Proceedings of the Institution of Mechanical Engineers Part B-Journal of Engineering Manufacture September 1, 2008, Vol. 222, No. 9, 1181-1188

An exploration of policies and practices used to showcase production facilities

T S Baines*, P Ball, S Cooper, P Dawson, S Wilkinson, M Woods, and J M Kay

Department of Manufacturing, Cranfield University, Cranfield, UK

The manuscript was received on 7 August 2007 and was accepted after revision for publication on 12 May 2008.

Proceedings of the IMechE Part B Journal of Engineering Manufacture, Vol. 222, No. 9, pp. 1181-1188.
DOI: 10.1243/09544054JEM975

Abstract: Manufacturers who seek innovative ways in which to differentiate their products and services should not overlook the value of showcasing their production facilities. By careful design, visitors can be exposed to a series of experiences that can help to emphasize the value built into products. This topic has, however, received almost no attention by manufacturing researchers. Therefore, this paper describes a study of six manufacturers and, from this, proposes a set of guidelines for showcasing production facilities. Although exploratory, this work provides both a guide to manufacturers and a platform for more in-depth research. The guidelines and the case studies on which they are based are all described within the paper.

Keywords: manufacturing, system design, branding

1. INTRODUCTION

There are many articles that focus on how to design, or redesign, a manufacturing system to deliver competitiveness in terms of cost, quality and delivery. Often the motives for such papers are pressures to respond to competition in lower cost economies. However, a topic that is frequently overlooked is the role of the production facility in helping to demonstrate the value built into products. Treating the factory as a showroom is an obvious marketing opportunity. Some manufacturers will offer carefully orchestrated tours, while many others are amenable to visit requests. Distillery tours in Scotland, UK, to see the whisky production processes are a classic example of this. The question that then arises is how to do this effectively? The literature however gives little guidance on how best to showcase a production facility, more crucially, there is nothing what-so-ever in terms of manufacturing system design considerations. Therefore, this paper sets out to present a series of guidelines that practitioners can use to help manage the experiences of visitors to their facilities.

The guidelines have themselves been generated through a series of six case studies of UK manufacturers. The research has been carried out by a team of practitioners using a largely inductive methodology. Analysis of these cases has then led to the generation of findings, which range from promoting heritage and emphasising a commitment to the environment, through to presenting exciting processes. This as been an exploratory study and, in presenting this paper, we are mindful that these guidelines are not complex neither have their relative merits been evaluated. Yet, to a practitioner they provide a useful guide to showcasing their facility and, to the research community, a starting point for exploring the much greater challenge of creating manufacturing system designs that are consistent with the brand identity sought by an organisation. This is a topic we intend to explore in the future.

In terms of the structure of this paper, we first give a more in-depth background to the factory as a showroom and the related topic of branding. The research design and case studies are then described, and this leads into the generation of the key findings. Finally, conclusions are drawn and our thoughts about future work given.

2. BACKGROUND

2.1 The factory as a salesroom

Supporting the notion of using the factory as a salesroom, Tsai (2005) suggests the space in which the product is produced, marketed, delivered, and serviced should correspond to the customer's expectation of the brand. This develops the idea of experiential marketing to include a tour of a manufacturing plant, where the marketing experience is described by Pine & Gilmore (2004) as a *"physical or virtual experience that's so engaging current and potential customers can't help but pay attention-and buy your product."* This so-called brand experience is the process of taking the values of the brand and extrapolating them into an environment where the consumer becomes immersed, surrounded by colors, shapes, sounds and sensations which embody what the brand is about. Mitchell & Mitchell (1999) see factory tours as a strategic tool that connects people with the creation of products through their curiosity with how things work and in turn create personal bonds with the products. Likewise, Brumberg & Axelrod (1995) quote one company president as saying "One visit has more value than one hundred commercials".

The hurdle according to Valencia (2005) with creating such experiences is that there are few established professionals, publications, definitions, required skills, metrics or best practices. Whilst there are some papers that address manufacturing tours, there is little literature giving guidelines for principles and design of these. Mitchell & Orwig (2002) state that consumer experience tourism has received little attention in the [marketing] literature. There are publications (e.g. Axelrod & Brumberg, 1995) that document the range and accessibility of plant tours but not the guiding design principles. Upton & Macadam (1997) are amongst the few that do present an approach for designing a plant tour. This work can usefully inform the features of a tour as it takes the perspective of the visitor (student, business person, etc) but it does not relate the features of any particular aspects of the brand. Likewise, some very high level features of factory tours have been documented by Mitchell & Mitchell (1999) who consider such factors as:

- Geographic location
- Admissions (booking and fees)
- Touring the facility through the use of guides
- Nostalgia and re-connection with the past
- Creating a multi-sensory experience, such as tastings in food/drink sector
- The role of branded merchandise through gifts and/or a shop
- Recognition of liability and security

Whilst these characteristic are broad they lack the specific detail for others to use as guidelines for the creation of tours that reinforce brand. Unfortunately, the link between experience, brand reinforcement and revenue generation is difficult to measure, especially with the relatively low numbers that would be capable to visiting a production facility. In a retail environment Green (2003) suggests that the use of branding throughout the outlet directly increases saleability of the product. However, for many companies, the primary motivation is not immediate revenue generation but to reinforce brand image and in turn create and enhance brand loyalty (Valencia, 2005).

2.2 An overview of branding

The concept of 'branding' originated in the 19th Century with the introduction of packaged goods (Omar and Williams, 2006). At this time companies began the "marking" of their products to assist in grouping and sorting for onward distribution. The fallout was to provide product recognition within the market place, which developed into what is commonly known as "brand recognition". A brand is a consumer's perception that a product or company is distinctive and offers more than the competition (Von Brachel, 1999). Simplistically, a brand is a visual aid developed by companies to represent implicit value, ideas and even personality that will engage the consumer (Schmitt, 1999). Brand identity represents the firm's reality whilst brand image represents the consumer's perceptions therefore by strengthening the linkage between identity and image brand loyalty can be created (Nandan, 2005).

The importance of brand identity cannot be underestimated. It can influence the ease of entering new markets, the price a company can charge, and the type of customer it can attract (Lancaster and Massingham, 1988). For these reasons it has become a major focus for marketing professionals in a bid to differentiate their products (Omar and Williams, 2006). Most work in this area focuses on advertising the value of the product or services to the potential consumer. However, it is not only through the product and service itself that brand identity can be nurtured; the perceptions of the host organisation can also play an important role. For example, Dyson in the UK is known as a product innovator in the home cleaning market. As brand loyalty increases, the concept of brand equity can be developed. Brand equity represents the additional value bestowed on a product as a result of loyalty within the marketplace (Nandan, 2005). Its

strengths resistance against competitive product attacks, additional support in pricing and promotional wars, and an established customer base for the launch of new products.

Experiences can support branding. In a world in which brands rule, products are no longer bundles of functional characteristics but are rather a means to provide and enhance customer experiences (Schmitt, 1999). In essence, the consumer now identifies with a brand promise. The experience has gone on to be associated with the promise, thus achieving the brand loyalty the manufacturer desires, and according to Reichheld and Sasser (1990) is the "ultimate goal of marketing".

In the industrial sector it is perceived that brand identity is governed by internal marketing organisations, yet there are also other functions which can contribute. The manufacturing operations department often represents a significant proportion of the workforce and indeed creates the product for the marketplace and so can contribute and support the delivery of brand identity to the customer. Veley (1998) suggests one of the main approaches as being through a company's people. Their attitude towards the product and the way in which they carryout their job can emit a sense of pride which in turn increases the sense of brand identity for the customer. Wheeler et al (2006) concur and go on to propose that if an employee attains a high level of job satisfaction he will be keen to share it with prospective customers. Gotsi and Wilson (2001) quote one interviewee "the real proof of the pudding is when the visions, values and sense of purpose are translated into the detailed day-to-day changes to people's behaviour and success criteria". Whilst this is related to the internal behaviours it is relevant to how a company portrays itself to visitors. Ind (2001) takes the perspective of human resources and marketing functions within a business informing the company rather than incorporation with operations and its design. From the human resources perspective, Gofton (2000) examines the issue of brand performance measurement and staff facing the question "Am I on brand".

3. RESEARCH DESIGN

3.1 Aim and Scope

The purpose of this research has been to establish a set of guidelines, for the manufacturing professional, which can be used to influence the way in which production facilities are showcased. On approaching this study, it became apparent that there is little previous work in this area, with no directly relevant existing models or frameworks on which to build. Therefore, our chosen approach has been to conduct an exploratory study, following a largely inductive approach, where we set out to gain insight and identify the popular approaches to showcasing a facility. The limitation of this approach is that no assessment can be made about the relative or absolute effects. Nevertheless, this work will form a basis for such in-depth and critical analysis in the future and, in the meantime, provide useful guidance for manufacturers.

On designing the study it was decided to focus on physical tours of facilities and specifically excluded virtual tours, e.g. BMW's South Carolina video based virtual plant tour (BMW, 2007). Whilst video tours can offer a valuable means of presenting a facility, our particular interest in this work is in helping manufacturers deal effectively with physical visitors to their production facilities.

3.2 Case Study Design

A case study research methodology was chosen because it is helpful and insightful for investigating loosely formed ideas (Yin, 1994), as opposed to the traditional survey with a questionnaire which requires a thorough grasp of the intricacies of the topical area (Synodinos, 2003). The choice of case study companies was carefully controlled. Our notion is that manufacturers with a stronger brand identity are likely to be sensitive to how their facilities are exhibited, and so more likely to demonstrate good practices. Therefore, companies were targeted with a relatively high ranking within the Brand Index League table published yearly (Brand Index, 2005). A number of companies were then approached and asked to host the study. From this, six companies were selected to represent a number of different industrial sectors. The case studies chosen gave a mixture of commercially available tours and visits arranged specifically for the research. We have chosen not to disclose the actual company names, as this gives us greater freedom to discuss our results and findings.

The research team itself was also carefully chosen. This research was carried out in collaboration with Rolls-Royce Aerospace and BOC Edwards. These companies combined to provide a group of 20 senior engineers, technologists and mangers to participate in the collection and analysis of data and compilation of findings. Over a course of one week in March 2007, this group visited each company, typically spending one day within a plant, and interviewed a wide range of people from senior managers to operators to tour guides.

3.3 Data Collection Protocol

Prior to visiting each of the case study sites thought was given to the data that would need to be collected. In the absence of sufficient previous work on this topic to form the basis of a structured questionnaire, the team had to rely on creating a broad set of questions to guide semi-structured interviews. Although these

questions would not necessarily lead directly to an equivalent set of findings, they would ensure the team first explored the brand identity associated with each case company, and then seek to identify the practices which best showcased these. Some indication as to the type of questions to ask was gained from the more general literature on branding. Exploration of the content involved suggests two very different approaches to the composition of brand identity. Witkowski et al (2003) conclude that a tangible set of components make up brand identity whereas Nandan (2005) assumes a more ethereal feel containing behaviours and culture. These categories detail different methods of getting the brand message across in terms of "quality, heritage and contemporary imagery" (Lannon, 1994). A hybrid of these two approaches provides the basis of our four key research questions, namely:

- *What is the 'personality' that the host company aspires to associates with their brand?*
- *What 'practices' within the manufacturing operation are presented to visitors and how do these relate to the aspired brand personality?*
- *What aspects of 'products' are presented to visitors and how do these relate to the aspired brand personality?*
- *How is the overall manufacturing facility 'presented' and how does this relate to the aspired brand personality?*

4. OVERVIEW OF THE CASE STUDIES

4.1 AutoComponent Ltd

This site was established in 1951 and produces high quality veneer fascias. The brand features highly in the brand index and is a household name associated with quality, tradition and prestige. It is a relatively small site but wholly owned by a large corporation that makes extensive use of this specialist facility to support the differentiation of their prestigious product. During the tour each group was led through the manufacturing stages, each stage of the process was described in detail to the groups. The tour followed a pre-determined route through the factory, which was well orchestrated through floor markings outlining the gangways and was conducted by experienced personnel. The factory was painted in the corporate colours, and all personnel were wearing corporate work wear brandishing the company's logo.

4.2 FineChina Ltd

FineChina has been a manufacturer of fine china for over two centuries and is now part of a larger group which employs over 9500 people and has approximate annual sales of £500 million. The brand is within the top 10 in its category in the brand index league and can be considered a prestige household name known for craftsmanship and quality. The factory tour commences at a purpose built reception area. Here, various media forms are utilised to portray the company's proud heritage with emphasis on the craft skills employed. The self guided tour then follows a pre-defined route through a production area of the factory where workers can be watched carrying out specialist and intricate tasks. The tour concludes in a large and well furnished factory shop.

4.3 Excavators Ltd

Excavators is a manufacturer of construction and agricultural equipment pioneered by its founder in the 1940s. The brand is synonymous with its sector and has an image of quality and durability. Again, the tour commenced at a large and well equipped reception area. Retired employees then gave a detailed and well informed guided tour of much of the production facility. Here, brand image was re-emphasised continually and various media formats, and corporate colours were evident throughout the factory. In a similar vein, the phrase 'A great British manufacturer' appearing on media throughout the factory.

4.4 Automotive Ltd

Automotive grew from an initial motorcycle sidecar firm in the 1920s. The visit to Automotive saw a mixture of tools used to promote the brand. This was initiated through entrance to a purpose built Visitors Centre containing examples of the product, merchandise shop and a media facility to explain the history of the firm. There was however little evidence of brand identity within the factory, other than the vehicles themselves.

4.5 Confectionery Ltd

This particular brand of confectionery started in 1824 with the opening of a shop in Birmingham selling tea, coffee and the founders' homemade drinking chocolate or cocoa. The brand features extremely highly in the brand index league and is synonymous with its sector with an image of taste, quality and perhaps fun. Today Confectionery has a visitor centre in Birmingham dedicated to the history of chocolate and this was the focus for the research for this study. This centre educates the visitors through a series of differing mediums including videos, holographic stories and interactive settings.

4.6 SpecialistAuto Ltd

SpecialistAuto was founded in 1911 and has built its reputation on building classically styled cars, manufactured by traditional methods, with the main body of the cars still built from wood. The brand is associated with craftsmanship and adventure. An informal tour of the manufacturing facility was given by an experienced employee. This was preceded by an introduction to the company and its history by the grandson of the founder.

Topic	Policy	Possible practices
Arrival and reception	Promote positive first impression of facility and brand by guiding the visitor smoothly to the site and reception	1. Provide clear directions to the facility and reception area. 2. Develop surrounding landscape and site/facility entrance to portray the brand image. 3. Provide adequate parking. 4. Consider that visitors may arrive by coach and if so provide adequate access 5. Display products and company's heritage in the reception area.
Health and safety briefing	Treat health and safety briefings as an opportunity to demonstrate a positive image of the manufacturing facility	1. Promote both safety and business values at the health and safety briefing. 2. Provide high visibility vests and safety glasses with company logo. 3. Ensure that safety signage also carries company brand.
Introducing the role of manufacturing	Introduce the role of manufacturing within the wider business by promoting successes and heritage.	1. Use video, interactive exhibits, and displays to promote business successes. 2. Present company history, splitting the story into eras for ease of understanding. 3. Present a story of the founder and their values. 4. Convey messages consistent with both present and future product strategies.
Guiding visitors	*Develop a pre-planned, well guided, and carefully managed route through the facility*	1. Identify a preferred tour route 2. Assign experienced and enthusiastic tour guides. 3. Support tour guides with communication aids. 4. Avoid dirty or potentially hazardous areas 5. Control times when facility can be visited. 6. Ensure high standards of house keeping on route 7. Ensure visual aids and performance measurement boards are up-to-date
Presenting technologies and practices	Carefully exhibit exciting and engaging production processes that are consistent with brand values.	1. Emphasis production process that support product identity 2. Highlight technologies and practices that are memorable. 3. Show only those production process that are consistent with brand values.
Appearance of the workforce	Portray a workforce appearance that is consistent with the brand values.	1. Provide company apparel/uniforms in keeping with the brand 2. Ensure workforce is courteous in the way they interact with the visitors. 3. Raise workforce awareness of visitors through clothing (high visibility vests, etc).
Appearance of the working environment	Demonstrate a clean and orderly production environment with subtle reminders of the brand identity.	1. Adopt company colour schemes and logos throughout the production environment 2. Ensure the production environment is clean and well organised 3. Emphasise commitment to the environment
Product placement within manufacture	Make good use of product placement to provide link with brand.	1. Exhibit completed products or parts at both the beginning and end of the tour. 2. Incorporate semi-finished parts on storyboards. 3. Provide product samples.
Departure from the facility	Ensure that the visitor takes the 'brand home' when they leave.	1. Offer a memento to remind visitors of the factory and products. 2. Provide a shop to allow visitors to purchase gifts and maybe products.

Table 1: Guidelines for the showcasing of a production facility

5. FINDINGS AND ANALYSIS

This section presents the key guidelines that have emerged from the execution of the research design. These have been presented in an order that reflects how a typical visitor is exposed to a manufacturer, and are summarised in table 1.

5.1 Arrival and reception at the manufacturing facility

Upton & Macadam (1997) suggest that most visitors don't begin thinking about a factory until they are in the plant's parking lot. While this may be the case, our study shows that most manufactures do consider the visitors experiences well before their arrival. Confectionary, for example, provides signage that begins on the motorway exit some miles from the facility itself. The visitor is then guided to take the optimum route to the car park and into the reception area. Similarly, at Excavators, the flagship site is purposefully landscaped to include a lake, corporate sculptures, and a clearly signposted parking and road network. Here, there was then adequate parking for cars and buses, clear sign posting to the reception area, where the visitor is then welcomed and greeted with refreshments. Within reception at Excavator, FineChina and Automotive, the visitor was then exposed to the company's heritage, products and awards. These experiences all indicate the perceived importance of promoting a positive first impression of the facility by guiding the visitor smoothly to the site and reception.

5.2 Health and safety upon arrival

Health and safety requirements necessitate that visitors are appropriately briefed prior to a site tour, however, some businesses also took this as an immediate opportunity to present their facilities. For example, Automotive and Excavators provided each visitor with high visibility vests and safety glasses which all carried the company logo. Then, during the briefing, they conveyed both business and safety values to the visitor. Similarly, FineChina and Confectionary both made extensive use of safety signage which also carried the company brand. This branding was very subtle and unobtrusive, yet acted as a reminder of the host. Overall this evidence suggests that while health and safety process are a legal necessity they are also an opportunity to demonstrate a positive image of the manufacturing facility early in a visit.

5.3 Introducing the role of manufacturing

In each of the cases the company background and the role of the manufacturing operation were carefully presented prior to the visit commencing. Here, a variety of media were employed to portray business successes and heritage. Automotive, Excavators, and FineChina all used videos, SpecialistAuto and AutoComponents relied on short presentations by experts, and Confectionary used interactive exhibits. Topics included how the company started, its founder, age, original products, how they were designed, major customers and, importantly, how these traditions and values continue into the present day. For example, Automotive built their reputation on racing and put this message across strongly in their introductory presentation. Several companies split their story into eras to provide clarity to the visitor. This was used to good effect by SpecialistAuto to ensure the message conveyed did not contradict any future product strategies.

These approaches are consistent with the views of other researchers. Valencia (2005), for example, highlights that the story of the founder and their values presents a powerful opportunity to reinforce the brand. Likewise, Mitchell & Mitchell (1999) observe that looking to the manufacturer's past generates visitor nostalgia and maybe a re-connection with the factory being a significant employer.

5.4 Guiding visitors through the facility

It was evident in the cases that the route through a facility, the manner by which visitors were guided, and the timing of visits were all important considerations in showcasing a facility. The approach taken by SpecialistAuto is typical of a carefully planned route seen in many instances. The tour started with an introduction and description of the product being manufactured. Then, visitors we're guided along highly visible walkways that, in this case, commenced with an automated and visually impressive robot riveting section. On this route housekeeping was of a high standard, dirty and potentially hazardous areas were avoided, and performance measurement boards were clearly visible and up-to-date. To guide visitors, Automotive, Excavators and SpecialistAuto, all used retired employees as hosts. These tours were enhanced by the visitor being given headphones to overcome the factory noise, and even route maps to help explain the facilities being shown. The timing of tours was also controlled. Automotive, for instance, carefully controlled the times of visits to avoid break times and give the impression of a busy and productive factory. Overall, this led us to conclude that a pre-planned, well guided, and carefully managed route is valuable in showcasing a facility

5.5 Presenting technologies and practices

Many of the cases chose to exhibit exciting and engaging production technologies. A good example of this was the 'firing tunnel' at FineChina. The tour route deliberately guided the visitor to the end of the tunnel, giving a clear, unobstructed view of the flames licking the sides of the plates being processed at the time. This was visually impressive, easily viewed, and left a lasting impression. The extensive two hour testing of every finished unit at Excavators provided an eye catching demonstration of quality assurance. It was a stereotypical heavy engineering image, leaving the visitor with an impression consistent with brand identity. This consistency with brand occurred on several other occasions. For example, Automotive highlight the use of modern aluminium riveted and bonded processes, which are entirely consistent with the image they seek to promote of a leading sports car manufacturer. Similarly, high levels of robotics and state of the art image recognition inspection equipment added to the brand identity they seek to portray. SpecialistAuto, by contrast, use traditional buildings, along with skilled people crafting wood and forming panels, which is entirely consistent with the heritage product they manufacture. FineChina only show the top end, high quality, hand crafted areas to visitors, reinforcing the craftsmanship image of the company. Overall, this led us to conclude that a valuable policy in showcasing a manufacturing facility is the careful exhibition of exciting and engaging production processes that are relevant to the brand identity.

5.6 Appearance of the workforce

Each of the companies used workforce appearance to portray a positive workforce image. As pointed out by Weller (1997), work wear can increase employee commitment and improve the image, and help the customer to think the workers are professional and the company is well run. At Excavators, for example, work wear was particularly effective as it appeared to be durable and stylish, which is entirely consistent with the brand image. However, it was interesting to note that the 'uniform' at companies differed to reflect the brand values. Hence, the appropriate uniform in Automotive was of the 'professional technician' where as in the somewhat craft work environments of FineChina and SpecialistAuto an 'artesian' uniform was worn.

5.7 Appearance of the working environment

It is a common perception that factories are dirty, noisy, smelly and negatively impact on the environment. Hence, a manufacturer who challenges this myth by actively supporting the environment may gain a competitive edge in this manner. For example, Toyota think customers perceive additional brand value for a company committed to environmental protection (Johnson, 2005). Here, for example, the guide at Excavators first emphasised the landscaping around the factory to enhance the surrounding area. The landscape could be viewed from a good, elevated vantage point from within the office. Then, inside all the companies there was a clear commitment to creating a clean and organised working environment. Within several of the cases there was also a conscious effort to exhibit the companies brand within the production environment. For example, Excavator, FineChina, and Automotive all displayed the company logo on items such as name badges, desks, hard hats, flags, vehicles, storage bins and even the coffee machine. The visitor was left in know doubt about which company they were visiting.

5.8 Product placement within manufacture

The cases illustrated how companies exhibit their products within their factory. For example, Excavators and Automotive have full size products located within the factory main entrance, administration offices and the landscaped surroundings of the factory. SpecialistAuto and Automotive incorporated finished products into the factory reception area, while FineChina chose to exhibit part-finished items to accentuate the individual contributions to the final product. Storyboards were often used to complement product placement. AutoComponents use storyboards to highlight the process stages that walnut wood goes through from seed to dashboard, Confectionary utilise videos to describe process stages from bean to bar, and FineChina explain the stages of the firing process using this method.

5.9 Departure from the facility

A majority of the companies made sure the visitor took the brand home in the form of mementos about the factory or products. For example, Excavators gave a lanyard with the company logo. Almost all the other companies had a shop that enabled visitors to purchase branded gifts or, as in the case of FineChina, actual products that are manufactured by the company. The shop was typically located at the end of the factory at the departure point for visitors.

6. CONCLUDING REMARKS

The aim of this research was to establish a set of guidelines for practitioners seeking to showcase their production facilities. These guidelines are summarised in table 1, and largely they focus on setting out any tour of facilities in such a way that a visitor will have an experience which is consistent with the brand values of the host. They cover, for example, that a company has clear and well defined signage leading up to its facility. Upon arrival, the visitor should be met at a formal greeting area which will make guests immediately

aware of the company's successes and offer a sense of corporate history to support their view of the brand. The factory tour should be carried out by well trained guides, following a well defined and safe route, past engaging technologies that are consistent with the brand's identity. No opportunity should be missed to reinforce the brand identity, from the work wear of employees, to the signage on car parks. Finally, before the individual leaves the facility the key messages from the experience need to be recapped, and they ought to be presented with a branded gift or memento to leave them with a lasting impression of the manufacturing facility.

This has been an exploratory study. There are inevitably limitations with our research design, for example, the team could have been better representatives of actual customers of each case company. However, our thoughts are that while we should try to overcome such limitations, and that there is a bigger challenge to address. Our aspiration is to actually provide a formal mechanism for incorporating brand identity considerations in manufacturing system design process. Hence, this paper provides a foundation for such considerations. The key question for future work is how a manufacturing system should be designed to maximise the support it provides to the brand identity of the products it produces. This will require a much better understanding of the relationships between product value and manufacture, along with how to quantify and deal with the key trade-offs. It will account for the particular brand values the company is aiming to promote and provide measurement of the performance of the brand reinforcement. However, if all of this can be achieved we will have a powerful mechanism for sustaining manufacture in the UK.

References

BMW (2007) *BMW Factory Virtual Tour,* http://www.bmwusfactory.com/build/, accessed 25 May 2007.

Brand Index (2005) *Best Brand Performers*, http://www.brandindex.com/, accessed 10 January 2007.

Brumberg & Axelrod (1995) '*Consumer Experience Tourism in the Nonprofit and Public Sectors'* Journal of Nonprofit & Public Sector Marketing, Volume: 9 Issue: 3

Gofton, K. (2000), "Putting staff first in brand evolution", *Marketing*, February, pp. 29-30.

Gotsi, M. and Wilson A. (2001), "Corporate reputation management: 'living the brand'", *Management Decision*, Vol. 39, No. 2, pp. 99-104.

Green, B. (2003), Store's brand trumps all at retail giant tiny jewel box, *National Jeweller*, Vol. 97, No. 15, p.40.

Ind, N. (2001), *Living the Brand: How to Transform Every Member of Your Organization into a Brand Champion*, Kogan Page, London.

Johnson, J. (2005), "Toyota highlights waste diversion; Ford looks to future in its sustainability report", *Waste News*, Vol. 11, No. 14, p.3.

Lancaster, G. and Massingham, L. (1988), *Essentials of Marketing: Text and Cases*, McGraw-Hill.

Lannon, J. (1994), "What Brands Need Now", *Admap*, September.

Nandan, S. (2005), "An exploration of the brand identity – brand image linkage: A communications perspective", *Journal of Brand Management*, Vol. 12, No. 4, pp.264–278.

Omar, M. and Williams, R. L. (2006), "Managing and maintaining corporate reputation and brand identity: Haier Group logo", *Journal of Brand Management*, Vol. 13, No. 4/5, pp.268-275.

Pine, B.J. and Gilmore, J.H. (2004) "Trade in ads for experience", *Advertising Age*, Vol. 75, No. 39, pp. 36.

Reichheld, F.F. and Sasser, W.E. (1990) "Zero Defections: Quality Comes to Services" *Harvard Business Review,* Vol. 68, Sep-Oct, pp.105-111.

Schmitt, B. (1999) "Experiential Marketing", *Journal of Marketing Management*, Vol. 15, No. 1-3, pp.53-67.

Synodinos, N.E. (2003) "The 'art' of questionnaire construction: some important considerations for manufacturing studies", *Integrated Manufacturing Systems*, Vol. 14, No. 3, pp. 221-237.

Tsai, S. (2005), "Integrated marketing as management of holistic consumer experience", *Business Horizons*, Vol. 48, No. 5, pp. 431-441.

Upton, D.M. and Macadam, S.E. (1997) 'Why (and how) to take a plant tour'. Harvard Business Review 75 3 (1997), pp. 97–106.

Veley, K. (1998) "Are you Tour Ready?" *IIE Solutions*, Vol. 30, No. 2, pp.40-42.

Von Brachel, J. (1999), "Make your firm a household name", *Journal of Accountancy*, May.

Weller, C. (1997) "Identifiable apparel: An image-making marketing tool", *Grounds Maintenance,* Vol. 32, No. 5.

Wheeler, A.R., Richey, R.G., Tokkman, M. and Sablynski, C.J. (2006), "Retaining employees for service competency: The role of corporate brand identity", *The Journal of Brand Management*, Vol. 14, No. 1-2, pp. 96-113.

Witkowski, T. H. Ma, Y. and Dan, Z. (2003) "Cross cultural influences on brand identity impressions: KFC in China and the United States", *Asia Pacific Journal of Marketing and Logistics*, Vol. 15, No. 1/2, pp.74-88.

Yin, R. (1994) *Case Study Research - Design and Methods*. London: Sage Publications.

https://dspace.org/

An exploration of policies and practices used to showcase production facilities

Baines, Tim S.; Ball, Peter D.; Cooper, S.; Dawson, P.; Wilkinson, S. ...

2008-09-01T00:00:00Z
Professional Engineering Publishing
http://dx.doi.org/10.1243/09544054JEM975
T. S. Baines, P. D. Ball, S. Cooper, P. Dawson, S. Wilkinson, M. Woods, J. M. Kay, An exploration of policies and practices used to showcase production facilities. Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture. September 1, 2008, vol. 222, no. 9, pp1181-1188

Downloaded from a DSpace repository. https://dspace.org/