Innovation, Influence, and a Deck of Cards: Exploring an innovation intermediary through Human-Centred Design – By John Barker, Prof. Nick Clifton and Prof. Gareth Loudon (Cardiff Metropolitan University)

**Context**

Intermediaries are described in a variety of terms; innovation intermediaries (Billington and Davidson, 2013), innovation consultants (Wright, Sturdy and Wylie, 2012; Bianchi et al., 2016), boundary organizations (O'Mahony and Bechky, 2008), specialist knowledge providers (Tether and Tajar, 2008), virtual knowledge brokers (VKBs) (Verona, Prandelli and Sawhney, 2006), and third parties (Howells, 2006).

The role of intermediaries in the innovation process has changed depending on context, with Fabbri and Charue-Duboc (2016) and Groves and Marlow (2016) outlining incubation and co-working space as an intermediary, and Nambissan, Bacon and Throckmorton (2012) highlighting venture capitalists as performing the same function. For the purpose of this paper, the role of the intermediary will be defined broadly as brokering and transferring knowledge into the recipient organisation through the mechanism of a digital platform (Boudreau, 2010; Hossain and Islam, 2015; Kokshagina, Le Masson and Bories, 2017).

Contextually, less economically developed regions, in this case Wales, can have lower labour productivity expressed through below average gross value added (GVA)(Munday et.al; Pugh et.al.2018). Research and development and organisations such as intermediaries who catalyse this activity can have a positive effect on this deficit as Baughan (2015) states “innovation...accounts for 25-50% of labour productivity growth”. Exploring the inner-workings of a specific innovation intermediary in Wales will shed further light on the process of creating innovation and the contribution that these brokers make to the Welsh economy.

**Objective**

To explore, through an observational case study format, an innovation intermediary and its approach to assisting organisations with innovation activity. The study also aims to apply a novel methodological approach by adopting an ethnographic approach to understand and explore this specific environment.

**Contribution**

The impact of the intermediary on the innovation process is dependent on factors such as resource, role, responsibility, and reach within both internal and external environments. While each of these factors is explored in the body of knowledge there is little focus on the how intermediaries “mediate knowledge collaboration between organizations and online user communities” (Randhawa et al., 2017, p. 1294). This study will, in part, examine and explore how the innovation intermediary mediates this knowledge through observations in the host organisation, Innovation Station, using an ethnographic approach which takes the study into the bounds of new knowledge. Hossain and Aneesur-Rehman's (2016) systematic literature review of open innovation highlights the novelty of this approach suggesting the methodology to explore this; “Open innovation disciplines can be enriched by borrowing research
techniques from other disciplines [including]… ethnography”. This study adopts this method for data capture, alongside human-centred design processes, and in doing so, seeks to gain insights from the inside of this relationship between the intermediary and the knowledge receiver in open and closed innovation relationships.

**Methods**

In order to explore the approach to open innovation of this intermediary, semi-structured interviews were conducted as part of the ethnographic data capture before employing human-centred design research processes to triangulate the findings across the study.

It should also be noted that the employees were split into 3 groups involving the Senior Management Team, Software Engineers and Sales Team. The division of staff in this way was due to the implied influence of management figures within group settings. The division between the software engineers and sales team also considers the propensity for salespeople to be more gregarious and potentially assertive within these group settings.

The study employed the following group activities involving all participants from the first data capture stage mapped to the objectives of the study. These human-centred design methods have been adopted from The Field Guide to Human-Centered Design (IDEO.org, 2015):

1) Drawing (15 mins) – This pen and paper exercise will ask participants to visually represent the customer persona, which provides insight into the values and beliefs of both the participants and their intended customers.

2) Card Sort (15 mins) – Visual exercise to test how employees view technology in the process of innovation. The deck of cards, each card with a word or single image, will then be ranked by participants in order of preference.

3) Collage (15-30 mins) – Visual creative exercise using imagery and text from a selection of magazines and publications to understand what the participants believe is the makeup of the innovation crowd and how knowledge is shared and centred across the group.

**Data Capture**

**Drawing**

There are many benefits offered by using visual methods as a research tool as articulated by Prosser and Loxley (2008, p. 4)

“visual methods can: provide an alternative to the hegemony of a word-and number-based academy; slow down observation and encourage deeper and more effective reflection on all things visual and visualisable; and with it enhance our understanding of sensory embodiment and communication, and hence reflect more fully the diversity of human experiences.
Studies have also suggested that reporting the contents of a drawing is seen as less threatening than verbal feedback from direct events or emotion (Miller et al., 1987) so using this method to reinforce the findings of the semi-structured interviewing is appropriate.

In order to provide a structure for the participants to work around, the study employed a category system to define customer personas which should be “composed of attitudes (motivations, beliefs, wishes) and behaviours”(Ferreira et al., 2018, p. 280). This framework to discover customer attitudes and behaviours were then combined with category systems taken from an Empathy map for innovation (Gray, Brown and Macanufo, 2010) which are; context, technology experience, problems, needs, and existing solutions.

**Card Sorting**

Card sorting is used widely within business management research, utilising existing categories to create the deck of cards, with participants ordering the cards preferentially to illustrate the importance of the elements of the process/category. This study utilises Stokes (1997) model to create the following categories of an innovation process:

Science-push linear theory: Basic science, Design and engineering, Manufacturing, Marketing Sales

This Stokesian model lacks the awareness of the development of open innovation so in order to enhance this categorisation, and ensure relevance for the organisational setting, elements of de Paulo, De Oliveira and Porto’s (2017, p. 109) Open Innovation Practice model are incorporated including “involvement of non-R&D workers in innovation initiatives”, “customer involvement” and “external participation”. The benefits of extending this categorisation are that there is a broader parity between technology, market-driven forces, and human capital.

**Collage**

The use of collage making in research activity is used to:

> “overcome the overly rationalistic approach of many data collection techniques commonly used to produce qualitative data… ethnographic research mainly rely on data drawn from spoken words, text and observed reality and tend to downplay perception and experiential aspects of research participants’ lives.” (Vacchelli, 2018, p. 172)

Using the collage technique to complement and test the findings of previous data capture allows the study to enhance the perception and experiential aspects of this study. This approach has also been used in the following studies to capture data; (Koll, von Wallpach and Kreuzer, 2010; Soltanifar and Ansari, 2016; Pavesi, Denizci Guillet and Law, 2017). In order to prompt participants the following statement was read out to ensure relevance to the hypothesise “Make a collage that represents the
Innovation crowd (our users) and tries to illustrate how knowledge or expertise is shared and centred across the group?”. The use of category systems was difficult to implement with such an exercise given the unstructured nature of images/texts in a variety of publications.

In order to add an element of reliability into the research method the following publications were given to each group which were published on the same day/month:

- Metro Newspaper
- The Sun Newspaper
- The Voice Magazine
- Women's Own
- Homes Property Magazine
- A selection of flyers from local tourist attractions including Folly Farm, Digger Land and Monmouthshire Railway.

The respondents where then asked to explain their creative choices, selection and prioritisation and responses were videoed and then transcribed for thematic analysis. The participants were also interviewed individually using a semi-structured interview process to ensure that group influencers and social bias where reduced, and those findings from the group activities were confirmed. Again this work has been transcribed and thematically analysed to formulate the results.

**Results**

The results illustrate that in this particular observational case study that despite the focus on technological outputs and a digital platform to deliver open innovation, individuals within the company view innovation as a human-centered activity as illustrated through the semi-structured interviewing and card sorting group activity.

The collage elements illustrate a broadness and variety of thinking from employees in the intermediary in relation to the human capital within a crowd of solvers for their innovation challenges. The staff interviews highlight the need for diversity in the crowd of innovators, which supports the popularised view of crowdsourcing literature.

Interestingly, the drawing exercise which focused on the customer persona, and who the staff identified as the company’s main customer was contradictory to the findings of the semi-structured interviews which identified education as both factually and philosophically closest to the innovation intermediary’s expertise and experience.

**Conclusions**

This study concludes that in this particular instance the intermediary generates innovation activity from a human-centred perspective which challenges the technological focus of the innovation literary domain (see Howells, 2006; Lichtenthaler and Ernst, 2008; Katzy, B. et al. 2013; Ahn et.al 2016). Gaining an understanding of how an intermediary operates and supports this process, helps form further planned study into the wider innovation ecosystem in Wales. The themes of this study will feed into planned quantitative and qualitative data capture
examining the role of innovation in Welsh-medium sized enterprises. This will then, in turn, be reflected to key policy-makers to ensure project impact.

Although this study cannot make wider conclusions outside the bounds of the organisation in which the human-centred design and ethnographic research took place. The study does provide insight and learning into the inner-workings of an innovation intermediary helping to frame future research on innovation intermediaries through ethnographic and human-centred design methods.

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