Knowledge Visualization for Social Entrepreneurs

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Abstract

Social entrepreneurship is an emerging field which has the power to change the way we do business and resolve societal challenges. Visualization has not yet been systematically applied to support social entrepreneurs in creating, growing and scaling their ventures. We thus propose a framework for the use of knowledge visualization in the creation and development of social enterprises. We posit that each phase of the social venturing process requires a different knowledge visualization method. These diverse types of (interactive) graphic representations help social entrepreneurs cope with resource constraints and interact with a great variety of stakeholders. In this contribution we thus show that knowledge visualization can provide versatile and inexpensive ways to augment social entrepreneurs’ activities systematically.

Keywords:--- social entrepreneurship, social visualization, social business, framework, process, visual mapping, knowledge visualization.

1. Introduction

According to David Bornstein [1], a key research challenge of today in the domain of social entrepreneurship regards the description and invention of fitting methods that social entrepreneurs can use in their daily activities. They need versatile and yet inexpensive methods to support them in their various stages. In this contribution we thus show that knowledge visualization can provide versatile and inexpensive ways to augment social entrepreneurs’ activities systematically.

2. Related Work

Social entrepreneurship has recently started to gain wider attention from academia [2-3]. Although the phenomenon is not new, it has gained momentum after professor Yunus received the Nobel Prize for Peace in 2006 for his social business [4-6]. The Ashoka foundation (the largest institution supporting social entrepreneurs in the world) defines social entrepreneurs as ‘individuals with innovative solutions to society's most pressing social problems’ [7]. A social enterprise is an organization which aims at solving a social problem and serving human needs through economically sustainable means.

Social enterprises can be either for-profit businesses or non-profit organizations, applying a business logic to solve social issues. Unlike traditional charities, social ventures do not rely on donations for their existence, but aim at being self-sustainable, and have a vision to scale. The customers of social enterprises are most often, but not limited to, people in poverty, which are often defined...
with the term “bottom of the pyramid” [8-9]. This metaphor suggests that the people at the bottom of the (social) pyramid, although having limited economic power, constitute a vast number of the world population, and thus, of customers whose needs are not yet fully met.

Visualization has been successfully deployed for social causes [10], advocacy [11], and for facilitating intercultural dialogue [12], through visual storytelling, infographics and dialogue mapping.

Yet in the field of (social) entrepreneurship the use of visualization is rare (with the notable exception of the business model canvas [13]). Information and knowledge visualization can offer a relevant contribution to social entrepreneurs to guide, structure and support their venture creation and development. Entrepreneurs in the start-up phase have a scarcity of resources, thus visualization offers a cost-efficient solution for supporting entrepreneurs in crafting effective messages to investors and customers, clarifying ideas through sketching, or planning actions.

Having identified this gap in the literature, the aim of this contribution is to start bridging the world of information and knowledge visualization to the field of social entrepreneurship. We define knowledge visualization in this context as all graphic means that can be used to create, share or apply knowledge.

3. Visualizing phases of the social enterprise

When and how can knowledge visualization support social entrepreneurs? The proposed framework offers a sequence of seven typical steps followed by social enterprises and proposes one appropriate visualization method to be used in each phase. We must, however, recognize that the steps – offered here in a sequential logic for the clarity of the argumentation – are often cyclical in reality (see the design thinking approach for a more extended discussion on the topic [14]).

The purpose of the framework, presented graphically in Table 1, is to guide social entrepreneurs in the social venturing process, from idea generation to fundraising and scaling. For each phase, a specific method of knowledge visualization is proposed, based on the aim and target audience, in order to reach the maximum potential of visualization’s benefits. In fact, not all visualizations are suitable for all tasks: analytical visualizations, such as dashboards or flowcharts, should be employed for analytical phases, while visual metaphors and storytelling should be deployed when addressing the general public and aiming at triggering an emotional reaction [15].

In this section we offer a description of each phase associated with a visualization method, with details on the content which is represented, how it is visualized, on which medium and who constitutes its main target group.

3.1. Idea Generation

What is represented: the key innovative idea (product or service).
How it is visualized: with conceptual and/or representational hand drawings.
Medium: paper, napkin, flipchart or whiteboard.
Target group: the entrepreneur(s).

![Figure 1 Sketch representing the concept of the $300 house (source: PASE)](image)

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Table 1 A framework for the use of knowledge visualization in social entrepreneurship
The idea generation phase is the first step in creating a social venture, in which the entrepreneur develops a social innovation. In this phase of divergent thinking, it is important for the inventor to sketch the idea, in order to make it tangible and to clarify it, but not prematurely commit to any solution design. While verbal and textual information is abstract, visualization makes concepts more concrete and thus manageable. Sketching the main idea is also useful for discussing it with partners and collaborators, who can more easily “see” the key innovation and give feedback or contributions. In particular sketching on paper allows for easy modifications and additions, and this in a collaborative mode; it allows rapid changes and facilitates the emergence of ideas or options.

Figure 1 provides an example of sketch, hand-drawn on paper, of the key idea of the 300$ house. The image shows at one glance all the features of the innovation.

### 3.2. Idea Refinement

*What is represented:* the key idea in a business context.  
*How it is visualized:* with templates, i.e. the Business Model Canvas [13].  
*Medium:* Large poster or dedicated software/application.  
*Target group:* the entrepreneur(s) and consultants or partners.

![Figure 2 Business Model of the Grameen Bank with the Business Model Canvas [13]](image)

Once the main idea has been defined, it should be considered in the larger context of the business world: analytical templates and canvases can support entrepreneurial reasoning in this phase. In particular, the *Business Model Canvas*, developed by Osterwalder and Pigneur [13] has proven to be beneficial for defining the business model. The canvas is typically used as a large scale poster with post-its, or with a software application. It helps entrepreneurs to consider the business context through nine major building blocks (i.e., customer segments, key resources, cost, partners, etc.). Defining the business model is a complex task carried out by a small group of founders, or with the help of consultants and partners. The Business Model canvas has been used for instance to describe the business model of the Grameen Bank (Figure 2) [13], Kiva, and other social enterprises; it is also used for teaching social business through workshops, and the template is freely available online [17].

### 3.3. Idea Promotion and Fundraising

*What is represented:* benefits of the offering.  
*How it is visualized:* with visual metaphors.  
*Medium:* slides, poster, brochure, websites.  
*Target group:* Investors.

![Figure 3 The metaphor of soccer for ending polio (Source: Bill and Melinda Gates Foundation [18])](image)

After having defined the idea and the business model, social entrepreneurs face the hard task of raising funds to start the venture. The goal of this phase is to explain the benefits of the social innovation to investors, and to convince them to invest in the venture. In this phase they can rely on impactful visualizations such as visual metaphors. It is challenging to explain innovative ideas to a non-technical public such as investors, and metaphors offer the advantage that they “convey an insight about the represented information through the key characteristic of the metaphor that is employed” [19, pg. 82]. In Figure 3 the *visual metaphor* of the soccer game is used to communicate the ‘goal’ of ending polio. The metaphor attracts attention and fosters visual memory in the viewers, compared to text, because it leverages the emotional reactions, and familiarity of (Western) audience with the game of soccer, suggesting that the cause can be won with strategy and team play.

The range of possible visual metaphors that can be deployed is vast, from iceberg, to roadmaps, and from mountain paths to sailing or racing. In comparison to analytical visualization, such as the canvas seen in Figure 2, visual metaphors prompt emotional response from the audience and are remembered better. Free and low-cost tools for creating infographics include inkscape [20], let’s focus [21] and GIMP [22].
3.4. Planning

**What is represented:** rollout steps for the development of the idea.
**How it is visualized:** with timelines and Gantt charts.
**Medium:** poster, software.
**Target group:** entrepreneur(s), co-workers and partners.

When the funds are secured, a systematic plan of actions for the enterprise should be developed based on the available resources (according to the principles of effectuation [24]). This phase is visualized with a timeline, a Gantt chart or a roadmap: time is typically displayed on the x axis from left to right, while on the y axis a number of different action streams can be displayed. The timeline is usually created with software and then either used interactively or printed out as a poster. Figure 4 displays a timeline for sustainable IT technology, showing interdependencies among the tasks, with each task portrayed in a geometrical shape. Elements are color-coded according to the categories portrayed on the y axis (Market Segments, Products/Services, Technology, Value, etc.) [23].

The visual format for this planning phase is rather fixed and conventional. Its purpose is to define precise roll-out steps for the social venture and to allow the workers and partners to understand the effect of their work on the project pipeline. The visualization should thus be as clear as possible. Timelines can be easy created by hand or with a number of freely available software such as Gantt Project [25] or Timetoast [26].

3.5. Sales and Instructions

**What is represented:** benefits of the product and instructions for its use.
**How it is visualized:** with interactive and tangible visualizations.
**Medium:** real life objects, interactive online simulations.
**Target group:** (potential) customers.

The benefits of a product or service should be explained to customers in a clear and engaging manner. Real life objects and interactive (online) simulations are effective visual means for showing end customers which benefits an offering provides and how it works. The customers of social enterprises are often (but not always) the so-called base of the pyramid segment: low levels of literacy and general knowledge are typical, instructions and product explanations should consequently be exemplified with visual (compared to written or verbal) material and **interactive games**. Figure 5 shows cards used by Allianz, a financial institution, to inform potential customers in India about the benefits of its micro-insurance solutions [27]. The cards display potential scenarios of life: the ‘happy card’ represents positive events which may occur, while the ‘death card’ represents the potential occurrence of life threatening events. The potential customers, through the cards, are invited to think about the importance of a life insurance, a service they that are usually not familiar with. Through the visual game and its different cards, this is done in an engaging and playful manner.

3.6. Scaling

**What is represented:** events and developments.
**How it is visualized:** videos, visual storytelling.
**Medium:** social media platforms, videos, presentations.
**Target group:** public and the media, second-tier investors.

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In opposition to the classic approach of charitable and non-profit organizations, social entrepreneurs aim at scaling their business. For this reason the entrepreneurs seek exposure to a large audience, to become known and enlarge the impact of their social innovation. Visualization has the power to easily attract attention and trigger emotional response in the audience. Thus visual storytelling is the most appropriate visual method for this phase of growth, targeting the public at large. Videos and presentations can easily reach a vast audience through social media platforms, such as YouTube, Facebook or Pinterest. An effective visual story creates interest, triggers emotions, and motivates viewers to inform others about it (so-called viral marketing). Its effectiveness is amplified by (social) media, creating a ripple effect [28]. This method has been successfully used to scale up the awareness of social campaigns, as in the emblematic case of the ‘Kony 2012’ video which reached millions of viewers in just a few days [29]. Visual story telling has also been used by Kiva, the world’s first online lending platform connecting online lenders to entrepreneurs [30], to show the progress of the social enterprise (over time), as can be seen in Figure 6. The animation shows both the mechanism of micro-lending and the vastness of Kiva operations. Another visual story telling approach that can be used for scaling are simple stop and go movies (also called stop motion) that make use of top-down filming and of index cards with text and visual symbols (for an example of such a visual storytelling approach, see: [31]). Videos can be assembled with free video editing software such as Windows Movie Maker [32].

3.7. Monitoring/Reporting

What is represented: numbers related to the venture’s performance.

How it is visualized: charts.

Medium: interactive information visualization.

Target group: managers, investors and the entrepreneur(s).

Figure 7 A triple bottom line scorecard (Source: [33])

A key task to keep improving organizational efficiency and performance in a social venture is to monitor performance. Data can be easily collected and visualized through interactive tools, often directly linked from online databases. In this phase visualization contributes by simplifying the interpretation of large amount of numerical data. Charts, tables and various forms of information visualization can be used to visualize organizational performance, and thus see were the biggest profits are, or where a change in operations is needed. Dashboards [34] help managers and investors to monitor results and support the development of strategic decisions. Figure 7 offers an example of a triple bottom line scorecard, which social enterprises can use to monitor their performances regarding the economic, environmental, and social measures. This template emphasizes that results are needed at all three levels, thus supporting and structuring strategic decision making by organizing relevant indicators systematically. As several such InfoViz applications are public domain and available for free, such as Many Eyes by IBM [35], this provides a low-cost controlling tool for social entrepreneurs.

4. Implications and Conclusions

The proposed framework, consisting of steps and associated visualization methods, can provide social entrepreneurs with a structure for selecting the most appropriate visualization method for each phase of their social business development. Although we consider that there could be more than one single method suitable per phase, the aim here is to provide a compact and practically relevant framework for practitioners. In fact, we see a risk for entrepreneurs using visualization without having adequate visual literacy, as not all visualizations are useful for every purpose. Visualizing knowledge is not free or risks [36], and entrepreneurs should be made aware of the need of selecting a suitable visualization method for each specific organizational task.

For instance, analytical diagrams – like the business model canvas – are suitable for analytical tasks which require rational argumentation and decision making, as in the second phase of idea refinement. In contrast, when addressing potential customers, simple and emotional formats are more suitable. For this reason we provide a framework with a sequence of seven phases and propose one visual method for each phase. The main limitation of this paper is that the proposed examples are only an indication: more research is needed to verify the matching of phases with methods, and to compile a more comprehensive list of suitable visualizations and their characteristics. Entrepreneurs should also take into account intercultural issues when communicating their business ideas: the meaning of color, symbols and metaphors is culturally dependent [37].

In conclusion, Knowledge Visualization has proven useful to support businesses in a variety of different domains and tasks, from strategy development or meeting facilitation, to internal communication and
customers’ interaction. The aim of this paper was to start transferring the known benefits of Information and Knowledge Visualization to the specific context of social enterprises. In fact, social entrepreneurs have an even great need – compared to traditional entrepreneurs – to clearly explain their business mission, purpose and philosophy, as the concept of social entrepreneurship is not yet known by the population at large. In addition, social enterprises operating in countries with a low literacy level, can communicate the value of their products or the dynamics of their services with visual support, to increase understanding. Social entrepreneurs often need to communicate their innovative business concepts to a variety of stakeholders (investors, customers, press) and each stakeholder type has different expectations and needs: the ambition of the framework is to provide a tool for a correct selection and use of visualization to improve social enterprise effectiveness.

Despite the limitations of this paper, also due to the novelty of the topic in the visualization field, we believe that the proposed framework can provide a contribution to practice, by helping social entrepreneurs to leverage the benefits of visualization for making a positive social impact, and to theory, by starting to extend the application of knowledge visualization to a new and important field, a new more compassionate way of doing business, namely social entrepreneurship.

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