How Design Thinking Offers Strategic Value to Micro-Enterprises

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Large organisations use design and design thinking to create value; however, there is a low awareness and practice of design and design thinking in smaller businesses. 69% of Irish businesses never use design, or use it only at a superficial level (DJEI, 2016). Previous research on the relationship between design and the wider-enterprise base in Ireland has focused on highly innovative and successful businesses that are already accustomed to design and have ten or more employees. The result of these studies has produced stories of how design creates value for each business, making it difficult to understand how it is applied in, and relates to, other businesses, particularly micro-enterprises without design competence. This paper aims to contribute to the academic field of design and wider-enterprise base in Ireland, in relation to design thinking and regional micro-enterprises who are not accustomed to design. It explores how design thinking offers strategic value to these businesses by building understanding of the identity and purpose of the business for the owner.

micro-enterprise; design thinking; business strategy; cultural change;

1   Introduction

Lindberg et al. (2010) discuss the evolution of design thinking into a meta-disciplinary activity. They believe that the explorative, integrative and holistic nature of design thinking, counters the restrictions of traditional, analytical and mono-disciplinary thinking. They assert design thinking to be collaborative in both problem and solution space, until a problem is adequately defined and expert knowledge can suitably be applied (Lindberg et al. 2010, p.35). This reflects the views of G.K. Van Patter and Elizabeth Pastor, co-founders of Humantific™ (an innovation consultancy based in New York), and the Next Design Leadership Institute (NextD). The framework; The Four Geographies of Design (Fig.1), developed by NextD (NextD, 2011), illustrates the evolution of design thinking in both practice and output. Design thinking now operates in complex areas of organisational and social contexts where in practice there is an emphasis on "sensemaking", and an increased need for human-centred research, co-creation, and an assumption free approach to challenges (Jones and Van Patter, 2009).
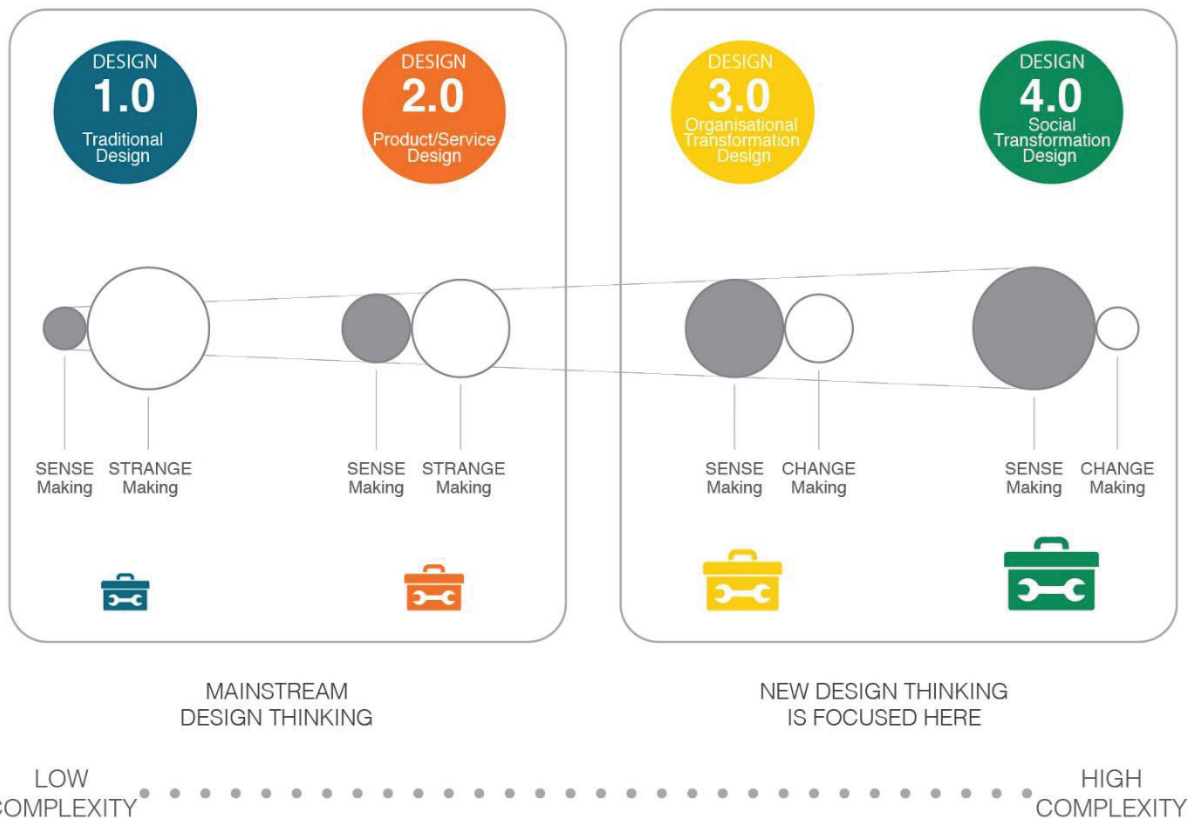
What design does is changing

Figure 1 What design does is changing. source: NextD (2011)

"Sensemaking" has appeared in diverse research areas since the nineteen seventies, being introduced to organisational studies by Karl. E. Weick, and is further present in management science (Snowden), cognitive psychology (Hoffman, Klein, and Moon), education (Dervin) and human-computer interaction (Xerox PARC). While "sensemaking" theories range from being a finite process for individual problem solving, to a continuous process by the organisation as a whole, what is consistent among all theories, is the development of tangible and intangible models to represent and communicate information, and the process being highly dependant on the participants perspective and interpretation (Kolko, 2010). Humantific™ view "sensemaking" as a continuous, highly collaborative activity, to understand the present by making complex, ambiguous situations visual, clear and actionable (Humantific™, 2011). While the practice of design thinking is now weighted on "sensemaking", the output of design thinking has shifted from "strangemaking" to "changemaking", which acknowledges the now co-creative and transformative characteristics of design thinking, where the creative framing and re-framing of challenges plays a key role.

Owen highlights characteristics of design thinking that make it most effective as an integrator of diverse knowledge, including the ability to visualise and offer a holistic perspective, having a bias for adaptivity and multi-functionality, keeping a generalist and inventive view and making choice the last resort by exploring all alternatives (2007, p.24-25). Design thinking wants to diverge while expert knowledge wants to converge, the ability to be future orientated and remain in ambiguity is key to the relevance of design thinking. It is suggested throughout literature that design thinking offers a more adaptive, explorative and inclusive approach to business strategy and management (Golsby-Smith, 2007; Holloway, 2009; Liedtka et al., 2013). This is reflected in the Building Innovation Capability Framework (Fig. 2) that stems from the 2015 study of Design-led Innovation in SMEs in Ireland; Design Driven Innovation - Why it matters for SME Competitiveness (Lawlor et al. 2015).

Figure 2 Building Innovation Capability Framework. source: Lawlor et al. (2015)

This framework illustrates the requirements needed to develop an innovation capability within an organisation, consisting of four components of process, knowledge and competence, mindset and attitude, guided by the vision and strategy of the business. It highlights that design thinking can play a twin role in innovation capability building. By applying design thinking from the outset to understand the vision and strategy of the business through collaboration, visualisation, holistic and explorative thinking, it can be a transformational tool thats enables the cultural change of staff and future embedding of design (Bucolo, 2015, Lawlor et al. 2015).

The publication mentioned previously, and Ireland – the Design Island (DCCoI, 2017), a consultation paper towards a national design strategy, both feature case-studies highlighting the impact of design in Irish SMEs (Small - Medium sized Enterprises) across diverse industry categories, and offer a strong case for the adoption of design-led innovation in Irish SMEs. However, the biggest obstacle in successfully applying a design-driven approach in the majority of SMEs is the need to change mind-sets about what it means to *apply* design thinking principles to business development and innovation activities (Lawlor, et al 2015). Their remains a lack of applied studies investigating how design thinking can offer value to micro-enterprises, whom account for over 90% of SMEs in Ireland (CSO, 2014), and who predominantly do no engage with design. Micro-enterprises are businesses with less than 10 employees. Consequently, this research aims to discover how design thinking can offer strategic value to micro-enterprises in regional Ireland which are not design competent?

> *It is time for the Irish SMEs to become more dynamic and innovative across all levels of development. A greater awareness and adoption of a design-driven innovation approach and design thinking can impact positively on economic growth and job creation in Irish SMEs (Lawlor, et al 2015, p16)*

2   Methodology

2.1   Field Research

A qualitative research approach was undertaken within five diverse micro-enterprises located in a town in South-East Ireland. The objective was to gain an empathetic understanding of the culture and difficulties of these businesses, and explore their alignments with design. Design methods enabled the collection, analysis and synthesis of qualitative data from these case-studies to build theory which was context relevant.

Qualitative data generated in the pilot study was translated to a mind map (Tony Buzan) directly after the visit. Illustrating all information on a single page enables distillation of information, understanding of the area and in addition, provides a platform to develop relationships and insights. The mind map featured interpretations as to where design can create value, difficulties facing the business and owner, and information that builds understanding of the business activities. Categorisation of the mind map resulted in the emergence of four areas where design can offer value and in turn enabled the development of the business map. The business map used storytelling and different perspectives to develop a holistic understanding of the business on *one* page (Fig. 3).
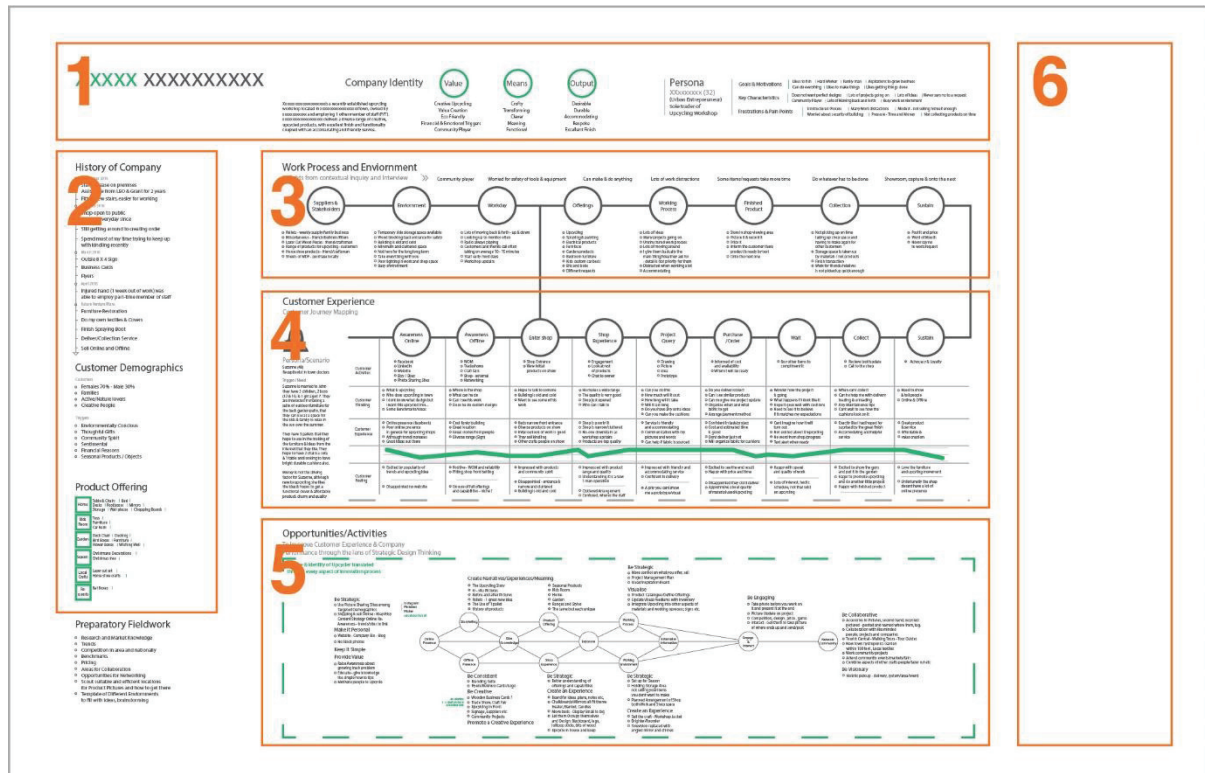

Figure 3 Final business map generated from the pilot study. source: Author (2017)

The business map was divided into six sections;

- Section one builds understanding of the culture of the business and the owner. It details value, means and output to develop understanding of the business. Working characteristics, goals and motivations, and frustrations and pain points, aim to build understanding of the owner
- Section two builds understanding of the past and possible future of the business. A timeline is created with future desires of the owner incorporated. Customer demographics are explored and product offerings are categorised
- Section three explores the working process and environment. It details a journey of the owner from finding materials, through the working process, to sustaining of business
- Section four describes a persona and customer journey map. A customer journey map is a technique that maps the customer's journey and their perspective, experience and emotions throughout. Multiple customer perspectives are considered through the customer journey map
- Section five explores and demonstrates where and how design can add value to the business. It parallels the stages of the customer journey and business owner's journey which offers structure in developing ideas

- Section six illustrates pictures from the field visit which aim to enhance insight creation and storytelling

Iterations of the business map enabled the development and refinement of section five. Further analysis of section five resulted in the emergence of categories which encompassed the areas of difficulty facing the business and where design can create value. These categories were illustrated on a single page in a book format, which combined with the business map template, facilitated the participation, collection and synthesis of future case-studies. The final business framework developed from the synthesis of five case-studies, described the micro-enterprises, in regards to their areas of difficulty and where design can create value (Fig. 4).

2.2   Ecology Mapping

The method "Ecology Mapping" stemmed from the final business framework. The objective was to use design thinking to facilitate the business owner in building understanding of their business identity and purpose. This knowledge intended to build a strong foundation of the business for the owner, which facilitates future strategies and actions. It was titled "Ecology Mapping" to emphasise the living and integrated nature of the business, and the visual and iterative nature of the method. Design thinking directly complimented the overall objectives of the project in building understanding of the identity and purpose of the business, based on the values of the owner and expressing a strong story through visualisation.

The planning for the "Ecology mapping" was explorative and consisted of two phases including:
- Design of the "Ecology Mapping"
- Design of the Final Visualisation

2.3   Design of the Ecology Mapping

The design of the "Ecology Mapping" was initiated by experience gained from the collection of data from field studies. This experience enabled the creation of a hypothetical sequence of the process. Within each stage, intent, documents and methods that may facilitate knowledge transfer were collected. The rationale for developing this process is twofold. Firstly, it allows the collection of methodologies and visuals that may facilitate the primary objective of developing understanding of the businesses identity and purpose for the owner. Secondly, it improves understanding of the process for the team of designers located in designCORE. "The best practice in design research is to integrate people from different backgrounds into a design research team" (Lojacono & Zaccai, 2004).

The "Ecology Mapping" was conducted in designCORE at The Dargan Research, Development and Innovation centre located at Institute of Technology Carlow. designCORE works with SMEs on research-led projects. designCORE provided the opportunity to interact with a business owner and offered a space that enhanced the application of the process. A mixture of stakeholders from designCORE offered expert knowledge from areas including Design Management, Design Engineering, Graphic, Web and Policy Design. A workshop based on the emerging process enabled the team to engage with the development of the process and improve understanding of its objectives.

While the duration of the "Ecology Mapping" was unknown, the result intended to deliver a clear and compelling story which enabled understanding of the business identity and purpose for the owner. This is achieved by the iterative generation and refinement of words, graphs and visuals during workshops, constant refinement of information between workshops, and reflection promoted throughout. Information was given to the business owner after each workshop to enhance knowledge transfer, and a final package was delivered on completion of the project.

2.4   Design of the Final Visualisation

The objective of the final visualisation was to depict the business and its environment. Concept visuals were developed to see the possibility of visualising this information and what the information may be. This was commenced by:

- Selecting a business from field studies
- Creating an adaptation of the Offering - Activity - Culture Map (Kumar, 2012). This adaption placed a description of the business in the centre circle. The values and offerings of the business are then explored in the next circle. The third circle explores activities that are related to the values and offerings of the business. The broader cultural factors which are relevant to these activities are explored in the outer circle
- Another map created concurrently investigates the internal and external stakeholders of the business
- Both maps are combined to build relationships and stories
- This information is translated to a single page visual. The structure of this visual illustrates the business, the business values and offerings, then strategies/channels to the external world. Here, the different stakeholders, customer segments and relevant cultural factors are explored (Fig.5)
- Iterations of this visual are developed until the outcome is satisfactory in demonstrating a compelling story of the business, and being replicated with other businesses

3   Results

Micro-enterprise business owners are experts in their area and highly passionate about their work, but predominantly lack the necessary management, marketing, and innovation skills to optimise and sustain their business.

Categories developed from synthesising field research were grouped into three areas consisting of the Brain, Mouth and Heart, which collectively encapsulate the businesses (Fig. 4). The grouping of the categories in this manner aims to build understanding of a business, targeted at demographics that do not have expert knowledge in business and management practice. The Brain of the business denotes the management and operational side of the business. The Heart is the business offerings in products and services and the people it engages with. The Mouth of the business is the external voice and perspective of the business, including branding, communications and online activity.
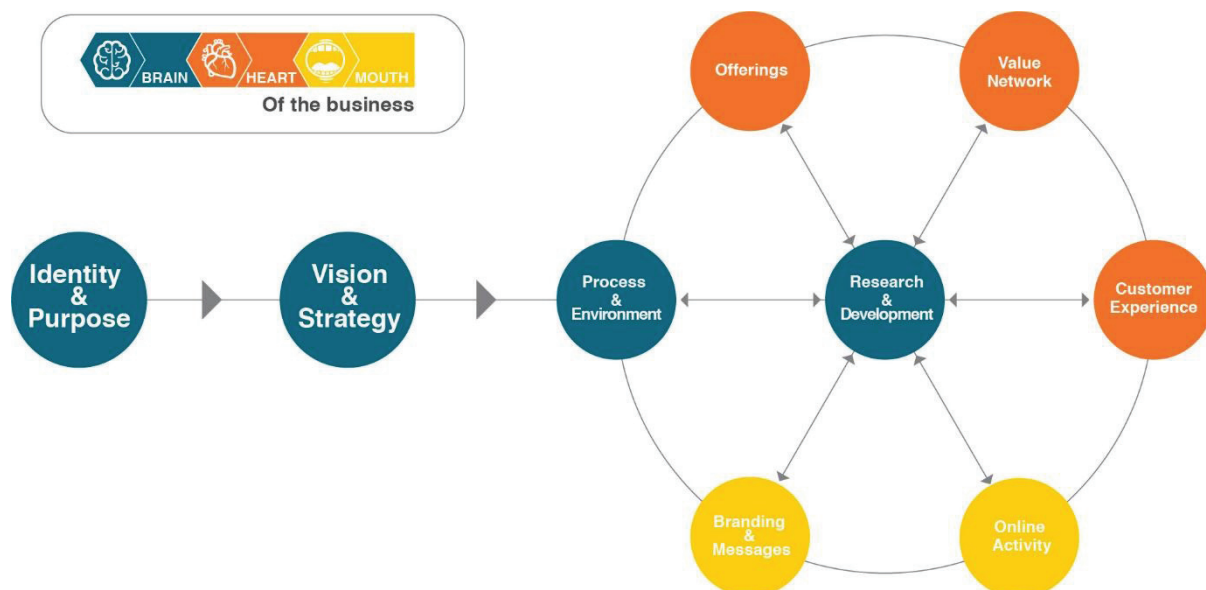

Figure 4 Framework showing areas of difficulty and where Design can add value. Source: Author (2017)

While these businesses were diverse in their offerings, common difficulties and themes were discovered. In the Brain of the business difficulties faced include the in-ability to visualise and externalise information, which contributes to difficulties in idea generation, project management and communicating with staff and customers. Additionally, all owners are under considerable time and money constraints and hence are focused on the day to day running and operation of the business. Consequently, they have difficulty in strategic thinking and adapting to changing conditions. All businesses aim to grow awareness of their offerings and change perceptions of the industry, however, they suffer in both the Heart and Mouth of the business by lacking continuity in offerings, messages and branding, and not identifying customer touch-points and engaging with their network.

3.1   Purpose and Identity

These findings are summarised in the core theme from field research; the difficulty for each business owner to articulate the identity and purpose of the business.

- The identity of a business is who the business is. It is directly related to the values of the owner
- The purpose of a business is why the business exists; the actual goal of the business

The lack of a clear identity and compelling purpose contributes to difficulties in the internal working process (Brain) and external perspective (Heart & Mouth) of the business. Design thinking offers opportunity to reduce difficulties throughout. By building understanding and articulating the identity and purpose of the business based on the values of the owner, shared understanding and direction can be developed. This can streamline and clarify internal operations, and influence and add continuity to messages presented to the external environment, through offerings, engagement, storytelling and relevant activities.

3.2   Ecology Mapping

The "Ecology Mapping" consisted of a series of four workshops with Business A. The owner of Business A came to designCORE with the intention of developing a new product; however, it was clear to the team in designCORE through early discussions that the owner was unsure of what he wanted to do. Consequently, it was explained that the method "Ecology Mapping" could offer value to the business by exploring the businesses environment, personal motivations of the owner, and facilitating the owner to articulate a reinvigorated purpose and identity for the business.

Business A is a family business established after finding a niche market opportunity. Their original core product ceased production in recent years due to a number of factors. The business has tried to build on other offerings since. However, this shift has resulted in the business now offering a diverse range of products and as a result there has been a subsequent loss of company purpose, identity and affection. Early conversation and secondary research highlights the business has difficulties in engaging with customers online and offline, the business engages in minimal marketing, networking and lack any online presence with the exception of their website.

Workshop One intended to broaden the owners' perspective of the potential and relevance of the business. This was achieved by mapping the broader values of the business and then relating a diverse scope of possible context areas where the business could offer value. Cultural factors that align with these contexts were then explored. The past pain points and future motivations of the owner were also discussed and a broad value offering of the enterprise was generated;

Social activities in private and public spaces

Workshop Two builds on the values of the business discovered in workshop one. The wide scope of context areas which emerged are categorised from rigid (institutional) settings to open (public) settings, within this categorisation, needs to be met shift from being a needed

educational/therapeutic tool to a desired fun/social activity. Focusing more on open contexts brought a fresh and invigorated perspective of the business to the owner. The workshop established that the owner desired to develop something that enhances and engages the community and provides broader social value. This is reflected in the working mission statement:

Enabling social inclusion, fun and expression in Irish regional communities

Workshop Three focused on developing understanding of different communities and the different stakeholders of a local community. Different community settings were segmented including; a local business, a public space and multinational company, to highlight the different buyers and users, their different needs and motivations, the revenue potential, and suitability and alignment of each segment with the business offerings and values. A SWOT analysis was generated with the owner, enabling him to see how his capabilities align with his emerging desired future. A user-journey map enabled the owner to see the other aspects of his business that may need attention. Examples of the business website and logo were shared to discuss alignment with the emerging understanding of the business.

Workshop Four refines the story for the owner. The values of the business and the personal attachment of the owner are discussed. It is highlighted that understanding of the business has transformed from being a business that offers educational games and resources to an enabler of engagement and inclusion in social spaces. These values are then aligned with cultural trends and factors to depict the relevance of the business purpose. Different contexts are explored which highlight increased opportunities in larger contexts. The customer journey is elaborated on to see the different touch points and means to engage with the customer. The last activity is to return to the SWOT analysis. It became clear that collaboration and bringing value into public spaces are core factors for the owners desired future reflected in the final mission statement:

Enhancing communities through games and spaces that support engagement and inclusion

The owner is excited about the possibility of co-creating with communities and other businesses in developing these spaces. He has an area in mind for a pilot project and will look to put a focus group from his community together over the coming months to discuss strategies and ideas for this space.

It was discussed that gaining funding and acceptance into public spaces and buildings would require metrics to highlight benefits to potential buyers. While the benefits of the business offerings are predominantly soft values, ideas for recording hard metrics should be considered, such as footfall, experience - before and after, exposure and activity - online and offline, surrounding business trade, etc. A contact was also given to the owner who has experience in creating community spaces and gaining funding to do so.

The final package generated from the ecology mapping was a six-page document that included all pertinent information created throughout the process in order to build understanding of the identity and purpose of the business for the owner. The structure of the final visualisation from workshop four, which captured all information created throughout can be seen in Figure 5.
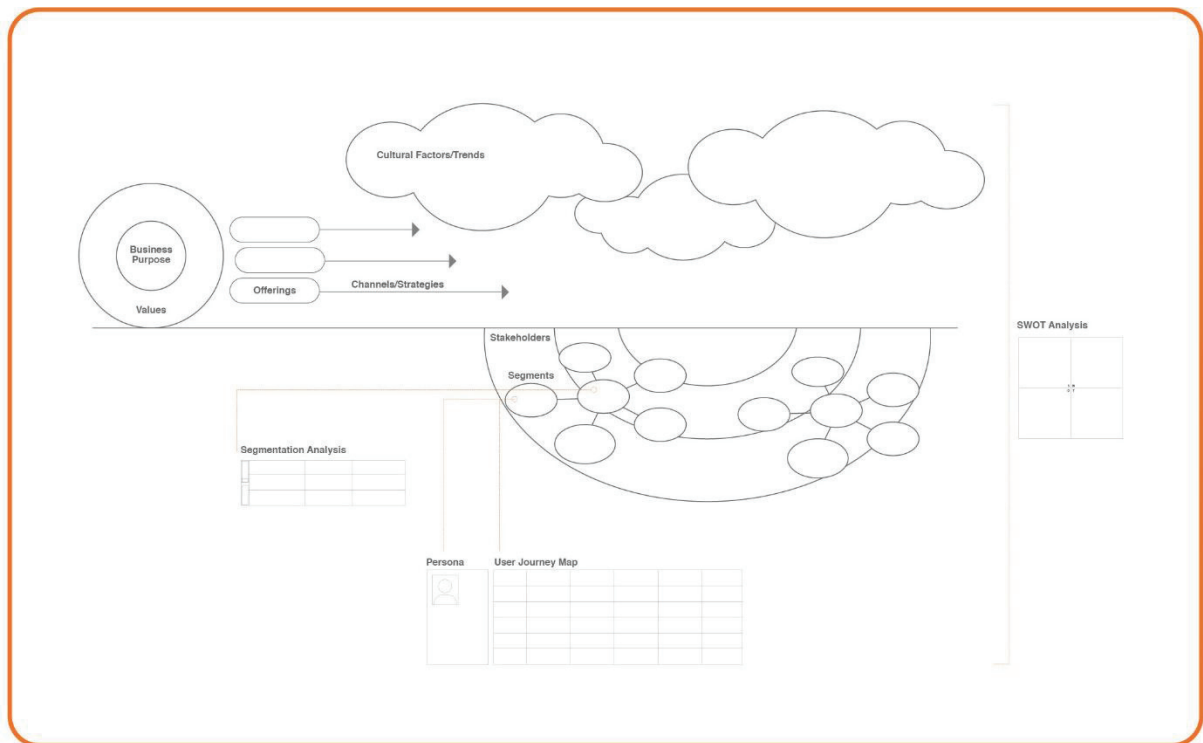
Figure 5 Structure of final visualisation (workshop four). Source: Author (2017)

The owner explained that he has been "re-invigorated through the process as to what the future could potentially hold for the business". He now anticipates that the future will be focused on creating social spaces and is excited by the possibility of collaborating and co-creating to build these spaces "I wasn't expecting to be feeling extremely positive about the future". Furthermore, he describes the business in regards to a platform and service, in contrast to the limited creator of products.

The owner admits that he has "gotten lost a few times or perhaps "overwhelmed" by the speed of the process and the terminology used. "It's only because I wouldn't be used to such environments and thought processes. I also found the report a bit deep for me at times" The owner of business A returned to designCORE after months upon the "Ecology Mapping" being completed. In this case, the business owner and members from designCORE developed on findings from the "Ecology Mapping" in a project that focuses on co-creating a community space. Additionally, while the owner was apprehensive about the need to increase his online activity, as he felt he did not have the necessary skills and resources to do so. He has been pro-active in building these skills in a programme in the local enterprise centre. These factors suggest that the owner aims to continue to engage with a design-led approach to his business.

4   Discussion

"Ecology Mapping" and Purpose and Identity

Design thinking offers an alternative to traditional business approach of strategy development (Hobday et al. 2012). This paper developed the method "Ecology Mapping", where design thinking was practiced to facilitate the business owner in making sense of their world, articulating the identity and purpose of the business, and creating a solid foundation for future activities.

The focus of this research, being the identity and purpose of the business, aligns with existing theory found in literature on innovation capability building. While Lawlor et al. do not include identity or purpose in their framework, they assert "the glue that maintains this innovation system is the culture and values of the firm" (2015). This reflects the views of Sisney who highlights the

importance of being a values-based organisation and the need for a simple system that defines, reinforces and defends these values (2014). Similarly, Neumeier states that in a complex adaptive system the purpose not only sets the direction, but suggests rules for behaviour and produces communities of action (2008). The "Ecology Mapping" process resulted in;

- a mission statement and set of values (identity)
- a changed perspective as to the purpose of the business
- a rejuvenated understanding of the business by the owner
- a broader understanding of the relevance of the business
- a broader understanding of the business activities

The process shifted the owner's perspective of the business purpose to something he is invested and excited about and something that offers broader social value. While these factors are difficult to measure through traditional metrics, and may take time to show rewards, they suggest a more sustainable future for the business, and remove the owner's negativity in regards to struggling with, and thinking about the business. Moreover, the process combined with the final document provide a foundation that inspires and facilitates micro-enterprises in engaging with a design-led approach, growing awareness of their business, sharing messages and aligning future activities.

The Building Innovation Capability Framework (Fig. 2) demonstrates the task in sustaining innovation capability in an organisation. Findings from this research suggest the need to articulate the identity and purpose of micro-enterprises before exploring vision and strategies (Fig.6). The informality of micro-enterprises suggests the increased need to understand who they are in the present, in order to target and offer their most relevant value in the future. Importantly, the process of developing understanding through design thinking can enable cultural change and further embedding of design in both the development of purpose and identity, and strategy and vision.

Figure 6 Adaption of the building Innovation Capability framework (Lawlor et al., 2015) for micro-enterprises. source: Author (2017)

Developing understanding of identity and purpose, and vision and strategy of businesses aligns with the emphasis on entrepreneurial activity and attempts to expand existing businesses in the recent Action Plan for Jobs (A.P.J., 2017). In these instances design thinking can be used as a strategic tool at the inception of a business or challenge, or the agent of change in rejuvenating existing businesses. Here, design thinking differentiates itself from traditional business consultancies and models by taking a human and environment centred, co-creative and holistic approach, actively seeking new ideas, and broader value creation.

With these factors in mind, design thinking and methods like "Ecology Mapping" can link with existing industry support bodies such as IDA (Industrial Development Authority), LEOs (Local Enterprise Offices) and EI (Enterprise Ireland) and be integrated with programmes such as the S.Y.O.B (Start Your Own Business) programme. In these contexts, design thinking can mitigate risk, optimise understanding, make connections and build relevance for businesses of any size, providing a shared basis for future activities.

Design thinking is multi-disciplinary and integrative and thus offers value to any networking, collaboration and knowledge sharing activities. Here, design thinking can integrate diverse information and expert knowledge, offer a holistic perspective, make connections and provide visual models and shared visions. In line with the nature of design thinking, this paper highlights the broader value creation that can be achieved through design thinking in regard to business to business collaboration, social enterprises, co-creation, and community and regional development as described in the A.P.J. (A.P.J., 2017).

4.1   Design Thinking Facilitator

Design thinking in the new contexts of social and organisational transformation is an emerging practice, and encompasses the continuous development of new knowledge. As described by Humantific™ there is now an emphasis on "Sensemaking", representing significant different skills and methodologies over traditional design. Consequently, the importance of the design thinking facilitator in the new multi-disciplinary contexts where design thinking operates cannot be over-stated. In these contexts the facilitator must create an environment that facilitates and empowers performance and thinking behaviours of diverse people and groups, be able to transform multiple perspectives and diverse knowledge into shared insights, and continuously motivate and delve into the unknown with a team.

Thus being non-judgemental, sensitive, perceptive, and empathetic with people, and being curious, comfortable with ambiguity, optimistic and determined in the pursuit of progression can all be seen as core attributes of design thinking facilitators (Vossoughi as cited in Rotman, 2013; Owen, 2009).

4.2   Potential Weaknesses

This paper offers an example of design thinking in the context of micro-enterprises in regional Ireland who are not competent with design. However, as evident in Figure 6, much more is needed to sustain a design-led approach within these businesses. Liedtka et al. note that often first changes that become visible when implementing design thinking are aspects such as perception, behavioural change and conversation etc. (2013). Consequently, business owners need to be persistent and creative in seeking and measuring intangible activities before traditional metrics. Significantly, the limited capabilities and informal character of micro-enterprises makes it more difficult to adopt design, as they lack design knowledge, competence and guidance, to successfully integrate and sustain it even if desired (Wolf, 2008).

While design thinking may be practiced on a project-to-project basis and enable the desire to adopt design, it needs to be culturally embedded to offer most value. Design leadership, design management and skill building are fundamental to the sustained practice of design thinking in micro-enterprises.

As businesses have their own cultures and ways of working, the process of implementation and content generated is heavily context-dependent and personal. In the case of smaller businesses there is increased necessity for good cooperation between the business owner and designer. Firstly, the owner must actually want to see some change in their business which asserts design thinking to be a top-down approach (Bucolo, 2015). Secondly, the Designer needs to understand the personal motivations and share the same values as the business owner (Best, 2011).

The "Ecology Mapping" was time consuming; while it consisted of four workshops, a significant amount of planning and reflection was needed throughout. In the "Ecology Mapping" it is

highlighted that formalising the reflection process for the owner may enhance the transfer of knowledge. Additionally, while the method and delivery aimed to be visual and compelling, this was difficult to achieve due to the intensive and novel nature of the process for the author. It is expected that through practice and future development, the overall process and final output can be enhanced by the increased inclusion of imagery, and reduction of terminology.

5   Conclusion

Findings highlight that micro-enterprise owners have difficulties in articulating their identity and purpose, which is reflected throughout the businesses. This study indicates that design thinking can be a powerful instigator in re-invigorating understanding of the identity and purpose of a micro-enterprise based on the values of the owner, developed in this paper through "Ecology Mapping". Developing these understandings provides a platform that facilitates future strategies and actions. Additionally, this engagement with design at a strategic level from the outset can enable cultural and behavioural change, reflected in the sustained desire to adopt a design-led approach. Design thinking and methods like "Ecology Mapping" can integrate with, and contribute to, existing business consultancies and industry development bodies. In these contexts design thinking can optimise understanding of the present and possible future of businesses of any nature and any scale. The application of design thinking and "Ecology Mapping" in the context of business development is being explored further by the author. Stemming directly from this research, the objective is to further develop "Ecology Mapping" and continue to integrate design-led thinking with micro-enterprises in regional Ireland.

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