SUPPLIER DEVELOPMENT LITERATURE REVIEW AND KEY FUTURE RESEARCH AREAS

Muddassir Ahmed
Eaton Industries(UK) Ltd
Collins Road
Heathcote Industrial Estate
Warwick, CV34 6TF, West Midlands
muddassirahmed@eaton.com

Professor Linda Hendry
Professor of Operations Management &
Associate Dean (Undergraduate)
Lancaster University Management School
Lancaster LA1 4YX, UK
l.hendry@lancaster.ac.uk

ABSTRACT

The purpose of this paper is to develop a Supplier Development (SD) literature framework and identify the main focus areas in SD research. To this end, a comprehensive review of the existing SD academic literature has been undertaken, which includes 62 research papers. These papers are classified according to their research content and the research methodology employed. A comprehensive list of future research areas is also presented. This review marks the beginning of a research project which aims at improving SD processes in practice in the manufacturing sector. Thus this paper will also briefly explore the proposed future research. The review of the SD presented here identifies the following main areas of focus: Supplier Development Activities, Practices and Success Factors; Direct or Indirect Supplier Development; Supplier Development as a Reactive or Strategic Process; Supplier Development in a Lean Six Sigma & SME context. 

Keywords: Supplier Development, supply chain management, literature review.

1. INTRODUCTION

In order for firms to compete effectively and survive in the global market, they must maintain and build relationships with a capable and competent network of suppliers and extract maximum value from these relationships. To create and maintain such a network and to improve capabilities that are necessary for the buying organisation to meet its increasing competitive challenges, the buying firm may engage in SD (Carr and Pearson, 1999; Chidambaranathan et al., 2009; Trent and Monczka, 1999, Cox, 2001). According to Wagner (2006) & Krause et al. (2000), SD is one of three choices that could be employed to manage problems buying firms may experience in their supply networks. Problems arising within the supply chain may include for example: a current supplier performing below expectation; a non competitive supplier base; current suppliers unable to support a firm’s strategic growth; or capable suppliers not available in a certain market. The three choices to manage these problems described in the literature are:

- Supplier switching, i.e. search for alternative more capable suppliers
- Vertical integration, i.e. by setting up manufacturing capability in house.
- SD i.e. assisting the supplier in improving the performance of services and products or enhancing the supplier’s capabilities.

There is strong evidence that organisations today are increasingly implementing SD programs to improve supplier performance and remain competitive (Modi and Mabert, 2007), and thus this is an important topic of research.

The aims of SD are generally twofold from the customer’s perspective: firstly, to reduce cost, improve quality, and improve delivery; and, secondly, to educate suppliers in a systematic process to keep driving continuous improvement. Building on previous definitions of SD offered by Krause and Ellram (1997) and discussed by Krause et al. (2007), this paper defines SD as:

“Any effort of a buying firm working with its supplier(s) to increase the performance and/or capabilities of the supplier and meet the buying firm’s short- and/or long-term supply needs. Moreover, promotes ongoing improvements that are intended to benefit both buyer and supplier(s)”
2. CLASSIFICATION OF LITERATURE

According to Wagner (2006) the “first wave” of SD research was started by quality management researchers during 1989-91 and the “second wave” began in 1995 when researchers started working on relationship issues. A similar trend can be demonstrated by the numbers of research articles reviewed in this paper as shown in Figure 1. This recent review identified 62 academic research papers that related to the subject of SD. The graph shows that there has been an increased focus on SD in academic research, which might be due to buying companies becoming increasingly dependent on supplier performance for timely delivery of quality products and services and for driving improvements in competitive advantage (Wagner and Krause, 2009).

Figure 1: Number of papers published by year related to Supplier Development.

Categorisation of the literature is done firstly according to the type of article and secondly according to research content. Figure 2 depicts the overall classification of this literature review with brief descriptions given below.

Figure 2: Classifying Supplier Development literature.

**Article Type:** In the literature review presented by Krause and Ellram (1997), it was argued that SD research primarily used a case study approach. However, the literature review presented here identifies that in publications after 1997 researchers are using surveys as the predominant research method thus showing a change in the dominant approach over the last decade. A summary of the research methods employed and article type in the SD literature is presented in Tables 1 & 2 below. It is also important to note that in the 62 research articles reviewed there are no research papers which
have employed the Action Research method. Moreover, it is illustrated in Table 2 that 79% of the research papers published are empirical in nature, with fewer descriptive (15%) and conceptual (6%) papers. Even though the article written by Krause and Ellram (1997) has a significant literature review as indicated above, it is counted here as an empirical study as the authors have also used a survey as the main research method within the same article.

### Table 1: Classification of literature by research methods

<table>
<thead>
<tr>
<th>Research Methods</th>
<th>No. of papers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive or Conceptual</td>
<td>13</td>
<td>21%</td>
</tr>
<tr>
<td>Case Study</td>
<td>14</td>
<td>23%</td>
</tr>
<tr>
<td>Survey</td>
<td>35</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: Classification of literature by article type

<table>
<thead>
<tr>
<th>Article Type</th>
<th>No. of papers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>Descriptive</td>
<td>9</td>
<td>15%</td>
</tr>
<tr>
<td>Empirical</td>
<td>49</td>
<td>79%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td></td>
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</table>

**Research content:** This literature review identifies five main areas of focus in terms of content:

1) **Supplier Development Activities, Practices and Success Factors:** These papers aim to demonstrate the general activities and practices involved in the deployment of SD programs. They also discuss the critical success factors for SD programmes.

2) **Direct or Indirect Supplier Development:** These papers attempt to explain and discuss two dimensions of SD, i.e. direct supplier development (for example human and capital support) and indirect SD (for example formal supplier evaluation or ad hoc processes for evaluating suppliers, as well as various means of communication) to improve supplier performance or achieve competitive advantage.

3) **Supplier Development as Reactive or Strategic process:** This category includes papers which focus on the reactive and strategic nature of developing suppliers. A “reactive approach” initiates actions only in the case of poor supplier performance and to eliminate existing deficiencies, i.e. when a supplier is not performing to the requirements, and can be classified as fire fighting in nature. On the other hand, with the “strategic approach” firms try to improve supplier performance proactively and ensure that the long-term capabilities provide a competitive advantage, i.e. before performance problems actually occur and can be classified as fire prevention in nature.

4) **Supplier Development in Lean Six Sigma & SME context:** Papers in this category include studies in buying companies which use Lean and Six Sigma tools and methodology as either an initiative to improve SD deployment processes or utilise Lean Six Sigma tools and philosophy as main drivers to deploy SD activities within SME supplier(s).

5) **Supplier Development - The Supplier Perspective:** As most of these papers are written from the buyer’s perspective, the limited number of papers that focus on the supplier’s perspective in the SD process are categorised separately.

This literature review found that the highest % of papers (45%) are related to activities, practices and success factors of SD, followed by Strategic or Reactive SD (23%) and Direct and Indirect SD (14%). This distribution amongst the 5 identified categories shows that there has been less focus on SD from the supplier perspective in current academic research.

### 3. CONCEPTUAL SUPPLIER DEVELOPMENT FRAMEWORK

Taking the identified best characteristics of the frameworks in the literature review, the introduction of a well-defined, structured and systematic Conceptual SD Framework in the manufacturing setting is proposed as shown in Figure 3. The features involved in this Conceptual Framework can be
grouped under three sections. The first section introduces features which determine which supplier(s) are to be developed considering: organisational objectives, existing and new supplier selection and evaluation processes, customer requirements, the competitive position and category/commodity strategy. The second section outlines the operational excellence tools and methodologies which could be included to suitably address the supplier problems. The third section depicts the SD project process steps, by establishing project plans and determining: areas for improvement with the supplier, the organisation of a cross functional team, implementation of the project plan and evaluation results of improvement actions as per project plan. The authors aim to further develop the conceptual framework in the next 12 months through an action research project in two different business units in the manufacturing environment.

Figure 3: Conceptual Supplier Development Framework

4. FUTURE RESEARCH AREAS

The 12 research gaps, identified through an in-depth analysis of the literature in each of the five categories described above, are presented in Table 3 below. Key research articles analysed to identify future research areas are presented by Krause et al. (2007); Modi and Moberg (2007); McGovern and Hicks (2006); Humphreys et al. (2004); and Wagner (2010). From these research gaps, some common threads have been identified. Firstly; there is the need for more empirical research to investigate the relationship between Direct & Indirect SD activities with Strategic and Reactive SD. Moreover, further insight is needed into the content and context of knowledge transfer required to achieve the level of SD required for short-term and long-term company performance and strategic goals. This would allow the building of a sound foundation for a SD programme as well as providing
opportunities for academic researchers to work alongside industry in striving for operational excellence in the supply base. Secondly, the research territory to date has been commonly found to focus on the activities of SD with no real systematic process to measure the effectiveness of those activities. Thirdly, there is an ongoing need to research rigorously into how to overcome the negative factors and barriers associated with SD and what methods are available to manage the change associated with SD programmes. Specifically, it is important to understand good approaches that buying companies could adopt for successful implantation of SD activities within SME suppliers. Finally, given that SD is gaining focus in industry and academia it is important to learn how to systemically select and evaluate SD practices, activities and available Continuous Improvement (CI) tools and methodologies to achieve the desired strategic or reactive SD goals that link with supply chain strategy.

Table 3: Future Research Issues in Supplier Development

<table>
<thead>
<tr>
<th>Supplier Development Categories</th>
<th>Future research Issues.</th>
<th>Research Gap #</th>
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<tbody>
<tr>
<td><strong>Supplier Development activities, practices and success factors.</strong></td>
<td>Identify direct or indirect impact of selective SD activities on suppliers’ cost, quality, delivery and production innovation. And how these activities linked with improvement on buying firm performance. Buying firms would then better understand which SD activity is required to achieve desired outcome and which supplier activities they need to focus and acquire excellence.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Supplier Development activities, practices and success factors.</strong></td>
<td>Gain further understanding of the barriers and pitfalls associated with SD deployment in order to overcome them in the future, and hence further research is required on how to overcome the negative factors associated with SD and what methods are available to manage the change associated with SD program</td>
<td>2</td>
</tr>
<tr>
<td><strong>Supplier Development in Lean Six Sigma &amp; SME context</strong></td>
<td>A longitudinal case study or action research may give better insight into the content and context of knowledge transfer to achieve level of SD required (i.e. Basic, Moderate or Advance) for short-term and long-term company performance &amp; strategic goals.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Supplier Development as Reactive or Strategic process</strong></td>
<td>Investigate what processes buying companies should adopt to systematically select and evaluate use of available CI methodologies to achieve desired strategic or reactive SD goal link with supply chain strategy.</td>
<td>4</td>
</tr>
<tr>
<td><strong>Supplier Development as Reactive or Strategic process</strong></td>
<td>Further study is required to investigate specific suppliers’ motivations to participate in SD program and how buyers can influence suppliers who are not dependent upon them to participate in supplier training and technology/product development.</td>
<td>6</td>
</tr>
<tr>
<td><strong>Supplier Development as Reactive or Strategic process</strong></td>
<td>Empirical research to determine the relationship between direct &amp; indirect SD activities with reactive and strategic approaches from buyer firm’s perspective. Further to investigate what is the difference between content of knowledge transfer while pursuing either Reactive or Strategic SD.</td>
<td>7</td>
</tr>
<tr>
<td><strong>Supplier Development as Reactive or Strategic process</strong></td>
<td>There is further need to perform empirical research to investigate which SD practice &amp; activities best suits to supporting the firm’s product strategy i.e. cost leadership or differentiation strategy, hence contributing to a competitive advantage?</td>
<td>8</td>
</tr>
<tr>
<td><strong>Supplier Development as Reactive or Strategic process</strong></td>
<td>Use longitudinal case studies or actions research to validate and determine measures of SD success in terms of short-term key performance indicators and measures of long-term relationship-specific and competitive advantage outcomes</td>
<td>9</td>
</tr>
<tr>
<td><strong>Direct or Indirect Supplier Development</strong></td>
<td>Further empirical research is required to investigate the correlation between direct SD (e.g. human and capital investment), and its return on investment (ROI) in terms of funds invested within the given business conditions and its associated performance improvement. Moreover, it is required so as to understand how direct investment in the development of suppliers are shared in the supply chain setting, i.e. amongst several firms in a value chain.</td>
<td>10</td>
</tr>
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</table>
5. CONCLUSION

The paper classifies research articles that are a source of scientifically generated knowledge regarding various problems and opportunities associated with SD, predominantly in the context of a manufacturing environment. Furthermore this paper identifies the main focus areas in SD research and future research issues. It also proposes a conceptual framework for an improved SD process in practice, which the authors plan to further develop through an action research project. Key practical implications of the SD Framework are the alignment of goals/objectives internally within the organisation and with the suppliers. It is intended to serve as a high level process map for SD and acts as a communication tool to create a common understanding of key steps involved in SD amongst all stakeholders involved. This approach could potentially help in the building of trust between the customer and supplier organisation and provides a project based method to achieve measurable results within the specified timescale.

REFERENCES