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Libraries of Things: Designing an Optimal Business Model

Libraries of Things (LoT) function like a traditional library, except instead of borrowing books, members can borrow all kinds of items (tools, camping equipment, cooking supplies). LoT exist within the sharing economy and also emphasize social empowerment. LoT responds to global challenges including environmental degradation, urbanization, and the high rate of unemployment due to rising automation resulting in a decrease in disposable income. These libraries benefit individuals who face financial barriers accessing items in addition to people who wish to have a positive impact on the environment and their surrounding community. Nevertheless, for LoT to live up to their full potential and address the aforementioned global challenges, they have to become more financially viable.

One of the largest barriers preventing the creation and long-term sustainability of LoT involves their fiscal responsibilities. The majority of LoT are non-for-profit organizations and value both people and planet over profit. This unique context forces many libraries to reduce their hours of operation, struggle financially, depend on the support of volunteers, and consistently apply for grants, while also relying largely on the motivation of its founders. This paper will discuss how LoT can position themselves as an economically viable social enterprise within the sharing economy.

This study will present qualitative research obtained through semi-structured interviews, ethnographic observation, and on-site workshops. The research process is ongoing, but hopes to illustrate crucial issues to improve the acceptance by the user, the financing for the provider, and the impact regarding the global challenges. When combined with past research on the socio-economic indicators of engagement with libraries, this research will also demonstrate the outcome of various models of operation. Preliminary findings suggest that LoT would benefit from operating an adaptable business model that prioritizes user-centered design. This model would challenge existing inefficiencies between the current services offered and users' demands. Design provides a solid footing to lead new possible solutions for the setup of the LoT to meet the needs of all stakeholders and address "wicked problems".

DESIGN & BUSINESS DEVELOPMENT

Libraries of Things: Designing an Optimal Business Model

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Abstract: Libraries of Things (LoT) function like a traditional library, except instead of borrowing books, members can borrow all kinds of items. LoT exist within the sharing economy and also emphasize social empowerment. LoT responds to global challenges including environmental degradation, urbanization, and the high rate of unemployment due to rising automation resulting in a decrease in disposable income. These libraries benefit individuals who face financial barriers accessing items in addition to people who wish to have a positive impact on the environment and their surrounding community. Nevertheless, for LoT to live up to their full potential and address the aforementioned global challenges, they have to become more financially viable. One of the largest barriers for LOT involves their fiscal responsibilities. This paper will discuss how LoT can position themselves as an economically viable social enterprise within the sharing economy. This study employs a multimethod approach with numerous stakeholders of LoT through the use of qualitative data techniques such as semi-structured interviews, surveys, as well as Loves and Hate Letters. Based on the findings, the authors propose two disparate answers to the research question. On one hand, LoT must be created to address the needs of the local community and thus there is no one solution that would suit all the diverse contexts in which all these libraries are located. On the other hand, LoT are situated within the same social and economic systems that they attempt to challenge, and as a result LoT will remain fiscally challenged as long as society doesn't evolve.

Keywords: library of things, business model, sharing

Introduction

The sharing economy describes the trend to move away from ownership of items towards joint access of resources. Put simply, the sharing process operates by users listing things that other users could borrow from them. Rifkin (2014) further elaborates that the sharing economy is a new economic paradigm capable of eroding capitalism within the next decades. To reach this lofty goal, this new system would have to be established across industries and diverse households. Thus far, the sharing economy has only successfully been integrated within the transportation and accommodation sectors (PwC, 2016) as a result of the large titans, Uber and AirBnB.

However, it should be noted that both Uber and AirBnB do not embrace a new economic paradigm as they are remiss in challenging capitalistic society. Similarly, attempts to build on the concept of the sharing economy by sharing everyday items have fallen short - either struggling to be sustainable in the long run or remaining a niche service. This phenomenon is observed despite the strong willingness to share items worldwide (BMBF, 2016; Consumer Association, 2015; Nielsen, 2014). These seemingly conflicting ideas may be due to inconveniences experienced while sharing as

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evidenced by a recent study in which 63% of respondents indicated that sharing offers are not attractive (BMBF, 2016).

Offerings within the sharing economy appear to have several disadvantages for consumers embedded within the process. For the sharing to occur, the users must decide on a mutually agreed upon time and location, which isn't always accessible and may result in long distances for users to travel. Furthermore, a critical mass of items is needed to create a functioning sharing economy (Pelz, 2012), However, a gap between supply and demand is sometimes seen which inhibits any potential economies of scale – cost advantages that enterprises obtain due to their size (Glöckler, 2015). One additional barrier is the lack of trust between strangers using a sharing offer. In Germany, 62% of respondents preferred interacting with an organization instead of a private person for sharing processes due to the trust they have previously established with the brand (Consumer Association, 2015). There also exists ambiguity surrounding who is accountable in case of damage or loss of the shared items. A study of the European Commission (2016) illustrates that the missing liability is a main barrier for 46% of individuals. Despite these many considerations that hinder the sharing movement from becoming more pervasive in today's society, Libraries of Things (LoT) have the potential to overcome these barriers.

LoT function like a traditional library, except instead of borrowing books, members can borrow all kinds of items (tools, camping equipment, cooking supplies, children's toys, etc...). Members of the library typically pay a yearly fee and in return gain access to all the items in stock for four to seven days. This paper will discuss the model LoT can position themselves as.
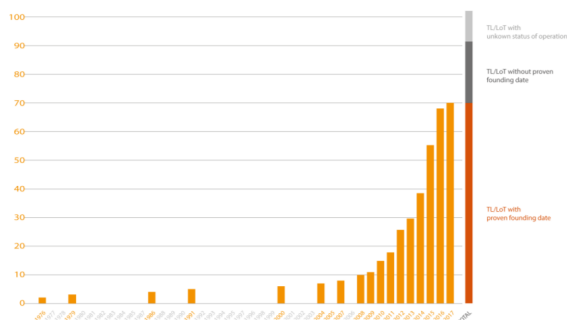

Figure 1: Number of Libraries of Things worldwide. Source: own picture

Within the last few years, the LoT movement has gained traction and the number of initiatives worldwide has surpassed 100 according to the latest figures (see Figure 1). By offering individuals affordable access to items, these libraries attempt to confront environmental and social challenges. Current consumption patterns of individuals are unsustainable (Assadourian, 2010) which presents a challenge to sustainable development (Trentmann, 2016). Embedding a LoT into the heart of a community confronts the consumeristic nature of society where we buy everything we need (Rojek, 2004). LoT also benefit individuals who face financial barriers accessing items in addition to people who wish to forge a stronger sense of community. The creation of these libraries allows individuals to develop more skills and become more resilient by learning how to use new and often inaccessible items.

In order to deliver their value to the environment and communities in which they are located, LoT have to meet several goals: they have to have user friendly opening hours, and they must provide a broad range of things for a large number of users. The ideal LoT offers items 24/7 and assumes the role of facilitator in this sharing process by providing a centrally located space for individuals to share donated items. The multiple positive impacts of these libraries is summed up in the vision of these libraries. For instance, the Ottawa (Canada) Tool Library's (2017) vision is to foster a sustainable community by providing an outlet for creativity and prioritizing access over ownership. While all the LoT differ in their vision, they all share the needs for society to change. Nevertheless, LoT are by no means immune to the problems typical organizations face.

Addressing the aforementioned global challenges, meeting the goals of their organizations, and working towards the vision of each libraries leaves many LoT struggling to meet their financially responsibilities. Despite the majority of LoT valuing both people and planet over profit, one of the largest barriers preventing the creation and long-term sustainability of LoT involves their fiscal responsibilities. This unique context forces many libraries to reduce their hours of operation, struggle financially, depend on the support of volunteers, consistently apply for grants, and also rely largely on the effort of their founders.

Research Questions

Prior research has suggested that LoT operate is not financially sustainable. However, little research has explored how LoT can optimally position themselves. Consequently, the specific question being addressed in this research is: How can LoT position themselves as economically viable organizations despite their focus on putting people and planet before profit?

Methodology

For the purposes of this study, four research phases were conducted between October 2016 and July 2017. These phases include: 1) interviews with founders and volunteers, 2) surveys and customer journey maps with members, 3) surveys with prospective members, 4) Love and Hate letters. Each phase provided unique insights about how LoT positions themselves as organizations.

In the first phase, 13 semi-structured in-person interviews were conducted with founders and volunteers at six LoT (locations include Brussels, Edinburgh, Ottawa, Montreal, Toronto, and Baltimore). The average length of the interviews was 30 minutes. The questions posed during these interviews focused on the perception of the individual on the library's current performance and the positioning of their library in society. The interviews were audio-recorded, then transcribed using MaxQDA and subsequently coded and analyzed. The transcribed interviews were coded by two separate researchers and any discrepancies between them were resolved. The authors employed a thematic analysis approach to interpret the qualitative interview data. Thematic analysis is a rigorous approach used in qualitative research where patterns do not passively emerge from the data, but rather researchers actively select and report patterns that are of interest to them (Braun & Clarke, 2006). Braun and Clarke (2006) further emphasize the researchers influence in the decisions of their research. As a result, initial codes were created through an inductive approach and were then combined to form various overarching themes.

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In the second phase of the current research, the researchers conducted surveys with 56 existing members of five LoT (locations include Brussels, Edinburgh, Ottawa, Montreal and Toronto). The researchers then guided members who were visiting the LoT through the questions. The survey was composed of the following five distinct sections: the usage of the library, membership, level of service, ecological aspects, and demographics. Sample questions include: "Have you talked to friends about your membership?" (membership section) and "do you know why non-users in your area don't use the Tool Library?" (service section). Additionally, all respondents were asked to consider their emotional journey throughout the process of interacting with the library and depicting their level of satisfaction on a graph during their interactions.

In the third phase, the researchers conducted 18 surveys with prospective users of a soon to be created LoT in Kitchener (Canada). These surveys were conducted at a local community event and provided insights about the expectations community members have in relation to a LoT being created in their community. A sample survey question included, "What would be your primary motivator if you decided to join the Kitchener Library of Things".

In the final research phase, Love and Hate Letters were made at two different locations (Toronto and Ottawa) to understand how users perceived LoT services and determine areas for improvement. Love and Hate Letters is a data collection technique that is based on letters written by users toward companies, products or services, in order to reveal what people value or expect from them. The SmartDesign consulting firm created this technique in 2009 which facilitates users expressing their thoughts and feelings in a way that is more accessible and familiar than interview or surveys (Martin & Hanington, 2012).

Taken together, our multimethod approach provides a strong foundation from which the researchers are able to analyze the current trend of LoT. The present study will explore themes that emerged that cut across all the methodologies and remain relevant to the research question.

Research outcomes

The variety of methodologies employed in the current research reveal themes that paint a picture about the state of LoT in the Global North. All LoT examined in the present research are located in western countries in cities with a population varying between 500.000 - 2.7 Million (Edinburgh 500.000; Ottawa: 900.000; Baltimore: 620.000; Brussel 1.1 Million; Montreal 1.7 Million; Toronto: 2.7 Million). Naturally, the culture between these cities and context differed. Each LoT was unique in terms of the neighborhood it was located in (varying in terms of demographics and built environment), the size of the location (which dictated the amount of tools and services provided), the commitment of volunteers, years of operations (ranging from 2 to 5 years), and the vision of the founders. The governing structures that dictate how businesses can be formed in each country also differed. In other words, the business model employed by a LoT is largely dependent on the types of business models permitted in each country and their associated benefits. For instance, the LoTs in Ottawa and Toronto are non-profits, Baltimore operates under another organization which is a 501(c)(3); Brussel is a non-profit initiative; Edinburgh is a charity. The business model selected by each library is contingent on several factors including: ease of registering the business, cost of registration, amount of paperwork, and eligibility for grants. Our research explores the themes of expectations of the library, governance, motivators, impact, barriers, drivers, as well as the vision of LoT.
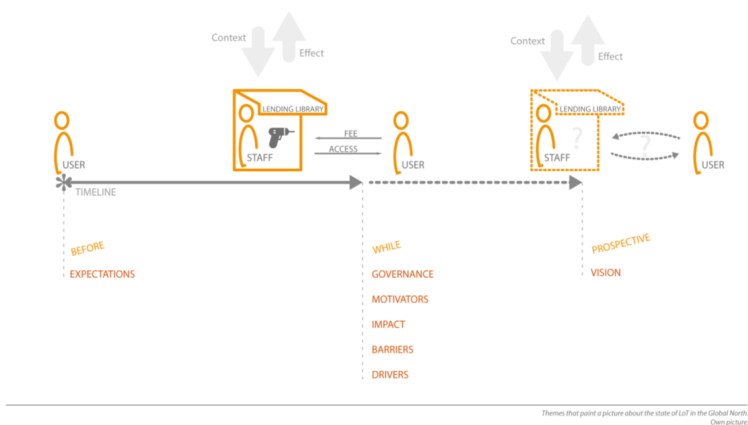
Figure 2: Themes of LoT in the Global North. Source: own picture.

Expectations

Expectations of LoT were frequently mentioned throughout the study. Prospective members of a LoT in Kitchener shed light on the aspirations of libraries and offered guidance in terms of what these libraries could look like. All the prospective members indicated that a LoT would strengthen their community and they would want to be part of it. Individuals stressed the need for it to be accessible by car, bike, and public transportation. Individuals were also excited by benefits to the environment and society. While community members stressed the positive anticipated benefits, they also voice their needs for making the library an accessible location and for being part of creating it in the local community.

Governance

Governance is a key consideration when operating any organization and was frequently mentioned in the current research. The industry research conducted by the researchers as well as the interviews with founders of existing libraries demonstrate that all LoT are either part of a parent organization, are financed by a public library (only within the United States so far), or are a non-profit corporation (or the equivalent depending on national law). For instance, LoT in Canada mainly operate as non-profit corporations; however, there exist two co-operatives (Montreal and Vancouver). The co-operative model for operating a library still remains relatively unexplored, despite their positive benefits to members and staff. On the other hand, in the United States of America, these libraries mostly operate with the status of a 501 (c)(3) institution and in Europe they commonly operate as associations. The subtle differences in governance structures are informed by laws and reflect cultural differences.

Impact

A strong theme also mentioned throughout the interviews involves the impact LoT have on its own community and the spill-over effect it's able to have with individuals. Members overwhelmingly acknowledged the positive impacts of LoT as a result of the valuable sharing service they provide.

These libraries spur conversations that shift mental models while challenging individuals to gain confidence in using new items as well as in developing a sense of responsibility for items. Many of the ideas expressed in the Love and Hate Letters demonstrated the positive impacts that radiate from LoT. These ideas were clustered into the following categories: operation of library, knowledge, atmosphere, community, empowerment, the right to access items, environmental, financial, storage, lifestyle. For instance, Love Letters were written explaining that LoT "promote the small town mentality of helping your neighbor" (community category). Despite the overwhelmingly positive comments, the Hate Letters (off which there were very few) mentioned the need for more open hours and a self-checkout service.

Motivators

For an individual to engage with a LoT a personal motivator is often required as these organizations are still considered niche in society and are not yet easily accessible. Individuals were motivated by several factors to join the LoT such as the sense of community created by the library (social imperative), the benefits of having access to numerous items for a minimal fee (economic imperative), the reduction in one's consumption of items (environmental imperative), and a personal connection to the library (mindset imperative). The differing motivations to engage the library allow these organizations to connect with individuals based on their needs. As a result, LoT must remain contextually relevant to the communities they serve. The motivation for individuals to engage with LoT also changed during their interactions with the library. Figure 2 reveals the journey, both positive and negative, of members as they interact with the library. Members' experiences differ between locations, but overall trends present valuable feedback for the current research and the staff of lending libraries. Members of each library seem to be satisfied once they learn about the existence and service offerings of the LoT and once they go through the entire process of borrowing an item, using it, and returning it. The Journey Map further reveals that members tend to demonstrate a positive inclination when they are interacting socially with a member of the library. This revelation adds further weight to the social imperative for individuals to join the library. However, the Journey Maps reveal undesirable trends in three stages of their journey: paperwork, get items home, bring items back. These stages, while unpleasant for the members, are times during which LoT staff have little control over. For insurance and liability reasons, LoT staff must spend time going through the necessary paperwork and they have little impact on the members commute to and from their house.
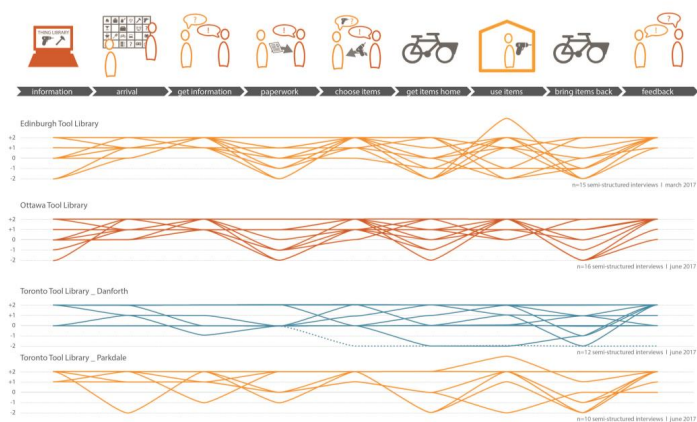
Figure 3: User Journeys of Members of Library of Things. Source: own picture

Barriers

Many barriers were mentioned in the present research that can inhibit the diffusion, growth, and sustainability of the LoT movement. Trust is a fundamental concept that is the bedrock on which these libraries sit. Without trust with staff, members, and the broader community libraries will not thrive. The operations of the library also threaten its existence due to its inconvenient opening hours, and the difficulty of communicating the concept of sharing to a broad group of individuals. The design of the items can also serve as a barrier because items are often cheaply produced and often require repair. A challenge for any LoT lies in its ability to obtain economies of scale despite being a niche service. Another final challenge involves the inconvenience of borrowing from the library at times.

Drivers

While LoT exist across continents, some communities have naturally been more receptive to the idea than others. The founders and volunteers interviewed shared that smaller and closer knit communities are more ready to adapt to these kind of libraries. For instance, one of the founders of the Toronto Tool Library remarked that their success was due to "the community there, that already wants to share, that already wants to support that kind of program". Lack of space in the modern household and reduced access to expensive items are also powerful drivers that convey the importance of the library.

Vision

One interesting theme that emerged from this research involves the incorporation of a vision for the LoT. These libraries often strive to shape sustainable societies and their staff share an ardent desire for LoT to become more mainstream. Furthermore, some of the founders identify LoT as a way to

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make a significant progress in the climate change movement. Many of the founders understand their involvement in the library to be part of a larger movement of creating sustainable societies.
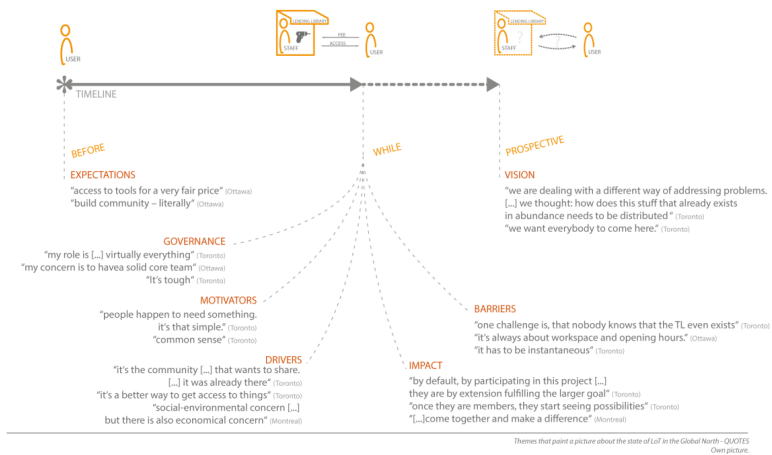

Figure 4: Themes of LoT in the Global North – Quotes. Source: own pictures.

Conclusion

The current research leaves much promise for the future of LoT in the Global North. Many of the individuals involved in the LoT movement crave a need for an organization that is environmentally, socially, and economically sustainable. The plethora of methodologies employed in this study provides a foundation upon which we are able to address our research question. While the founders of LoT are anxious for the results of this research, we believe there exist two disparate answers.

First off, for LoT to operate effectively, they should strive to be contextually relevant to their communities. According to our findings, there is no one business model that will suit each library as each is set in a unique geographical, societal, and cultural context that shapes a set of rules about how organizations are governed. Furthermore, all the libraries service different needs and each library should ensure that each activity they engage in reflects on these needs and the vision of the library. The community is an integral aspect in any library and should have a strong say in how the organization is operated. For instance, one of the locations of the Toronto Tool Library (Hillcrest) was ready for their library and the community acted as a formidable catalyst. The researchers insist that the community should design the business model for their LoT. Integral to the formation of effective social innovations are the ideas that everybody designs, everyone is important in the process of designing, and everyone is an expert in their own light. In *Design, When Everybody Designs*, Manzini (2015) explores what role can be established for design professionals as the world is changing towards a civilization where everybody designs. While this may seem like a distressing idea for the design profession, it leaves room for organizations to be designed by everyone, for everyone.

The second answer embraces the vision and bigger picture of LoT that strive for being progressive organizations. Perhaps LoT are destined to operate as financially unstable organizations as they aim to challenge oppressive capitalist structures. LoT hope to create new sharing economies that leave behind antiquated monetary-first ideas, but are still part of this system. One answer is then that LoT will forever be fiscally challenged as they are part of the very system they are resisting.

A guideline cannot yet be articulated on how to make LoT financially sustainable as the contexts that shape each LoT are too different. However, the current research provides prospective LoT founders several concrete themes they should seriously evaluate to understand their own setting and strategically position their library accordingly.

While LoT are unique in terms of the service they offer, they are part of a larger movement towards sharing. Thus we get back to the rather theoretical question about where is the connection between the LoT movement and the Sharing Economy – where are the overlapping goals? While LoT are a rejuvenated concept and are still in the process of uncovering their potential, they can provide a valiant example of how sharing items can lead to sharing part of yourself. One of the Love Letters to the library put it best in that these LoT "build community – literally".

Limitations and Future Research

Naturally, there exist limitations to the results presented in the current study. Reactivity (i.e. individuals altering their behaviour due to the awareness that they are being observed) and researcher bias will have implications for the current research. The presence of researchers may have altered participants' behaviours, particularly during the interviews. Researcher biases may also surface when interpretations are influenced by the personal opinions of the researcher (Padgett, 2012). Having two coders interpret the collected data helped reduce bias that may have materialized from one researcher.

A methodological limitation of this research involves the use of self-reported information. This is pertinent to both the interviews and the survey as this approach assumes applicants have access to their own decision-making processes. However, employing several different methodologies may have increased the reliability of the obtained data.

Another limitation of this research concerns the generalizability of the anticipated findings. All the participants who engaged in this research were affiliated with LoT in Europe and North America. As a result, the findings will be representative of LoT in western society rather than LoT around the world or other sharing movements. However, the participants in this research differed in terms of age, gender, ethnicity, nationality, and socio-economic status thus providing an intersectional snapshot of interactions with LoT. To ensure ecological validity, this study will need to be replicated and adapted to suit the needs of other sharing initiatives.

According to points raised at the most recent Tool Library Symposium (2017), research is needed to accelerate the adoption of LoT and optimize the current libraries. Building from the current study, research should identify ways LoT can be best positioned with their unique societal context.

There is a demand for research about LoT by the founders of existing libraries and as a result, future research should build on the current findings and focus on creating a guideline for how to design a LoT while considering different contexts.

Acknowledgements

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