Social Media and Open Innovation – a Systemic Approach to Commercialisation of Socio-economic Solutions

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Abstract: This experimental case describes an example of a public-private partnership (PPP) to develop a collaborative model for open innovation using social media, with the purpose of addressing socio-economic challenges in the context of a developing country. Open innovation postulates the notion that ownership of processes should be acquired from other enterprises that can afford such levels of research investment, as well as utilising licensing and joint ventures to commercialise internally-generated innovations. However, this multiple channel process is often fraught with mistrust and lack of commitment amongst the participants.

This project proposes a systemic model that optimises innovation through social media and minimizes conflict in the commercialisation of open innovation. Although PPP is a fairly common and advocated approach to challenge complex socio-economic challenges, using social media adds to the complexity of dealing with intellectual property (IP) and/or commercial rights.

In an experimental process entitled "CodeJam 2013", PPP stakeholders (representing business, government, communities and academia) co-designed a collaborative process to develop and commercialise solutions for specific socio-economic challenges. Ascribing to the notion of open innovation, social media was used as the primary source of ideation. The premise for this experiment was that CodeJam 2013 could provide a safe, commercially non-threatening environment in which competitive and concurrent stakeholders could co-design optimum innovative solutions in collaboration with external (social media) and internal ideators, with the ultimate objective of establishing new paths to the market, i.e. commercialisation.

This process consisted of two distinct phases, namely a defined, neutral and shared intellectual property realm referred to as the co-creation phase, followed by a demarcated incubation phase during which partners negotiated for product development (and thus commercial/IP rights).

From the perspective of business (as a PPP partner/stakeholder) a number of outcomes related to the use of social media for open innovation have been identified, inter alia: limiting business risks typically associated with open innovation; the agreed "safe space" promoted optimal innovation as a result of reduced focus on IP rights; radical transgression of internal business boundaries as a benefit from "out"ternships; benefits for external ideators through learning that occurs as a result of intimate business engagement; realisation that problem complexity can be minimised through team participation; the diffusion of the innovation process across PPP boundaries; introducing the essence of "warm bodies" in the clinical processes of open innovation with social media; successful open innovation based on social media is reliant upon extensive co-creative collaboration, networking and shared responsibility from all stakeholders. In essence, this systemic approach to open innovation based on social media proved to be a viable model and alternative for the development and commercialisation of socio-economic solutions.

Keywords: Open innovation, social media, public-private partnerships, intellectual property, socio-economic

challenges, commercialisation.

1. Background:

Historical development

South Africa is lagging behind with respect to the level of digital competence of e-Readiness. According to the 2012 WEF Networked Readiness report of 142 countries, South Africa is at the 72nd place and not yet leveraging the potential benefits offered by ICT. This has serious implications for the country's ability to remain competitive within the global knowledge economy and to capitalise on the advantages posed by the digital economy.

Given the fact that South Africa follows the same "mobile and social media first" ICT development trajectory as other developing countries (Dutta & Bilbao-Osorio, 2012), various stakeholders representing government, business, academia and the community agreed to form a collaborative PPP to develop skills and capacity in the area of social innovation leveraging off social media and mobile technologies. As change makers (Phills, Deiglmeier & Miller, 2008) the PPP agreed to co-design a new model, in an experimental manner, to address socio-economic challenges. The main principles that guided the process were shared ownership and shared responsibility based on relationships of trust.

2. Purpose of this paper

The purpose of this paper is to present a systemic model of work-in-progress that optimises innovation through social media and to report on the outcomes that minimizes conflict in the commercialisation of open innovation. Based on the work of Altman, Nagle and Tushman (2013) the innovation process observed and described here impacts on organisational openness, user innovation, community engagement, social media, all which have implications for organisations.

We propose a novel and systemic approach, as postulated by Sautet (2013) for open innovation in business (based on social media) to address socio-economic challenges. Our approach seeks to incorporate the structure of systemic processes (Visser & Craffert, 2013) in the context of a developing country, not only to generate interest in and support for the acquisition of digital knowledge, skills and competencies, but also that it may present opportunities for, *inter alia*, learning, experimentation, wealth creation, employment in a developer ecosystem.

The envisaged approach to a systemic model aims to follow a process almost diagonally opposed to the traditional methodology of developing solutions to challenges. A key initiative of the mentioned PPP is to leverage social innovation and human skills development off mobile technology and social media. Mitra and Abubakar (2011) refer to such initiatives as processes of "capacity creation", not only in the context of development and growth, but also in moving from levels of low to high productivity, the creation and adoption of new goods and services, developing new skills and creating new knowledge. In a South African context, the approach envisaged in this experiment is (in all probability) the first manifestation of a redirection of resources into human development.

The democratic nature of social media allows for the maximisation of idea generation and solution development as it accommodates cross-boundary interaction and collaboration of (internal and external) ideators in a non-threatening and commercially-safe environment. In this model, innovation precedes the negotiation of commercial rights. In other words, a developer ecosystem (Altman, Nagle & Tushman, 2012) acts as a framework in which an impartial environment is created wherein PPP stakeholders, including competing business organisations, create products/solutions that clients (and communities) may acquire through the marketplace (to address socio-economic challenges).

3. Literature review

Our proposed model builds on a diverse selection of topics from literature, including open innovation theory, public private partnerships (PPP), ownership and IP rights within innovation processes, and the use of social media and crowdsourcing as vehicles for co-operative innovation.

Open Innovation and PPP: Innovation processes are enhanced by the co-operation of competing stakeholders; co-opetition (Mention, 2011). Such co-operation, for the purpose of mutual commercial benefit, requires both public and private stakeholders to step outside traditional ownership boundaries (Altman, Nagle & Tushman, 2013). Open innovation theory, as postulated by Chesbrough, Vanhaverbeke and West (2008), allows for such public-private co-operation – including various levels of community engagement, but limits the usefulness of such arrangements to instances that draws innovation into the research and development processes of a large firm(s) – referred to as inbound open innovation (Dahlander & Gann, 2010). Examples of such inbound open innovation processes include the crowdsourcing of innovative solutions through ideas competitions, which results in a novelty driven competitive advantage for the co-operating stakeholders (Leimeister et al, 2009).

The problematic assumption underpinning co-operative inbound open innovation is that participating stakeholders will share (be able to contract on) the ownership of any resulting intellectual property (IP) product, or process (see Altman, Nagle & Tushman, 2013). As new fields of study, the relationships between: (i) ownership-related friction, (ii) the level of community engagement within innovation processes, and (iii) innovation processes targeted towards solving socio-economic problems have not been adequately addressed in literature.

Altman, Nagle and Tushman (2013) contend that a lack of clarity regarding IP laws and the effect of IP laws on ownership boundaries may have a negative impact on co-operative open innovation. Several IP researchers share concerns regarding the complexity of IP laws within multi-stakeholder processes that extend beyond the boundaries of the firm, as opposed to traditional shareholder ownership, as argued by Klein, Mahoney, McGahan, and Pitelis (2012).

The traditional view of open innovation, as being inbound and governed by ownership agreements, is reviewed in this article.

Ownership conflict within open innovation processes: Moving closer to our model for minimizing conflict during open innovation and the commercialisation of socio-economic solutions, we note that a further cause of conflict within such PPP relationships is the tension between the various agendas (i.e. the internal strategies) of stakeholders. Drnevich and Croson (2013) observe that as stakeholders struggle internally to embed technology driven innovation as a strategy within their business models, whereas Wang, Yeung, and Zhang (2011) state that innovation processes within organizational boundaries are often deflated by issues of trust and ownership. Moreover, when stepping outside organizational boundaries into an open innovation space, the multi-stakeholder and multi-disciplinary character of open innovation processes heighten this conflict.

Optimizing innovation using crowdsourcing via social media: Crowdsourcing via social media is a recognized form of inbound open innovation (Leimeister et al, 2009; Majchrzak & Malhotra, 2013). Libert and Spector (2010) describe open innovation as a proven method for optimizing innovation within firms. However, Spithoven, Clarysse and Knockaert (2011) warn that the innovation potential of social media can only be harnessed if the firm's innovation processes can absorb the large amount of input generated by this approach.

Measuring the materialised results (impact) of crowdsourcing on innovation remains a complex challenge (Orlikowski & Scott, 2014).

Our model accommodates and contributes to the elements as discussed in the literature above, i.e. innovation through public private partnerships (PPP), ownership conflict and IP rights within innovation processes, and the use of social media and crowdsourcing as vehicles for co-operative innovation.

4. Method, structure and approach

4.1. Towards CodeJam 2013

CodeJam 2013 is a substantially revised version of CodeJam 2012, which was the first iteration of an experimental approach amongst a limited number of PPPs to develop (mobile) solutions for socio-economic and business (enterprise) challenges, by means of open innovation based on social media. It was conceptualised as an inbound social innovation process in which ideas/solutions developed by the community were to become part of the internal product development process of the business partner. The 2012 process required the upfront negotiation (contracting) of commercial rights with strict terms and conditions guiding the process. The limited success of the 2012 model as an inbound innovation process was the result of: the application of "strict business rules" (i.e. commercial process and rights) to an explorative 'sandbox environment"; solutions too narrowly defined for commercialisation; and, a lack of follow-through for good ideas. Apart from the development of skills in ideation, use of social media and mobile apps development, the 2012 process did not result in any solution that could be commercialised, or applied to address socio-economic challenges. However, the positive potential of the 2012 process motivated the PPPs to invest energy and resources to further develop and explore the model into a next round, referred to as CodeJam 2013.

As extracted from the literature, the CodeJam 2012 pre-agreement on ownership proved to be problematical, as too much focus was put on commercialisation at the expense of idea generation and idea development. The first lesson learned from our initial 2012 process, was that more investment was required to grow, develop and mature ideas, instead of stifling the process with ownership discussions and agreements; for example, the legal documentation of the first round is still under consideration by the various stakeholders.

Whereas the first round of CodeJam focused on idea generation for generic enterprise and community solutions, a clear lesson learned was that the open innovation process had to be embedded in the reality of the socio-economic context. Given the scarcity of resources in a developing country context, the PPP realised that the challenges to be solved had to be present in, and had to be real for communities or community representatives.

This article focuses on the description of the CodeJam 2013 model.

The CodeJam PPP responsible for the 2013 model consisted of representatives of provincial and local government, an NGO (representing a large community), three universities, students and community members, 2 ICT vendors and 4 companies (of which 2 are listed on the local stock exchange). To become part of the PPP, stakeholders had to commit to participate in and contribute towards Phases 1 and 2 of the process. Phase 1 of the CodeJam process consisted of the neutral, collaborative (almost "educational") phase in which all stakeholders participated in the outbound social innovation process. Phase 2 (i.e. the competitive, business aspect of the process) focused on the selection of and investment in ideas/solutions for commercial purposes.

The precondition for CodeJam 2013 participation was based on the premise that participants would waive their conditions for IP and commercial rights during the first phase of the process, i.e. no contracting would take place

before or during the innovation phase of the 2013 process. It was generally agreed that the terms for the eventual commercialisation of resultant solutions were to be postponed to Phase 2 of the process.

4.2. Description of the CodeJam 2013 approach/model

The two-phased CodeJam 2013 process is presented in Figure 1.

For the experiment, as briefly delineated above, our emphasis during Phase 1 was on creating an environment free from the conflicts typically associated with similar multi-stakeholder innovation processes, whereas Phase 2 was concerned with the processes of targeted commercialisation of the successful outcomes of Phase 1.

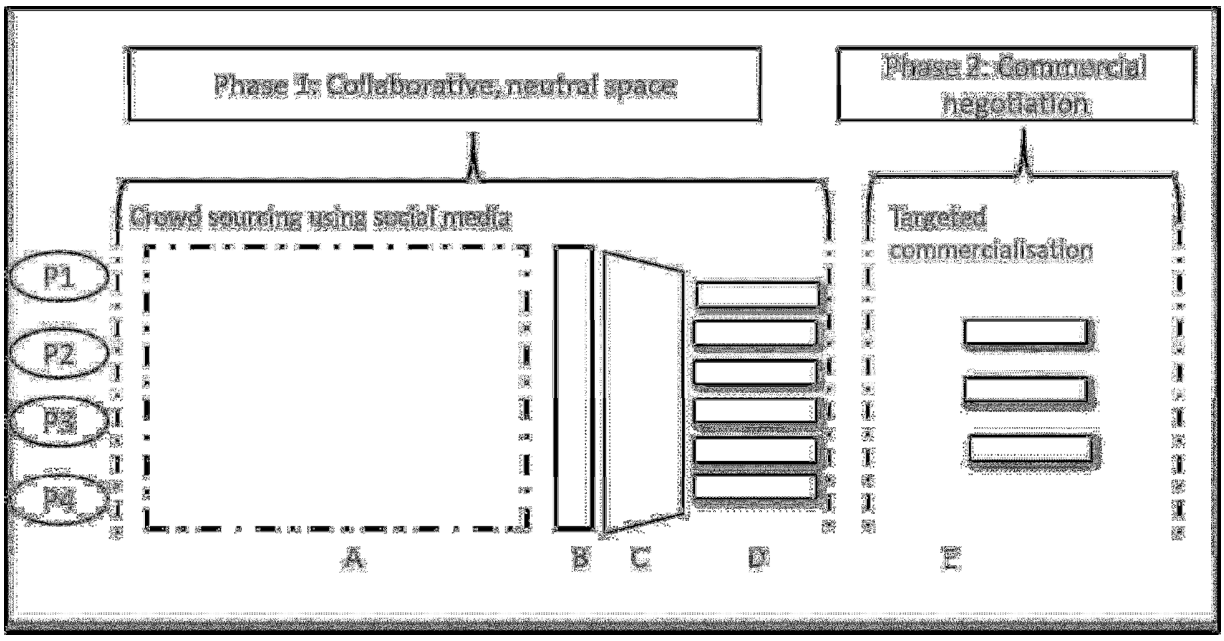

Figure 1: The phases of the outbound innovation process

The "internal dynamics" of Phase 1 are briefly described below:

- Representatives of the government and the NGO sectors identified four real-life challenges (P1-P4 in Figure 1) in the surrounding communities which required innovative solutions. These challenges ranged from addressing transport challenges to support for young job seekers. The representatives of the government departments (local and provincial) and the NGO committed themselves to take the refined ideas (mobile solution) forward. In principle this could require the provision of sponsorship for the incubation of ideas, acquiring venture capital, or to deploy the solution in their particular portfolio.
- Based on the principles of crowd sourcing, community members between the ages of 18 - 25 were invited to propose solutions for these problems using social media (see A in Figure 1). In the guise of an 'ideas competition' the social media idea portal was open for 2 weeks for postings.
- Using the same idea portal, ideators were then afforded the opportunity to vote for and give a weighting to "popular" or feasible ideas. The stakeholders participated in this process by adding to ideas, sharing research information to support or redirect ideas, or simply by indicating support for a particular line of thinking (step B in Figure 1). The democratic nature of the social media as platform made it possible for stakeholders to contribute across sector boundaries, as postulated by Phills, Deiglmeier and Miller (2008).

- Atypical to crowdsourced inbound innovation (Leimeister et al, 2009), a more personal approach was then followed where the ideation process via social media was followed by a face-to-face ideation workshop (step C in Figure 1) with the main objective being the optimal development and refinement of ideas/solutions to address the stated challenges. Ideators had the choice to work in self-selected teams or as individuals. As the result of the dilation of organisational boundaries during step B of the process - given the democratic nature of social media - cross-boundary participation followed naturally during the face-to-face workshop.
- Step D required ideators/participants to work in teams to refine their solutions, build a business case for the solution, and translate the case into a mobile app, or a prototype for a mobile app. Participants were motivated to work in teams as CodeJam 2012 clearly demonstrated that innovation (and related learning, knowledge creation) is enhanced by multi-disciplinary collaboration (see Hearn & Bridgstock, 2009). As in steps B and C, ideators had open access to stakeholders for guidance and support.
- During steps A - D of the model, the stakeholders provided training to participants on mobile apps development (iOS, Android, prototyping), design thinking and business case development - a concept we referred to as *outernship*
- Phase 1 of the CodeJam 2013 process was concluded with the presentation of the ideas to an evaluation panel comprising of the CodeJam 2013 PPP (stakeholders), to identify those solutions that best addressed the challenges.

Although outside of the framework of this paper, the internal dynamics of Phase 2 are briefly described below:

- This phase of the CodeJam 2013 process is still unfolding - it is an area that requires detailed attention in the months to come. As agreed at the onset of the process, stakeholders could exercise the right to choose a particular solution with the view of commercialisation. The latter choice implies that commercial and IP right negotiations have occurred in a limited fashion, only with those individuals who formed part of the particular solution.
- In reality, the flow from Phase 1 to Phase 2 is not as linear as anticipated. The generated solutions varied in magnitude which calls for different methods of intervention towards commercialisation. For example, some solutions need to go into a pre-incubation phase to further develop the proposal or business case, whereas others require significant financial investment, which is the domain of venture capitalists.
- The PPP is currently in the process of developing and expanding Phase 2.

5. Outcomes

The addition of social media in a neutral innovation space contributed new insights and possibilities for PPPs to address socio-economic challenges in a systemic manner. These novel insights enabled the researchers to extract a number of outcomes which may impact positively on how PPPs can be structured to facilitate open innovation for socio-economic development. This also has implications for how business conducts open innovation to develop solutions. Although these outcomes have been observed and manifested in a developing country context, their impact is not restricted or limited to environments fitting that status only; rather, evidence suggests that the outcomes may be equally applicable in an industrial economy context.

The major outcomes of the study are described below:

- Applying social media in the innovation process facilitates the fusion and collaboration of PPPs (stakeholders) across boundaries, a process described by Phills, Deiglmeier and Miller (2008) as "dissolving sector (silo) boundaries." *Although parties agreed to collaborate, they still 'toil' within the*

boundaries of their respective silos. The CodeJam 2013 model supports the notion that the democratic and open nature of social media as innovation platform enables parties/stakeholders to collaborate equally in an open, boundary-less space. Social media, therefore, contributes to dissolving sector boundaries amongst multiple parties in their effort to address socio-economic challenges.

- The neutral collaborative space outside the traditional stakeholder boundaries facilitated the unrestricted participation in the co-creation phase in view of creating the best solution for the problem. The CodeJam 2013 model, therefore, proposes the concept of *outbound innovation* as a potential viable model for structuring innovation initiatives. Outbound innovation (Altman, Nagle & Tushman 2013) leaves the innovation outside the internal R&D sphere of individual stakeholders (Altman, Nagle & Tushman 2013) which is in contrast to the typically observed classic open innovation (i.e. inbound innovation) that draws innovation into the firm.
- Outbound innovation, as proposed in this model, is a viable option under the condition that the collaborative space (steps A, B and C in Figure 1) is not restricted by IP and commercial requirements. As experienced during CodeJam 2013 the reduced focus on IP rights created a safe space free from the pressures of the profit motive which contributed to the pursuit of the primary objective, i.e innovation (Altman, Nagle & Tushman, 2013). We argue that the cohesion of stakeholders during this process can be attributed to trust relationships and the commitment to be change makers (see Wang, Yeung & Zhang, 2011; and Phills, Deiglmeier and Miller, 2008).
- Open innovation based on social media can be significantly enhanced by allowing ideators to engage in face-to-face situations for idea development and refinement (step D - warm bodies in addition to cyber bodies/ideas). This argument counters the capacity absorption dilemma of companies to deal with the scope/magnitude of ideas generated by means of social media (Spithoven, Clarysse & Knockaert, 2011). This face-to-face interaction, open for participants and representatives of the PPP, provided the additional opportunity for stakeholders to add depth and wisdom to the idea refinement process. This agrees with the observation by Phills, Deiglmeier and Miller (2008) who state that *"thought leaders generate the kind of knowledge that can truly support the development of social innovation."*
- The safe, neutral space (provided in steps A-D) not only contributed towards the innovation process, but facilitated the stepping out of the typical silo mentality into an education-focused arena of transdisciplinarity (Hearn & Bridgstock, 2009) which is required for the development of solutions to complex problems.
- The radical transgression of silo (business and disciplinary) boundaries also enabled stakeholders to develop confidence in cross-boundary and transdisciplinary collaboration (e.g. co-operation, networking, and partnership formation, impact of synergistic allegiances and alliances) - a core skill that stands them in good stead in the growth and survival of their own businesses/endeavours.

6. Conclusions

This systemic approach to open innovation based on social media proved to be a viable model and alternative for the development and commercialisation of socio-economic solutions. The approach followed by the researchers was an attempt to present an alternative method of "doing things", i.e. novel combinations of skills, competencies and resources to achieve the desired/anticipated outcome: an optimised social innovation process, enriched by mobile and social media technologies, without the restrictions of ownership contracts.

Successes attributed to this approach are: (i) the ability of our model to promote the quality and social impact of innovation as the highest priority in a developing country context, with ownership, IP rights, and the internal strategies of stakeholders being managed as secondary concerns in a separate post-innovation contracting phase; and, (ii) the model's support for the notion that social media can be used to build multi-stakeholder partnerships,

break down traditional silos of ownership, optimise innovation, and increase the absorption capacity of the innovation process.

This research project showed that a multi-stakeholder partnership (PPP) consisting of business, academia, government and the community not only creates a full array of positive outcomes manifested in new opportunities, business growth, individual advancement, but more so the commercialisation of hitherto profitable solutions for socio-economic challenges. Future avenues of research include the development of detailed guidelines for the second (contracting and commercialisation) phase of our model.

With its objective of proposing an implementable, systemic model that optimises innovation through social media and which minimizes conflict in the commercialisation of open innovation, this South African PPP moves us with clarity into a new direction that correlates with the literature, namely that innovation (social and otherwise) is optimised outside the boundaries of the firm, enriched by multi-stakeholder participation, and enhanced through social media.

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