.eu/digital-agenda/en/collective-awareness-platforms-sustainability-and-social-innovation> [Accessed 29th January 2014].
- The Nominet Trust. 2013. *The Social Tech Guide* [Online]. Available: <http://socialtech.org.uk/> [Accessed 29th January 2014].
- The Young Foundation 2010. The Young Foundation and the Web: Digital Social Innovation.
- The Young Foundation 2012. Social Innovation Overview: A deliverable of the project: “The theoretical, empirical and policy foundations for building social innovation in Europe” (TEPSIE), European Commission - 7th Framework Programme Brussels. pp. 17-18
- Yoo, Y., Lyytinen, K. J., Boland, R. J. & Berente, N. 2010. The Next Wave of Digital Innovation: Opportunities and Challenges: A Report on the Research Workshop 'Digital Challenges in Innovation Research' (June 8, 2010).