A HEURISTIC MODEL TO DETERMINE THE PERCEPTION OF SUCCESS IN A NASCENT WINE INDUSTRY

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ABSTRACT

The main purpose of this paper is to identify the major factors which contribute to the perceptions of success in the wine industry of Nova Scotia, Canada. Commercial winemaking in Nova Scotia is a nascent industry. An investigation into this regional industry can certainly benefit local winemakers and help identify commonalities for further research in other similar regions. The data used in the study is based on 17 different case studies related to this regional industry. These case studies are in the form of interviews with winemakers, winery owners and industry stakeholders. Local demand, expansion opportunities and growing conditions are amongst the main identified factors.

Using the identified factors, a heuristic model for determining an index for the success perception by the industry was built. In addition to working out an index, the heuristic model can also help winery managers to perform what-if analyses by altering the weightings of the factors or compare their situation with other wineries. It is envisaged that further work to enhance this model will be carried out as part of ongoing research in this area.

Key words: wine, industry, heuristic model

INTRODUCTION

Winemaking is certainly an ancient art. The well-known Persian poet, mathematician and scientists wrote the following quatrain around 1000 years ago. The poetry clearly demonstrates an appreciation for wine all those years ago.

> For "IS" and "IS-NOT" though with Rule and Line,
> And "UP-AND-DOWN" without, I could define,
> I yet in all I only cared to know,
> Was never deep in anything but---Wine.
>
> *Omar Khayyam*

We may even go further back in history and consider a legend. As described by Curry (2003), during the time of the King Jamshid of ancient Persia, grapes were stored in containers for future consumption. As observed and perceived by the cooks, the grapes in one of the containers had gone bad and had to be put away and thrown out. It was assumed that these juicy grapes were poisonous. One of the ladies in the King's harem was depressed and she was contemplating suicide. So she decided to pour some of the juice of the 'poisonous' grapes into a flask and drink it. After consuming this juice, the lady in question felt rather jolly and sleepy. After relaxing for a little while, she explained her experience with the juice to the

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king. The curious king was fascinated by this phenomenon and ordered preparation of this special juice in large quantities for everyone in the palace. That was the beginning of winemaking according to this legend. Let us put aside mythologies and consider the evidence about winemaking. It is suggested that winemaking can be traced back to 5000 years ago in the Caucasus. Wine, however, the way we know it, has been in existence for at least 2000 years. Hence, 2000 years of experience is more accepted in this case.

Turning grape juice into wine is a natural process, and on the surface appears to be a straightforward task. Over the past 2000 years, however, the techniques have evolved and winemaking has turned into art and science. Growing grapes, harvesting, fomenting and making wine, bottling and closing it require certain skills and specialized knowledge. Wine makers in different parts of the world have added to this knowledge base over the years and wine making has turned into a very unique process. Wine production and wine consumption has certainly been increasing globally. France and Italy are no longer the main wine producing countries in the world. Countries like Australia and South Africa have gained an international reputation and prominence in this field. It is also interesting to note that emerging economies such as China are also becoming quite active and visible in winemaking.

This paper, as part of an ongoing research project, investigates the emerging and nascent wine industry of the Canadian province of Nova Scotia. A heuristic approach to identify and measure perceptions of success in this industry is also put forward. The factors used in this model are based on interviews with 17 wine producers in the province.

This study is important for a number of reasons. Wine industries have large economic impacts on geographic regions. Learning more about them can help shape government funding choices which, in turn, can enhance the likelihood of success of a region (Hanagriff, Lau, & Rogers 2008).

Learning more about what wine industry representatives consider to be signs of success can help guide broader based decision-making such as should a region adopt a growth strategy focused on exploiting the advantages of its *terroir*, or should it move forward with a brand-based initiative—or should it focus on a combination of both (Gergaud & Ginsburgh 2007) Evidence also suggests that if managed appropriately nascent wine industries can catch up to competing regions (Cusmano, Morrison & Rabelotti 2009).

Wine industries are also often characterized by a high level of collaboration and cooperation among industry participants, especially when they are early in their lifecycle (Hanf & Schweickert 2007). This presents an important opportunity to discover the common shared understandings among wine industry representatives or dominant industry recipes for success (Spender 1989).

Insight from managers, owners and wine makers can also help researchers understand which performance criteria matter, such as survival, legitimacy, power, sustained competitive advantage, etc. and, as a result, bring to bear the explanatory power of analytical perspectives such as Population Ecology, (Hannan & Freeman 1977), Institutional Theory (Scott 1987), Resource Dependence Theory (Pfeffer & Salancik 1978), Resource Based Theory of the Firm, (Barney & Arikan 2001) etc.

The following sections of this paper demonstrate how the research was conducted, how data was collected and how the proposed model was built.

THE METHODOLOGY ADOPTED IN DATA COLLECTION

Wineries may be found in four provinces in Canada including British Columbia, Ontario, Quebec and Nova Scotia. The wine industry of Nova Scotia is the research site for this study. In 2005 planted acreage of wine producing grapes, vinifera varieties, totalled 21,285 acres in Canada. In 2009, 400 acres could be found in Nova Scotia with sales of Nova Scotia-produced wine amounting to $7.5 million. In general, the Canadian wine industry is small (Statistics Canada 2006). In 2004, it employed slightly less than 2500 which translated into less that 1% of Canada's GNP, including manufacturing jobs. In 2005, Canada-wide, the average consumption was 14.3 litres per year while the typical Nova Scotian consumed 13.6 litres (Statistics Canada 2006).

According to the Winery Association of Nova Scotia (2009a), eleven wineries were in operation in 2009 with nine producing grape wines and the other two primarily focusing on the production of fruit wines. The majority of these wineries are located in the Annapolis Valley. Most of the needs of this industry are supplied from the vineyards of twenty-two grape growers located in six grape growing regions. Although traditional European vinifera grapes are grown in Nova Scotia, most are hybrids developed for hardiness and resistance to disease. The most suitable of these hybrid varieties appear to be New York Muscat, Leon Millot and the L'Acadie Blanc (Winery Association of Nova Scotia 2009b). Specific types of red wine product include Pinot Noir, Marechal Foche, Leon Millot, Castel, Baco Noir and Luci Kuhlmann. Among white wine, varieties include L'Acadie Blanc, Reisling, Chardonnay, Vidal Blanc, Seyvl Blanc, Ortega, and New York, Muscat. As of 2005, exports of Nova Scotia wines were negligible (Canadian Vintners Association 2005).

Interviewees were identified using the website of the Winery Association of Nova Scotia, along with discussion with representatives of the association. Prospective interviewees were contacted by phone to explain the project and the nature of the interview. Detailed information, including the interview survey instrument, was then e-mailed to each individual allowing them to confirm their participation and interview dates. Interviews then took place in a video studio at Acadia University. Over the course of 4 months all of the interviews were completed. In total, 20 individuals were contacted and only three declined to participate. Interviews lasted approximately 40 minutes. Twenty to twenty-five questions were posed to the interviewees. Each response to a question takes the form of a separate video clip that is transcribed and tagged with a keyword. Interviewees were filmed from the chest up and signed release forms. The interviewer is not seen or heard in the interview. Once produced, interviewees were offered access to their video interviews to suggest any needed edits. No suggested edits were offered.

Seventeen individuals representing seventeen different organizations were interviewed for this study including winemakers, winery owners, a wine tour operator, the executive director of the regional wine industry association, the wine industry representative of the regional chamber of commerce, the chairman of the regional government regulator and retail corporation, as well as an inn operator and restaurant owners whose business operations benefit from and complement the regional wine industry. All but three organizations are SMEs, with two of the remaining organizations being not-for-profit entities. Three of the

interviewees were female, including two of the wine makers. Representatives of ten wineries were included.

The video interviews and their tagged, transcribed clips are hosted on the Acadia Multimedia Case Management System (AMCMS). This system is a web-based, password protected, scaleable platform designed for higher education business students and the corporate training market. The following section describes formulation of a heuristic model to measure the success perception by any potential wine producer who possesses some or most of the attributes and aspects as in Nova Scotia's wine industry.

Developing the Heuristic Model

In this paper, we develop a heuristic model for decision making in a nascent wine industry. Defined, 'heuristics are strategies that ignore information to make decisions faster, more frugally, and/or more accurately than more complex methods' (Gigerezer & Gaissmeier 2011: 453). Why are heuristics useful? One pair of researchers offer the following thoughts.

'Heuristics can be more accurate than more complex strategies even though they process less information (less-is-more effects). ….A heuristic is not good or bad, rational or irrational; its accuracy depends on the structure of the environment (ecological rationality). ..Heuristics are embodied and situated in the sense that they exploit core capacities of the brain and their success depends on the structure of the environment. They provide an alternative to stable traits, attitudes, preferences, and other internal explanations of behavior. With sufficient experience, people learn to select proper heuristics…Decision making in organizations typically involves heuristics because the conditions for rational models rarely hold in an uncertain world' (Gigerenzer & Gaissmaier 2011: 474)

Data analysis and evaluation of the selected cases noted above led to the identification of a set of issues, themes and topics which, in turn, were grouped into a set of common factors. The groups captured ideas such as demand, opportunities for expansion, and growing conditions due to geography and climate.

For the purposes of this paper, the possible factors contributing to success have been classified under five main categories. As suggested earlier, the rationale for this grouping is based on the frequency of issue topics mentioned in the interviews. The following are the main topics raised and discussed by the interviewees.

1). Local Demand
2). Expansion Opportunities
3). Growing Conditions
4). Overall Knowledge
5). Price

The emphasis placed on each category and the frequency of its occurrence in the interviews was noted during the observation. As a result, the categories for the issues were ranked according to their importance. *Local Demand* has the highest weighting and *Price* ranks number 5. The higher ranking for *Local Demand* is evident in the interviews. One should remember that for a nascent wine industry, demand is an important factor especially if the overall national demand for wine is not ranked high compared to other countries.

According to Caterer and Hotelkeeper (2012), worldwide wine production is expected to increase beyond three billion cases by 2014. That is a global increase of almost 9%. Hence, capturing a part of the new market is extremely important for any wine producer. One should, however, consider that wine consumption in Canada does not rank high based on the data provided by NationMaster (n.d.). According to these statistics, on a scale of 1 to 18 Italy is number 1 and Canada ranks number 15. It is very likely that these figures will be different in the near future as the culture of an appreciation for wine is rapidly spreading around the world. Typical beer drinking nations such as Australia have started to turn into prominent wine producers and consumers. For instance, based on the data provided by NationMaster (n.d.), the average wine consumption per person per year in Australia is 21 litres. That is almost 2.4 bottles per month. The figure for Canada is around 1.1 bottles per month. As mentioned earlier, one must consider the fact these statistics are subject to variations. For instance, it is expected that annual wine consumption in Canada in 2012 will increase by some 26% (CS Trenholme & Associates n.d.). Hence, the statistics should be used in a relative manner for mainly comparative purposes.

A factor mentioned frequently by the interviewees is the willingness to explore new expansion opportunities. This move towards expansion also includes passion and willingness by the winery to try new and more appealing products using different grape varieties. For instance, exploring the options of including more exotic and fruity grape varieties is among the frequently suggested factors for success. Traditionally, Chardonnay for white and Cabernet Sauvignon for red have been popular all over the world. Varieties such as Zinfandel and Carmenere can be considered. A wine producer in the province has suggested the following:

> ‘Trends are moving towards ever increasingly exotic grape varieties, also, a movement away from the austere production of wines to a more fruit-forward consumer friendly variety of wines’.

As confirmed by an interviewed Nova Scotian wine producer, California and Australia are among the major trendsetters in the world (AMCMS 2012). The importance of the Californian wine industry is supported by the fact that 3.7 billion tonnes of grapes were harvested in the State during 2009 (Coppola Winery n.d.). Australia's position as the fourth largest exporter of wine is an indication of its global prominence. It should be noted that Australia has about 60 designated wine regions and 130 different grape varieties are used by commercial winemakers. So, following the trends of the successful producers and exporters would certainly help the wine industry in Nova Scotia.

The factor labeled as *Growing Conditions* also includes climate. As explained by a wine producer, climate does not seem to be a challenge for the growers in the province but instead the varietal selection is the main issue:

> ‘I would say it would be varietal selection. You know climate is not a risk, because you know people have been evaluating this climate for 3 centuries. You know if we do not have it right now, we will never get right unless global warming fixes it or something. So the biggest question I would say is what kind of grapes should you plant to secure a market that is uniquely Nova Scotian. I know the choices are increasing every day’.

Hence, in terms of ranking, this factor was positioned after *Expansion Opportunities*.

As explained earlier, thousands of years of knowledge and experience has accumulated and shaped the current skills associated with growing grapes and making wine. Therefore, that overall knowledge possessed by any wine producer is extremely important. The interviewees also confirmed the role of knowledge. They, however, have placed the emphasis on the previous factor of the opportunities (willingness) to explore since a winemaking organisation would consider their skills and experience before entering the market. This factor was ranked lower than opportunities for expansion.

Finally, *price* should also enter the equation as it plays a role. As a general rule there is a direct relationship between the price of a bottle of wine and its quality. Hence, if the bottles of wine are perceived to be expensive by customers, they will opt for other beverages such as beer. This factor was ranked as number 5 in terms of importance compared with the other identified factors.

If we allocate weighting values of 5 to 1 to these categories, *Local Demand* will receive 5, *Expansion Opportunities* 4, *Growing Conditions* 3, *Overall Knowledge* 4 and, finally, *Price* 1. Now we may utilize these categories as factors contributing to what we have referred to as the 'Success Perception Index'. In other words, these factors can be regarded as the independent variables of our heuristic model and the Success Perception Index will be dependent on these variables:

SPI = Function of { LD, EO, GC, OK, P }

Where:

LD = Local Demand
EO = Expansion Opportunities
GC = Growing Conditions
OK = Overall Knowledge
P = Price

in which, the independent variables in the model are assumed to have an additive effect on each other.

Therefore, a prospective wine maker, by inserting values in the model, may approximate a Success Perception Index for their experience in wine industry. This process can be completed by substituting zero for the absence of the factors (independent variables); or I for an Ideal, R for a Reasonable and C for a Challenging situation for the strength of the each factor. The values (weightings) taken by I, R and C are 3, 2 and 1 respectively. These values can then be multiplied by the factor rankings of (5, 4, 3, 2 or 1). Finally, all the products (up to 5) can be added up to determine a guiding figure as a Success Perception Index.

Mathematically, the Challenge Index ranges between 0 (5 X 0 + 4 X 0 + 3 X 0 + 2 X 0 + 1 X 0) and 45 (5 X 3 + 4 X 3 + 3 X 3 + 2 X 3+ 1 X 3). Practically, however, the index value should be a figure above zero as absence of the every factor would not be realistic. Scoring the highest for each factor is rather ambitious. Hence, a nominated figure, based on the initial testing with wine makers, suggests the range from around 10 to 40 appears to be reasonable.

If we take the mid-point of this range, then we will have the figure 25. Therefore, we may regard the band ranging between 20 to 30 as a reasonable threshold for the success perception. That means a Success Perception Index of less than 15 compared with an Index of over 30 is assumed to represent a less successful situation. It must be emphasised that this approach should be treated as a heuristic (close enough) rather than an optimisation (exact) model.

Let us consider an example based on a real situation of one of the interviewees:

LD = 3 - 3 means that the user of the model perceives the demand as ideal.

EO = 2
GC = 2
OK = 3
P = 2

Now, we substitute these percentages into the model as follows:

SPI = Sum of { 5 X 3 and 4 X 2 and 3 X 2 and 2 X 3 + 1 X 2}

CI = 40

The winery owner who participated in this activity confirmed that their confidence with regard to their success was rather high. Hence, the calculated index for their success perception is representative of their situation. This particular winery regarded their local demand as 'Ideal'.

It should be noted that this model, as suggested above, provides a figure as a guide which can be used for comparison purposes with other wineries. It can also provide an opportunity for performing what-if analyses. Hence, the user of the model can either relax a factor, increase it, or decrease its percentage and then determine some guiding figures. If the person in question, for instance, decides that they have made some progress in terms of dealing with the expansion opportunities and the factor (EO) deserves a higher ranking then they may substitute 3 instead of 2. It should re-emphasized that this approach is intended to be a heuristic rather than a rigorous model. Hence, the calculated indices should be regarded as guides and used for comparisons.

CONCLUSIONS

This paper has investigated the possibility of quantifying and calculating perceptions of success for the wine industry in Nova Scotia and this study is based on in-depth interviews with a number (17) of selected winery owners and managers in Nova Scotia.

The paper has demonstrated how a model for determining the Success Perception Index for a winery can be modeled and calculated in a heuristic manner. The model has the potential for comparative or what-if analysis by a winery or the industry to monitor and adjust the challenges facing them in a different situation. It is recommended that enhancements using additional data for testing and further development of this approach be carried out in the future.

This study was exploratory in nature and has a number of shortcomings. It makes use of a small sample of interviews and focuses on a single industry. The creation of a heuristic model of decision making was not the original intent of video database designer. It also captures insights from representatives of an industry that is at an early stage of its lifecycle. Finally, the majority of interviewees were male.

Future research projects related to the enhancement of this model are envisaged. These would include a longitudinal exploration of insights from wine industry representatives, from representatives of wine industries located in different geographic locations to take into account different cultures and business practices and representatives of wine industries sitting at different stages of industry life cycle to capture differences between old and new world business practices. Also worthy of consideration would be a comparison between representatives of different industries including male and female representatives.

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