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## **Business Models and Performance: Entrepreneurial aspects in the New York wine industry**

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## **Abstract**

This dissertation is about innovation – the setting is business models. I have defined innovativeness in business models as a novel departure from what others in the same industry are using for their business model design. Utilizing evolutionary theory, I focus upon organizational routines to identify innovation. I explored characteristics within the firm associated with innovativeness in the business model including customer information processes; willingness to pursue experimentation and complexity added to the business model from the addition of non-core products. Inertia in the firm was considered as a moderator between each of these variables and innovativeness. Performance was measured using criteria relevant to the industry – quality, awards won by the winery and revenue growth.

Several implications follow from the results. First, An important implication of the research is that evolutionary theory is a useful lens to elaborate mechanisms associated with innovative business models and can serve for future research to theoretically ground investigations into innovation in business models. Second, my methodology served as a contribution by providing an ability to objectively identify innovative business models. Third, the importance of understanding your customers aids in developing innovative business models. Fourth, experimentation allows firms to develop and evaluate changes to the business model that can lead to innovation. Fifth, firms should recognize that as procedures and business models become ingrained it is more difficult to pursue an innovative business models. Finally, innovation is equally important for improving performance in both low- tech and high-tech environments.

BUSINESS MODELS AND PERFORMANCE: ENTREPRENEURIAL  
ASPECTS IN THE NEW YORK WINE INDUSTRY

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DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of  
Philosophy in Management in the Graduate School of Syracuse University

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## Table of Contents

Table of Contents	IV
1. Introduction	1
1.1 Wine and the business of making wine	1
1.2 Introduction of the business model concept	5
1.2.1 Gaps in business model literature	6
1.2.2 Theoretical bases of existing business model frameworks	7
1.2.3 Business model definitions	8
1.2.4 Context of existing business model research	10
1.3 Contributions of this research	11
1.4 Layout of dissertation	14
2. Literature Review	15
2.1 Approach to literature review	15
2.2 Evolutionary theory and routines review	17
2.3 Business model research	20
2.3.1 Business model frameworks	20
Comparison of frameworks	27
2.3.2 Business model framework utilized for current research	30
2.3.3 Additional business model research	32
2.3.4 Implications of evolutionary theory on business model research	34
2.4 Innovative business models	36
2.4.1 Differentiating innovation and innovative business models	38
2.4.2 Adaptation of business models	41
2.4.3 Evolutionary theory and innovative business models	42
2.4.4 Configurations as a means to identify innovative business models	47
2.4.5 Institutional Entrepreneurship and Innovativeness	50
2.4.6 Research Model	52
3. Hypotheses Development	53
3.1 Business model characteristics and innovativeness	54

3.1.1	The impact of customer information on innovative business models	54
3.1.2	The impact of experimentation on innovative business models	58
3.1.3	The impact of complexity on innovative business models	61
3.2	The Moderation of Innovative Business Models and Customer Information Processes by Inertia	64
3.2.1	Customer Information Processes and Inertia	65
3.2.2	Experimentation and Inertia	67
3.2.3	Complexity and Inertia	70
3.3	The Impact of Innovative Business Models on Firm Performance	73
3.4	Overall Research Model	78
4.	Methodology	79
4.1	Research design incorporating organizational routines	79
4.2	Sample	81
4.2.1	Sample Appropriateness	81
4.2.2	Data collection and Respondents	85
4.2.3	Response Rate	87
4.2.4	Non-Response Bias	88
4.3	Variables and Measures	90
4.3.1	Innovative Business Model variable	90
4.3.2	Performance variables	95
4.3.3	Independent variables	99
4.3.4	Moderating variable	101
4.3.5	Control variables	102
4.3.6	Convergent Validity	102
5.	Data Analysis	103
5.1	Analytical Method	103
5.2	Scale validation	105
5.3	Clusters of winery business models	105
5.3.1	Cluster Techniques	106
5.3.2	Cluster Methodology	107
5.3.3	Cluster Results for the Winery Data	109

5.3.4 Reliability and Validity of the Clusters _____	117
5.4 Tests of Statistical Assumptions _____	120
6. Relationships between the Business Model, Innovativeness and Performance _	121
6.1 Descriptive Statistics _____	121
6.2 Correlations _____	125
6.3 Hypothesis Testing _____	128
6.3.1 Direct Effects on Innovativeness _____	128
6.3.2 Inertia as a moderator of innovativeness in business models _____	131
6.3.3 The Relationship between Innovativeness in Business Model Design and Performance _____	134
6.3.4 Summary of Hypothesis Testing _____	141
7. Discussion _____	143
7.1 The Importance of Research into Innovative Business Models _____	144
7.2 Relationships associated with Innovative Business Models _____	146
7.2.1 Information Processes and Innovative Business Models _____	146
7.2.2 Experimentation and Innovative Business Models _____	149
7.2.3 Complexity and Innovative Business Models _____	151
7.2.4 Inertia Moderating Customer Information Processes and Innovative Business Models _____	155
7.2.5 Inertia Moderating Experimentation and Innovative Business Models _	156
7.2.6 Inertia Moderating Complexity and Innovative Business Models _____	158
7.3 Innovative Business Models and Performance _____	159
7.3.1 Innovative Business Models and Awards Performance _____	162
7.3.2 Innovative Business Models and Quality Performance _____	163
7.3.3 Innovative Business Models and Revenue Growth Performance _____	163
7.4 Business Models in the Non-technology Focused Winery Context _____	164
7.5 Empirically Identifying Innovative Business Models _____	168
7.6 Evolutionary Theory as a Theoretical Basis _____	171
7.7 Implications for Business Model Research _____	175
7.8 Future Work and Limitations _____	177
8. Conclusions _____	179

9. References	182
10. Appendices	209
10.1 Map of New York Wineries	210
10.2 Scales, Cronbach's alpha and Loadings	211



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*“Wine being among the earliest luxuries in which we indulge ourselves, it is desirable that it should be made here and we have every soil, aspect and climate of the best wine countries.”* --Thomas Jefferson

## **1. Introduction**

### **1.1 Wine and the business of making wine**

What is wine to you? Many different answers are given to this question. There are wine enthusiasts, researchers (enologists), people who specialize in pairing wine and food (sommeliers), casual drinkers, or denouncers that describe wine as a drink of intoxication or even of evil. It seems the majority of people are towards the positive end of this spectrum as evidenced in the continued growth of the wine business. Wine consumption has been greatly influenced by religion and regulation in the past (Unwin, 1991), but the today's market is driven more by the wine producers through the choices they make for their business model. The industry has and is undergoing a transition in how they interact with consumers and how wine is positioned in the market. Wine, which was once considered a normal part of the daily diet, has moved to be seen as an optional consumer product (Philips, 2002). This is evident in the decrease in consumption in continental Europe and expansion in markets such as the U.S., Australia and Latin America (Unwin, 1991). The low quality table wine (more of a commodity product) has largely been replaced and wine producers are working to convey the quality of their product. Producers have changed the customer interface portion of the business model. Change in the industry has been attributed to wineries, which have implemented innovative new business models (Kim & Mauborgne, 2005a).

Companies such as Yellow Tail, an Australian wine producer, have been very successful in capturing a portion of the wine market through different and innovative business models. Yellow Tail focused on creating a consistent and affordable quality product. The winery decided to present the product in a very different way than the industry norm. They wanted to convey to the customer that the product was very approachable (i.e., to demystify wine). The complicated classification system of the industry (e.g., the French appellation categories) and jargon intimidated some buyers. Yellow Tail used plain language to describe the wine, colorful labels and a fun animal ‘mascot’ creating a very different customer interface than what had been the tradition. They were able to generate broad appeal without creating an image of a cheap commodity. Yellow Tail brought new customers to the wine market and developed customer loyalty with an easy drinking, fruity wine (Danis, 2006). This innovative business model helped them grow phenomenally from around 60,000 cases in 2001 to over 8 million cases in the U.S. alone (Veseth, 2011). Many other wineries have seen this success and copied parts of the Yellow Tail model and also created other twists to the Yellow Tail model.

Wine consumers now have a much easier time navigating through products with the help of wine ratings, certifications and brand recognition; all of which play a role in signaling quality to the buyers. Good wines are much easier to find and the perception that only the wealthy and highly knowledgeable wine ‘snob’ could find a quality product is fading. What has emerged is a broad market of occasional consumers who have a plethora of products to choose from; combined with this is an option to delve deeper into

the complexities of taste, aging, varietals, etc. that in the past were the basis of the 'mysterious' aspect to the product.

Today, wine producers have a number of decisions in designing their business model. There are production aspects such as grape varietals that work with their soil, pruning/canopy management, testing for sugar levels to determine harvesting, filtering, blending, aging and storage. Also, winery owners must choose how to position their firm in terms of pricing, emphasis on quality of the wine and distribution. Many wineries have also utilized tourism to add complementary sales of non-wine products (e.g., glassware, apparel). The established connection wine has with food also presents opportunities for wineries. It is unthinkable that a fine dining restaurant would not have an extensive wine list. For example, the French Laundry, a renowned restaurant in California, has a wine list 100 pages long and staffs experts to aid customers on their selection. Some wines on their list top \$10,000 per bottle.

The New York wineries, which constitute the sample used for this research, do not reach such lofty prices. The opening quote from Thomas Jefferson acknowledges the drive people feel that vineyards and wineries are suited for diverse geographic conditions. The climate and soil conditions in New York have posed problems for wine production in the past and the state has made great strides in adapting grape varietals and creating a better reputation of the state's wines. The number of wineries in New York has grown dramatically over the past decade. In 1995, there were approximately 125 wineries and by 2005 the number had broken 200. Over 220 wineries make up the 2010 New York population (Uncork New York!, 2011).

The wineries in New York have substantially developed their business models in recent years. For example, with the introduction of wine trails, wineries cater more for tourists and a significant portion of sales is derived from on-site tasting rooms. Wineries have added non-wine products, bundled wine with other revenue sources, such as restaurants, and focused on scenic beauty with lodging at the winery. The wineries, which have opened in the past decade, do not replicate one particular business model but are exploring new, innovative business models. The new business models are changing the industry, bringing in new customers and attracting more entrepreneurs who see the expanded potential of the industry.

My review of prior research on business models found that many studies utilize secondary data or case analysis; more empirical work is needed to gain insights into the business model construct. This unique sample of New York wineries can be evaluated to determine the pervasiveness of industry routines and the level of novelty employed in the business model. Thus, the purpose of this research is to explore aspects associated with innovative business models and the resulting impact of the innovativeness in the model design on performance. I will begin with a short introduction of the business model concept and the gaps in the current literature. This provides a starting point to describe the concept and delineating the issues to be addressed. Information from these sections aids in defining the research purpose, and lead to the research questions, hypotheses and contributions of the work.

## **1.2 Introduction of the business model concept**

The business model concept has received substantial attention from researchers in the fields of entrepreneurship and strategy (Zott, Amit, & Massa, 2011). This interest has been manifested in a number of ways including the number of research projects, academic and popular books, and pedagogical material. A review of business model literature has been provided by George & Bock (2011) and Zott, Amit & Massa (2011). The business model is a framework for understanding how a firm makes money (Afuah, 2004) and captures the fundamental linkages in a venture on a number of levels. These levels can include production, strategy and economic aspects (Amit & Zott, 2001; Morris, Schindehutte, Richardson, & Allen, 2006). Several definitions of the business model concept have been proposed in the literature without one particular version garnering widespread support (George & Bock, 2011). The level of complexity and specific parts within each definition vary depending upon the intent of the individual research study. I use the following to define business models: The business model is a description of the design of the routines and capabilities that enable a business to create value for customers. This definition is based on the use of evolutionary theory and organizational routines, which is the theoretical basis for this research. My focus on value creation is consistent with other research. For example, Amit and Zott (2001) argue that the business model construct has the potential to be a bridge between entrepreneurship and strategy due to the emphasis on value creation. The authors propose that the business model captures various sources of value creation and empirically explains value creation.

Consistent with this claim, research on business models has appeared in both disciplines. Even though an agreed upon framework is not available, researchers in both fields have begun work on elaborating and developing the concept. Research questions in the literature have addressed both strategies to re-vitalize existing firms (e.g., Chesbrough & Rosenbloom, 2002; Hamel, 2000) and creating business models for new ventures (e.g., Davidsson, Hunter, & Klofsten, 2006; Morris, Schindehutte, & Allen, 2005). The focus of my dissertation is on innovative business models, which allows a firm to capture value in new ways. Several recent journal articles provide evidence of the continued academic interest in innovative business models (Amit, Zott, & Pearson, 2010; Bock, Opsahl, & George, 2010; Chesbrough, 2010; Gambardella & McGahan, 2010; Morris & Brannon, 2008; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010; Teece, 2010).

### *1.2.1 Gaps in business model literature*

Several major difficulties have surfaced regarding research into business models. First, the concept of business models lacks a coherent theoretical base and as noted by George & Bock (2011; pg. 84) “The lack of a convergent, well-defined theoretical construct has led to inconsistent empirical findings in its effect on firm performance and organizational change”. In attempting to explain various parts of a proposed framework, researchers have combined multiple theories to explain each portion of their framework. Second, the researchers then develop definitions of the business model concept that fit their research topic. Finally, the majority of work on business models has focused on a limited context; high technology firms. The sections that follow elaborate on each of these shortcomings.

### *1.2.2 Theoretical bases of existing business model frameworks*

The theories and concepts used to create the business model concept include Resource Based View (RBV), creative destruction, transaction cost economics, agency theory, self-efficacy, value chains, dynamic capabilities, and strategic network theory; this is not an exhaustive list but these are examples (Afuah, 2004; Amit & Zott, 2001; Andries & Debackere, 2007; Bonaccorsi, Giannangeli, & Rossi, 2006; Morris, Schindehutte, Richardson, & Allen, 2006). An argument for using multiple theories for framework development is that one theory cannot adequately describe the entire business model. As a result, researchers turn to multiple theories and concepts to elaborate how certain aspects of the model or types of business models perform. For example, creative destruction is used to explain why a firm benefits from an innovative model (Morris, et al., 2006) and strategic network theory is used as a basis for a type of business model that combines complementary goods that create additional value when considered together (e.g., how retailers provide complemented products between online and in-store sales; Amit & Zott, 2001). Authors have created linkages between the parts of their business model framework (Hamel, 2000) and acknowledged that firms employ multiple value creation techniques which are based on multiple theories (Amit & Zott, 2001).

There is potential to learn more regarding the business model concept by using a single, consistent theoretical foundation. I acknowledge that researchers often use multiple theories to achieve understanding of complex phenomena. However, problems may arise from using multiple theories. As noted in the literature, a theory has a specific purpose and is developed with bounded criteria leading to specific implications



(Donaldson & Preston, 1995). It can be seen as a matter of *context* and “a mismatch between theory and context results in false leads and inconclusive results” (Zahra, 2007, pg. 445). The use of a single theory, with appropriate consideration of assumptions and context, allows comparison across research projects and an integration of findings (Van Rensburg, 2007). As prior work utilizing evolutionary theory has noted, the use of a single, overarching theory provides a greater understanding of the phenomena by describing how the parts can be integrated (Aldrich, 1999). Therefore, the proposed research grounds the concept in established theory. I use evolutionary theory as a theoretical base; the theory underpins the concept of organizational routines which, when bundled, become firm capabilities. Taking this theoretical perspective, a business model represents the conglomeration of capacities and capabilities of a venture. Additional insights into the construct may be possible by using the overarching theoretical view to examine components of the model and how varying combinations of routines can lead to innovative business models.

### *1.2.3 Business model definitions*

The second gap is a lack of focused research available on the business model subject due to multiple definitions of the concept. This aspect could be linked in some ways to the first issue in that the definition needs to be consistent with the theoretical bases used to develop the business model concept. In defining the concept, researchers create boundaries for the concept. When the boundaries are significantly different this does not allow integration of the studies to build a greater understanding of the concept.

The definitions often contain synonyms regarding the structure of how a business works such as architecture, coordinated plan, representation and design (Chesbrough & Rosenbloom, 2002; Dubosson-Torbay, Osterwalder, & Pigneur, 2001; Mayo & Brown, 1999; Shafer, Smith, & Linder, 2005; Venkatraman & Henderson, 1998). This sense of structure is tied with an answer to ‘how’ the firm provides value and generates revenue (Boulton, Libert, & Samek, 2000; Rappa, 2001). A description of a business model is meant to relay pertinent information regarding a business in a coherent, succinct fashion. This is perhaps one of the main drivers of interest in the concept. A succinct description of how a firm creates value, makes money and operates within its environment is very helpful in conveying information about the venture, re-enforcing key performance drivers the firm desires to exploit and highlighting what can distinguish the firm from others in their industry.

Examples of definitions include: “The architecture for product, service and information flows...” (Timmers, 1998), “A depiction of the content, structure and governance of transactions...” (Amit & Zott, 2001), and “A coordinated plan to design strategy along three vectors: customer interaction, asset configuration and knowledge leverage” (Venkatraman & Henderson, 1998). Essentially, a firm’s business model relates to organizational design and has to do with how firms architecturally design how they do business (Zott & Amit, 2007). Staying true to a theoretical perspective grounded in evolutionary theory, I define business models as *a description of the design of the routines and capabilities that enable a business to create value for customers*. This definition includes the aspects of value creation, structure and ties to my theoretical base.

Thus, I define a business model in a way that is consistent with my overarching theoretical framework.

#### *1.2.4 Context of existing business model research*

Interestingly, the third issue deals with too much focus and the context chosen by business model researchers. The majority of business model research, within the past decade, has devoted attention to e-commerce and high technology industries. While warranted and interesting, the research does not capture aspects that drive business models that are not found in high tech environments. There are exceptions, including a case developed for the wine industry with Yellow Tail wines from Australia (Kim & Mauborgne, 2005a; Kim & Mauborgne, 2005b). Case studies or secondary data analysis are frequently the data source used in business model research (e.g. Chesbrough & Rosenbloom, 2002; SanzVelasco, 2007). There is a shortfall in the use of samples from non-high technology contexts and large-scale quantitative work. The reliance on conceptual and qualitative research has been warranted to build basic knowledge on the concept. Also, the complexity of the business model concept has created issues for empirical evaluation. As the research moves forward more quantitative work is needed where theoretical propositions can be formally tested.

### **1.3 Contributions of this research**

The current research can provide several benefits to both academics and entrepreneurs. The first contribution I shall cover is the grounding of the business model concept theoretically. Evolutionary theory, the organizational routines concept and institutional theory provide a means to accomplish this contribution and highlights the valuable insights that may be gained by using this perspective in future research. This theoretical perspective considers the structure of the business model and the impact of innovativeness of the firm's model; the business model concept is more robust and is evaluated with greater detail. The experimentation, adaptations, evolution, negotiations and decisions that lead to a business model are fully clarified by this view. An issue not addressed by prior research.

Second, even though prior research has been able to link innovative business models with higher performance, the research was through secondary data (Zott & Amit, 2007) and was unable to link characteristics of firms related to innovative business models. This research examines the relationship in detail by evaluating characteristics associated with successful, innovative models. These innovative business models can create advantages for the firms in several ways. There are first mover advantages associated with the innovative business models (Amit and Zott, 2001). These new variations will become evident in the environment and others will move to copy it, but until this occurs, the firm enjoys offering value in a manner that is unique in the marketplace. This ability to copy is considered a switching cost for competitors and the greater these costs, the more the innovating firm will benefit from their novel model (Zott & Amit, 2007). This benefits researchers as well as practitioners; entrepreneurs and

managers gain by intentionally focusing on the innovativeness within their firm's model.

A main contribution of the research is to highlight the performance implications of choices that impact the innovativeness of the firm's business models.

Third, the concept of business models and particularly innovative business models has garnered considerable interest from practitioners (Amit, Zott, & Pearson, 2010).

Practitioners may have a difficult time providing a consistent definition of the business model concept but do feel the concept is important and linked to firm survival,

performance and opportunity exploitation (George & Bock, 2011). IBM conducts a CEO survey with direct interviews of business leaders from 20 industries, multiple countries, a variety of firm sizes and both private and public firms. The importance of innovation for business models was evident in this research (IBM Global Services, 2006):

- Over 25% of efforts dedicated towards innovation are focusing on business model innovation
- 40% fear that a competitor is going to introduce an innovative business model that will significantly change the industry
- The operating margin growth of business model innovators is 5 times higher than firms pursuing product or operations innovation

The last bullet is quite interesting. Firms are beginning to explore innovative business models in addition to (and in some cases an alternative to) traditional R&D in product innovation. The expense of continuous new product development driven by shorter product lifespans is motivating firms to pursue innovative business model (Chesbrough, 2007).

Finally, my sample offers insights into high performing models quite different from those found in prior research, which has mainly studied high tech or e-commerce. By focusing on the New York wine industry, several benefits are gained. The first advantage is that firms in the sample make the same product and are in the same industry and location. This focuses attention upon the business model rather than other aspects that could influence the results; thus reducing potential unobserved heterogeneity and providing a clear picture as to the drivers of performance. The second advantage is that the product, wine, has basically remained the same over the centuries with only incremental changes. In high technology firms, there is frequently radical product innovation, which could create difficulties in separating the impacts of product versus business model innovativeness upon performance. This is very important because a great deal of research has focused upon the implications of product innovation but innovative business models have been difficult to separate from the effects of product innovation. Another advantage is that the wine industry is expanding (Uncork New York!, 2011) and changing, creating a context in which innovation and opportunities are available for aspiring entrepreneurs.

The intent of this research is to provide a thorough understanding of the business model. Typically, case studies have been used to emphasize a particular type of model and the benefit gained by firms adopting a certain type of model for their environment. In sampling an industry's entire population, additional insights can be obtained such as the extent of variation between models and a comprehensive picture as to the different types of models used by firms. I identify models that have superior performance and the critical aspects of the firm's business model. This can aid an entrepreneur in strategically

creating her/his firm's model. Second, wineries appeal to consumers in a very different way than what is used in high technology firms. This research adds to the knowledge regarding business models by taking into consideration models that are able to elicit affect based purchases regarding the perceived quality of a product as opposed to technological superiority. Third, wineries are one of the few agricultural segments that are profitable and growing. This research provides insights into how these wineries differentiate themselves and what leads to superior performance for their industry. The vast majority of wineries are small firms and fairly new. The information gathered here could be very useful to entrepreneurs in developing opportunities in what may be an economically depressed, rural, agricultural area.

#### **1.4 Layout of dissertation**

This dissertation covers ten areas. The first is an introduction to the business model research, which has been presented above. The second part reviews the literature relevant to business models, evolutionary theory and the routines research, which is used as a theoretical base. The next section covers the hypotheses tested in the dissertation and their development. The fourth section covers the methodology and development of the instrument used for the dissertation. The fifth section covers the data analysis of the study. Section six reviews the results obtained in the research. The seventh section discusses the results and the implications of the results based on the relationships hypothesized. The eighth section provides concluding comments. A reference guide for

citations is provided in the ninth section. The final, tenth, section contains appendices with supporting information.

## **2. Literature Review**

### **2.1 Approach to literature review**

The main areas I focus on for the literature review are the business model concept, research on innovation in business models and the theoretical base of evolutionary theory with the associated concept of organizational routines. The supporting literature was obtained through the Syracuse University library's search function and Google Scholar. The databases I used for the vast majority of my library searches were EBSCOhost's Business Source Elite and ProQuest's ABI Inform. Google Scholar was used extensively also. Articles were located using search terms for business model, evolutionary theory, routines, configurations, and innovative (innovation). Preference was given to articles from highly cited journals (e.g., AMJ, AMR, SMJ, JBV, OS & ASQ). A second tactic was to limit the date range (2000 through 2010) to the past decade to focus upon recent contributions for these topics. Several books have also contributed to research for business models, innovation and evolutionary theory. These include Nelson & Winter's *An evolutionary theory of economic change*, Aldrich's *Organizations Evolving*, Hamel's *Leading the revolution* and Miller & Freisen's *Organizations, a quantum view*. A citation management system was used to compile and integrate the references from all of these various sources as I wrote the dissertation. The



programs used were RefWorks, Write-N-Cite and RefGrabIt, which (respectfully) function as an on-line citation manager, an interface with Microsoft Word to place references/create a bibliography and a tool to capture on-line references. Also, factored into selection of literature was the number of citations listed for the articles by Google Scholar.

Nelson & Winter's and Aldrich's work was relied upon for background of evolutionary theory and this was supplemented with more recent articles on the theory and for organizational routines. The method used to research organization routines started with a review article (Becker, 2004) and database searches for more recent articles in leading journals. A handbook on organizational routines was recently published and provided an excellent review of major topics and areas of weakness for the concept (Becker, 2008). The handbook, review article and recent journal articles led me to other major works on the subject. This could be considered a snowball approach with new articles located through the interesting citations used in the sources mentioned. This was supplemented with a reading list on routines from the strategy doctoral seminar held last spring. The *Handbook of Organizational Routines* was a main source of information for linkages on how different aspects of routines were derived from evolutionary theory. The main references used in the Handbook and from the seminar were written by Aldrich (1999).

## 2.2 Evolutionary theory and routines review

Economic evolutionary theory served as the underlying foundation of the current research and includes four generic processes, which are 1) variations, 2) selection, 3) retention and diffusion, and 4) struggle (Aldrich, 1999). The attributes of the theory aid in conceptualizing how business models are created, adapt, perform, and spread; each has a fairly clear link with the evolutionary process. The concept of organizational routines is rooted in evolutionary theory and is seen as the organizational analogue of individual skill (Nelson & Winter, 1982). At the individual level, people develop skills through the process of forming habits, Organizational routines are the analogous skills that a firm develops through repetition and practice; Nelson & Winter (1982) refer to them as meta-habits. Put simply, the process described by evolutionary theory, a macro-level theory, may be examined by using routines, a micro-level concept.

Organizational routines are a well-researched area and have been studied for several decades (Murnighan, Aldrich, Levinthal, & Winter, 2003). Researchers have linked the method in which routines are created, chosen, replicate and eventually perish with the four generic processes in evolutionary theory: variation, selection, retention & diffusion and struggle (Aldrich, 1999). A review of the extant literature shows three separate views of the organizational routines concept. These categorize routines as either recurrent behavior patterns, rules/procedures or dispositions (Becker, 2004; Becker, 2008; Knudsen, 2008). Recent work has coalesced around the dispositions view. A disposition focus refers to potential behavior or causes of behavior; this expands routines to include not only completed actions but also the skills in which the organization has the

ability to perform. A persuasive argument for the dispositions view is provided by Hodgson (2008, pg. 19); “the essence of what an entity is cannot be entirely appraised in terms of what an entity does”. In other words, organizational routines include stored behavioral capacities or capabilities. Consider an example of a person’s ability to ride a bike, this person could be observed for several months and, during that time, she or he is never on a bike, but this does not mean that this person does not have the ability to ride it. Thus, organizational routines can be seen as repositories and carriers of knowledge and capabilities (Hodgson, 2008). A core definition of routines developed by Cohen et al., (1996, pg. 683) fits this dispositional view and describes routines as “an executable capability for repeated performance in some context that has been learned by an organization in response to selective pressures.” Research on routines has evolved from a view that routines are inertia causing (Hannan & Freeman, 1984) or mindless (Ashforth & Fried, 1988) to be a basis of continuous change (Feldman, 2000), new venture development (Gong, Baker, Miner, & Version, 2005) and organizational flexibility (Feldman & Pentland, 2003). Routines are seen as a guide to a firm’s activities. I utilized routines to piece together the activities that comprised the business model used by the firm.

My research identifies and examines innovative business models that entrepreneurs have created or adapted from the industry norms. Thus, the focus of my research is on the variations that developed as indicated by their innovative business model design. My research sample, the NY wine industry, is appropriate in that it has undergone extensive change in the past decade (Uncork New York!, 2011). Sidney Winter notes that “particularly interesting areas are at the birth of a new industry or later

stages where there is some innovation which renews the whole process” (Murmann, Aldrich, Levinthal, & Winter, 2003; pg. 28).

Variation is the initial process for evolutionary theory and researchers have noted a number of mechanisms that facilitate variations to occur. Imagination and creativity are especially valuable in creating routines and capabilities, and the deliberate creation of new routines through an evolutionary approach is a key area for further development (Gong, Baker, Miner, & Version, 2005). Modifying routines has been noted as a main mechanism to enact organizational change (Teece, Pisano, & Shuen, 1997; Zollo & Winter, 2002). Researchers have stated that understanding how routines are adapted is critical to understanding how firms survive and thrive (Ventresca & Kaghan, 2008). The need for change can be driven by several factors including identifying better practices used by others, pursuing internally derived innovation, and awareness that the current routine has become obsolete. This is not limited to incremental improvements for efficiency but also Schumpeterian novelty can also emerge from adapting routines (Miner, Ciuchta, & Gong, 2008). As a result, routines can be characterized as both leading to stability and to change (Feldman, 2000; Pentland & Rueter, 1994). Prior research has noted that entrepreneurs have used technology, marketing, and business model experiments to generate variation leading to the creation of new routines (Murray & Tripsas, 2004). Also, the nascency stage of venture creation is filled with uncertainty and changes in organizational routines are common during this period (Narduzzo, Rocco, & Warglien, 2000).

## 2.3 Business model research

I have divided the literature review for business models into three sections. The first section deals with conceptual frameworks that have been proposed in the literature and their development. The second section includes business model research that considers other aspects of the concept (e.g., adaptation). The final section covers implications of evolutionary theory on the concept of business models and how organizational routines can aid in business model research.

### *2.3.1 Business model frameworks*

I shall cover four frameworks and how they differ in their complexity and disciplinary focus. There are a number of frameworks and conceptualizations that have been proposed in the literature and there has been little accretive use of frameworks in multiple studies (George & Bock, 2011). Table 2.3 shows examples of publications that use different business model frameworks. I focus on these four to illustrate some of the different views of the concept. I refer to the four competing frameworks as the Hamel's Leading the Revolution (LTR) framework (Hamel, 2000), Afuah's Business Model, Structure, Systems, People and Environment (BS<sup>2</sup>PE) framework (Afuah, 2004), MSA framework for the Morris, Schindehutte & Allen (2005) framework and the AZ framework for the Amit & Zott framework (Amit & Zott, 2001). The frameworks are not contradictory but do have different views. I have separate sections for each framework and conclude with a section comparing the frameworks.

Table 2.3 Business Model Publications with distinct frameworks/conceptualizations

<b>Authors (year)</b>	<b>Outlet</b>
(Timmers, 1998)	Electronic Markets
(Markides, 1999)	Book: All the right moves
(Hamel, 2000)	Book: Leading the revolution
(Amit & Zott, 2001)	Strategic Management Journal
(Chesbrough & Rosenbloom, 2002)	Industrial and Corporate Change
(Magretta, 2002)	Harvard Business Review
(Afuah, 2004)	Book: Business model generation
(Morris, Schindehutte, & Allen, 2005)	Journal of Business Research
(Christensen, Johnson, & Kagermann, 2008)	Harvard Business Review
(Osterwalder & Pigneur, 2010)	Book: Business models

#### The AZ framework

I shall begin with the AZ business model framework because the research has been recently published in top management journals and the authors are a central part of the strategic management discipline's leadership on the topic. Amit & Zott's (2001) definition of business models is slightly differently: "the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities". The AZ framework was developed specifically focusing upon e-business and their subsequent work also analyses this industry. However, the components

of the AZ framework could be translated into other industries and could be a progression for the framework's future. Amit & Zott (2001) developed their framework using an inductive, grounded theory approach. This is an iterative method comparing samples (through case analysis) with the emergent framework and adapting it as needed. The result was a framework with the following four dimensions: novelty, efficiency, lock-in and complementarities; the dimensions can be interrelated. The efficiency and customer lock-in dimensions are self-explanatory. Complementarities refer to the bundling of products and services for sales. The author's view of novel business models will be covered in greater detail in the next section of the dissertation focusing on innovative models.

I will review two empirical papers both written by the authors of the AZ framework (Zott & Amit, 2007; Zott & Amit, 2008). The data, which is the same in both studies, is a secondary data set of young, entrepreneurial, new ventures. Zott and Amit developed items to capture the dimensions of their business model components based upon perceptual measures and hired raters to evaluate the firms in the sample.

The Zott & Amit (2007) article utilized the novel and efficiency dimensions and found a positive relationship between innovative business models and performance. The authors proposed that e-business firms are naturally looking for ways to span boundaries and are more likely to be innovative in their business models. Zott and Amit found that the performance link between novel business models and performance held both before and after a change in resource availability. This illustrated the impact of novel business models on improved performance.

The dependent variable for the Zott & Amit (2007) paper was stock market performance. The author's ran several regression models and also included the latent variables that are intended to measure the remaining two dimensions of their business model framework. As mentioned, the results for the novelty dimension were robust and significant. Variables for the lock-in and complementarities dimensions of the AZ framework did not achieve significance. Interaction terms also did not reach significance not supporting that the dimensions have overlap and combinations could provide performance advantages. The efficiency dimension received mixed support according to the authors, and this was based upon a looser 90% statistical significance.

Zott and Amit (2008) have recently published another study, which also utilizes their business model framework and incorporates market strategy components to examine the impact on performance (this remains the same – stock market value). The main difference between the two papers is the later work drops the dimensions of complementarities & lock-in and adds potential moderators for differentiation, cost leadership and entry timing as measures of marketing strategy. As with the 2007 study, the novelty dimension has an impact on the dependent variable and the efficiency dimension does not reach significance.

The contribution of Zott & Amit's research is to draw attention to the importance of novel business models on performance. At this point, the AZ framework lacks empirical support for three of the proposed four dimensions. The next step that is needed for the progression of the AZ framework is to examine the dimensions with a different outcome measure and in contexts other than e-commerce. Stock market performance has the potential for many confounding factors. A better measure may be to use survivability,



profit margin or firm growth. It should be noted that number of employees, a typical firm growth measure, was significant in the majority of the models they examined. Examining the four dimensions with a new dependent variable may bring out statistical significance for more than just novelty.

### The MSA Framework

Morris, Schindehutte and Allen (2006) developed a framework to examine business models and will be referred to as the MSA framework. The two articles that I will review that utilize the MSA framework are Morris et al. (2006) and Andries & Debackere (2007). The Morris et al. (2006) article examines the MSA framework using cluster analysis to identify patterns of generic business models that were developed by firms. The analysis involved 100 companies randomly selected from the INC 500 and used the MSA framework to capture the intent of each company's business model. The selection of the INC 500 stratifies the group examined to companies that are highly successful and have experienced fast growth. Cluster analysis was performed on the data to develop groupings of common types of business models. Unfortunately, neither the results from the cluster evaluations, measurement information nor the regression results are provided by the authors. The main contribution to the literature is developing a taxonomy that is similar in style to the AZ framework. The categories they have found in the clustering of data include: technical service provider, standardized producer, product franchiser and customized service provider.

The second article that utilizes the MSA framework as the basis for their research was from Andries & Debackere (2007). The intent of this study was to examine the relationship between business model adaptation and performance, with moderating effects provided by independence of the firm and the firm's industry. I noted that the majority of research on business models focuses on high technology firms and the Andries & Debackere (2007) study is an example. The knowledge gleaned from high tech may be significantly different from that used in low-tech manufacturing or services. The results helped to illustrate this issue. The study utilized secondary data focused on technology-based businesses in 3 industries. The 3 industries had different levels of turbulence and the authors found that the environment had a significant impact on the performance results (Andries & Debackere, 2007). They examined firm data regarding survival/failure, independent/within company, interaction terms, and adapted/non-adapted. Several items did not reach statistical significance but this may have been due to the small data set. The authors provided two important conclusions. The first result linked adaptability with performance (measured as survival). The second showed that in less turbulent industries, new venture were hurt by adapting their business models.

#### The BS2PE framework

The framework proposed by Afuah takes the view that the business model is a part of the overall functioning of a business. The emphasis is again on case analysis and e-commerce (Afuah & Tucci, 2000; Afuah, 2004). The author defined the business model concept as to which, how and when a firm performed activities to earn a profit. This business model was then to impact decisions as to the structure (management hierarchy),

systems (e.g., control systems), people (culture within the firm) and how the firm interacted with the environment. This is a conceptual framework with a number of descriptions given for various options as to the structure and how sub-components could be managed. The framework is a conglomeration of management practices that someone creating a business might look to as a reference. For example, there was information provided for calculating margins, balanced scorecards for employee performance measurement, and stock options for rewards. The framework did not specify what works better in terms of design and lacks empirical validation. The work does provide a contribution in terms of guidance for practitioners and in the discussion as to how the business model can impact a number of levels within a firm.

#### The LTR framework

A fourth business model framework was also introduced at about the same time as the ones covered in the previous sections. This framework was included in the popular book *Leading the Revolution* (Hamel, 2000). For Hamel, the business model was comprised of four components, which were customer interface, core strategy, strategic resources and value network. The customer interface referred to fulfillment operations, customer information management, the relationship aspects the firm has with the customer and finally the pricing decisions for the firm's products. The second component, core strategy, referred to the competitive position of the firm. This was the mission of the business and its' basis for differentiation. 'Strategic resources' was the third component and dealt with the core competencies of the firm and any strategic assets

the firm possesses. The final component was value network and involved the position of the firm in the value chain and how the firm worked with suppliers and partners.

The main focus of the book was on innovation and how firms had been able to create advantages for themselves by designing novel business models. The work was conceptual and brought in numerous examples of firms that had developed innovative approaches to specific business model components. Hamel provided examples for each of the four components including firms that represented subsections of the component. For example, Hamel used the following firms to illustrate innovation in customer interface: XM Radio (fulfillment & Support), Dell Computers (information & insight), Harley Davidson (relationship dynamics), and Napster (pricing structure). The book has a large number of citations (over 1200) and these references focus on the concept Hamel developed. This may be considered recognition of the importance of the topic for researchers and practitioners. The work by Hamel did not provide scales or propose a methodology to test his concepts.

### ***Comparison of frameworks***

The proposed business model frameworks differ in their complexity, intent and disciplinary focus. As such, the frameworks are not contradictory but do take different views of the concept. The AZ framework is a general classification scheme, which examines the construct at a higher level appropriate for the strategic management discipline. Morris and co-authors (Morris, Schindehutte, Richardson, & Allen, 2006; Morris, Schindehutte, & Allen, 2005) approach the business model from an

entrepreneurship viewpoint and the intent is to develop a comprehensive description of the business model. The Afuah framework is different in his delineation of his concept of the business model from other parts of the organization. Hamel focuses upon innovativeness and what firms have done to revolutionize their marketplace with new business model designs. Similar to the AZ framework, Afuah and Hamel have strong ties with strategic management.

None of the frameworks have been adopted widely by researchers other than each framework's originator. It could be argued that Hamel's framework has received more recognition based on the number of citations, but it lacks empirical validation. The AZ framework has an empirical basis and was published in top journals (Strategic Management Journal, Management Science, and Organization Science). However, the author's own research provides robust support for only one dimension of their framework. The MSA framework has not been tested in a similar manner as the AZ model (i.e., in terms of a relationship with performance although the framework was developed using only high performing firms). I feel the intent for the MSA framework is quite different. The complexity of the model makes it a comprehensive teaching tool and I have used it in the classroom at Syracuse University. This complexity detracts from the model's transferability as a research tool due to the issue of operationalizing all of the components properly. The MSA author's attempt to create a grouping taxonomy in their follow-up paper, reviewed in the critique presented above, would be similar to the AZ framework's dimensions. Their proposed categories are more of a description related with an industry index and the model's function – services, production and franchises, while AZ's categories are descriptive of the overall strategy of the model. Neither model

has garnered “traction” from other researchers to move forward as the set standard. Afuah’s work did not go into a typology or hypothesize that certain characteristics of business models led to superior performance. The description of the business model and decisions leading to choices in how to construct and manage the model were quite complex and far more similar in this regard to the MSA framework. A main difference was the focus Afuah took towards strategy and management systems and MSA did more to highlight differentiation and novelty. Hamel’s book focused on promoting the need for change and innovation in business models. The reoccurring theme of innovativeness of business models was very relevant to the current research. He did not develop typologies but outlined a comprehensive description of how to evaluate business models, the individual components and linkages between components.

Even though the underlying framework may not be settled, the research I have reviewed has contributed to our understanding of portions of the business model concept. The importance of innovativeness/novelty has been shown by several of the articles and linked to overall firm performance. This is consistent with qualitative research using case analysis to emphasize the power of disruptive innovation (Christenson, 1997; Danneels, 2004). The firm’s with novel business models had better performance and this was consistent throughout the studies. I build on that insight as a foundation for the focus of my own research.

### *2.3.2 Business model framework utilized for current research*

The current research is to evaluate innovative business models and variables that indicate and promote innovativeness. A first step was to decide on a framework in which to evaluate business models. An option would have been to develop my own framework but as evidenced by the number of frameworks covered; other researchers have carefully considered this task. The framework chosen that developed by Hamel was selected for three main reasons (Hamel, 2000). First, the framework was well known, which will aid in readers understanding the current research. Second, the framework provided significant detail as to what constitutes not only individual components but also the pieces of each component. Third, the author chose to focus on innovation in the book.

Very limited research was available that empirically tested business models and most researchers do conceptual work using examples or case analysis to make points. Traditional empirical analysis is difficult for business models researchers due to the complexities of the concept and the amount of information required for evaluating an entire business model. Researchers have dealt with this issue in different ways. Zott and Amit were creative in their analysis; they took their conceptual framework, which specified a typology, and had multiple raters use secondary data to evaluate a firm's model. The different typologies were then linked to firm performance. To allow acceptable comparisons, the authors focused on business transactions and, specifically, the sample was limited to firms that had transactions through the internet (Zott & Amit, 2007). Other researchers who have empirically studied business models have also targeted specific types of models and/or components of the model. The samples are also not the traditional mass survey but carefully selected to fit the research question the

authors address. Examples include a snowball sample for software firms that examined innovation by business model type (open source software code or variants) for the product (Bonaccorsi, Giannangeli, & Rossi, 2006), and a non-random sample of large firms in which the CEO provided information regarding structural changes to a model (Bock, Opsahl, & George, 2010). The common theme was that researchers concentrated upon a particular set of variables that allowed an evaluation of a particular aspect of the business model concept.

The sample I chose also follows the pattern of prior research in that it was non-random and unique. The intent was to survey the entire population of a specific industry, which provided benefits in decreasing sources of variability that might overshadow relationships I wish to study. The prior empirical work has focused upon transactions, structures or products. The current research selected one component of the business model, the customer interface portion. The focus on a specific segment (New York market) of one industry (wine making) allowed the other components of the business model to be held fairly constant across the sample. All of the firms in the sample made the same product and were in the same position within the value chain. The processes used to make the wine were basically the same. The basis for differentiation and strategy were achieved by the choices in designing the customer interface. Thus, the customer interface component was what truly had variability for this sample and aided in the analysis of innovative business models by allowing the current research to focus on one component. This allowed me to overcome some of the most important shortcomings of previous research on the topic (i.e. the disconnect between the complexity of the business model concept and relatively simplistic empirical studies). The customer interface was



obviously vital for the financial success of wineries but is also very relevant to a majority of firms. The acknowledgement of Hamel's conceptualization of customer interfaces is evident in numerous perspectives of the business model. The customer interface has been discussed by a number of researchers interested in the business model concept and referred to as customer relationship (Markides, 1999), market segments and value interface (Gordijn & Akkermans, 2001), target markets (Chesbrough & Rosenbloom, 2002), customer relationship (Dubosson-Torbay, Osterwalder, & Pigneur, 2001), and customer value (Afuah & Tucci, 2000).

### *2.3.3 Additional business model research*

There were a few additional articles that were relevant to the current business research in that they have studied changes or adaptation to business models. Recent research has investigated how business models change in response to learning (SanzVelasco, 2007). The author examined learning methods and attempted to relate them to venture growth. Two different learning methods were proposed: 'frame-based' and 'experimental'. Both methods were examined using depth interviews of high tech companies in Sweden. Only the experimental learning method resulted in significant change. However, the combination of framed technology and experimental business model learning produced meaningful growth. In other words, companies created a fairly stable product and then adapted their business model in opportunistic ways to achieve growth.

To understand adaptation and emergence, it is useful to consider drivers that shape the formation of the model. Based on the extant research, these drivers principally reside in the external environment. For instance, researchers have studied software companies and the decision to use traditional or 'pure' coding, open sourced, or a hybrid model containing both aspects to varying degrees (Bonaccorsi, Giannangeli, & Rossi, 2006). Approaching this phenomenon from a business model perspective, the authors highlighted the impact of the external environment in influencing the form of business model chosen. An environment in which firms in the industry had adopted a standard code led the firm to pursue a particular coding strategy indicating the influence from external industry factors. This showed a link to network externalities. Network externalities refer to the increased utility a consumer receives from a product due to the increases in the number of other people using the product (Katz & Shapiro, 1985). Marketing research has shown that the externalities effect from installed base and compatibility with dominant standards can be as important as intrinsic product features (Brynjolfsson & Kemerer, 1996). The external environment pulls the company to focus their products in a certain manner, which influences the components of the company's business model.

Davidsson, Hunter, & Klofsten (2006) examined external drivers that led firms to modify their business model from the original new venture concept. They argued that the changes were more complex than the entrepreneur simply trying to improve efficiency or react to competition. External drivers that were identified as significant included dependence on external investors, dominant customers and location within an incubator. The power dynamics of the relationships with these external forces led the firms to adapt

their business model. An important aspect of the author's study involved their focus on the level of originality of the initial business idea. They hypothesized that ideas that were radical compared to normal industry practice would face tremendous pressure leading the firm to modify their business model to conform. Importantly for the current research, this hypothesis was not supported in their study. This finding allows for the possibility that radical, innovative ideas can lead to novel business models, which become important sources of advantage.

#### *2.3.4 Implications of evolutionary theory on business model research*

The links between business model research with evolutionary theory and routines may be made in several areas. It is particularly important to understand the mechanisms that can bring about adaptation, change and innovation to business models. Therefore, a natural place to start is with the articles that have examined adaptation of the business model, because adaptation is explicitly part of the evolutionary theory of the firm. A number of works examine adaptation, 'changes to' or 'reinvention of' a firm's business model. This research has utilized different theoretical views including institutional theory and population ecology; both of which are used by Aldrich (1999) in his work to explain particular types of changes and how this can be related to an overarching evolutionary perspective. The authors of the individual research articles may not discuss evolutionary theory, but there is an established link with evolutionary theory within the field. Even business model research that utilizes a relatively static concept, such as the Resource

Based View, acknowledges an evolutionary nature to the development of a business model (Mangematin et al., 2003).

The fact that adaptation occurs does not explain *why* or *how* it occurs; an area noted in the literature as a gap (Davidsson, Hunter, & Klofsten, 2006). This is an area in which my use of a perspective grounded in evolutionary theory and routines can make a contribution. Research on *why* adaptation occurs can be fruitfully explored using evolutionary theory. For example, some of the variation sources (from Aldrich's work) points to multiple avenues to investigate such as blind variation, purposeful choice to change, management turnover, and the introduction of new firms in the industry. The process by which the change is brought about (the *how*) fits well with the routines literature. Routines can be a conceptual guide as to the drivers of change somewhat in a manner consistent with Davidsson et al's (2006) use of institutional theory. An added benefit that an organizational routines view provides is in the discussion of capabilities and the integration of multiple capabilities. The ability to create a fluid integration or consistency should allow successful adaptation of the routines and thus of the business model. The market decides if the adaptation (innovation) provides value or is a mismatch resulting in the selection and retention of the adaptations with superior performance.

The discussion of *how* is also an interesting method for examining the business model frameworks in relation to evolutionary theory and organizational routines. The AZ framework is a means to describe 'how', but in this case it is how the firm provides value. The details as to the means in which activities or routines are chosen or linked are not discussed. The AZ framework can classify existing business models but of the frameworks reviewed, the intent is on classification rather than explanation as to how the

types of models were created or achieves value creation. The *how* emphasis is especially relevant to Hamel's and the MSA framework; the components provided in the frameworks explain how the firm structures routines. The work by Afuah also discusses *how* but the author separates the business model from other functions. The design of the business model indicates how the firm has structured the various routines to offer value to customers. The frameworks that emphasize the design of various business model components allow comparisons of different models and can aid in identifying which models have been selected and retained through the evolutionary process. New business model designs indicate variation, the first step in the evolutionary process, and will be covered in the innovative business models section.

## **2.4 Innovative business models**

The increased attention towards business model research was initially driven by the possibilities created by novel internet models (Dutta & Biren, 2001), and a high proportion of research studies have focused on high technology industries (Andries, Van Loog, Lecocq, & Debackere, 2007; Bonaccorsi, Giannangeli, & Rossi, 2006). Research was fueled by the recognition of the benefits gained from novel business models that are used as a new means of conducting business (electronic versus bricks and mortar). An emerging area of focus deals with the strategic advantages of innovative business models (Christensen & Raynor, 2003) and the potential for the model to be a platform for innovation (Markides, 2006). Here, novelty comes not from technology or product breakthroughs, but in the design of the business model itself. Three advantages that firms

with innovative business models gain have been proposed. These advantages are: it is potentially an inexpensive way to create new value for customers; the innovative models are often difficult to imitate; and finally, the innovative model can be a powerful competitive tool (Amit, Zott, & Pearson, 2010). I shall clarify this distinction in the section that follows (2.4.1). Business model researchers have noted that the increased cost of product development and shorter lifecycles of products are driving more firms to pursue business model innovation as an alternative to product innovation (Chesbrough, 2007). Such novelty can enable firms to become market drivers (Kumar, Scheer, & Kotler, 2000), as with Amazon, eBay, Southwest Airlines, and Starbucks. Further, unique models can disrupt existing industries and create new markets (SanzVelasco, 2007).

As noted earlier, the underlying framework for the business model has not been settled. However, existing research has contributed to our understanding of portions of the business model concept. Several studies have emphasized the importance of innovativeness in the business model and linked novel models to overall firm performance. Schumpeter (1934) distinguishes ‘newness’ resulting in growth (incremental change) from ‘novelty’ resulting in entrepreneurial development (discontinuity). Novelty was the driving force of his definition of entrepreneurship and the description of how entrepreneurs create new markets while simultaneously destroying existing market structures (i.e., creative destruction). The focus was not what was new to the firm but how novelty impacts the market and/or industry. Recent business model research delves into the idea of novelty in the model and how this can relate to superior performance. Zott & Amit (2008) found a relationship between the novelty or innovativeness of a new venture’s business model and performance.

Innovativeness and business model novelty in e-commerce and high technology may be significantly different from non-high tech contexts (such as in the wine industry). The frequent pace of technology change, focus on research and development of new products, high acceptance of change from customers and the need to protect intellectual property is very different in non-high tech contexts. Research has noted that industry or sector influences innovativeness (Van de Ven, 1986). Meta-analytic work has indicated that distinguishing types, such as by industry, is crucial due to differences in variance between types (Damanpour, 1991). The context or environment plays a role in the variation's acceptance and spread of innovation through an industry. Accordingly, I utilize a single industry to limit this heterogeneity.

#### *2.4.1 Differentiating innovation and innovative business models*

I make a distinction in how I define innovative business models for this research. My focus is on differences that show innovativeness in terms of the industry as opposed to innovation at the firm level. This research identifies the firms that have created business models that differ in measureable ways from those used by the majority of the firms in their industry. These are the firms that have created what I refer to as *innovative business models*. Such a view is consistent with evolutionary theory in that the focus is on introducing novelty into the organizational population. I intentionally use the term innovative business models as opposed to business model innovation. Innovativeness refers to “the degree of newness of an innovation” (Garcia & Calantone, 2002, pg. 112). An important aspect is that the reference is towards a continuum and there are differing levels of innovativeness (Damanpour, 1991; Garcia & Calantone, 2002). Business model

innovation on the other hand is more in-line with product innovation. Business model innovation can be confused with innovativeness as that the former refers to firms that are adapting their current business model in an iterative process to make incremental improvements. Business model adaptation at the firm level may create a new model for the firm but not a model that is necessarily unique for the industry.

An important distinction I wish to emphasize is between innovative business models, product innovation and process innovation. Some business model research specifically links product innovation to the business model. For example, Chesbrough & Rosenbloom (2002) view the business model as “a focusing device that mediates between technology development and economic value creation” (pg. 532). Product innovation may be defined as “an iterative process initiated by the perception of a new market and/or new service opportunity for a technology-based invention which leads to development, production, and marketing tasks striving for the commercial success of the invention” (Garcia & Calantone, 2002; pg. 112). Product innovation focuses on the steps firms take to commercialize an invention. This commercialization does not necessarily *require* a change to the firm’s business model. Firms may have an R&D department that uses a process to develop new products for their market or may utilize an acquisition process to incorporate innovations developed by others. Even with an acquisition strategy, the firms tend towards innovations that fit within their existing business model (Gassmann, 2006). The innovativeness of the business model does potentially increase, but the focus, once again, is on product innovation and commercialization of the product. Product innovation can expand market share and even create markets, but the firm may be able to handle the change utilizing their current business model. A firm can use its existing customer



knowledge, technical expertise and infrastructure to create a new product that is then sold through their existing channels. The reciprocal is also true; innovative business models can occur without product innovation. Dell is an excellent example; by creating a business model radically different from the industry the company became successful even though the end product was virtually the same as competitors.

Process innovation has a different focus than either product innovation or increasing the innovativeness of the business model. The production process consists of equipment, labor, raw materials and routines that are used to produce a product or a service (Utterback & Abernathy, 1975). The goal is transforming inputs into sellable outputs. As a result, process innovation is a means to increase the efficiency of the process (Garcia & Calantone, 2002). Similar to product innovation, this can be seen as an iterative process with continuous, incremental advances. The Total Quality Management systems promoted by W. Edwards Deming fit this category.

Innovative business models are different in that they offer a different value proposition to customers. This could be for new customers to the industry or solves a need that traditional business models cannot meet. Consider, for example, the car radio industry. Dolby noise reduction was a product innovation that has been very successful; it was a new feature that greatly enhanced the quality of radio music. XM radio implemented an innovative business model by changing how radio reaches customers. They provide radio broadcasts that are similar to traditional firms in the industry but reach customers through satellites rather than local broadcast stations. The firm provides unique values to customers with a consistent signal anywhere and is (somewhat) commercial free. Both Dolby and XM offer additional benefits to consumers. However,

the innovative business model from XM is achieved by the unique way value is provided to the customer not in the product itself or in the process used to produce the product.

This is not to say that one type of innovation cannot possibly lead to the other. With product innovation, the product may be radically different from what the business currently offers and a new business model must be developed to handle the new product. Also, research has noted that frequent product innovations each can result in changing routines and these may accumulate over time resulting in major changes to how a firm operates (Eisenhardt & Tabrizi, 1995). This has the potential to lead to an innovative business model. Model innovativeness can certainly lead to product innovation also. The business model describes the routines, processes and capabilities a firm uses to provide value. The unique capabilities in an innovative business model can provide firms the means in which to create new products or add features to products other firms cannot provide.

#### *2.4.2 Adaptation of business models*

Adaptation of the structure of a firm's business models has been the topic of prior entrepreneurship research and the benefits have been noted. This work has focused on changes to the business model from the perspective of the firm; these are innovations for the firm. These changes *may*, but not *necessarily*, lead to innovative business models in the industry. A topic of particular relevance to entrepreneurship deals with the initial business model developed for a new venture. Research has examined benefits for survival of new ventures that are able to adapt their business model (Andries & Debackere, 2007). The authors found that adaptation was beneficial in turbulent environments, but for

industries that are mature and stable (such as the wine industry) the use of adaptation was not needed because new entrants could adopt a business model that had a proven record. In other words, survival may be achieved by following a safe, imitation strategy. Davidsson, Hunter and Klofsten (2006) also examined changes that occur in new ventures as the business model is shaped. The author's consider external influences that result in changes to the original idea for the new venture. The authors find that external equity, influential customers and reliance on external support (incubator location) resulted in adaptation. The relevance to my research is the acknowledgement of the institutional forces (Davidsson, Hunter, & Klofsten, 2006) that pull the firm towards the common routines and business models used in the industry. Research has also examined how different business models are considered by new firms in the face of competing standards or institutional pressures (Bonaccorsi, Giannangeli, & Rossi, 2006). These authors examine the evolution of the business models in the software industry. The software industry has seen the introduction of open source software to compete with traditional licensing fees and another variation, which is a hybrid of the two (Bonaccorsi, Giannangeli, & Rossi, 2006). This is an interesting example of how innovative business models have influenced the evolution of an industry.

#### *2.4.3 Evolutionary theory and innovative business models*

Evolutionary theory and routines can add to the work on innovative business models. The literature has proposed that business model innovations can be a source of variations leading to changes in the industry or the creation of new industries (Teece,

2010). Innovative business models may result in product, process and position innovations; innovation that may results in radically altering a firm (Francis & Bessant, 2005). Researchers have noted that modifying routines is an effective means in which to implement organizational changes (Zollo & Winter, 2002), which would include changes that can create an innovative business model. The extent of the modifications is likely proportional to how radical the innovative business model is compared to the existing business model structure (Teece, 2010).

As detailed in the previous section (2.4.1), innovativeness in business model design refers to how the model design varies from the ones used by others in the industry. Referring back to my definition of a business model, it is the innovativeness of the design of the routines used by the firm. This innovativeness speaks directly to the variation process in evolutionary theory (Teece, 2010). An evolutionary variation introduces a novel change into the population (Nelson & Winter, 1982). Since the intent of this research is to examine innovative business models, I focus upon this aspect of evolutionary theory. There are three main causes of variation presented in the literature. These are mutation, combinations of routines and the inaccurate replication of routines (Becker, Knudsen, & March, 2006). I shall review these three mechanisms next.

Biology based evolutionary theory focuses upon Darwinian mutation as a source of variation. Mutation is seen as a random event and is unpredictable (Nooteboom, 1992). The evolutionary theory of organizations includes mutations as a source of variation (Nelson & Winter, 1982). The authors capture the main crux in applying the biologically driven view of mutation: “it is highly unlikely that undirected change in a single part will have beneficial effects on the system; this, of course, is the basis for the biological

proposition that mutations tend to be deleterious on the average” (Nelson & Winter, 1982, pg. 116). When an unexpected, innovative change occurs to a routine, the organization will work to correct the change and return to their normal operation. As a result, most mutations are corrected/eliminated even if they appear to be advantageous to the firm (Nelson & Winter, 1982). I do not try to capture mutation as it is unpredictable, not driven by behaviors in the firm and -in-line with the work by Nelson & Winter (1982) - the influence of mutation will be low. My research does focus upon the remaining two causes of variation. Unlike mutation, both of these sources are not random in that the organization has made a conscious decision to implement the change to the routines.

The second source of variations in evolutionary theory is from new combinations of routines. The thought process behind this source of variation is that routines, which the firm may be very familiar with individually, have a different result when combined (Winter, 2006). The analogy that Winter (2006) uses to make his point involves chemistry. Elements in chemistry have specific properties that are well known. However, when trying to combine elements different properties can emerge. Some elements are easily combined making compounds (hydrogen and oxygen naturally form H<sub>2</sub>O). The combination has very different properties than the original, individual elements. Additionally, some combinations of elements are unstable. Similarly, routines when combined may lead to new variations, which are innovative for the firm and industry while other routines will not work well together leading to difficulties for the firm.

There are several reasons why firms may undertake changes to combine routines in their firm leading to variation and innovativeness in their business model. The most notable has already been covered in the introduction to this section – the firms that create

innovative models often have the ability to change the basis for competition within their industry (Hamel, 2000). Other factors can lead firms to pursue new combinations (and variations) including the identification of a new opportunity, performance problems with the current business model and experiments with adaptation to routines (Feldman, 2000).

Achieving innovativeness in the firm's model may be difficult, time consuming and may be risky for firms. There are factors at work to inhibit innovativeness and the adoption of new combinations of routines. Organizations are social by nature and may tend to revise prior routines rather than developing new routines or combinations of routines (Nelson & Winter, 1982); the firm is resistant to change. The difficulty organizations may have in adopting a change may be driven by problems in adapting its own ingrained culture of beliefs to work with the routines (Hodgson, 2008). This makes the introduction of some new routines very difficult. Existing routines may need to be modified to work in the new combination of routines. It is a lengthy process to learn and integrate the new with existing routines within the firm to create something innovative. The reason most firms do not pursue innovative business models is the path is complicated and the difficult task of designing and creating the innovative business model has uncertain outcomes.

The third and final source of variation in evolutionary theory utilized in this research deals with the inaccurate replication of existing routines (Becker, Knudsen, & March, 2006). Inaccurate replication leads to a new routine that differs from the original creating novelty. Institutional processes lead firms to identify and adopt the accepted and preferred routines and structures used in their industry (Aldrich, 1999). When outcomes are uncertain there is a natural incentive to imitate opinion leaders and industry majorities

(Aldrich & Fiol, 1994). For example, new ventures often replicate a significant part of their routines from established firms (Agarwal, Echambadi, Franco, & Sarkar, 2004; Helfat & Lieberman, 2002). Thus, novel routines can be developed by applying an existing firm's routines in a different context (Gong, Baker, Miner, & Version, 2005). Routines and combinations of routines from successful industry leaders are replicated repeatedly providing the potential for variation (Knudsen, 2008). Variations can arise because it is difficult for firms to replicate from one another. There is an unwillingness to share competitive information and this lack of understanding of the pertinent routines can limit the ability to copy another organization's abilities and routines (Kraatz & Moore, 2002).

The impetus behind the desire to copy these routines and structures is strong depending upon the external environment (Davidsson, Hunter, & Klofsten, 2006). Some combinations of routines are very complex and involve interactions with many actors within and outside of the firm. The complexity of the business model concept is an excellent example. A business model is more than just written procedures, but includes tacit knowledge, proprietary processes, and linkages between the various components representing the economic, structural and strategic aspects within the firm (Morris, Schindehutte, Richardson, & Allen, 2006). As a result, it is difficult for an outsider to completely observe and mimic routines used to form business models or the model's components. This leads to copying errors due to the incomplete understanding of the routines (Winter & Szulanski, 2001; Winter, 2006). An example Winter (2006) uses involves baking. An outsider may observe all of the ingredients for making bread and even the details of the process such as baking time and temperature. However, making

bread requires the skills of the baker to adequately knead the dough and ‘know’ the different steps in making the dough, evaluating when the dough is ready to bake, and monitoring the bread as it bakes. Similarly, firms may have extensive knowledge of the routines used by another firm but the skills of people performing the routines will differ when implemented into the new context.

Business models are often too intricate and built upon specific bundles of routines that are difficult for others to understand all of the complexities that form the components of the model. Southwest Airlines is an example of a firm that created a novel business model in which many competitors have (unsuccessfully) tried to copy their routines and model. The combinations of routines are complex; as a result, the routines are difficult for an outsider to completely observe and mimic. Copying routines is typically incomplete and sometimes infeasible (Knudsen, 2008). This can result in a prolonged competitive advantage for the firm with the innovative business model.

#### *2.4.4 Configurations as a means to identify innovative business models*

The business model is the conglomeration of the various combinations or bundles of routines undertaken in the firm. The organization itself is a ‘huge network of routines’ (Grant, 1991; pg. 122). Configuration researchers have noted that elements of firms (such as the parts of business models) tend to be designed so that out of all possible combinations of elements, a few combinations are quite common; whereas the vast majority of combinations are quite rare (Greenwood & Hinings, 1988; Miller, 1996). Miller states: “...most groups of firms tended to be driven by central themes that aligned many aspects of strategy and structure” (Miller, 1996; pg. 506). This is consistent with



evolutionary theory in that the most effective configurations are retained where those with lower performance are selected out. As noted by (Miller & Friesen, 1984; pg. 21) “Darwinian forces may encourage only relatively few organizational forms to survive in the same setting”. The configurations approach is an established concept in management research and has been used for several decades. An organizational configuration is seen as a group of firms that share a common set of characteristics (Ketchen Jr et al., 1997; Meyer, Tsui, & Hinings, 1993; Miller & Friesen, 1984). This acknowledges the powerful pull towards common configurations or quantum states (Miller & Friesen, 1984). Other firms will move to copy a successful and legitimate configuration. Also, there can be external pressures (investors, customers, regulations) on firms to adopt existing business model structures (Davidsson, Hunter, & Klofsten, 2006). As a result, research can focus upon the types of configurations for a specific context and gain information on performance consequences. This argument is quite important in terms of the business model concept and my research. A configuration approach can be used to examine the way in which firms have configured their routines, and combinations of routines, providing a means to classify and compare different business models. This can aid in the identification of innovative business models. Common configurations have been noted in the business model literature in that the “vast majority of companies operating today do not articulate a distinct business model” (Chesbrough, 2007; pg. 13).

In essence, I use the configuration approach to identify the types of business models that are most prevalent in the wine industry. Consistent with the insights by Miller and Friesen (1984) and others, a relatively limited number of basic types of business model configurations should be present in the New York wine industry. The

wineries would exhibit business model characteristics that represent a few basic types. Innovative business models may then be identified as deviation from these basic types of business models found in the industry. The more the business model deviates from any of the basic types found in the industry, the more innovative the business model.

Prior studies have used configurations to explore firms that are new, growth oriented ventures (Covin, Dennis & Jeffrey, 1990), small to medium enterprises (Birley & Westhead, 1990), or that take on an entrepreneurial strategy (Dess, Lumpkin, & Covin, 1997). The configuration approach has a fairly long history of use in entrepreneurship research (Harms, Kraus, & Reschke, 2007; Harms, Kraus, & Schwarz, 2009). Studies have used configurations to separate firms in terms of size, complexity and strategy. In a similar vein, I use configurations, in this research, to identify the firms that have novel, innovative business model structures as compared to others in their industry.

The business model component for customer interface is the focus of this research and may be broken down into four separate areas: 1) fulfillment and support, 2) information and insight, 3) relationship dynamics and 4) pricing structure (Hamel, 2000). Data on each of these four areas was collected to allow configurations to be formed for the NY wine industry. This data was collected with the use of a survey, observations and secondary sources to allow the configurations to be determined, and to score each firm on how different it is from the norm of the cluster in which it is most closely associated.

The business model is a bundle of routines that are difficult to compare due to their complexity. The use of configurations for comparing business models is an excellent application of this statistical technique. Researchers have noted that configuration analysis is a meaningful way in which to capture complex structures of

organizations (Ketchen Jr & Shook, 1996). Also, configurations allow researchers to examine the impact of how different parts of the firm's structure complement and/or work with each other (Miller, 1987a). I am examining one component of the business model, but this component has several different structural pieces that are captured in this research. The configuration technique I use allows me to identify the common business model structures, the ability to compare these structures and to identify the firms that have structures that are innovative compared to others the industry.

#### *2.4.5 Institutional Entrepreneurship and Innovativeness*

I use the literature on institutional entrepreneurship to develop the idea of a configuration approach to innovative business models, where the degree of business model innovation consists of the extent to which a business model deviates from what is established within an organizational population. According to the view of institutional scholars, institutional entrepreneurs create new institutions or transform existing ones (Maguire, Hardy, & Lawrence, 2004). Organizational populations change as a result of institutional entrepreneurship. For example, Battilana, Leca, & Boxenbaum (2009; pg. 70) have two defining characteristics for institutional entrepreneurs, suggesting that they “(1) initiate divergent changes; and (2) actively participate in the implementation of these changes”. Importantly, these authors link institutional entrepreneurship directly to business model innovation by stating (pg. 71) “only when they generate new business models can entrepreneurs be regarded as institutional entrepreneurs”. In other words,

institutional entrepreneurship is constituted by the use of business models that deviate from current practices within the organizational population.

The institutional entrepreneurship literature is rich with examples of how institutional entrepreneurs are on the periphery of the established organizations in a population. Business researchers have a history of associating institutional innovations with outsiders and the firms on the margins of the industry that seek to change institutions (Hirsch, 1986; Kraatz & Moore, 2002; Leblebici, Salancik, Copay, & King, 1991; Palmer & Barber, 2001). The firms invested in (and benefitting from) the existing institutions will work to prevent changes by questioning the legitimacy of changing and by blocking changes through regulations (Hirsch, 1986). These are the firms that do not fit neatly with the existing institutional structures in the population. Change is often initiated from small, independent-minded firms that are far from the established players in the institution (Leblebici, Salancik, Copay, & King, 1991). The institutional entrepreneurs are separate from the firms of the powerful established institutions and work to create ‘radically new practices.... looking for ways to solve the problem of realizing value’ (Leblebici et. al, 1991; pg. 358). This is consistent with my view that the firms with innovative business models are providing a different value proposition to customers than others in the industry.

The view of institutional entrepreneurship research is also consistent with evolutionary theory in its focus on organizational populations and in the view that innovations generate variation in an otherwise homogeneous population. A successful institutional entrepreneur will create a variation, which is an innovative business model. This may create competition for the dominant firms utilizing the old institutions. The

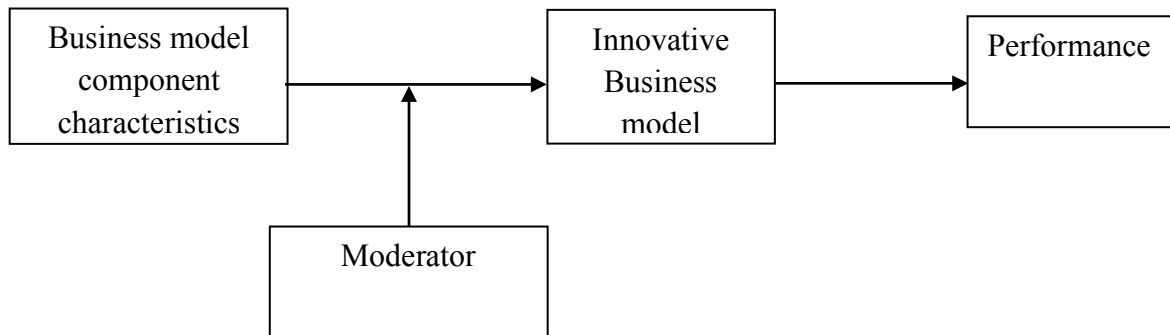
evolutionary cycle takes place as the innovation diffuses to more firms, becomes legitimate and potentially becomes the new dominant force in the industry (Leblebici, Salancik, Copay, & King, 1991).

This literature is particularly relevant to using configurations as a means for assessing innovativeness. Researchers have noted the recursive relationship between changes in institutions and changes in organizational forms (Haveman & Rao, 1997). In the context of business models, organizational forms can be viewed as the structures of routines that form dominant business models in a population. I utilize configurations of routines to identify the current institutionalized business models in my sample, the New York wine industry. The use of specific business models is legitimized by the broad acceptance from the industry (Haveman & Rao, 1997). This also allows the identification (through configurations) of the firms that have created a new structure – an innovative business model. The spread of innovative new organizational forms and the replacement of previous ones are not instantaneous, which allows the identification of variations in a population (Rao, Monin, & Durand, 2003).

#### *2.4.6 Research Model*

A basic representation of the research model is provided in Figure 1. The variables that impact innovative business models are separated into two sections, business model component characteristics and moderators affecting the relationship.

Figure 2.4.6: Research model



Characteristics of the business model can influence the potential for variation as I shall review in the section to follow. The ability of the firms to gain insights from customer information and the willingness to experiment are important characteristics that can lead a firm to the development of an innovative business model. Differences in these characteristics will create variation in the opportunities the firm will perceive and the ability to pursue the opportunities. The second part of this research deals with moderators of the relationship just described and creating innovative business models. The details that explain the elements that comprised the characteristics, moderation and links to performance are provided in the next section, hypothesis development.

### **3. Hypotheses Development**

I have split the hypothesis development into two separate sections. The justification for this separation is to allow each section to focus on a specific dependent variable. The first section describes the relationships associated with innovative business

models. The second section then uses the innovative business model variable as the independent variable and details the relationship with firm performance.

### **3.1 Business model characteristics and innovativeness**

The first section of the hypothesis development details the impact of business model characteristics on the level of innovativeness in the firm's business model. The information here is separated into both direct relationships for customer information, experimentation and complexity, which are detailed in the next three sections, and a moderated relationship involving inertia in the final three sections.

#### *3.1.1 The impact of customer information on innovative business models*

The first area I shall cover deals with the customer information processes used in the firm and will relate this to innovative business models. A firm's customer information processes may be evaluated in different ways. A useful distinction used in the Marketing literature breaks down customer information processes into routines to capture, access and use customer data (Jayachandran, Sharma, Kaufman, & Raman, 2005). Information capture refers to the actual acquisition of information about the customers, and prior research has emphasized the importance of collecting this information for developing customer relationships (Kohli & Jaworski, 1990). Simply collecting the information and setting it aside is not very useful. There also needs to be routines to organize and make available customer information so that it may be analyzed (Narver & Slater, 1990). The final piece is that firms need routines that make use of the customer information, which

can allow the firm to learn about the customer (Menon & Varadarajan, 1992). Prior research has linked routines for a firm's customer interface to superior performance and the ability to innovate (Caniëls & Romijn, 2005; Clark, 1995).

Firms are not homogenous and differ in the amount of routines (or in some cases complete lack of routines) to collect, organize and analyze customer information. The firms that do not monitor who buys their products have some information (e.g. the sales volumes of various products). Increasing the level of customer information routines provides greater detail; the information includes demographic data, where the customer lives, what the customer values and a means to search for ways to improve the value offered to customers from the product. As more extensive customer information is developed, it allows the firm to know more about 'whom' the customers are and the market the firm is serving. Customers show what they value through their selection decisions but, as noted in the literature, customers differ and make diverse choices even within one market (Birkinshaw & Lingblad, 2005). The customer information gathered is critical for generating business model variations (Burgelman, 1991). Prior business model literature has noted that customer information is a requirement for firm's to create innovative business models (Teece, 2010). As Teece (2010, pg. 17) describes, customer information is needed to develop "an understanding of some 'deep truth' about the fundamental needs of the customer". This understanding allows the firm to concentrate on how to satisfy customer needs in ways that others are not, creating a unique value proposition for the customer. An innovative business model results from this understanding. As more extensive routines for customer information processes are added, the firm will be able to arrive at these 'deep truths' and develop an insightful



understanding of the customer. Based on this understanding, the firm will seek to change or introduce new routines creating combinations that are novel resulting in an innovative business model.

Research has linked the level of customer information a firm possesses with innovation. It has been suggested that the most important information needed to develop new, innovative technology oriented products is customer information (Barton, 1995). The firms that are able to adequately develop insights and, as a result, innovations, are the firms that have extensive processes to acquire, evaluate and use customer information in a systematic fashion (Slater & Narver, 1998). In other words, the firms that have no or limited routines for customer information processes will not have the same ability to identify opportunities that lead to innovation.

There are two drivers described by evolutionary theory that would promote adopting more extensive routines for customer information processes; these are puzzles and intentional search (Nelson & Winter, 1982). Puzzles could be a result of a dramatic change in sales of a specific item, which could be an indication of a shift in what the customer values. To respond to this potential opportunity (or problem if a sales decline), the firm could add routines to capture information about the customers buying the product. An important point is that the more extensive customer information routines give the firm the capability to identify new opportunities, which can lead to the addition of new routines or changes to existing routines. These additions/changes result in new combinations of routines for the firm (and potentially new combinations unique to the industry). Marketing research has shown that firms use the information to respond to customer needs and the ability of firms to adequately capture and draw insights from

customer information improves performance (Jayachandran, Sharma, Kaufman, & Raman, 2005).

The second driver to increase customer information routines is intentional search (Nelson & Winter, 1982). The firm consciously pursues a search. The search may be driven by a performance problem. If performance is below aspirations, this triggers what is known as problemistic search (Cyert & March, 1992) to find a solution to resolve the performance problem. A means to do this problemistic search is through the addition of routines for customer information processes. The more extensive customer information routines adopted by the firm provide answers to the problemistic search questions. This may result in changes to the existing combination of routines or to copy the routines of others firm's that do not have the problem.

Search is not exclusively for problems; Firms seeking to develop new ways to create value for customers will need customer information routines (Teece, 2010). This type of search is exploratory. Firms that make changes to routines or add new routines are moving away from existing structures of routines towards innovative models (Miner, Bassoff & Moorman, 2001). Firms can rely upon their customer information routines to provide guidance to select, develop and enact the changes to their existing routines (Knudsen, 2008; Zollo & Winter, 2002).

In Summary, the firm relies upon routines for customer information processes (capture, access and use information) to understand what the customers in their market value. As the firm grows and develops more routines for customer information processes, the firm has more knowledge it can use to resolve problems or pursue opportunities. As a result, firms choose to pursue are made to their combination of routines and/or to imitate

the routines successfully used by other firms; as described in section 2.4.3, new combinations and imitation are two of the main causes linked to variation in evolutionary theory (Becker, Knudsen, & March, 2006).

*Hypothesis 1: The more extensive the routines for customer information processes, the more innovative the business model.*

### *3.1.2 The impact of experimentation on innovative business models*

A firm that desires to implement changes to how they provide value to their customers will make changes to their routines, which *may* lead to a new business model. Firms undertake changes to their routines purposefully and learn from experimentation with routines (Miner, Ciuchta, & Gong, 2008). As Zollo and Winter (2002) note, modifying routines is one of the most effective means in which to implement organizational changes. The extent of change needed to the firm's routines will vary on how radical the changes are compared to the existing business model structure. As expressed in section 2.4.2, the adaptation of the business model will create a new model for the firm and one that is potentially innovative for the industry.

Experimentation with routines may result from internally motivated sources such as formal research and development creating new products/services or informal trial and error processes. There are also external factors that can lead the firm to experiment with routines. Institutional pressures to conform to normal industry practices, influential customers and stakeholders (Davidsson, Hunter, & Klofsten, 2006) can externally drive

the need for experimentation. A major benefit of experimentation is that the firm can evaluate the changes to the structure of the routines to see if the new combination is beneficial before implementing on a wider scale (Nelson & Winter, 1982)

Researchers have stated that understanding how routines are adapted is critical to understanding how firms survive and thrive (Ventresca & Kaghan, 2008). Conscious experimentation of routines can result in small incremental process improvements or to the creation of novel designs of routines (Miner, Ciuchta, & Gong, 2008). This new design of routines can be novel to the firm and to the industry resulting in an innovative business model. The entrepreneurship literature has recognized the impact of changing businesses models, and noted adaptation in the business model of new ventures as a way in which the new firms survive and create a workable model (Andries & Debackere, 2007). Entrepreneurs use not only technology and marketing but also business model experiments to generate variation leading to the creation of new routines (Murray & Tripsas, 2004).

Gavetti & Levinthal, (2000) have noted that routines are, in essence, developed by trial and error learning as to what works best for the firm to accomplish tasks. Experimentation provides a trial and error learning mechanism for a firm as it tries to incorporate a new routine into their business model. Firms seeking to alter their business model are confronted with the fact that the results of such an endeavor are unknown, the effort may be very expensive and there is potential for an impact on their performance (Nelson & Winter, 1982). Experimentation provides a benefit by allowing the firm to evaluate how a change in one particular routine impacts other routines. For example, a

change to a routine that alters the length of time to complete a manufacturing process step could adversely impact downstream routines for packing, storage and delivery.

Firms that are focused upon experimentation consciously invest and plan for the integration of new routines into their firm's complex network of routines. The choice of changing towards an innovative business models could require changes to multiple routines. This could be a time consuming and costly process. Researchers have noted that a high level of experimentation (DeTienne & Koberg, 2002) and the creation of prototypes early in the process aid in developing innovations (Veryzer, 1998). The knowledge gained from the experimentation aids the firm in coordinating and negotiating the integration/combination of new routines into the complex structure of routines that form their model overcoming potential barriers to creating an innovative business model (Chesbrough, 2010). This can allow the firm to find new designs of routines that are robust and identify problems with new routines in their fit into the new business model design. An innovative business model needs routines that share a coherent theme and that do not contradict one another. The experimentation allows the firm to evaluate an intentionally derived new combination of routines for the firm. The firm is in effect testing changes in a complex design of routines to create innovativeness in their business model and a new variation compared to other firms.

*Hypothesis 2: The higher the level of experimentation in the firm, the more innovative the business model.*

### *3.1.3 The impact of complexity on innovative business models*

The current section deals with complexity in the business model and relates complexity to innovativeness. Firms have been viewed as complex bundles of routines and capabilities (Nelson & Winter, 1982). This research defines business models in terms of the design of routines and how they work together to create value. Business models vary greatly in complexity and this complexity can be driven by product/service variety, differing customers and the external environment (e.g. regulatory requirements). My research examines one industry, the New York wine industry, in which the firms compete with basically the same product and in the same context. This allows me to focus on design aspects of the business model itself. Many of the processes used by wineries are similar and a winery that wishes to differentiate itself from others in the industry may accomplish this by expanding the routines used in the firm towards non-wine (or non-core) related efforts.

For this research, business model complexity is examined from the sale of non-core products/services and from bundling these products/services with the main product (wine). In either case, new routines would have to be developed and combined with existing routines to adequately provide the additional, non-core products/services. Firms would need to develop routines to track the different non-wine inventories, advertising/displaying the product, how to explain the different products to customers, and/or storage differences. These add to the complexity of the business model. Some of the routines may be very different from those currently used by the firm - or even in the industry. This added complexity has been noted as a source of sustainable competitive

advantage because others cannot adequately determine the source of and/or how to copy the complex routines (Grant, 1991). As a result, the new business model created by adding the non-core products is not only innovative but also remains unique because other firms have difficulty copying the business model.

The complexity of the business model will increase as the winery adds or bundles diverse non-core revenue streams such as restaurants, lodging, event hosting (e.g., weddings), live music or combining the tasting room with vegetables/produce items. The routines needed to enter these varied market areas are quite different from wine production. Complexity in routines has been noted to result from efforts to develop businesses specific capabilities and new routines that provide the firm with an advantage (Zahra, Nielsen, & Bogner, 1999). For my sample, an example would be a winery adding wine and cheese tasting events. The food may play as important a role to the customer and for the overall revenue of the firm as the wine. Bundling could be done with aspects promoting an area's scenic beauty, education in pairing wine with gourmet goods or entertainment such as concerts. The business model the firm creates to support a 'hybrid' source of revenue with both core and non-core products will lead them away from models typically used in the industry. The complexity of the routines increases to offer these non-core products and variations would result.

The firm that creates a complex business model, which includes these non-core products/services, has developed a business model that stands out from the crowd. The advantage (noted by Dosi, 1982) gained by introducing an innovative, non-core product line/source of revenue will likely be evident to competitors. Other firms will wish to remain competitive with the business model innovator and try to copy the innovative

model. Some non-core product expansion may be easy to copy and the new routines will have a small impact on the winery (e.g., selling wine stoppers or t-shirts) while others are far more difficult to implement or copy (e.g., train rides through the vineyard or a petting zoo). Business models are often built upon specific capabilities that are difficult for others to understand all of the complexities that form the model (Knudsen, 2008). The routines used by the firm are not just written procedures, but include tacit knowledge and organizational skills. As Knudsen (2008) indicates, a firm's organizational routines are context specific and the underlying processes are very complex. Therefore, the routines used by other firms are difficult for an outsider to observe, mimic and make them work within their firm's existing business model. The lack of understanding of the routines can limit the ability to copy the routines (Kraatz & Moore, 2002). The result is a prolonged competitive advantage for the firm with the innovative model.

Competitors may still attempt to copy the innovative business model. The efforts to copy an innovative business model present additional opportunities for new variations by the inaccurate replication of routines (Becker, Knudsen, & March, 2006). Variations can occur because it is difficult to replicate innovative routines that are so different from the familiar routines used in making the core products/services (Winter & Szulanski, 2001). A unique routine or combination of routines occurs because of context; a new variation is developed to fit within the copier's organizational culture and operations. The important point here is that the copier has also increased the complexity of their business model by adding non-core product routines. These new routines were intended to copy those used by another firm but resulted in creating innovative routines and business models.



The adoption of new routines to pursue non-wine areas expands the complexity of the business model. Variations are a result of new combinations of routines to add non-core product/service revenue streams or from the inaccurate replication of non-core routines used by others (Becker, Knudsen, & March, 2006). A winery that creates a novel combination of routines by adding a non-wine related revenue stream has the potential to create a new variation or innovative business model in the industry.

*Hypothesis 3: The more complex the design of a firm's non-core product routines, the more innovative the business model.*

### **3.2 The Moderation of Innovative Business Models**

I adopt the term inertia to indicate an unwillingness of a firm to change. Prior management literature has defined inertia largely based on the dictionary-derived definition, which is that inertia refers to the tendency of a body (organization) to remain in the same state (Gersick, 1988). This view of inertia is used for my investigation of this variable as a moderator. I propose a moderation of the relationship between the innovative business model and the characteristics of the business model by inertia. A separate section is provided for each of the model characteristics – customer information processes, experimentation and complexity.

### *3.2.1 Customer Information Processes and Inertia*

The first moderation I shall cover deals with customer information processes. The benefits of customer information processes associated with innovative business models were reviewed in section 3.1.1. The current section proposes that inertia in a firm will diminish the advantages provided from higher customer information processes and their association with innovative business models.

An important and influential source of information for the firms in my sample is from the local trade association. Firms often collaborate and form associations that are used to legitimize their businesses (Aldrich & Fiol, 1994). An example of this is evident with the formation of 'wine trails'. The participating firms use the wine trail association as a means to consolidate advertising and promote tourism of a geographic area. The hope is that a larger volume of total customers offsets the lower potential sales that results from splitting a customer's purchases among several wineries on the trail. These wine trail firms share information with each other and have similar educational experiences sponsored by the association. As a result, the same information is available to many firms. Inertia develops because the firms in the trade association become reliant on customer information from the association instead of developing their own information routines. The ability of firms to gain diverse knowledge aids in the exploration of new opportunities and the resulting variability (Nelson & Winter, 1982). This is not occurring in the trade association firms as they are limiting their customer information to what is provided to each of the wineries on the wine trial. The information available to each is very comparable due to the shared customer base and collaboration of information. As a result, the knowledge, skills and routines developed within these firms

will be similar and a 'repetitive momentum' develops (Amburgey & Miner, 1992). The routines and capabilities developed to work with the same customers become ingrained and momentum is created to further utilize the same routines and capabilities because they are what the firm knows how to do (Christensen & Raynor, 2003). As a result of inertia developed in sharing customers, and depending on customer information processes common to the wine trial, the firms do not have diverse knowledge sources to explore, which limits innovation.

Another moderator mechanism for inertia that has a contingent effect on the positive relationship between customer information processes and innovative business models is through the desire to create customer loyalty. This mechanism is common for all of the firms in the sample. Loyalty is important because researchers have discovered that it is less expensive for a firm to keep existing customers than to persuade new customers to purchase a product (Reichheld, Markey Jr, & Hopton, 2000). To create loyalty in customers, firms are focused on keeping consistent routines used by both employees and for management of the firm (Sirdeshmukh, Singh, & Sabol, 2002). The goal is to create routines to make the purchasing process efficient, easy and eliminate aggravations for the customer in their interactions with the firm. Customer information processes provide the firm with data on potential opportunities to change; section 3.1.1 outlined the benefits of customer information. However, the desire to create loyalty in the customer base will promote inertia. To make customer interaction easy and efficient, the firm will retain existing routines and only undertake small incremental improvements for efficiency gains. The intent is focused upon the current routines that enhance the customer experience. Loyalty is created by *consistent* patterns of behaviors over time, is a

non-tradable asset that the business has spent considerable resources to develop, and the business has foregone other opportunities, even ones identified by customer information routines, to maintain the consistent pattern (Barney, 1989). The foregone opportunities can be linked to the lack of variation in these firms. Using customer information routines, the firm may identify opportunities for change that would lead to innovation. However, the inertia created by promoting consistent processes to ensure loyalty reduces the likelihood that the firm will act on the opportunity.

In summary, inertia can be caused by either relying on a trade association as the firm's main source of customer information or by using consistent routines to promote customer loyalty. Increases in these sources of inertia will have a contingent effect reducing the positive relationship between customer information processes and innovative business models.

*Hypothesis 4: The level of inertia in the firm moderates the positive relationship between customer information processes and innovative business models, such that the relationship is weaker with higher levels of inertia.*

### *3.2.2 Experimentation and Inertia*

The second moderation I shall cover involves higher levels of inertia reducing the positive relationship between experimentation and innovative business models. There are significant reasons firms experience inertia and are unwilling to change. The discussion of dominant logic highlights this view. The dominant logic perspective argues how firms develop routines, structures of routines and cultures that are consistent with what has

allowed the company to succeed (Prahalad & Bettis, 1986). The authors point out this also inhibits the firm from changing due to concerns with negatively impacting the organization. Complex systems (such as the structure of routines that form the business model) are especially susceptible to dominant logic. This is due to a non-linear effect that changes to routines can potentially have on the firm; small agitations to routines can have substantial impacts on results in complex systems (Bettis & Prahalad, 1995). As a result of inertia, firms are unwilling to change even if experiments highlight a potential opportunity; the current structure the firm has developed is in-grained and has proven to be successful in the past.

Inertia can develop in firms due to a perception that the risks associated with change outweigh the benefits. Most market situations will prompt firms to change over time. The need for change can be driven more by industry concerns. In weak evolutionary environments, market selection pressures are not as influential and some firms may survive with little change or innovation (Teece, Rumelt, Dosi, & Winter, 2000). Firms with high levels of inertia still are willing to undertake some change. However, these firms are more likely to adopt changes to conform to institutional pressures to maintain legitimacy (Westphal, Gulati, & Shortell, 1997). The authors note that the late adopting firms are able to benefit from the change vetted in the industry and by maintaining legitimacy while early adopters are the beneficiary of efficiencies and performance. Late adopters need little actual experimentation of an innovation because there are numerous examples in the industry to mimic and information on how to implement has been developed by others.

Firms that undertake experimentation with new routines can fail due to ambiguity in how the new routine works in the firm. This can be associated with inertia as it is easier (and less risky) for firms to remain the same and keep the existing routines. Van der Steen (2009) identified two sources of ambiguity; the sources are: ambiguity in the meaning of the new routines and ambiguity in how the new routine is inconsistent with existing routines. Routines have a social component in that over time routines have developed to allow an individual to see how their work *contributes to* and are *interrelated with* others in the firm (Cohendet & Llerena, 2008). Employees may have a difficult time grasping the intent and meaning of a new routine as it is inconsistent with past practices. Experimentation with routines can upset this balance and resistance emerges to prevent this from happening. The second aspect is how a new routine under experimentation meshes with existing routines. Experimentation can aid in allowing the firm and employees to find ways to integrate a new routine into the existing structure of routines. However, what often occurs is an issue of compatibility and employees will try to find a means to go back to the existing routine or find other familiar routines to incorporate instead of the new routine (van der Steen, 2009). As a result, strongly ingrained structures of routines are difficult to change and the attempts to implement the results of experimentation are resisted.

In summary, inertia is influential because it is difficult to change due to the unknown outcomes of change and the potential for upsetting the normal routines in the firm. As inertia increases, it will hinder the adoption of new routines created through an experimentation process. This will reduce the positive relationship between experimentation and innovative business models.

*Hypothesis 5: The level of inertia in the firm moderates the positive relationship between experimentation and innovative business models, such that the relationship is weaker with higher levels of inertia.*

### *3.2.3 Complexity and Inertia*

The final moderation I shall present involves the impact of higher levels of inertia to weaken the positive relationship between business model complexity and innovative business models. Inertia may lead a firm to ignore signals that a change is needed to their business model. A firm with an existing business model that has a history of providing sustainable revenues will find it difficult to change their model. A business that creates a very rigid coherence around one philosophy; an obsession with one business model component (e.g., low cost production) may become too focused and not recognize the need for change (Miller, 1993). This need for change may be ignored because the current model performed acceptably in the past. Even if information appears to call for adaptations of the configuration, change is unlikely because it is expensive and complicated to modify the firm's routines and the environmental changes might be temporary and revert back to the original situation (Nelson & Winter, 1982). Adding complexity through the addition of non-core related revenue streams could be very difficult for a firm with in-grained existing routines. The firm may see an opportunity to add a non-core product line but not be willing to sacrifice the current business model due

to the uncertainty of how to make the new, non-core routines work within the bounds of the existing business model. The change does not involve the familiar wine business but to add a very different side revenue stream, such as a restaurant.

Over time interlocking behaviors, negotiated truces and understandings of coworkers behavior are formed which are evident in the firm's routines (Cohendet & Llerena, 2008). The focus is on creating an environment in the firm that works smoothly and employees know and understand. The wineries know how to sell wine and this is comfortable for them but adding routines to make and sell non-wine products would be a challenge. This results in barriers to creating new routines, which is consistent with prior research describing routines as a source of stagnation and rigidity (Teece, et. al, 1997). As firms attempt to introduce major changes to routines or new routines, the truces and relationships, which are present in the existing structure of routines, are interrupted. The institutional view provides guidance on the benefits firms receive from consistently following institutionalized norms including how expectations are satisfied through habitual routines. The highly regulated wine industry also plays a part supporting an institutional view and impacts the ability to pursue innovativeness. This impact is through both imposition (direct constraint through laws, regulations) and inducements (government subsidies, funding, tax breaks) (Grewal & Dharwadkar, 2002).

As a result, firms with inertia - that have a sustainable business model and one that has been in place for a long time - will resist innovativeness efforts into non-core products/service that increase complexity. The focus is on competency enhancing actions, which lead to capturing value from existing routines (retention mechanism in evolutionary theory) instead of seeking new competencies by introducing new routines



(variation mechanism) (Miner, 1994). A winery that believes they have created an advantage through superior existing routines, which focus on the core product (wine), will be resistant to considering adding non-core routines. The core competency creates a paradox providing both an ability to enhance development (around the competency) and to inhibit development towards other competencies (Leonard-Barton, 1992). To promote existing routines, the firm will consider parts of the business model as institutionalized and would be unwilling to change the routines or business model. This has been referred to in the literature as core rigidities (Leonard-Barton, 1992). The philosophy is that the firm is a winemaker not an innkeeper, event planner or chef. The inertia around this core belief will impact the commitment of the winery for business models that have more complexity towards non-core products.

In summary, inertia processes such as focusing on a set of routines that has been critical to past success and the difficulty in moving from the core revenue streams will act as a moderator. Increases in inertia will reduce the positive relationship between complexity in the business model from adding non-core revenue streams and having an innovative business model.

*Hypothesis 6: The level of inertia in the firm moderates the positive relationship between complexity and innovative business models, such that the relationship is weaker with higher levels of inertia.*

### **3.3 The Impact of Innovative Business Models on Firm Performance**

The relationship between innovation and firm performance is well established with numerous articles evaluating various types of innovation and different means of capturing performance. A meta-analysis 20 years ago, states the following conclusion “The adoption of innovation is generally intended to contribute to the performance or effectiveness of the adopting organization” (Damanpour, 1991; pg. 556). An important aspect observed by the author was that innovation was related to change in the firm.

I am specifically examining firm performance related to others in the same industry. Industry variation has been shown to have an effect on performance results (McGahan & Porter, 2002). While performance comparisons across industries can lead to issues, research has also shown that innovation has a positive influence on performance in many different types of industries (Thornhill, 2006). By focusing upon the business model in one industry, the many extraneous aspects that may play a part in affecting firm performance (unobserved heterogeneity) were not an issue. The performance advantages a firm achieves can be sustainable or fleeting depending on their approach to innovation. The differences with an industry may be based on differences between how various firms maintain a process of innovation versus one specific innovation (Geroski, Machin, & Van Reenen, 1993). The authors found that the firms that undertook more innovation activity than what was normal in their industry gain a long-term advantage. Another means for continued success would be from a proprietary competitive position in which to prolong the advantage over others in the industry (Roberts, 1999).

Dosi expressed a view of innovation that firms would be more likely to pursue variations that were outside of the bounds of normal competition (Dosi, 1982). This is

consistent with the industry level view and with the theoretical/conceptual views from evolutionary theory and organizational routines. Firms will seek to develop new, unique routines that provide value in ways other firms do not. There are important firm level differences in their innovativeness and in the new routines implemented by each firm (Argote & Ingram, 2000). This variability aids in explaining performance differences. A firm's ability to compete in their industry is related to their prior innovative activity, adoption of other firm's innovations and their ability to create a new combination of routines from this mixture (Roberts & Amit, 2003). These new combinations can create innovative business models and lead to a new variation within the industry.

Literature is available that specifically examines innovative business models and performance. Authors have considered the innovative business model as a classification (Amit & Zott, 2001). Studies have shown the performance benefits of innovative business models in e-commerce settings (Rajgopal, Venkatachalam, & Kotha, 2003; Zott & Amit, 2007). Several case studies of firms that successfully launched innovative business models are available in the literature. Dell computers and Yellow Tail wines are well-known examples of firms that developed an innovative business model, which is credited for the firm's success (e.g., Magretta, 2002; Kim & Mauborgne, 2005). The ability to create innovative business models has been noted to allow firms to radically change a market (Christensen & Raynor, 2003), to expand markets (Markides, 1999), and the firms that create innovative models often have the ability to change the basis for competition within an industry (Hamel, 2000). While the benefits of innovation have been documented, researchers have also recognized that firms may have difficulty in pursuing innovation. The challenging nature of implementing changes to routines, especially on a

scale that would lead to an innovative business model, keeps many firms from pursuing innovation. This occurs even though there are many examples of empirical research and case studies that have linked increases in innovation with higher performance.

*Hypothesis 7a: The degree of innovativeness in the firm's business model has a positive relationship with the performance of the firm.*

Prior literature has noted the bias that more innovation is always better (Clark, 1987). In terms of business models, research has shown a linear relationship between novelty in the model and performance (Zott & Amit, 2008). However, evolutionary theory indicates that not all variations succeed; in fact, it is difficult for variations to survive (Nelson & Winter, 1982).

The selection processes in evolutionary theory indicate that the innovative models that are not valued by customers will be eliminated. In other words, not all attempts to innovate succeed nor are customers always willing to try novel products and services. A number of objectives are at play including some that may be at odds. A firm that is attempting to implement an innovative business model is venturing into the unknown; the novel, untested new model has great potential to affect the performance of the business. To actually pursue innovativeness, the firm must evaluate and implement several changes. These changes may include the structures of routines in the firm, resource allocation and management philosophies. To implement extensive changes to business models, the firm will need to invest a great deal of effort in adapting their routines and

capabilities (Feldman & Pentland, 2003). The extent of change is hampered by the perceived need to change and ability to implement the change (Hamel, 2000; Huet & Lazaric, 2009). An innovative differentiation employed by a firm corresponds to the variation and selection aspect in evolutionary theory. Variations that are considered to be legitimate are likely to be selected by the environment to succeed.

Firms can choose if their goal is small incremental change or major changes to the business model. If the innovativeness to the business model is very low, then the value derived from the change may not be perceptible to customers. This could result in virtually no performance difference and the resources spent in making the changes were wasted. No increase in innovativeness could indicate the firm's routines have become too rigid and fettered by inertia. Also, there are institutional pressures from customers, industry and government to conform to norms (Davidsson, Hunter, & Klofsten, 2006) and this can interact with the firm's desire to gain legitimacy for the firm.

Researchers have noted that in successfully introducing radical innovation entrepreneurs must position their ideas, and business model within the current understandings of the institutional environment (Hargadon & Douglas, 2001). Too high an increase in innovativeness could alienate some customers and/or distributors. The pursuit of new, innovative opportunities is far more costly and riskier than routine replication or minor twists to existing structures (Furubotn, 2001). A distributor or retailer may balk at carrying a product that has a revenue model significantly different from others. Also, the firm may be pursuing too many innovations and not properly exploiting the discoveries to a full extent (McGrath, 2001). An innovative differentiation employed by a firm corresponds to the variation aspect in evolutionary theory. Variations

that are considered to be legitimate are likely to be selected by the environment to succeed. A medium level of change and innovativeness is proposed to have a better chance to survive and succeed in the market.

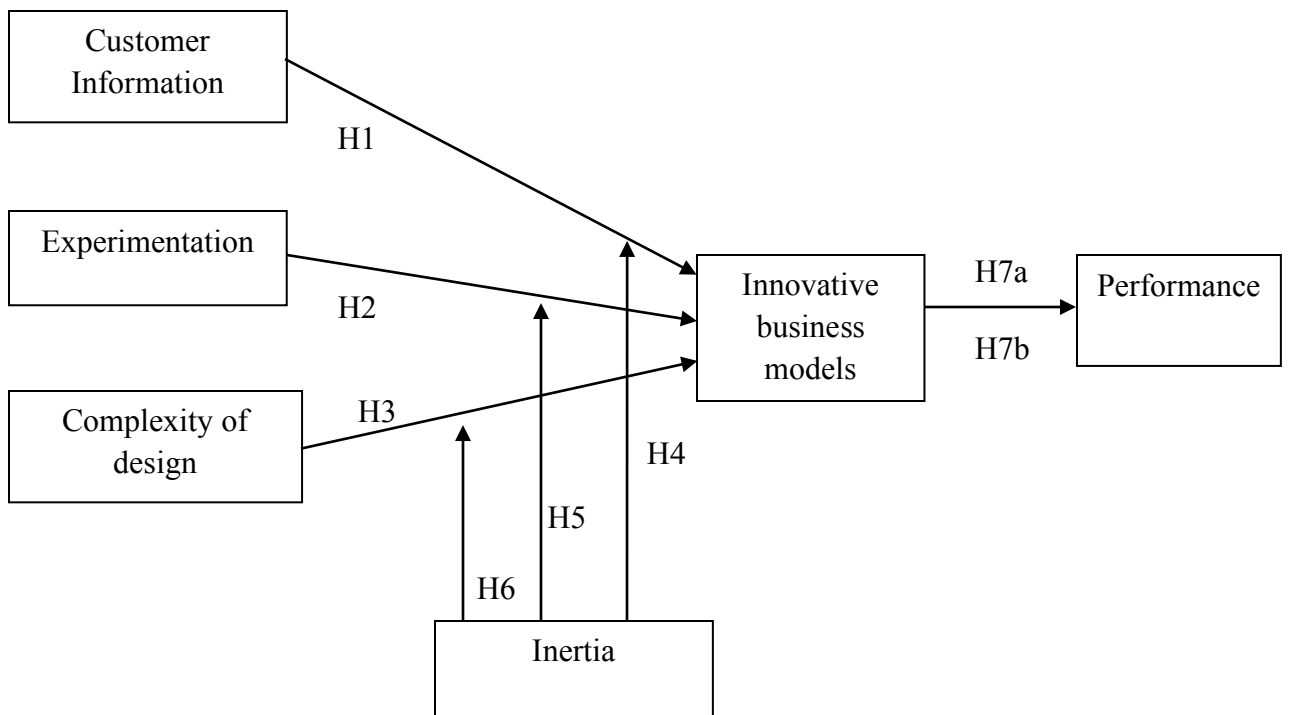
These arguments suggest that firms pursuing minimal innovativeness through very small changes to the business model will not be able to detect a performance change. While the firms that are pursuing a radical innovativeness to their business model will face hurdles from suppliers, distributors and customers. This leads to the proposed non-linear relationship between innovative business models and performance.

*Hypothesis 7b: The degree of innovativeness in the firm's business model has an inverse U-shaped influence on the performance of the firm. The firm's performance is highest with a medium degree of business model innovativeness.*

### 3.4 Overall Research Model

The research model is presented again in Figure 2, but with greater detail showing the characteristics and management influences broken into specific variables. Each of the proposed hypotheses is shown.

Figure 3.4: Research model with hypotheses



## **4. Methodology**

### **4.1 Research design incorporating organizational routines**

The current research utilizes organizational routines to examine the structure of the business model and, from this structure, identify innovativeness. A number of issues have complicated research on organizational routines. As mentioned in the literature section, routines have been conceptualized in two different ways: 1) repeated actions that have been performed (performative) and 2) the ability to do the routine (ostensive) (Feldman & Pentland, 2003). Routines may be examined from an external viewpoint through the use of production records, standard-operating procedures etc. or by direct contact with those responsible for the routine. Relying exclusively on either aspect can cause issues. Routines are noted as time and space dependent in that they occur at certain times and places. Performative studies can miss the routine if it is hidden or occurs outside of the research period. The issue for an ostensive study is that it relies upon the person providing the information and different people will view the same routine differently. This research intends to capture both aspects and uses contact with the people responsible for the routines under investigation as well as direct observation of routines.

This design has an influence on the types of measures used in the research. Consider, for example, the information collection and use aspect of the customer interface business model component. This could be operationalized in several different ways. Research can investigate the routines and capabilities to collect, process and use the customer information or the focus could be on the knowledge/insights gained from



the information. In choosing routines as a basis for the current research, I focus on the information collection routines as opposed to questions evaluating the outcomes derived from the routines. The measures used in my research collect information on the routines, and the capabilities linked to routines, for each of the parts of the customer interface business model component.

Organizational routines have been assessed by a number of different methodologies including qualitative (Adler, Goldoftas, & Levine, 1999), secondary records analysis (Pentland, 2003), paper surveys (Knott, 2003; Zollo, Reuer, & Singh, 2002), experiments (Cohen & Bacdayan, 1994; Cohen & Bacdayan, 1994) and combinations of the above (Gittell, 2002; Zellmer-Bruhn, 2003). I utilized a paper survey to gather data but combined this with direct observation and secondary sources of information. Several measures used in this research were directly observable by visiting the winery and were captured whether or not the winery agreed to participate in the survey. Using direct observation of routines is also consistent with data collection efforts in the literature (Feldman, 2000; Howard-Grenville, 2005). This aids in collecting complete population data for the sample and as a means to determine if there was any sample bias between the wineries that chose to complete the survey and those that did not. This was accomplished by comparing the direct observation data between the firms that completed the paper survey versus the non-respondents. No bias in the data was found (see section 4.2.4 for details). The use of both the paper survey along with direct observation indicates this research should be labeled as a 'combination method'. This provided a reasonable compromise between the depth of information collected versus the resources and time required for data collection. Combination methods are used frequently

in routines research (Jensen & Szulanski, 2007; Shenkar & Li, 1999; Thomas, Sussman, & Henderson, 2001). The benefit over observation alone is that observation studies may not capture the tacit features or may miss routines that were not carried out during a particular observation.

## **4.2 Sample**

### *4.2.1 Sample Appropriateness*

There are a number of factors that must be taken into consideration in selecting a sample for research. An important issue is that the sample should be the most relevant for the research questions asked. Owing to the heterogeneity of the entrepreneurship phenomenon, samples used in entrepreneurship research are often very heterogeneous (Davidsson, 2004). Many of the ways in which subjects are different remain unobserved (and often unobservable) in empirical research. The inability to observe important aspects concerning which subjects are different leads to the problem of unobserved heterogeneity, which in turn is a major reason as to why explained variance is typically low in entrepreneurship research (Davidsson, 2004). Consequently, it is often difficult to discover true relationships among variables using statistical techniques because of the noise that is present in the data.

Scholars have attempted to deal with these problems by increasing sample sizes, which reduces the risk of type II statistical error. However, “increasing the sample size reduces sampling variability, which is, of course, useful, but it does little to reduce concerns about unobserved bias” (Rosenbaum, 2005; pg. 151). In observational research,

reducing heterogeneity reduces both sampling variability and unobserved bias (Rosenbaum, 2005). The author notes that, as an alternative, scholars can, instead, attempt to choose samples that are more homogeneous, thus reducing sampling variability as well as unobserved bias.

Prior research has noted that evolutionary processes are likely to vary across populations as defined by industry (Teece, Rumelt, Dosi, & Winter, 2000). Therefore, it appears that one way to appropriately deal with the potential problem of unobserved heterogeneity is to focus the research to a specific industry. It should allow the possibility of detecting important relationships, which may otherwise remain hidden because of extensive unobserved heterogeneity. For example, product innovation can influence the innovativeness of the business model. In sampling across industries, the different levels of product innovation common for each industry could impact the results. I therefore restrict my sample to a single geographically bound industry – the wine industry in New York state.

Prior studies have examined single industries for reasons similar to those expressed above. For example, industry-specific externalities may lead to confounding results (Baum, Locke, & Smith, 2001) and business model research has found that depending on environmental characteristics, it may be easier or harder to develop a sustainable business models (Andries and Debackere, 2001). As a result, there is considerable adaptation to the firm's business model. In contrast, the authors found that in mature, stable industries new entrants did not benefit from adaptation and the argument was that these firms had viable, established business models in which to imitate (Andries & Debackere, 2007). This could be seen as industry dynamism, which has been noted to

have a major influence on the appropriate level of innovativeness (Miller, 1987b). The sample used in this research is from one industry. Researchers have noted that results may be misinterpreted with aggregation across several industries (Schwartz & Teach, 2000).

The focus on the wine industry also helps overcome another aspect related to the problem of unobserved heterogeneity. In studies focusing on business model innovation, the extent to which firms are engaging in product or process innovation can confound the results. It is not easy to conceptually separate product or process innovation from business model innovation and potentially even more difficult to do so in empirical research. For example, research has included product innovation (disruptive technologies) as an indication of business model innovation (Afuah, 2004; Christensen, 1997). Arguably, product and process innovation has a relatively marginal influence in the wine industry, especially compared to other industries that have received attention in the business model literature (e.g., Internet businesses). The essentials of the product and how it is produced have remained the same for thousands of years. Although there are different types of grapes, blending options, and production processes, the end result is still a bottled wine.

One option for my research could have been to survey the wine industry in several states or countries, but I focus on the wine industry in the state of New York only. It can be argued that this constitutes a separate population based on geography. Each state decides how alcoholic products may be produced, sold and distributed within that state. The laws for distribution, taxes, crop sourcing, and establishment of an alcohol producing business vary dramatically across states. Therefore, I suggest that the New York wine

industry provides a geographically bounded population separate from other populations of wineries. The size of the New York wine industry provides a sufficient sample base (224 wineries) to test the proposed hypotheses and has sufficient variety (e.g., firm size, production volume, age, growth aspirations), while at the same time sharing a general production process, regulatory environment and external influences. This provides a means to properly assess the impact of differences in the business model customer interface component on innovative business models and the performance implications without these relationships being confounded by extraneous factors or too difficult to discover because of unobserved heterogeneity.

A side benefit of the sample, and the business model component chosen for the research, is the fact that several of the pertinent variables may be determined by direct observation within the winery tasting rooms. Also, the vast majority of the wineries have a web page and verification of certain items within the survey is possible via triangulation with published sources on the web and through NYWGF data.

The main drawback of a targeted and narrow sample relates to generalizability. By explaining the salient attributes of the population's context, it allows readers to appropriately generalize the findings to other contexts (Dess, Ireland, & Hitt, 1990). These authors also note that the single industry is an excellent tool to build theory that may then be used in subsequent work that expands the research setting to multiple industries and contexts.

#### *4.2.2 Data collection and Respondents*

Data collection for this research project began in April 2010 and this was comprised of the pre-tests with faculty, industry experts and 3 wineries in the local area. The main data collection occurred between May 2010 and September 2010. A portion of the expenses for collecting the data was covered by funds provided to Syracuse University by the Kauffman Foundation. Data collection started with wineries within the local Syracuse area and was expanded to outlying regions through the summer of 2010. I separated the sample into eight regions which are: the Finger Lakes, Niagara Escarpment, Lake Erie, Hudson Valley, Long Island, Adirondacks, Central New York and the Thousand Islands. I initially entered the raw data into an Excel spreadsheet and later converted to a SPSS file.

The information was collected from the wineries using a paper-based survey completed by the winery owner or employee responsible for the customer interface portion of the business. A pre-test of the survey was conducted to ensure the questions on the survey were clear and appropriate for the sample. The pre-test was first done with entrepreneurship scholars to assess the readability and presentation of the survey questions. Several changes were made to the style and language used in the survey. Next, four industry experts were given the survey for a review of the measures. Again slight changes were made to question wording. This was followed by a survey of 3 local wineries. Adjustments were mainly made to question wording to address differing levels of understanding of business research specific jargon. Also, questions that were repetitious were addressed and the survey shortened. The changes were minor and the three initial wineries surveyed were complete enough to be used in the final sample.

Survey response rate is a well-known issue for data collection. Mail and internet based surveys are fairly easy to ignore and even with follow-up mailings and phone calls, the response rate is typically low. To overcome this potential issue, several steps were taken to increase participation in the research study. First, I visited each of the wineries and personally administered the survey. The ability to actually meet with the participants enhances survey completion. A benefit of this sample was the presence of wine trails, which meant that relatively large clusters of wineries were grouped in a local geographic area. A map of the wineries is provided in the appendix that shows the locations of wineries within the state. Second, the wineries were contacted just prior to the visit to explain the survey and that I would be coming to their location. I encouraged the wineries to contact me if there was a specific date or time that would be preferable for my visit. I used this as a means to develop an initial relationship with the wineries and to assist in developing realistic schedules for my trips. Third, the wineries have a tradition of working with higher education (Cornell, RIT and Cayuga-CC) and have seen the benefits of these collaborations. I offered the wineries a guarantee of confidentiality and a free copy of the results of the survey. The ties with Syracuse were highlighted and the fact that I am not working to the benefit of one winery. Finally, the NY Wine and Grape Foundation (NYWGF) agreed to contact the wineries to support the research project. The NYWGF is actively involved with the wineries in promoting the industry, organizing conferences and supporting research. A copy of the letter from the president of the NYWGF was included with each email I sent announcing I would be coming to their winery.

#### *4.2.3 Response Rate*

The New York Wine and Grape Foundation (NYWGF), which promotes the state's wine industry, provides a list of wineries that are licensed in the state along with contact information for each business. The population total was initially believed to be approximately 300 wineries. However, this number counts businesses more than once if they have satellite locations, includes wineries that are licensed but not yet open and a few liquor businesses that are not wineries. The sample was limited to one location per business so as not to inflate the importance of a model used by one owner and to operating businesses that sold wine. This reduced the population total to 224 wineries. Of these 224, a complete data set was obtained from 124 wineries resulting in a 55.4% response rate. The high response rate was obtained through extensive efforts. The president of the NYWGF, Jim Tresize, wrote a letter of endorsement for the research and sent this to all of the winery owners prior to data collection. Excerpts from this letter were also used in my written contacts with the wineries. I initially tried calling the wineries prior to traveling to their business but found this to be less effective than email. Typically, tasting room staff answers the phones and often my message would not be given to owners or managers. Emails on the other hand were directed to either the owners or a manager who dealt with customer requests. The emails included a brief explanation of the project, the dates in which I would be visiting the winery and a copy of the endorsement by the NYWGF president. I also requested that the winery contact me if they wished to set up a specific time for my visit. Otherwise, they were provided with a 2 to 3 day window in which I would come to the winery. Many wineries replied and I scheduled a time to administer the survey.



I also had success with the wineries that did not set up a specific time with approximately half of these businesses completing the survey. I pushed the owners/managers to complete the survey while I was at the location, but some were not available or asked for the survey to be left. In this case, surveys were left with a self-addressed, postage paid return envelope, a letter explaining the intent of the survey and contact information in case they had questions. A tracking number was used to link these surveys with my observation data. The observation data was recorded on a separate data form after either the visit or later that same day utilizing audio-recorded notes I took driving between winery locations. The wineries receive a number of surveys each year and a simple mass mailing would likely have had a low response rate. Personally visiting the winery not only allowed the collect of important observation data but also was a key factor in successfully having the written survey completed.

Follow-up contacts were pursued with firms that had been given surveys but not returned them for analysis. This was done with three separate emails spanning 2 months in the fall of 2010. Finally, an on-line version of the survey was created and links emailed to participants. These efforts resulting in approximately 10% increase in responses.

#### *4.2.4 Non-Response Bias*

Non-response bias is a concern when using a survey-based instrument. The data used for analysis is meant to represent the entire population. However, it is possible that some differences exist between those who chose to respond versus those that did not respond (Trochim & Donnelly, 2001). This unobserved difference biases the results causing generalizability issues. My research sample is the entire population within New

York wine industry. This eliminates one issue often confronting researchers, which is to identify a sample that is representative of the entire population. Unfortunately every winery in the population did not agree to participate in the research (as noted in section 4.2.3 the response rate was 55.4%). This could potentially lead to non-response bias.

To address this concern, I utilized a major strength of the data collection, which involved my visiting the sample subjects and collecting observation data. I selected 5 items from my observation data that were related to the variables used in this research for both clustering the wineries and as research hypotheses. These items measured: participation in a wine trial or trade association (denoted as *Trail*), the number of wines sold at the winery (*NumWines*), whether the winery used flat or variable pricing (*FlatVar*), the bundling of wine with non-wine products (*Bundle*), and finally the collection of customer information (*CollectInfo*). Similar to other recent studies (Datta, Guthrie, & Wright, 2005; Krishnan, Martin, & Noorderhaven, 2006), I used a t-test to compare the respondents to the non-respondents and the results are presented in table 4.2.4. None of the items reaches significance indicating there is not a problem with non-response bias.

Table 4.2.4 Non-Response Bias Test: Observation data of respondents versus non-respondents

<b>Item</b>	<b>Mean Difference</b>	<b>t</b>	<b>p</b>
<i>Trail</i>	-.02	-.26	.79
<i>NumWines</i>	-.31	-.18	.86
<i>FlatVar</i>	.00	-.06	.95
<i>Bundle</i>	.05	-.72	.47
<i>CollectInfo</i>	-.28	-1.33	.20

### 4.3 Variables and Measures

The variables and measures are explained in the sections that follow. The term ‘factors’ is mentioned for a number of the cases referring to the variables in this section. The vast majority of the factors are from existing measurement scales gathered from prior research. Additional information on the process used, specific items that make up the factors and individual loadings for the items is provided in the Appendix, section 10.2.

#### 4.3.1 Innovative Business Model variable

The variable for *innovative business models* was estimated using a differential similar to that used in prior configuration research (Payne, 2006). For innovative business models, the differential refers to a comparison of individual cases in the sample with organizational clusters generated from the data. The entire population was sampled in this

research, which allows the identification of all major clusters. The wineries grouped into three clusters (these are detailed in section 5.3.3); configuration research indicated a small number of clusters are common (Miller & Mintzberg, 1984). Each cluster had a mean for the 11 variables used in the clustering of the business model interface component. The technique linked the wineries in the sample with the cluster that the business most closely configures. The distance every winery was from the cluster mean for each variable was calculated and the overall Euclidean distance calculated. If there are 'p' variables, 'x' the value for each variable, 'i' represents the individual firm and 'j' is the cluster center, then the following equation explains the Euclidean distance between the two:

$$Distance_{ij} = \sqrt{\sum_{k=1}^p (x_{ik} - x_{jk})^2}$$

Thus, values close to zero indicate the business model for the winery is very similar to the typical expected for the cluster and large distance values shows that the business model is quite different and novel compared to a typical model that forms one of the clusters seen in the industry.

Researchers have a choice of using inductive or deductive means to identify clusters. Inductive research is exploratory using many variables to classify clusters and then assess differences - typically performance is used (Ketchen Jr et al., 1997).

Deductive methods utilize existing research and theory to specify the nature of the configurations. Meta-analysis has shown there is no significant difference in comparing results from inductive versus deductive variable selection (Ketchen Jr et al., 1997). The 11 variables used to determine clusters in my research are congruent with deductive

procedures where the groupings were based on prior conceptual work. The customer interface portion of the business model, as described by Hamel (2000), was used to select variables in the cluster analysis (details are given in section 2.3.2). This resulted in eleven variables, which form the basis of creating the clusters. These measures are a combination of survey and observational data. I present in this section the 11 variables used to perform the cluster analysis based on Hamel's framework. These 11 variables were used to calculate the innovative business model variable from the distance calculation methods described in this section.

### Fulfillment and Support

This section of the customer interface focuses upon how the firm reaches their customers (Hamel, 2000). This was captured by three variables. The first was a diversity index of the firm's distribution outlets (*Diversity Index*). The index was calculated using the Simpson's Diversity Index, where a value of 1 represents no diversity and 0 represents infinite diversity (Simpson, 1949). The index is a sum of the squared fractions of each category. Two additional variables were associated with membership in a trade association. The association influences how the firms coordinate and reach customers as a group. The variables assessed whether the winery participated in events sponsored by the trade association (*CollabEvents*) and if the winery was an active participant within the wine trail association (*CollabTrail*).

## Information and Insight

The information and insight section of the business model assessed information and knowledge gained by the firm regarding their customers (Hamel, 2000). Two variables were used for this section both from existing scales. The first variable deals with interactions between the firm and customers in sharing information and knowledge. This is captured as information reciprocity (*InfoRecip*;  $\alpha=.79$ ) and is a three-item scale (Jayachandran, Sharma, Kaufman, & Raman, 2005). The manner in which the firm competently handles interactions with customers was assessed by managerial competence (*MgrComp*;  $\alpha=.75$ ) and is comprised of five items (Sirdeshmukh, Singh, & Sabol, 2002).

## Relationship Dynamics

This portion of the business model component deals with the efforts the firm makes to develop a relationship with customers (Hamel, 2000). This was evaluated with four variables. First, a question was given regarding the nature of the transactions between the winery and the customer. A direct question was given regarding the transactional or relational nature of interactions (*RelTrans*). Second, the focus the winery has on creating loyalty with customers is measured using scales from marketing (Sirdeshmukh, Singh, & Sabol, 2002). These measures reduced successfully into 3 factors. This loyalty scale separates question into employee competence (2 items, *EEComp*;  $\alpha=.78$ ), employee benevolence (3 items, *EEBene*;  $\alpha=.64$ ), and employee problem solving (3 items, *EEProbSolv*;  $\alpha=.82$ ).

## Pricing Structure

The final component of the business model is related to the choices firms make in their pricing decisions and the variety of items sold by the firm (Hamel, 2000). I used product variety and pricing as a means to assess this component. First, product selection was measured by the number of different wine products the winery offers, was directly observable and was verified using website information (*NumWines*). Even small wineries have a high number of wines for sale. This is somewhat driven by the market and attempting to have the appropriate variety to satisfy red vs. white vs. dry vs. sweet wine preferences. The average number does not reflect 17 different types of grapes. Different vintages of the same varietal are counted as a separate wine. This is the proper way to measure the variable because the winery has to maintain separate inventory tracking, pricing, and labeling of the different vintages. The second area was pricing and this was also directly observable through on-site and website validations. The average wine price was used for this measure (*AvgPrice*). The average wine price may be inflated from the actual value. The number reported is the average price of the different wines sold at the winery and not adjusted for volume. Asking each winery to provide the volume for all of their wines would be time consuming and not that influential for this research. The wineries that focus upon lower priced wines will have a larger selection at this price point and the same is true at each price point level. This supports the use of average price for all wines as a reasonable approximation.

#### 4.3.2 Performance variables

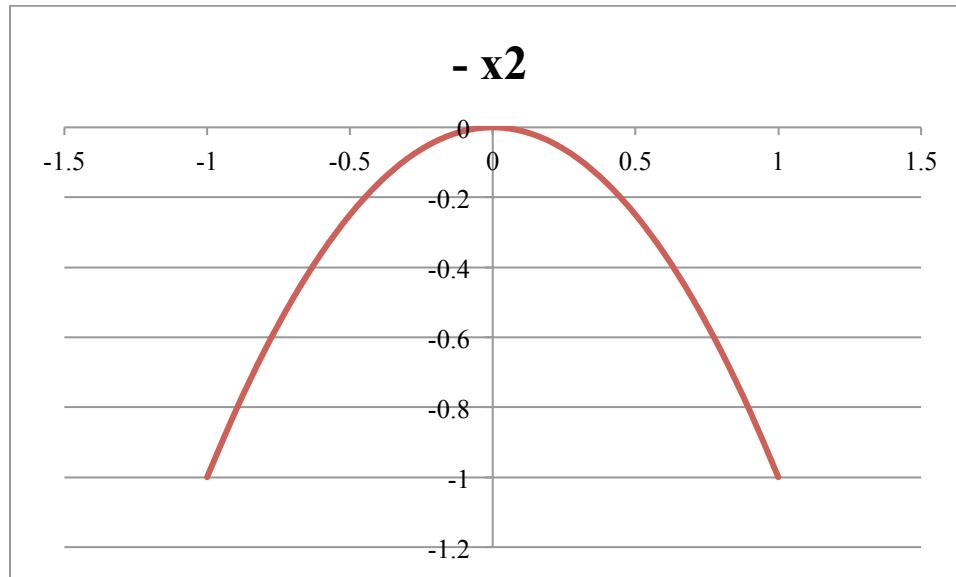
Assessing the impact of innovativeness in the business model upon the performance of the winery is also a part of this research study. A direct linear relationship was proposed in hypothesis 7a and a non-linear relationship in 7b. The non-linear relationship between innovative business models and performance is proposed to have an inverse U-shaped curve. The shape of the curve was tested using the opposite of a more common U-shaped curve. The formula is:

$$y = -x^2$$

An example plot of the equation is provided in figure 4.3. I evaluate the appropriateness of using the non-linear shape between innovativeness of the business model and performance by comparing the regressions of the linear equation to the regression results of the equations that include the non-linear (inverse U-shaped) term for the relationship. If the linear explanation of the relationship is significant then hypothesis 7a is supported. If the non-linear coefficient is significant and the regression equation significantly improves the amount of variance explained over the linear model, I conclude the non-linear explanation is superior and supports hypothesis 7b.



Figure 4.3 Plot of inverse U-shaped data



The measurement of performance has been handled by business model researchers in different ways; these include stock market value (Zott & Amit, 2007) and industry turbulence (Kim & Mauborgne, 2005). The wine industry is mainly comprised of privately held firms and typical management performance measures (e.g., ROI) are difficult to obtain. Consistent with prior research studies for these types of firms, the winery performance was assessed for three different dimensions.

The dependent variable of *performance* may be operationalized in a multitude of ways and a multidimensional view of performance was adopted for this research. Consistent with prior research studies, the wineries are asked to compare their *quality performance* over the past 3 years with the performance of their two most important

competitors (Birley & Westhead, 1990; Wiklund & Shepherd, 2003). The variable was captured using two items both on a 5-point scale question with a range from ‘much lower’ to ‘much higher’. The items assessed product quality and customer service to form a quality performance measure ( $\alpha=.72$ ). The second performance measure was indicative of *revenue growth*. This was measured using survey questions and was calculated by subtracting the sales at the winery in 2008 from the 2009 sales. The data for the revenue growth was skewed and the variable was transformed by adding a constant and taking the logarithm (Basu & Goswami, 1999).

A potential issue with the first two measures of performance is that they are subjective and self-reported measures from the survey participant. Even though this was a confidential survey, there is the possibility of biased results. An independent measure for performance was constructed using awards won by the wineries over the past year. The industry trade association compiles awards given to New York wineries over the year. The data was posted online through [www.uncorkny.com](http://www.uncorkny.com) (Uncork New York!, 2011). The measure for *awards performance* was made from this data. Wineries enter competitions that evaluate the quality of the wine. The results of competitions were posted and used by the wineries in promotions. A gold, silver and bronze designation was used in competitions and I weighted these 3, 2 and 1 for value in calculating performance in awards won by the winery. Over 900 medals were awarded to New York wineries in 2009.

Awards performance was a count variable and, as such, the OLS regression technique used for the other performance indicators may be inappropriate. OLS regression should use outcome variables that have interval or scale levels with normal

distributions (Cameron & Trivedi, 1998; Leech, Barrett, & Morgan, 2005). As noted in the statistics literature, “although the linear regression model has often been applied to count outcomes, this can result in inefficient, inconsistent, and biased estimates” (Scott & Freese, 2006; pg. 349). There are several alternatives available to researchers in dealing with this type of variable. Four separate models were investigated to determine which was the most appropriate for this analysis. These were Poisson, zero-inflated Poisson, negative binomial and zero-inflated negative binomial regressions (Scott & Freese, 2006). Poisson is specifically used to model count dependent variables.

An assumption in using Poisson regression is to have equidispersion in the data, which refers to roughly equal values for the mean and variance for the data (Czado & Sikora, 2002; Czado, Gneiting, & Held, 2009). For count data, variance often exceeds the mean and negative binomial regression should be considered as an alternative (Milanov & Fernhaber, 2009; Scott & Freese, 2006). Statistical tests have been developed to determine if the data has a level of over-dispersion that would pose a problem for Poisson regression; these tests include the LaGrange multiplier, conditional moment-based specification and OLS regression (Cameron & Trivedi, 1990). The regression based approach was used for this research and proved to be significant indicating that over-dispersion was a concern in the data for this performance variable. Over-dispersion is common in social science data (Scott & Freese, 2006). Based on this result, negative binomial regression was chosen for my analysis.

Another issue with the data for this variable is the large number of zeros in the data. These zeros may be falsely inflated. In standard negative binomial and Poisson techniques, an assumption is that all cases have an equal potential of scoring ‘zero’ for

the dependent variable. This is not always the case. My data, for example, could have inflated zeros because a zero indicates a firm did not win any awards, but the reason may be due to not entering award competitions. The zero inflated regression models allow for this possibility (Scott & Freese, 2006). The zero-inflation parameter used was number of wines for sale by the winery. This factor could influence the likelihood of entering competitions because wineries with fewer wines are typically small wineries and are less likely to expend the time and resources to enter competitions. The Vuong test was used to compare the zero inflated versus the standard negative binomial models (Kapoor & Lim, 2007; Milanov & Fernhaber, 2009; Scott & Freese, 2006). The test confirmed that the zero inflated model was superior ( $z = 2.64$ ,  $p = .006$ ). Consistent with management journal publications using zero inflated regressions, I report unstandardized coefficients, standard errors, log-likelihood ratios and change in the ratios in the results - table 6.3.3c (Kapoor & Lim, 2007; Milanov & Fernhaber, 2009).

#### *4.3.3 Independent variables*

There are three variables used in this study to evaluate relationships with innovative business models. These three variables are discussed in this section. The dependent variable of innovative business models (explained in section 4.3.1) is used as the independent variable evaluated with performance.

#### Customer Information Processes

The first independent variable deals with customer knowledge gained by collecting customer information and by the purposeful use of the information. The

conceptual linkage this has with innovative business models was covered in section 3.2.1 (hypothesis #1). The measures for this variable were taken from the marketing literature (Jayachandran, Sharma, Kaufman, & Raman, 2005). There are three parts. Information captured by the winery is evaluated with 5 items ( $\alpha = .74$ ). The routines within the firm to handle the information are assessed with information integration (3 items,  $\alpha=.73$ ). How the winery makes decision from information use is captured with 7 items ( $\alpha=.82$ ). Consistent with Jayachandran et al.'s work, these measures were factored into one variable ( $\alpha=.85$ ), the *customer information* variable.

#### Experimentation

Experimentation was assessed by direct questions regarding the extent of changes in the four customer interface parts of the business model by the winery over the prior three years. This is similar to experimentation items used in prior management research (Miller & Shamsie, 2001). The hypothesis development for this variable was covered in section 3.1.2 (hypothesis #2). A seven point Likert scale was used. The experimentation questions were comprised of 4 items. Factor analysis was used to combine the highly correlated items resulting in the variable for *experimentation* ( $\alpha=.87$ ).

#### Complexity

The complexity measure was created to assess the extent to which the wineries have expanded into non-core product streams. The basis for this variables relationship with innovative business models was provided in section 3.1.3 (hypothesis #3). The variables used included whether the firm bundled their wine with non-wine products (*Bundle*), the percentage of sales that were from non-wine products (*NotWine*), and the

diversity of non-wine businesses in which the firms participates (*MktDiv*). The potential non-wine areas are comprised of restaurants, lodging, music venues, event hosting and farmer's market. These three measures were correlated and factored into a main *complexity* variable (alpha=.72).

#### 4.3.4 Moderating variable

A moderation variable was tested in this research. The development of hypotheses for the moderation variable was explained in sections 3.2.1 to 3.2.3. The moderation variable of inertia was tested for customer information (hypothesis #4), experimentation (hypothesis #5) and complexity (hypothesis #6). The inertia variable was measured as related to the time in which the current routines had been in place for the customer interface process. Inertia has been linked with the age of the firm (Hannan & Freeman, 1984) and a liability of aging as the routines become rigid and increasingly resistant to change (Aldrich & Auster, 1986). Prior management research has measured inertia impacts using age (Shimizu & Hitt, 2005) and length of time (Huff, Huff, & Thomas, 1992). This was assessed for distribution, employee routines for working with the customer, customer support routines, information collection and use and the tasting room set-up. High correlations were found between these variables. This is logical in that changes to one area can result in changes needed for the other variables measured. This allowed the individual measures to be factored into one variable for *inertia* (alpha=.88).

#### 4.3.5 Control variables

Control variables were collected for items that may influence the performance of the wineries. Since the current study measures the entire population within one industry, several typical control measures such as environmental dynamism or industry are not relevant because the influences are the same across the entire sample. However, there were still several potential influences that were captured. These included *firm revenue* and *number of employees*. The revenue used for this measure is for 2009, the previous year's sales (Wiklund & Shepherd, 2003). Number of employees is a composite measure created from data on full time, part-time and employees working less than 10 hours/week. This was captured for both peak and off season. The composite number represents full time equivalents on average for the year and is an important control variable (Collins & Clark, 2003). The age was relevant to the study of routines and the *age* of the winery was captured (Powell, Koput, Smith-Doerr, & Owen-Smith, 1999). As noted earlier, the person completing the survey may differ in their equity in the firm. A control measure was used to determine if the *respondent* was the founder, owner or manager of the winery. Dummy variables were created to incorporate respondent into the regression analysis.

#### 4.3.6 Convergent Validity

Convergent validity was assessed by testing the agreement between different attempts to measure the same variable through different methods (Campbell & Fiske, 1959). I compared the survey responses with my direct observations of routines to assess

convergent validity. This is similar to method used in prior management research to test convergent validity (Dess & Robinson Jr, 1984). Both the survey responses and my observations were captured using Likert scales. The respondents for the survey were the people responsible for the winery’s customer interface operation. Three relevant but distinct areas were selected to assess my convergent validity; these were customer information collection, the importance of non-wine products to the firm and communication with customers. The agreement between my observations and survey responses were all significantly correlated indicating acceptable convergent validity – please see table 4.3.6 for detailed results.

Table 4.3.6 Convergent validity results

Variable	Bivariate correlation coefficient	Significance (p value)
Customer information collection routines	.45	<.001
Importance of non-wine products	.56	<.001
Interactive communication with customers	.52	<.001

## 5. Data Analysis

### 5.1 Analytical Method

I performed tests to ensure the data conforms to the assumptions required for regression analysis. The standard analysis for descriptive statistics and correlations are provided in this chapter. Hierarchical regression analysis was used to evaluate the



relationships that promoted innovative business models that were proposed in this research. Control variables were entered in the first analysis. The independent variables were entered in the next following steps of the regression. Moderator variables were entered individually to assess their impact. Additional regression analysis was used to evaluate the relationship between the degrees of innovativeness in the business model with performance. Indicator variables were used for categorical variables such as cluster membership. The results presented in the dissertation use cluster 1 as the reference variable (this variable is not included in the model). The robustness of the regression analyses results were assessed by performing the regression calculation again but with cluster 2 held out instead. All significant direct, moderator and relationships between innovativeness and performance were identical. Small changes were noted in the coefficients for cluster #3 but in every instance in which the cluster was significant to the model, this remained consistent. The constant in the equation changed as expected. Constant are not reported in the tables as standardized coefficients are shown to allow interpretation of the results. Hypotheses were evaluated to determine if the addition of an independent variable had a significant impact on explaining the variance associated with the dependent variable. This was assessed using  $R^2$ . The  $R^2$  term refers to the multiple correlation coefficient squared and the adjusted  $R^2$  takes into account models with a large number of independent variables and corrects this scenario (Keith, 2006). The change in the amount of the variance the model explained compared to the previous model, which is evidenced by the change in  $R^2$  (denoted by  $\Delta R^2$ ), provided an indication that the addition of a variable contributed substantially to explaining the variance associated with the model.

No issues were noted in the data for normality, multicollinearity, and heteroscedasticity. The Box-Tidwell technique was used to evaluate the assumption of linearity between the independent and dependent variables.

## **5.2 Scale validation**

Existing and previously validated scales were used to the largest extent possible. The variables created from existing scales were explained in section 4.3, Variables and Measures, with the Cronbach's alpha shown for each scale. A full list of the measures, factor loadings and Cronbach's alphas is provided in the appendix. Original measures were developed to collect information for control variables (e.g., age, sales and number of employees) and for data that was unique for this research. These included: information about the participation in the trade association, distribution outlets for the wine and bundling aspects used by the firm.

## **5.3 Clusters of winery business models**

A major part of this research was to examine innovative business models and these types of models had to be identified. This was accomplished by clustering the data collected and using the clusters to identify the innovative business models compared to others in the industry. By collecting information regarding the whole population, a means of distinguishing innovativeness was to determine the average values for clustering variables for the customer interface business model component and compare individual firms to cluster averages. The clusters represent organizational configurations, which are

groups of firms that share a common profile of characteristics (Ketchen Jr et al., 1997; Meyer, Tsui, & Hinings, 1993). The cluster information was used to calculate how each participant's score for a variable deviates from the population average. The summation of the deviations from the average will indicate novelty in the business model component.

### *5.3.1 Cluster Techniques*

There are several statistical techniques available as options to cluster data. Both hierarchical and non-hierarchical cluster analysis methods are common. Ward's hierarchical clustering is the most popular technique used by business scholars (Short, Payne, & Ketchen, 2008). Non-hierarchical clustering methods are also frequently used; this includes the k-means clustering used in this research. Hierarchical and non-hierarchical clustering methods both have advantages and disadvantages as I will discuss in this section.

Hierarchical clustering is an agglomerative method that is quite easy to visualize. All individual subjects start out as a separate cluster. The two clusters that are the closest together, in terms of the measurement criteria, are grouped into a single, new cluster. This process is repeated until each is grouped into one cluster comprised of all the subjects. A problem with the agglomeration method is that as the clusters grow larger, the cluster begins to shift *from* representing a group of subjects *to* representing all of the subjects (as the agglomeration ends with only one cluster) (Quackenbush, 2001). The researcher must identify when this occurs. Another potential problem with the agglomeration clustering methods involves the impact of an incorrect assignment to a cluster. Assignment of subjects occurs only once and results in a new centroid for the cluster. Incorrect

assignments early in the process can have a significant impact on the quality of the clusters from that point on and no reassessment is performed (Ketchen Jr & Shook, 1996; Quackenbush, 2001).

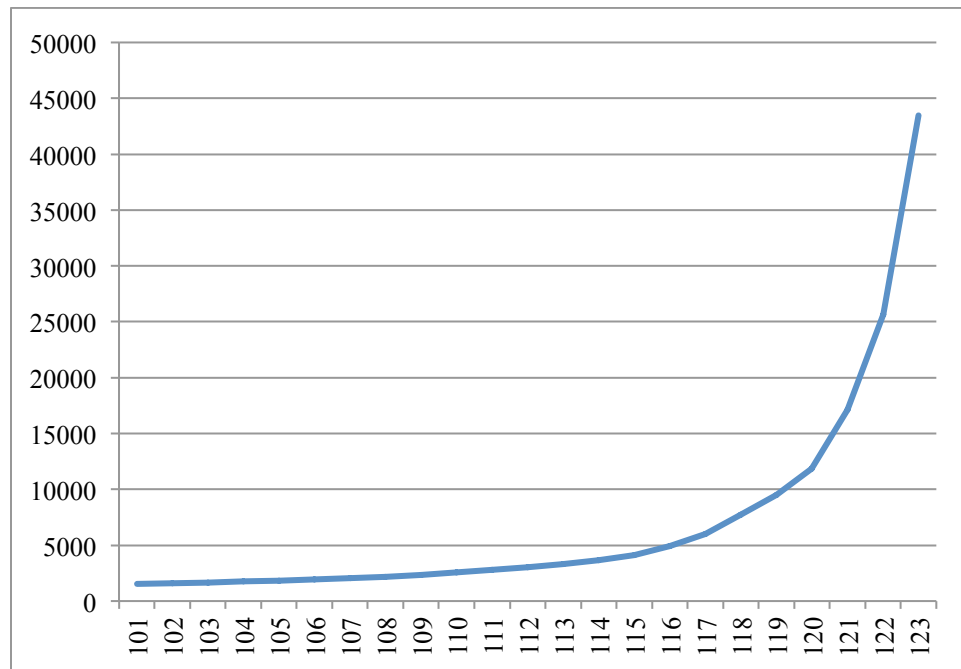
Non-hierarchical clustering techniques do not suffer from the issue of early incorrect assignments because subject assignments are re-evaluated. The k-means clustering technique is an example of non-hierarchical clustering. The k-means process begins with all subjects assigned to one of a number of clusters *pre-specified* by the researcher. The next step calculates distances within the cluster for each cluster member (intra-distances) and for the distance between clusters (inter-distances) (Quackenbush, 2001). Cluster membership is then resorted and retained if the intra-distances are lower and the inter-distances increase. This process is repeated until optimized. Non-hierarchical clustering methods deal with incorrect assignment as just reviewed and are not as susceptible to issues involving outliers or the shape of the clusters, which can affect hierarchical clustering techniques. The main and very significant drawback of the k-means (non-hierarchical methods) is the requirement to specify the numbers of clusters for your data. This is often done by an arbitrary selection of a desired number of clusters.

### *5.3.2 Cluster Methodology*

The hierarchical and non-hierarchical clustering methods detailed in the previous section both have advantages and disadvantages as mentioned. An alternative used in the literature to selecting between the methods is to combine both techniques (Ketchen Jr & Shook, 1996; Payne, 2006; Shore & Barksdale, 1998). I employ this combination of clustering techniques here as has been used in prior entrepreneurship literature (Delmar,

Davidsson, & Gartner, 2003). I first ran hierarchical clustering using Ward's Clustering in SPSS with squared Euclidian distance. This was used to determine how many clusters provided the best solution for the data. The agglomeration schedule was examined for the largest shift in the data; this is somewhat similar to identifying the 'knee' or bend in an eigenvalue curve in factor analysis. The agglomeration plot of the schedule is shown in figure 5.3. The plot shows the largest change at 121, which indicated that 3 clusters was the best solution for the data (124 total cases minus 121 = 3 clusters). The 3 cluster solution obtained from the hierarchical clustering was used as the basis for specifying the number of clusters for the k-means clustering analysis.

Figure 5.3: Ward Clustering, plot of Agglomeration Schedule Coefficients



### *5.3.3 Cluster Results for the Winery Data*

I used SPSS to run k-means cluster analysis specifying 3 clusters (the basis for selection of a 3 cluster solution was presented in section 5.3.2). Clustering results were retained in the data indicating cluster membership and distance to cluster center for all of the cases (firms) in the data. The four parts of the customer interface portion of the business model were used for clustering (see section 4.3.1 for details on these variables). The analysis resulted in cluster #1 with 32 wineries; cluster #2 has 38 and cluster #3 with 54. Table 5.3a describes cluster means of the variables used in the clustering (cf Miller & Roth, 1994). I have named the clusters: Agritourists, Petit Wineries, and Chateaus based on how the clusters differed in the four components of the customer interface. The clusters do also vary based on other variables used in this study. This is used as a validity check and discussed in the next section 5.3.4.

The three clusters represent different groups within my sample population. The cluster centers show differences from the origin with higher numbers indicating a higher value and negative a lower value for each section of customer interface. The Bonferroni post-hoc analysis and the combinations show a statistically significant difference between clusters. Evidence of cluster differences from the variables used to create the clusters was used to name and describe the different clusters. These variables are reviewed in table 5.3a. The table is separated by clusters, which are labeled Agritourists, Petit Wineries and Chateaus. A description is provided for each cluster after the presentation of the cluster information

Table 5.3a Cluster results for customer interface

Customer Interface Section	Variable		Cluster 1 <i>Agritourists</i>	Cluster 2 <i>Petit Wineries</i>	Cluster 3 <i>Chateaus</i>	<i>F = Value</i> <i>p = probab.</i>
Fulfillment and Support	DivIndex	M	-.09	.77	-.48	<i>F = 24.6</i>
		SE	.17	.11	.12	<i>p = .000</i>
		B	2	1 & 3	2	
	CollabEvents	M	.47	-.06	-.22	<i>F = 5.2</i>
		SE	.14	.18	.13	<i>p = .007</i>
		B	3		1	
	CollabTrail	M	.50	-.43	.02	<i>F = 8.4</i>
		SE	.12	.17	.14	<i>p = .000</i>
		B	2	1		
Information and Insight	InfoRecip	M	-.12	-.80	.62	<i>F = 36.2</i>
		SE	.13	.17	.09	<i>p = .000</i>
		B	2 & 3	1 & 3	1 & 2	
	MgrCI	M	-.01	-.93	.65	<i>F = 51.2</i>
		SE	.15	.11	.10	<i>p = .000</i>
		B	2 & 3	1 & 3	1 & 2	
Relationship Dynamics	RelTrans	M	-.30	-.55	.55	<i>F = 20.3</i>
		SE	.16	.15	.11	<i>p = .000</i>
		B	3	3	1 & 2	
	EEComp	M	-1.13	.36	.38	<i>F = 44.9</i>
		SE	.20	.10	.08	<i>p = .000</i>
		B	2 & 3	1	1	
	EEBene	M	-.44	-.49	.59	<i>F = 23.8</i>
		SE	.16	.14	.11	<i>p = .000</i>
		B	3	3	1 & 2	
	EEProbSolv	M	-1.18	.49	.33	<i>F = 53.9</i>
		SE	.20	.08	.07	<i>p = .000</i>
		B	2 & 3	1	1	
Pricing Structure	NumWines	M	.63	-.60	.06	<i>F = 16.3</i>
		SE	.24	.09	.10	<i>p = .000</i>
		B	2 & 3	1 & 3	1 & 2	
	AvgPrice	M	-.52	-.35	.54	<i>F = 18.9</i>
		SE	.12	.14	.13	<i>p = .000</i>
		B	3	3	1 & 2	
Number			31	38	55	

M = Mean, SE = Standard Error

Note: significant differences between clusters as indicated by a Bonferroni test are shown in the row labeled B (.05 significance level).

Differences between the contributions of the clustering variables are shown in table 5.3b below. It is important to note that this table permits descriptive information to aid in distinguishing the variables; however, the observed significance levels are not corrected for the impact of clustering. The higher cluster mean square values indicate that this variable shows a greater difference between the clusters and were influential to the cluster analysis. The variables with low influence included the participation and impact of membership in the trade association. This is likely driven by the fact that the majority of the firms were part of the wine trail association. So, the association was influential to the wineries but not to clustering the data. The remainder of the variables all had relatively high differences. The variables that were influential included the relational/transactional variable, which focused on the philosophy of how the firm interacts with the customer. Also important was the employee competence variable was influential and distinguished firms with highly skilled employees. All of the four sections of this business model component were influential and this is consistent with robustness checks made in creating the clusters



Table 5.3b Comparison of clusters using non-predictor variables

Variable	Cluster Mean Sq.	F	Significance
DivIndex	17.79	24.63	.000
CollabEvents	4.86	5.19	.007
CollabTrail	7.53	8.44	.000
InfoRecip	23.03	36.21	.000
MgrCI	26.22	44.97	.000
RelTrans	28.98	53.92	.000
EEComp	28.20	51.24	.000
EEBene	17.36	23.80	.000
EEProbSolv	15.46	20.32	.000
NumWines	13.09	16.34	.000
AvgPrice	14.64	18.90	.000

#### Cluster #1 The Agritourists

I chose to label cluster #1 as the Agritourists. This was based on the differences this cluster displayed for variables involving the variables for collaboration results, collection of customer information, customer interaction, product selection and pricing. Agritourism incorporates both a farming aspect and a commercial tourism component into a business (McGehee & Kim, 2004). While members of the other clusters do have a tourism component in their business models, cluster #1 had more of a focus on this

aspect. Part of the evidence of the tourism focus is that the firms in this cluster were more involved with collaboration in wine trails. This was in terms of both the participation in the trail and the importance of wine trail events to the firm. A main function of the wine trail organizations is to promote the region (and wineries within the trail) as a tourist destination. Another aspect that pointed towards a tourism focus was the lower level of customer information obtained (information and insight). Cluster #1 firms had a lower focus on customer service from employees as indicated by the lower relationship dynamics numbers. The wine trails have tour companies that shuttle large groups in buses from winery to winery on the trail. The ability of the wineries to collect customer information from the large groups is difficult, which is consistent with the lower results for the information and insight variable for this cluster. Also, the skills needed to serve the large tour groups differed from the highly interactive skills needed for small groups of customers. The relationship dynamics variables results for this cluster showed a low employee interaction with the customers. Finally, consistent with a need to satisfy the larger tourist crowds, these firms had a higher result for the variety of wines variable and the lowest numbers for the wine prices variable.

A qualitative examination of the firms in this cluster confirms the classification. These firms are all located in areas frequented by wine tour groups and most are equipped to accommodate large tour buses/large groups. They have designed their tasting rooms, customer interface routines and business models to fit with a tourism oriented customer. The differences between the firms were most evident in this cluster for the relationship between revenue growth performance and innovativeness. The firms with innovative business models had higher revenue growth and, interestingly, the quarter of

the firms with the lowest innovativeness level showed revenue decreases or at best zero growth. The tourists rewarded the firms that were innovative and did not buy from those firms that didn't offer something innovative.

#### Cluster #2 The Petite Wineries

The Petite Wineries cluster was comprised of firms that were small wineries. This description was based on the differences this cluster displayed for variables involving distribution diversity, collaborations with wine trails, collection of customer information and product selection. Differences for the fulfillment and support section begin with the diversity index. The wineries in this cluster had a significantly higher value for the index (a large value means very low diversity). The vast majority of the small wineries had only one means of selling their product, which was through the tasting room on-site. Also, the wineries in this cluster showed a lower level of involvement with the wine trails as evidenced by the low figures for the collaboration variables. A number of the small wineries were either too small to afford to be on a wine trail or too far from a trail to be a member. The second main difference, which aided in identifying the cluster, dealt with the indication that the majority of these wineries have very low scores for the information and insight variables. The small wineries were the least likely to have Point Of Sale (POS) systems and most did not have any means in which to capture data other than an informal guest book. Consistent with the small winery description, the relationship dynamics variables had mixed results. Very informal means of reaching customers were available to the wineries but they often had a set of local repeat customers. Also, these firms were more likely to have owners or just a few well-trained employees, which would

be more response to customers than the Agritourists group. The high numbers for the employee competence and problem solving variables verified this claim. Finally, the small wineries offered a lower variety of wines and had pressures to keep prices at a moderate level consistent with the values for the pricing structure variables.

The firms that formed this cluster were the easiest to categorize from a qualitative viewpoint. There were differences in age and location but these are all small ‘mom and pop’ types of operations. The owners that are looking for a lifestyle business are in this cluster. Some owners are part time and have another source of income or have retired at a young age and started a winery. There are a few on the list that aspire to grow and may someday transition to one of the other clusters. These are relatively young firms. As a result, there is a wide variety in terms of resources available to the owners and firm profitability. In terms of performance measures, both revenue growth and quality were superior for the firms that were more innovative. Similar to cluster #1, this cluster had negative revenue growth in the firms with low innovativeness and improved revenue for the innovators.

### Cluster #3 The Chateaus

The final cluster was labeled the Chateaus. This was based on the differences this cluster displayed for variables involving collaborations with wine trails, collection of customer information, customer service and customer relationships. These were established wineries that were more focused on the wine and customers. The values for the collaboration variables were mixed, which fit with this characterization of the firms. The Chateaus were typically members of wine trails with a medium value for this

variable. The value for wine trail events was a useful indicator. Wine trail associations are comprised of members that are well established and others that are lessor known. Wine trail events were less important to the Chateaus in the trail because they had already developed a well-known 'brand'. This was consistent with the lowest score for the collaboration events variable. The cluster average for distribution showed they were the most diverse. This recognized brand had allowed the winery to penetrate into other distribution outlets such as restaurants and wine shops. The information and insight variables also provided support for labeling this cluster. These wineries often had developed wine clubs and worked to collect and use customer information. This cluster had the highest scores for the variables in this section. The Chateaus were interested in getting to know the customers and developing relationships with customers. The winery also had a concentration on customer service and was consistent with a more upscale winery. This cluster had the highest numbers for three of the four relationship dynamics variables. Finally, the variables for pricing structure also supported the characterization of the cluster as Chateaus. These wineries commanded the highest prices for their wines - a benefit of developing a well-known brand.

The qualitative aspect that stands out for this cluster is the desire to focus on and promote their wine. The wine product is important to the other two clusters also, but the message is very clear with the Chateaus firms. They try to connect with customers and promote their wines (in some cases NY wines in general). In some ways, this group is in conflict with the Agritourists. Owners in this group have specifically pointed out that they do not offer the 'attractions' seen in the Agritourist wineries and that the perception of New York wine is not improved by many practices used by that cluster. All three

performance measures were superior for the firms in this cluster that were more innovative. For revenue growth, the situation here was a little different. Even the firms with low innovativeness were able to maintain the same revenue. However, the innovative firms improved their revenue performance. Quality results were similar with innovative business model firms showing superior quality results.

#### *5.3.4 Reliability and Validity of the Clusters*

It was important to assess the reliability and validity of the clusters used in research. Validity is concerned with systematic error and reliability deals with random measurement error (Davidsson, 2004). While my data was representative of the entire population, there still could have been issues with the clustering of the data in terms of valid and reliable clusters.

One potential method of evaluating reliability is to split the data into two separate sets and compare them. The data could be split in half and each set clustered. Alternatively, half of the data could be clustered and the results used to predict the cluster placement of the remaining data (Hair Jr, Anderson, Tatham, & Black, 1995; Miller & Friesen, 1984). The separate halves are compared for consistency. This works very well for large data sets or for data sets in which the data was collected longitudinally. My sample size does not provide enough data to appropriately split the data and compare the clusters.

Non-standardized measures can also cause an issue when the variables differ significantly in scale. The variances of the measures that are large in scale can obscure the differences from small scale measures impacting cluster placement (Quackenbush,

2001). Standardizing variables eliminates this potential issue and was used in this research. This is consistent with practices used in the literature (Delmar, Davidsson, & Gartner, 2003).

Another means of assessing reliability is to analyze the data multiple times using different methods or algorithms (Hair Jr, Anderson, Tatham, & Black, 1995; Ketchen Jr & Shook, 1996). I adopted this method to assess reliability. The evaluation was tested by comparing Euclidean distance and Pearson Correlation methods for clustering. A significant difference (judged by number of clusters and case placement) was not noted in the results for the clustering of the data. I also compared the clusters by varying the number of variables used to form the clusters. Eleven variables were used to make the clusters and this could potentially result in one aspect (relationship dynamics with 4 variables) to have a larger impact than others (information and insight with 2 variables). A cross-tabulation of the cluster memberships comparing clusters based on 11 variables was identical to cluster membership based on 8 variables (giving equal weight to each aspect). I chose to use the 11 variable cluster results as it provided more information about the clusters. Different cluster solutions were also explored using the data. Solutions for 2, 4 and 5 clusters were created. The three cluster solution was the most easily interpretable and was the number supported using hierarchical clustering as discussed in section 5.3.2.

Validity concerns can be separated into external and criterion validity. External validity is interesting to consider in this situation. I sampled the whole population and this eliminated the external validity issue in terms of the New York wine industry. A limitation of this study and a potential for external validity would be the applicability of

the results from this study to other wine segments (e.g., Italian wine) or to other industries. Criterion validity may be assessed by using external variables that were not used to define the clusters but are in some way related or theoretically justified (Ketchen Jr & Shook, 1996). This validity check is beneficial because it indicates the clusters are useful in predicting variables beyond the ones used to create the clusters (Arthur, 1994). I used the variables for performance quality, number of employees, 2009 sales, age and customer information to confirm criterion validity. The results are shown in table 5.3b. The first variable in the table is a performance measure for quality. Cluster #3, the Chateaus, has significant differences from clusters #1 and #2 in relation to the Chateaus. The second variable is for number of employees and in this case cluster #2 has a significant difference. The average is much lower for cluster #2 and is consistent with labeling these as Petit Wineries. The total sales for 2009 had a significant difference between the Agritourists and the Petit Wineries, as expected the Petit Wineries had the lowest sales of the three clusters. The Petit Wineries were also the youngest with a significant difference between this cluster and the Chateaus. The oldest group, the Chateaus have had enough time to develop and establish a brand. The customer information collection and use variable showed significant differences between all three clusters. The Chateaus were the highest and the Petit Wineries the lowest. This is also consistent with the characterization of the clusters. The significant differences between the clusters for the five variables shown in Table 5.3b indicated acceptable validity (Ketchen Jr & Shook, 1996).



Table 5.3c Comparison of clusters using non-predictor variables

Variable		Cluster 1 <i>Agritourists</i>	Cluster 2 <i>Petit Wineries</i>	Cluster 3 <i>Chateaus</i>	<i>F = Value p = probab.</i>
Performance Quality	M	-.12	-.39	.34	<i>F = 7.0 p = .000</i>
	SE	.19	.14	.13	
	B	3	3	1 & 2	
Number of Employees	M	10.37	3.75	10.40	<i>F = 11.27 p = .000</i>
	SE	1.77	.43	1.01	
	B	2	1 & 3	2	
Sales for 2009	M	22003	1917	11374	<i>F = 4.43 p = .014</i>
	SE	9490	290	1853	
	B	2	1		
Age	M	15.32	9.26	18.75	<i>F = 4.17 p = .018</i>
	SE	2.05	1.78	2.66	
	B		3	2	
Customer Information	M	-.04	-.76	.55	<i>F = 27.62 p = .000</i>
	SE	.16	.16	.09	
	B	2 & 3	1 & 3	1 & 2	
Number		31	38	55	

#### 5.4 Tests of Statistical Assumptions

I completed several tests to verify that the assumptions of the statistical tests used in this analysis were met. The first assumption tested was for linear relationship between dependent and independent variables. To test this assumption the Box-Tidwell technique was used (Box & Tidwell, 1962). This test uses maximum likelihood estimation to determine the best power transformation for the fit between the dependent and independent variables. This test is sensitive to small data sets and a large number of independent variables. Both of these issues are not a significant concern for this research. This test should be used in conjunction with theory to justify transformations. The Box-

Tidwell technique uses regression and provides significance for non-linear recommendations. All relationships were non-significant indicating that transformations were not required for my data.

I used the Variance Inflation Factor (VIF) to examine whether the independent variables were inappropriately related to each other indicating multi-collinearity (Belsley, Kuh, & Welsch, 1980). The VIFs for the complexity variables were below 2.5 and between 2.5 and 7 for the customer information process and experimentation variables. All were below 10 indicating little to very low multi-collinearity.

The issue of heteroscedasticity was evaluated using the White's test (White, 1980). The residuals for the regression equation should have constant variance and be homoscedastic. The White's test did not indicate an issue and that heteroscedasticity was not a concern. There is potential for outliers to have a significant impact on my data as noted earlier in the manuscript. To evaluate this concern the Cook's Distance test for influential outliers was performed (Cook & Weisberg, 1982). The Cook's Distance test captures the Euclidean distance from the regression line of all the independent variables. The test results indicate that no influential outliers are present in the data.

## **6. Relationships between the Business Model, Innovativeness and Performance**

### **6.1 Descriptive Statistics**

The descriptive statistics for my variables is presented in table 6.1a. The first section of the table includes the variables used to create the clusters related to the four

subcomponents of the customer interface portion of the business model. The variables for information reciprocity, managerial use of information, employee competence, employee benevolence and employee problem solving are not included in this table because these variables had been standardized and means/standard deviations were zero and one, respectively. The values for the diversity index fall between 0 and 1 with 1 indicating no diversity and 0 referring to infinite diversity. The mean illustrates that most of the wineries rely upon one or just a few outlets for distributing their wines. The majority of the sample relied upon direct sales from their tasting room. There were two areas in which collaboration is measured. The first was in events with other wineries and this was a 7 point Likert scale with the average indicating that just under half found events important to their business. The second measure indicated whether the winery was part of a trade association or wine trail. The mean indicated that the majority were a member in a wine trail.

The relational versus transactional orientation information was captured on a Likert scale and the value indicated more of the sample was relational in how they conducted their interactions with customers. The final two means were for the number of wines sold and average price of a bottle.

Skewness of the data is also presented in the table. Two items are noted as having above normal skew to their distribution. The first is age of the wineries and it has been noted that there has been significant growth in the number of wineries over the last decade consistent with this result. Tests did not indicate that this variable required transformation. Cases sold had the highest skew result and this variable was transformed

for testing utilizing a constant and a log transformation. The transformed variable had a skewness value of .32.

Table 6.1a Descriptive Statistics for Clusters

Variables	Mean	Standard Deviation	Ranges	Skew
Cluster Variables				
Diversity index for distribution outlets	.7141	.22	.75	-.19
Collaboration events	3.59	2.10	6	.19
Collaboration part of wine trail	.70	.46	1	-.90
Relational or transactional	4.85	1.12	5	-.16
Number of wines sold	17.02	10.20	72	1.89
Average wine price/bottle	16.60	4.74	23	1.05
Control variables				
Cases sold in 2009	11134	28652	204000	6.19
Age of winery as of 2011	14.98	16.00	130	3.58
Equivalent full time employees	8.36	7.75	38.6	1.90
Respondent				
	Count	Percent		
Owner	73	59		
Tasting Room Manager	30	24		
General Manager/Other	21	17		
Performance Variables				
	Mean	Standard Deviation		
Revenue growth (cases)	1783	5860		
Awards in 2009	18.1	29.3		
Valid N = 124				

The next section of table 6.1 provides information on the control variables used in the study. The control variables are a mixture of dichotomous, continuous and categorical variables. The first control variable listed is a measure of sales for the winery and the standard deviation indicates that this measure has a high variability. Likewise, the age of

the wineries has a high standard deviation compared to the mean. This is fitting due to the large growth in the industry over the past decade. The average number of employees is less than 10 indicating that these firms tend to be small to medium sized businesses. The final control variables are categorical and show the position of the person completing the survey. The majority of the respondents were the owners and also reflects the small to medium size of the wineries.

The final section of table 6.1 presents the descriptive statistics for the performance variables. These variables were collected by survey and secondary data. The performance for quality is a comparison with relevant competitors. An average quality performance result is not reported as this was a factored variable with a mean of zero and standard deviation of one. The revenue growth variable was the change in number of cases of wine sold from 2008 to 2009. The final variable is medals awarded to the winery in 2009. This mean is difficult to interpret in that the gold, silver and bronze medals are weighted. The standard deviation shows that there is considerable variability.

## **6.2 Correlations**

The bivariate correlations are presented in table 6.2. Items that are significantly correlated are marked with an asterisk and are significant at the 0.01 level. There are 2 sets of dummy variables in the table – owner/other responder and cluster #2/cluster #3. Dummy variables are negatively correlated because each case may only be included in one of the dummies. As can be seen in the table, the correlations between Age and several variables achieved significance including number of employees, sales in 2009,

negatively correlated to cluster #2 (petit wineries), and inertia. These relationships fit with the industry information I gathered from the winery owners, and the viticulture conferences I attended for New York. The industry has grown considerably and the opportunity to expand has been open to established firms in the state. As a result, wineries that were older tended to be larger in terms of sales, staff. The inertia correlation also verified that routines could become ingrained and resistant to change as they are in place longer (Cohendet & Llerena, 2008). The significant correlations for cluster #2 are in line with the choice to describe this cluster as Petit Wineries. The correlations show that the wineries are younger, have lower sales and employees, are less likely to collect customer information and the owner was more likely to be the respondent (often the only main manager in a small business). All correlation coefficients are below 0.6. This indicates that multi-collinearity should not be a serious concern. As explained in the tests for statistical assumption section (5.4), multi-collinearity tests indicated no issues were present within the data.

Table 6.2 Bivariate Correlations (\*\* = 95% significance)

Variable	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11
1 Age	14.98	16.00	1										
2 # of employees	8.36	7.75	.61**	1									
3 Sales 2009	11134	28652	.40**	.70**	1								
4 Owner	0.59	0.49	-0.11	-.30**	-.22*	1							
5 Other Respond	0.17	0.38	0.05	0.15	0.14	-.54**	1						
6 Cluster 2	0.31	0.46	-.24**	-.40**	-.22	.38**	-.21	1					
7 Cluster 3	0.44	0.50	0.21	0.23	0.01	-.16	-.01	-.58**	1				
8 Customer Info.	0.00	1.00	0.21	.46**	.25**	-.22	0.08	-.51**	.48**	1			
9 Experimentation	0.00	1.00	-.02	0.16	0.18	-.22	0.03	-.16	0.08	.48**	1		
10 Complexity	0.00	1.00	0.07	.27**	0.06	-.23	0.02	-.16	0.05	.29**	.25**	1	
11 Inertia	0.00	1.00	.42**	.33**	.31**	0.04	0.04	-.15	0.08	0.01	-.32**	-.05	1



### 6.3 Hypothesis Testing

This section presents the main results of my research. I have separated the results into the direct effects that impact the existence of an innovative business model linked to hypotheses 1, 2 and 3. Indirect effects are presented next and test hypotheses 4, 5 and 6. The final section presents results for hypotheses 7a and 7b relating innovative business models with dimensions of performance. The regression results of the study are shown in both tables and text. Within the text, the standardized beta regression coefficient is listed first followed by the significance level the variable achieved.

#### *6.3.1 Direct Effects on Innovativeness*

The hierarchical regression results for the direct effects of customer information, experimentation and complexity upon the dependent variable of innovative business model design are given in table 6.3.1. I show four models and the first contains only the control variables for this study, which were outlined in section 4.3.5. Statistically significant influences can be noted for the age of the winery ( $\beta = -.20, p < .05$ ) and the Chateau (cluster #3) dummy variable ( $\beta = .54, p < .001$ ). This model does explain a statistically significant amount of the variation for innovative business models ( $R^2 = .32, p < .001$ ).

**Table 6.3.1 Hierarchical Regression of Innovativeness Relationship with Customer Information Processes, Experimentation and Complexity**

Variables	Model 1	Model 2	Model 3	Model 4
Age of Winery	-.20*	-.14	-.16†	-.21*
Number of Employees	.13	-.04	.11	.16
Owner	.15	.15†	.21*	.14
Other Respondent	-.02	-.01	.02	-.02
2009 Sales	.14	.15	.10	.12
<b>Controls</b>	Cluster 2 <i>Petit Wineries</i>	-.07	.02	-.06
	Cluster 3 <i>Chateaus</i>	.54***	.42***	.53***
	Customer Information		.41***	
<b>Main Effects</b>	Experimentation		.24**	
	Complexity			-.06
<b>R<sup>2</sup></b>	.35	.46	.41	.35
<b>Adjusted R<sup>2</sup></b>	.32***	.42***	.36***	.32***
<b>Change in R<sup>2</sup></b>		.10***	.05**	.00

Standardized regression coefficients are shown;  
 † = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

The next models enter the research variables one at a time. Model 2 adds the variable of customer information processes (capture, integration and use) into the regression equation. This corresponds to a test of Hypothesis 1, which states that the more extensive the routines for customer information processes, the more innovative the business model. The addition of this variable leads to a significant improvement of the model ( $\Delta R^2 = .10$ ,  $p < .001$ ) and the customer information variable is significant ( $\beta = .41$ ,  $p < .001$ ) indicating the higher the customer information processes the more likely the business model will be innovative. This provides support for the first hypothesis.

The third model focuses on the relationship between experimentation and innovative business models outlined in Hypothesis 2, which states the higher the level of experimentation in the firm, the more innovative the business model. The coefficient of experimentation is positive and significant ( $\beta = .24$ ,  $p < .05$ ). The change in  $R^2$  is significant with the inclusion of this variable over model 1 ( $\Delta R^2 = .05$ ,  $p < .05$ ). These results support Hypothesis 2.

The final model enters into the regression equation the variable for complexity. Hypothesis 3 dealt with complexity and stated the more complex the design of a firm's non-core product routines, the more innovative the business model. The complexity variable is not significant ( $\beta = -.06$ ,  $p > .1$ ) nor is the change in  $R^2$ . The direction of the coefficient for the complexity variable is negative, which is in the direction expected for the relationship with innovative business models. However, because of the lack of significance for the variable or the change in  $R^2$ , Hypothesis 3 is not supported.

### *6.3.2 Inertia as a moderator of innovativeness in business models*

I proposed the moderator of inertia between innovative business models with customer information, experimentation and complexity; the hypotheses were developed in section 3.2. The results for the moderator tests are presented in table 6.3.2 for customer information processes (model 2), experimentation (model 3) and complexity (model 4). Model 1 displays the direct effects.

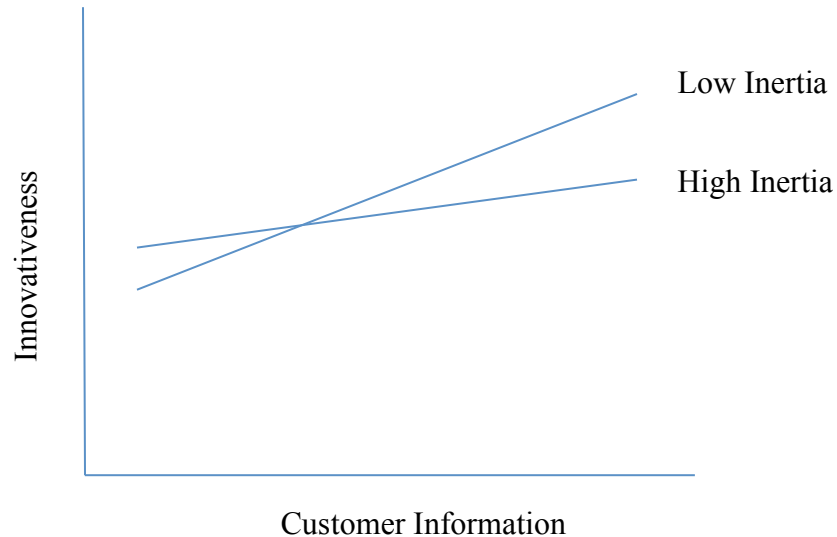
Hypothesis #4 states that the level of inertia in the firm moderates the customer information and innovative business model relationship, such that the relationship is weaker with higher levels of inertia. As table 6.3.2 shows, the customer information variable is significant ( $\beta = .38, p < .001$ ) for model #1, confirming the direct relationship with innovative business models. The inertia variable is not significant ( $\beta = -.08, p > .10$ ). Model #2 tests the interaction of the two variables. The interaction term is positive and significant ( $\beta = .15, p < .05$ ). The additional variance explained by the addition of the interaction term is significant ( $\Delta R^2 = .02, p < .05$ ). This provides preliminary support for Hypothesis #4. To examine the moderation effect between customer information and innovative business models, an interaction plot was created and is shown in Figure 6.3. As the figure shows, higher levels of inertia have a dampening effect on the relationship between innovativeness and customer information. Thus, hypothesis 4 is supported.

Table 6.3.2 Hierarchical Regression of Inertia Moderator with Customer Information, Experimentation and Complexity

Variables	Model 1	Model 2	Model 3	Model 4
Age of Winery	-.13	-.10	-.13	-.14
Number of Employees	.04	.01	.04	.04
Owner	.15†	.13	.25†	.15†
Other Respondent	-.01	-.04	-.01	-.01
2009 Sales	.10	.10	.10	.10
Cluster 2 <i>Petit Wineries</i>	.01	.01	.01	.01
Cluster 3 <i>Chateaus</i>	.41***	.41***	.41***	.41***
Customer information	.38***	.36***	.38***	.38***
Experimentation	.20*	.18*	.19*	.17*
Complexity	-.14†	-.12	-.14†	-.15†
Inertia	-.04	-.08	-.04	-.05
Customer Information X Inertia		.16*		
Experimentation X Inertia			.01	
Complexity X Inertia				-.01
R <sup>2</sup>	.48	.50	.48	.48
Adjusted R <sup>2</sup>	.43***	.44***	.42***	.42***
Change in R <sup>2</sup>		.02*	.00	.00

Standardized regression coefficients are shown;  
 † = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

Figure 6.3: Moderation of innovative business model and customer information processes by inertia



Model 3 in Table 6.3.2 shows the impact of inertia and the interaction term in the relationship between experimentation and innovative business models. This examines hypothesis #5, which states the level of inertia in the firm moderates the experimentation and innovative business model relationship, such that the relationship is weaker with higher levels of inertia. In this case, the interaction term is not significant ( $\beta = .01$ ,  $p > .10$ ). Likewise, the change in explained variance, ( $\Delta R^2 = .00$ ,  $p > .10$ ), is not significant. Based on these results, the moderation by inertia of experimentation and innovative business models is not apparent and hypothesis #5 is not supported.

The final moderation hypothesis deals with the relationship between complexity and innovative business models. This is testing hypothesis #6, which states the level of inertia in the firm moderates the complexity and innovative business model relationship,

such that the relationship is weaker with higher levels of inertia. Model 4 in table 6.3.2 shows no significant results for the interaction variable ( $\beta = -.01, p > .10$ ) and the inclusion of the moderator does not improve the variance explained by the model ( $\Delta R^2 = .00, p > .10$ ). Thus, the results do not support moderation and hypothesis 6 is not supported.

### *6.3.3 The Relationship between Innovativeness in Business Model Design and Performance*

The hypothesis relating innovative business models with performance proposed two mechanisms – one linear and one non-linear. Hypothesis 7a states that the degree of innovativeness in the firm's business model has a positive relationship with the performance of the firm. The second, non-linear proposed relationship is hypothesis 7b, which states that the degree of innovativeness in the firm's business model has an inverse U-shaped relationship with the performance of the firm. The firm's performance is highest with a medium level of business model innovativeness.

Three different performance indicators were used to test the hypothesis: quality, awards, and revenue growth. Table 6.3.3a presents the results for testing the influence of innovative business models on quality. Model 1 contains the results for the control variables. The variable Chateau (cluster #3) is the only control variable to have a statistically significant influence on quality. Next, the linear effect of innovativeness is entered (Model 2). This leads to a statistically significant improvement in model fit ( $\Delta R^2 = .07; p < .01$ ). The coefficient for innovativeness is positive and statistically significant ( $\beta = .33; p < .01$ ). This provides support for Hypothesis 7a. Model 3, finally, enters the squared effect for innovativeness. This does not lead to a statistically significant

improvement in model fit ( $\Delta R^2 = .00$ ;  $p > .10$ ). The coefficient for innovativeness squared is negative but not statistically significant ( $\beta = -.11$ ;  $p > .10$ ). Thus, there is no support for an inversed U-shape relationship between innovativeness and performance. Hypothesis 7b is not supported for quality performance.



Table 6.3.3a Regression of Quality Performance and Innovativeness Relationship

	Controls	Quality Linear	Quality Non-linear -x2
Age of Winery	-.07	.00	-.02
# of Employees	-.02	-.07	-.05
Cases sold 2009	.05	.00	.00
Owner	.14	.09	.10
Other Respondent	.14	.15	.16
Cluster 2 <i>Petit Wineries</i>	-.14	-.12	-.11
Cluster 3 <i>Chateaus</i>	.27*	.09	.10
<i>Independent Variable</i>			
Innovativeness		.33**	.36***
Innovativeness Non-linear			-.11
R <sup>2</sup>	.13	.20	.21
Adj. R <sup>2</sup>	.08	.15***	.15***
Change in R <sup>2</sup>		.07**	.00

Standardized regression coefficients are shown;  
† = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

Table 6.3.3b shows the results for testing the influence of innovative business models on revenue growth. Again, model 1 shows results from the control variables, model 2 for the linear innovativeness term and model 3 for the non-linear term. The control variables that have a statistically significant influence on revenue growth are the age of the winery ( $\beta = -.42$ ;  $p < .001$ ), cases sold in 2009 ( $\beta = .40$ ;  $p < .01$ ) and cluster #3 – Chateaus ( $\beta = .28$ ;  $p < .01$ ). Next, the linear effect of innovativeness is entered (Model 2). This leads to a statistically significant improvement in model fit ( $\Delta R^2 = .04$ ;  $p < .05$ ). The coefficient for innovativeness is positive and statistically significant ( $\beta = .25$ ;  $p < .05$ ). This provides support for Hypothesis 7a. Model 3 enters the squared effect for innovativeness. This does not lead to a statistically significant improvement in model fit ( $\Delta R^2 = .01$ ;  $p > .10$ ). The coefficient for innovativeness squared is not statistically significant ( $\beta = .10$ ;  $p > .10$ ). Thus, there is no support for an inversed U-shape relationship between innovativeness and revenue growth performance. Hypothesis 7b is not supported for revenue growth performance.

**Table 6.3.3b Regression of Revenue Growth Performance and Innovativeness Relationship**

	<b>Controls</b>	<b>Revenue Growth Linear</b>	<b>Revenue Growth Non-linear -x<sup>2</sup></b>
Age of Winery	-.42***	-.38***	-.36**
# of Employees	.13	.11	.08
Cases sold 2009	.40**	.36**	.36**
Owner	.14	.11	.10
Other Respondent	.10	.10	.08
Cluster 2 <i>Petit Wineries</i>	.13	.16	.15
Cluster 3 <i>Chateaus Independent Variable</i>	.28**	.14	.14
Innovativeness		.25*	.22*
Innovativeness Non-linear			.10
R <sup>2</sup>	.24***	.28***	.29***
Adj. R <sup>2</sup>	.19	.23	.23
Change in R <sup>2</sup>		.04*	.01

Standardized regression coefficients are shown;  
† = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

Table 6.3.3c shows the results for testing the influence of innovative business models on awards performance. The basic table format is the same as presented above: model 1 shows results from the control variables, model 2 for the linear innovativeness term and model 3 for the non-linear term. However, the results are from a zero inflated negative binomial regression because awards performance is a count variable. Details related to the selection and background of this methodology were provided in section 4.3.2. Chi-squared and changes in chi-squared are reported and used to evaluate the hypothesis. The variable ‘cases of wine sold’ is the only control variable to have a statistically significant influence on awards performance. Next, the linear effect of innovativeness is entered (Model 2). This leads to a statistically significant improvement in model fit ( $\Delta x^2 = 3.5$ ;  $p < .10$ ). The coefficient for innovativeness is positive and statistically significant ( $\beta = .03$ ;  $p < .05$ ); this provides support for Hypothesis 7a. Model 3 enters the squared effect for innovativeness. This does not lead to a statistically significant improvement in model fit ( $\Delta x^2 = .00$ ;  $p > .10$ ). The coefficient for innovativeness squared is not statistically significant ( $\beta = .00$ ;  $p > .10$ ). Thus, there is no support for an inversed U-shape relationship between innovativeness and performance. Hypothesis 7b is not supported for awards performance.

**Table 6.3.3c Zero Inflated Negative Binomial Regression of Awards 2009 Performance and Innovativeness Relationship**

	<b>Controls</b>	<b>Awards 2009 Linear</b>	<b>Awards 2009 Non-linear -x2</b>
Age of Winery	.01 (.01)	.01 (.01)	.01 (.01)
# of Employees	.02 (.01)	.03† (.01)	.03† (.01)
Cases sold 2009	1.7 <sup>-4</sup> ** (6.4 <sup>-6</sup> )	2.0 <sup>-4</sup> ** (6.4 <sup>-6</sup> )	2.0 <sup>-4</sup> ** (6.8 <sup>-6</sup> )
Owner	-.38 (.25)	-.43† (.25)	-.41 (.26)
Other Respondent	-.49† (.29)	-.69* (.30)	-.70* (.31)
Cluster 2 <i>Petit Wineries</i>	-.67† (.41)	-.43 (.40)	-.37 (.42)
Cluster 3 <i>Chateaus</i>	-.04 (.23)	.30 (.27)	.34 (.30)
<i>Independent Variable</i>			
Innovativeness		.03 (.01)*	.02 (.01)*
Innovativeness Non-linear			.0003 (.0004)
Chi <sup>2</sup>	33.5***	37.0***	37.0***
Change in Chi <sup>2</sup>		3.5†	.00

Unstandardized regression coefficients and standard errors in parentheses are shown; † = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

#### *6.3.4 Summary of Hypothesis Testing*

The hypotheses developed in this research are for two dependent variables. The majority of the hypotheses are linked with explaining the drivers that lead businesses to develop innovative business models. The final set of hypotheses then tests the impact of the innovative business models on firm performance.

The purpose of this section is to summarize the relationships found in this research. I have created a table that collects the significant findings from the various hypotheses. Chapter three provided the justification for the hypotheses related to innovative business models and the impact of these types of models on performance. Table 6.6.4 provides a summary of the results of the hypotheses. Support and non-support are indicated, as is the confidence level.

Table 6.6.4 Summary of Results of the Proposed Hypothesis

Hypothesis	Proposed Relationship	Results	
1	The more extensive the routines for customer information processes, the more innovative the business model	Supported***	
2	The higher the level of experimentation in the firm, the more innovative the business model	Supported**	
3	The more complex the design of a firm's non-core product routines, the more innovative the business model	Not Supported	
4	The level of inertia in the firm moderates the customer information and innovative business model relation, such that the relationship is weaker with higher levels of inertia	Supported*	
5	The level of inertia in the firm moderates the experimentation and innovative business model relation, such that the relationship is weaker with higher levels of inertia	Not Supported	
6	The level of inertia in the firm moderates the complexity and innovative business model relation, such that the relationship is weaker with higher levels of inertia	Not Supported	
Performance			
7a	The degree of innovativeness in the firm's business model has a positive relationship with the performance of the firm	Quality	Supported **
		Revenue Growth	Supported *
		Awards	Supported *
7b	The degree of innovativeness in the firm's business model has an inverse U-shaped influence on the performance of the firm	Quality	Not Supported
		Revenue Growth	Not Supported
		Awards	Not Supported

IBM = Innovative Business Models; † = p<.10; \* = p<.05; \*\* = p<.01, \*\*\* = p<.001

## 7. Discussion

In this chapter, I shall discuss the results obtained in the dissertation and how these results contribute to academic research. The focus of this research was to aid in understanding the characteristics of firms associated with innovative business models and the performance impact of utilizing an innovative business model. I employ a context that allows me to specifically focus on innovative business models avoiding extraneous factors (e.g. product innovation) and problems with unobserved heterogeneity. Evolutionary theory is used as a theoretical basis to clarify why the relationships are present between characteristics of the firm with innovative business models and between the innovative models with performance. The theory provides a comprehensive view of innovative business models and this research extends the use of evolutionary theory to explicate the design of processes within the firm that are associated with having an innovative business model. The information presented will frequently refer to the data presented in the previous chapter (Chapter 6 - Relationships between the business model, innovativeness and performance).

I begin with discussing the importance of researching innovative business models in terms of both academic research and the interest the topic has garnered from practitioners. This section is followed by my review of the characteristics associated with innovative business models and conditions in which these relationships may be moderated. I did find significant relationships between innovative business models and performance and this is discussed in the third section. The fourth section highlights the importance of context and how my findings on innovative business models in the New York winery industry differ from extant literature. The next section presents the empirical



contribution my research provides in identifying innovative business models. The sixth section deals with evolutionary theory and discusses how evolutionary theory has aided this research in understanding innovative business models and how my findings also contribute to evolutionary theory. Section seven discusses implications of this research for the business model concept and innovative business models. The final section reviews limitations of the research and recommendations for future work.

## **7.1 The Importance of Research into Innovative Business Models**

Amit and Zott identified novel business models as an important classification in their notable work in 2001 and the author's subsequent work (Zott & Amit, 2008) highlighted the positive performance impact of innovation in a firm's business model. The authors found that entrepreneurial, Schumpeterian novelty in business models was a key to success. Interest in the topic of innovative business models has continued to grow in the academic literature (Amit, Zott, & Pearson, 2010; Bock, Opsahl, & George, 2010; Chesbrough, 2007; Chesbrough, 2010; Gambardella & McGahan, 2010; McGrath, 2010; Teece, 2010).

Researchers have articulated several benefits that firms can receive from innovative business models. Strategy research has highlighted the competitive advantages gained by firms with innovative models (Christensen, Johnson, & Kagermann, 2008; Christensen & Raynor, 2003); innovative business models have been recognized as a powerful strategic tool (Amit, Zott & Pearson, 2010). Entrepreneurial, innovative models can disrupt existing markets and take them into new directions (Christensen, 1997) and

create new markets (SanzVelasco, 2007). Several case studies have detailed how a successful, innovative business model can allow a small, entrepreneurial firm to grow to become a dominant force in the market (Christensen, 1997; Kim & Mauborgne, 2005a).

In a similar manner, innovative business models have seen increased attention from practitioners. Leaders and CEOs from multiple industries, countries, and firm sizes were surveyed by IBM and innovative business models were specifically identified as an area of growing interest (IBM Global Services, 2006). The business leaders indicated that they have devoted significant resources - a quarter of their innovation efforts - towards innovation in their business models. The leaders from the IBM study aspired to create new, successful business models, but also feared that a competitor may create an innovative model. The pursuit of innovation is both proactive and defensive (IBM Global Services, 2006). The leaders are moving resources away from product innovation and dedicating them to innovation in their business model. The rapid pace of change in today's marketplace has created shorter product life cycles and the expensive R&D efforts to develop a new product are becoming less attractive (Chesbrough, 2007). Consistent with this view, the IBM survey (2006) found that operating margin growth was five times higher for innovative business models compared to product innovation. My research indicates that working towards an innovative business models is important. Pursuing innovation in business models has provided entrepreneurs and existing business owners a means to outperform others in the industry I studied. This type of innovation is especially important in an industry where product and process innovation has little relevance.

## **7.2 Relationships associated with Innovative Business Models**

To examine innovative business models, I focused on variables that could be linked with sources of variation consistent with evolutionary theory and evaluated their impact on the firm's innovativeness. These variables included customer information processes, experimentation and complexity. Inertia was also examined as a moderating variable between these characteristics of the firm and innovative business models.

### *7.2.1 Information Processes and Innovative Business Models*

The link between customer information processes (comprised of the collection, integration and use of customer information) with having an innovative business model was significant ( $\beta = .41, \rho < .001$ ). My results indicated that the more extensive the winery's routines to utilize customer information processes, the greater the level of innovativeness in the business model. A main focus in developing the proposed relationship between these two variables was that the information allows the firm to have a better understanding of what the customer values. This supports prior literature that relates increased customer information to the ability to innovate (Barton, 1995; Clark, 1995; Teece, 2010). A distinction here is that the prior literature has focused on product innovation and my research findings extend the link to customer information and innovative business models.

Nelson & Winter (1982) discuss a theoretical explanation for this relationship. They explain how situations may arise in a business that puzzle firm leaders or the firm may undertake an intentional search for new information, both of which can lead to the

creation of routines that seek information from customers. This information may be used to create knowledge about what the customer values. As a result, the firm has a better understanding of their market. Based on the results of the current research, this increase in information available to the firm is related to variations in the firm's business model. The firms can use the information to explore what the customer values and, for some of the firms, move away from existing structures of routines to something that is innovative (Miner, Bassoff, & Moorman, 2001).

The firms in this research did exhibit variation in the customer information that was collected and used. The most common type of information collected was email addresses, which were used for newsletters or announcements of upcoming special events at the winery. A second method was through the relatively new types of social media such as Facebook and Twitter. The third major means to capture customer information was through the wine case clubs. A benefit for the winery, that was consistent across all three of these sources, was the opportunity to gain insights into what the customer values.

An actual example from the research will aid in showing the impact of customer information. Winery #170 (please note that all numbered wineries are an alias used to preserve sample anonymity) had added live entertainment to attract more customers. This winery was very focused on collecting and using customer information. The customer information allowed Winery #170 to discuss both problems and opportunities surrounding the addition of live entertainment events with their customers. The problems experienced by the winery can be related to a 'puzzle' as described by Nelson and Winter (1982). The puzzle, this winery dealt with, involved decreased purchases from existing, loyal customers. To solve this puzzle, the winery sought information from these

customers and found that the crowds, noise and lower personal attention from staff during the live entertainment events annoyed their existing customer base. Winery #170 corrected this situation by creating a separate area for the live entertainment, which would not hinder the traditional experience the long-standing customers valued. The winery also used intentional search (Teece, 2009; Nelson & Winter, 1982) and collected information from the new customers who were attending the live entertainment events. Winery #170 discovered an opportunity to add additional revenue streams both for their main product and for additional products/services. The main point is that the customer information gathered and used by the firm resulted in changes to existing routines, developing new routines and creating a more innovative business model. This description is in direct support and consistent with evolutionary theory (Knudsen, 2008). The impact of changing routines, and how through these changes innovation can occur, is evident in my research.

I have intentionally discussed the role of customer information first because of its' importance and influence on innovation. Based on case examples, Teece (2009) points out that business model pioneers often have a deep understanding of their customers, what the customer values, and ways in which competitors are not adequately satisfying the needs of the customer. My results show the prominent role customer information has in developing innovative business models. The customer information variable had the largest standardized regression coefficient of the variables I hypothesized in this research - indicating its strong influence. I believe that studying the wine industry has provided a significant advantage to allow the separation of product innovation from business model innovation and this was most apparent in the role of customer information processes.

Most business model innovation research has focused on high technology industries. Technology ‘push’ strategies can be effective in these industries (Martin, 1994). Significant attention has been given to ‘disruptive technologies’ in which it has been noted that listening, understanding and focusing on existing customers can negatively impact developing innovations and have negative performance implications (Christensen & Bower, 1996). In my sample, and for numerous other product and services industries, technology is not the driving force of change. My intent is not to contradict the work by Christensen but to provide additional understanding the impact of innovative business models in low technology environments and how the role of customer information differs depending upon the context.

### *7.2.2 Experimentation and Innovative Business Models*

The second influential variable on the relationship with innovative business models I shall discuss involves experimentation. As noted in section 6.3.1, the inclusion of the experimentation variable contributes significantly to explaining the variance for innovative business models. Firms use experimentation as a means to evaluate potential changes to the business model on a small scale to determine the impact and viability for implementing the change throughout the firm (Nelson & Winter, 1982). This gives firms the ability to evaluate changes to the firm’s complex structure of routines, and to determine if the changes provide a benefit that the customer will value. Prior research has noted that experimentation can be linked to the creation of new routines, as most routines are the representation of trial and error learning (Gavetti & Levinthal, 2000). This could be especially beneficial for evaluating changes associated with innovative business

models; this includes radical changes that result in Schumpeterian novelty (Miner et al., 2008). It has been proposed in the literature that firms developing an innovative business model may require experimentation (Teece, 2010). My findings show support that firms, which carry out higher levels of experimentation, were more likely to have an innovative business model.

I want to highlight that experimentation in this situation does not refer to multi-million dollar R&D departments of a multi-national developing radical new technologies or creating patents to license. In this research, experimentation involved the willingness to change and try new routines. My sample provided an advantage in this regard. This advantage was discussed in more detail in section 2.4.1 and involves separating innovation in products and process from innovativeness in business models. Firms in my sample basically make the same products and product innovation is not influential in this industry. Research on business models has focused more upon high technology industries (e.g., (Amit & Zott, 2001; Christensen & Raynor, 2003), which may confuse the influence of product innovation with innovative business models.

My research results for experimentation support views derived from evolutionary theory for drivers of variation. The firms experimenting with their business model were creating new combinations of routines for their firm (Winter, 2006). The desire to experiment could be opportunity driven (Amit, Zott, & Pearson, 2010) or to replicate the success witnessed from other firms (Knudsen, 2008). The changes to the routines, and connections between routines, will lead to something new for the firm and potentially for the industry (Feldman, 2000). The firms that put together a combination of routines new to the industry were identified by my research as innovative business models.

An example is winery #67. This winery was very typical in several ways (i.e. size and age), but the owner discussed how he was very willing to experiment. Confirming the relationship hypothesized in this research, the winery also has an innovative business model. The experiments (and resulting changes the winery has implemented) have been in a number of areas related to the customer interface business model component including distribution, interactions with customers, and the products they have chosen to market. The owner acknowledged that not all the experiments have worked as planned and that he continued to try new ideas to make improvements. Interestingly, this winery and the owner's ability to create an innovative business model also support the institutional entrepreneurship literature. Research in this area indicates that innovation is most likely to come from institutional entrepreneurs that have marginal social status but good network ties (Palmer & Barber, 2001). This was a good description of winery #67 and was evidenced by the fact that the winery was not part of a trade association, but well connected with other wineries and non-winery businesses in their area.

### *7.2.3 Complexity and Innovative Business Models*

The results of the complexity variable in the regression equation for innovative business models were not as predicted by my hypothesis (#3). First, the relationship appears fairly weak. Inclusion of the complexity variable as an independent variable did not achieve significance. However, the complexity variable did attain significance ( $\beta = -.14, p < .10$ ) when included in the entire main effects model. Also, the coefficient sign was reversed from what was predicted.



The argument that was made linking complexity to the innovative business model dealt with the changes that result from adding non-core related revenue streams to the business. Firms often look for new routines and capabilities that will give them an advantage over competition (Zahra, Nielsen, & Bogner, 1999). The inclusion of the non-core product related items required the firm to add routines to deal with different product inventories and customer service requirements. If firms could create non-core resources that were unique, this could give them market advantages (Dosi, 1982). Other firms would see this advantage and move to copy the routines to remain competitive. However, it may be difficult to obtain adequate information about the competitor's routines that would allow an accurate copy to be implemented (Knudson, 2008; Grant, 1991).

The wineries in my research developed a number of non-core revenue streams for their business models. Examples of the additions included hosting live entertainment, event hosting (weddings, corporate events), restaurants, farmer's markets (fresh vegetables, cheeses) and lodging. The skills and routines needed to offer these products/services were significantly different from that of making wine. The additions these firms have made were in-line to what Zahra and co-authors (1999) describe in that the firms were attempting to develop capabilities to provide their firm an advantage in the marketplace. While this was consistent with the literature, my findings did not result in robust support linking complexity and innovative business model.

The weak support for the hypothesis (#3) linking complexity to innovative business models may have been affected by two factors and these factors are related to one another. First, the addition of non-wine related items to the business model was already prevalent in my New York sample prior to the data collection. Over 80% of the

wineries in the sample had sales from non-wine related products. Thus, the majority of the firms have branched out into non-core products/services. The vast majority had some type of gift shop and several wineries had taken steps to develop more elaborate routines to capture non-wine revenue streams. In conjunction with the high prevalence of offering non-wine related products, the overall contribution of these non-wine related products to total revenue averaged to less than 15%. The high frequency and low impact of these side business streams likely had an impact on the results of this study. The high involvement indicated that, since most firms had these non-core revenue streams already, it was not unique or innovative from the norms for the industry - my measure of innovation. The low percentage of revenue generated from the non-core business could indicate that either it was beyond the firm's ability to further develop the area or the firm did not wish to lose focus from the main product line and, thus, its identity as a winery.

The second area I wish to cover regarding the weak support for the relationship between complexity and innovative business models builds upon the last point. Choosing to further develop the complexity of the non-core related business streams uses time and resources of the firm. These resources could be used to further develop the information capture processes or to search for value adding changes to the business model. The innovative business model measure for this research identifies those wineries that have developed innovative customer interface business model components. Some of the non-wine related business areas mentioned could potentially hurt this development. Two of the non-core areas were weddings and music events. In both situations, large groups of people come to the winery and spend a few hours. A portion of the group may be loyal customers and the remainder would be their friends and relatives. There would not be an

opportunity for the winery to capture the customer information, or interact with the customers using their normal tasting room customer service routines. Winery resources were used without further developing the customer interface portion of the business model. As a result, it would be logical, in this scenario that an increase in non-core complexity would result in lower innovativeness in the business model.

An example of a firm in my sample that had increased the complexity of their business model by expanding into non-wine related businesses was winery #12. This winery was of average size, just under 10 years old and was typical in several ways. Winery #12 did have a small gift shop, which was common in my sample, and had recently begun to host weddings, receptions and private parties. In discussing the non-wine related offerings with the manager, the winery found it difficult to manage the additional services. As mentioned, new routines were needed to offer the non-wine related products/services. Firms working to add these routines have added personnel and made changes to facilities. There were also several cases in which wineries had expanded into non-wine offerings and then abandoned the effort. The owner of winery #190 stated it was not worth the effort and he decided to focus on what was important – the wine.

The conclusion was that complexity did have small, weak effect in creating an innovative business model. The addition of non-core revenue streams took some of the firms into new directions for revenue but had a negative impact on creating a unique customer interface business model component. The findings were weak and this was driven by the prevalence of firms that had non-wine related revenue but had not expanded these routines to be very significant to the overall firm sales. In terms of evolutionary

theory, this would be a variation that has already diffused into the majority of the population but one that has little impact overall.

#### *7.2.4 Inertia Moderating Customer Information Processes and Innovative Business Models*

I have viewed inertia as the tendency for an organization to remain in the same state, as reviewed in section 3.2 (Gersick, 1988). Inertia was proposed as a moderator between the direct relationship variables and innovative business models. The first hypothesized moderation involved inertia in the firm's routines with the relationship between the customer information routines and innovative business models; this argument was presented in hypothesis #4 and more details are available in section 3.2.1.

The argument to justify the moderation was built around two areas. First, the firms that were members of a wine trial or trade association would source their customer information from the trade association and inertia would work to prevent them from developing or relying on their own information sources. Second, the firms were working to create loyalty in their customer base. Loyalty may be promoted by a consistent customer interface that allows the customer experience to be easy and efficient (Sirdeshmukh et al., 2002). This inertia related process would influence the firm to keep the same routines used in the past and potentially to utilize routines common in the industry. The result would be that as inertia is present in the firm, this would reduce the influence of customer information processes and the associated positive relationship with innovative business models.

The results showed support for the moderation of the relationship between customer information capture and innovative business models by inertia. As hypothesized, inertia dampened the relationship between customer information capture and use routines and the likelihood of having an innovative business model. In other words, the firms that have developed and used the same routines for a long time have truly in-grained the routines and were less likely to be innovative in their business model, even if they had more extensive customer information routines.

An example could be seen from the sample. Winery #70 was quite high on customer information capture and use. The indication would be that winery #70 would be more likely to have had an innovative business model (as explained in section 7.2.1 Information process and innovative business models) but the actual level was not high. There were significant levels of inertia in the routines for this firm. The owner was very content with the routines used in the winery and felt his business model was geared towards creating customer loyalty, stable and provided consistent (if somewhat slow) growth in revenue for the winery. This example is consistent with the contingent effect of inertia on the innovation and customer information relationship.

#### *7.2.5 Inertia Moderating Experimentation and Innovative Business Models*

The benefits of experimentation in developing innovation have been promoted in the literature (DeTienne & Koberg, 2002; Veryzer, 1998). However, there are also factors that can intercede between experimentation and pursuing innovation. These factors are related to inertia. Inertia can arise from a dominant logic that can develop in a firm (Prahalad & Bettis, 1986). People become accustomed to and have depended upon the

routines they have developed (Cohendet & Llerena, 2008). As a result, employees/managers often resist changes to existing routines and employees may actually undermine the adoption of new routines developed from experiments by abandoning them for the old, existing routines (van der Steen, 2009).

High levels of inertia that were present in long-standing routines were hypothesized to moderate the relationship between experimentation and innovative business models. This did not receive support in my research. Experimentation was found to have a direct relationship but inertia had little impact as a moderator variable. The New York wine industry has undergone a significant period of change over the past 10 to 15 years. The number of wineries has grown significantly and the marketplace has shifted to include an emphasis on tourism. The extent and continual presence of growth has spurred many changes and impacted the presence of inertia in this sample. The changes may be preventing inertia from developing and to create a comfort with frequent (if somewhat small levels of) change. The wineries sometimes work together to develop the routines for the new events/programs – an example was the Murder Mystery Tour in which a different clue was given at each winery requiring all to be combined. As a result, this could cloud the results because there is some experimentation, lower inertia and low innovation due to the common routines used between many of the wineries from trade associations and wine festivals. This confounding effect would result in insignificant results.

### *7.2.6 Inertia Moderating Complexity and Innovative Business Models*

The final proposed moderation was by inertia in the relationship between the complexity of routines in the firm and innovative business models. This was presented in hypothesis #6 and more details are available in section 3.2.3. The results for this hypothesis were not supported. The direct effects of complexity with innovativeness in the business model were not significant (or were weak at best with  $p < .10$ ) and any influence of a moderator on this variable would be very difficult to detect; no significant results were found in my analysis.

I noted earlier in section 7.2.3 that the spread of the non-wine related complexity seemed to be a variation that had already occurred in the past, selected as useful by the population and diffused. Interestingly, it was also evident that there were pockets in which inertia was still evident influencing movement both to and away from complexity. I did have comments from winery owners that could be associated with the arguments for hypothesis #6. A main argument concerning inertia was that firms did not wish to change what has worked well in the past (Leonard-Barton, 1992). Firms saw their routines as supporting a competency (e.g., quality or low costs) and felt that moving away from this competency could damage business at the firm. Many owners had adopted a higher degree of complexity but were not enthusiastic about the non-wine products. Institutional pressures seemed to be working on these firms in a more coercive manner (Powell & DiMaggio, 1991; Scott, 1987). Trade associations at times mandated that its members offer non-wine related items. Also, customers moving from firm to firm in the trade association territory exerted pressures on wineries to be consistent in some non-wine related items. The owner of winery #190 explained that he had gifts due to the

expectations from customers for souvenir related items. This resulted in some inertia in the routines plus complexity increases. The main issue, as was noted in the review of the direct relationship between complexity innovation, was that the majority of the wineries have included non-wine related items and this led the practice to be typical rather than innovative. This finding of a limited main effect made it difficult to find any moderations effects and, consistent with this, the results were not evident.

### **7.3 Innovative Business Models and Performance**

Research has linked innovative business models with the ability to achieve superior performance. This includes work linking innovativeness in business models to stock market performance (Zott & Amit, 2007), case studies highlighting innovative models (Kim & Mauborgne, 2005a; Magretta, 2002) and books on developing business models (Afuah, 2004; Hamel, 2000; Osterwalder & Pigneur, 2010). Firms will seek to develop new, innovative business models that provide value in ways other firms do not. Innovation is pursued by firms to create variations that are outside of the bounds of normal competition giving the firm a performance advantage (Dosi, 1982).

Hypotheses relating innovative business models and performance were proposed in section 3.3 as either a direct or a non-linear relationship between the two variables. This chapter section begins by discussing the results regarding the relationship between the innovative business models and performance both as direct and as non-linear. Subchapters will follow for each of the dimensions of performance measured in the study.



The literature, cited at the beginning of this section, focused on a direct or linear relationship between innovative business models and performance. This coincides with hypothesis 7a, in my research. The method in which I measure innovation shows that the firms, which have high innovativeness scores, structured their routines in ways others in their industry were not. This gave these firms an opportunity to provide products/services to customers that provided value in unique ways. Prior literature has noted the bias that more innovation is always better (Clark, 1987). I relate innovation to variations in evolutionary theory and this theory indicates that it is difficult for extreme variations to survive (Nelson & Winter, 1982). The proposed non-linear nature of the relationship between performance and innovative business models was explained in hypothesis #7b. The basic premise was that firms pursuing a low innovativeness business model would show little, or no detectable, difference in performance to others in the industry. On the opposite end, the firms with highly innovative business models may go too far and would be seen as radical. The customers may not understand the difference in value the new business model offers them. The pursuit of high levels of innovation would be considerably more risky than minor changes to routines or minor tweaks to existing routine structures (Furubotn, 2001). As a result, the firms with a moderate level of innovativeness have adopted a level that should allow them to provide unique values to their customers and do so in a way that is not too disruptive. The entrepreneurs were acting in a way to bring innovation to the industry, but within the existing institutions and expectations that customers, suppliers and distributors may understand (Hargadon & Douglas, 2001). As a result, the best performance would be from the firms with a moderate level of innovativeness.

My results do show that innovative business models and performance were related and this was a linear relationship in terms of all three of my measures of performance. Finding a consistent, positive performance impact for all three measures is, in itself, an important finding. These results are also consistent with the claims from the IBM CEO study that business model innovation leads to better performance (IBM Global Services, 2006). A potential difference is that the owners of the firms in my sample likely have various goals for their business. Some are focused on economics and the winery is intended to grow and provide a means in which to personally prosper. Others have chosen the wine business as a lifestyle choice or as a means to semi-retire. A third group is focused on the wine product itself and desire to show they can make a well-respected wine. My results indicate, whether the goal is superior economic or quality performance, pursuing a path towards innovation in the business model will be related to better performance. The implications are in support of the vital role of innovation and the impact of innovation on the success of the firm.

The non-linear relationship did not achieve significance. It is gratifying that the linear relationship was found in the data confirming results from e-commerce samples (Zott & Amit, 2007). However, I do feel that researchers should still pursue the proposed non-linear relationship between innovation and performance. My inability to find a non-linear relationship could have been driven by the parametric shape I specified or industry effects. I tested an inverse U-shaped alternative for my non-linear test and the shape of the relationship may be more complex. Different parametric shapes could be evaluated for the innovative business model and performance relationship. However, the shape I used was theoretically driven and other parametric shapes would need theoretical

justification. I did evaluate different slopes to the inverse U-shape but these were also not significant. The industry may have a role in the relationship and other industries should be tested to confirm my results.

### *7.3.1 Innovative Business Models and Awards Performance*

The first of my three performance measures, I shall discuss, is for the awards received by the wineries. The awards received by a winery played an important part in signaling how well the business was performing. Customers are interested in purchasing wine they feel comfortable they would enjoy. The exhibition of awards has been shown to be an essential attribute affecting customer-buying decisions (Orth & Krska, 2001). Winery owners used award-winning wines from tasting competitions to show that their wine had been judged to be superior to others. The wineries used the awards they received to promote their products. Typically, the winery would post signs indicating award winners and several had ‘trophy’ style displays with the medals displayed on the bottle of the winning varietal.

Another aspect of the awards performance variable I wanted to highlight was the information was collected from secondary sources and provided a balance to the self-report measures of quality and revenue growth performance. Secondary corroboration of the data was beneficial in supporting the validity of my results. This supplemented my convergent validity check for measures comparing my observations to the self-report survey measures, as reviewed in Chapter 4.

The results for awards performance indicated a positive, direct, linear relationship with innovative business models, as was hypothesized. Winery #77 was a

good example that illustrated how the owner had developed an innovative business model with extensive customer information systems that spread across several revenue streams. This winery had adapted cluster aspects from both the Agritourist and the Chateaus. The winery advertised their ‘award winning’ wines extensively in a deliberate way to promote their quality to tourists and long-term customers.

### *7.3.2 Innovative Business Models and Quality Performance*

The relationship between quality performance and innovative business models was also significant, positive and linear. Several of the wineries that performed well in the awards also scored well for quality performance, which was to be expected. While winery #77 mentioned above worked to bridge the area between the Agritourists and Chateau clusters, others took different paths. Winery #74 was focused on quality and promoting the quality of their wines. This winery downplayed the tourism aspect. Instead they were innovative in the extensive ways in which they interacted with their customers and concentrated on quality to attract new and repeat customers.

### *7.3.3 Innovative Business Models and Revenue Growth Performance*

Revenue growth is frequently used as a performance measure. The information on revenues for the firms in my sample was a self-report measure and this does differ from many research projects, which utilize information from publicly traded companies. This variable was important as it was an indicator of the viability and strength of the business

model the firm had created. My definition of business models emphasized value creation, and the firms that could convince customers of the value creation they offered should see higher revenue growth compared to others in the industry. Research indicates firms that find ways to provide value in ways others do not would have superior performance (Dosi, 1982). I find a similar relationship in my data. There was a significant, linear, positive relationship between innovative business models and revenue growth performance. The innovative firms have been able to develop a model that provided value in unique ways and this has led to increased revenue for the firm.

An example of this was winery #176. The winery most closely follows the Chateau cluster for their business model. However, they have developed a unique system with their existing customer base creating a tight (and profitable) repeat customer relationship. This business model has allowed the winery to grow revenue when many in their area have seen declines due to the economic downturn. The innovative way the winery had developed and continued to expand the close customer relationships created unique value for their customers and the firm had appropriately been rewarded with increased revenues.

#### **7.4 Business Models in the Non-technology Focused Winery Context**

I have commented in numerous places that the majority of prior business model research has focused on high technology industries. The high technology industries have provided interesting contexts to study the development of e-commerce models. Also, entrepreneurship and innovation scholars focus on, or note the importance of, high tech to

study venture capital (MacMillan, Siegel, & Narasimha, 1985), acquisitions (Cloodt, Hagedoorn, & Van Kranenburg, 2006) and rapid growth (Barringer, Jones, & Neubaum, 2005). In terms of business models, classifications that were developed for e-commerce (Amit & Zott, 2001) have been extended to other contexts and some research has an emphasis specifically on technology as a component of the business model (Alt & Zimmermann, 2001; Linder & Cantrell, 2000). This work has been very interesting and provided numerous insights into the business models of technology firms. Businesses outside of high tech – such as those in the New York wine industry – have a much different environment in which to create a sustainable business model. The importance of the regulatory system, raw materials, patents, and customer interface vary between industries. E-commerce, agricultural, service oriented and manufacturing firms provide value to customers in different ways and exploring business models outside of high tech can illustrate some of these differences.

I see the single largest issue with the emphasis on high tech is the potential confusion of product innovation with business model innovation. Markides (2006) suggests that innovative business models and disruptive product innovation have similar processes in how they emerge and grow. However, he states “the similarities between the two have led some researchers to treat the two types of innovation as one and the same – this is a mistake” (Markides, 2006, pg. 21).

My research provides an example of a potential difference between high-tech and low-tech contexts. In this research, I argue that firms will be more innovative with their business model when they have increased levels of customer information and knowledge. This link was found to be significant and contributed the most of my proposed variables

to explain the variance of innovative business models. Scholars for product innovation have suggested that close ties to customers hurts the ability of a firm to innovate (Christensen, 1997; Christensen & Raynor, 2003). The emphasis for Christensen is that the customers in the current market are interested in the value propositions that can be associated with current business models. Innovation comes from firms that are not attentive to the main stream customers in the current market. My results indicate the more a firm is knowledgeable, aware of the needs of the customer and what the customer values - the more likely the firm will develop an innovative business model. A counterargument would be that the firms in my sample are not reaching the level of 'disruptive innovation', which is Christensen's focus (Christensen & Raynor, 2003). However, for the wine industry and I believe for a number of low-tech contexts, disruptive innovation may not be very relevant. People have been making and drinking wine for thousands of years. Even so, there has been innovation in this industry; business models have changed but I do not see it as the radical change indicated by disruptive innovation. My research indicates that through an understanding of what customer's value, a firm has the opportunity to use the information to create a new variation for their industry. They can create an innovative business model that differentiates their firm and gives them performance advantages. I think this is relevant for other industries and future research can investigate the advantages/disadvantages of pursuing customer information. Specifically, I think a service based industry is another interesting avenue to explore innovative business models as there is not any 'product innovation' that would interfere with the relationships evaluated in the research.

Another benefit that the use of the New York wine industry provides deals with unobserved heterogeneity. Using a variety of industries complicates matters in that each will have varying levels of product and/or process innovation, which can confound the results (Van de Ven, 1986). Environmental conditions have a role in the how a new variation is accepted and ability of an innovation to spread in an industry. Damanpour's (1991) meta-analytical work showed the importance of limiting samples to segments (such as by industry) due to the differences in variance. As just noted, research has had difficulties conceptually separating the different types of innovation and it becomes problematic to do so empirically across multiple industries. The regulatory environment, raw materials (feasible types of grapes), taxes, and basic climate conditions are fairly consistent across my sample. As a result, I suggest that my sample is sufficiently homogenous to allow the research question to be appropriately evaluated.

The final area, which the context I have chosen provides a benefit, involves the type and size of the firms in the sample. Analyzing the business models of large, multi-billion dollar companies can be problematic. At one time, I was employed by the Hoechst Corporation (now Sanofi-Aventis). There were different business models for the technical fibers business unit compared to models for the chemicals division and the pharmaceutical division. Thus, large corporations are difficult to analyze because they may have multiple business models and the overarching goals/strategy of the firm complicate the investigation. The decisions and structure of the business model can be affected by the goals and fit of a business division within the larger corporate context (more unobserved heterogeneity). My sample is comprised of relatively small, privately owned firms. Research has suggested that this type of firm and young firms led by an



entrepreneur are best suited for innovative business model research (Chesbrough, 2007). Innovation in business models is difficult and in large firms a single person often does not have the influence, authority and abilities to successfully pursue an innovative business model. The owners/managers in my winery sample did have the authority needed to make changes and did not have side business units complicating their decisions and selection of a business model.

## **7.5 Empirically Identifying Innovative Business Models**

The business model concept has been the topic of a number of research articles, and reviews of the literature indicate a lack of convergence on a definition or a set manner in which to examine the concept (George & Bock, 2011). My dissertation has specifically focused on a subsection of this research - innovative business models. As Teece notes: “business models are frequently mentioned but rarely analyzed: therefore, they are often poorly understood ...the paucity of literature (both theoretical and practical) on the topic is remarkable, given the important of business design, particularly in the context of innovation” (Teece 2010; pg. 21). I see a main reason, for the small amount of literature, is the difficulty in operationalizing and measuring business models. The challenge then increases in identifying innovative business models.

To study innovative business models, the researcher must determine how to measure innovativeness (i.e. the model is innovative compared to what?). In this research, I compare the business models of firms to others in the same industry. My research is

specific in examining a single industry, a component of the business model and for the routines used within the firms. In contrast, research to develop a business model framework would need multiple industries and diverse models (e.g. (Morris, Schindehutte, & Allen, 2005) to appropriately create a comprehensive framework. Innovation in business models can be explored by retrospective case studies (e.g. Kim & Mauborgne, 2005a) or identified by a comparison to a few direct competitors (e.g. Zott & Amit, 2007). More information and details are needed for research to assess characteristics within the firm associated with innovative business models. Innovativeness in the business model may be significantly different between industries. The pace of technology change, focus on new products, and acceptance of change can be different depending on industry context. The differences in industry context may be unobserved (or even unobservable) and contributes to the problem of unobserved heterogeneity (Davidsson, 2004), which can create difficulties discovering relationships of characteristics associated with innovative business models. This supports a theoretical view that evolutionary processes vary across populations defined by industry (Teece, Rumelt, Dosi, & Winter, 2000) and endorses the approach I take in this research.

A potential negative aspect of the level of analysis I have adopted would be that it is too myopic a view and does not adequately capture the business model. Academics have cautioned that using routines at a low level could result in distinctions being identified that actually have little relevance (George & Bock, 2011). However, I see this as support for my focus on the customer interface portion of the business model. Had I operationalized and captured the entire model for each of the wineries this may have confounded my results. In other words, differences in other components could impact the

identification of innovation even though the differences are not pertinent to make a successful business model. The other business model components for wineries are less relevant to creating an innovative model in this industry and by including them – the true results could be obscured. My goal was to use a level of analysis that would most appropriately allow the relevant business model characteristics to be captured and compared.

Another area in which the NY wine industry provides an empirical benefit is the size of the firms. The majority of the firms in my sample are relatively young (mean age is approximately 15 years), they have experienced growth and are small to medium in size (mean number of employees is 8). The wine industry itself is very old but - through innovative business models - has been revitalized (Kim & Mauborgne, 2005a). The New York wine industry has witnessed this growth (Uncork New York!, 2011) and the business leaders in my sample agree that the industry is growing – a survey item asked if they felt the wine industry was in a stage of growth (7 point Likert scale, mean = 6.05, deviation = 1.3). Variations in growing market segments are more frequent and provide adequate data for examining the evolutionary process. The firm size is important also in that researchers have noted that it is difficult to undertake extensive changes - such as changing a business model - in large firms. Leaders of small firms have enough influence to properly persuade and lead change efforts, such as business model experimentation (Chesbrough, 2010). My results indicate that there is a direct relationship between the firms that do choose to pursue experimentation and innovative business models.

I would like to note that even though the sample was comprised mainly of small to medium sized firms, this does not mean the industry is not significant. The New York

wine industry contributes \$3.76 Billion each year to the state's economy (Wine Communications Group, 2010) and this figure does not include wine sales from producers outside of the state.

The manner in which I measure innovative business models is also a methodological contribution of this research. The focus on identifying business models that are different from competitors is consistent with the process used by Zott and Amit (2007). However, I believe the method I used is more fine-grained. First, I do not rely upon secondary data sources and the business model for each firm is captured using direct observations and information from the owner/leader of the firm. This provides more detail and the source of information should be more reliable than marketing material from websites and annual reports. Second, I have worked to capture all of the population relevant to my sample and non-response bias was evaluated to ensure this was not an issue. This technique provided me with a more comprehensive view of the typical business models for the industry allowing cluster analysis to be used. Using the distance a firm is from the closest cluster center, I am able to calculate a level of innovativeness that is objective rather than an opinion.

## **7.6 Evolutionary Theory as a Theoretical Basis**

This dissertation has studied the relationships of firm characteristics with innovative business models and innovativeness in the business model with performance. I have used evolutionary theory to guide the development of the hypotheses and explain the results of the study. Evolutionary theory is a macro-level theory and to link the study

to a lower level, and operationalize variables for examining specific firms, the concept of organizational routines and institutional theory were used. In contrast, most business model research has utilized multiple theories to develop a framework for the concept or to classify types of models. A potential result of using multiple theoretical perspectives for the business model research is an ill-defined construct and empirical findings that are difficult to aggregate (George & Bock, 2011).

My results were consistent with evolutionary theory. For example, I found evidence to support that increased customer information from intentional/problemistic search (Cyert & March, 1992; Nelson & Winter, 1982) and experimentation were associated with innovativeness. To act on the information gathered from customers, the firms made changes to their routines and moved away from existing structures of routines towards innovative business models (an evolutionary variation). The firms used social media to promote and connect with their customers and have used feedback to find specific selling points. Examples include links to tourism, 'buy local' campaigns and sustainable agriculture. Experimentation was found to be significant and this is in-line with the routines literature, which highlights that new routines are thought to be the result of trial and error experimentation (Gavetti & Levinthal, 2000).

My research contributes to our understanding of organizational routines and for evolutionary theory. Experts in evolutionary theory have expressed the need for research that aides in the understanding how routines can have similar functions in organizations but differ in pertinent ways from firm to firm, which has an impact on evolutionary theory (Murmann, Aldrich, Levinthal, & Winter, 2003). In other words, on the surface, two firms may both have the capability to perform a task; when the routines are examined

for both firms it is possible that they may vary in significant ways, even achieving an evolutionary variation. I saw this in distinct ways from my research. Firms could have similar routines to simply collect customer information but vary significantly on how the information was managed and used. As my results show, firms that utilized customer information processes in significant ways were far more likely to have a new variation in the population (to have an innovative business model). This is consistent with recommendations from organizational theorists to evaluate bundles of routines rather than evaluating them in isolation (Aldrich, 1999). My use of routines, which were linked to the various aspects of the customer interface business model component, was evaluated as a bundle using cluster analysis. A contribution of this research is the acknowledgement that a level of detail is needed to accurately capture the variation in a population and that high firm level analysis may miss or misrepresent evolutionary theory variations. Had I only examined whether or not customer information was collected, I likely would not have been able to distinguish the fact that customer information processes had a relationship with innovative business models even though this variable contributed the most to explaining variance in this research.

A noted gap in the literature asks for research that can characterize how firms differ in their routines and the impact of these differences on performance (Murnann, Aldrich, Levinthal, & Winter, 2003). I add to this literature by examining the routines used in the New York wine industry and linking routines that form innovative business models with performance. This may be linked to evolutionary theory also. I find that the variations – the firms with innovative business models - have a performance advantage. This was consistent across my three measures of performance. These performance results

are consistent with prior business model research (Zott & Amit, 2007), but are different in that product innovation should have little to no influence for my sample. As a result, my performance conclusions specifically address the routines literature gap noted by Murmann and co-authors.

Evolutionary theory should motivate further research into innovative business models. The sampling context fits well with Sidney Winter's comment regarding the need to research industries that are new or in a state of renewal as they are ripe to study evolutionary changes (Murmann, Aldrich, Levinthal, & Winter, 2003). The New York wine industry is such a setting. The increase in sales, number of businesses and contribution to the economy demonstrate the growth and continued positive outlook. This is one of the few bright spots in US agricultural products and economic development in rural areas. There are certainly other opportunities to explore market renewal/development, such as the re-vitalization of the US automobile industry.

George & Bock (2011) pose a related question - whether evolutionary variations are more likely to arise from new ventures or from established firms. While new ventures were not separated in my sample, I did not see a significant difference in innovativeness based on age. Some of the new ventures were quite innovative - while others were following basic sets of routines that had proved to be viable in the industry. However, the context could play a role in that the industry was undergoing a renewal providing opportunities that were attracting entrepreneurs to open new ventures, existing farms to switch crops/business models and for existing wineries to make significant changes to their model. In a less dynamic industry, entrepreneurs may be more influential as a source of innovative business models.

## **7.7 Implications for Business Model Research**

This research has implications for research into business models, for both traditional business model research and innovative business models. The first area, I wish to highlight, is related to the discussion on routines in the previous section. The business model literature can be characterized as dealing with conceptual work; high level, inter-industry studies; or very specific, detailed, case studies. Progress in research on business models seems to be caught at polar ends of the spectrum. I see this as an issue with the lack of consensus on a conceptual framework/definition and the complexity of evaluating the business model. Business models are an important topic to both academics and practitioners. Research needs to progress beyond acknowledging there are different categories of business models to examine specific characteristics associated with business models, which is what I have attempted to do with this research. My findings assess firm level processes: customer information processes, experimentation, complexity and the moderating role of inertia and their relationship with innovative business models. This adds to our understanding of the business model concept.

The combination of my theoretical basis and research design are also a significant contribution to the business model literature. The business model is a complex concept and difficult to adequately investigate. My work focuses on innovation and evolutionary theory helped me explain and predict the relationships between characteristics within the firm and innovativeness in the firm's business model. I believe that evolutionary theory provides an excellent means in which to study innovative business models whether the



researcher utilizes Hamel's (2000) framework, as I have, or frameworks from others (Afuah, 2004; George & Bock, 2011; Morris, Schindehutte, Richardson, & Allen, 2006; Osterwalder & Pigneur, 2010). Evolutionary theory provides a sound foundation in which to build future research. Likewise, organizational routines and configuration analysis allow the evolutionary theoretical perspective to be operationalized in a manner in which firms may be examined and compared. The concept of routines has a rich literature and can inform business model research with views associated with stability, interdependency, adaptation and capabilities. All of which are relevant to the study of business models. This provides a coherent theoretical base and a process to operationalize and link empirical work with theory.

Another addition to the business model literature of the current research involves the focus on innovative business models. The contribution involves the positive relationship found in this research for customer information processes and experimentation with innovative business models. I confirm the innovative business models positive relationship with performance, but do so in a manner that specifically examines innovation in business models. I have selected a context and industry in which product and process innovation will have little effect and, as a result, potentially confound the results. The majority of existing business model research that investigates/conceptualizes innovation does not adequately distinguish innovative business models from product innovation.

## 7.8 Future Work and Limitations

This section will cover some of the limitations of this research and how future work can potentially overcome the limitations and expand on the results obtained in the research.

An area in which this research has a limitation, and will potentially receive questions from journal reviewers, involves my selection of Hamel's conceptual framework for the business model. As I have noted, there are multiple frameworks in the literature and there could be criticism as to my choice. None of the frameworks appear to be emerging as a standard for the literature. A fortunate aspect of the various frameworks is that they mainly center on the idea of value creation and have several areas in which they overlap. Also, the theoretical logic that underpins this research into characteristics associated with innovation should be relevant across the different frameworks.

In a similar fashion, another potential limitation/negative is that I focus on just one component of the business model and discuss this as innovation for the entire model. I do believe that innovative business model research needs to consider how the various components work together and the potential for unique models to be formed from creative combinations of the routines in the entire model. However, I chose one component specifically based on my research design. I chose a context in which only one component was truly significant for the firm to create differentiation and innovation.

There are several other potential limitations that are commonly cited in management research that are relevant. I use self-report measures and have limited access to secondary data on the firms. To address this, I have performed observations of the firms to attempt to have some objectivity to corroborate the data from the surveys.

Second, the results could be relevant only to this specific context. To address this, future work should confirm my results and explore other low-tech contexts. Finally, other drivers may influence my performance measures. Performance is often assessed using a lag to aid in evaluating causation. I have measures for recent firm performance and link this to the existing business model. The best method would have been to track implementation of a new, innovative business model, and record performance from that point to compare to historical values. This was not feasible for the current research project. Also, while I find a positive linear relationship between innovative business model and performance, I do feel that future studies should continue to explore non-linear relationships as this has some theoretical and conceptual supporting logic.

While the cross-sectional nature the current research and focus on one industry are limitations, the New York wine industry did provide a benefit in showing the spread of an evolutionary variation. In the section for complexity, I noted how wide spread the non-wine related products and services were in the industry. This demonstrated evidence of a variation that had already occurred in the past, selected as useful by the population and diffused. Had I sampled this industry between 5 and 10 years ago, I would have been much earlier in the occurrence of this variation and I may have been able to track the variation's selection and diffusion across the industry. Future work should also target industries undergoing shifts/re-vitalization (as recommended by Sidney Winter - Murmann et al., 2003). Longitudinal research into innovative business models would be an especially interesting area. Researchers could actually track new variations to determine survival rates, diffusion and how they become in-grained into a population. This work would be especially relevant for academics interested in institutional

entrepreneurship. More could be learned about the later stages of the evolutionary process that would be superior to case analysis. As researchers have warned to be on guard against the ‘fallacy of retrospective reconstruction’ in that the contextual nature of events makes evolutionary analysis difficult (Aldrich, 1999).

An important implication of the research is that evolutionary theory is a useful lens to elaborate mechanisms associated with innovative business models and can serve for future research to theoretically ground investigations into innovation in business models. My methodology served as a contribution by providing a procedure to objectively identify innovative business models using cluster analysis. Also, the importance, empirically and theoretically, of evaluating bundles of routines became clear in regards to the impact on finding innovation.

## **8. Conclusions**

In the end my story is about innovation – the setting is business models. Prior research has found a positive impact of innovation in business models with performance and this has created interest in the subject. The interest is both from academics and from practitioners. Academics have acknowledged the important strategic implications that can be provided by innovative business models. Practitioners who seek competitive advantages have shifted innovation efforts from product innovation to business model innovation due to the ever shortening life cycles of products.

I have defined innovativeness in business models as a novel departure from what others in the same industry are using for their business model design. Utilizing

evolutionary theory, I focus upon organizational routines to identify innovation. The two main arguments employed from evolutionary theory consist of variations caused by new combinations of routines and from inaccurate replication of routines by imitators. I explored characteristics within the firm associated with innovativeness in the business model including customer information processes; willingness to pursue experimentation and complexity added to the business model from the addition of non-core products. Inertia in the firm was considered as a moderator between each of these variables and innovativeness. Performance was measured using criteria relevant to the industry – quality, awards won by the winery and revenue growth.

A combination of survey, secondary data and observations were used to measure the customer interface portion of the business model. Cluster analysis was used to identify common business models for the industry based on the customer interface routines used by the firm. Innovativeness was determined by how much a firm deviated from the closest cluster's business model. The sample was from the New York wine industry and achieved a 55% response rate. Regression analysis was then used to evaluate the hypothesized relationships in the study. The results indicated that three clusters (labeled agritourists, petit wineries and chateaus) dominated the industry. Innovative business models were identified from the clusters as deviations from cluster centers. Importantly, the clusters differed in variables outside of those used to form the clusters including innovative business models. I found support for hypothesis regarding a positive relationship between customer information processes and experimentation with innovative business models. Weak support was also present for complexity and innovative business models. Inertia in the firm was found to act as a moderator between

the relationship for customer information processes and innovative business models. Specifically, high inertia weakens the positive relationship.

An important implication of the research is that evolutionary theory is a useful lens to elaborate mechanisms associated with innovative business models and can serve for future research to theoretically ground investigations into innovation in business models. My methodology served as a contribution by providing an ability to objectively identify innovative business models using cluster analysis. Also, the importance, empirically and theoretically, of evaluating bundles of routines became clear in regards to detecting innovative business models.

Practical implications follow from the results of the hypothesized relationships. First, the importance of understanding your customers aids in developing innovative business models, which is the opposite as to what has been proposed in the high-tech area. Second, experimentation allows firms to develop and evaluate changes to the business model that can lead to innovation. Third, firms should recognize that as procedures and business models become ingrained it is more difficult to pursue an innovative business models. Finally, innovation is equally important for improving performance in both low- tech and high-tech environments.

## 9. References

Adler, P. S., Goldoftas, B., & Levine, D. I. 1999. Flexibility versus efficiency? A case study of model changeovers in the toyota production system. *Organization Science*, 10(1): 43-68.

Afuah, A., & Tucci, C. L. 2000. *Internet business models and strategies: Text and cases*. Boston, MA: McGraw-Hill Higher Education.

Afuah, A. 2004. *Business models: A strategic management approach*. New York, NY: Irwin-McGraw Hill.

Agarwal, R., Echambadi, R., Franco, A. M., & Sarkar, M. 2004. Knowledge transfer through inheritance: Spin-out generation, development, and survival. *Academy of Management Journal*, 47(4): 501-522.

Aldrich, H., & Auster, E. R. 1986. Even dwarfs started small: Liabilities of age and size and their strategic implications. *Research in Organizational Behavior*, 8(2): 165-198.

Aldrich, H. E., & Fiol, C. M. 1994. Fools rush in? the institutional context of industry creation. *The Academy of Management Review*, 19(4): 645-670.

Aldrich, H. 1999. *Organizations evolving*. London: Sage Publications.

Alt, R., & Zimmermann, H. D. 2001. Preface: Introduction to special Section–Business models. *Electronic Markets*, 11(1): 3-9.

Amburgey, T. L., & Miner, A. S. 1992. Strategic momentum: The effects of repetitive, positional, and contextual momentum on merger activity. *Strategic Management Journal*, 13(5): 335-348.

Amit, R., Zott, C., & Pearson, A. 2010. Business model innovation: Creating value in times of change. *IESE Research Papers*.

Amit, R., & Zott, C. 2001. Value creation in E-business. *Strategic Management Journal*, 22(6-7): 493-520.

Andries, P., & Debackere, K. 2007. Adaptation and performance in new businesses: Understanding the moderating effects of independence and industry. *Small Business Economics*, 29(1): 81-99.

Andries, P., Van Loog, B., Lecocq, C., & Debackere, K. 2007. *Business model development in emerging industries: Approaches of new technology-based ventures*.

Paper presented at Academy of Management Conference, Philadelphia, PA.

Argote, L., & Ingram, P. 2000. Knowledge transfer: A basis for competitive advantage in firms. *Organizational behavior and human decision processes*, 82(1): 150-169.

Arthur, J. B. 1994. Effects of human resource systems on manufacturing performance and turnover. *The Academy of Management Journal*, 37(3): 670-687.



Ashforth, B. E., & Fried, Y. 1988. The mindlessness of organizational behaviors. *Human Relations*, 41(4): 305-329.

Barney, J. B. 1989. Asset stocks and sustained competitive advantage: A comment. *Management Science*: 1511-1513.

Barringer, B. R., Jones, F. F., & Neubaum, D. O. 2005. A quantitative content analysis of the characteristics of rapid-growth firms and their founders. *Journal of Business Venturing*, 20(5): 663-687.

Barton, L. 1995. *Wellsprings of knowledge: Building and sustaining the sources of innovation; wellsprings of knowledge: Building and sustaining the sources of innovation*. Harvard Business School Press.

Basu, A., & Goswami, A. 1999. Determinants of south asian entrepreneurial growth in britain: A multivariate analysis. *Small Business Economics*, 13(1): 57-70.

Battilana, J., Leca, B., & Boxenbaum, E. 2009. 2 how actors change institutions: Towards a theory of institutional entrepreneurship. *The Academy of Management Annals*, 3(1): 65-107.

Baum, J. R., Locke, E. A., & Smith, K. G. 2001. A multidimensional model of venture growth. *The Academy of Management Journal*, 44(2): 292-303.

Becker, M. C., Knudsen, T., & March, J. G. 2006. Schumpeter, winter, and the sources of novelty. *Industrial and Corporate Change*, 15(2): 353.

Becker, M. C. 2004. Organizational routines: A review of the literature. *Industrial and Corporate Change*, 13(4): 643-678.

Becker, M. C. (Ed). 2008. *Handbook of organizational routines*. Cheltenham, Northampton: Edward Elgar.

Belsley, D. A., Kuh, E., & Welsch, R. E. 1980. *Regression diagnostics*. Wiley Online Library.

Bettis, R. A., & Prahalad, C. K. 1995. The dominant logic: Retrospective and extension. *Strategic Management Journal*, 16: 5-5.

Birkinshaw, J., & Lingblad, M. 2005. An evolutionary theory of intra-organisational competition. *Organization Science*, 16: 674–686.

Birley, S., & Westhead, P. 1990. Growth and performance contrasts between 'types' of small firms. *Strategic Management Journal*, 11(7): 535-557.

Bock, A. J., Opsahl, T., & George, G. 2010. *Business model innovation and strategic flexibility: A study of the effects of informal and formal organization*. SSRN.

Bohrnstedt, G. W., & Knoke, D. 1988. Statistics for social data analysis. *Itasca, III: FE Peacock Publishers*.

Bonaccorsi, A., Giannangeli, S., & Rossi, C. 2006. Entry strategies under competing standards: Hybrid business models in the open source software industry. *Management Science*, 52(7): 1085-1098.

- Boulton, R. E. S., Libert, B. D., & Samek, S. M. 2000. A business model for the new economy. *The Journal of business strategy*, 21(4): 29.
- Box, G. E. P., & Tidwell, P. W. 1962. Transformation of the independent variables. *Technometrics*, 4(4): 531-550.
- Brynjolfsson, E., & Kemerer, C. F. 1996. Network externalities in microcomputer software: An econometric analysis of the spreadsheet market. *Management Science*, 42(12): 1627-1647.
- Burgelman, R. A. 1991. Intraorganizational ecology of strategy making and organizational adaptation: Theory and field research. *Organization Science*, 2(3): 239-262.
- Cameron, A. C., & Trivedi, P. K. 1990. Regression-based tests for overdispersion in the poisson model. *Journal of Econometrics*, 46(3): 347-364.
- Cameron, A. C., & Trivedi, P. K. 1998. *Regression analysis of count data*. Cambridge Univ Pr.
- Campbell, D. T., & Fiske, D. W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin*, 56(2): 81.
- Caniëls, M. C. J., & Romijn, H. A. 2005. What works, and why, in business services provision for SMEs: Insights from evolutionary theory. *Managing Service Quality*, 15(6): 591-608.

Chesbrough, H. 2007. Business model innovation: It's not just about technology anymore. *Strategy & Leadership*, 35(6): 12-17.

Chesbrough, H. 2010. Business model innovation: Opportunities and barriers. *Long range planning*, 43(2-3): 354-363.

Chesbrough, H., & Rosenbloom, R. S. 2002. The role of the business model in capturing value from innovation: Evidence from xerox corporation's technology spin-off companies. *Industrial and Corporate Change*, 11(3): 529-555.

Christensen, C., Johnson, M., & Kagermann, H. 2008. Reinventing your business model. *Harvard business review*: 51-52.

Christensen, C. M., & Bower, J. L. 1996. Customer power, technology investment, and the failure of leading firms. *Strategic Management Journal*, 17(3): 197-218.

Christensen, C. 1997. *The Innovator's dilemma: The revolutionary book that will change the way you do business*. New York: HarperCollins Publishers.

Christensen, C., & Raynor, M. 2003. *The Innovator's solution: Creating and sustaining successful growth*. Boston, MA: Harvard Business School Press.

Clark, N. 1995. Interactive nature of knowledge systems: Some implications for the third world. *Science and Public Policy*, 22(4): 249-258.

Cloodt, M., Hagedoorn, J., & Van Kranenburg, H. 2006. Mergers and acquisitions: Their effect on the innovative performance of companies in high-tech industries. *Research Policy*, 35(5): 642-654.

Cohen, M. D., Burkhart, R., Dosi, G., Egidi, M., Marengo, L., Warglien, M., & Winter, S. 1996. Routines and other recurring action patterns of organizations: Contemporary research issues. *Industrial and Corporate Change*, 5(3): 653.

Cohen, M. D., & Bacdayan, P. 1994. Organizational routines are stored as procedural memory: Evidence from a laboratory study. *Organization Science*, 5(4): 554-568.

Cohendet, P., & Llerena, P. 2008. The role of teams and communities in the emergence of organizational routines. In M. C. Becker (Ed.), *Handbook of organizational routines*: 256. Cheltenham, Northampton: Edward Elgar.

Collins, C. J., & Clark, K. D. 2003. Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. *Academy of Management Journal*, 46(6): 740-751.

Cook, R. D., & Weisberg, S. 1982. *Residuals and influence in regression*. Chapman and Hall New York.

Covin Dennis, P., & Jeffrey, G. 1990. Content and performance of growth-seeking strategies: A comparison of small firms in high-and low technology industries\* 1. *Journal of Business Venturing*, 5(6): 391-412.

- Cronbach, L. J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3): 297-334.
- Cyert, R. M., & March, J. G. 1992. *A behavioral theory of the firm*. Wiley-Blackwell.
- Czado, C., Gneiting, T., & Held, L. 2009. Predictive model assessment for count data. *Biometrics*, 65(4): 1254-1261.
- Czado, C., & Sikora, I. 2002. Quantifying overdispersion effects in count regression data. Discussion paper 289 of SFB 386 (<http://www.stat.uni-muenchen.de/sfb386/>).
- Damanpour, F. 1991. Organizational innovation: A meta-analysis of effects of determinants and moderators. *The Academy of Management Journal*, 34(3): 555-590.
- Datta, D. K., Guthrie, J. P., & Wright, P. M. 2005. Human resource management and labor productivity: Does industry matter? *The Academy of Management Journal*: 135-145.
- Davidsson, P. 2004. *Researching entrepreneurship*. New York: Springer Verlag.
- Davidsson, P., Hunter, E., & Klofsten, M. 2006. Institutional forces, the invisible hand that shapes venture ideas? *International Small Business Journal*, 24(2): 115-131.
- Delmar, F., Davidsson, P., & Gartner, W. B. 2003. Arriving at the high-growth firm. *Journal of business venturing*, 18(2): 189-216.

- Dess, G. G., Ireland, R. D., & Hitt, M. A. 1990. Industry effects and strategic management research. *Journal of Management*, 16(1): 7-27.
- Dess, G. G., Lumpkin, G. T., & Covin, J. G. 1997. Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal*, 18(9): 677-695.
- Dess, G. G., & Robinson Jr, R. B. 1984. Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, 5(3): 265-273.
- DeTienne, D. R., & Koberg, C. S. 2002. The impact of environmental and organizational factors on discontinuous innovation within high-technology industries. *IEEE Transactions on Engineering Management*, 49(4): 352-364.
- Donaldson, T., & Preston, L. E. 1995. The stakeholder theory of the corporation: Concepts, evidence, and implications. *The Academy of Management Review*, 20(1): 65-91.
- Dosi, G. 1982. Technological paradigms and technological trajectories:: A suggested interpretation of the determinants and directions of technical change. *Research policy*, 11(3): 147-162.
- Dubosson-Torbay, M., Osterwalder, A., & Pigneur, Y. 2001. eBusiness model design, classification and measurements. *Thunderbird International Business Review*, 44(1): 5.

Dutta, S., & Biren, B. 2001. Business transformation on the internet: Results from the 2000 study. *European Management Journal*, 19(5): 449-462.

Eisenhardt, K., & Tabrizi, B. N. 1995. Accelerating adaptive processes: Product innovation in the global computer industry. *Administrative Science Quarterly*, 40(1).

Feldman, M. S. 2000. Organizational routines as a source of continuous change. *Organization Science*, 11(6): 611-629.

Feldman, M. S., & Pentland, B. T. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1): 94-118.

Francis, D., & Bessant, J. 2005. Targeting innovation and implications for capability development. *Technovation*, 25(3): 171-183.

Furubotn, E. G. 2001. The new institutional economics and the theory of the firm. *Journal of Economic Behavior & Organization*, 45(2): 133-153.

Gambardella, A., & McGahan, A. M. 2010. Business-model innovation: General purpose technologies and their implications for industry structure. *Long range planning*, 43(2-3): 262-271.

Garcia, R., & Calantone, R. 2002. A critical look at technological innovation typology and innovativeness terminology: A literature review. *Journal of Product Innovation Management*, 19(2): 110-132.



- Gassmann, O. 2006. Opening up the innovation process: Towards an agenda. *R&D Management*, 36(3): 223-228.
- Gavetti, G., & Levinthal, D. 2000. Looking forward and looking backward: Cognitive and experiential search. *Administrative Science Quarterly*, 45(1): 113-137.
- George, G., & Bock, A. J. 2011. The business model in practice and its implications for entrepreneurship research. *Entrepreneurship Theory and Practice*, 35(1): 83-111.
- Geroski, P., Machin, S., & Van Reenen, J. 1993. The profitability of innovating firms. *The Rand journal of economics*, 24(2): 198-211.
- Gersick, C. J. G. 1988. Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*: 9-41.
- Gittell, J. H. 2002. Coordinating mechanisms in care provider groups: Relational coordination as a mediator and input uncertainty as a moderator of performance effects. *Management Science*, 48(11): 1408-1426.
- Gong, Y., Baker, T., Miner, A., & Version, D. 2005. *The dynamics of routines and capabilities in new firms*. Paper presented at Academy of Management Conference Proceedings, Honolulu, HI.
- Gordijn, J., & Akkermans, H. 2001. Designing and evaluating e-business models. *IEEE Intelligent Systems*: 11-17.

Grant, R. 1991. The resource-based theory of competitive compensation: Implications for strategy and formulation. *California management review*, 33: 115–135.

Greenwood, R., & Hinings, C. R. 1988. Organizational design types, tracks and the dynamics of strategic change. *Organization Studies*, 9(3): 293.

Hair Jr, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. 1995. *Multivariate data analysis: With readings*. Upper Saddle River, NJ: Prentice-Hall, Inc.

Hamel, G. 2000. *Leading the revolution, how to thrive in turbulent times by making innovation a way of life*. Boston, MA: Harvard Business School Press.

Hannan, M. T., & Freeman, J. 1984. Structural inertia and organizational change. *American Sociological Review*, 49(2): 149-164.

Hargadon, A. B., & Douglas, Y. 2001. When innovations meet institutions: Edison and the design of the electric light. *Administrative Science Quarterly*, 46(3): 476-501.

Harms, R., Kraus, S., & Reschke, C. H. 2007. Configurations of new ventures in entrepreneurship research: Contributions and research gaps. *Management Research News*, 30(9): 661-673.

Harms, R., Kraus, S., & Schwarz, E. 2009. The suitability of the configuration approach in entrepreneurship research. *Entrepreneurship & Regional Development*, 21(1): 25-49.

Haveman, H. A., & Rao, H. 1997. Structuring a theory of moral sentiments; institutional and organizational coevolution in the early thrift industry. *The American Journal of Sociology*, 102(6): 1606-1651.

Helfat, C. E., & Lieberman, M. B. 2002. The birth of capabilities: Market entry and the importance of pre-history. *Industrial and Corporate Change*, 11(4): 725-760.

Hirsch, P. M. 1986. From ambushes to golden parachutes: Corporate takeovers as an instance of cultural framing and institutional integration. *The American Journal of Sociology*, 91(4): 800-837.

Hodgson, G. M. 2008. The concept of a routine. In M. C. Becker (Ed.), *Handbook of organizational routines*: 15. Cheltenham, Northampton: Edward Elgar.

Howard-Grenville, J. 2005. The persistence of flexible organizational routines: The role of agency and organizational context. *Organization Science*, 16(6): 618-636.

Huet, F., & Lazaric, N. 2009. The difficult creation of novel routines. In M. C. Becker & N. Lazaric (Ed.), *Organizational routines: Advancing empirical research*: 248-276. Cheltenham, UK: Edward Elgar.

Huff, J. O., Huff, A. S., & Thomas, H. 1992. Strategic renewal and the interaction of cumulative stress and inertia. *Strategic Management Journal*, 13(S1): 55-75.

IBM Global Services. 2006. *IBM global services - business model innovation—the new route to competitive advantage* (<http://www-935.ibm.com/services/us/imc/html/business-model-innovation.html#-1> ed.).

Jayachandran, S., Sharma, S., Kaufman, P., & Raman, P. 2005. The role of relational information processes and technology use in customer relationship management. *Journal of Marketing*, 69(4): 177-192.

Jensen, R. J., & Szulanski, G. 2007. Template use and the effectiveness of knowledge transfer. *Management Science*, 53(11): 1716-1730.

Kapoor, R., & Lim, K. 2007. The impact of acquisitions on the productivity of inventors at semiconductor firms: A synthesis of knowledge-based and incentive-based perspectives. *The Academy of Management Journal*, 50(5): 1133-1155.

Katz, M. L., & Shapiro, C. 1985. Network externalities, competition, and compatibility. *The American Economic Review*, 75(3): 424-440.

Keith, T. Z. 2006. *Multiple regression and beyond*. Boston, MA: Pearson Education.

Ketchen Jr, D. J., Combs, J. G., Russell, C. J., Shook, C., Dean, M. A., Runge, J., Lohrke, F. T., Naumann, S. E., Haptonstahl, D. E., & Baker, R. 1997. Organizational configurations and performance: A meta-analysis. *The Academy of Management Journal*, 40(1): 223-240.

Ketchen Jr, D. J., & Shook, C. L. 1996. The application of cluster analysis in strategic management research: An analysis and critique. *Strategic Management Journal*, 17(6): 441-458.

Kim, W. C., & Mauborgne, R. 2005a. *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Cambridge, MA: Harvard Business School Press.

Kim, W. C., & Mauborgne, R. 2005b. Value innovation: A leap into the blue ocean. *The Journal of business strategy*, 26(4): 22.

Knoke, D., Bohrnstedt, G. W., & Mee, A. P. 2002. *Statistics for social data analysis*. Wadsworth Pub Co.

Knott, A. M. 2003. The organizational routines factor market paradox. *Strategic Management Journal*, 24(10): 929-943.

Knudsen, T. 2008. Organizational routines in evolutionary theory. In M. C. Becker (Ed.), *Handbook of organizational routines*: 125. Cheltenham, Northampton: Edward Elgar.

Kohli, A. K., & Jaworski, B. J. 1990. Market orientation: The construct, research propositions, and managerial implications. *The Journal of Marketing*, 54(2): 1-18.

Kraatz, M. S., & Moore, J. H. 2002. Executive migration and institutional change. *The Academy of Management Journal*, 45(1): 120-143.

Krishnan, R., Martin, X., & Noorderhaven, N. G. 2006. When does trust matter to alliance performance? *Academy of Management Journal*, 49(5): 894.

Kumar, N., Scheer, L., & Kotler, P. 2000. From market driven to market driving. *European Management Journal*, 18(2): 129-142.

Leblebici, H., Salancik, G. R., Copay, A., & King, T. 1991. Institutional change and the transformation of interorganizational fields: An organizational history of the US radio broadcasting industry. *Administrative Science Quarterly*, 36(3).

Leech, N. L., Barrett, K. C., & Morgan, G. A. 2005. *SPSS for intermediate statistics: Use and interpretation*. Lawrence Erlbaum Assoc Inc.

Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*: 111-125.

Linder, J., & Cantrell, S. 2000. Changing business models: Surveying the landscape. Accenture Institute for Strategic Change.

MacMillan, I. C., Siegel, R., & Narasimha, P. 1985. Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business venturing*, 1(1): 119-128.

Magretta, J. 2002. Why business models matter. *Harvard business review*, 80(5): 86-93.

Maguire, S., Hardy, C., & Lawrence, T. B. 2004. Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada. *Academy of Management Journal*, 47: 657-680.

Mangematin, V., Lemarié, S., Boissin, J. P., Catherine, D., Corolleur, F., Coronini, R., & Trommetter, M. 2003. Development of SMEs and heterogeneity of trajectories: The case of biotechnology in France. *Research Policy*, 32(4): 621-638.

Markides, C. 1999. *All the right moves*. Harvard Business School Press Boston, MA.

- Markides, C. 2006. Disruptive innovation: In need of better theory. *Journal of Product Innovation Management*, 23(1): 19-25.
- Martin, M. J. C. 1994. *Managing innovation and entrepreneurship in technology-based firms*. Wiley-Interscience.
- Mayo, M. C., & Brown, G. S. 1999. Building a competitive business model. *Ivey Business Journal*, 63(3): 18-23.
- McGahan, A. M., & Porter, M. E. 2002. How much does industry matter, really? *Strategy: critical perspectives on business and management*, 8(1997): 260.
- McGehee, N. G., & Kim, K. 2004. Motivation for agri-tourism entrepreneurship. *Journal of Travel Research*, 43(2): 161.
- McGrath, R. G. 2001. Exploratory learning, innovative capacity and managerial oversight. *The Academy of Management Journal*, 44(1): 118-131.
- McGrath, R. G. 2010. Business models: A discovery driven approach. *Long Range Planning*, 43(2-3): 247-261.
- Menon, A., & Varadarajan, P. R. 1992. A model of marketing knowledge use within firms. *The Journal of Marketing*, 56(4): 53-71.
- Meyer, A. D., Tsui, A. S., & Hinings, C. R. 1993. Configurational approaches to organizational analysis. *The Academy of Management Journal*, 36(6): 1175-1195.

- Milanov, H., & Fernhaber, S. A. 2009. The impact of early imprinting on the evolution of new venture networks. *Journal of Business Venturing*, 24(1): 46-61.
- Miller, D. 1987a. The genesis of configuration. *The Academy of Management Review*, 12(4): 686-701.
- Miller, D. 1987b. The structural and environmental correlates of business strategy. *Strategic Management Journal*, 8(1): 55-76.
- Miller, D. 1996. Configurations revisited. *Strategic Management Journal*, 17(7): 505-512.
- Miller, D., & Mintzberg, H. 1984. The case for configuration. In D. Miller & P. Friesen (Ed.), *Organizations: A quantum view*: 10-30. Englewood Cliffs, NJ: Prentice-Hall.
- Miller, D., & Shamsie, J. 2001. Learning across the life cycle: Experimentation and performance among the hollywood studio heads. *Strategic Management Journal*, 22(8): 725-745.
- Miller, J. G., & Roth, A. V. 1994. A taxonomy of manufacturing strategies. *Management Science*, 40(3): 285-304.
- Miller, D., & Friesen, P. H. 1984. *Organizations: A quantum view*. Englewood Cliffs, NJ: Prentice-Hall.



Miner, A., Ciuchta, M. P., & Gong, Y. 2008. Organizational routines and organizational learning. In M. C. Becker (Ed.), *Handbook of organizational routines*: 152. Cheltenham, Northampton: Edward Elgar.

Miner, A. S., Bassoff, P., & Moorman, C. 2001. Organizational improvisation and learning: A field study. *Administrative Science Quarterly*, 46(2): 304-337.

Morris, M. H., & Brannon, D. 2008. The business model as innovation platform: Patterns of emergence. *Frontiers of Entrepreneurship Research*, 28(13): 8.

Morris, M. H., Schindehutte, M., Richardson, R., & Allen, J. 2006. Is the business model a useful concept? conceptual, theoretical, and empirical insights. *Journal of Business Research*, 17(1): 27-50.

Morris, M., Schindehutte, M., & Allen, J. 2005. The Entrepreneur's business model: Toward a unified perspective. *Journal of Business Research*, 58(6): 726-735.

Murmann, J. P., Aldrich, H. E., Levinthal, D., & Winter, S. G. 2003. Evolutionary thought in management and organization theory at the beginning of the new millennium. *Journal of Management Inquiry*, 12(1): 22.

Murray, F., & Tripsas, M. 2004. The exploratory processes of entrepreneurial firms: The role of purposeful experimentation. *Advances in Strategic Management*, 21: 45-76.

Narduzzo, A., Rocco, E., & Warglien, M. 2000. Talking about routines in the field. In G. Dosi, R. R. Nelson, & S. G. Winter (Ed.), *The nature and dynamics of organizational capabilities*: 27-50. New York: Oxford University Press.

- Narver, J. C., & Slater, S. F. 1990. The effect of a market orientation on business profitability. *The Journal of Marketing*, 54(4): 20-35.
- Nelson, R. R., & Winter, S. G. 1982. *An evolutionary theory of economic change*. Cambridge, MA: Harvard University Press.
- Nooteboom, B. 1992. Towards a dynamic theory of transactions. *Journal of Evolutionary Economics*, 2(4): 281-299.
- Orth, U. R., & Krska, P. 2001. Quality signals in wine marketing: The role of exhibition awards. *International Food and Agribusiness Management Review*, 4(4): 385.
- Osterwalder, A., & Pigneur, Y. 2010. *Business model generation: A handbook for visionaries, game changers, and challengers*. Wiley.
- Palmer, D., & Barber, B. M. 2001. Challengers, elites, and owning families: A social class theory of corporate acquisitions in the 1960s. *Administrative Science Quarterly*, 46(1): 87-120.
- Payne, G. T. 2006. Examining configurations and firm performance in a suboptimal equifinality context. *Organization Science*, 17(6): 756-770.
- Pentland, B. T., & Rueter, H. 1994. Organisational routines as grammars of action. *Administrative Science Quarterly*, 39: 484.
- Pentland, B. T. 2003. Sequential variety in work processes. *Organization Science*, 14(5): 528-540.

- Powell, W. W., & DiMaggio, P. J. 1991. *The new institutionalism in organizational analysis*. University of Chicago Press.
- Powell, W. W., Koput, K. W., Smith-Doerr, L., & Owen-Smith, J. 1999. Network position and firm performance: Organizational returns to collaboration in the biotechnology industry. *Research in the Sociology of Organizations*, 16(1): 129-159.
- Prahalad, C., & Bettis, R. A. 1986. The dominant logic: A new linkage between strategy and performance. *Strategic Management Journal*, 7(6): 485-502.
- Quackenbush, J. 2001. Computational analysis of microarray data. *Nature Reviews Genetics*, 2(6): 418-427.
- Rajgopal, S., Venkatachalam, M., & Kotha, S. 2003. The value relevance of network advantages: The case of e-commerce firms. *Journal of Accounting Research*, 41(1): 135-162.
- Rao, H., Monin, P., & Durand, R. 2003. Institutional change in toque ville: Nouvelle cuisine as an identity movement in french gastronomy. *American Journal of Sociology*: 795-843.
- Rappa, M. 2001. Business models on the web. *Managing the Digital Enterprise*, <http://www.ecommerce.nscu.edu/topics/models/models.html>.
- Reichheld, F. F., Markey Jr, R. G., & Hopton, C. 2000. The loyalty effect—the relationship between loyalty and profits. *European Business Journal*, 12(3): 134-139.

- Roberts, P. W. 1999. Product innovation, product-market competition and persistent profitability in the US pharmaceutical industry. *Strategic Management Journal*, 20(7): 655-670.
- Roberts, P. W., & Amit, R. 2003. The dynamics of innovative activity and competitive advantage: The case of Australian retail banking, 1981 to 1995. *Organization Science*: 107-122.
- Rosenbaum, P. R. 2005. Heterogeneity and causality. *The American Statistician*, 59(2): 147-152.
- SanzVelasco, S. 2007. Technology and business model learning leading to growth: Start-up ventures in mobile internet. *Int'l Journal of Technoentrepreneurship*, 1(1): 35-57.
- Schumpeter, J. 1934. *The theory of economic development*. Cambridge, MA: Harvard University Press.
- Schwartz, R. G., & Teach, R. D. 2000. Research note: Entrepreneurship research: An empirical perspective. *Entrepreneurship: Theory and Practice*, 24(3).
- Scott, L. J., & Freese, J. 2006. *Regression models for categorical dependent variables using STATA*. College Station, TX: Stata.
- Scott, W. R. 1987. The adolescence of institutional theory. *Administrative Science Quarterly*, 32(4): 493-511.

- Shafer, S. M., Smith, H. J., & Linder, J. C. 2005. The power of business models. *Business horizons*, 48(3): 199-207.
- Shenkar, O., & Li, J. 1999. Knowledge search in international cooperative ventures. *Organization Science*: 134-143.
- Shimizu, K., & Hitt, M. A. 2005. What constrains or facilitates divestitures of formerly acquired firms? the effects of organizational inertia. *Journal of Management*, 31(1): 50.
- Shore, L. M., & Barksdale, K. 1998. Examining degree of balance and level of obligation in the employment relationship: A social exchange approach. *Journal of Organizational Behavior*, 19(S1): 731-744.
- Short, J. C., Payne, G. T., & Ketchen, D. J., Jr. 2008. Research on organizational configurations: Past accomplishments and future challenges. *Journal of Management*, 34(6): 1053-1079.
- Simpson, E. H. 1949. Measurement of diversity. *Nature*, 163(4148): 688.
- Sirdeshmukh, D., Singh, J., & Sabol, B. 2002. Consumer trust, value, and loyalty in relational exchanges. *The Journal of Marketing*, 66(1): 15-37.
- Slater, S. F., & Narver, J. C. 1998. Research notes and communications customer-led and market-oriented: Let's not confuse the two. *Strategic Management Journal*, 19(10): 1001-1006.

Sosna, M., Treviño-Rodríguez, R. N., & Velamuri, S. R. 2010. Business model innovation through trial-and-error learning:: The naturhouse case. *Long Range Planning*, 43(2-3): 383-407.

Teece, D. J. 2010. Business models, business strategy and innovation. *Long Range Planning*, 43(2): 172-194.

Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7).

Teece, D. J., Rumelt, R., Dosi, G., & Winter, S. 2000. Understanding corporate coherence. *Innovation, organization and economic dynamics: selected essays*, 23: 264.

Thomas, J. B., Sussman, S. W., & Henderson, J. C. 2001. Understanding "strategic learning": Linking organizational learning, knowledge management, and sensemaking. *Organization Science*: 331-345.

Thornhill, S. 2006. Knowledge, innovation and firm performance in high-and low-technology regimes. *Journal of Business Venturing*, 21(5): 687-703.

Timmers, P. 1998. Business models for electronic markets. *Electronic markets*, 8(2): 3-8.

Trochim, W. M. K., & Donnelly, J. P. 2001. *Research methods knowledge base*. Atomic Dog Pub.

Uncork New York!. Uncork new york! - NY gold.

<http://www.newyorkwines.org/NYGGold/Index.ashx> 2/2/2011.

- Unwin, P. T. H. 1991. *Wine and the vine: An historical geography of viticulture and the wine trade*. Psychology Press.
- Utterback, J. M., & Abernathy, W. J. 1975. A dynamic model of process and product innovation. *Omega*, 3(6): 639-656.
- Van de Ven, A. H. 1986. Central problems in the management of innovation. *Management science*, 32(5): 590-607.
- van der Steen, M. 2009. Uncovering inertia: Ambiguity between formal rules and routines of interaction. In *Organizational routines: Advancing empirical research*: 159-184. Cheltenham, UK: Edward Elgar.
- Van Rensburg, J. 2007. The perceptions of employment equity and black economic empowerment as predictors of union commitment. *SA Journal of Industrial Psychology*, 31(1).
- Venkatraman, N., & Henderson, J. C. 1998. Real strategies for virtual organizing. *Sloan management review*, 40(1): 33-48.
- Ventresca, M. J., & Kaghan, W. N. 2008. Routines, 'going concerns' and innovation: Towards an evolutionary economic sociology. In M. C. Becker (Ed.), *Organizational routines handbook*: 52. Cheltenham, Northampton: Edward Elgar.
- Veryzer, R. W. 1998. Discontinuous innovation and the new product development process. *Journal of Product Innovation Management*, 15(4): 304-321.

Veseth, M. 2011. [Yellow tail] tales « the wine economist.

<http://wineeconomist.com/2008/02/26/the-yellow-tail-tale/> 6/14/2011.

Westphal, J. D., Gulati, R., & Shortell, S. M. 1997. Customization or conformity? an institutional and network perspective on the content and consequences of TQM adoption. *Administrative Science Quarterly*, 42(2).

White, H. 1980. A heteroscedasticity-consistent covariance matrix estimator and a direct. *Test for Heteroskedasticity», Econometrica*, 48.

Wiklund, J., & Shepherd, D. 2003. Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24: 1307-1314.

Wine Communications Group. 2010. *Press release: \$3.76 billion generated for new york's economy by the new york grape, grape juice and wine industries - wine business news*

([http://www.winebusiness.com/news/?go=getArticle&cms\\_preview=true&dataid=70457](http://www.winebusiness.com/news/?go=getArticle&cms_preview=true&dataid=70457) ed.).

Winter, S. G. 2006. Toward a neo-schumpeterian theory of the firm. *Industrial and Corporate Change*, 15(1): 125.

Winter, S. G., & Szulanski, G. 2001. Replication as strategy. *Organization Science*, 12(6): 730-743.



Zahra, S. A. 2007. Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing*, 22(3): 443-452.

Zahra, S. A., Nielsen, A. P., & Bogner, W. C. 1999. Corporate entrepreneurship, knowledge, and competence development. *Entrepreneurship: Theory and Practice*, 23(3).

Zellmer-Bruhn, M. E. 2003. Interruptive events and team knowledge acquisition. *Management Science*, 49(4, Special Issue on Managing Knowledge in Organizations: Creating, Retaining, and Transferring Knowledge): 514-528.

Zollo, M., Reuer, J. J., & Singh, H. 2002. Interorganizational routines and performance in strategic alliances. *Organization Science*: 701-713.

Zollo, M., & Winter, S. G. 2002. Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3): 339-351.

Zott, C., Amit, R., & Massa, L. 2011. The business model: Recent developments and future research. *Journal of Management*, 37(4): 1019.

Zott, C., & Amit, R. 2007. Business model design and the performance of entrepreneurial firms. *Organization Science*, 18(2): 181-199.

Zott, C., & Amit, R. 2008. The fit between product market strategy and business model: Implications for firm performance. *Strategic Management Journal*, 29(1): 1-26.

## **10. Appendices**

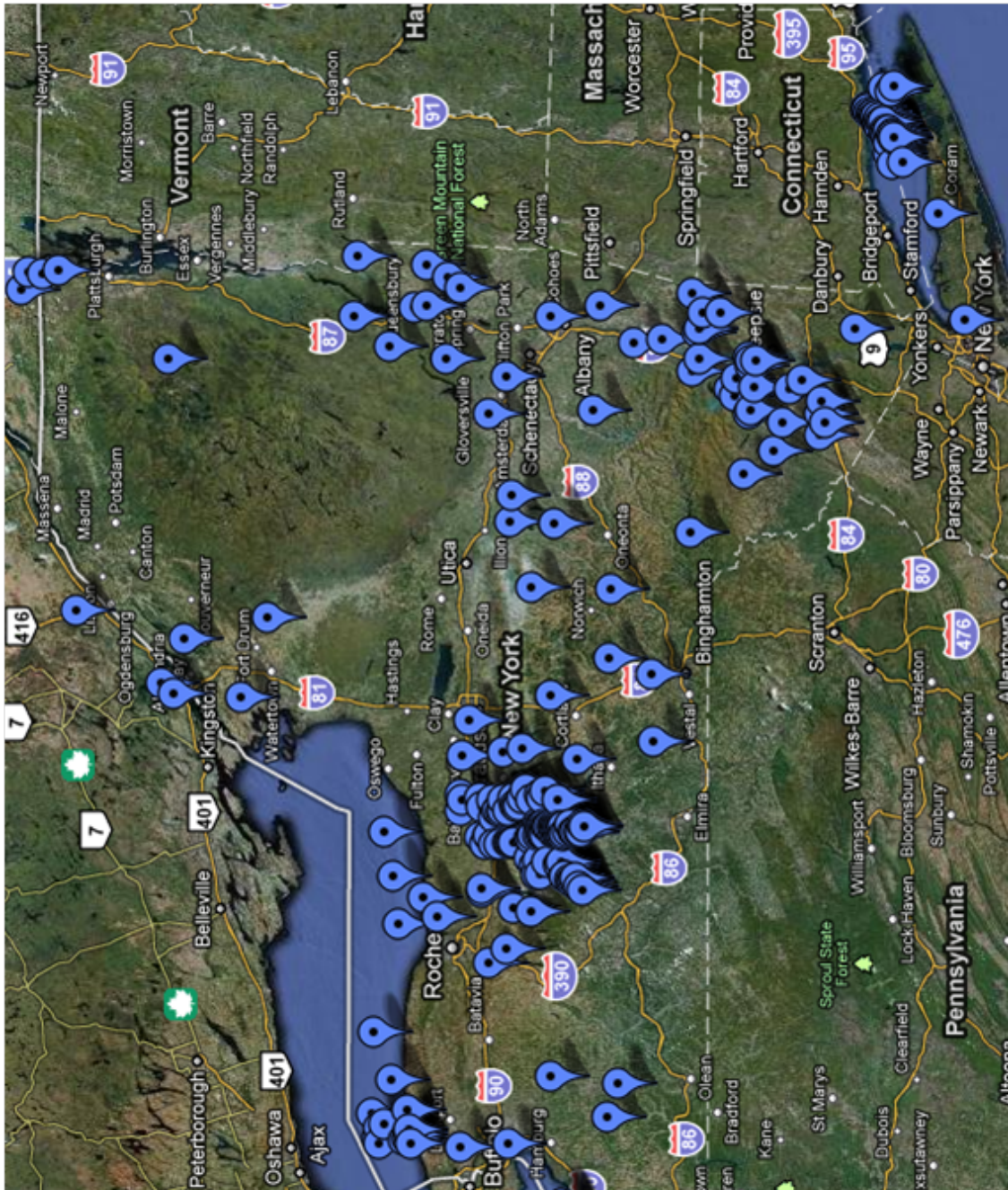
10.1 Map of New York Wineries

10.2 Survey Questionnaire

10.3 Direct Observation Form

10.4 Scales, Cronbach's alpha and loadings

## 10.1 Map of New York Wineries



## 10.2 Scales, Cronbach's alpha and Loadings

The information provided in this appendix deals with the use of factor analysis in my research. The statistical process involved is principal component analysis (PCA) in which the goal “is simply trying to mathematically derive a relatively small number of variables to use to convey as much of the information in the observed/measured variables as possible” (Leech, Barrett, & Morgan, 2005; Pg. 58). Existing scales were mainly relied upon for data collection and the originating authors had tested the appropriateness of the scales in previous studies research. I confirmed the reliability of scales using PCA and determining the Cronbach's alpha for each scale (Cronbach, 1951). Cronbach's alpha is a statistical tool that ‘measures the internal consistency of a set of indicators, ranging from zero (no internal consistency) to unity (perfect internal consistency)’ (Knoke, Bohrnstedt, & Mee, 2002). The result is influenced by the number of items in the scale (Bohrnstedt & Knoke, 1988):

$$\text{Cronbach's Alpha} = (k * r) / ((1 + (k-1)*r))$$

Where k = number of items in the index

r = average intercorrelation among the k items composing the index

The scales were evaluated using eigenvalues (a measure of explained variance) and an eigenvalue greater than one is an indication that the factor from PCA is useful (Leech, Barrett, & Morgan, 2005). All scales used in the research had eigenvalues that exceeded one. Next, I examined factor loadings to see if all of the items loaded appropriately. The appropriate cut-off for a minimum factor loading is not a steadfast rule. Leech et al. (2005) state that .30 is a low value and greater than .50 shows high loading of the item. All of the items for the scales used in this research are above the .50

level. It is recommended to have values for Cronbach's alpha above .70 and all but one of the alphas in the research reaches this target. A value of .64 for one of the scales is weaker but still in the acceptable range (Bohrnstedt & Knoke, 1988; Knoke, Bohrnstedt, & Mee, 2002). The following tables present the factored scales that are used in this research along with the Cronbach's alphas and item loadings. The tables are presented in order in which the scale was introduced in the text.

Item	Alpha>Loading
<b>Quality Performance</b>	.72
Please think about your two most important competitors. Compare the performance of your winery to these two competitors over the past three years based on the following.	
Product quality	.89
Customer Satisfaction	.88

Item	Alpha>Loading
<b>Information Reciprocity</b>	.79
We provide our customers with multiple ways to contact the organization.	.88
We focus on communicating periodically with our customers.	.85
Interactive communication (observed)	.61

Item	Alpha>Loading
<b>Managerial Competence</b>	.75
Multiple ways to contact winery (observed)	.73
Organized tasting room	.81
Tasting room clean and clutter free	.76
Well Staffed	.81
Encourage their employees to work quickly and efficiently	.71

Item	Alpha>Loading
<b>Employee Competence</b>	.78
Work quickly and efficiently.	.91
Can competently handle most customer requests.	.91

Item	Alpha>Loading
<b>Employee Benevolence</b>	.64
Act as if they value the customer.	.62
Attitude – friendly, respectful	.92
Policies towards customers	.91

Item	Alpha>Loading
<b>Information Capture</b>	.74
We collect customer information on an on-going basis.	.79
We capture customer information from several sources within the organization.	.80
The information collected from customers is updated in a timely fashion.	.73
Collect customer info from customer interactions?	.75

Item	Alpha>Loading
<b>Information Integration</b>	.73
We use customer interactions to collect information.	.85
We integrate customer information from the various sources that interact with customers (such as marketing, sales, and customer service).	.75
We integrate internal customer information with customer information from external sources.	.82

Item	Alpha>Loading
<b>Information Use</b>	.85
We integrate customer information from different communication channels (such as telephone, mail, e-mail, the Internet, fax, and personal contact).	.81
We merge information collected from various sources for each customer.	.78
We use customer information to develop customer profiles.	.68
We use customer information to segment markets.	.69
We use customer information to assess customer retention behavior.	.65
We use customer information to identify appropriate channels to reach customers.	.72
We use customer information to customize our offers.	.66

Item	Alpha/Loading
<b>Customer Information Processes</b>	.85
Information Capture	.89
Information Integration	.91
Information Use	.82

Item	Alpha/Loading
<b>Experimentation</b>	.87
Customer Information Collection	.88
Customer Information Use	.85
Tasting Room Set-up	.80
Employee & Customer Interaction	.86

Item	Alpha/Loading
<b>Complexity</b>	.72
Percent of sales not from wine	.67
Bundling with non-wine products	.74
Diversity of markets	.77

Item	Alpha/Loading
<b>Inertia</b>	.88
Distribution	.80
Employee procedures	.93
Customer Information Use	.73
Customer Service	.91
Tasting Room Set-up	.86

## Vita

### EDUCATION

- Ph.D. Syracuse University; Whitman School of Management, Department of Entrepreneurship  
Major Concentration: Entrepreneurship
- M.B.A. University of Hawaii, Manoa  
Honors - Outstanding MBA Student in IB Management  
- Naborikawa Prize in Entrepreneurship & Marketing
- B.S. West Virginia University Institute of Technology, Chemical Engineering

### ACADEMIC WORK EXPERIENCE

- Fall 2011- Present: *Assistant Professor*; Towson University, Department of Management
- Fall 2007- Spring 2011: *PhD Student/Instructor*; Syracuse University, Whitman School of Management, Department of Entrepreneurship and Emerging Enterprises

### PUBLICATIONS

- Morris, M.H., Allen, J.A., Kuratko, D.F. and Brannon, D.L., (2010), Experiencing Family Business Creation: Differences between the Founder, Non-family Managers and Founders of Non-family Firms, *Entrepreneurship Theory & Practice*, 34(6). 1057-1083.
- Brannon, D.L. and Wiklund, J. (2009), The Ties that Bind: Performance implications of Cohabitation and blood relationships among new venture team members, *Frontiers of Entrepreneurship Research*, 29(11).
- Morris, M.H., Brannon, D.L. and Schindehutte, M. (2009), How Entrepreneurship is Experienced: The affective nature of new venture creation, *Frontiers of Entrepreneurship Research*, 29(4).
- Morris, M.H. and Brannon, D.L., (2008), The Business Model as Innovation Platform: Patterns of Emergence, *Frontiers of Entrepreneurship Research*, 28(13).



## MANUSCRIPTS UNDER REVIEW

- Brannon, D.L., Wiklund, J. and Haynie, J.M., The varying effects of family relationships in entrepreneurial teams, *Entrepreneurship Theory & Practice*

## WORKING PAPERS – WORK IN PROGRESS

- “Business Models and Performance: Entrepreneurial aspects in the New York wine industry”; dissertation project

## CONFERENCE PRESENTATIONS AND ACADEMIC ACTIVITIES

- Brannon, D. “Identifying Innovation in Business Models: a wine industry study” *Babson Research Conference*; Syracuse, NY 2011
- Brannon, D. “Putting Old Wine in New Bottles? How Business Models and Business Model Innovation Relate to Performance in the Wine Industry” *Babson Research Conference*; Lausanne, Switzerland 2010
- Brannon, D. & Wiklund, J. “The Effect of Family Relationships in Entrepreneurial Teams” *Academy of Management Conference*, Chicago 2009
- Brannon, D. & Wiklund, J. “The Ties that Bind: Performance implications of Cohabitation and blood relationships among new venture team members” *Babson Research Conference*, Boston 2009
- Morris, M. & Brannon, D. & Schindehutte, M. “Probing the Dimensionality of Entrepreneurial Experiences” *Babson Research Conference*, Boston 2009
- Morris, M. & Brannon, D. “The Business Model as Innovation Platform: Patterns of Emergence” *Babson Research Conference*, Chapel Hill 2008
- Intensive PhD. Seminar in Entrepreneurship conducted by Scott Shane, Cleveland, 2008

## TEACHING EXPERIENCE

- Introduction to Entrepreneurship, Whitman School of Management, Syracuse University, Spring 2011, undergraduate, 1 section
- Introduction to Entrepreneurship, Whitman School of Management, Syracuse University, Spring 2010, undergraduate, 1 section
- Introduction to Entrepreneurship, Whitman School of Management, Syracuse University, Spring 2008, undergraduate, 1 section

### **TEACHING EVALUATIONS**

- Spring 2011: 4.3/5.0 (35 students; Syracuse University)
- Spring 2010: 4.3/5.0 (34 students; Syracuse University)
- Spring 2008: 3.7/5.0 (47 students; Syracuse University)

### **PROFESSIONAL SERVICE**

- Reviewer for the Journal of Business Venturing, 2011
- Reviewer for the Entrepreneurship, Theory and Practice journal, 2011
- Reviewer for the International Small Business Journal, 2011
- Reviewer for the journal of Small Business Economics, 2011
- Reviewer for the Academy of Management Conference, Entrepreneurship Division, 2010
- Reviewer for United States Association of Small Business and Entrepreneurship Conference, San Antonio, 2008
- Assistant for the Experiential Classroom Conference, Syracuse, 2008 & 2009

### **PROFESSIONAL ASSOCIATIONS**

- Academy of Management – Entrepreneurship Division
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