

TOWARDS A SOCIAL MEDIA ECOLOGY IN RESEARCH AND DEVELOPMENT – THE CASE OF KUJALI LIVING LAB

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Abstract: This paper presents the role of social media in a particular institution, in terms of corporate (or organisational) learning, in the domain of research and development. The nature of learning in organisational contexts has shifted in the face of resource constraints and post-initial learning demands. The ‘promise’ of social media here involves increased mobility, cost cutting, instant access, and information richness – practical alternatives to older modes of organisational learning. This paper details the adoption strategy of social media with reference to a particular case study, the Kujali Living Lab – a South African research, development, and innovation unit. Social media application in Kujali is intended to be a viable alternative to conventional learning approaches. This paper describes those potential impacts and transformations social media may hold for the practice of research and development in Kujali. The author analyses the opportunities and attributes of a social media ecology, suggesting a framework intervention that may foster acceptance and sustainability of organisational learning in the Living Lab.

Keywords: social media ecology, research and development, organisational learning, living lab.

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1. INTRODUCTION

Social media is considered an integral part of the Web 2.0 experience, characterised by user-generated content, synchronous communication, interactive learning, and relational networking (Magro, Ryan, & Sharp, 2009 cited in Magro, 2012). This form of media generates an abundance of real-time content at an endless pace, independent of time and physical space. The explosive growth of social media over the last decade has resulted in massive online participation. A countless number of updates, opinions, news feeds, comments, and product reviews are constantly posted (“shared”) and discussed on social websites such as Facebook, Digg, and Twitter (among the innumerable varieties) (Azur, Huberman, Szabo, and Wang, 2011). This has had a number of widespread implications for traditional social, political and cultural institutions, readily discernible in the domains of business, government, education, healthcare, and workforces (Fredette, Marom, Steinert, & Witters, 2012).

In this paper, I present the role of social media in a particular institution, in terms of corporate or organisational learning. I look particularly to the division of research and development (R&D). The nature of learning in organisational contexts has shifted in the face of resource constraints and post-initial learning demands (see Sloep, 2012). The ‘promise’ of social media here involves increased mobility, cost cutting, instant access, and information richness – practical alternatives to older modes of organisational learning (see Bertot, Jaeger, Munson, & Glaisyer, 2010). I will proceed to detail the adoption strategy of social media in terms of a particular case study, the Kujali Living Lab – a South African research, development, and innovation unit. Social media application in Kujali is intended to be a viable alternative to conventional learning approaches. In light of this, I describe those potential impacts and transformations social media may hold for traditional work practices in Kujali. I continue to analyse relevant opportunities and attributes, suggesting a framework intervention (media ecology) that may foster acceptance and sustainability of organisational learning in Kujali.

1. SOCIAL NETWORKING IN A TECHNOLOGICAL LANDSCAPE

“By technoscape, I mean the global configuration, also ever fluid, of technology and the fact that technology, both high and low, both mechanical and informational, now moves at high speeds across various kinds of previously impervious boundaries.” (Appadurai, 1996:34)

The ‘technoscape’ is the array of technological forces and instruments that drive industrial and informational development, historically through trans-national corporations and government agencies (Appadurai, 1996). Mechanical and informational technologies are both relevant in this context. However, as a young communication scientist, I am interested in the latter, which can be classified as information and communication technology (ICT): the electronic means for communicating information (Heeks, 1999). As Appadurai rightly claimed, the technoscape – or *digital* technoscape for the purposes of this paper – now extends across boundaries that were previously believed to be impenetrable.

A dynamic technoscape has allowed for a convergence of traditional media. Images, sounds, and text are integrated, seamlessly, in a multi-directional communication domain that allows for vast information transfer. This reconfiguration of media has bred, in Jenkins’ terms (2008), a “convergence culture”. Jenkins looks beyond the new media hype, and instead analyses cultural

transformations as a result of converging technologies. He goes on to detail several case study analyses, pointing to various cultural shifts in the face of widespread communication: transmedia storytelling, crowd-sourcing and new intellectual property movements, social media campaigning, and knowledge formation in spontaneous online communities (ibid.). Although the views of Jenkins are not groundbreaking in contemporary media studies, they do remind us of the transcendental impact of digital technologies and new media.

Convergence culture has also bred a global platform that has vastly expanded access to all sorts of resources, notably via the internet (Brown & Adler, 2008). And with the advent of digital technologies – in combination with the internet as a public network – the world has become increasingly “hyperconnected”. This imparts an environment where the internet and its associated services are accessible and immediate, where individuals and businesses can communicate instantly, and where machines are equally interconnected (Dutta, Bilbao-Orsorio, & Geiger, 2012). The process of hyperconnectivity has been supported by the considerable growth of mobile devices and –connectivity (especially beyond the traditional confines of the West), big data, and social networking. The increase in data traffic and the multitude of connected devices (both mobile and fixed), has led to a significant rise in online social network exchanges. Facebook has topped one billion monthly active users – by far the biggest (and richest) social platform on earth, and the third biggest country by population on the planet (after China and India). In just twelve months, Google Plus – as a direct competitor – grew its active user base to 100 million (Facebook took three years to achieve 25 million) (Dutta et al., 2012; Graziano, 2012).

2. LEARNING IN A HYPERCONNECTED WORLD

A hyperconnected, socially networked landscape has given rise to notable developments in the role of technology in learning (Keegan, 2002). In fact, throughout the 20th century, the idea that communication technology could drive educational transformation gained prominence at various historical stages. These were largely associated with the industrial, electronic, and recently, wireless, revolutions. The promise of educational technology has further contributed to a renewed interest in distance education in degree programmes and technological learning in organisations (see Fanni, Van Zyl, & Rega, 2011). In terms of a changing technological landscape, the concept of learning itself has undergone a steady evolution. Sloep (2012) distinguishes between certain forms of learning, now recognised as formal, non/in-formal, and accidental learning.

These forms invariably occur within two predominant phases: initial and post-initial learning, each with its own learning demands. Typically, the first phase of learning occurs within the formal confines of educational institutions (primary, secondary, tertiary). The next, post-initial phase comprises a type of non/in-formal activity in which learning occurs beyond the offerings of institutionalised contexts (ibid.). The demands of post-initial learners – i.e. those individuals that have since left or passed the initial phase – are steadily being recognised, and require due consideration, especially in organisational contexts.

Online learning networks have been a specific (designed) response to these demands, supporting post-initial and non/in-formal educational activities. The notion of networked learning, manifest in personal or organisational learning environments, recognises that learning is a continuous (lifelong) activity, and can be supported by digital technologies (Attwell, 2007). This implies the development of new ways of organising learning delivery that goes beyond course and programme-centric models, envisioning a learner-centred and -controlled framework of distributed learning (Koper et al., 2005). Networked learning, in turn, presents a number of

challenges, in both its technological architecture and in its pedagogical intentions. Designing appropriate learning environments in this case, may entail flexible, capable infrastructure that enables in-depth information engagement.

3. ORGANISATIONAL LEARNING AND SOCIAL MEDIA: THE CASE OF KUJALI LIVING LAB

The Kujali Living Lab is a creative incubation space that promotes and facilitates research, development, and innovation. It presents a platform on which research activities and strong engagement, both in terms of academia and community partners, can leverage. Kujali – the Swahili term for “care” – is predominantly focused on information technology development and service design, specifically in the domains of healthcare, agriculture, and education (informal learning). Launched in 2009 in collaboration with the South Africa-Finland university partnership (SAFIPA), it represents a flagship innovation unit in the Faculty of Informatics and Design, Cape Peninsula University of Technology (CPUT), in Cape Town, South Africa.

Kujali and its partners have analysed the role of information management and ICT in socio-economic and human development in several research and capacity development projects. Millennium Development Goal (MDG) 8 – “Develop a global partnership for development” – specifically identifies the sub-goal to make available the benefits of new technologies – especially information and communications technologies. The importance of adjusting technology to local contexts is envisaged as a development policy, suggesting that development cooperation should help under-resourced countries gain access to technology applied to their conditions. The principal objective of such a policy is to make ICT available in such countries, but not as information technology development as an end itself. This highlights that the promotion of electronic services is not realistic, and often not even possible, if the information systems, work processes, and expertise at the core levels of the sector are not considered.

3.1 The utilisation of media

Ideally, a Living Lab translates into close and effective collaboration between designer, user, and researcher, improving the ‘innovativeness’ of the respective product, service, or solution (Schoorman & De Marez, 2009). The advantage here – especially for industry partners – is product evaluations that are, for all practical purposes, authentic. In the field of ICT, the research process may be conducted both quantitatively and qualitatively, iteratively, and collaboratively. This may give rise to open innovation as one approach for technological advancement and maturity (ibid.). An open innovation approach also intends to gain an understanding into the contexts of relevant communities, subsequently building relationships and developing local research initiatives. The goal here is to co-design and co-develop ICT (particularly mobile) solutions using media that support collaborative design with the active participation of users. Innovation and sustainability are important considerations.

In its research and development activities, the Kujali Living Lab makes use of a variety of media, social and otherwise, to enable organisational and user-driven networking. And by adopting design-based solutions, its core mission has expanded to the aspect of communication and (informal) learning, both in recipient communities and in the organisation (Kujali) itself. However, most projects in the Kujali innovation unit are conducted in the same physical space by the same individuals within the same problem and solution domain. For this reason, some

projects overlap both practically and theoretically. This overlap is not always made explicit and would occasionally have relevant insights or information that another project could utilise. However, due to the unavailability of a common storage mechanism, cross-utilisation (and – fertilisation) of information rarely occurs. The organisational learning capacity of Kujali is thus hampered by the inability of its staff to utilise in-house (indigenous) knowledge, across platforms and social contexts.

As a result, Kujali initiated the development of a Social Media Facility (SMF). This platform is intended to enable the storage and processing of unstructured social content for use by other projects, users (internal and external), and applications. Ideally, this would allow for the optimal usage of unstructured data sources, which typically do not have widespread circulation. The SMF will facilitate a common storage mechanism for a variety of ‘social content’ types. These content items are to originate primarily from outside of the innovation unit, from partners, stakeholders, or community initiatives. Some of the more processed content items should ideally originate from within Kujali. The Social Media Facility is envisioned as a modular platform, allowing for seamless plug-in of new social and functional components.

The development of the SMF concerns basic modules for initial social content input, management, (transcription), moderation (translation), processing (educational content development), and dissemination (publication). The SMF is intended to be able to trace and enable the processing of content from its initial “raw” format to a form / format that is of use to particular project or individual, especially in terms of educational or learning value. The ‘facilitated’ (or stored) content will be primarily unstructured in nature, and may constitute images, documents, blog posts, pod casts, videos, and the like (see Figure 1 below, adapted from Van Zyl & De la Harpe, 2012). The SMF should be able to store and annotate these data items with metadata in order to make unstructured (raw) data useful. At this point, it must be said that the systematic workings of the Facility and its respective user roles cannot be described in full depth due to space limitations.

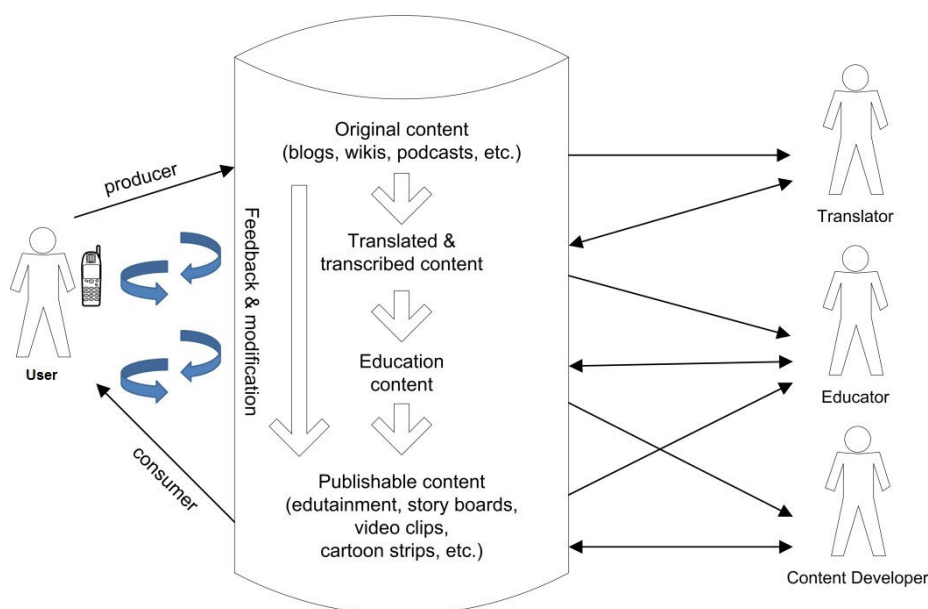


Figure 1. Kujali Social Media Facility and respective stakeholders.

The SMF is intended to be able to interoperate with a host of other applications; these will provide the bulk of the functionality of the content production and dissemination mechanism. Existing products, projects, and/or applications that will interoperate with the SMF include:

- Inform Me: solutions to enable easy access to information and training content for semi-literate and illiterate persons in isolated communities (aims to facilitate informal learning);
- M-Agri: mobile platform to process and disseminate agriculture content to farmers, farm labourers and cellar staff;
- FORME: ICT environments for creative industries to preserve indigenous and cultural content and artefacts; and to provide access to these for stakeholders;
- E2: Enable 'information have-nots' (see Wresch, 1996) to record stories and experiences using social media and mobile technology;
- Tech News: promotes 'community journalism' via social technology, with the active participation of members as sources of news and information.
- Care Data Aid (CDA): Capture, transmit, process, report, exchange and administer patient data captured at the point of care using digital technology;
- Mobi Here: provides mobile access to applicable patient data for healthcare professionals;
- AuthenticID: authenticate the identity of a person who will receive a service or who wants to purchase a product against an authorised source using ICT;
- Virtual museum: create virtual or augmented reality experiences of a visit to a selected space using digital technology.

Essentially, the Social Media Facility within the research and development domain in Kujali is envisioned as a platform to encourage organisational sharing and learning. Within the dynamic Web 2.0 and social media landscape, users within Kujali are able to create and absorb new learning narratives simultaneously. These may consist of stories, experiences, advice, or recommendations regarding the general practice of the organisation (indigenous knowledge, intra-departmental research, development capacities, and the like). The SMF with its content threads could become a valuable resource for users/workers that want to access relevant and appropriate content 'on-demand' – that is, anyone, anywhere, anytime (Van Zyl & De la Harpe, 2012). It will become invaluable for researchers in investigating aspects that may inform in-house personnel, community representatives, and service providers alike. This may eventually contribute to the strengthening of the inter-communicative flows within the organisation (ibid.).

3.2 Towards a social media ecology

Gauntlett (2011) responds to emerging issues of Media Studies 2.0, and emphasises considerable changes to the media ecosystem. Here, individuals can now encounter, interact with, and contribute to media content independent of space and time. He also responds to the collapse of the separation between producers and consumers, arguing that these agents have become creators and curators of digital media. Lastly, he refers to the shift from professional media productions toward commonplace participatory media. The possibilities of social media in terms of wikis, blogs, and online networks provide new opportunities for education and organisational learning. Democratic use is encouraged from the collective intelligence of users and it aims to facilitate creativity, collaboration, and sharing between individuals.

The changing landscape of media reminds of a historical concept introduced by theorist Neil Postman, based on the work of Marshall McLuhan. According to Postman, a fundamental principle of media ecology states: a medium is a technology within which a culture grows; that is to say, it gives form to a culture's politics, social organisation, and habitual ways of thinking (Postman, 2000). Second, media ecology suggests an interest beyond media, in the ways in which the interaction between media and human beings give a culture its character, and, help a culture to maintain its symbolic balance (*ibid.*). In this way, media ecology is characterised by 'humanism', and assesses those social and cultural consequences as produced through and embodied in media.

I position media ecology – or more generally, “information ecology” – as a euphemism for the allocation of informational roles in organisations and in computer-supported collaborative work (see Fuller, 2005). As a theoretical position, with practical implications no less, media ecology may help explain the social impacts of technology-supported organisational learning. In the case of Kujali, the use of social software for the purposes of organisational learning enables the multi-levelled sharing of experiences and (symbolic, social, verbal) accounts. Mechanisms like the SMF in a work context may support workers to acquire tacit knowledge, necessary for effecting decisions and activities. The phenomenon of a networked organisation, in both its economic diffusion and social integration, is universally ecological, with a number of transformative benefits. These are potentially manifest in both personal and organisational behaviour, but have not seen tangible implementation (in the Kujali case). The core ecological functions of such a landscape can be structured according to the following attributes (Fredette, Marom, Steinert, & Witters, 2012:113):

Always on: the distribution of high-speed broadband allows for a state of perpetual connectivity within and between organisations, families, friends, and contacts. This can be extended to online communities, in which personal avocations are internetworked among individuals and groups (see Sloep, 2012). The Kujali Living Lab features an always-on environment, but is also hampered by consistent down-time and limited bandwidth. An always-on environment at Kujali requires the input of an on-site technical support team, furthermore, responsible for its sustainable use. This obstructs the natural flow of organisational tasks.

Readily accessible: always-on connectivity can be facilitated via a universe of readily accessible devices, through both conventional desktop and modern mobile units (notably smart phones and tablets). Accessibility becomes independent of location, and distance. The Living Lab does not have unrestrained access to a diverse range of media devices. This is largely due to limited financial and physical resources. The majority of Living Lab ‘knowledge workers’, therefore, work within the actual confines of the Lab itself – that is, the ‘hub’, or the ‘incubation space’. Beyond this, information is not readily accessible. Projects like the CDA and Mobi Here would require such capability in the immediate future.

Information rich: the intra-organisational landscape of connected devices all link to sources of information and content (websites, news channels, social media, search engines) – presented in different varieties. The quantity and quality of information becomes important criteria for a Living Lab media environment. These attributes define the ‘learning experience’ within the organisation: the production and consumption of information is dependent on its very richness and quality. This aspect also bespeaks the role of translators, educators, and content developers. These persons enable the transition from raw media to socially useful and consumable information.

Interactive: an interdependent media environment ensures multi-directional information engagement and user-generated content, supporting the development of new web generations. Given some of the limitations as described above, interactivity is not easily achievable. Kujali

features an array of projects that may already (need to!) benefit from user-generated, interactive content. Severe resource shortages and limited infrastructure capabilities, however, inhibit this function.

Beyond people: a state of media ecology moves beyond person-person engagement, and includes person-machine or machine-machine communication. Given that the Kujali Living Lab already functions in a ‘social experimental’ environment, the SMF may enhance the possibility and capability of human-computer interaction. This may also help automate certain routine learning tasks.

Always recording: on- and offline activities and communications are continually documented in a semi-permanent record. This is enabled through virtually unlimited content storage capacities, cameras, global positioning systems, sensors, cloud architecture, and the like. These elements offer unlimited networking, but are again constrained by infrastructure. A state of perpetual recording requires immense resources (especially bandwidth), most of which are beyond the developing Living Lab.

Ultimately, the diverse attributes of a media ecology build towards an integrated learning environment. This promotes cross-platform sharing, content distribution, mutual user input, and widespread media consumption across the organisation. The listed Kujali projects may benefit from the universality of such an environment, via a common sharing mechanism. Potentially, this could result in enhanced utilisation and fertilisation of information, effectively strengthening the post-initial learning offerings of the organisation. As such, the Kujali Social Media Facility offers an in-house ‘indigenous knowledge repository’. This repository offers a structured, integrated and learner-centred framework of distributed learning and information engagement. Resource limitations, however, will generally impede the advancement of such systems. Furthermore, the pedagogic value of networked learning is yet unclear: does it impart knowledge?

4. CONCLUDING THOUGHTS

The attributes of a media ecosystem within organisations cumulatively build towards a transcendence of time, space, distance, and social interaction. Such a phenomenon does present its share of benefits and challenges. It primarily enables a virtual domain for collaboration that can drive tacit learning and multi-levelled communication. Conversely, it can also effect a number of deep-seated transformations both within organisations, and across the external community landscape (in the case of Kujali). In this vein, the emergence of a social media ecology, not least in large organisations, transmutes conventional norms of communication, (informal) learning, workplace productivity, and information production. This is by no means an attempt to overstate its omnipresence (or omnipotence!), but a state of multi-levelled connectedness fuels the organisational ‘expectation to change’. Such expectancy manifests predominantly across professional and social institutions. It is only pertinent, then, that we evaluate the transformative capacities of digital technologies in terms of these domains. This can be achieved by outlining those gains (promises) and risks (perils) associated with an increased shift in the adoption and dissemination of digital technology. It is hoped that these concerns be addressed in future research analyses.

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