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A COMPARATIVE REVIEW OF DESIGN INNOVATION AND MANAGEMENT TRAITS OF 'LUXURY' COMPANIES

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ABSTRACT

This paper is a review of the design management and practice in two distinct samples: luxury and non-luxury product manufacturers. The research proposes to quantify the new product performance of the luxury sample and understand how it is able to achieve higher yields from new product development. The research exercise was developed through statistical analysis of the two samples in order to demonstrate how such analysis can indicate patterns and characteristics of a specific sector. The aim of the research is to present the potential of statistical tools and a large database in informing sectorial clusters, in this case the luxury industry, through comparative analysis.

Keywords: luxury sector, statistical analysis, design management.

1 INTRODUCTION

Luxury is a subjective concept that cannot be easily defined by database parameters. However this study isolated a group of small to medium sized manufacturers who, by their own account, produce high quality and unique products for a niche consumer market i.e. a 'luxury' sample.

When compared to a control sample; both samples have similar resources invested in design, yet the luxury sample has a significantly higher percentage of sales from new to market products. This is achieved through developing more new to market products, each of which yielding higher returns than the control sample. The majority of the new to market sales are necessary for the luxury sample in order to maintain business rather than to grow.

To understand how the luxury sample is able to achieve higher yields from new product development, the design management and practice activities of the two samples were compared. Out of 89 different activities reviewed, there was a significant difference between the two samples on 31 of them. A company in the luxury sample is more likely to use design in a strategic manner and have sophisticated processes in place that integrate design into the everyday function of the business. In many cases design is part of the culture of a luxury business.

For the last six years, data on the design management practices of companies and organisations have been compiled by the authors through a variety of design initiatives in Europe and South America. Each time the same questionnaire was applied addressing a wide range of design management, process, planning and performance topics. The database currently has over 1500 companies on it from a wide range of sectors and industries, large and small, design centric and non-design centric.

2 SELECTING COMPARABLE SAMPLES

The first stage of the exercise was to select two samples of companies from the database to compare against each other: a luxury sample consisting of companies that fits set criteria, and a non-luxury sample of companies that do not fit the luxury criteria but match the key demographics of the luxury sample in terms of size range and sector. The objective of this process is to separate a almost homogenous group of companies based only on their luxury credentials.

Luxury is a subjective concept, what is luxury for some people is ordinary for others, and can be context driven in terms of the age and nationality of the consumer. Words associated with luxury include; aspirational, quality, exclusivity, indulgence, precious, timeless, excellence, beauty and excessive. However most of these adjectives are difficult to quantify and apply to a database filter. The management consultancy Frontier states, "There is no single universally used definition of luxury or of the segments that make up the European luxury sector" (Frontier 2012). Rather than describe what luxury is and what it entails some references mention what are luxury goods without qualifying them further. The management consultancy Bain & Company compiles an annual global luxury goods market report, in the absence of a definition of what makes a product 'luxury' they simply state that personal luxury goods include cars, wines and spirits, hotelier, food, design and yachts (Bain 2013). Comité Colbert is an association of French luxury brands that promotes the sector internationally. It neither describes what luxury is but instead lists the 'crafts' of luxury products; crystal, decoration, faience and porcelain, fragrance and cosmetic, gastronomy, gold and precious materials, haute couture / fashion, hospitality, leather goods, publishing, silver and bronze, wine and spirits (Colbert 2014). Comité Colbert & McKinsey identified four elements a business operating in the luxury market should have: strong branding, superior quality and timelessness, premium pricing, and stylish and extravagant design. Frontier (2012) identified five pillars that underpin the European luxury business model, they are: aura of luxury to differentiate from mass-market, craftsmanship and creative people, substantial investment in industrial property, selective distribution, and developing new markets around the world.

All of these 'crafts' and personal luxury goods are represented in the database, but how are the Fords separated from the Ferraris, or the Nestle from the La Maison du Chocolat with all the objectivity of a database? Translating the attributes of luxury into criteria to select companies from a database of over 1,500 entries is a challenge. One way would be to review each entry and determine whether they qualify as luxury or not based on the crafts, pillars and elements referenced above. This is a very subjective and inconsistent process that would raise questions about the validity of any findings later on. A more quantitative and objective approach is required with which the final findings can be assessed against.

2.1 SELECTING A 'LUXURY' SAMPLE OF COMPANIES

There are no specific metrics for luxury companies in the database but several filters can be applied to the existing data. All luxury products are manufactured for consumers; these filters can be applied first to the database. A trait specific to luxury products is their quality. There is a Likert scale (Vogt & Johson 2011) for price / quality that many of the entries in the database completed for themselves,

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this can be the next filter. A second Likert scale can be filtered to narrow the sample further to represent the exclusivity the market luxury represents; the niche / wide market Likert scale. Once these filters have been applied to the database the resultant sample is reviewed and excessive company sizes are removed to achieve a more homogenous group of companies without compromising on the sample size, see table 1.

FILTER	DESCRIPTION	RESULTANT SAMPLE SIZE(NO. OF COMPANIES)
Start	Entire database	1504
1	Manufacturing only entries	743
2	Remove business to business entries	327
3	Likert scale Price=1 / Quality & Uniqueness = 10, entries 8, 9 & 10	123
4	Likert scale Niche market = 1 / Wide market = 10, entries 1, 2 & 3	41
5	Remove excessively large and small entries. Size range 8 to 330 employees.	31

Table 1: Filters applied to the database to select a 'luxury' sample of companies

The final list of 31 companies consisted of companies that manufacture furniture, footwear, clothing, eyewear and houseware products. There were other companies in the sample that manufacture non-traditional luxury products including electrical fittings, ceramic tiles and medical products. However they all consider themselves at the high quality and price end of their respective niche markets. Should these companies be removed from the sample it would reduce the size of an already small sample and the element of subjectivity would bring the results into question. The 'luxury' sample represents companies that operate at the niche end of their respective market with high quality and unique products. This description covers all luxury goods in general.

2.2 SELECTING A NON-LUXURY CONTROL SAMPLE

In order to identify what is unique about the 'luxury' sample a control 'non-luxury' sample was compiled. This also consisted of manufacturing companies, non business-to-business, size 8 to 330 employees. Furthermore the same Likert scales were used to filter out a counter sample to the luxury sample. Instead of the quality & uniqueness end of the scale the sample came from the price orientated end of the scales. Instead of operating in a niche market the control sample operates in a wider market, see table 2.

FILTER	DESCRIPTION	RESULTANT SAMPLE SIZE (NO. OF COMPANIES)
Start	Entire database	1504
1	Manufacturing only entries	743
2	Remove business to business entries	327
3	Likert scale Price=1 / Quality & Uniqueness = 10, entries 1 to 7	100
4	Likert scale Niche market = 1 / Wide market = 10, entries 4 to 10	62
5	Size range 8 to 330 employees.	36

Table 2: Filters applied to the database to select a 'non luxury' sample of companies

3 COMPARING THE LUXURY AND NON-LUXURY SAMPLES

To gain a better understanding of the two samples their key performance indicators are compiled in table 3. There is little to differentiate the performances of the two groups with the exception of export where the luxury sample exports twice as much as the non-luxury sample.

METRIC	LUXURY SAMPLE	NON LUXURY SAMPLE
Average size (no. of employees)	69	75
Average turnover	€7,692,910	€6,708,363
Average age of companies (years)	34	39
Average design experience (years)	17	12
Average annual growth over last three years	22.8%	15.6%
Average annual export rate over last three years	36.5%	17.3%
European / South American ratio	39/61	17/83

Table 3: Demographics of the luxury and non-luxury samples

The two samples are compared against each other over 89 design practice and management topics, all of which are based on multiple-choice questions. The multiple-choice data sets measure the distribution of responses across a range of ordinal choices or descriptions for a single question e.g. Don't know, to some extent, to a limited extent, to a great extent. The Chi-square test (Vogt & Johson

2011) was selected to determine if there is a significant difference between the observed frequencies and expected frequencies between two samples of data across multiple-choice responses. The resultant value is a measure of the probability (ρ) that a factor other than chance is determining the difference, or deviation, between the two samples. For example, if the resultant ρ is 0.01, it means there is a 1% chance that the difference is due to chance alone. When applied to the data collected, the smaller the ρ value the more significant the difference is, in this case the position of the sample on the Likert scales.

3.1 MANAGING DESIGN

31 of the 89 topics had a resultant ρ value under 0.05, which is a commonly used standard for testing hypothesis. This means that the two samples perform differently on nearly a third of the design practice and management activities addressed in the questionnaire. In table 4 the ten datasets that demonstrate the most significant difference between the two samples (ρ<0.0002) are listed.

DATASET	P VALUE
Evaluation and monitoring of design performance	0.000000
When designers are involved in the new product development process	0.000001
Awareness of the importance of effective design management in an organisation	0.000001
Is design part of the company or marketing plans and objectives of your company	0.000003
Design management staircase – process factor	0.000006
Competitor analysis	0.000011
Design management staircase – planning factor	0.000016
Coordinating design	0.000033
Design management staircase – capability level	0.000074
Design management staircase – awareness factor	0.000101

Table 4: The datasets with the highest deviation i.e. most

Four of the datasets listed in table 4 are from the design management staircase (Kootstra 2010). The questionnaire is based on this model, which is used to assess the capability of a company to manage design. The design management staircase is based on the process maturity model whereby it is expected that the tacit knowledge of design and the design process improve within an organisation with experience. Each company in each sample is assigned a DMS level based on their response to 18 questions in the questionnaire. The responses form a rating on five factors; the average of the five factors is used to assign a final design management staircase level, see table 5.

DESIGN MANAGEMENT STAIRCASE LEVEL	LUXURY SAMPLE FREQUENCY	NON LUXURY SAMPLE FREQUENCY
DM1 Organisations at this level use design on an ad-hoc basis, with limited targets and guidelines. There is little knowledge available with which to handle design activities. Design activities tend to be unpredictable and yield highly inconsistent results, due to the lack of clearly defined procedures.	21%	31%
DM2 These organisations use design only to meet direct business needs e.g. style changes or product improvement projects. Design is used as a finishing touch. Instead of being used to create added value through new products or services, it is primarily used as a marketing tool that adds value through styling, packaging, marketing communication, or visual identity. There is little or no collaboration between departments and minimal co-ordination of design activities.	10%	31%
DM3 These organisations entrust a dedicated employee or department with formal responsibility for the management of the design process. This person or department will act as an interface and point of contact for designers and other departments as well as management. In order to accommodate shortening product cycles, design is used proactively and becomes a permanent feature of product development.	38%	22%
DM4 Organisations aspiring to establish themselves as market leaders through design innovation eventually begin to espouse design management as part of their culture. These organisations are highly design-driven and stand out because they have a differentiation strategy that revolves around design. Senior management as well as whole departments are closely engaged with design, and design is part of the organisation's main business processes. Design is in effect a way of life within these organisations.	31%	16%

Table 5: Frequency of the luxury and non-luxury sample in the design management staircase model.

It is evident from table 5 that there are significantly more companies in the luxury sample who manage design at level DM3 and level DM4 than there are in the non-luxury sample. This indicates a greater need by companies in the sample to integrate design into the every day function of a company (DM3) or to differentiate themslves in the market through design (DM4). In table 6 the design management factors are described in more detail along with the frequency of the two groups for each level.

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FACTOR AND LEVEL DESCRIPTION	LUXURY SAMPLE FREQUENCY	NON-LUXURY SAMPLE FREQUENCY
Awareness DM1 - Not aware of the benefits and potential value of design (unconscious use of design or no use)	10%	19%
Awareness DM2 - Some functional specialists are aware of the benefits of design.	7%	25%
Awareness DM3 - Most are aware that design is important in order to remain competitive.	41%	38%
Awareness DM4 - All are aware that design is fundamentally important in order to gain a leadership position.	41%	19%
Planning DM1 - Company or marketing plans do not mention the use of design.	10%	41%
Planning DM2 - Limited plans and objectives exist at an individual project level.	31%	22%
Planning DM3 - Plans and objectives exist that set direction and integrate design in various activities.	38%	25%
Planning DM4 - Design is part of strategic plans; design planning is a dynamic process that drives the business.	21%	13%
Resources DM1 - The business has no committed resources to design (may not appreciate the return of design investment).	7%	12%
Resources DM2 - Limited resources are allocated for individual projects, one-off design investments with no review of returns.	24%	33%
Resources DM3 - Sufficient resources are allocated on the basis of potential return, limited procedures in place to assist decision-making.	45%	39%
Resources DM4 - Substantial resources are allocated, with financial procedures in place to appraise investments assessing risk and tracking returns.	24%	15%
Expertise DM1 - Little or no skills to handle design activity, no design management tools applied.	28%	50%
Expertise DM2 - Some skills, basic design management tools applied inconsistently, lots of room for improvement.	14%	13%
Expertise DM3 - Standard design management tools applied consistently; some room for improvement.	38%	34%
Expertise DM4 - Appropriate expertise, use of advanced design management tools, appropriate metrics used.	21%	3%
Process DM1 - No idea where design fits within current business process.	14%	28%

Process DM2 - Inconsistent and late in development, not repeatable across projects.	10%	31%
Process DM3 - Performed consistently and early, there is a formal design management process that drives performance.	38%	25%
Process DM4 - Design is an ongoing activity; business is engaged in continuously improving the design process.	38%	16%

Table 6: Frequency of the luxury and non-luxury sample for each of the design management staircase factors.

The factor with the most divergent results is the Process factor (ρ=0.000006), where the majorities of companies in the luxury sample has formal design processes in place (DM3) and are continuously improving the process (DM4). This is in contrast to the non-luxury sample where the majority of companies do not have a design process in place (DM1 and DM2).

3.2 RESOURCES AND INVESTMENT IN DESIGN

The factor with the least divergent results is the Resources factor (ρ=0.155213) where the two samples have similar distributions across the four levels. This would suggest that the element of resources for design is not a differentiating factor when comparing the two samples, i.e. one sample cannot claim a significant advantage over the other in terms of how design is resourced. Upon further review of the data, the level of financial investment in design is similar for the two samples. In the questionnaire, each participant is asked to indicate what percentage of investment is assigned to key business activities in their company, see table 7.

INVESTMENT	LUXURY AVERAGE	NON-LUXURY AVERAGE
Design	19.6%	19.3%
Equipment	14.8%	19.5%
Information technology	9.7%	7.1%
Marketing	18.8%	21.0%
Premises	6.3%	8.1%
Research & Development	13.8%	9.8%
Training	6.2%	4.5%
Other	10.9%	10.7%
TOTAL	100%	100%

Table 7: Average investment profiles of the luxury and non-luxury sample.

The two samples invest similar levels into design activities and marketing. One key difference is the investment levels in R&D, although low in comparison to design and marketing, the luxury sample invests considerably more than the non-luxury sample.

3.3 DESIGN & STRATEGY

In table 4, one of the topics addresses the issue of design in strategy and has the fourth lowest ρ value (0.000003) indicating a very significant difference between the two samples, table 8 elaborates on this topic further.

IS DESIGN PART OF THE COMPANY OR MARKETING PLANS AND OBJECTIVES OF YOUR COMPANY?	**LUXURY SAMPLE**	**NON-LUXURY SAMPLE**
Company or marketing plans and objectives do not mention design	11%	13%
Limited plans and objectives exist at the project level;	7%	31%
Plans and objectives exist which set direction for design	18%	25%
Design is included as part of the strategic plans	61%	28%
Don't know / other	3%	3%

Table 8: Distribution of the two samples across design strategy choices

The striking difference between the two samples is the frequency of luxury companies that include design as part of their strategic plans (61%) compared to the non-luxury sample (28%). It is clear that luxury companies are more inclined to align design to strategic objectives whereas non-luxury companies, in general, utilise design on a project-to-project basis.

3.4 INNOVATION

One innovation metric employed by the database is the percentage of annual sales from products new to the market. When accumulated in groups of companies this metric can provide some comparable insights. A series of questions are constructed in the questionnaire to arrive at a figure specifically for new to market products introduced by the company, see table 8.

	LUXURY SAMPLE AVERAGE	**NON-LUXURY SAMPLE AVERAGE**

A. How many products and/or services does your company currently market, not including minor variations in the same product?	141	251
B. How many of these products and services were introduced in the last three years?	63	68
C. How many of these products and services were new to your market, i.e. the introduction by your company of a new or significantly improved product onto your market before your competitors?	33	19
D. What percentage of annual turnover did these 'new to market' products generate in the last year?	32.9%	15.9%

Table 8: Innovation metric questions and average results of the luxury and non-luxury samples.

With the above data, combined with turnover data, it is possible to calculate more indicators to review the performance of the new to market products, see table 9.

	LUXURY SAMPLE AVERAGE	**NON-LUXURY SAMPLE AVERAGE**
1. % of entire product range less than three years old	44.6%	27.1%
2. % of new products that are new to the market	52.4%	27.9%
3. Average sales for each new to the market product	€51,855	€32,671
4. Last year's sales from products new to the market	€1,711,224	€620,751

Table 9: Innovation indicators of the luxury and non-luxury samples.

The luxury sample has a greater rate of updating its product range than the non-luxury sample (44.6% v 27.1%). It also introduces a higher proportion of new products that are new or significantly improved onto the market than the non-luxury sample (52.4% v 27.9%). The luxury sample produces more new to market products (33 v 19) and each product yields higher sales (€51,855 v €32,671), resulting in significantly higher sales from new to market products (€1,711,224 v €620,751). This has a marked affect on turnover (33% of last year's sales v 16%).

3.5 CONTRIBUTION TO GROWTH

The average three year annual growth rate of the luxury and non-luxury samples are 22.8% and 15.6% respectively. In order to understand the extent

new to market sales are contributing towards growth the data is reviewed in table 10.

	LUXURY SAMPLE AVERAGE	NON-LUXURY SAMPLE AVERAGE
% of last year's sales from new to market products	32.9%	15.9%
% of last year's sales represent increase in sales	10.7%	10.5%
Last year's sales from new to market products	€1,711,224	€620,751
Last year's sales representing increase in sales	€823,141	€704,378
% of new to market sales contributing to growth	48.1%	100%

Table 10: Breakdown of sales gain and sales from new to market products

The figures above are rudimentary but the differences between them are significant enough to draw some observations given the comparable demographics of the samples. Although the luxury sample significantly out performs the non-luxury sample in sales from new to market products, not all of it is translated into growth to the same extent as the non-luxury market. Assuming that new to market products contribute entirely or partially to new sales, only 48.1% of sales from new to market products in the luxury sample contributed towards new sales compared to 100% in the non-luxury sample. This would suggest that a large proportion of sales from new to market products in the luxury sample are used to maintain sales, and the growth gained from new products is comparable to the growth the non-luxury sample experiences. This observation is further supported by the higher rate of turnover of products in the luxury sample (item 1, table 5).

4 CONCLUSION

This paper has proposed to review the design management and practice in two distinct samples: luxury and non-luxury product manufacturers – in order to quantify the new product performance of the luxury sample and understand how it is able to achieve higher yields from new product development. This research exercise was developed through statistical analysis of the two samples and aims to demonstrate how such analysis can indicate patterns and characteristics of a specific sector.

In this paper, objective criteria were applied to identify a sample of companies that is defined by a subjective concept. In order to achieve a truly representative sample of luxury companies, a panel of respected experts in the field of luxury would have to review the database and agree which companies should be included in the sample. Although this would add some legitimacy to the selection of the sample it would not be possible due to the confidentiality of the data promised to the companies when they participated in the surveys.

Alternatively the same survey can be conducted on a group of recognised luxury companies, and the comparative analysis can be made on larger and more specific samples.

Through this paper, the researchers aim to present the potential of statistical tools and a large database in informing sectorial clusters, in this case the luxury industry, through comparative analysis. The comparative analysis methodology described in this paper has the potential to be very detailed with over 89 topics to review. The challenge remains in translating hard data into a cohesive diagnosis that describes the attributes of an entire sector in a useful manner.

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