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Supply Management Capabilities and Operations Performance of UK Manufacturing SMEs

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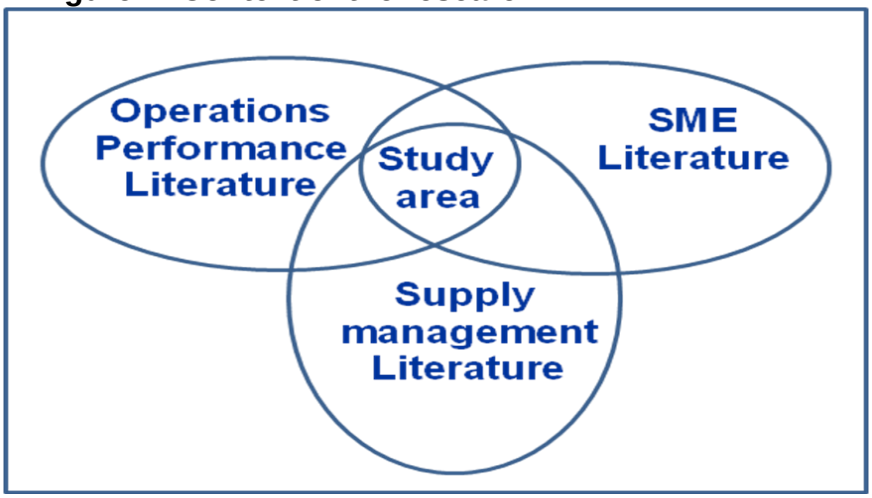
Summary
The research aims at investigating the existence of supply management capabilities and how these capabilities influence value creation in UK manufacturing Small and Medium-sized Enterprises (SMEs). Value is created when firms acquire resources (inputs) such as raw materials, components, sub-assemblies and transform them into products and services (outputs). The source of value creation is the unique way in which the inputs are transformed to deliver a Superior use value to satisfy the needs of the customer. For large firms, possessing unique firm-specific supply management capabilities enables them to pursue advanced supply management practices, which are believed to improve their value creation. The literature however remains virtually silent on the existence of supply management capabilities in UK manufacturing SMEs, in spite of their enormous economic importance, hence this study.

The mixed method approach using both qualitative and quantitative data will be employed to examine the phenomena under study. The research will involve UK manufacturing SMEs. The researcher intends to engage owner-managers and/or senior managers (General managers, Commercial managers, Purchasing/Procurement/Supply managers and Production/Operations managers) across functions within UK manufacturing SMEs through interviews/survey/questionnaires, as the research participants.

The study will contribute to theory, practice and policy. To contribute to theory, the study will increase the understanding of supply management capabilities in relation to the operations performance of UK manufacturing SMEs. It will also develop the underlying dimensions of supply management capabilities which could facilitate other future research. To contribute to practice, the findings may enable owner-managers of SMEs to better appreciate the relationship between supply management capabilities and operations performance and provide them with the mechanism for developing such capabilities for effective value creation. The study's contribution to policy may be realised by assisting policy agencies to decide on appropriate support strategies for UK manufacturing SMEs to assist them develop their supply management capabilities towards maximising their operations performance.

1. Research Context. The research is situated within the context of supply management, SME and the operations management literatures as depicted in Figure 1.

Figure 1: Context of the research



1.1 Supply Management. Many studies (e.g. Cousins, 2005; Chen et al., 2004; Narasimhan and Das, 2001; Carr and Pearson, 1999) have discovered that the purchasing function can make a significant contribution to the overall performance of an organisation when the function is placed at the strategic level. Placing purchasing at the strategic level implies that purchasing participates in the corporate strategic planning process and is also represented by a key member in board room activities. Carr and Pearson (1999) observe that strategic purchasing increases communication, cooperation and coordination with key suppliers and has a positive impact on a firm's financial performance. Purchasing therefore becomes a value adding resource when it is managed strategically. Its ability to add value is undermined when it is in a nonstrategic position. The following quotation defines strategic purchasing define strategic purchasing as:

> "The process of planning, implementing, evaluating and controlling strategic and operating purchasing decisions for directing all activities of the purchasing function toward opportunities consistent with the firm's capabilities to achieve its long-term goals" (Carr and Smeltzer, 1997:201).

The definition of strategic purchasing suggests three indicators of strategic purchasing according Carr and Smeltzer (1997). These indicators are:

1. The purchasing function has a formally- written long range plan,
2. Purchasing's long range plan is reviewed and adjusted to match changes in the company's strategic plans on a regular basis,
3. Purchasing's long range plan includes the kind of materials or services to be purchased.

These three indicators give a clear identity to a strategic purchasing function and differentiate it from a clerical purchasing function which is usually a mere routine buying activity. Firms that engage purchasing at the strategic level do long-term planning, aligning such plan with the corporate strategic plan as well as building long-term cooperative relationships with their key suppliers (Carr and Pearson, 1999; Reck and Long, 1998). Purchasing therefore assumes the strategic status when its operations are designed to match the needs of the total organisation in a way that enables purchasing's capability to support the corporate planning framework, the corporate planning process, and the corporate value system (Carr and Pearson, 1999). Strategic purchasing is believed to be the foundation on which a supply management function is built (Bernardes and Zsidisin, 2008; Bowen et al., 2001)

Cousins and Spekman (2003) define supply management as a function in the organisation responsible for activities that concerns the flow of goods and services through the organisation. This management role should be focussed on providing a better satisfaction for the end-customer than competition and on creating a sustainable competitive advantage for the focal firm as a result. Supply management should take a holistic view of the entire supply process. The emphasis on the supply process is important because it reveals purchasing as a boundary-spanning activity that permeates inter- and intra-organisational processes (Day and Lichtenstein, 2006). The supply management concept in its fully-developed form goes beyond the transactional focus of traditional purchasing, incorporating into its meaning long-term collaborative relationships with suppliers and a strategic focus for procurement (Lao, Hong and Rao, 2010). The concept hinges on the idea of building and managing buyer-supplier relationships as a strategy for effectively and efficiently managing input resources (Chen et al., 2004).

According to Novack and Simco (1991), increasingly, firms are becoming dependent on their capabilities in supply management to deliver better competitive value. The literature contains views that possessing capabilities in supply management can have a significant impact on the bottom-line (Bernardes and Zsidisin, 2008; Chen et al., 2004; Carter and Narasimhan, 1996). The impact of these capabilities are believed to be more significant in the manufacturing sector where Cousins and Spekman (2003) argue that the supply management function on average controls 65% of the value of total sales revenue as expenses on supplies. Cusumano and Takeishi (1991) provide another reason for the growing dependence of firms on their supply management capabilities. These authors maintain that managing supply relationships strategically is important when purchased materials significantly affect the quality of goods sold to the consumer. It could be deduced from the fore-going argument that it is the capabilities in supply management that constitute an important value-adding resource and not the supply management function in itself.

Since fully-developed supply management capabilities are associated with the existence of strategic purchasing (Chen et al., 2004; Bowen et al., 2001), it appears the possession of these capabilities will be the preserve of large organizations where strategic purchasing frequently occurs. The literature holds that the nature of purchasing in SMEs is far from being strategic (Quayle, 2002). This situation begs the question, does the absence of strategic purchasing in SMEs (manufacturing) suggests poorly-developed supply management capabilities in such firms? Further, to what extent are supply management capabilities relevant to manufacturing SMEs' value creation? These questions form the basis of the unknown territory that the current study will attempt to discover.

1.2 Operations Performance. Leong et al., (1990) reviewed the manufacturing strategy literature and concluded that it is generally accepted that the key dimensions of manufacturing performance are quality, speed, dependability, cost and flexibility. These five dimensions appear to be the basis for judging the excellence of a firm's operations performance. Excellent or a high operations performance yields value for the firm. Firms generally acquire resources (inputs), such as raw materials, components, sub-assemblies, apply labour to these to transform them into outputs – products and services. The process of conversion hinges on the five operations performance dimensions and this is a major source of competitiveness. The unique way the inputs are managed to deliver customer satisfaction can result in a superior competitive performance. (Edwards et al. 2004).

Manufacturing performance entails a chain of value-oriented activities (Simpson et al. 2001) which should be carried out efficiently and effectively. This chain of activities consolidates into what Porter (1985:11-15) describe as the value chain. Porter's value chain concept is based on the process view of organisations, which identifies a manufacturing (or service) organisation as a system, made up of subsystems each with inputs, transformation processes and outputs. Within Porter's value chain procurement and, for that matter, supply management are identified as activities in a firm that influence performance.

The execution of these operations activities relating to quality, cost, speed, dependability and flexibility largely affects the level of firm performance. To provide unity, integration, and direction to resources and operations practices needed to enhance operations performance, organisational and operations capabilities are required (Flynn et al. 2010). One such set of capabilities according to Grant (1996) is supply management capabilities. Paulraj (2011) argues that possessing unique firm-specific capabilities in supply management enables a firm to pursue advanced supply management practices, which are believed to improve organisational performance. Large manufacturing organisations are argued to be deploying

capabilities in supply management to capture relational rents and promote customer responsiveness, all of which positively influences their value creation potential. The literature is however silent on the degree to which SMEs possess these capabilities. Given the importance of operations performance to the long term survival of the firm, this study aims to investigate the extent to which supply management capabilities appear and how they might affect the operations performance of manufacturing SMEs in the UK.

1.3 Small and Medium-sized Enterprise (SME). Different criteria have been used in different countries to define what an SME is. Some of these criteria include sales turnover, investment, capital structure, total net assets, employment etc. Ayyagari et al. (2003) observe that even on the basis of the same criteria, definitions still vary among countries and state that while some countries define SME to be an enterprise with less than 500 employees, others define the cut-off to be 250 employees. To define what constitutes a SME in this study, the definition by the Department for Business Innovation and Skill's (BIS-UK) will be adopted. This is because the study aims to investigate manufacturing SMEs in the UK.

In the UK, the definition of a SME uses employment criterion. A statistical release from the UK's BIS department in May 2011 titled "Business population estimates for the UK and regions 2010" define a SME as any organisation having between 0-249 employees. The statistical release describes firms with 250 or more employees as large companies. At the start of 2010, there were an estimated 4.5 million private sector businesses in the UK. Out of this figure, SMEs together accounted for 99.9 per cent of all enterprises, 59.1 per cent of private sector employment and 48.6 per cent of private sector turnover by the beginning of 2010. Specifically, manufacturing SMEs in the UK accounted for 32.7 per cent of turnover and 84.1 per cent of employment in manufacturing industry. Even though these figures are impressive, manufacturing SMEs only accounted for about 5 per cent industry share of the total enterprises in the UK (http://stats.bis.gov.uk/ed/bpe/BPE_2010). For the purposes of this study SMEs will be defined as any organisation having between 10 – 249 employees to conform to the European Commission's (2003) definition. The study will exclude organisations employing between 0 -10 people which are micro firms where purchasing formality is generally thought to be low (Pressey et al., 2009). It is believed that such micro firms more than likely do not have sufficient supply management capabilities that could be studied.

Given the statistics above, it is apparent that SMEs in general, and manufacturing SMEs in particular, play a vital role in the socio-economic development of the UK's economy. The need to improve UK's competitive position has become a matter of national importance. As a result some studies have been undertaken in recent times to ascertain how UK firms might be encouraged to create more value. Improving firm value creation inevitably requires innovations in operations to create efficient and responsive flexible manufacturing operations delivering high quality products to satisfy customers. Notable among these studies are the Porter Report published in 2003 and the DTI[1] Review of UK Manufacturing Policy published in 2004 (Edward et al., 2004). Both reports stressed the need for the UK to become a high value economy[2] and emphasised the importance of innovation for UK firms to make the transition from competing on the basis of costs to competing on the basis of

[1] Department of Trade and Industry (DTI) is currently known as the Department for Business Innovation and Skills

[2] An economy with the ability to produce innovative products and services using cutting edge technology (Edwards et al. 2004)

value creation. This concern has engaged policy makers, practitioners and academics in the UK in a national debate on how to improve the innovation and productivity performance of the country (Edwards et al. 2004). Improving firm value creation inevitably requires innovations in operations to create efficient and responsive flexible manufacturing operations delivering high quality products to satisfy customers. In line with this agenda, it is very much anticipated that manufacturing SMEs will play a critical role in creating a high value economy. Therefore this study also attempts to contribute to finding ways of making such SMEs more value-oriented.

2. The research Issues. A number of studies have established the positive impact of strategic purchasing on organisational performance (Bernardes and Zsidisin, 2008; Chen et al, 2004; Carter and Narasimhan 1996; Cooper and Ellram, 1993). Strategic purchasing is thought to be the major source for developing supply management capabilities (Chen et al. 2004). As noted by Paulraj (2011), when a firm has unique firm-specific capabilities in supply management, it is able to pursue advanced supply management practices capable of influencing firm performance. Even though much work has been done on capabilities in general, (Schreyogg and Kliesch-Eberl, 2007; Winter, 2003; Teece et al. 1997; Grant, 1996; Barney, 1991; Dierickx and Cool, 1989; Wernerfelt 1984), little has been done with regards to specific capabilities in supply management. The extant purchasing literature primarily focuses on purchasing's involvement in the corporate planning process, its impact on corporate performance and its significance in creating collaborative relationships.

Only a limited number of studies have examined either specifically or generally the construct, 'supply management capabilities'. Notable among these are Chen et al., (2004), Bowen et al., (2001), Narasimhan et al., (2001) and Narasimhan and Das (2001). To the best of the researcher's knowledge, the only study that examined with empirical evidence the underlying dimensions of the construct was Narasimhan et al., (2001). Most studies conceptualised the capabilities in supply management and examined these against specific organisational attributes such as financial performance. The construct (supply management capabilities) therefore appears to be under-researched. Therefore, this study will contribute to the area by attempting to operationalise the supply management construct and measure its level among manufacturing SMEs in the UK.

Unlike large companies, SMEs generally tend to reflect the personality, values, character, education or background of their owners/managers. Hammann et al., (2009) argue that there is a strong connection between the owner-manager and his/her company. This strong tie, the authors maintain, influences the strategies, practices, decisions and behaviour of the company. Owners/managers of SMEs can hardly be separated from their organisations; they are the company and the company is them. Entrialgo (2002) explains that SMEs owners/managers believe matching company's activities with their personal characteristics is a precondition for corporate success. If activities in SMEs are tailored to the personal characteristics of owners/managers as suggested by Entrialgo (2002), the implication is that SME operations performance will reflect owners/managers' attributes. Spence and Rutherfoord (2004) observe that the attributes of SME owners/managers, to some extent, influence their supply networks, employees and customers. This assertion may partly explain the nature of supply management activities in SMEs. In view of this, the study will measure the extent of supply management capabilities and how they may affect operations performance in manufacturing SMEs.

Manufacturing SMEs tend to depend more on their suppliers than larger manufacturers. This is because the majority of such firms have a lesser capacity to cost-effectively

manufacture their input requirements in-house as compared to large organisations. As a result, these enterprises spend a greater a percentage of their sales revenue on input supplies, thus making them supplier-dependent. Farmer's (1997:8) fourth Law on purchasing's strategic importance states:

> Purchasing is important whenever the organisation concerned spends a significant proportion of its income on purchasing goods and services to allow it to do business. (Farmer, 1997:8)

It is logical to reason from this Farmer's law that purchasing should assume a high level of strategic importance among manufacturing SMEs since the influencing factor is present. On the contrary, the literature asserts that the purchasing function is largely non-strategic in SMEs in general (Quayle, 2002). The literature associates the development of higher level supply management capabilities with the establishment of a strategic purchasing function. Therefore, this research aims to discover the extent to which purchasing is strategic among SMEs and to what extent this situation affects SMEs' level of supply management capabilities.

3. Research Questions. The research is designed to answer the following key research question:

- How do supply management capabilities influence operations performance of UK manufacturing SMEs?

To answer the key research question, the following specific research questions will be addressed:

1) What constitutes supply management capabilities and how can they be measured?
2) To what extent do UK manufacturing SMEs possess supply management capabilities?
3) To what extent do firm ownership, age and size affect the level of supply management capabilities in UK manufacturing SMEs?
4) What constitutes the operations performance of SME manufacturers and how can this be measured?
5) To what extent is the effect of supply management capabilities on operations performance independent of firm ownership, age and size?

4. Theoretical framework. Effective and efficient operations performance may result in maintaining a superior competitive position. One of the three value creation options proposed by Edwards et al., (2004) is increasing efficiency and effectiveness through the adoption of better operations practices. It stands to reason that for operations activities to be carried out efficiently and effectively, firms need to develop distinct capabilities. Capabilities are therefore critical to creating value. Distinct capabilities according to Tracey et al., (2005) are based on superiority in process management, integration of knowledge and diffusion of learning. The authors maintain that distinct capabilities enable firms to manage their business process in a manner that yields competitive advantage by providing superior customer value. Day (1994) states that capabilities and organisational processes are deeply connected because it is the capabilities that enable the activities in a business process to be carried out.

Over the years, organisational researchers have developed theories relating to the creation of sustainable competitive strategy. In this regard, Williamson (1991) posits that the leading efficiency approaches to business strategy are the resource-based view (RBV) and the

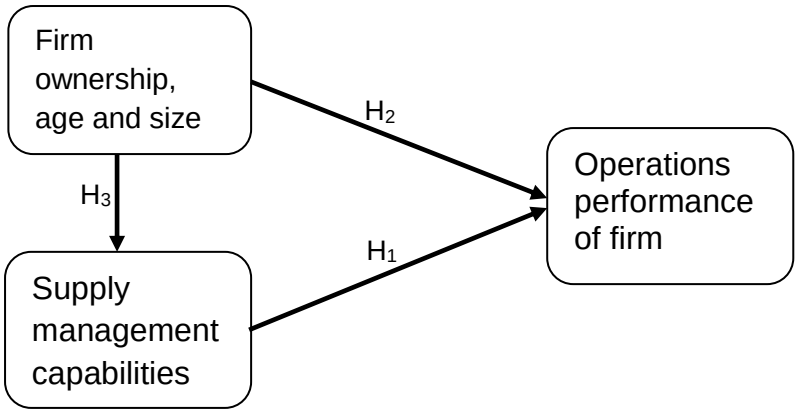
dynamic capabilities view (DCV). Moreover, RBV and DCV are predominant theories employed in the supply management literature to explain the strategic relevance of supply management to organisational performance (e.g. Mol, 2003; Chen et al. 2004; Shook et al., 2009; Yeung, 2008). These two theories complement each other and fundamentally explain the source of performance differentials among competing firms.

The RBV (Barney 1991; Peteraf, 1993; Wernerfelt, 1984) is a theory developed to explain differences in firm behaviours and performance. The theory proposes that "firms have different resource endowments and that the manner in which firms acquire, develop, maintain, bundle and apply these resources leads to the development of competitive advantage and superior performance over time" (Shook et al., 2009:6). Thus, the theory examines the link between a firm's internal characteristics and its performance. This attribute makes the theory very much applicable to the current study.

The DCV (Winter, 2003; Teece et al., 1997; Amit and Schoemaker, 1993) on the other hand proclaim that capabilities - "the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environment" (Teece et al., 1997:516) - are a major source of competitive advantage. The RBV advocates resource-picking, whilst the DCV advocates capability-building as the source of differentials in firm behaviour and performance (Makadok, 2001). The nature of the two theories will provide a solid ground for a robust argument on the relevance of supply management to operations performance.

Overall, the current study will be positioned within the theoretical framework of the RBV and DCV as complementary theories to provide the theoretical foundation and explain the possible relationships among research constructs. The two theories discussed above have informed the theoretical model presented below.

Figure 2: Proposed Research Model



5. Research Hypotheses. The figure above represents the proposed research model depicting the anticipated relationships to be tested. The research model aims at testing the effect that supply management capabilities may have on the operations performance of SMEs. To identify the nature of the relationship, firm ownership, size and age have been included as control variables. This is because these variables could cloud the relationship. For instance Wu et al., (2006) point out that firm size can have a great impact on firm performance. Therefore separating firm ownership, size and age as control variables will enable a more effective relationship among the research constructs to be captured. The

model is also intended to test whether the control variables have any effect on the development of supply management capabilities in manufacturing SMEs. Based on the model, the following research hypotheses have been made:

H_1: Supply management capabilities have a positive effect on the operations performance of manufacturing SMEs.

H_2: Firm ownership, age and size influence a firm's operations performance.

H_3: Firm ownership, age and size influence the extent of supply management capabilities in manufacturing SMEs.

6. Research Method. Based on a critical realist philosophical foundation, the mixed research method will be adopted for the study. Mixed methods research which includes methodological triangulation, refers to the process of employing a variety of research methods in the same study (Hussey and Hussey, 1997:74). The following quotation outlines the fundamental principle of mixed research methods.

> "According to this principle, researchers should collect multiple data using different strategies, approaches and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and nonoverlapping weaknesses" (Johnson and Onwuegbuzie, 2004:18).

This type of research uses both quantitative and qualitative approaches in the same research process. Naslund (2002) emphasised the need to use both quantitative and qualitative methods if we really need to triangulate on the true nature of a phenomenon. By so doing, an attempt is made to approach the subject under study with rigour and also better understand the phenomena being investigated. The assignment of both qualitative and quantitative techniques in a single research cannot only be beneficial but can significantly add value to the research being undertaken (Milliken, 2001; Nancarrow et al., 1996).

Strauss and Corbin (1990) explicate the value of the mixed-method approach by arguing that qualitative methods can give the intricate details of phenomena that are difficult to convey with quantitative methods, indicating the usefulness of qualitative data in interpreting quantitative findings. Subsequently, to promote discovery and verification, understanding and prediction, validity and reliability within the research design of this study, mixed methods research will be more appropriate. This is because the joint approach capitalises on the respective strengths of each method whilst minimising on their inherent weaknesses (Bryman, 1988).

Since the research is focused on what and how questions, there is the need for a research method which is capable of adequately addressing these type of questions. The researcher believes that the mixed research method answers these type of questions much better due to its multi-dimensional nature. The choice of mixed research method for the study is partly influenced by the researcher's philosophical stance - critical realism. A compelling factor for the choice of method is the need to explore the construct, 'supply management capabilities' to promote discovery, verification and understanding as well as the need for objectivity in the measurement of research constructs.

7. Study Design

The study will involve two phases in the data collection process. Phase one is intended to use qualitative approaches to explore and generate rich data on the nature of supply management and observe the reality of supply management capabilities in typical manufacturing SME settings through interactions with owner-managers and/or senior managers.

Phase two of the study will employ a cross-sectoral mail survey of a sample of UK manufacturing SMEs. This sample will include the same firms interacted with in phase one. This component of the study is intended to derive sufficient statistical data that will allow for research propositions to be tested and enhance the objectivity and generalisability of the research findings.

7.1 Phase One - Interviews. Phase one of the design involves the use of semi-structured face-to-face interviews to explore the construct, 'supply management capabilities' since it is relatively under-researched. The semi-structured type of interview is adopted because it offers flexibility; it allows both the interviewer and the interviewee the flexibility to further probe for details or discuss issues as they emerge in a conversation.

The interviews will be conducted with owner-managers and/or senior managers of at least twenty firms, an average figure observed in the literature for similar methodologies (see Pressey et al., 2009; Ellegaard, 2006; Bowen et al., 2001). It is planned that for each firm visited, at least the owner-manager and/or a senior manager with good knowledge about the firm's operations will be interviewed. Similar to the questionnaires, key respondents targeted for the interviews are Owner-managers, General managers, Commercial managers, Purchasing/Procurement/Supply managers and Production/Operations managers. For the interviews, attempts will be made by the researcher to identify manufacturing SMEs located in the Yorkshire region of the United Kingdom on the selected database (ICC plum) for the purpose of convenience, easy mobility and reach.

Using the semi-structured approach, the interviews will follow a dialogue type enquiry allowing respondents to account for their supply management activities and how these relate to the attainment of the firm's operations performance objectives. Permission will be sought with respondents to follow interviews with shop floor observations to ascertain how critical supply management activities might be to production/operations processes. All interviews shall be note and tape recorded for later being transcribed provided participants agree. If the option to record the interviews is denied, then only notes will be taken during the interview.

The data from this enquiry process, although useful in its own right, will also be used to refine the main research instrument (questionnaire) for a wider data collection in phase two of the study. Phase one is necessary because the construct 'supply management capabilities' is relatively under-researched and therefore an exploratory approach to its investigation will be helpful in enhancing understanding. It would also be useful in discovering other potential capabilities that the literature is yet to capture as well as validate existing ones. This qualitative data will be useful in answering some research questions, and contribute to the enhanced analysis and interpretation of the quantitative data.

7.2 Phase Two - Survey. A questionnaire will be designed to collect data for statistical analysis. The questionnaire will cover items developed to measure the research constructs –supply management capabilities and the influence of these on operations performance of SMEs. The questionnaire will cover six sections consisting of (1) company profile, (2) personal profile of respondents, (3) supply management capabilities assessment section, (4) assessment of operations performance objectives section, (5) assessment of firm ownership, age and size and a (6) final section on the relationships between supply management capabilities and the attainment of operations objectives. The assessments will be done using a five-point Likert scale in order to promote a higher statistical variability among survey responses. A mail survey is intended and expected to cover a period of four months in order to generate sufficient data for the research. Prior to its administration, the questionnaire will be pretested for content validity using experienced practitioners and academics. To improve response rate, Dillman's (2000) total design method will be followed. PASW Statistics 18 will be employed to undertake descriptive, discriminant and factor analysis of the data.

The survey instrument will be mailed to one thousand (1000) manufacturing SMEs. These firms will be selected at random from the available databases (ICC plum) using the criteria of size and manufacturing SIC codes. With the average response rate for mail surveys examining supply management issues being approximately 17% as reported in the literature, (Pressey et al., 2009; Gargeya and Su, 2004), it is expected that questionnaires will be required from at least a hundred (100) firms to allow for the type of statistical analysis – regression analysis – being envisaged. This is the basis for choosing a thousand firms as the sample size for the survey. The selection of the firms will cut across the different sectors in manufacturing such as manufacturers of chemicals, machinery and equipment, medical and optical instruments, etc. A maximum of five manufacturing sectors will be selected to enable the researcher capture a broader interpretation of the research constructs and the applicability of the research findings across sectors.

Targeted key respondents for the questionnaire are Owner-managers, General managers, Commercial managers, Purchasing/Procurement/Supply managers and Production/Operations managers. These categories of senior managers are targeted because the researcher believes they are in a position to have a good knowledge about the firm's operations in general and supply management activities in particular. Each participating firm will be given one set of questionnaire to be completed by any of the identified group of senior managers. It is anticipated that, a key benefit of phase two will be to improve the general validity and reliability of the research as initial data collected from the qualitative approaches will feed into and streamline the development of research instrument and activities in phase two.

7.3 Data Analysis Methods. Within the conceived design of mixed methods, both qualitative and quantitative data will be generated. NVIVO software will be used as appropriate to content analyse the qualitative data from the phase one data collection. A regression analysis is anticipated on the quantitative data collected in phase two from the questionnaire survey. In view of this, the Predictive Analytic Software (PASW Statistics 18) and Microsoft Excel will be employed for this purpose.

8. Population and Sample Size Selection. Sapsford and Jupp, (1996) observe that the primary step towards a sampling process is to clearly and accurately define the population of interest. This study will involve Small and Medium-sized Enterprises (SMEs) engaged in manufacturing in the UK. The European Commission on Enterprise and Industry (2003) defines SME as any firm employing between 10-250 people with a turnover of between €10m - €50m. These firms will be selected from the ICC plum, an online database with over 1.4 million UK limited companies. ICC plum is provided by ICC Information limited (now a subsidiary of Dun & Bradstreet Limited-UK) which delivers business-to-business credit and risk information solutions for companies in UK and Ireland.

This database is an important resource for company information. It is a repository of company financial data and a tool for comparing the performance of a company against a basket of its competitors. Search on this database could be done using company name, geographic region, SIC codes, Number of employees or the size of annual turnover. Using purposive sampling technique, a minimum of twenty (20) firms will be selected from the ICC plum for interview purposes. On the quantitative component, a sample of a thousand (1000) manufacturing SMEs shall be randomly selected from the ICC plum.

9. Implications of the Study. The research is expected to make significant contributions to theory, practice and policy. The study will contribute to theory by increasing understanding of supply management capabilities and their contribution to operations performance in manufacturing SMEs. The study will develop the underlying dimensions of supply management capabilities which could facilitate future research. The study will contribute to the supply management literature in general and the purchasing literature on small companies in particular, thus contributing to an area which Ellegaard (2006) found to be very limited.

The study will contribute to practice since the findings may enable owner/managers of SMEs to better appreciate the relationship between supply management capabilities and value creation through efficient operations and provide them with the knowledge for developing such capabilities. The research could affect policy by assisting policy agencies to decide on appropriate support strategies that could assist UK manufacturing SMEs to develop their supply management capabilities leading to increased operations performance and more effective value creation.

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