**Deliver a Cost Effective Beer Format for a New-To-World Product – Literature Review**

Packaging is one of the most important processes to maintain the quality of food & beverage products for storage, transportation and end-use. Packaging can have many functions that extend beyond the traditional containment/protection function. Packaging can also significantly enhance the marketing aspect of a new product launch (Han et al, 2005). This is the only guaranteed point that the end consumer will interact with the brand. Either above the line (ATL) or below the line (BTL) advertising may not reach the intended consumer. In a highly competitive beverage industry, differentiation is required for the launch of new innovations. New beer brands utilise packaging to differentiate themselves from competitors in order achieve greater market share.

The landscape of global beer has changed dramatically over the past number of years with the focus changing from the oversaturated developed markets to the developing markets. Global Beer Market growth increased slightly in 2011 to 2.6%, but global demand remains depressed due to the continued economic uncertainty (Canadean, 2012). The gap between emerging markets in Africa; Asia and Latin America (up 5%) and the developed markets of Europe and North America (down 0.4%) continues to widen. The main drivers behind this recent change are the Eurozone crisis and slow economic recovery in the US is dampening demand. This is increasing the existing trend for consumers to migrate from beer to other categories in these markets. Relatively robust economic performance and young growing populations are fuelling demand in developing markets (Canadean, 2012). These factors increase the need to supply a competitive format to developed markets. Packaging is a key area where COGS reduction can be realised while also adding to corporate responsibility of the industry. In developed markets there is an expectation of a premium product including packaging at a competitive price. This is testing packaging materials to the extreme by right-weighting and also shipping existing formats through more challenging supply chains as costs are reduced.

In order to understand how packaging can be exploited for the launch of new beer brands, it is important to understand the current situation in beer packaging. Beer packaging has been in existence since early Egyptian times in line with the first documented beer brewing. It is thought that beer brewing itself predates to Neolithic times when the first cereals were harvested. Clay pots were used in Egyptian times to transport beer after brewing (Homan, 2004). This was purely function transportation. Beer packaging now also incorporates convenience as well as a marketing function. In the 21st Century the most common beer packaging formats include; bottles, cans and kegs. (Coles & Kirwan, 2011). The world market for cans is estimated at 410 billion containers per annum (Coles & Kirwan, 2011). The beverage industry accounts for the majority of these at 320 billion. This is followed by processed food cans at 75 billion. The remaining 15 billion comprises of aerosols and general line containers. Metal containers provide a lightweight solution capable of shipping long distances (Coles & Kirwan, 2011). Metal cans also have the advantage of giving 100% UV protection which is advantageous for beer products. UV light can cause riboflavin to react with and breakdown isohumulones found in beer. Isohumulones are responsible for the desired bitterness found in beer as a result of the hops. This is an undesirable reaction and if this occurs, then the beer is commonly described in the industry as lightstruck (Eie & Thomas, 2009). Bottled beer is perceived as a more premium product and generally favoured by craft breweries. Craft brewer is a term coined by the American [Brewers Association](http://en.wikipedia.org/wiki/Brewers_Association); it gives a definition of "small, independent and traditional": small defined as an "annual production of 6 million barrels of beer or less", independent defined as at least 75% owned or controlled by a craft brewer, and traditional defined as at least 50% of its volume being all malt beer (Brewer Association, 2013). The craft brewing sales share in 2011 was 5.7% by volume and 9.1% (Brewer Association, 2013). A keg is traditionally made of wood made by a cooper for transportation of goods. These were originally used for transportation of gunpowder, nails and a limited number of liquids. (Kerry & Butler, 2008). Modern beer kegs are manufactured out of stainless steel or aluminum. These kegs are returnable and are refilled by the packer filler. Beer is dispensed through the spear using a gas, typically CO2 or N2. High capital cost is required for both keg purchase and dispense equipment purchase (Hayter , 2001).

As with all Fast Moving Consumer Goods (FMCG) sectors, there is a drive on to reduce COGS (Cost of Goods Sold) in order to maximise profit. The beverage industry is no exception to this. Packaging is just one of these areas where savings can be achieved. Reduction in packaging can have a two-fold effect by decreasing costs and also adding to the sustainability agenda. Sustainability is described as ‘development which meets the needs of the present without compromising the ability of future generations to meet their own needs.’ (Drexhage & Murphy, 2012). Diageo as the world’s largest spirit producer and a major wine and beer producer encourages and promotes sustainability (Thompson, 2010). For example, Baileys’ work with Irish cream suppliers has encouraged others in the industry to promote sustainable dairy farming practices (Diageo, 2012). In 2012, Diageo saved 13,374 tonnes in packaging weight, a reduction of 1.6%. Since 2009, we have reduced the average weight of our packaging by 4.8% (Diageo, 2012). This not only adds to the corporate responsibility agenda but also results in a cost effective packaging formats. This can add to the competitiveness required in developed markets.

Low Density Polyethylene (LDPE) is commonly used for secondary packaging purposes. In the beverage industry this is generally printed and creates multipacks for cans of various combinations. LDPE can be printed with a high quality artwork to achieve a premium looking pack at a cost effective price. LDPE is a thermoplastic manufactured through a high pressure method (Malpass, 2010). LDPE prices have fallen by up to 30%: Western Europe and North America are additionally seeing considerable decreases in demand. Consequently, global revenue has fallen to €15.9 billion (Ceresana,2010). The trend of reducing substrate prices can be taken advantage in delivering a more cost effective pack. The Asian Pacific will be the most important LDPE market and will be able to increase its share of global consumption to more than 39% (Ceresana, 2010). The Middle East is defined by its continued expansion of LDPE production: capacity increases of around 3.5 million tons are planned to take place by 2014. As a result, Saudi Arabia, Qatar, and Iran will become the world's largest exporter of plastics (Ceresana,2010).

By reducing packaging materials there is an increased risk that the packaging may no longer perform significant protection that delivers an acceptable product to the consumer. Damaged product carries the cost of product replacement as well as possible reputational damage. This risk can be minimised by performing laboratory testing as well as physical transit trials. Laboratory transit testing typically includes Impact, Rotational Edge Drop, Compression, and Vibration. For comparison purposes, testing conforms to general standards. For the US market, the ISTA (International Safe Transit Association) standards are used. The ISTA focuses on concerns over transport packaging and strives to deliver standards and tools for economic, social and environmental optimisation of packaging systems (ISTA, 2008). For beverage pallets testing protocols utilised are based on ISTA 3E(Unitised loads of the same product) and 3F (Packaged products for distribution centre to retail outlet shipment 45kg). These are the standards methods based on laboratory simulation of US retail supply chains. This will give a quantifiable result so that the risk can be assessed. There are many intricacies that can be mimicked through laboratory testing. By sending samples through the exact supply chain any unique features will be highlighted. This is a more subjected measure as it is typically verified by visual inspection.

The objective of this assessment is to develop a cost effective packaging format for a new to world lager. Despite cost being the driver for this packaging development, it is important that the consumer receives a premium product. This is important so as not to damage the brand equity of the new lager – Guinness Black Lager. This product is for export purposes so protection during packaging is essential.

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