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Quantifying High Value Manufacturing (HVM) characteristics: Two case studies in the UK manufacturing sector

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Summary:

Two case studies involving UK-based manufacturing companies in the medical instrument and equipment sector are presented. The data collection consisted of semi-structured interviews, direct observations of the production shop-floor and a questionnaire applied face-to-face to Senior Managers. Using these triangulation research tools, the internal and external views of the studied companies were assessed to obtain each company's Value Proposition. The findings of the two case studies presented here converged on the "Customer Intimacy" dimension ("Socialisers" and "Technological Integrators") of the Value Matrix proposed by Martinez and Bititci (2001).

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1. Purpose

Porter and Ketels (2003) highlighted the urgency “to move up the value chain and to reap the benefits of high-skilled, knowledge-intensive manufacturing operations”. This debate around UK competitiveness has focused on how manufacturing can be enhanced and sustained over time. This paper investigates “to what extent can High Value Manufacturing (HVM) characteristics be quantified?” In order to understand the concept of ‘value of a product’, Addis and Holbrook (2001) asserted that there are three main types of products from the customer’s perspective: utilitarian, balanced and hedonic products. They arrived at these types by combining the objective features of the product and the subjective responses of the customers. Therefore, customers perceive ‘value’ as emerging from the experience they have in relation to the product (Pine and Gilmore, 1998).

Martinez *et al.* (2008) defined High Value Manufacturing (HVM) as “manufacturing firms that do not compete primarily on cost. Instead they deliver value for one or more of their stakeholder groups by contracting for capability, delivering product/service innovation, establishing process excellence, achieving high brand recognition and/or contributing to a sustainable society”. Adopting a similar view, Livesey (2006) suggested a set of financial, strategic and social indicators of HVM companies. In this paper, we adopt the Value Matrix (*Table 1*) proposed by Martinez and Bititci (2001, 2006).

Table 1: Value Matrix showing the six value propositions Martinez and Bititci (2001, 2006)

	Hard dimension	Soft dimension
Product Leadership	Innovators	Brand Managers
Operational Excellence	Price Minimisers	Simplifiers
Customer Intimacy	Technological Integrators	Socialisers

The **research objectives** were:

- To conduct empirical studies of the practices of HVM companies.
- To identify/quantify the characteristics that lead to HVM.
- To provide practical guidelines for companies to maintain or improve their HVM.

2. Design/methodology/approach

The research call for participating manufacturing companies was directed to an Engineering and Management Institution that provides business support and links to a research base. Out of a number of respondents, two manufacturing companies (HVM1 and HVM2) were identified as willing to participate and where managers believed they were already High Value Manufacturers. Data were collected to map the competences and value proposition of each company. The data comprised semi-structured interviews, direct observations of the shop floor, relevant company documentation and a questionnaire administered face-to-face.

Initial interviews established the extent to which the company were High Value Manufacturers. Martinez and co-authors (Martinez and Bititci, 2001, 2006; Martinez *et al.*,

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2008) have successfully applied the questionnaire previously to manufacturing companies to help position them on the Value Matrix. The novelty presented in this paper is that when analysing the footprints the responses were quantified according to level of response (from 0=Not applicable to 5=Very High) and then an overall profile was calculated. This is an improvement from the previous assessment done 'by eye' superimposing each value proposition's footprint (on an acetate) on the actual response to identify the company's value proposition.

For each company a presentation of the results was given to managers for review and feedback. Finally, a joint analysis of the two case studies took place.

3. Findings

The first case study involved a manufacturing company (HVM1) dedicated to the manufacturing, supply and sale of orthopaedic implants, instruments, medical equipment, apparatus and accessories. The main product was cementless hip replacements. Four Senior managers were available for interview: Technical director, Design manager, Production manager and Customer Service manager. Their customers are based mainly in the UK (NHS Hospitals) and Europe with Spanish customers accounting for 22% sales. Their core competence is quick production and delivery turnaround. Relationships with customers were deep and continuous with surgeons; sales representatives getting feedback immediately after use of the product. The strategy for generating demand was focused on selected customers (young surgeons) providing them with learning/socialising opportunities as well as practice with implanting the product.

The second case study (HVM2) involved a manufacturing company dedicated to the manufacturing, supply, sale and installation of assisted-living equipment, particularly baths, for disabled people. Six Senior managers were available for interview: Managing Director, Technical director, Production manager, Production supervisor, Customer Service manager and Commercial manager. Customers were based mainly in the UK and a small percentage in continental Europe. Their core competence is product quality supported by their state-of-the-art design capabilities. The relationship with customers was arms-length. The strategy for generating demand is focused on health care professionals via exhibitions, website updates, specialist magazines and direct mail.

Figure 1 shows the composition of the different value propositions for HVM1 as predominantly "Socialisor", whereas HVM2's split almost equally between "Socialisor", "Innovator", "Technological integrator" and "Brand Manager". However, arithmetically this company is predominantly a "Technological Integrator".

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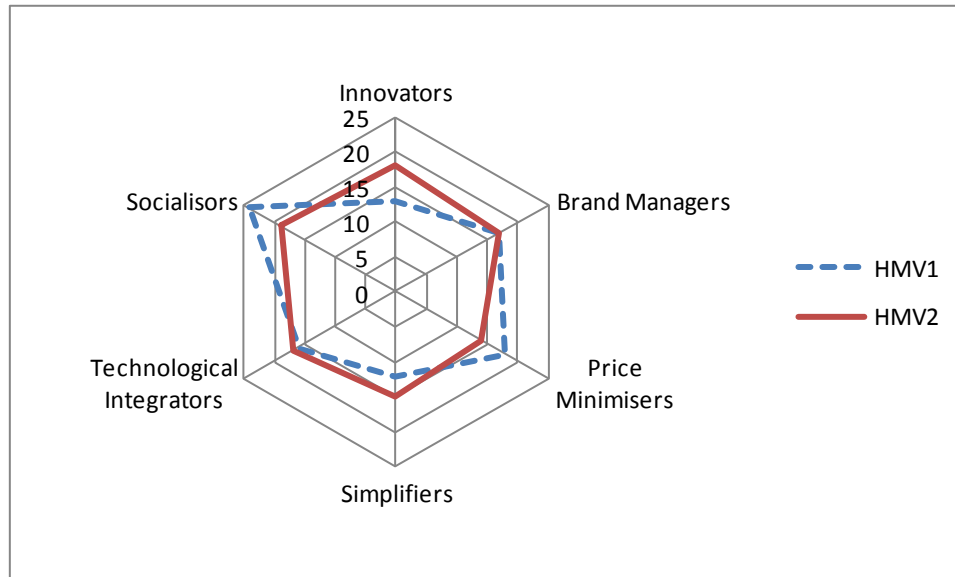


Figure 1: Value propositions for HVM1 and HVM2

The findings of the two case studies converged on the “Customer Intimacy” dimension of the Value Matrix (*Table 1*), i.e. the products have become commoditized and companies are paying increased attention to Customer Service to achieve HVM.

4. Relevance/contribution

The contribution of this research is the quantitative assessment of HVM characteristics. This assessment can be used by researchers and later on by practitioners to self-assess their HVM position, which in turn will enable their companies moving up the value chain.

Prior to discussion/presentation at the Conference, the authors will perform further analyses of available sets of data corresponding to both case studies. Additionally, since it is an ongoing research project, up to two more case studies are due to be carried out in the next few months before the Conference. These will broaden the understanding of the High Value Manufacturing (HVM) characteristics among both academics and practitioners.

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References

Addis, M. and Holbrook, M. B. (2001). On the conceptual link between mass customisation and experiential consumption: An explosion of subjectivity. *Journal of Consumer Behaviour*, 1(1): 50-66.

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- Livesey, F. (2006), *Defining High Value Manufacturing*. Cambridge, University of Cambridge, Institute for Manufacturing.
- Martinez, V., Neely, A., Guanjie, R. and Smart, A. (2008), *High Value Manufacturing – Delivering on promise*, Advanced Institute of Management Research (AIM).
- Martinez, V. and Bititci, U. (2006), Aligning Value Propositions in Supply Chains, *International Journal of Value Chain Management*, 1(1): 6-18.
- Martinez, V. and Bititci, U. (2001). The value matrix and its evolution. European Operations Management Association. *8th International Annual Conference*. Bath 3rd -5th June, 1:118-130.
- Pine, II, B. J. and Gilmore, J. H. (1998). Welcome to the experience Economy. *Harvard Business Review*, 76, July/August, 97-105.
- Porter, M. E., Ketels, C. H. M. (2003). UK Competitiveness: Moving to the next stage. DTI Economics Paper No. 3.