

Business ecosystems and new venture business models:

An exploratory study of participation in the Lead To Win job-creation engine

by

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Abstract

Technology entrepreneurs are launching and growing new businesses within business ecosystems, but little is known about how ecosystem participation impacts the business models of new ventures. This research is an exploratory study of new venture business models within Lead To Win – a business ecosystem developed as a “job-creation engine” for Canada’s Capital Region. A multi-phase research design examines the properties of the field setting, then conducts a multiple case-study of participating new ventures, and develops evidence-based propositions relating ecosystem participation and new venture business models. There are three key findings. First, more intense participation is associated with higher business model differentiation, sophistication, and more changes over time. Second, entrepreneurs participating more intensively in the ecosystem report a greater range of benefits. Third, extant business ecosystem frameworks could not fully describe the Lead To Win job-creation engine; new and better business ecosystem frameworks are needed.

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1. Introduction

Technology entrepreneurs are increasingly launching and growing their new business ventures within *business ecosystems* (Bailetti & Hurley, 2013; Muegge, 2013; Muegge & Haw, 2013) – interconnected systems of innovation and production that differ in important ways from traditional structures such as markets, corporate hierarchies, strategic alliances, and supply chains (Moore, 1993, 2006; Iansiti & Levien, 2004; Adner, 2012). Concurrently, management scholars and practitioners are increasingly concerned with *business models* – explanations of how a business delivers value to a set of customers at a profit (Chesbrough & Rosenbloom, 2002; Chesbrough, 2006; Johnson et al. 2008; Johnson, 2010; Osterwalder & Pigneur, 2010; George & Bock, 2011; Muegge, 2012; Muegge & Haw, 2013). For technology entrepreneurs that choose to anchor their new ventures in business ecosystems, these two concepts are closely connected: Teece (2009) argues that business ecosystems are the new context for opportunity discovery, business model shaping, and competition. Thus far, however, there is a paucity of technology entrepreneurship research at the intersection of these two ideas. That gap in the literature is the motivation for this thesis.

This thesis is an exploratory study of new venture business models within Lead To Win – a “job-creation engine fueled by technology entrepreneurs” in Canada’s Capital Region (Bailetti & Bot, 2013) that was deliberately developed as a business ecosystem (Bailetti & Hudson, 2009). It examines the Lead To Win field setting, the business models of six case companies, and the relationships between the field setting properties, company participation, company business models, and the benefits reported by founders. This thesis differs from prior research in at least three important ways. First, with few exceptions, including Muegge (2011) and Kapoor (2013), scholarly research on business ecosystems has emphasized the benefits and strategies of

the organizations that play a central role in the ecosystem – as platform leaders (Cusumano & Gawer, 2002; Gawer, 2009), keystone organizations (Iansiti & Levien, 2004), orchestrators (Adner, 2012), and other related and overlapping constructs; this research contributes to the nascent and under-developed literature on the smaller and non-central “niche players” that collectively comprise the ecosystem periphery. Second, extant research has emphasized business ecosystems anchored around product platforms and profit-motivated keystone organizations; this study examines an ecosystem anchored around a process platform and a non-traditional keystone. Third, this research brings together the notions of business models and business ecosystems, which have typically been examined separately.

1.1 Objective

This thesis explores the business models of new technology ventures within the Lead To Win job-creation engine, and the impact of participation on new venture business models.

This exploration is guided by three guiding research questions:

1. What is Lead To Win? More specifically, to what extent can the Lead To Win field setting be described and explained using existing frameworks from the research literature on business ecosystems, communities, and platforms?
2. How do the business models of participating ventures change over time?
3. How and to what extent does participation in Lead To Win impact new venture business models and business model change?

1.2 Deliverables

There are three deliverables, each corresponding to one of the guiding research questions:

1. Specification of Lead To Win using five frameworks from the management literature.

2. Results of cross-case analysis of the business models of six participating companies; these results are presented as tables, figures, and timelines of how business models changed over time.
3. Propositions and tentative explanations of how participation in Lead To Win impacts business models and business model change.

1.3 Relevance

This research is relevant to at least four stakeholder groups. The first group is technology entrepreneurs who are launching and growing new ventures while contemplating fundamental questions about business models and strategies to grow and succeed. Alana Muller, president of Kauffman FastTrac writes: “whenever you choose to locate your firm, make sure there is an entrepreneurial ecosystem in place to support your efforts” (*Forbes Magazine*, June 18, 2012).

The second group is keystone organizations that promote business ecosystems and encourage participation. According to Iansiti & Levein (2004), “in biological ecosystems, keystone species maintain the healthy functioning of the entire system.” Business ecosystem keystones, such as the Eclipse Foundation (Muegge, 2011b, 2011c) or Google (Iyer & Davenport, 2008), play an analogous role in business ecosystems (Bailetti, 2010a). Fostering entrepreneurship is one approach to promoting participation and ecosystem health.

The third group is government and public policy makers interested in job creation, new business starts, and regional prosperity. For example, the Government of Canada proposes to provide \$60 million over five years to help outstanding and high-potential incubator and accelerator organizations in Canada expand their services to entrepreneurs (Economic Action Plan, 2013). Business ecosystems are a promising design approach for business incubation.

The fourth group is management researchers. According to Zott et al. (2011), the conceptual base for business models is still thin, thus more research is needed. Between October 2011 and May 2014, the *Technology Innovation Management Review* published 9 issues on themes of technology entrepreneurship, business models, or business ecosystems.

1.4 Overview of research method

This study employs a two-phase research design. Phase one examines the research field setting. It begins with preliminary work to identify and select *a priori* frameworks from the research literature on business models and business ecosystems, then collects data from archival sources, identifies and contacts potential interview candidates, develops interview guides and conducts interviews with four respondents, then attempts to specify the Lead To Win field setting using five *a priori* frameworks from the research literature.

Phase two is a multiple case study of participating new ventures. It begins by developing a case report template and *a priori* table shells for cross-case analysis, then identifies a list of potential cases (companies and founders), selects six cases to examine, collects data from archival sources, develops interview guides and conducts interviews with a founder of each case company, develops detailed case reports and reviews drafts of those reports with founders, conducts cross-case analysis and reviews preliminary results with a knowledgeable respondent, and develops tentative propositions and explanations relating field setting properties, founder participation, new venture business models, and reported benefits.

1.5 Contributions

This thesis makes three contributions to management research and one contribution to management practice:

1. It reports evidence of an association between business ecosystem participation and new venture business models. More specifically, more intense participation in Lead To Win is associated with greater business model differentiation, business model sophistication, and business model change over time.
2. It reports evidence on the benefits of business ecosystem participation. New ventures participating in Lead To Win reported five types of benefits: (i) new knowledge and skills, (ii) success raising investment, (iii) greater credibility with stakeholders, (iv) business development, and (v) relationships and networks. More intense participation is associated with greater reported benefits.
3. It offers insights on applying frameworks from the research literature to describe and specify a business ecosystem described as a “job creation engine” (Bailetti & Bot, 2013). None of the existing frameworks could fully describe the Lead To Win field setting. Each was developed for a different context, and provided a partial and incomplete view of a job-creation engine. Alternatively, the “club goods” perspective from the economics literature could provide a possible framework for future research.
4. It provides sets of recommendations for entrepreneurs, Lead To Win organizers, and policy makers based on the results of this research. The five recommendations for entrepreneurs are (i) join a business ecosystem (preferably a job-creation engine), (ii) participate intensely, (iii) use the ecosystem to help acquire new knowledge and skills, raise investment, build credibility, develop the business, and form new relationships and networks, (iv) don’t expect the ecosystem to solve all problems, such as reach customers in specialized niche markets, and (v) expect your business model to change and actively search for a better business model. The four

recommendations for Lead To Win organizers are (i) examine the Lead To Win field setting through the lens of club theory, (ii) grow the number of investors participating in Lead To Win, (iii) build bridges with innovation developers, and (iv) build channels with industries. The two recommendations for policy makers are (i) invest in business ecosystems for entrepreneurship and job creation, and (ii) provide incentives to venture capitalists to invest in emerging technologies.

1.6 Organization of this document

This document is organized as seven chapters, each structured into sections and subsections. Chapter 1 introduces the thesis and its objective, deliverables, relevance, contribution and research design. Chapter 2 reviews the salient scholarly and practitioner literature on business models, business ecosystems, technology entrepreneurship, and club goods. Chapter 3 specifies the research design and method. Chapter 4 presents the phase one results about the Lead To Win field setting. Chapter 5 presents the phase two results about company business models, how business models changed over time, and the role of participation in the Lead To Win field setting. Chapter 6 discusses the results and contributions of the thesis, provides answers to the guiding research questions, offers recommendations for practitioners, acknowledges limitations of the research, and proposes promising opportunities for future research. Chapter 7 concludes.

2. Literature Review

This chapter reviews the salient scholarly and practitioner literature in four streams: (1) technology entrepreneurship, (2) business ecosystems, (3) business models, and (4) club goods. Each literature stream is developed in its own section, followed by a section that summarizes the salient insights from all four streams. The first three streams influenced the design of the research. The fourth stream (on club goods) was added near the completion of the research and did not influence the research design.

2.1 Technology Entrepreneurship

Literature about technology entrepreneurship is relatively recent compared with other established fields, and few journals have published articles on technology innovation management or technology entrepreneurship (Bailetti et al., 2012). The *Technology Innovation Management Review* (TIM Review) is one of the few journals that has published extensively on the subject of technology entrepreneurship (Bailetti, et al., 2012). Bailetti (2012a) identified eight themes that dominated the technology entrepreneurship literature since 1970; the largest theme, almost half of the published articles is about the external factors that influence the formation of technology firms, followed by how and why and when technology entrepreneurship affects the socioeconomic development of a region, approaches used by small technology firms to generate revenue and reduce costs, internal practices used to operate and transform small technology firms; smaller themes under ten percent are interdependence between technology path and small technology firm formation and growth, overview of technology entrepreneurship, corporate entrepreneurship function in mid-sized and large firms, and the smallest theme that accounts for about one percent is about the contributions to other fields; these eight themes are classified into three clusters, technology venture formation, small technology firms and mid-sized and large

firms (Bailetti, 2010), it must be noted that only a quarter of the articles were published in the small firms cluster which is an indication that literature on small firms entrepreneurship in particular is very small and more work is needed to shed more light on different aspects and provide deep analysis about the small firms.

To ignite venture creation and growth, governments need to create an ecosystem that sustains entrepreneurs; entrepreneurship cannot grow in vacuum, it needs an ecosystem that can serve as a fertile ground for entrepreneurs to grow, but the challenge is that there is no perfect formula for starting entrepreneurial revolution.

The definition of the ideal entrepreneur varies depending on people own experience, some argues that the ideal entrepreneur is the one who combines product innovation, entrepreneurial skills and has the bandwidth and discipline to manage a company. Some believes that managerial skills can be taught but we cannot teach innovation or entrepreneurial skills, some doubts the idea of pairing a product innovator and business partner or founder with a seasoned manager to accelerate entrepreneurship. As the field of technology entrepreneurship is in its infancy and experimental (Bailetti, 2012a), there are many strong opinions on all sides, some argues that the start-up with high potential is the one that has a great product; not just a basic rudimentary product with too much hype, while others believes that entrepreneurs can start with minimum viable products (Onyemah et al., 2007). The concept of continuous innovation is particularly important in the field of technology entrepreneurship, the entrepreneur must demonstrate that he is building a business to be factory of innovations and has sufficient fund to sustain start-up for about two years. The value of the start-up is the value of its innovations rather than the product it currently brings to the market.

Technology entrepreneurship often starts with an innovation that encourages people with the right entrepreneurial attitude to start a new company, but how to sell a product is a usually a big challenge for young entrepreneurs who lack sales skills and also lack financing to bring their product to a satisfying state. Onyemah et al (2007) argued that entrepreneurs should not wait too long to make their products perfect, they should test the market early to get customer feedback then enhance the product accordingly but they argued that some entrepreneurs don't respond to criticism and customer feedback well due to their passion and ego (Onyemah et al, 2007).

Technology entrepreneurs must follow a different sales framework than the established companies to overcome the challenges specific to being small firm with no sales network or established brand. Some common characteristic of entrepreneurs is over-optimism, which could help in starting up business, but it is a major blind spot for serial entrepreneurs who often ignored lessons learned from past failure. Almost half of the entrepreneurs are repeat entrepreneurs while one third of them experienced failure and close to two third of the failure comes from serial entrepreneurs (Ucbasaran et al, 2011)

It is no secret that failure rate in technology entrepreneurship is high for many reasons; entrepreneur's abilities are important factor but also the ecosystems that incubate the start-ups and help them flourish or fail. To increase success rate of technology entrepreneurs, we must enrich the ecosystem through enhancing the interconnectivity among foundational institutions (Kanter, 2012). Kanter set four goals to enrich the entrepreneurial ecosystems; two goals among them are to link knowledge creation and venture creation to speed the conversion of ideas into market-ready enterprises and to link small and large enterprises to promote the growth and success of small start-ups through partnership with innovation small medium size enterprises.

2.2 Business ecosystems

The business ecosystem literature started to flourish in the last two decades. Themes include an ecological analogy of the business (Moore, 1993; Iansiti & Levin, 2004; Iansiti & Richards, 2006; Muegge, 2011) and the business ecosystem as a strategy to enhance competitiveness (Moore, 2006; Adner & Kapoor, 2010, Bailetti, 2010; Bailetti & Bot, 2013).

Like an ecological ecosystem, a business ecosystem is an environment where participants compete and cooperate – an ecology of competition (Moore, 1993). The birth of the business ecosystem is about the seeds of innovation that can start revolutionary product and the discovery of the compelling value proposition that serves as the core component of a successful business model. Business ecosystem evolves in stages; birth, expansion, leadership, and self-renewal (Moore, 1993).

The expansion phase of the ecosystem extends the value creation and capture to more players that are enticed to participate. The leadership of the ecosystem guides the investment direction and technical standards, it is the keystone of the ecosystem that owns and maintains the ecosystem platform; its main responsibilities are to increase the transaction among the members, nourish and grow the ecosystem and ensure members create values. The self-renewal stage is ongoing to ensure the competitiveness and survivability of the ecosystem; the leadership plays an important role in the ongoing renewal process, “a company that is part of a robust ecosystem enjoys relative predictability, and the relationships among members of the ecosystem are buffered against external shocks” (Iansiti & Levin, 2004).

It is not easy to build a robust entrepreneurial ecosystem. It is a daunting task that requires ongoing experimentation by both leaders and entrepreneurs. Accepting failure as an expected outcome is an important characteristic of entrepreneurs but it has also be supported by

government debt and bankruptcy policy to encourage risk taking and tolerate failure (Isenberg, 2010), To start an entrepreneurial ecosystem, Isenberg argues that leaders should follow nine key principles; stop emulating other ecosystems, shape the ecosystem around the local entrepreneurial condition, engage the private sector from the start, favour the high potential, get a big win on the board to inspire and stimulate success, tackle cultural change, stress the roots to help entrepreneurs build muscles and skills instead of giving them easy money, help clusters grow organically, and reform legal and bureaucratic framework (Isenberg, 2010).

To measure the strength of the ecosystem, the keystone organization should assess the ecosystem health through productivity, robustness and niche creation; the later measure is an important one that complements the productivity and robustness indicators by measuring the capacity of the ecosystem to increase diversity by creating value for new niches, it is tempting and sometimes dangerous for the keystone to dominate the ecosystem by either taking over the network or draining as much value as possible but a firm that takes an action without understanding the impact on other players or the ecosystem as a whole undermines the health of the ecosystem (Iansiti & Levin , 2004).

Muegge (2011) argues that a business ecosystem can be understood as institutions of participation, “these multilevel institutions of participation and keystone actions motivate participation in subsystems and resource flows between subsystems” (Muegge, 2011); from a system perspective, the key institutions of ecosystem are the platform, keystone foundation for providing governance structure, developer community. The platform is defined as a set of technological building blocks and complementary assets that participants can use to produce complementary products (Muegge, 2011), business ecosystem is an environment where companies cooperate and compete at the same time in creating capabilities and values around a

shared platform, the developer community create value by maintaining and extending the platform common among open source ecosystems, “merely growing a large business ecosystem around a community-developed platform may not be sustainable unless the institutions structuring activity and the actions of the keystone also motivate an adequate flow of resources from the ecosystem to the developer community” (Muegge, 2011). The platform ownership comes with benefits such as greater revenue potential, market power and access to valuable information but the ownership comes with some risks that desired revenue may not materialize because members are not paying fairly for benefiting from the platform or the owner cannot scale the platform to meet the growing demand.

The business ecosystem organizational form is a public good (Moore, 2006); the great challenges we face on the national and global level require a complex open system that encourages innovation, and collaboration of many players beyond the boundary of one jurisdiction; the governance as an organization form becomes an important public good as it sets the direction for the ecosystem growth and finance. Moore further explains in his article the legal challenges of the business ecosystem, in particular the opportunity for power abuse by big players and the implications on anti-trust laws. The keystone organization or platform owners may exercise significant power on the ecosystem value creation and capture. The platform owner may overcharge for innovations or block innovations produced by some players to slow their progress. Like any other organization, business ecosystem must be financed but its financing presents a great challenge due to the diversity of the internal economics (Moore, 2006). Each one of the four stages of the ecosystem is financed differently, from pioneering, expansion and growth, stability and success, then maturity and slowing down. Different level of governments are cooperating on stimulating local economies through the creation of business and technology

ecosystems that can attract and help technology entrepreneurs start new business. The objective is for public authority to initiate, own and maintain a platform for technology entrepreneurs; the platform can be a set of processes or a framework that facilitate the open innovation, investment and commercialization of new products

Iansiti & Levien (2004) introduced business ecosystems as a strategy and described different methods to assess the ecosystem health through robustness, productivity and niche creation, they argued that “a company that is part of a robust ecosystem enjoys a relative predictability, and the relationships among members of the ecosystem are buffered against external shocks”. Iansiti & Richards (2006) continued to examine the health and performance of a business ecosystem through robustness, productivity and innovation.

Open innovation ecosystems have become the driving engines for innovations creating significant value through shared capabilities and resource flow. Large and small companies have embraced the framework of the ecosystem as a way to complement their internal R&D resources with external capabilities for leveraging external innovations that will not otherwise be created by company’s own resources alone. The interdependency between the ecosystem members presents some challenges and risks for participating companies depending on their position within the ecosystem, depending on their location, challenges in the external ecosystem can either enhance or erode a firm’s competitive advantage from technology leadership (Adner & Kapoor, 2010); to manage the risk and challenges while working in an open ecosystem, the company must map its business strategy to the ecosystem to identify risks and challenges and decide on where it should be located within the ecosystem in order to gain the competitive advantages and deal with interdependency effectively (Adner & Kapoor, 2010).

Business ecosystems have become increasingly linked with technology entrepreneurship. They offer opportunities for technology entrepreneurs to connect, share resources and capabilities, and build products around a platform.

Entrepreneurs working within an ecosystem often create complementary products for serving niche market, embracing the ecosystem approach can greatly enhance the companies to implement a growth formula and grow revenue (Bailetti, 2010); the business ecosystem approach is more effective specially for small technology entrepreneurs to grow revenue. Five key arguments in favour of the business ecosystem approach, first it is enough to introduce minimum viable products, then enhance later through the interaction within the ecosystem, second, the entrepreneur offer a compelling value proposition to different groups from end customers to organizations that help develop the product and bring it to market, third the entrepreneur creates value for the company and the wider community of the ecosystem, fourth, ecosystem members have vested interest in the health of their own companies in addition the health of the ecosystem as they benefit from its platform and shared capabilities, fifth, the ecosystem approach focuses more on adoption rather than the development of the final product (Bailetti, 2010). The business ecosystem approach is a more effective way to grow a small technology company's revenue when the market life of a product or service is short, the demand is uncertain, barriers to entry are low, the cost of volume production is low, and the competition is global. The ecosystem is more about generating revenue than reducing cost (Bailetti, 2010).

Five frameworks from the literature on platforms, communities, and business ecosystems are (1) the ecosystem sematic framework (Muegge, 2011a), (2) multi-sided platforms (Bailetti, 2010), (3) platform modularity and option value (Baldwin & Clark, 2000; 2006), (4) community design dimensions (West & O'Mahoney, 2008), and (5) a systems perspective (Muegge, 2011c).

The semantic framework (Muegge, 2011a) argues that articles in practitioner literature on ecosystem differ from one another in technical but important ways. The earliest writing on business ecosystem (Moore, 1993) drew similarities between the business ecosystem and the ecological ecosystem, and therefore it is an ecological metaphor of management that can managers make better decisions. The metaphor focussed manager attention on interconnectivity, co-evolution, and collective behaviour. Adopting business ecosystem as a label to describe a management phenomenon in which business ecosystem is a mode of organizing production. The ecosystem analogy has introduced important concepts of network structure and roles, hubs, niches, keystones, and dominators, and ecosystem properties such as health, productivity, robustness, and niche creation. Muegge (2011a) suggested *four dimensions* to classify the business ecosystem constructs: location that goes beyond the firm, anchor that describes a shared platform and focal firm, boundary to describe the proximity of players to the anchor, and the nature of the elements that comprise the ecosystem.

Multi-sided platforms (Bailetti, 2010) examine a multi-sided stakeholder model that is different from the standalone model and different from the cluster approach of the traditional supply chain model; in a multisided model, the supplier interacts with clients and other stakeholders through a platform where a keystone organization plays a key role in enriching the ecosystem and set the rules to facilitate and orchestrate the transactions between the ecosystem members. Multisided stakeholders include complementary technology provides, product and skills partners, investors and community leaders and the main of the model is that it enables organizations of different types to rapidly collaborate on creating product and services and grow sustainable revenue (Bailetti, 2010)

Platforms with modularity and option value by Baldwin & Clark (2006) are described as model for non-rival goods, however the model appears to be a good fit for open source community where the architecture of codebase, in particular modularity and option value affect developers incentive to work within the framework, more modularity and option value will attract more voluntary contribution from participants, more of modularity or option value will increase the impact of the other and higher modularity and option value will create more value and lead to strong competition. Although the model is motivated by the open source development process, Baldwin & Clark (2006) argue that it can be applied to any non-rival good where the use of the good by someone doesn't prevent its use by another, for example when firms and individual are engaged in mutually beneficial collective effort, it is important to control potential rivalry to ensure that each firm is gaining by the framework organization, the terms modularity and option value can be better understood in the domain of software architecture where modularity refers to a design concept that facilitates concurrent participation and contributions by many individuals to the platform without interrupting each other while option value provide platform contributors the flexibility to make choices based on their interests and strengths; the modularity and option value attributes facilitate member participation, increase productivity and keep contributors interested .

Community design dimensions by West & O'Mahony (2008) studied the sponsored open source software communities to explain the role of participation architecture in growing open source software communities; they defined participation architecture as "socio-technical technical framework that extends the opportunities to external participants and integrate their contribution". Participation architecture guides the interaction and transaction among community members and the whole ecosystem, the framework design is based on three dimensions; first,

production, which specifies how production processes are followed by community, a key element in production participation is the platform modularity, second, governance which sets the rules, processes and oversees the whole ecosystem operation, third, intellectual framework which sets the legal framework for community contribution. The three dimensions are influenced by the degree of transparency and accessibility, which includes transparency and accessibility to the platform source code. Control of the community participation and contribution is part of the framework to ensure community achieves the overall objective but too much control could hinder community contribution. Community sponsors consider eleven parameters to manage transparency and accessibility, which affect community external participation; the following, the three community design dimensions and associated design parameters can be better understood in the context of open source community as they are concrete terms intended to describe and regulate the developer community participating in open source software projects where participation is voluntarily, concurrent with little direct orchestration from central authority.

Business ecosystem from systems perspective (Muegge, 2011c, 2013; adapts O'Reilly 2005) describes the ecosystem framework as institutions of participation; subsystems of platform, governance, business ecosystem, community and keystone are linked together through rules, norms, and governance, the ecosystem is presented as organization of economic actors, organization of people and organization of things; the paper describes the platform as an organization of things such as technologies and complementary assets that can be used by companies and individual to consume and produce products and services; community as an organization of people who share similar interests. Business ecosystem as an organization of economic actors whose business activities are anchored around a platform and share the outcome

of the ecosystem, the platform is owned and operated by a keystone organization that promotes the platform, encourage participation and nourish community.

2.3 Business Models

There are various business model definitions in the literature but no single definition that everyone agrees on. Zott et al. (2011) acknowledge that business models are often studied without a specific conceptual definition and some scholars define it as a description while other defines it as a statement. The business model definitions go back to 1998. Timmers (1998) defines it as the architecture of the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues, while Amit & Zott (2001) defines it as something that depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities, another definition of business model describes it as heuristic logic that connects technical potential with the realization of economic value (Chesbrough & Rosenbloom, 2002).

Johnson et al. (2008) describes business model definition as four interlocking elements that create and deliver value. The first element is the customer value proposition (CVP); it is the way to create value for customer, which is different from specific products or services. Second element is the profit formula, which describes the blueprint for how the company creates value for itself by identifying revenue model and cost structure. Third element is the key resources; assets such as people, technology, facilities, equipment, channels and brand delivering value to customers; the key resources here are the ones that create competitive differentiation. The fourth and last element is the key processes such as managerial and operational processes and recurrent tasks such as training, development, planning, budgeting, sales and services.

How great a business model is built? Identifying a precise definition is the first and most important step in inventing a great business model that can identify the major questions about the business model; who is the target customer? What needs to be done? What is the offering that fulfills the needs? These are the questions that must be answered precisely to determine the customer value proposition. The profit formula, which is another important component of the business model framework, is broken down into revenue model that defines the blueprint for how much money can be made; second element of the profit formula is the cost structure that defines how costs are allocated for key assets, direct and indirect costs; margin model to determine the required net for each transaction in order to achieve the desirable profit; the final element is the resource velocity for identifying how quickly resources need to be used to support target volume. Key resources include people, technology, equipment, information, channels, partnerships, and brand. Key processes are the rules, metrics and procedures that facilitate the delivery of the customer value proposition.

Johnson et al. (2008) argued that “Pursuing a business model that’s not new or game changing to your industry or market is a waste of time and money”, they outlined five strategic circumstances to guide businesses on when a new business model is needed; first is the opportunity to use disruptive innovation to address the needs of large group of potential customers; second is the opportunity to capitalize on new technology by wrapping a new business model around it; third is the opportunity to redirect focus; fourth is the need to fend off low end disruptions and lastly is the need to respond to a shifting basis of competition.

Magretta (2002) defined business model as the narrative of telling a good story and argued that business model is not just about numbers; the business model may pass the math test if it can demonstrate how to generate revenue and ensure it exceeds the cost of doing business

but it may fail the narrative test when ignoring the narrative that established corporations who invested heavily in building and promoting their brands would not allow a business model that undermines these brands.

Unlike the previous business model definition, Magretta (2002) sees business model as telling a good story taking into consideration people motivation to do things. Creating a business model is a lot like writing a new story. All new stories are variations on old ones, reworking the universal themes underlying all human experience. Similarly, all new business models are variations on the generic value chain underlying all businesses (Magretta, 2002). In the same paper, Magretta argues that business modeling is the managerial equivalent of the scientific method; you start with a hypothesis, which you then test in action and revise when necessary. The last analogy provides a good case why business models constantly need to be revised and re-invented when needed but the paper made it clear that a business model isn't the same thing as a strategy as many people use the terms interchangeably.

A business model describes how the pieces fit together to deliver value but they don't consider competitors. Dealing with competition is strategy's job. When companies target the same customers, offer similar products, they ultimately have the same business model but how they compete if they don't outperform competitors. Business strategy is a critical complementary to business model that set business apart from competition. When a new business model changes the economics of an industry and is difficult to replicate, at least for now, it can create a strong competitive advantage which leads us to an important conclusion that a good business model alone is not enough to guarantee profitability, business model could also function much like a strategy when it is hard to replicate by competitors.

Developing a successful business model is not enough to make profit, as imitation is often easy (Teece, 2010). A competitive strategy must follow a successful business model to ensure profitability. Business model can be sufficient to yield profit if it is unique and hard to replicate by competitors big or small. The model must create a compelling value proposition and use advantageous cost that enables significant value capture. On the theoretical level, Teece stated in the same paper that the concept of business model has no theoretical ground in economics or business studies.” There is no established place in economic theory for business models; and there is not a single scientific paper in the mainstream economics journals that analyses or discusses business models in the sense they are defined here” (Teece, 2010).

In traditional industries in the past, it was assumed that if you create and deliver value to customers, you automatically capture value and return. On the other hand, new industries such as the Internet, destroyed business models of existing industries such as Music and books and enabled the emergence of new business models. The so called freemium business model is common in the new industries where a company offers a free product and service supported by ad revenue, then entice customers to buy premium products and services at a cost; the main advantage of this model is that it enables companies to build customer base quickly and accelerate the adoption of new technologies; the adoption of new products is a major challenge for emerging new technology that offers something that didn't exist before and it takes customers time to appreciate the new products and services. “A business model is more generic than a business strategy. Coupling strategy and business model analysis is needed to protect competitive advantage resulting from new business model design” (Teece, 2010).

Teece (2010) makes a clear distinction between business model and strategy: they are different, but strategy must complement the business model to ensure competitive advantages.

Business strategy should sustain the business model and protect it from imitation by increasing the barriers to imitation through four steps: segment the market, create a value proposition for each segment, design a mechanism to capture value from each segment, and block imitation by competitors. Teece also argues that technological innovations alone don't guarantee business success but they have to be coupled with a business model that defines a plan to go to market and capturing value strategies. A major reason for R&D investment failure is that there is no viable business model that takes the R&D innovation, embed it into a product and commercialize it successfully but it is not always required for technological innovation to have a new business model if the innovation is incremental not radical; the incremental innovation is improvement and can be successfully commercialized and as new technology such as Internet creates new business models, new business model can create new industries such as the case of payment card industry. To design an effective business model, it takes a lot of role discovery, learning and adaptation and it requires creativity, insight and business intelligence information. Analytical approach can help management deconstruct current business models and evaluate each element to evolve it into a new model, which is influenced by the surrounding environment or business ecosystem, but the evolving business models can also shape and influence the business ecosystem. Teece (2010) argues that a provisional business model must be evaluated against the current state of business ecosystem and how it might evolve, some sample questions for helping the evaluation process are what the product brings to the customer, what is the real customer value, the market size, alternative or competitors offers, and the new cost? Teece concludes by saying that all businesses employ implicitly or explicitly a business model that describes the architecture or blueprint of the value creation, capture and the capabilities used to deliver the

value to customers. A good business model must be more than a logical way to do business; it must be tailored to cater to particular customers' needs and difficult to imitate.

This literature review of business models reveals three focus areas; eBusiness and the use of information technology focusing on Internet based ways to do business, strategic issues explaining new network and activity system bases value creation and sources of competitive advantages, and third is the area of technology innovation management explaining how technology is converted into market outcomes. The business model research has shifted emphasis from value capture to value creation but without ignoring the former.

Business strategy is a common stream in the business model literature, the innovation and technology management is another stream that expands on the correlation between open innovation ecosystems and how the business model itself can become an intellectual property where the business model is a vehicle for innovation. The open innovation model promotes capabilities sharing and enable firms to take advantage of innovations produced by external resources and often by competitors; collaborative partnership where collaboration with competitors are common way to create core values that can be exploited differently by different players. Collaboration based business models emerge to explain the open partnership. The business model literature is still young and dispersed. It just started to make inroad into the top management journals. The conceptual base for business model is still thin and more precise concept is needed in order to advance the study of business models (Zott et al., 2011). Four important themes are forming; business model as new unit of analysis, new perspective on how to do business, encompassing boundary spanning activities performed by focal firm or others, and focusing value creation and capture. It is believed that these the new trends in business

models research and the new forming themes are paving the way for more concrete conceptualization of the field of business model (Zott et al., 2011).

McGrath (2010) emphasized on business model discovery through experimentation and considered two core components that constitute the business model; first is the unit of business those customers pay for; second, the key processes and operational advantages for delivering superior performance. McGrath is introducing the unit of business concept to describe what the customer pays for instead of describing products, or services. Advertising, Freemium, cross subsidies, promotions, barter, and gratis are examples of business models that can be imitated and that why adopting any of these models will not guarantee superior performance and cannot ensure competitive advantages unless the model is supported by a competitive strategy.

Processes are the activities that add competitive advantages to the unit of analysis to ensure superior and efficient delivery. “When an existing business model has been copied, made irrelevant by environmental events or is otherwise no longer germane to customers, new business models have the opportunity to flourish. It is difficult, however, to plan analytically for which new models will supplant old ones, since so many of the variables relevant to their success are unknown at the outset” (McGrath, 2009). The centrality of experimentation in discovering new business models is the key conclusion of McGrath’s research and the experimentation requires investment and learning from failure as well as successes. It is common to see the erosion of existing business model as business environment change and competition attacks; detecting and dealing with business models erosion through learning and experimentation is critical for the business to survive. The traditional tools of strategic tools are not effective in today’s business environment due to high uncertainty and rapid change in business environment, which makes it hard to make and sustain prediction about the future performance. The high uncertainty provides

a strong reason for discovery driven approach to articulate a business model. McGrath concluded with a familiar theme about the barriers to business model discovery especially from large incumbents but new entrants tend to do a lot better in business model discovery than large established companies; Christensen wrote extensively about the barriers, in summary, it is due to the large investment incumbents made in elaborate processes that usually drive improvement rather than developing a new business model that is too difficult to fit existing processes and infrastructure.

Muegge (2012) argues that technology entrepreneurs should follow a disciplined process to discover and transform their business models and provided some tools to guide the discovery process. The paper expands on a previous business model framework (Johnson et al., 2008) and employs four-box business model framework that consists of four components; pain points underlying the job-to-be-done, stakeholders value propositions, cost revenue model explaining how revenue will exceed cost, critical capabilities required to deliver value to customers.

“Technology entrepreneurs who can discover and implement stronger business models for their firms are more likely to achieve higher levels of success” (Muegge, 2012). Additionally, Muegge introduced a set of tools consisting of actionable five-step process and worksheet. The five steps are to write down the initial business model, identify specific target areas to improve and develop an implementation plan, execute on the work plan, write down the new business model, and last step is to compare the two business models and articulate lessons learned.

Although four-factor business model can be used to guide the discovery process, entrepreneurs may use other business model frameworks in their discovery process to learn quickly through a deliberate action and structure (Muegge, 2012).

2.4 Club goods

Economists classify goods into four categories based on two salient properties – excludability in supply and rivalry in consumption. *Excludability* refers to whether or not others can be prevented from gaining benefits by using the good. *Rivalry* refers to whether consumption by one person prevents consumption by another person. *Private goods* are excludable and rivalrous. *Public goods* are non-excludable and non-rivalrous. *Common pool resources* are non-excludable and rivalrous. *Club goods* are excludable and non-rivalrous. The following chart illustrates the four categories of goods based on the properties of excludability and rivalry.

	Excludable	Non-excludable
Rivalrous	Private goods	Common goods
Non-rivalrous	Club goods	Public goods

Buchanan (1965) developed a general theory of clubs. Samuelson (1954) had previously defined the characteristics of pure public goods as non-excludable in supply and non-rivalry in consumption where individual right to consume a product does not exclude other individuals from consuming the same product. Buchanan's club theory addressed the gap between purely private and purely public good and is more relevant to organization of membership where members share consumption of excludable goods. The concept of optimal good exclusion and member inclusion is at the heart of the club theory, where club goods are impure public goods subject to excludability. Club theory rests on two basic premises; the presence of crowding that

requires the restriction of group size and both membership size and provision are independent allocation decisions (Sandler & Tschirhart, 1997).

In addition to Buchanan (1965), three other early sources contributed to the club theory (Sandler & Tschirhart, 1995). Tiebout (1965) developed a theory of jurisdiction size where a heterogeneous population partitioned into homogeneous clubs. Wiseman (1957) developed the club principle for sharing cost among members. Olson (1965) argued for exclusive clubs that restrict membership size to achieve the optimal utilization of club goods and avoid congestion. Later work examined optimal club size (NG, 1973), and the difference between clubs and firms (Berglas, 1976). Ng (1973) provided an alternative analysis to address some of the shortcomings of the theory of clubs developed by Buchanan in 1965.

Three basic models of club theory were discussed in the literature; Buchanan model based on impure public goods and homogenous population whose individuals share common needs. McGuire model, an extension of Buchanan model with the exception that club cost is always assumed to be covered by members. Berglas (1976) model allows variable utilization rate.

Berglas et al. (1982) classified clubs according to use. For example, members of a fixed use club can use club services without choosing the intensity of services, and members of a variable use club can choose their intensity of use.

The clubs literature expanded on different issues related to club theory: the type of clubs, whether heterogeneous or homogeneous, transaction cost of running the clubs, utilization models, clubs partitioning and its impact on competition are just a few examples. Brueckner & Lee (1989) examined the efficiency loss from operating mixed clubs and efficiency gains from homogenous clubs and argued that the consumption efficiency offered by homogenous clubs

come at the cost of lower goods output in the economy while the usual efficiency loss from the mixed clubs raised the economy goods output . The literature on club goods can be summarized in the following four points:

1. Club theory was developed by Buchanan in 1965 to fill the gap between pure public and private goods
2. Club goods are characterized by being Excludable and non-rivalrous where non-members are excluded but the consumption of goods by one member does not impact the level of consumption of another member
3. Club size, types and utilization model are attributes of club theory that have been studied by researchers
4. Optimal utilization of club goods may require restriction on club size to avoid congestion

A club is similar to a business ecosystem in some ways, and different in others. Like business ecosystems, clubs can be homogenous or mixed, and members participate in the consumption of shared and restricted public goods. Unlike business ecosystems, there is no platform and the participation model is based on either fixed or variable use while participation models in a business ecosystem depend on the type of stakeholder and the platform.

2.5 Lessons Learned

This section summarizes the key lessons learned from the scholarly and practitioner literature. The lessons are presented in four subsections – one for each literature stream.

2.5.1 Lessons learned from stream 1: Technology entrepreneurship

1. Literature on technology entrepreneurship is relatively recent and can be grouped into eight clustered themes (Bailetti, 2012a)

2. Six definitions of technology entrepreneurship were found in the literature; “Technology entrepreneurship is a vehicle that facilitates prosperity in individuals, firms, regions, and nations” (Bailetti, 2012a)
3. What distinguishes technology entrepreneurship from other entrepreneurship types is the collaborative experimentation and production of new products and assets which are related to scientific and technological knowledge and the firm’s asset ownership rights (Bailetti, 2012a)
4. Technology entrepreneurs are more likely to succeed if they operate within an ecosystem as business ecosystems can offer entrepreneurs resources, market opportunities and shared innovations that would be otherwise hard to do on their own (Bailetti, 2010).
5. Entrepreneurs have different perspective on the most effective way to manage and grew a start-up, regional, legal and financial framework of the country produces different perspectives on technology entrepreneurship (Isenberg, 2010)
6. Technology entrepreneurs should demonstrate that they are building a business that will be a factory for innovation and has sufficient fund to sustain business
7. Commercializing new products is the most common challenge facing entrepreneurs; many technology entrepreneurs come from technical background, they know how to build a product but often have little skills in marketing and selling the products; most entrepreneurs shift their focus from product development to business development in the first two years due to the commercialization challenges they were not fully prepared for.

2.5.2 Lessons learned from stream 2: Business ecosystems

8. Technology entrepreneurs are increasingly launching new technology ventures within business ecosystems
9. There is paucity of research on business ecosystem
10. Frameworks to describe ecosystems; multi-sided platforms (Bailetti ,2010), platforms with modularity and option value (Baldwin & Clark, 2006), community design dimensions (West & O'Mahony, 2008) and system perspective (Muegge, 2011; adapts from O'Reilly 2005)
11. Building a business ecosystem as a job creation engine like Lead To Win should be part of government public policy; technology entrepreneur's resources are limited, it is difficult for them to start a successful business without having some ecosystems in place that can facilitate business transactions among participants and boost productivity without the reliance on the sole resources of each entrepreneur.
12. Each jurisdiction should consider its unique legal and economic framework into account when building a business ecosystem (Isenberg, 2010); literature agrees about the importance of business ecosystem in growing technology entrepreneurship but the ecosystem framework and effectiveness is highly influenced by the larger factors of the region.
13. Ecosystem offers small firms the opportunity to develop and strengthen their business models. Small companies that built complementary assets for Eclipse gained great benefits as well from being part of the Eclipse community with its market potential; ecosystem is an opportunity for entrepreneurs to share

resources, encourage open innovations, and offer better access to potential customers and lead users

14. Open innovation based ecosystem helps spin and spread innovations among members. Mash-up, Android and university based ecosystem helped many entrepreneurs grow their business

2.5.3 Lessons learned from stream 3: Business models

15. New venture business models can and often do change over time (Chesbrough & Rosenbloom, 2002; Reis, 2011; Muegge, 2012; Blank, 2013; Muegge & Haw, 2013); therefore, this research needs to consider the time dimension to examine history and changes to business models over time. A cross-sectional research design would be inadequate
16. There is no single business model definition or framework that everyone agrees on (Magretta, 2002); nonetheless, the Muegge (2012) technology entrepreneurship business model framework is appropriate for the purposes of this research
17. Business model is often easy to replicate by competitors, it can however be sufficient to generate profit and keep business successful if it is unique and hard to replicate by big or small companies (Teece, 2010)
18. Business model innovation which can be important or even more important than technological or process innovation (Teece, 2010)

2.5.4 Lessons learned from stream 4: Club goods

This subsection of lessons learned was added near the completion of the research, and did not influence the research design.

19. Club theory differs from the ecosystem analogy and could offer an alternative framework to specify job creation engines
20. The concept of club goods is applied in a wide range of management practices, and has far reaching implication on the supply and consumption management of public goods

3. Research Design and Method

This chapter presents the research design and detailed method to produce the deliverables. It begins with an overview of the research method followed by two sections, one for phase 1 and another one for phase 2; each section includes subsections detailing the method steps and activities undertaken to produce the deliverable, and then concludes with a section that examines validity and reliability threats and actions taken for mitigating the risks.

Five components of the research design (Yin, 2008) are addressed in this chapter; research questions, propositions if any, unit of analysis, logic linking the data to propositions, and criteria for interpreting the data

3.1 Design overview

The research used a multiple case design (Eisenhardt, 1989) with two phases; phase 1 examines the research setting; phase 2 examines the business model of the selected technology companies participating within a business ecosystem. The two-phase design approach was intended to first define the context and boundary of the study, then answer the main research question within that operating environment.

The multi-case study is the preferred approach when the main focus is “how” or “why” question about contemporary events and when the investigator has no control over the behaviour events (Yin, 2009). Multi-case study approach for phase 2 is selected over a single case as each case is considered an independent experiment that can be used for cross-reference and replicating the result which provides more confidence about the findings.

Selection of a single ecosystem field setting, rather than multiple ecosystems, is intended to control for the study context, thus the same for all participating companies and reduce the number of variables, which will make it clear to establish correlation and increase the confidence

in the conclusion. Second, to study a topic impacting the regional economy of the capital region, the findings should provide a better understanding about the discovery and transformation of technology entrepreneurs' business models and ultimately help advance the business goals for the region.

This study employs a case study protocol (Yin, 2008) with three levels of research questions. The highest level is the set of guiding research questions which apply to both phases of the study. The second and third levels of questions are unique for each one of the two phases of the study.

Second level questions for part 1 focus on the information collected from the literature about Lead To Win and the literature ecosystem framework (West & O'Mahony, 2008; Muegge, 2011; Baldwin & Clark, 2006; Iyer & Davenport, 2006); level two questions for the second part of the study are about the participating companies business model framework from the literature.

Third level questions for part I are about the data collected from the direct interview questions for the ecosystem key players. Third level questions for the second part are about the data collected from the multi-case interview questions and directed to technology entrepreneurs, the data is to be used to describe the business model discovery and transformation and establish correlation when applicable with the operating environment of the business ecosystem.

The data sources of the research include the published literature about Lead To Win in academic and business journals, business sections of daily and weekly newspapers, archival data, and interviews with key players and entrepreneurs of the technology companies participating in the ecosystem. The method is adopted from Brown & Eisenhardt (1997) & Yin (2008) fourth edition.

3.2 Preliminary work

The research design requires frameworks to guide data collection and analysis. Five frameworks are selected from the management literature on ecosystems. It is expected that some frameworks will offer better explanation about Lead To Win than others and will shed light on different angles of the ecosystem.

One framework is selected from the management literature on business models. The reason for selecting only framework is to guide the data collection on business model using the same format to be able to do comparison and analysis.

This research conforms to Carleton University Research Ethics Board (REB) policy for conducting research on human subjects. Clearance from the Research Ethics Board was obtained prior to commencing field work. The research ethics protocol requires that audio recordings from interviews be archived and kept confidential.

3.2.1 Ecosystem frameworks from the management literature

The following five ecosystem frameworks from management literature are used in phase 1 to specify the Lead To Win field setting: (1) the ecosystem semantic framework (Muegge, 2011a), (2) multi-sided platforms (Bailetti, 2010b), (2) platform modularity and option value (Baldwin & Clark, 2006), (4) community design dimensions (West & O'Mahony, 2008), and (5) system perspective (Muegge, 2011c).

3.2.1.1 Multi-sided platforms

Table 1 is a table shell for specifying the Lead To Win multi-sided platform (Bailetti, 2010b). The stakeholders column was populated with the Lead To Win stakeholder groups and the description column was populated with an explanation of the stakeholder group and its value proposition for participating.

Table 1: Table shell for describing a multi-sided platform

Multi-sides	Lead To Win ecosystem side description
Stakeholder 1	
Stakeholder 2	
Stakeholder 3	
Stakeholder 4	
Stakeholder 5	
Stakeholder 6	
Stakeholder 7	
Stakeholder 8	

3.2.1.2 Platforms with modularity and option value

Table 2 is a table shell for specifying the modularity and option value of the Lead To Win platform (Baldwin & Clark, 2006). The right column describes how the framework properties apply to Lead To Win. Although the properties of modularity and option value were proposed to assess an open source software platform, Baldwin & Clark (2006) argue that these properties may also be relevant to other platform contexts.

Table 2: Table shell for describing platform modularity and option value

Baldwin & Clark's Framework properties	Lead To Win
Modularity	
Option value	

3.2.1.3 Community design dimensions

Table 3 is a table shell to specify the Lead to Win community design dimensions and parameters (West & O'Mahony, 2008). The right column describes the properties of the Lead To Win field setting.

Table 3: Table shell for describing community design dimensions

Community Design Dimension	Design Parameters	Lead To Win
Production	Live code access	
	Public commit process	
	Sub-project creation	
Governance	Non-profit foundation	
	Membership	
	Member fee	
	Community release authority	
Intellectual property	Sub-project ownership	
	Software license	
	License type	

3.2.1.4 System perspective

Table 4 is a table to shell to specify the components of the Lead to Win field setting using the systems perspective (Muegge, 2011c).

Table 4: Table shell for describing system components

Level of organization	Organizational form	How each form applies to Lead To Win
Organization of economic actors	Business ecosystem	
Organization of people	Community	
Organization of things	Platform	

3.2.2 Business model framework

Table 5 is a table shell to specify a business model using the technology entrepreneurship business model framework (Muegge, 2012).

Table 5: Table shell for describing a business model (Muegge, 2012)

Business model component	Description
Customer Pain point	Explain why the unmet needs matter
Stakeholder value propositions	Explain the value for each stakeholder
Profit formula	Explain how the business will make profit
Capabilities (resources and processes)	Explain the resources and capabilities of the business

3.3 Phase 1: Ecosystem field setting

This section outlines the steps and activities undertaken in phase 1 of the research to produce the phase 1 deliverable.

3.3.1 Review archival sources

Identify and review articles about Lead to Win and its participating companies, the researcher to check scholarly journals, business press, press releases, books, daily newspapers, Carleton university data source, Google and Google scholar. Sources containing references to Lead To Win are examined in more depth. The researcher will take the lead from one archival source and trace it for further information about related aspect or company. Keywords are used for searching online sources.

3.3.2 Select respondents

Three to four key Lead To Win organizers were selected for interviews. The selection is based on previous knowledge about Lead To Win and the ecosystem key players to ensure getting different perspectives. Role diversity and years of experience within Lead To Win are considered when selecting respondents

3.3.3 Field setting interviews

The researcher conducted semi-structured interviews with the ecosystem respondents. The field interviews were guided by three levels of research questions as outlined in the

following table. The top level is the research guiding question on what is the Lead To Win organization rules and activities; second level focuses on the different areas of an ecosystem, the third level outlines the interview questions that each covers a certain ecosystem topic but also flexible enough to fit the interviewee background and position within the ecosystem.

Table 6: Phase 1 three levels of research questions

Level 1: Guiding question	Level 2: Case question	Level 3: Interview questions (see sample questions)
What Lead To Win?	Overview of respondents' background to position their answer	What are your role and responsibilities in the ecosystem? How would you describe the Lead To Win organization based on your own experience?
	Ecosystem organization, processes, and stakeholders	How would you describe the Lead To Win components and assets? How does the governance work? How does Lead To Win get financed? What are the venture creation lifecycle processes?
	Ecosystem participation	What is the Lead To Win participation model? Can you list the participating companies that transformed their business models?

The interviews were conducted on separate days and recorded using BigBlueButton technology. Interviews start with open-ended questions to let respondents relate their experience-based stories about Lead To Win, and then follow by probing questions to establish details.

3.3.4 Describe the field setting

After collecting the data from primary and secondary sources about Lead To Win and its participating companies, the tables were populated to specify Lead To Win using the selected frameworks from the literature.

Different respondent narratives about the ecosystem were collected and pieced together along with data collected from archival sources. Each interview and article was expected to shed light on some aspect of Lead To Win.

3.4 Phase 2: Business models of participating companies

This section outlines the steps and activities undertaken in phase 2 of the research to produce the phase 2 deliverables.

3.4.1 Case selection

Select six Lead To Win companies to participate in the study. Each participating company was treated as an independent experiment. Selection criteria were to ensure variety and replication among the cases and based on prior knowledge of the company's performance and how long it has been on the market. Researchers need access to potential data, whether to interview people, review documents or records or make observations in the field (Yin, 2009)

Two cases whose founders joined the Technology Innovation Management program, an element of Lead To Win, to be selected plus two more cases whose founders joined Global start, another element of Lead To Win, in addition to one case whose founder joined Lead To Win around the first launch of Lead To Win in 2002 and another additional case for a company that can offer unique insights into the new venture business model. All cases experienced business model change and have been around for at least two years to give enough time for the changes to occur and take shape.

3.4.2 Case data collection

For each case and prior to conducting the interview with its founder, the researcher to examine the publicly available articles about the company and its founder in daily newspapers, press releases, websites and other archival sources that might contain information about the case.

Interview data collection is intended to complement the archival sources for each case in addition to triangulate the sources to ensure accuracy and reliability

The interviews will be guided by three level of research questions; at the very top level is the research guiding question of exploring the new venture business models in Lead To Win; at the second level, the case questions inquire about the background of the founders and the venture, business model and Lead To Win impact; at the third level, there are detailed questions that will be directed to the entrepreneurs

Table 7: Phase 2 three levels of research questions

Level 1: Guiding question	Level 2: Case question	Level 3: Interview questions (see sample questions)
How business model is changing during the venture creation within Lead To Win	Company and entrepreneur background?	Describe your company background, And what is your role in the company? How did you get involved in Lead To Win? And where do you position your company within the ecosystem?
	Business model description	Assuming business model framework based on pain points, stakeholders value proposition, profit formula and capabilities (resources & processes), and how would you describe your company business model when you joined Lead To Win? How would you describe your company business model now?
	Ways of business model changes and impact	How did the business model changes occur? And what prompted the changes? How would you describe the impact of the business model discovery and transformation on your company success?
	Connection with the business ecosystem	What contribution did Lead To Win make to the business model transformation?

The worksheet of the business model framework adopted for this study will be shared with respondents prior to the interview to help them get familiar and prepared for the type of data we are looking for.

The data to produce deliverables are business models elements (Customer pain point, SVPs, profit formula, and capabilities described as resources and processes), Lead To Win Ecosystem public data and stakeholders' description and Lead To Win Ecosystem impact on each company as reported by entrepreneurs

Interview format will be semi-structured, starting with open-ended questions followed by probing questions to establish details. The respondents are the entrepreneurs and founders who were involved in making strategic business decisions. All interviews will be recorded and kept confidential. The length of each interview is expected to take 60 – 90 minutes.

3.4.3 Develop case reports

For each case, the researcher developed a case report based in a predefined format to capture all the data from primary and secondary sources. The case report draft was initially based on the data collected from secondary sources, then after each interview, the case report was updated with the data collected from the founder during the interview.

The case report captured and described the business models and the factors that played a role in business model change. The case report template contained the following sections:

- Case overview
- Brief history
- Timeline
- Detailed business models
- Lead To Win participation
- Lead to Win contribution
- Quotes selected from the interview
- References
- Researcher thoughts and observation on the interview

The first case report was reviewed closely and refined before developing other case reports. Multiple revisions were made to improve each case report.

3.4.4 Develop cross case analysis

At the completion of all six cases reports, the researcher will conduct cross case analysis based on all six case reports, the general strategy for interpreting the data is to use the cross case analysis methods for qualitative data developed by Miles & Huberman (1984), Miles & Huberman (1994) and Yin (2008) to develop conceptual insights; cross case analysis and tabular data display where each case is considered an independent experiment used for replication and theoretical induction and to drive explanation building (Eisenhardt, 1997; Yin, 2008)

The analysis takes into consideration the business models changes whether radical or incremental. Comparison between the emergent theoretical constructs with the extant literature to find out what is this is similar to and what it contradicts and why; because ignoring contradicting findings with the literature will reduce the confidence in the study findings (Eisenhardt, 2007).

Initial analysis focused on refining individual cases and identifying common issues among them. Structured case reports, and tables are built to facilitate comparisons and identify similarities and differences to build emerging constructs. The analysis process took multiple iterations to cross-examine specific details of individual cases, refine and confirm initial findings, and ensure consistency. Emerging insights are discussed in the result and discussion chapters

The cross case analysis will include a number of tables and figures to put the data from all cases together for comparison and analysis, first table is to be an inventory of sources for each case, specifying all primary and secondary sources and significant timeline for the case, Table 8

Table 8: Table shell table for inventory of cases sources

Case	Summary	Interviews	Secondary sources					
			Total	Academic journals	Business journals	Press release	Books	Other
A								
B								
C								
D								
E								
F								

The case participation status in each Lead To Win element will be summarized in Table 9

Table 9: Table shell for case participation in Lead To Win

LTW Category	LTW elements	A	B	C	D	E	F
Workspace	Office space						
Knowledge & trust	Opportunity assessments						
	Bootcamp						
	TIM Lecture Series						
Desks	Partner Events						
	Sales Desk						
Cash	Invest Desk						
	Global Start						
	Graduate Enterprise Internships (GEI)						
	Ottawa Young Entrepreneurs (OYE)						
	Venture Start						
Strategic Assets	Nicole Institute						
	Mentors & Reviewers						
	TIM Review						
	TIM Theses & Projects						

Overall inventory of case participation will be compiled in Table 10 and ranked according to the level of participation; the element with the most participation will be at the top

Table 10: Table shell for sorted inventory of case participation

LTW Element	Inventory of participating cases
Bootcamp	
Opportunity assessment	
Mentors & Reviewers	
Partner events	
TIM Review	
Invest Desk	
TIM Lecture Series	
Graduate Enterprise Internships (GEI)	
TIM Theses & Projects	
Sales Desk	
Global Start	
Venture Start	
Ottawa Young Entrepreneurs (OYE)	
Workspace	
Nicole Institute	

Table 11: Table shell for summary of business model changes

Business Model	Components	A	B	C	D	E	F
First model	Customer						
	Value proposition						
	Profit Formula						
	Capabilities						
Second model	Customer						
	Value proposition						
	Profit Formula						
	Capabilities						
Third model	Customer						
	Value proposition						
	Profit Formula						
	Capabilities						
Fourth model	Customer						
	Value proposition						
	Profit Formula						
	Capabilities						

Another form of cross case analysis, Figure 1 will be utilized in a figure that will illustrate the different business models for each case horizontally while showing the major case and Lead To Win events vertically.

Figure 1: Timeline figure shell

Lead To													
A													
B													
C													
D													
E													
F													
Time	02	3	4	5	6	7	8	9	0	1	2	3	4

As a result of the cross case analysis, a list of Lead To Win impacts that played a role in the business model change will be compiled in table according to their degree of influence on the cases.

3.4.5 Results and conclusion

The last steps of the research were to identify the key findings and limitations, answer the research questions, and discuss the emerging insights and publish the results.

3.5 Validity and reliability

Yin (2008) identified tests of four types of validity and reliability; construct validity, internal validity, external validity, and reliability. Some tactics are more appropriate to each test. The applicable test, tactics and actions taken to address the risk are outlined in Table 12.

Table 12: Tactics and actions taken to address threats to validity and reliability

Threat	Tactic	Action taken to address the risk
Construct validity Correct operational measures for concepts being studied	Multiple sources of evidence	Triangulated multiple sources of evidence: primary interviews and archival sources including journal articles; articles from business press, press releases, and online sources.
	Establish chains of evidence	Linked questions asked with data collected and drawn conclusion; traced steps from questions to data to conclusion in both direction. Meticulously kept all original sources of evidence, interview audio recordings are reviewed multiple times and saved for re-examination
	Multiple interviewers, note-takers, and coders	Thesis supervisor attended interviews, kept independent field notes and reviewed case reports
	Key informants review of excerpts of the case reports	Respondents were invited to review sections of draft case reports, provided corrections and additional information, and to offer feedback on tentative results
Internal validity Correct causes and relationships	Explanation building	Explanations were developed iteratively starting from draft case reports, cross case analysis, and proposition development, with results reviewed by key informants.
External validity The domain to which findings can be generalized	Use of replication logic	Cases were selected for variation and replication on specific dimensions; two joined TIM programs; two from global start, two early starters, one of them joined Lead To Win in 2002
Reliability Can be repeated with same results	Use of case study protocol	Developed and utilized a standard template for all case reports. Created interview guides for each respondent. Created the first case report, then reviewed, refined, and improved the format, sequencing, and content before applying it on other cases
	Use of case study database	Maintained a case study database separate from the thesis document with archival sources, interview notes, field notes, case reports, cross case analysis, and preliminary results

4. Results: Lead To Win Field Setting

This chapter presents the results for phase 1 of this research. The following sections describe the findings from archival sources and from field work and primary sources, descriptions of the Lead To Win process and Lead To Win organization, an inventory of participating companies reported in archival sources, specification of Lead To Win using five frameworks from the literature, and a summary and synthesis of the phase 1 results.

The Lead To Win ecosystem delivers services to technology entrepreneurs for the purpose of creating knowledge jobs in Canada's capital region (Bailetti & Bot, 2013). According to Bailetti & Hudson (2009), Lead To Win was first launched in 2002 in response to the economic downturn. When Nortel Networks collapsed following the burst of the dot com bubble, many technology workers became jobless with little hope of getting similar jobs in the region. Lead To Win was created to help displaced technology workers create their own technology business in the capital region.

4.1 Archival sources

The researcher scanned selected online sources believed to be potential source of data on Lead To Win; the criteria used to select the online sources is the link to Ottawa business and technology community in particular and Canada in general, Carleton university data sources, business journals, business sections of the daily publications, TIM review, Google scholar and Google. The keywords used are "lead to win", "Ottawa entrepreneur" and "Ottawa ecosystem"; when searching the Ottawa Business Journal, the Ottawa Citizen, Globe and Mail and Google scholar, the same keywords were used. Returned articles were initially examined for relevance, and then set aside for further analysis if deemed relevant. Google scholar, Ottawa Citizen and

Globe and Mail turned no relevant article to Lead To Win. Most relevant articles were published in TIM Review and a few were published in the Journal (OBJ).

The researcher conducted multiple search iterations for online publications and used different key words, then scanned the search result for any relevant article, and investigated the relevant materials carefully.

Table 13: Results of keyword search on ("lead to win")

Database or publication	Number of keyword hits	Number of salient articles	Citations to salient articles
<i>Technology Innovation Management Review</i>	45	8	Bailetti & Hudson (2009) Bailetti & Pratico (2009) Bailetti (2010) Wacheski (2011) Makeinko & Misaka (2011) Singer & Dexter (2011) Muegge (2012) Bailetti & Bot (2013)
Google scholar	0	0	None
<i>Ottawa Business Journal</i>	24	7	Bailetti (2009a, 2009b, 2010c) OBJ (2009a; 2009b, 2009c) Symons (2012)
Business Source Complete	17	0	None
<i>Ottawa Citizen</i>	0	0	None
<i>The Globe and Mail</i>	0	0	None
<i>Carleton University Magazine</i>	2	2	Couch (2012) Hickman (2013)

Table 14: How sources explain Lead to Win

Source	Explanation of Lead To Win and Lead To Win
Bailetti (2009a)	“Lead To Win is an ecosystem designed to launch and growth creative companies in Canada's Capital Region”
Bailetti & Hudson (2009)	“Lead to Win is a business ecosystem designed to create technology jobs and attract investment into technology companies that operate in Canada's Capital Region” (p.11)
OBJ (2009a)	“LTW combines classroom training and mentorship, with the use of facilities from business incubators” “LTW includes support from high-powered partners such as the Chamber of Commerce.”
OBJ (2009b)	“Lead To Win reflects a local need” “Lead to Win program takes unemployed or underemployed techies and teaches them how to bring their bright idea to market”
OBJ (2009c)	“Lead to Win program mentors startups and generates jobs and investment for the cash-strapped tech sector”
Bailetti (2010a)	“Lead to Win is a vendor-neutral business ecosystem designed to grow creative companies for the purpose of generating technology and knowledge jobs in Canada's Capital Region” (p. 18)
Singer & Dexter (2011)	“Lead To Win for Women is based on the existing Lead To Win program” (p. 30) “Existing LTW programs to support women founders” (p. 30) “LTW-W has four program elements: a session to help women foster ideas to launch and grow businesses, an expert speaker series that encourages the development of practical knowledge for businesses, a forum for owners of established firms, an outreach program for college women to encourage them to start businesses” (p.31)
Couch (2012)	“Lead to Win, a free platform to help entrepreneurs. After participants develop their ideas into a business opportunity, with mentoring and resources from Lead to Win, they grow their business with the goal of creating six new jobs in three years”
Symons (2012)	“Lead to Win [is] an initiative spearheaded by Carleton University professor Tony Bailetti to help startups develop skills necessary to bring their product to market.” “VentureStart is funded through the Federal Economic Development Agency for Southern Ontario, the Canadian Innovation Centre and a consortium of other non-profit organizations and it is available to entrepreneurs with a university or college degree in science, technology, engineering or mathematics, and living in southern Ontario”
Bailetti & Bot (2013)	Lead To Win is... “an ecosystem-based job creation engine fuelled by technology entrepreneurs” (p. 31) “a job-creation engine designed and operated using the ecosystem approach” (p. 31) “an ecosystem that delivers services to technology entrepreneurs for the purpose of creating knowledge jobs in Canada's Capital Region” (p. 32) “The Lead To Win job-creation engine can be conceptualized as a collective of organizations and individuals that collaborate to support the launch and growth of technology ventures” (p. 32)

4.2 Field work and primary sources

The interview guiding questions were to get an overview of the organizers background, and the role each individual played in Lead To Win, then asked the respondents to provide detail information about their duties within the ecosystem and how they would describe Lead To Win based on their role, knowledge and experience of Lead To Win; the researcher followed up with more questions based on the interviewee's answers to establish further details; specific questions were asked about the Lead To Win organization, governance, platform, processes and community; all interviews were audio recorded.

Each interview lasted approximately 90 minutes; respondents shared their unique experience within Lead To Win in addition to archival data that provided detailed statistics about Bootcamp sessions, number of participants and opportunities that have been accepted. Fieldwork and secondary sources were triangulated, and refined to ensure accuracy and relevance to the study.

What emerged from the interviews were the respondent's unique experience within Lead To Win and a detailed description of the area they operated within, respondents also provided additional archival data that provided information about all Bootcamp sessions, and opportunities.

Respondents provided input that shed light on the Bootcamp operation, recruitment, opportunity assessment and selection. Also provided data about the Lead To Win guiding processes that complemented and built on Bailetti & Bot (2013)

4.3 About Lead To Win

The Review Assessment Board examines submitted applications based on pre-set criteria to assess the customer value, competitive offer, partner value, job creation potential, sound financial plan, foundation to leverage available resource and team ability to execute the plan; the opportunity review assessment is relevant to this research because of its potential impact on business model. If the opportunity is marked red, the business plan is rejected, and if it is green, it is accepted, but if it is marked yellow, the business plan requires improvement before being marked green, this is a potential source of influence on entrepreneur business model.

Table 15 outlines the Lead To Win sessions from its second launch in 2009 until 2013, along with, number of accepted opportunities (Bailetti, 2014).

Table 15: Lead To Win “bootcamp” sessions; number of applicants and accepted opportunities

Lead To Win session	Number of applications	Number of accepted opportunities
Sep/Oct 13	45	4
Feb/Mar 13	47	8
Oct/Nov 12	51	6
Feb/Mar 12	66	17
Oct/Nov 11	62	18
Oct/Nov 10	49	11
May/Jun 10	41	11
Feb/Mar 10	69	18
Oct/Nov 09	98	22
Jul/Aug 09	66	20
May/Jun 09	82	32
Total	676	167

The guiding processes of Lead To Win start with the entry requirements to Lead To Win which include three gates; entrepreneur is expected to create six new jobs within the first three years, can use the keystone infrastructure to co-create value with partners, customers and

government agencies and third is the access to services designed to help companies grow (Bailetti & Hudson, 2009)

At the end of day 3 of the Bootcamp, a committee of industry and academic volunteers review the presented opportunities and assess them as green, yellow or red. The green opportunity passes to the next phase of Bootcamp and continue day 4, 5 & 6, while a person with yellow opportunity will have to go back to the drawing table to address the reviewers feedback, enhance the opportunity and come back for presentation before day 4, if passed, entrepreneur will join the Bootcamp, same thing is required with an entrepreneur with red opportunity except that the opportunity requires major change before presenting it again. Volunteers are motivated by their desire to serve the community, to do something they like and to network with other people in the industry; says a Lead To Win key organizer.

Although rare, companies may be kicked out of Lead To Win if they fail to reach their objectives. Not all green opportunities are active companies, as entrepreneurs apparently didn't proceed with their venture although they are part of Lead To Win. Companies communicate with each other based on knowledge obtained from networking; says a Lead To Win key organizer.

Lead To Win is marketed through different venues to attract potential entrepreneurs bring their ideas and join the 3 day Bootcamp. Ideas are screened for suitability based on specific criteria that require the idea to be about technology and entrepreneurs commitment to create 6 full time jobs within 3 years. If selected, an application to be submitted and then reviewed by a committee to determine if the idea is good enough to be included in the next Bootcamp that runs form 9-4, used to run from 9am-8pm; says Lead To Win organizer

At the end of day 3, each Bootcamp attendee makes a presentation in front of a committee that either accept or ask for modifications before proceeding to the next phase of

Bootcamp, day 4, 5 & 6. The second part of Bootcamp provides business training on how to commercialize and run business, training is provided by industry volunteers; says Lead To Win organizer.

The Lead To Win achievement since 2009 when the program was re-established includes 85 new ventures operating today, 86 employees in first start-up launch, 367 opportunities, and \$7.75 million was raised for entrepreneurship in the capital region (Bailetti, 2014).

This research utilized publicly available information about Lead To Win published in the TIM review and complemented by interviews with key players. Bailetti & Bot (2013) provide insights into the design and operation of Lead To Win as an example of job creation engine.

The following section provide description of the Lead To Win organizational structure followed by a brief summary of the participating companies; the Lead To Win organization structure is relevant to this research as it sheds light on the ecosystem platform and services that can play a role in the participation model of the ecosystem; the main sources of data for structure and organization come from Bailetti & Bot (2013) and field interviews; data for participating companies come from archival and online source plus field interview.

4.4 Lead To Win organization

This section describes the main building blocks and processes of Lead To Win, detailed description of Lead To Win is outlined in Bailetti & Bot (2013).

Lead To Win offers services to help entrepreneurs start and grow their business, the services are organized through a set of guiding processes and resources; approximately 30 Lead To Win elements, components, are organized into five categories that provide services in a specific area of business creation; workspace, knowledge, desks, cash and strategic assets.

The Lead To Win platform is guided by 10 design rules to ensure value is created for the public by mandating that each new venture creates a minimum of six knowledge jobs within three years of inception, and value created for the entrepreneurs, shared resources, effective engagement, compelling value propositions, efficient cost structure and program services provided to entrepreneurs to help them grow their ventures. The Lead To Win elements offer free workspace to entrepreneurs, training and networking, business development for helping entrepreneurs grow their business and sales across different jurisdictions, the desk category is divided into five specialized desks of services; first is the invest desk that educates and trains entrepreneurs about investment opportunities; second is the business development desk designed to train entrepreneurs on how to grow their businesses; third is the sales desk to help improve sales opportunities; fourth is progress desk for monitoring growth milestone to ensure that business is on the right track; fifth is the global desk to help entrepreneurs grow business globally. The fourth component helps with the financing needs of the new venture; fifth component is the community platform that links all stakeholders together.

Process centric platform of Lead To Win guided by the architectural design rules facilitates the engagement of all shareholders where Lead To Win council provides governance to the whole ecosystem. The Lead To Win governance council includes investors, mentors, complementary, business partners, service providers, post-secondary institutions, economic development organizations and early buyers and users.

The Lead To Win lifecycle stage model starts with phase 1 where new ideas are generated to start a new business; second phase is to develop the business opportunity; third phase is to create a minimum viable product and accelerate sales to first customers; fourth and last phase is to scale up the venture to create a minimum of six knowledge jobs and reach

revenue of at least \$1 million per year (Bailetti & Bot, 2013). The importance of value co-creation is a major lesson reported by the Lead To Win keystone operators. Co-creation were found core to the health of Lead To Win and must add value to both creators and customers and the resulting benefits of the co-creation projects were skills, assets, relationships, processes and best practices, also new niches increased the diversity of the outcomes (Bailetti & Hudson, 2009).

Lead to win for women (Lead To Win-W) is an extension to the core Lead To Win with a focus on encouraging women entrepreneurs to start and grow technology innovation based business. There is a special and dedicated fund to advance the cause of female entrepreneurship, the program follows the same rules of the standard Lead To Win with an approach designed to be friendly and supportive of female entrepreneurs; the Bootcamp duration is shorter for women and cater to her specific needs.

Table 16 provides a summary of the Lead To Win categories and associated elements (Bailetti, 2014).

Table 16: Lead To Win elements and categories

Category	Element /component	Description
Workspace	Three workspace locations	Physical locations offered to entrepreneurs as an office space where they can run business
Knowledge & trust	Opportunity assessments	Activity conducted by a committee of reviewers to examine the business plan presented by candidate
	Lead To Win Bootcamp	3 day session occurs 2-3 times a year where selected entrepreneurs are invited for business training and opportunity assessment
	TIM Lecture Series	A networking event that hosts a speaker who can share business ideas with invited guests
	Lead To Win workshops	Training Workshops
	Lead To Win speaker series	Hosting speakers to share expertise
	Partner events	Lead To Win partners to network with entrepreneurs
Desks	Sales	Sales desk to help entrepreneurs with sales activities
	Operations	Operation management
	Develop business	Help with business development
	Invest	Help bring investment opportunities
	Progress	Check progress and offer guidance
	Born global	Help entrepreneurs to go global
Cash	Graduate Enterprise Internships	An internship that can pay entrepreneurs grant if hire a graduate student
	Global start	Support for starting global business
	Ottawa Young Entrepreneurs	Lead To Win Partner that helps entrepreneurs start business
	Nicole Institute	Carleton university affiliate that can offer grant
	Venture start	Help with starting new venture
	Smart start	Help new entrepreneurs get started
	Ontario brain institute	Support entrepreneurship in Ontario
Strategic assets	Lead To Win founders and ventures	Founders and ventures
	Lead To Win faculty, mentors and reviewers	Academic and industry mentors and reviewers
	TIM Review	Academic journal for technology innovation management
	TIM theses and projects	Part of TIM master program
	BigBlueButton	Online tool for audio and video communication
	Lead To Win tools and processes	Tools and processes that guide the venture creation lifecycle
	Research centre for technology innovation	Research centre
	MPS projects	Management process system for Projects

4.5 Participating companies

The *Ottawa Business Journal* published most of the public data about the Lead To Win companies; one article was published in 2012 about grants being rewarded to nine Lead To Win companies by VentureStart program which is run by Mississauga based Research Innovation Commercialization Centre which offers grants to technology entrepreneurs up to \$30,000 based on matching criteria, Lead To Win was credited by preparing and enabling the Lead To Win entrepreneurs to qualify for the grant

Table 17: Inventory of Lead To Win companies reported in archival sources

Company name / website address	Description	References
Acire Systems http://www.aciresystems.com/	Enable business people to use their smart phones to invoice clients and report time and expenses at the time they occur	Bailetti (2010)
Anystone Technologies Inc http://www.anystonetech.com/	Mobile applications for tablets and smartphones that improve the learning experience by allowing users to speed up or slow down audio and video content.	Symons (2012)
Crack Semiconductor http://cracksemi.com/	Specializes in public key or asymmetric cryptography solutions for customers in a broad range of industries including banking, payment, government and military. For more details, see	Bailetti (2012c)
Data Bridge Digital http://www.databridgedigital.com/	Electronic distribution based business	Bailetti (2010)
Echotec Sonar Corp http://www.echotec.ca	A manufacturer of high definition, 3-D sonars for the commercial fisheries, defense, and scientific markets.	Symons (2012)
EPEink Corp. http://www.signority.com	Secure e-signature technology called Green signatures, plus related software.	Symons (2012)
EventuSix http://www.eventusix.com/	Technology start-up that capitalizes on the opportunity of business environment expertise	Bailetti (2010)
Freebird Connect http://www.freebirdsolutions.com	Software for economic development in the knowledge economy	Muegge (2012)
Gnowit Inc	Monitoring of a company's online	Symons (2012)

http://www.gnowit.com/	reputation and media coverage, with more analysis than how many hits	Howell (2013)
HiveDirect http://134.117.226.43	Software and services for collaborative scalable video transcription	Muegge (2012)
Kylowave Inc. http://www.kylowave.com/	A disruptive technology in the control, simulation, verification space for the creation of sustainable resources	Symons (2012)
InfoGlutton http://www.infoglutton.com	Social media and online reputation monitoring firm, acquired by MediaMiser	Bailetti (2010) Howell (2012)
Insight Design Labs Inc http://www.indelabs.com/	Pre-trade risk analysis, market data feed processing, and algorithmic trading engines for the financial securities trading industry	Symons (2012)
Liquid Computing http://www.liquidcomputing.com/	Provided servers, storage and network solution, established in 2002 and ceased operation 2010	Couch (2012)
MarketingMuse http://www.marketingmuse.com/	Improves the referral rate for healthcare practices, measures their marketing effectiveness, and contributes branded custom websites to support overall marketing effort	Bailetti (2010)
Nakina Systems http://nakinasystems.com	Provides network management solutions for the telecommunication industry, started early in 2002	Couch (2012)
Neptune Charts http://www.neptune-navigation.com/	Low-cost production of paper and electronic charts of lakes, aimed especially at those people who fish.	Symons (2012)
Opus2 Mobile Solutions http://opus2mobile.com/	Better, lower cost deployment of mobile apps for use by business.	Symons (2012)
Ottercall Inc. http://www.ottercall.com/	A mobile language learning start-up offers mobile apps, web apps, and license the technology	Symons (2012)
RealWat http://www.realwat.com	Web start-up specializing in Custom Mobile and Web Application Development.	Bailetti (2012c)
TechnoDevelop http://www.technodevelop.com/	Specialized in selling the intellectual properties they develop	Bailetti (2010)
Virtual EyeSee http://virtualeyesees.com	Virtual therapy software for children with special needs	Muegge (2012)
Zeebu Mobile http://www.zeebu.com/index.shtml	Educational and fun Online applications for preschool kids	Bailetti (2010)

4.6 Specifying the Lead To Win field setting

Sections 4.7, 4.8, 4.9, 4.10, and 4.11 describe Lead To Win using five frameworks from the literature. The objective is a better understanding of Lead To Win as a context for entrepreneurship and business model innovation.

4.7 Positioning Lead To Win in the semantic framework

The four dimensions of semantic framework are the conceptual location, anchor, boundaries and elements following Muegge (2011a) and Muegge (2011b, section 2.7).

The practitioner view of Lead To Win is of an “engine for job creation” as the conceptual location, anchored around a platform of processes and knowledge assets, comprised of both organizations and individuals, with membership. The gate keepers that include the review boards, lead reviewers and front end recruiters that decide on the boundary by allowing ideas to enter phase 1, opportunity to phase 2, and ventures entering phase 3, within each boundary, access to the anchor platform is defined. The fourth dimension of the semantic framework is the nature of elements, which can be thought of as the economic actors and community volunteers from industry experts, faculty members and community professionals. In this perspective, Lead To Win is the entire field setting with all of its components.

Table 18: Description of Lead To Win using the semantic framework

Semantic dimension	Lead To Win
Conceptual location	Lead To Win is an ecosystem that delivers services to technology entrepreneurs for the purpose of creating jobs in Canada's capital region Engine for job creation. Lead to Win is a job creation engine fuelled by technology entrepreneurs (Bailetti, Bot, 2013)
Anchor	Process based platform, venture creation process anchors the business ecosystem (Bailetti, Bot, 2013)
Boundary	Lead to Win life cycle stage model consists of four phases that set the boundary between idea, opportunity and venture, the gate keepers are the assessment boards and lead reviewers (Bailetti & Bot, 2013)
Elements	Lead To Win stakeholders: mentors, post-secondary institutions, mentors, service providers, business partners, complementors, economic development organizations, early buyers and users, investors (Bailetti & Bot, 2013)

4.8 Lead To Win as a multisided platform

Clients, suppliers, partners, investors, and other affiliates interact through the Lead To Win multi-sided platform (Bailetti, 2010b), which enables organizations of different types to rapidly co-create products, services, and solutions (Bailetti, 2010b)

The Lead To Win platform consists of a set of processes that guides the venture creation lifecycle, it is not a product that complementors can extend or scale it. The participating groups are different especially when it comes to ecosystem contribution, value creation and capture. The other important distinction is the resource flow in both ecosystems among participants. While resource flow in case of Lead To Win tends to be unidirectional from Lead to Win elements to participating companies, the resources flowing into Lead To Win come from government and public sponsors with the objective to promote job creation and economic growth in the region

The Lead To Win platform is designed to attract, enable and guide entrepreneurs to create ventures; other stakeholders, especially business partners, investors, service providers are loosely tied with the Lead To Win processes.

Table 19: Description of Lead To Win as a multi-sided platform

Stakeholder groups	Side of the multisided platform	Participants comprising the side	Value proposition for participants
Leaders	Entrepreneurs	Lead the creation of ventures and become startup community leader	Personal motivation to succeed and potentially significant financial return (respondents interviews)
	Implementers	Startup founders, employees and directors who have financial stake in the venture	Professional satisfaction and financial return
Feeders	Mentors	Volunteers providing entrepreneurs with management and industry expertise	Personal satisfaction to get involved in the community and help others Desire for networking with like-minded professionals and entrepreneurs (respondents interviews)
	Post-secondary institutions	Universities contributing knowledge, opportunity assessment and assets to entrepreneurs	Enhance university brand, and attract potential students
	Service providers	Accountants, lawyers, human resources specialist providing professional services to entrepreneurs	Opportunity for potential customers
	Business partners	Manufacturing, supply chain and marketing channels partners who form alliance with new start-ups	Collaboration to create value, reduce the need to build internal capabilities for new products
	Complementors	Businesses that sell complementary products and services to the new ventures	Opportunity to build and commercialize complementary products at low cost
	Economic development organizations	Public agencies providing services to the community and start-up businesses	Support of public policy

	Early buyers & users	Early users and technology adopters who are interested in trying new products and services and provide early feedback to the new ventures	Excitement to try new products very early and desire to experiment with innovation
	Investors	Large and small investors who would like to invest in high risk with high return potential	Offer opportunity for investment with potential high return

The left column of the above table outlines the different sides of Lead To Win; they are a mix of industry experts, academics, post-secondary institutions, government organizations, and individuals who provide either financing or professional services.

The multi-sided feature of Lead To Win is an important aspect of the ecosystem design; some sides are strong parts of the ecosystem such as academic, industry experts and post-secondary institutions; they are the sides responsible for transfer business knowledge.

All of these sides are connected through the Lead To Win platform, which is a set of processes, unlike the original platform used by Iyer & Davenport, Google platform as a physical product builds different kinds of sides, and maintain longer relationship with the ecosystem as long as the binding platform is still functioning

4.9 Specifying Lead To Win using modularity and option value

Baldwin & Clark (2006) defined two important architecture properties, modularity and option value, to assess the ecosystem. Although the framework is based on the open source software development process, they argued that the model could be applied to any non-rival good and to partially rival goods where work is fuelled by voluntary effort within architecture characterized by modularity and option value.

There are, as yet, no quantitative tools or techniques for objectively measuring the modularity of a platform comprised of processes and knowledge assets, and developing new measurement techniques is outside the scope of this research. Instead, we return to the construct definitions and attempt to qualitatively situate Lead To Win by interpreting the field setting data.

The modularity and options value are attributes that describe the state of software design, high modularity and more option value are more desirable as they offer better participation model and allow concurrent contributions to the platform without disrupting other contributors. The application of modularity and option value attributes in the Lead To Win context requires higher level of abstraction to move the attributes from software platform design domain to process based platform of Lead To Win.

4.9.1 Modularity

Lead To Win modularity is very high, Lead To Win includes more than 30 elements; historically Lead To Win added modules or elements to meet the demands of some donors who were interested in financing a specific module but not the whole Lead To Win. Modularity was created out of necessity and served Lead To Win well. "Lead To Win was modular by necessity, because we needed to raise money externally. When we were first getting started, nobody was

going to donate all the money and resources to make Lead To Win work. However, lots of groups were enthusiastic about particular parts needed for Lead To Win, and were willing to help make those parts work. We were very successful at attracting resources in this way. We found sponsors for the parts, then assembled those parts together into a machine. When a new piece was needed, we would search for a sponsor for that new piece." Says Tony Bailetti, Lead To Win director.

4.9.2 Option Value

Lead To Win offers participants different option values in which participation is voluntary is based on the participant needs, some entrepreneurs may choose not to select any of the option value if it adds little value to their business

Lead To Win provides over thirty elements classified into five categories that offer different option values to different entrepreneurs, the use of these elements is not mandatory; every entrepreneur has the flexibility to choose whatever makes the most sense in helping his business. "For Lead to Win, modularity and option value were linked. Lead to Win had high option value because it was modular. We could quickly adapt it to new opportunities and the interests of new donors." Says Tony Bailetti, Lead To Win director.

Table 20: Description of Lead To Win using modularity and option value

Platform properties	Lead To Win
Modularity	Modularity in Lead To Win is very high. Lead To Win added elements or modules to meet emerging the needs of willing donors to finance specific modules; adding or removing modules do not disrupt the existing elements or modules as elements are self-contained and independent
Option value	Option values is high in LTW, the evidence is seen in the participants ability to use any of the LTW elements as it suits their needs, high modularity resulted in high option value

4.10 Specifying Lead To Win using community design dimensions

To link West & O'Mahony (2008) with Lead To Win, the researcher looked at the community architecture and member participation in both cases; the focus of West & O'Mahony (2008) is the sponsored open source software community, the three design dimensions; production, governance and intellectual property and their parameters were introduced to assess the openness of the community measured by transparency and accessibility to the open source software platform by a community of developers; Lead To Win on the other hand is different on many levels; the platform is a process based and is not an open source software product..

4.10.1 Production dimension

The design parameters are meant to describe and explain the design dimension, all of them were meant for managing the software development of an open source platform, in that specific sense, they have no relevance to Lead To Win.

Lead To Win pays no attention to the design dimension as described in the this framework

Lead To Win community organization design is not concerned about the production dimension as described in West & O'Mahony because the objective and scope are different in both cases; Lead To Win organization is not overseeing the production and is not responsible for the final product if we consider what is being produced at the venture level is what needs to be managed as a production, the platform of Lead To Win is a set of processes

4.10.2 Governance dimension

Some of the governance attributes of the community design dimensions framework are applicable in the Lead To Win context, in the sense that Lead To Win governance is a non-for profit and transparent that controls the Lead To Win membership through the platform processes, however, the release authority of the platform is not applicable to the Lead To Win platform as it is set of processes not a software product.

The governance of the Lead To Win is transparent with very limited scope; it was introduced to meet the requirements of the donors as a pre-requisite for investing in any of the Lead To Win modules. "Lead To Win is a distributed system. We introduced just enough governance to satisfy the stakeholders providing money and resources to make Lead to Win work. Donors got the governance that they wanted and no more. This changed over time as the donors changed." Says Tony Bailetti, Lead To Win director.

4.10.3 Intellectual property dimension

Lead To Win purposefully de-emphasized the intellectual property dimension to encourage entrepreneurs to focus more on creating a good business model; the issue of intellectual property was considered a distraction for entrepreneurs and not the right priority they

should focus on as they start new business. Lead To Win does not intervene in the intellectual property assets of the participants; entrepreneurs alone control their venture assets including the intellectual property

Unlike the open source software platform, the Lead To Win platform is a set of processes and entrepreneurs do not contribute to the platform at the process level or even the element level.

Table 21: Description of Lead To Win using community design dimensions

Community Design Dimension	Design Parameters	Lead To Win
Production	Live code access	Left column parameters not applicable to Lead To Win. Production within venture is managed independently by entrepreneurs who do not contribute to the Lead To Win process based platform LTW pays no attention to the production dimension and therefore openness represented in transparency and accessibility is not applicable in the Lead To Win context
	Public commit process	
	Sub-project creation	
Governance	Non-profit foundation	Transparent, non-profit governance. Limited form of governance was established only to satisfy donors who asked for it, outside the task of securing the fund for the Lead To Win programs, governance is almost inactive
	Membership	
	Member fee	
	release authority	
Intellectual property	Sub-project ownership	Left column parameters are not applicable to Lead To Win. Lead To Win de-emphasized the intellectual property as a business dimension to direct entrepreneurs to higher business priorities. Lead To Win does not control IP
	Software license	
	License type	

4.11 Specifying Lead To Win from a system perspective

In the thesis, there was an attempt to precisely specify Lead To Win as a system of systems with resource flows and institutional arrangements but it was not successful, because there was no sufficient evidence from the data collected within the scope of this thesis to make precise analysis about the institutional arrangement and resource flow within Lead To Win and beyond. This is could be a future research opportunity.

4.12 Summary and synthesis of phase 1 results

Phase 1 results are based on data collected from four key Lead to Win organizers, secondary sources available to the public, and archival sources not publicly available.

The Lead To Win field setting was specified using five frameworks from the literature; (1) semantic framework, (2) multisided platforms, (3) platform modularity and option value, (4) community design dimensions, and (5) a system perspective. Each framework shed light on different characterises of the Lead To Win ecosystem, but no single framework fully described the field setting.

During analysis, it emerged that Lead To Win appears to possess the characteristics of “club”, anchored around an excludable and non-rival “club good” platform. Pursuing this insight will be an opportunity for future research.

5. Results: Business models of Lead To Win companies

This chapter presents the results for phase 2 of this research. The following sections describe case selection, interviews with founders, development of the case reports, a timeline of events, descriptions and explanations of company business models, participation in the ecosystem, reported benefits of participation, and the development of propositions linking participation and business model changes.

5.1 Case selection

Six entrepreneurs were selected; each case represents an independent experiment. The study timeframe is from 2003 to 2013, the selection includes Lead To Win early and late entrants, global start companies, entrepreneurs who completed the Technology innovation program (TIM) and others who came from outside the TIM program,

The selection criteria are set to allow variety and replication among the cases. Companies were selected based on previous knowledge about their history and founders.

All cases are technology based ventures established by technology entrepreneurs who had technical background and developed some level of subject matter expertise from previous industry experience; business model was transformed at least once in all cases, in some cases, it was transformed three times during the study period.

The following table provides a brief summary about each case

Table 22: Summary of cases

Case code	Important dates	Description
A	2002: joined Lead To Win	First venture grew to be multi-million dollar company before it ended operation later Continued to participate through another venture Lead To Win helped with business training , grant applications through different public funding programs and provided input into the business model Entrepreneur continue to participate in Lead To Win at different levels
B	2009: joined Lead To Win	Completed TIM program at a later date. Entrepreneur participated in other Lead To Win affiliate programs Lead To Win helped with business training, grant applications through different public funding programs and helped transform the business model
C	2009: joined Lead To Win	Established a multi-million company that was later sold to a large corporation. Lead To Win contributed business training, facilitating some financing and sales Business model was transformed for one instance and copied over for another instance
D	2009: joined Lead To Win	Grew business to 7 staff. Lead To Win helped with business training, grant applications and helped transform business model
E	2009: joined Lead To Win 2011: registered the venture 2012: established office space	Obtained private and public funding Lead To Win helped with business training , grant applications through different public funding programs and helped transform the business model
F	2010: joined Lead To Win	Completed TIM program at a later date Entrepreneur participated in other Lead To Win affiliate programs Lead To Win helped with business training , grant applications through different public funding programs and helped transform the business model

5.2 Interviews summary

Table 23 illustrates the case profile; number of field interviews and other sources of data, the company name is appreciated to protect the entrepreneur's identity; the secondary sources include published articles by the business journalist, or entrepreneurs, companies' website and press releases

Table 23: Primary and secondary sources for company cases

Case code	Number of primary sources		Number of secondary sources					
	Founder interviews	Other primary sources	Total	Scholarly journals	Business trade press	Press releases	Books and book chapters	Other secondary sources
A	1		21	2	12	2	2	3
B	1	Respondent feedback on case report excerpt. Added more timeline details	12	3	-	6	-	3
C	1	Respondent feedback on case report excerpt. Added financing info	10	1	5	-	-	4
D	1		6	-	3	-	-	3
E	1		7	-	4	-	-	3
F	1	Respondent feedback on case report excerpt. Added new business model and venture for 2014	8	3	-	1	-	4

5.3 Improving the results

After completing the field interviews of phase 2, building and reviewing the case report for each case, the researcher prepared selected sections of the case reports and sent it to all six founders asking for fact checking verification and final feedback, three founders replied agreeing with the content of the case report summary and provided their feedback, the researcher compiled and added their comments to the case reports; the comments provided additional information on the evolution of their case business model since last interview plus clarity on some of the event timeline.

The researcher also reviewed the interview audio recordings multiple times to review the interview data and to ensure the accuracy and quality of the case reports.

The researcher built the cross case analysis incorporating the latest revision of the case reports.

Another improvement was revisiting phase 1 of the research after completing phase 2 of the research to combine the founders' perspective on the Lead To Win institutions and participation experience; the new participants' perspective about Lead To Win added clarity and context to phase 1 data and analysis of the study.

Phase 1 result in the thesis document was revisited enhanced with the new information as the researcher prepares the final version of the thesis document.

5.4 Business model timeline illustration for all cases

Figure 2: Timeline of case business models and events

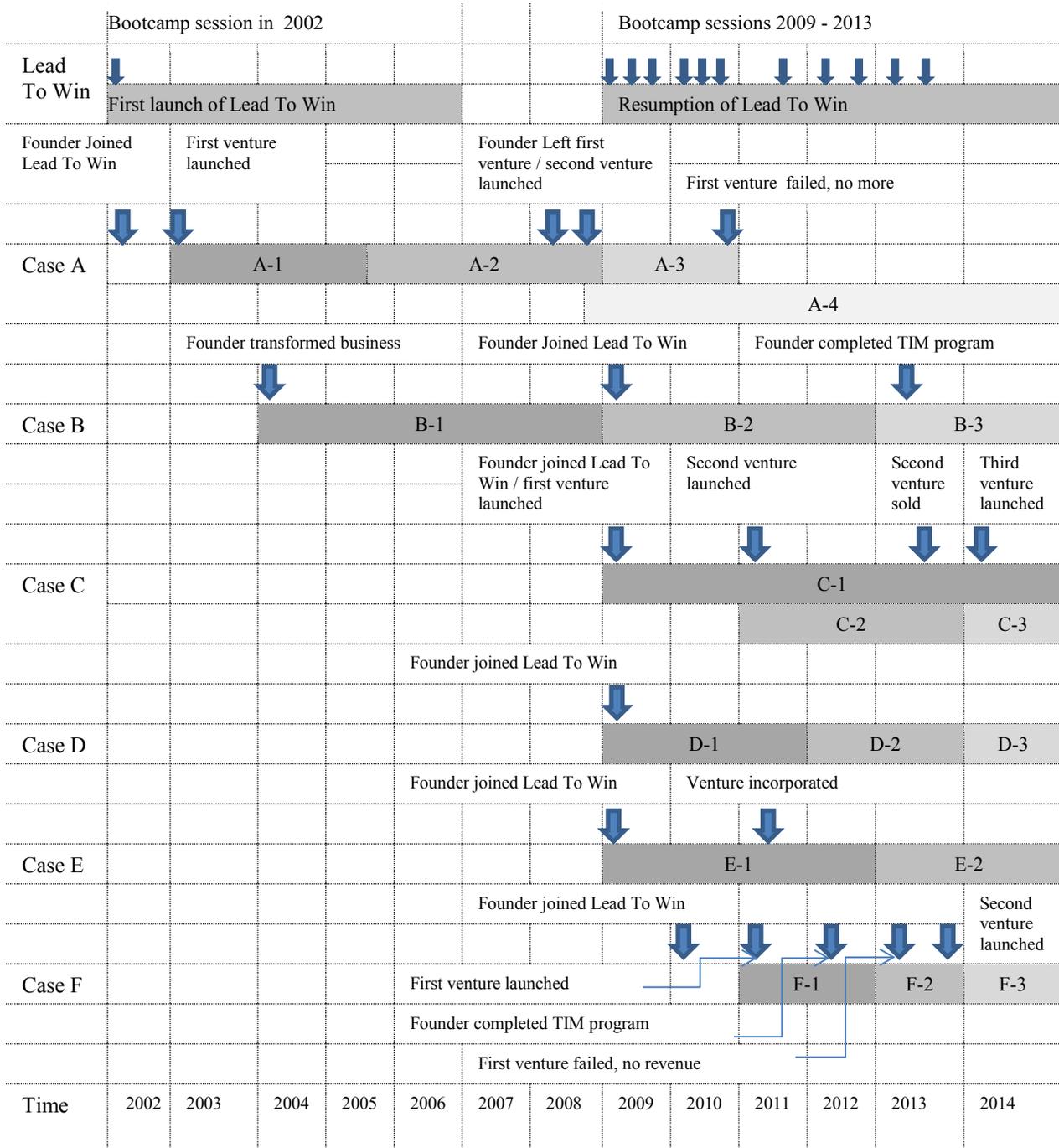


Figure 2 combines the changes for all cases in one diagram; the diagram will illustrate the changes to each case business model as whole. Lead To Win Bootcamp sessions are illustrated by down arrow on Lead To Win row, it illustrates the business model timeline for all cases A, B, C, D, E, & F. For case A, three business models (A-1, A-2, A-3) are for first venture, model A-4 is for another venture. For Case C, business model “C-1” was introduced to Lead To Win Bootcamp for the first venture, model “C-2” was created for second venture 2, then model a similar model, “C-3”, was created for third venture that has common characteristics with second venture. For Case F, business modes F-1 & F-2 were created for venture 1, model F-3 was created for a new venture that started in January 2014 beyond the time frame of this study, however the business model is reported to capture all input provided by the founder when asked for final feedback in March 2014.

Figure 2 also illustrates the major milestones for Lead To Win ecosystem and founders with down arrows. Lead To Win arrows along the Lead To Win row at the very top represent the Bootcamp sessions. The other arrows along each case represent the major events for founders and cases; the founders captured events are Lead To Win entry, starting a venture, ending a venture

Table 24 tracks the business model change on the component level for all cases. Each case is represented vertically in a column; iterations of the business model and its components are represented horizontally.

Table 24: Business model component tracking summary

Business Model	Components	Case A	Case B	Case C	Case D	Case E	Case F
First model	Customer	I	I	I	I	I	I
	Value proposition	I	I	I	I	I	I
	Profit Formula	I	I	I	I	I	I
	Capabilities	I	I	I	I	I	I
Second model	Customer	C	U	C	C	C	C
	Value proposition	C	C	C	C	C	C
	Profit Formula	U	C	C	C	C	C
	Capabilities	U	U	C	C	C	C
Third model	Customer	U	C	U	C	C	U
	Value proposition	C	C	U	C	C	C
	Profit Formula	C	C	U	U	U	C
	Capabilities	U	C	C	U	U	U
Fourth model	Customer	C					
	Value proposition	C					
	Profit Formula	C					
	Capabilities	C					

The following abbreviations are used in Table 24:

I: stands for initial when model is introduced for the first time

C: stands for changed when a business model changes

U: stands for unchanged when a business model component remains unchanged

The following table illustrates the business model change status and indicates whether it is “yes” for change or “no” for no change; a change in any component of the business model is considered a change to the business model and triggers “Yes” status. Third column indicates whether Lead To Win ecosystem contributed to the business model change along with comments describing the impact of the ecosystem on the business model change

Table 25: Overview of business model changes

Company	Business model changed?	Lead To Win contribution?	Other ecosystem participation?	Comments
Case A	No	Yes	No	Business model didn't change during the seven years of operation, there were opportunities for improvement but business leaders were focusing on salvaging falling business; founder was able to start a new venture with a new business model after leaving the original company he founded
Case B	Yes	Yes	Yes	Lead To Win business experts and academics made the most contribution to BM change through review and feedback with the intention on how to capture the most value
Case C	Yes	No	No	Initial business model was passed when introduced to Lead To Win Bootcamp in 2009 without modification, new company business model was not presented to Lead To Win, however Lead To Win sales desk helped with the company sales activities

Case D	Yes	Yes	Yes	Stakeholders component of the BM radically changed along with the value proposition
Case E	Yes	Yes	Yes	Business model was initially vague specially for profit formula, Lead To Win input helped create more effective profit formula and strengthened the overall business model
Case F	Yes	Yes	No	Lead To Win contributed the original idea and provided feedback for strengthening the profit formula

5.5 Detailed view of business model changes

The following table described the business model change in more details by tracking the change that occurred to each business model component, the last column provides comments highlighting different aspects of the change

Table 26: Detailed view of business model changes

Company	Paint point changed?	Stakeholder value proposition changed?	Profit formula changed?	Capability changed?	Comment
Case A	Yes	Yes	Yes	Yes	Business model needed to change but the changes were not sufficient to salvage the business
Case B	Yes	Yes	Yes	Yes	Key motivation is to capture more value proportion to the value created, profit formula, stakeholders, value proposition and capabilities required significant change

Case C	Yes	Yes	Yes	Yes	Entrepreneur established three companies, first & second were different in all business model aspects while the third venture is similar to the second one except the way the founder wanted to finance it and manage stakeholders relationship
Case D	Yes	Yes	No	No	Initial stakeholders were not the right target, changing stakeholders led to changing VP and profit formula
Case E	Yes	Yes	Yes	Yes	Significant effort was initially invested to develop the technical aspects of the product; more attention for creating an effective business model led to changing SVP, PF, and building capabilities for marketing and business development instead of product development
Case F	Yes	Yes	Yes	No	Initial profit formula was based on insufficient market research; competition forced business to rethink the profit formula and value proposition

5.6 Summary of business model change

The following table describes briefly the different business models for each case, business model timeline and different financing options when applicable

Table 27: Summary of business model changes

Case	Business Model 1	Business Model 2	Business Model 3	Business model 4	Received public financing?	Raised private funds?
A	Value based pricing business model, offered differed value proposition to different stakeholders	Changed to focus on different customers	Changed customer value proposition based with new offering	New venture with a new business model to offer more value at competitive cost	Yes	Yes
B	Cost effective and flexible consulting service, charged per hour	Charging fixed fees per intellectual property unit	Keystone ecosystem business model to leverage multi-sided platform strategy		Yes	No
C	First venture as consulting services	Second venture offering a new business model, all components changed	A new venture based on previous business model		Yes	Yes
D	First business model draft	Changed model to focus on different	Changing the model to target different		Yes	No

		customer and value proposition	sectors			
E	Initial model, profit formula was not final	Changed profit formula to be based on monthly subscription	-		Yes	Yes
F	Initial model with profit formula that charged service per minute	Changed profit formula	New model for new venture		Yes	No

5.7 Participation in the ecosystem

Table 28 shows that all entrepreneurs participated in the Bootcamp and opportunity assessment and network events; also almost all entrepreneurs benefited financially from their participation in Lead To Win.

All cases received direct feedback from Lead To Win review panel, industry experts and ecosystem key organizers into their business model, which was a primary source of the business model transformation.

The table in the following page describes in more details which case participated in which Lead To Win element, this can help identify how participation impacted the business model.

Table 28: Details of founders' participation in Lead To Win elements

Lead To Win Category	Lead To Win elements	Case A	Case B	Case C	Case D	Case E	Case F
Workspace	Office space				✓		✓
Knowledge & trust	Opportunity assessments	✓	✓	✓	✓	✓	✓
	Bootcamp	✓	✓	✓	✓	✓	✓
	TIM Lecture Series	✓		✓			
	Partner Events	✓	✓	✓	✓	✓	✓
Desks	Sales Desk			✓			✓
	Invest Desk	✓	✓	✓	✓	✓	✓
Cash	Global Start			✓		✓	
	Graduate Enterprise Internships (GEI)				✓	✓	✓
	Ottawa Young Entrepreneurs (OYE)		✓				✓
	Venture Start				✓	✓	
	Nicole Institute						✓
Strategic Assets	Mentors & Reviewers	✓	✓	✓	✓	✓	✓
	TIM Review	✓	✓	✓	✓		✓
	TIM Theses & Projects		✓				✓

The following table describes the inventory of participating cases in Lead To Win; the right column indicates the Lead To Win element while the left column indicates the number of cases participated in this element. An element describes a side of the multi-sided platform of the ecosystem.

Table 29: Summary of case participation

Lead To Win Element	Count of participating cases
Bootcamp	6
Opportunity assessment	6
Mentors & Reviewers	6
Partner events	6
TIM Review	5
Invest Desk	5
TIM Lecture Series	3
Graduate Enterprise Internships (GEI)	3
TIM Theses & Projects	2
Sales Desk	2
Global Start	2
Venture Start	2
Ottawa Young Entrepreneurs (OYE)	2
Workspace	2
Nicole Institute	1

Bootcamp participation had a direct impact on business model transformation through direct input from the review panel and industry experts

Financing also had indirect impact on business model transformation; all entrepreneurs who sought funds from public agency such as IRAP and GEI put additional thoughts into their business model to make their case compelling before going to the approval committee of the grant agency.

Two cases completed the TIM program, which had direct impact on their business model through the program emphasis on business model creation and transformation literature

The cases that didn't complete the TIM program didn't follow the same approach as TIM graduates but it is unclear from the data if there is a direct link between the company successes with either approach of changing the business model.

5.8 Perceived benefits of participation

Table 30 lists the benefits of participation as reported by entrepreneurs during the interviews and were recorded separately in each case report. At the end of each one of the six interviews, we asked a question about the benefits and impact of Lead To Win on the venture, the objective was to get direct input from entrepreneurs about the benefits of participation from their point of view.

The first self-reported benefit was direct feedback about their business model. It was also an opportunity for some entrepreneurs to focus more on their business plan and less on product development; “I was focussing on the product and the person doing business development was on part time basis but we should have started marketing the product earlier” says case ‘E’ founder. “Lead To Win was effective at the beginning in providing skills and knowledge I didn’t have, how to raise money and how to grow business, it’s knowledge building aspect, also networking with LTW associates” says Case A founder.

The second self-reported benefit was putting more thought into the business model before standing before a potential financier in order to make their business case more compelling; “IRAP & VentureStart forced us to think seriously about the business model because they would shoot on us if we were not well prepared” says founder of case ‘D’. “Lead To Win helped with Young Ottawa Entrepreneurs, told me about VentureStart and applied for that, Lead To Win was helpful in Graduate Enterprise Internship grant” says case F founder.

The third self-reported benefit was networking opportunities to connect with the right people and build personal brand; “To a large degree, Lead To Win provided three elements, teaching basic skills, networking with similar people in the program, and third connecting with

the right people, resources and knowledge that can bring the venture to the next level” says case ‘A’ founder.

The fourth self-reported benefit was extensive and rigorous business training from the Technology Innovation Management program. This benefit is only received by entrepreneurs who completed the TIM program. “The combined exposure to TIM and OYE, Lead To Win allowed me to reflect on the company business model by combining management theories and practice in addition to the feedback I received from the Bootcamp” says case B founder. The researcher observed that case F founder obtained the idea for his first venture as TIM project that was passed to him to serve as a graduation project and a real business opportunity, the business model was enhanced as part of the graduation project.

The fifth self-reported benefit was specialized services in the form of sales and operational support. “Lead To Win sales desk helped make sales calls to potential customers; that was helpful giving the complexity of the deal” says Case C founder, “Lead To Win sales desk took a lot of abstract stuff about sales and showed me what it is by taking the sales theory and show me how it works in practice and that was important to me” says case F founder.

The sixth self-reported benefit was personal attention and mentorship to help move the new venture to the next step. “I always relied on Tony, he helped connect me with the right people, provided critique on value proposition, Lead To Win helped entrepreneurs like myself move ahead” says Case A founder, “LTW mentoring contributions were very important” says case F founder

Table 30: Benefits of participation

	Benefits of participation as reported by entrepreneurs
1	Business model knowledge transfer and feedback to entrepreneurs during Bootcamp participation; the business model is at the centre of the Bootcamp presentation and the feedback was an important element in changing the initial business model
2	Lead To Win guidance in receiving funds during the early period helped entrepreneurs stabilize their business model and allowed them to execute on their business plan
3	Lead To Win offered entrepreneurs the opportunity to connect with other business development and government agencies for additional help with the business model
4	TIM program offered entrepreneurs who completed it in-depth knowledge about the subjects of business model and ecosystem which led to a more disciplined approach to business model development
5	Lead To Win offered a number of service desks such as sales desk and investor desk that were used by some entrepreneurs who found the service useful
6	Entrepreneurs cited the personal attention and support from the program director in moving their venture to the next step

5.9 Impact of Lead To Win participation on case outcomes

As a step towards developing propositions and explanations, this section develops six case-level variables. The two participation variables are *intensity* and *breadth*. The three business model variables are *differentiation*, *sophistication*, and *extent* of change. The *benefits* variable assesses the relative magnitude of benefits received. Each of the three groups of variables is developed in the following subsections.

5.9.1 Participation variables

This section develops two case-level participation variables: (1) the *intensity* of participation and (2) the *breadth* of participation in the Lead To Win field setting.

Intensity of participation. Participation in some components of Lead To Win requires a relatively greater commitment of time, effort, and other resources by the entrepreneur. We conceptualize the entrepreneur's commitment to Lead To Win of time, effort, and resources as *intensity of participation*.

For example, attending an event in the TIM Lecture Series requires the entrepreneur to commit approximately three hours of time, and participate in discussion and the capturing of "lessons learned". In comparison to other components of Lead To Win, participating as an attendee in the TIM Lecture Series is relatively low intensity. In contrast, participating in the Technology Innovation Management program is relatively greater intensity. Students who successfully complete the TIM program earn a graduate degree in engineering. This requires hundreds of hours of work over a time period eighteen to twenty-four months, completion of challenging graduate courses and a research thesis or project, and the payment of tuition fees.

We specify the intensity of participation of each case using a three-point ordinal scale of high (3), medium (2), and low (1). We assign the value high (3) to cases where a founder joined the TIM program, published with TIM faculty, and/or participated actively in the organization and delivery of Lead To Win. We assign the value medium (2) to cases that do not meet the criteria for high participation, but did become involved in the Global Start program, the Graduate Enterprise Internship program (employing a TIM graduate student), or presented at the TIM lecture series. We assign the value low (1) to all other cases.

Breadth of participation. Lead To Win is comprised of approximately thirty elements grouped into five components. According to Bailetti & Bot (2013), the components differ in terms of the value they add to creating jobs and the specialized knowledge required for delivering these services. A founding entrepreneur can participate in one, two, three, four or all five categories. We conceptualize this notion as *breadth of participation* and argue that entrepreneurs participating in more categories have higher breadth of participation than entrepreneurs participating in fewer categories.

For example, a founder that attended the Lead To Win Bootcamp, attended TIM Lecture series events, and attended Lead To Win partner series events, would have participated in only one component because all three elements are grouped together in component 2, knowledge and trust. A second founder that attended the Lead To Win Bootcamp, joined the Global Start program, and used the Sales Desk would have participated in three components because each element is part of a different component. Although both founders participated in three elements, we say that the second founder that participated in three components has a greater breadth of participation than the first founder that participated in one component.

We specify the breadth of participation of each case by counting the number of components in which the founders participate. This rule results in a five-point interval scale with a minimum value of one (participation in one component only) and a maximum value of five (participation in all five categories).

Table 31 presents the participation variables for each case and the rationale for assigning each value according to the specified decision rule.

Table 31: Results: Participation intensity and breadth

Case	Intensity of participation	Rationale: ways in which the founder participated	Breadth of participation	Rationale: number of categories
A	High	Published with TIM faculty, participated actively in the organization and delivery of Lead To Win	Low	3
B	High	Joined TIM program, published with TIM faculty	Medium	4
C	Medium	Joined Global Start program, presented at the TIM lecture series	Medium	4
D	Medium	Joined ventureStart program, Graduate Enterprise Internship and published in TIM Review	High	5
E	Medium	Joined Global Start program, the Graduate Enterprise Internship program (employing a TIM graduate student)	Medium	4
F	High	Joined the TIM program, published in TIM Review	High	5

5.9.2 Business model variables

This section develops three case-level business model variables: (1) business model *differentiation*, (2) business model *sophistication*, and (3) the *extent of change* to business models over time.

Differentiation of business models. The extent of business model innovation can vary greatly between different firms (Chesbrough, 2006; Teece, 2009). Some business models may be similar to those of competitors. Others can be differentiating, novel, or even “game changing” (Johnson & Christensen, 2008). We conceptualize this notion as business model *differentiation*, where differentiation is the extent to which a business model differs from the business models of competitors.

We specify business model differentiation at two levels of analysis: (1) the business model level and (2) the case level.

On the business model level, we specify the differentiation of a business model using a three-point ordinal scale of high (3), medium (2), and low (1). We compare the four components of a focal business model against the four components of competitor business models, and count the number of components that differ. We assign the value high (3) to innovative business models where two or more components differ significantly from those of competitors. We assign the value medium (2) to business models where one component differs significantly from those of competitors. We assign the value low (1) to all other business models – that is, imitative business models with no components that differ significantly from those of competitors.

On the case level, we specify business model differentiation using a two-point ordinal scale of high (2) and low (1). We assign the value high (2) to cases with at least one business

model of high differentiation or at least two models with medium differentiation. We assign the value low (1) to all other cases, that is, cases with no business models of high differentiation and no more than one business model of medium differentiation created during the study period.

Sophistication of business models. Business models vary with respect to the ease in which they can be explained, illustrated, and understood. We conceptualize this notion as business model *sophistication*.

For example, Hagui (2007) distinguishes between (1) “merchant models” where a single supplier sells a well-defined product to a well-defined segment of customers, and (2) “two-sided platform models” that bring together two groups of stakeholders where either or both groups could be considered customers, such as companies looking to hire and individuals seeking jobs. Likewise, Bailetti (2010b) distinguishes between (1) “traditional business models” where a single supplier sells products to customers directly or indirectly through intermediaries, and (2) “business ecosystem models” where a supplier uses a multi-sided platform to interact with customers and members of different groups such as complementors, investors, and community leaders, to develop and market its offers. For both Hagui (2007) and Bailetti (2010b), the second form of business model is said to be more sophisticated than the first form.

We specify sophistication at two levels of analysis: business model level and the case level.

On the business model level, we specify the sophistication of business model using a two-point ordinal scale of high (2) and low (1). We assign the value high (2) to business models anchored around a multisided platform or business ecosystem. We assign the value low (1) to all other business models without a multisided platform or business ecosystem, including merchant models (Hagui, 2007) and traditional models (Bailetti, 2010b).

On the case level, we specify business model sophistication using a two-point ordinal scale of high (2) and low (1). We assign the value high (2) to cases where at least one business model with high sophistication was created. We assign the value of low (1) to cases where no business models with high sophistication were created during the study period.

Table 32 presents the first two business model variables for each case and the rationale for assigning each value according to the specified decision rule.

Table 32: Results: Business model differentiation and sophistication

Business models	Differentiation	Rationale: differentiated business model components	Sophistication	Rationale: multisided platform or ecosystem
A-1	Low	Unique value proposition	Low	Merchant
A-2	Low	Changing customer	Low	Merchant
A-3	Low	Enhancing value proposition	Low	Merchant
A-4	High	Unique compared to competitors	High	Multi-sided
Case A	High	A-4 is high differentiation	High	A-4 is high sophistication
B-1	Low	Hourly Consulting service	Low	Standalone
B-2	Low	IP based consulting service	Low	Standalone
B-3	High	Ecosystem based model	High	Ecosystem
Case B	High	B-3 is high differentiation	High	B-3 is high sophistication
C-1	Low	Consulting service	Low	Merchant
C-2	Low	Filling regional gap in service	Low	Merchant
C-3	Low	Standard service	Low	Merchant
Case C	Low	All models are low differentiation	Low	All models are low sophistication
D-1	Low	Unique value proposition	Low	Merchant
D-2	Low	Improvement	Low	Merchant
D-3	Low	Improvement	Low	Merchant
Case D	Low	All models are low differentiation	Low	All models are low sophistication
E-1	High	Unique value proposition	Low	Merchant
E-2	High	Unique value proposition	Low	Merchant
E-3	Low	Improvement	Low	Merchant
Case E	High	E1 and E2 are high differentiation	Low	All models are low sophistication
F-1	High	Innovative value proposition	High	Multi-sided platform
F-2	High	Innovative profit formula	High	Multi-sided platform
F-3	Low	Freemium model	Low	Merchant
Case F	High	F-2 is high differentiation	High	F-1 and F-2 are high sophistication

Extent of business model change. Changes in business model components may lead to a better business model over time. This is an important notion for technology entrepreneurs; for example, Chesbrough & Rosenbloom (2002) examined new ventures that spun out from Xerox, and concluded that successful ventures experienced significant business model transformation, while search and learning by failed ventures was quite limited. We conceptualize this notion of learning and discovery as the *extent of change*.

We specify the extent of business model change using a three-point ordinal scale of high (3), medium (2) and low (1). At each transition to a new business model, we count the number of changed business model components, which could be one, two, three or four, and compute the sum over the time period of the study. We then map that sum to the three-point ordinal scale as follows. We assign high (3) to cases where business model components changed more than six times. We assign the value medium (2) to cases where business model components changed exactly six times. We assign the value low (1) to cases where business model components changed fewer than six times.

Table 33 presents the third business model variable – the extent of business model change – and the rationale for assigning each value according to the specified decision rule. The fourth, fifth, and six columns also consider the time dimension. The fourth column reports the number of years over which the changes occurred. The fifth column reports the mean time for a component change, computed by dividing by total time period of the case by the number of components that changed over that time. The sixth column reports the mean number of component changes per year, computed by dividing the number of components changed by the total time period of the case. Note that column six is the reciprocal of column five.

Table 33: Results: Extent of business model changes

Cases	Extent of change	Rationale: Count of changed business model components	Time period (years)	Mean time for component change (years)	Rate of change (changes/year)
A	High	8	12	1.5	0.6
B	Medium	6	11	1.8	0.5
C	Low	5	6	1.2	0.8
D	Medium	6	6	1.0	1.0
E	Medium	6	6	1.0	1.0
F	High	8	4	0.5	2.0

5.9.3 Benefits of participation

This section develops one variable to assess the extent to which a case company benefits from its participation in Lead to Win.

Benefits of participation. Founders report a wide range of benefits from participating in Lead To Win. We conceptualize the financial, business training, business opportunities, or branding benefits as *the benefit of participation*.

For example, new skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks are benefits reported by entrepreneurs. Founders reported differing benefits even when participating in the same elements.

We specify the benefit of participation using a two-point ordinal scale of high (2) and medium (1). We assign the value of high (2) to cases where founders benefited new business skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks. We

assign the value medium of (1) to cases where founders benefited new business skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, and building relationship and networks.

Table 34 presents the benefits of participation variable for each case and the rationale for assigning each value according to the specified decision rule

Table 34: Results: Benefits of participation

Cases	Benefits of participation	Evidence from case reports, “Benefits of participation”
A	High	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks
B	High	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks
C	High	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks
D	Medium	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, and building relationship and networks
E	Medium	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, and building relationship and networks
F	High	New skills and knowledge, grants, and assistance with grant applications and raising investment, credibility with stakeholders, business development, and building relationship and networks

5.9.4 Propositions

This section develops four propositions relating to the variables developed in previous sections. The independent variable is intensity of participation. The dependent variables are business model differentiation, business model sophistication, extent of business model change, and benefits of participation.

Table 35 reports the dependent variables for each case, sorted by intensity of participation. By inspection, these results suggest four propositions (P1-P4).

Table 35: Case results sorted by intensity of participation

Intensity of Participation	Cases	Business model differentiation	Business model sophistication	Extent of business model change	Mean time for component change (years)	Rate of change (changes / year)	Benefit of participation
High	A	High	High	High	1.5	0.6	High
High	B	High	High	Medium	1.8	0.5	High
High	F	High	High	High	0.5	2.0	High
Medium	C	Low	Low	Low	1.2	0.8	High
Medium	E	High	Low	Medium	1.0	1.0	Medium
Low	D	Low	Low	Medium	1.0	1.0	Medium

At the highest intensity of participation, all three cases (A, B, and F) have high business model differentiation. At the lowest intensity of participation, case D has low business model differentiation. At medium intensity of participation, case C has high differentiation and case E has low differentiation; for a two-state variable, this is an intermediate result. We therefore propose a positive relationship between intensity of participation and business model differentiation.

Proposition 1: *Higher intensity of participation is associated with higher business model differentiation.*

At the highest intensity of participation, all three cases (A, B, and F) have high business model sophistication. At the lowest intensity of participation, case D has medium benefits of participation. At medium intensity of participation, case C and E have low sophistication; for a two-state variable, this is an intermediate result. We therefore propose a positive relationship between intensity of participation and business model sophistication.

Proposition 2: *Higher intensity of participation is associated with higher business model sophistication.*

At the highest intensity of participation, cases (A, and F) have higher extent of business model change; case B has medium extent of business model change. At the lowest intensity of participation, case D has medium extent of business model change. At medium intensity of participation, case C has low extent of change and case E has low medium extent. We therefore propose a positive relationship between intensity of participation and extent of business model change.

Proposition 3: *Higher intensity of participation is associated with more extensive business model change.*

At the highest intensity of participation, all three cases (A, B, and F) have high benefits of participation. At the lowest intensity of participation, case D has medium benefits of participation. At medium intensity of participation, case C has high benefits of participation and case E has medium benefits of participation. We therefore propose a positive relationship between intensity of participation and benefits of participation.

Proposition 4: *Higher intensity of participation is associated with higher benefits of participation.*

Table 36 presents a summary list of the four supported propositions.

Table 36: List of propositions

Proposition Code	Proposition statement
P1	Higher intensity of participation is associated with higher business model sophistication
P2	Higher intensity of participation is associated with higher business model differentiation
P3	Higher intensity of participation is associated with more extensive business model change
P4	Higher intensity of participation is associated with higher benefits of participation.

5.10 Lead To Win contribution to business model change

What emerged from the data collected from the technology company cases that Lead To Win made a number of contributions to the business model transformation; all entrepreneurs reported a business model change as a result of the Bootcamp participation when they presented their opportunities along with the proposed business models; entrepreneurs had strong technical background and invested significant effort that helped them with product development but business model challenge emerged when entrepreneurs tried to commercialize their products. As shown in Table 28, all founders participated in a Bootcamp session and went through opportunity assessment; almost all founders except case ‘C’ reported changes to their business model as a result to feedback they received from the opportunity assessment during a Bootcamp. “Lead To Win contributed quite a few changes to the business model” says founder of case ‘E’. “I had understanding of what technology can do and what my value proposition, but there were too generic value proposition, I was missing something was taking the prototype and package and address to specific market, it took me 6 months to know what I need” says founder of case ‘D’, case ‘D’ founders also says “I understood from Lead To Win that I had to have a specific value proposition and it took me a lot of time to define the real and specific value proposition”,

“I realized the stakeholder was myself, I know what the technology was going through but I didn’t know who the customer would be and it took me years to learn that”.

Bootcamp review panel provided feedback that helped entrepreneurs transform their business models into a more robust model based on real market condition. Founder of Case ‘F’ “Got advice from Lead To Win on how to do business model change and try it on my own”

Lead To Win also helped entrepreneurs receive funding that had some impact on the state of the business model; entrepreneurs in the initial period of their start-up couldn’t generate sufficient revenue from sale and they needed some external support to keep going until successful sales cycle gets established, until then, business model is not tested in the real world but it still can be a valid one. “Lead To Win helped us take advantage from government programs and didn’t know how to access them before” says case ‘E’ founder. “Lead To Win helped me talk to IRAP, if I talked to IRAP without Lead To Win help, I would have failed” says case ‘D’ founder. “Lead To Win helped with YOE, told me about VentureStart and applied for that, Lead To Win was helpful in GEI grant” says case ‘F’ founder.

Lead To Win guidance in helping entrepreneurs get financial support helped them sustain their operation in the first period of start-up without the need of developing two business models; one for the first two years or so and another one once the start-up is established.

Another Lead To Win contribution is the opportunity to network with other agencies, business communities, public agencies and ecosystems that allowed entrepreneurs to share capabilities; entities such as Ottawa Young Entrepreneurs, IRAP and business development agencies in Ontario prompted entrepreneurs to review and strengthen their business models in order to demonstrate the seriousness of their start-ups. “Lead To Win helped connect me with the right people, provided critique on value proposition” says founder of case A.

Fourth Lead To Win contribution is the TIM program that helped entrepreneurs who completed the program get a deeper understanding of the business model, which translated, into a disciplined approach to business model change. Founder of case 'F' completed TIM project that was based on the opportunity he used to create a venture, TIM mentoring helped the founder create and strengthen the venture business model. Similarly, founder of Case 'B' benefited from TIM program evolve business model through TIM mentoring and TIM review articles that described the business model transformation

Lead To Win contributions were most significant and effective for first time entrepreneurs who possessed strong technical background but little knowledge in creating and running business as they receive much needed business and skills and knowledge; "I had no experience in building a company, just a good ideas" and "I had good engineering experience but no business experience" says case 'D' founder. The contributions become less effective for serial entrepreneurs who acquired the basic business knowledge in the first attempt. "Lead To Win was effective at the beginning in providing skills and knowledge I didn't have, how to raise money and how to grow business, it's knowledge building aspect, also networking with Lead To Win associates" says case 'A' founder

Also Lead To Win contributed to sales effort in some cases, but other entrepreneurs had to expand their network to look for potential customers in their particular niche market. "Lead To Win sales desk took a lot of abstract stuff about sales and showed me what it is by taking the sales theory and show me how it works in practice and that was important to me" says case 'F' founder; also case 'C' founder says "Lead To Win sales desk helped make sales calls to potential customers that was helpful giving the complexity of the deal", but case 'B' founder stated that he

had to expand business network beyond Lead To Win to be closer to potential customers of the niche market case B venture is after.

5.11 Summary and synthesis of phase 2 results

Phase 2 results are based on data collected from primary sources during interviews and feedback and secondary sources.

The results revealed that new ventures often changed business model as a result of their participation in Lead To Win, the change frequency was approximately 3 times within 5 years and triggered by searching for target customer and enhancing the customer value proposition.

Lead To Win emphasized the importance of business model and influenced the way founders thought of the business model through Bootcamp training and the adoption of a specific business model framework during assessment.

The characteristics of company participation in Lead To Win along with the field settings of Lead To Win influenced the participant benefit and the extent, differentiation and sophistication of the business model changes.

6. Discussion

This chapter addresses the three research questions, discusses emerging insights and suggests future research opportunities.

This research explored the new venture business model in the Lead To Win ecosystem, and the influence of the operating environment of Lead To Win on the business model changes.

The research addressed three questions. First, what is Lead To Win? Second, how the new venture business model changed over time in that context? Third, what influence Lead To Win had on the business models of the participating companies.

6.1 Answers to the research questions

Subsections 6.1.1, 6.1.2, and 6.1.3 answer the three research questions that were outlined in section 1.1

6.1.1 What is Lead To Win?

To what extent can the Lead To Win field setting be described and explained using existing frameworks from the literature?

In this study, the researcher tried to describe Lead To Win using five frameworks from the literature, the objective was to use the frameworks as guide and link Lead To Win with what has been developed in the literature, the merging results showed that all frameworks were developed to analyse an existing subject modelled around an ecosystem analogy, Lead To Win did not quite fit any of the five frameworks used in this study.

Using the multi-sided platform (Bailetti, 2010) to describe Lead To Win, Table 19, shows that the process based platform of Lead To Win that guides the venture creation lifecycle (Bailetti & Bot, 2013), the Lead To Win platform is not a software product that can be expanded and complemented in a way similar to that of Google or Amazon, the eight stakeholder groups

collaborate as feeders to create value while the leading groups of entrepreneurs and implementers create the core value that is guided by the platform process but not an extension to the platform. The ventures create the core value within Lead To Win, they can also be regarded as complementary, Lead To Win increases in value as the ventures grow in number and size, the flow and interdependency of the suppliers and clients in the traditional multi-sided model does not quite fit Lead To Win.

Using the semantic perspective (Muegge, 2011a) to describe Lead To Win shows that the conceptual location of Lead To Win is a job creation engine anchored around a process based platform that guides the venture creation lifecycle, it has over 30 elements grouped into five categories with the objective of providing services to technology entrepreneurs who are positioned as leaders within Lead To Win, it is a gated platform with controlled by the platform processes.

Using the community design dimension framework (West & O'Mahony, 2008) to describe Lead To Win, Table 21, reveals that the core elements of the framework are the community three design dimensions and affiliated properties set to facilitate production activities within an open platform ecosystem, but Lead To Win has no role in production with very limited on demand governance to satisfy some donors and de-emphasis on intellectual property; the community design dimensions and properties (West & O'Mahony, 2008) proved to be unfit to describe Lead To Win.

Using modularity and option value (Baldwin & Clark, 2006) to describe Lead To Win, Table 20, reveals that the Lead To Win modularity and option value are high, option value is high because modularity is high, Lead To Win developed high modularity as a way to attract investment from donors who were interested in financing specific elements within Lead To Win

or create new elements to satisfy some of their mandates, thus, Lead To Win created elements (modules) that provided some services independent of other services which offer high option value when allowing entrepreneurs to participate in the option that fits them the most.

6.1.2 How the business models changed over time?

The second question answered in this research is how the business models of Lead To Win companies changed over time in that context; the emerging data, Figure 2 & Table 24, indicates that most entrepreneurs started with an initial business model but started changed different components as a result of their participation and interaction with the market, it took entrepreneurs an average a year to change a component, overall it took multiple iterations over a number of years of discovering the most effective business model.

The most common changes were to find a more compelling value proposition and shifting customer segments such as in the case of A, E and F; appropriating more value triggered business model change in Case B that led to change in profit formula and customer value proposition. Case C changed business model from providing engineering design services to providing information services in the form of data center hosting services.

New venture business models changed frequently in search of improving one or more of the four components and it took entrepreneurs at least 4 years to create the business model they have now; some entrepreneurs changed the business model for the same venture three times in four years, while other serial entrepreneurs copied old business model and used it to build a new venture.

Two patterns were observed in the business model transformation; first, the review comments and feedback received during their Lead To Win participation initially influenced the business model in the very early stage of venture creation which formed the foundational

hypotheses of the business model that were later changed again when tested and challenged by market forces. Second, business model focussed initially on the product development capabilities, then later shifted focus on product commercialization; Cases D,E & F reported that they spent the first few years working on product development, then shifted 70% of their focus on business development later on and less on product development.

6.1.3 How and to what extent does participation impact business models?

The third question answered in this paper is the impact of the Lead To Win characteristics on the business model of the new ventures; the results reveal that participation in Lead To Win differed between cases. Table 16 presents the Lead To Win elements and components; Table 28 presents case participation status in the Lead To Win elements. The intensity of participation outlined in Table 31 and business model characteristics outlined in Table 32 and Table 33 suggest that intensity of participation played a role in shaping the new venture business models. More specifically, the higher intensity of participation, the higher differentiation and sophistication of business models, also the higher extent of business model changes over time. Also the rate of business model change per year is highest for new ventures; the rate becomes smaller as the venture stays longer.

Meanwhile the intensity of participation was associated with greater benefits as outlined in Table 34 and Table 35.

6.2 Lessons learned from writing this thesis

What I learned from this research is to start with a clear rather than vague research questions, it is even more helpful to start with some speculations about potential results as this helps focus the development of the research method and build realistic expectations about possible contributions. On the other hand, incomplete or vague understanding of some

constructs or concepts early in the research was inevitable in some cases as this is part of the research learning objective, so it is important to be open to cases where it is ok to be vague initially and develop better understand as you progress and cases where researcher must be concrete to avoid costly consequences.

This study provided me with a concrete learning opportunity on how to conduct a quality academic research using case method, for example, when preparing interview questions, I learned that respondents answer could be out of my initial expectation, my learning here is to consider multiple possibilities of what interviewees might answer and be prepared for next step in the interview in order to meet the overall objective and collect the data you need. This study also provided me with hands-on experience to be precise with evidence and align it with research question and conclusion.

On the organization level, I learned to pay attention to the thesis scope and timeline and pay special attention to issues that might stand in the critical path of completing the research. The critical issues must be resolved at the earliest possible opportunity if there are dependant tasks that might be impacted. Maintaining research modularity is very important as it allows concurrent execution and can lead to reduced timeline.

On the business and managerial level, this study provided me with a valuable insight into the work of technology entrepreneurship, I had the chance to speak with real entrepreneurs who aspired to build and grow successful ventures. The research gave me first-hand experience about the challenges and rewards of starting a new business rather than working for a company.

If I were to start a business, I would take all the lessons I learned from the research and build on the strengths that entrepreneurs developed and avoid making the same mistakes. It is exciting to start a new business but it is also risky and requires a lot of dedication and energy.

The thorough investigation and analysis conducted in this research provided me with a deep understanding of ecosystems with far reaching implications beyond the business dimension. I learned that ecosystem analogy is a powerful theoretical concept that can also explain and describe other social and political institutional arrangements. This study also provided me with additional insights about business model development and characteristics that can be very useful when starting a new venture or even starting a new product within a large company

6.3 Contributions to management research

There are three key findings discussed in this chapter: (1) evidence of an association between participation in Lead To Win and new venture business models, (2) benefits of participation, and (3) insights from specifying Lead To Win using frameworks from the literature. The following subsections discuss each of the key findings in more details.

6.3.1 Association between participation and business model change

The first contribution is evidence of an association between participation in Lead To Win and new venture business models. More specifically, more intense participation is associated with greater business model differentiation, business model sophistication, and extent of business model change over time.

Cases with higher intensity of participation experienced higher business model sophistication, differentiation and extent of change as their participation intensified across multiple elements. All founders changed business models more than once, business model changed approximately three times in the course of four years on average.

Intensity of participation was associated with business model differentiation in this study. The concept of differentiation should be understood as novelty in a particular space where entrepreneurs were able to develop a business model characterized as fresh and different from

their competitors. Literature talked about the concept of business model differentiation using different language. Johnson & Christensen (2008) argued that “Pursing a business model that’s not new or game changing to your industry or market is a waste of time and money” and (Teece, 2010) argued that developing a successful business model is not enough to make profit, as imitation is often easy but a business model can be sufficient to yield profit if it is unique and hard to replicate by competitors big or small. Johnson & Christensen (2008) and Teece (2010) talked about business model uniqueness as a measure of differentiation from competitors but none of these studies connects the differentiation concept with business ecosystem as in the case of this study.

6.3.2 Intense participation is associated with greater benefits

The second contribution is evidence of the benefits of participation in Lead To Win. New ventures participating in Lead To Win benefited from (i) new knowledge and skills, (ii) success raising investment, (iii) greater credibility with stakeholders, (iv) business development, and (v) relationships and networks. More intense participation is associated with greater benefits.

All entrepreneurs reported surge in new skills and knowledge; business knowledge transfer was a major addition to technical entrepreneurs who spent most of their time on product development innovation and very little on business model development. In most cases, entrepreneurs initially spent a great deal of time on product development and refining technical specification; some founders spent a few years on product development with full focus on the technical aspects of the product before coming up with any business plan on how to commercialize the product, or how to capture value.

Entrepreneurs who participated more intensely – were more engaged in the ecosystem – gained higher benefits overall. Participation is a central notion in the literature related to business ecosystem; examples: business ecosystem as institution of participation (Muegge, 2011c), the architecture of participation” (O’Reilly, 2004), the architecture of participation (Baldwin & Clark, 2006), and the role of participation architecture in growing sponsored open source communities (West & O’Mahony, 2008). These prior studies talked about participation of users and developers in open source software platforms but none has talked about participation of entrepreneurs in a job creation engine. This study talked about participation of entrepreneurs in a job creation engine and found association between intensity of participation and both benefits and business model changes.

6.3.3 Club goods and ecosystem analogy to Specify Lead To Win

The third contribution is the insight that Lead To Win could be described as a club. None of the existing frameworks from the management literature on platforms, communities, and business ecosystems could completely describe Lead To Win. Each provided a partial view, and revealed that ecosystem analogy is not a perfect fit for Lead To Win. Instead, Lead To Win has the characteristics of club goods and analyzing it from that perspective is a good thing to do.

When trying to specify Lead To Win, none of the frameworks from the literature quite fit Lead To Win as the frameworks described an existing subject with an ecosystem analogy. Club goods analogy is an alternative concept that could describe Lead To Win considering the common characteristics of club membership benefits and the excludability and non-rivalry of the goods within Lead To Win.

“A club is a voluntary group deriving mutual benefit from sharing one or more of the following: production costs, the members’ characteristics (e.g., members’ scholarly activities in

learned societies), or a good characterized by excludable benefits” (Cornes, 1986). The goods in club goods are characterized by excludability and non-rivalry.

6.4 Recommendations for practice

The following subsections are short lists of recommendations based on the research results. The recommendations are structured according to the three stakeholder groups.

6.4.1 Entrepreneurs

There are five recommendations for entrepreneurs.

1. **Join a business ecosystem – preferably a job-creation engine.** Joining a business ecosystem could benefit an entrepreneur. This study reported evidence that business model development was influenced by participation in a job-creation engine.
2. **Participate intensely.** More intense participation results in greater benefits to the venture, more business model changes, and higher differentiation and sophistication.
3. **Use the ecosystem** to help (i) build new knowledge and skills, (ii) raise investment, (iii) establish credibility with stakeholders, (iv) develop the business, and (v) build relationships and networks. All five of these benefits were reported by Lead To Win entrepreneurs.
4. **Don’t expect the ecosystem to necessarily help with everything.** For example, the ecosystem might not include specialized customers in niche markets. An entrepreneurs may need to expand their networks beyond the ecosystem to reach niche potential customers.
5. **Expect your business model to change; actively search for a better business model.** Entrepreneurs changed business models three times within five years on average. All business model components – especially customer value propositions and profit formula – changed over time. This recommendation is consistent with the argument of Muegge (2012) about discipline and intent of business model discovery.

6.4.2 Lead To Win leaders

There are four recommendations for the organizers of Lead To Win.

- 1. Examine the Lead To Win field setting through the lens of club theory.** Ecosystem thinking features prominently in Lead To Win (Bailetti & Bott, 2013; Bailetti & Hudson, 2009). Club theory could provide an alternative perspective that might also be insightful. For instance, club theory predicts that consumption of club goods is impacted by the club size if the use rules are not balanced with the goods supply; this could potentially inform leaders about the optimal size of Lead To Win.
- 2. Grow the number of investors participating in Lead To Win.** Expand the number of feeding stakeholders to include investors who are passionate about technology and willing to take risk and support ventures with high potential. Although investors are one of the current stakeholder groups (Bailetti & Bot, 2013), none of the entrepreneurs benefited from venture capitalists except one case of an early Lead To Win participant prior to 2004.
- 3. Build bridges with innovation developers.** Some entrepreneurs reported that they spent years developing their products. Connecting entrepreneurs with innovators would reduce the time it takes to build an innovative idea and a viable product which can move to the business and commercialization phase faster. It is a way to expand and strengthen the multi-sided platform.
- 4. Build channels with industries** in order to facilitate the connection between entrepreneurs and potential customers that might exist in niche markets outside the ecosystem. These loose ties could be another way in which the ecosystems creates value for participants.

6.4.3 Public policy makers

There are two recommendations for makers of public policy that creates jobs and fosters economic prosperity.

1. **Invest in business ecosystems for entrepreneurship and job creation.** Entrepreneurs often have limited financial and business capabilities and they need support until they can stand on their feet. Business ecosystems are a means to support policy objectives for regional economic development..
2. **Provide incentives to venture capitalists to invest in emerging technologies.** It took entrepreneurs years to build a viable product and more years to commercialize it and turn profit. Until then, entrepreneurs needed cash to stay in business. Providing incentives for venture capitalists that reward risk and help offset some of the losses may attract much needed capital in developing new technologies that will ultimately create jobs and prosperity.

6.5 Research Limitations

One limitation of this study is the researcher's inexperience as a founder of a new venture or working for a start-up. The researcher's professional experience has been in large company settings. This detachment and neutrality can also be a benefit; the researcher was neutral and conducted this study with no prior biased opinion toward any outcome.

A second limitation is the researcher's remote location from the field setting. The researcher lived and worked in Toronto rather than Ottawa, which disallowed face-to-face interviews. Physical distance can also be a benefit; advanced online communication tools were used to connect with respondents, offering flexibility and record keeping.

6.6 Future research opportunities

The research setting of this study is a job creation ecosystem with a process based platform that differs from traditional business ecosystems that are based on product platforms. Replicating this method in other field settings could complement the results of this study, and enable comparison with different ecosystems and platforms. The research question would be how differing characteristics of the ecosystem influencing business model change.

A second research opportunity is to specify Lead To Win using club goods analogy. This study revealed that ecosystem analogy is at best a partial fit for Lead To Win, which also has characteristics of a club. Pursuing this further was beyond the scope of this research, but is a promising opportunity for future research.

A third research opportunity is to describe Lead To Win from the system perspective to better understand the resource flows and institutional arrangement within the ecosystem. The data required to fully specify Lead To Win from the system perspective was beyond the data collection scope of this research, but could be collected in the future.

7. Conclusion

This thesis explored the new venture business model in the context of the Lead To Win business ecosystem, and the impact of Lead To Win participation on business models and business model change. Intensity of participation was related to business model differentiation, sophistication and extent of change. More intense participation also resulted in greater perceived benefits. Entrepreneurs reported five types of benefits: (i) new knowledge and skills, (ii) success raising investment, (iii) greater credibility with stakeholders, (iv) business development, and (v) relationships and networks. This thesis also makes a contribution to management practice through sets of recommendations for entrepreneurs, Lead To Win organizers, and policy-makers. Three opportunities for future research are more-fully specifying Lead To Win from a system perspective, specifying Lead To Win as a club anchored around a club good, and replicating the method to exploring new venture business models and business model change in other field settings.

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