

COMMUNITY INNOVATION: PARTICIPATORY INNOVATION AS A VIABLE ECONOMIC MODEL

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ABSTRACT

Expat Spouses Initiative is by itself a solution that emerged out of participatory innovation, engaging partners, stakeholders across boundaries (government, companies, facilitators and communities) and finding cross-disciplinary solution to an issue of critical social relevance. However, the solution the organization offers to professionally activate the community deploys participatory innovation as a strategy. Community Innovation is a new way of working that fosters cross-disciplinary cooperation among the highly-skilled professionals from diverse professional and cultural backgrounds that the ESI community in Eindhoven is abundant with. They will be of value to both big companies, which may commission custom projects or adopt a prefabricated solutions through the organization, and to the individual professional who develops skills to work in the border of disciplines using participatory approaches. Eventually, these collaborative ventures can therefore lead to both entrepreneurship opportunities for the collaborators or to professionals with unique and enhanced skill sets finding employment within an organization.

1. INTRODUCTION

1.1 BACKGROUND

Eindhoven, the fifth largest city in the Netherlands with a population of more than 220,000 and approximately 750,000 in the Eindhoven metropolitan area (SRE - Samenwerkingsverband Regio Eindhoven), has one of the most thriving international populations in the country. It is supported by world-class industries, both homegrown (Philips, ASML, DAF, NXP etc) and international (FEI, TomTom etc). Referred to as the Brainport Eindhoven region, Eindhoven provides a vibrant technology platform responsible for 40% of the country's total R&D (Eindhoven 2014). With top-notch the technology (TU/e) and design schools (Design Academy) in the region, it is no surprise the region attracts and sustains a high demographics of international highly-skilled migrants (van der Mulen 2014)

Many cities, like Eindhoven, have seen increasing numbers of international migration mostly owing to economic progress and a globalized market economy (Dumont and Lemaitre 2012). Although there are many advantages to this opening up of borders, like the rich human capital nexus cities like Eindhoven enjoy one of the critical derivative issues is the opportunity or rather lack of it for the spouses who accompany migrant highly-skilled workers.

1.2 THE CASE FOR MIGRANT SPOUSES

Diversities, a scholarly journal published by UNESCO, evaluated female migration outcomes. It's agreed that the issues relating to migrant women transcend assimilation based on established markers of human development/ gender indices (Piper and French 2011). Instead one needs to consider various data including, quantitative (years of education attained, income) to qualitative (legal status, knowledge and awareness); observable (job status, social inclusion, deskilling) to obscure (escaping oppressive gender roles) internal, or linked to migrant women's personal situations and conditions (notions of rights and entitlements, personal security, decision-making power), to external, or

influenced by external forces (legal authorities, migrant associations) (Gaye and Jha 2011).

The concerns raised are particularly relevant to migrant spouses. Owing to many factors, including language, opportunities, cost of child-care, and more recently the economic crisis that has resulted in increased competition in the job market, many end up not pursuing a career. The situation is clearly not to anyone's advantage. The women lose the opportunity to enjoy an independent career that enables them in many dimensions including a sense of accomplishment. The financial and qualitative disadvantages to both the concerned women and their family, in the short and long term maybe many. Cities like Eindhoven lose the rich, diverse, human resource that is already at their disposal.

1.3 EXPAT SPOUSES INITIATIVE, EINDHOVEN

There is a significant migrant spouse population in Eindhoven. In spite of the striking unemployment rate among internationals in Eindhoven region (approximately 27%) the issue is not pointedly addressed. Steps taken by government, policy makers, independent organizations, companies etc target a larger fraction that includes international spouses (Expats, Women or spouses etc) that sometimes addresses the problem tangentially. Nevertheless, there is increasing awareness about the issue and the need to respond to it. It is increasingly evident that the welfare of spouses of employed internationals is one of the factors that determine employee satisfaction and long-term allegiance to the job.

Independent and qualified responses from institutions or companies in the region (See Appendix A: Note #1) are incohesive and scarce. Expat Spouses Initiative (ESI) was set-up by three professional international partners (two of the initiators are authors of this paper), in response to the problem at large that they personally experienced. ESI represents the professional community of skilled and highly-skilled international spouses in Eindhoven. It is envisioned as non-profit organization that provides critical support, enables networking within the community and with relevant local organizations, and continuously facilitates professional 'activation' of spouses. As designers, the initiators have sought to continuously apply design thinking to this complex problem that has tremendous social significance as well as organizational challenges.

1.4 WHAT IS COMMUNITY INNOVATION?

The initiative has developed various solutions to activate professional international spouses in Eindhoven, broadly aligned with a 'three-channel' approach – employment, entrepreneurship and creative collaboration. The first two channels investigate opportunities to activate spouses by employment or entrepreneurship. The third channel, creative collaboration, essentially provides the opportunity for ventures to partly operate with the support of the organization. It is envisioned as an incubator space

within the organization that actively enables consultancy, skill development, networking etc.

The Community Innovation model that is discussed in this paper is developed within the scope of the third channel. The most striking asset of the expat spouses' community is that it is inherently a community of multi-disciplinary professionals. There is an available pool of experts in various fields of technology, design, business etc. On the other hand, the most significant local resource in the Eindhoven region is the city's invested capability and future interest in innovation, technology etc evident in the many hi-tech companies here. Community Innovation is a user participation approach that brings together these two available resources to mutual benefit.

User participation approaches, in spite of their intrinsic market value do not enjoy wide market adaptation. There are various reasons for this including organizational structures of companies, the reprioritization of time, effort and resources these projects require etc (Buur and Mathews 2008). Community Innovation proposes a spin-out model to negotiate bottle-necks in internal adoption of user-centered methods in the market. 'Expert' user groups of different compositions are set-up to address different projects that are outsourced from companies, with representation from stakeholders within the company. Each project may use several user groups, with appropriate 'expert' concentrations and required expertise. The core team of designers will guide the projects in design thinking and user participation approaches.

Community Innovation model extends on contemporary user participation approaches on two aspects – use of 'expert' users and the spin out model. It is developed both as a community participation model and revenue generation or business model that supports the core cause of the initiative – activating spouses. This paper will put forth and argue both these dimensions of the model in detail.

2. LITERATURE AND THEORY

2.1 VALUE OF EXPERT USER IN MARKET ADOPTION OF USER PARTICIPATION APPROACHES

Buur and Mathews paper on Participatory innovation argues that the key to wider market adoption of user-centered innovation lies not so much in refining existing user-driven innovation methods but better appreciating the practical difficulties in applying these approaches in existing organizational structures of companies (Buur and Mathews 2008). Three user participation approaches - lead user method, participatory design and design anthropology - are elaborated in relation to market adoption.

Community Innovation model significantly strengthens the market orientation of the three approaches by introduction of the 'expert' user. Of the three

approaches, the lead user approach is identified as the most market-friendly. Von Hippel identified the tremendous business potential of lead user in late 80s. A lead user typically experiences the need for a product months or years ahead of the market, and in many cases sets to build his product improving on existing products (von Hippel 1988). von Hippel identifies lead users in ‘target markets’ or ‘advance analogous field’, which are advanced fields that develop products for a different purposes (Anti-lock braking system, ABS developed for airplanes) that later mature in other fields with wider requirement (ABS used in cars) (von Hippel 2005). In Community Innovation model, an ‘expert’ user is a professional with expertise in a certain field. It is expected that her expertise in a target field may help her carry out the role of the lead user during the product development or innovation process within the user participation group. Within a user group of multi-disciplinary expertise, an expert with experience in an advanced analogous field may also contribute immensely in identifying a new target market.

The second user participation method, Participatory Design, has a seeming conflict with the Community Innovation. PD’s humanist approach involves and ensures ‘ordinary users’ are able to make important contribution to product and services (Buur and Mathews 2008). However, as Schuler and Namioka clearly state, “PD, ofcourse, demands active participation. PD, however, is not against expertise. [...] Specialized training and experience, both technical and interpersonal, are important. In participative model, however, this specialized expertise become yet another resources to be drawn on – not a source of unchallenged power or authority” (Schuler and Namioka 1993). Therefore, carefully embedding ‘expert’ users in a participatory set-up can only enhance the ‘marketability’ of participatory approach. In addition, PD is about ‘methods’ development and not about application of one method in different context. “The methods (PD) are tailored to the particularities, This gives it a remarkable scope to actually effect a needed change in organizations [...]” (Buur and Mathews 2008). Supported by design thinking, Community Innovation adopts PD as a methodology

The inarguable usefulness of the third method, Design anthropology in delivering uncanny market insight is usually trumped by the tedious process required on the part of the company to secure and analyze anthropological data about a product, service etc. (Buur and Mathews 2008). As a result, depthless and generic market research is the industrial alternative. However, the already existing multi-cultural, multi-ethnic, multi-disciplinary community of expat spouses offers a unique market opportunity for local industries to gather anthropological data about a product, innovation or service. Within Community Innovation model, user group aimed at gathering anthropological data may be set-up at relevant points.

2.2 THE USEFULNESS OF ‘CONSULTING MODEL’ IN OVERCOMING ORGANIZATIONAL BOTTLENECKS

As discussed before, existing organizational structures of companies critically limits the adoption of user-centered approaches (Buur and Mathews 2008). Innovation, especially in large or medium-sized organizations, requires extensive across-departments or across-sectors cooperation within the company. The community innovation model operating on a spin-out model is expected to overcome many organizational hurdles (Junginger 2008). Johannes Gartner, elaborates on the usefulness and relevance of Participatory Design in consulting. His paper argues for participatory design based consulting or participatory design based system design in place of Classical System design model (Gartner 1998). By extension of his argument, we here put-forth the advantages of consultancy-like model for community innovation.

Consulting, by nature, is oriented towards the market and customers (Gartner 1998). The consultancy model typically consists of a consultant (Actor #1) who is hired by a customer (Actor #2), to execute a project. Scope of the project may be technical, organizational development, training or coaching, managerial for a limited amount of time etc. Based on the project, Client (Actor #3), who is typically the focus group that requires consultancy services, is defined. The terms of consultancy is established between Customer and Consultant, where the services are delivered to the client. Gartner argues for the usefulness in adopting Participatory design methods with the ‘Client’, while elaborating on the complexities this brings forth in the customer-consultant relationship. In community innovation model, the organization represented by a core design team plays the role of the consultant (Actor #1) hired by a company (Actor #2), to complete a outsourced project for which different user groups (Actors #3) are set-up, fully accommodating user-participation methods.

Traditional consultant models are spin-in models. Although the consultants are temporary external elements, they have to reckon with internal organizational politics of the host customer (Gartner 1998). A spin-out model removes these organizational bottlenecks. Titscher’s typology marks a broad frame to classify consulting (Titscher 1996). He distinguishes two dimensions that determine how the consultant positions herself differently – 1. Involvement of the Consultant, 2. Scope of the consulting field. Since the ‘involvement of consultant’ may vary from low (training, adjusting, facilitating) to high (crisis managerial responsibility), the definition of responsibility defines the extent the consultant interferes with organization structure of company (Titscher 1997). Outsourcing the project satisfactorily addresses this dimension and potential disadvantages. The second dimension, scope of the consulting field, is critical in a Community Innovation as it determines the project definition and the technical expertise required to deliver

the project. Community Innovation allows for projects of narrow scope requiring high technical expertise (more expert users) and broad in scope requiring higher participation of ‘ordinary’ user (Farrington, Bebbington et al. 1993).

2.3 BUILDING AN ECOSYSTEM - TOWARDS SOCIETAL INNOVATION

Community Innovation is a unique ‘designed’ response to a local social condition. There are two dimensions that may be termed particularly salient – 1. Community participation model, which focuses on adoption of community participation methods to build, foster and utilize the community for their own benefit, 2. Business Model, which focuses on creating value for all stakeholders while addressing an existing gap which is market adoption of user participation methods. The two salient aspects are supported below.

2.3.1 COMMUNITY BUILDING, PARTICIPATION AND INNOVATION

We acutely realize the necessity and potential of participation for Expat Spouses Initiative’s cause. Sanoff puts forth the benefits of participation for three actors. First, on the social dimension, it results in greater meeting of social needs and increasingly effective utilization of resources at the disposal of the community. In a volunteer-powered program like ours, this cannot be truer. Second, it gives an increased sense of power of the decision-making process and awareness about the decisions made, which ensures commitment towards the decisions made (Hester 1987; Hester 1990). Third it gives more real and up-to-date information to the professionals (Sanoff 2000). In Community Innovation, it is also unique opportunity to create value out of professional users and non-professional user interaction. Sanoff succinctly sums it up, “The ability to build collaborative relationships is regarded as the basis for future community and organizational success” (Sanoff 2000). Within ESI, the social dimension of participatory methods are fully utilized and harnessed as societal innovation tools.

2.3.2 CREATING VALUE OF STAKEHOLDERS, OPPORTUNITIES FOR THE COMMUNITY – A UNIQUE BUSINESS MODEL

The solutions requires across-the-board co-operation of various stakeholders. To be successful, they must create value for all the stakeholders while creating value for the community. The ecosystem design den Ouden proposes is relevant here. An ecosystem once established ensures the innovation generated will sustainably deliver value to all members of the ecosystem (Ouden 2012). The community innovation is an attempt to design such an ecosystem built upon the core values, inherent assets of the initiative while creating value for both the service providers (expat spouses community) and customers (companies, industries, projects etc). Within this ecosystem, everybody benefits. For the community, it creates opportunities for professional activation. For the city,

municipality and local organizations (like Brainport Development) it reduces unemployment in the region and contributes towards retention of existing international population creating a favourable climate for more international talent and investment. For companies and industries in the region it is tapping into existing human resources already available locally.

The ‘business model’ also supports one of the central arguments of this paper – Community Innovation promotes better market adoption of participatory methods. Community Innovation, where projects requiring certain expertise and certain insight are outsourced, is based on a user-centered consultancy model. However, unlike a typical consultancy scenario the Spinning-out a project is agile, risk-free and cheaper for companies. In addition, Community Innovation offers the possibility to “spin-in” the multi-disciplinary user group that has gained experience in a particular project and interest of the company. The ‘Spin-in’ model offers the companies an attractive ‘try-and-hire’ opportunity and provides further market orientation for participatory approach

Although Participatory design partly emerged as means of addressing the issue that designers of technology knew very little about users of these technology, it was also a means of ensuring that technologies supported and encouraged users’ knowledge and skills rather than redefining or eliminating people’s jobs (Buur and Mathews 2008). The social focus of the initiative and its primary aim activating of professional spouses is in agreement with this humanist origins of user-centered approach. Community innovation directly focuses on training, enhancing and deploying participatory skills of experts and adopting participatory approaches by the companies.

3. DATA AND METHODS

Representing the community of international professional spouses is central to the initiative’s mission. There are nearly 37.000 internationals in the Eindhoven metropolitan region and more than 20.150 live in the city of Eindhoven. However, all research and available data concern with the 45.2% of employed internationals. In the remaining 54.8% internationals that include students, children, elderly, self-employed, the demographics of spouses is barely visible (van der Molen 2014). We estimate (See Appendix A: Note #2) that of the estimated 9000 economically inactive international spouses in Eindhoven region, an estimated 5400 skilled but economically inactive spouses live in the city of Eindhoven alone, of which at least an estimated nearly 1600 spouses are highly-skilled (van der Molen 2014).

The schematic representation points out, somewhat disturbingly, to the lack of qualitative and quantitative data. The initiative continuously emphasizes on building and profiling the community and collect data that point towards the demographics of the community, their

employment status – self-employed, job-seekers, not seeking professional activation etc – their professional background, the sectors of interest and so on. Adopting a participatory approach, we seek community participation to build the community.

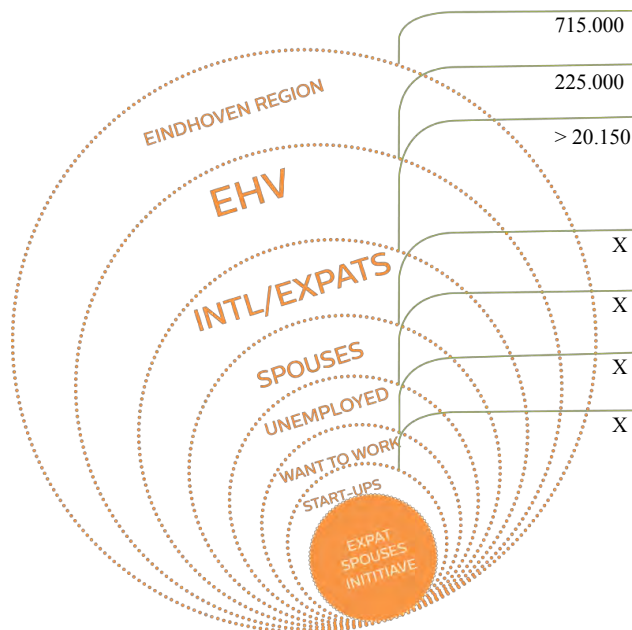


Figure 1: Schematic representation of available data of international spouses in Eindhoven region

3.1 COMMUNITY BUILDING WORKSHOPS

ESI organized a series of community building workshops. In addition to the gaining quantitative information, participation was sought in conceptualizing the issue. Although, the issue of grave social significance, to the participants it is always personal and can deeply empathize with each other. The events are often an opportunity to build relationships with the initiative and participants. There have been three workshops so far each with 10-15 participants each. However, the community enlisted through these workshops assumed the responsibility of further building the community. As a result, we have now a community of approximately 200 expat spouses, who form the foundation for the Community Innovation.

The first two community building workshops comprised the core ESI team and professionally inactive expat spouses. The workshops consisted of personal narratives and semi-structured interviews in an informal setting. Participants were encouraged to engage in each other's narratives with questions and express their empathy and agreement by sharing similar experiences. The methodology at this stage was predominantly verbal, which is critical during early concept and pre-briefing stages (Luck 2003). We were collecting qualitative data that later contributed in designing the goals of initiative. We also designed a survey that participants filled out at the end of each workshops pointing towards quantitative information about professional expats. The qualitative data also betrayed personal traits which have been valuable information while setting up user groups.



Figure 2: Questionnaire - Community Building workshop

The third workshop invited both active and inactive professional spouses (60% employed; 40% unemployed). The specific goal of the workshop that lasted approximately 4 hours was to brainstorm and evolve a set of criteria to build a mentor program within the initiative where employed expat spouses can support inactive expat spouses, ensuring mutual benefits. The workshop was modelled on traditional participatory design method involving stakeholders to find a common solution.



Figure 3: Story telling - Community Building workshop

3.2 BRANDING AND COMMUNICATION WORKSHOP FOR ENTREPRENEURS – TESTING COMMUNITY INNOVATION

Using the experience gained so far in participatory methods, we decided to test the community innovation model by launching micro-pilot. The goal of the workshop was to help entrepreneurs in the expat spouses' community with the branding and communication of their new start-ups. The workshop invited 6 participants. The two 'expert users' – a branding and communication expert and a copywriting expert – were enlisted from Blue Pea v.o.f, (one of the authors is a partner in the firm) a branding and communication firm based in Eindhoven. The 'non-expert' users were 4 entrepreneurs - a spouse who has set-up her own catering & take-away service, a spouse who offered event management services through her company, a creative professional with her small start-up and a social entrepreneur. The workshop was designed so that both the 'expert' users and 'non-expert' users participated primarily as entrepreneurs. There were two sessions. The 'expert' users introduced each session with an overview about the concept and relevant

examples. The first session aimed at communication. Each participant was required to draft their 'Elevator pitch'. The second session aimed at branding. In two groups, each guided by one expert user, each entrepreneur was required to build a prototype of their website, acutely aware of branding principles. The process was iterative, the 'ordinary' users benefited from the insight of the experts and the 'expert' users benefitted from the experience of fellow entrepreneurs. All participants benefitted from the shared advice. The feedback from all the participants was very positive.



Figure 4: Presenting and analysing website prototype

3.3 COMMUNITY INNOVATION | PROJECT 1 – ESI WEBSITE

The difference between genuine and pseudo-participation lies in the delegation of power and the empowerment of participants (Deshler and Sock 1985). We regularly seek community participation in various tasks of the initiative, preferably in the field of expertise of the participants, which both enables delegation of responsibility and also professionally empowers them in the process. Encouraged by the response from the micro-pilot workshop, we set up the building of the community website with database and community interaction facilities as a Community Innovation project.

From our pool of volunteers, motivated 'expert' users with experience in front-end web development, programming, SQL and database management were set-up along with designers from the core team. The 'non-expert' users are potential users of the website from the community. There are ongoing weekly meeting in two groups – the larger group of 'expert' and 'non-expert' users and one among the 'expert' users to take forward the recommendations. The deliverable is narrow, complex and technical – no one volunteer among the expert users are capable of building up the website on their own. The project is successfully functioning as a training platform where expert users enrich each other's capability in the context of the assignment.

3.4 COMMUNITY INNOVATION | PROJECT 2 – INTERNET SERVICE PROVIDERS BRANDING

We are collaborating with Blue Pea v.o.f in developing one of their assignments using Community Innovation. Blue Pea professionals are staunch practitioners of participatory methods. One of their current branding assignments for an internet service provider firm based

in Cologne is outsourced into ESI community. One 6 member user group has been set-up with three design professionals, including a representative from Blue Pea and three non-technical users who are interested in the service provided by the consultancy. A representative from the company is involved periodically. Blue Pea, since acquiring the project had a briefing meeting with the company and developed preliminary concepts. The Community Innovation group in this case is primarily enlisted for continuous testing of the design development. One workshop with the user group has been organized, where the preliminary concept was brainstormed in two sessions. The first session focused on 'perception' where without knowledge about the client requirement, concepts were tested. This session did not include the representative from Blue Pea, but other designers were involved. The second session focused on brainstorming where the requirements were revealed and in three groups with one 'expert' user and one 'non-expert' user each presented prototypes on various prompts decided by representative from Blue Pea, like color, scheme, logo. The user group in case-designed configurations will continue to guide the design process.

4. RESULTS

ESI initiative has continuously used participatory methods to conceptualize, build and use the Community Innovation model. As a fledgling organization seeking to adopt an innovative new concept, we are learning with each endeavour. However, the results of the workshops have been encouragingly positive. We have found indisputable value in the 'expert user'. From the market point of view, she adds considerable credibility to a participatory process. Also, projects requiring technical expertise, like a website, expert users may provide incentive for the customer to commission a participatory approach project with finite deliverables.

5. DISCUSSION

5.1 STEPPING-UP THE USEFULNESS OF THE CONSULTANCY MODEL

Participatory innovation is about finding wider business opportunities for user-participation methods (Junginger 2008; Boer and Donovan 2012). The advantages of adopting a consultancy-like model are discussed in the paper. However, as a derivative of participatory-design based consultancy it inherits certain challenges. Community Innovation addresses many of these challenges increasing its market value.

One of the main risks perceived by customers or companies in adopting user-participation methods maybe be the time and cost involved for the organization (Gartner 1998). Another significant concern is that that results that emerge out participation-based methods may not always be favourable to current organizational strategy (Gartner 1998; Buur and Mathews 2008; Boer and Donovan 2012). Community

Innovation significantly addresses these concerns. It enables project-based participatory innovation, where small and efficient user group with users and professionals from the community and with relevant representation from the company is set up. The small and dedicated project outsourced significantly brings down the cost for the company as well as time in-house employees invest in the project. In addition, a spin out model ensures a certain distance. Results at odds with in-house strategy may not be immediately absorbed and consumed as market research.

The biggest advantage of PD is the very credible results it guarantees because of the considerable time spent with actual users. In a typical PD based consultancy scenario, however, the 'client' is set-up by the company and is acutely aware of the company expected outcomes. Predisposition is detrimental in a participatory approach scenario, where participants are expected to be preference-free. The spin-out set-up with participation of professionals both from inside and outside the company along with 'ordinary' users is likely to have a bigger concentration of the inclination-free participants and therefore builds a more neutral environment and better results.

5.2 ADDRESSING CHALLENGES

One of main disadvantages that Community innovation shares with PD based consulting is identification of potential customers. It is not always easy to find takers for participatory approach in the market because it is usually perceived as a value-added service and not a critical need in existing organizational structures (Gartner 1998). In spite of market-oriented advantages of the Community Innovation model, it is expected that identifying specific innovation groups within companies, promoting a new model for adoption and case-aligning with requirements will present many challenges.

Certain factors however considerably favour the model. First, when the scope of the project is narrow (requiring high expertise and finite deliverable) companies are more likely to adopt participatory approaches. The many professionals or 'expert users' available in the community will make it possible to undertake technical projects requiring high expertise that companies may actually require and prefer in an outsourced setting. These projects can provide a foot in the door, allowing the initiative to slowly expand a customer base. Secondly, one of the main challenges that participatory approach faces when it comes to market adoption is that specific projects within companies that can potentially use participatory approach and user-centered methods experts who offer relevant market-oriented services do not necessarily find each other. The pool of 'expert users' available within the initiative furthers the chance of finding the required expertise and offers the possibility to cater to wider market requirements. Finally, the very peculiar but favourable industrial configuration of the region with high concentration of

advanced innovation and technology companies is expected to help the situation.

Another significant challenge related to the expat spouse professionals is many of the spouses suffer a gap in the work experience owing to many reasons. The break in experience (varying between few months to many years) is the main point of contention while selecting them as 'expert' users. However, from the social angle the community innovation model is also designed to function as potential training platform for these spouses to reacquaint themselves. For the company, it may be desirable proposition as there is an opportunity the 'expert' users are custom-trained in a cutting-edge requirement of the company and can later be spin-in with their newly acquired custom-expertise.

5.3 THE VALUE OF DESIGNERS AND DESIGN-THINKING

The initiators are also designers themselves, their combined expertise spanning much ground including architecture, architectural design management, industrial design, product design and branding & communication. The process has been significantly influenced by the authors' interest in participatory approach and has sought to engage and create value for all stakeholders. A critical advantage that Community Innovation model holds but is not focused in this paper is this design capability of the core team (comprised also of the authors and other designers). The model benefits from design-thinking at many levels. Application of design-thinking will enable a problem-solving process alongside the information mining and analyzing process. Participatory design as one of the most adaptable user-centered methods can be creatively 'designed' for various outcomes. On the delivery end, exhaustive ethnographic findings of a project may not be successfully absorbed by organization, and typical bullet-type listing may lose the spirit of the findings. Designers may play a critical intermediate role in interpreting the findings and enabling collaborative adoption within the organization (Boer and Donovan 2012). Although, this paper does not emphasize on strengths of design-thinking for Community Innovation, it will be focused in future work.

5.4 SCOPE FOR FUTURE WORK

Innovation, in this paper, for the purpose of focus and clarity is kept narrow in scope. In the context of Brainport region of Eindhoven, the highest potential sector is technology innovation. Participation methods and therefore Community Innovation here is considered useful for research, testing or development of technology products or services. However, innovation in business organization may include technical innovation, product innovation, strategic innovation or organization innovation (Anderson 1983). The Community Innovation has the scope to be carefully extended in all these fields.

The availability of expert pool within the community also allows for potential selective testing of individual user-centered methods. For example, since a considerable population (estimated 1600) is highly-skilled with expertise in technology and IT, community innovation model, depending on the project, may identify lead users and design potential lead user fields that have higher market relevance. The potential of a multi-cultural, multi-disciplinary community and Design anthropology can be further explored for specific purpose of market research and insight.

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APPENDIX A

Note #1: Eindhoven University of technology's (TU/e) Get-in Touch program that offers social support to the spouses of their international employees, who make-up an extraordinary one-third of all their employees. NXP supports technical spouses of NXP employees with internship opportunities. International School Eindhoven (ISE) engages stay-at-home mothers in volunteer-based programs. Organizations like Brainport Development, Holland Expat Centre South (HECS), Expat wings within companies are invested in fostering and strengthening the Eindhoven's international environment. Independent establishments like The Hub benefit from the vibrant international community of the city. Although unemployed migrant spouses are not specifically targeted, they partially benefit from the collective interests of these organizations.

Note #2: The estimated numbers are derived from (The HECS report). There are an estimated 32.900 unemployed internationals in the South Netherlands based on the percentage of economically inactive internationals (54.8) of the total population and deducting retired population. Of these, an estimate 64% (21.056) are in the age group of 25 to 45 years; we assume these are spouses who have joined their partners here. Given the ratio of economically active internationals (EAI) living in the Eindhoven region, we can also estimate the highly skilled and skilled economically inactive spouses in the region and city.

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