

AN EMPIRICAL STUDY TO IDENTIFY CRITICAL SUCCESS FACTORS FOR SUSTAINABLE CONTRACT MANUFACTURING IN THE CONSUMER PRODUCTS SUPPLY CHAIN IN SOUTH AFRICA

T.T. Mahove¹ & S. Matope^{1*}

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Contact details

* Corresponding author
smatope@sun.ac.za

Author affiliations

¹ Department of Industrial
Engineering, Stellenbosch
University, Stellenbosch, South
Africa

ORCID® identifiers

T.T Mahove
<https://orcid.org/0009-0009-7787-210X>

S. Matope
<https://orcid.org/0000-0001-5598-1027>

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ABSTRACT

Outsourcing manufacturing to a contract manufacturer is a growing practice that has gained global prominence since the turn of the century. This business practice is common in pharmaceutical and electronics industries, and has now also become common practice in consumer product supply chains. This practice has many challenges; in most cases it does not achieve its intended objectives, with a number of contract manufacturing companies (CMCs) in South Africa going out of business. Research and the literature on contract manufacturing is predominantly focused on the aspects of contract manufacturing and its role and impact in the supply chain. However, there are very few, if any, scholarly articles on the factors that make CMCs in the consumer products supply chain in South Africa succeed and become sustainable businesses and strategic partners to their brand owner customers. This study aimed to fill this gap by identifying, through empirical research of experts in contract manufacturing, the factors that are critical for contract manufacturers to succeed and to be sustainable businesses that can contribute to the success of their clients. Several critical success factors were identified using a Delphi survey of experts who had experience working with CMCs.

OPSOMMING

Die uitkontraktering van vervaardiging aan 'n kontrakvervaardiger is 'n groeiende praktyk wat sedert die eeuwisseling wêreldwyd prominensie verwerf het. Hierdie sakepraktyk is algemeen in farmaseutiese en elektroniese industrieë, en het nou ook algemene praktyk in verbruikersprodukverskaffingskettings geword. Hierdie praktyk het vele uitdagings; in die meeste gevalle bereik dit nie die beoogde doelwitte nie, met 'n aantal kontrakvervaardigingsmaatskappye (CMC's) in Suid-Afrika wat hul besigheid beëindig. Navorsing en die literatuur oor kontrakvervaardiging is oorwegend gefokus op die aspekte van kontrakvervaardiging en die rol en impak daarvan in die voorsieningsketting. Daar is egter baie min, indien enige, vakkundige artikels oor die faktore wat maak dat CMC's in die verbruikersproduktevoorsieningsketting in Suid-Afrika suksesvol is en volhoubare besighede en strategiese vennote vir hul handelsmerkeienaars-kliënte word. Hierdie studie het ten doel gehad om hierdie gaping te vul deur, deur empiriese navorsing van kundiges in kontrakvervaardiging, die faktore te identifiseer wat krities is vir kontrakvervaardigers om sukses te behaal en om volhoubare besighede te wees wat kan bydra tot die sukses van hul kliënte. Verskeie kritieke suksesfaktore is geïdentifiseer met behulp van 'n Delphi-opname van kundiges wat ondervinding gehad het om met CMC's te werk.

1. INTRODUCTION

Globalisation has created new opportunities and competitive advantages, forcing producers to seek more efficient ways to make their products [1]. Globalisation has made the market very competitive, and so manufacturing firms and brand owners are adopting the practice of outsourcing manufacturing to third parties [2]. In this study, this practice is referred to as 'contract manufacturing' (CM). CM has established itself as a cornerstone of manufacturing practices across industries [3]. CM companies (CMCs) are taking over even larger shares of the value creation in the supply chain of brand leading companies [4]. This means there is an opportunity for local manufacturing companies to position themselves as outsourced manufacturing partners for local and global brand owners. However, CM has not yielded the desired results or the expected objectives for various reasons, including CMCs failing to deliver the performance that is expected [5]. Selecting a sustainable CMC is therefore crucial, as it would improve the sustainability, efficiency, and effectiveness of the supply chain and offer competitive advantage to the brand owner [2]. The gap in the literature is to identify the factors critical to the success of CMCs. The research question that this study aimed to answer is: "What factors do brand owners consider as critical for their current or potential providers of outsourced manufacturing services (CMCs) to become successful and sustainable businesses and strategic partners in the brand owner's supply chain?" [1].

This paper aimed to identify the critical success factors to sustainable CM through an empirical study involving a Delphi study of experts in CM. The experts provided inputs on the challenges and problems faced by brand owners working with CMCs, as well as the critical success factors for CMCs to implement.

2. LITERATURE REVIEW

2.1. Outsourcing of production/manufacturing

Manufacturing outsourcing has become an important business approach to manufacturing products more efficiently using a CM in order to gain competitive advantage [2]. Brand owners that traditionally manufactured their own products are increasingly outsourcing production and focusing instead on their core activities, which include product design, research, and development and marketing [6];[7], while enjoying the cost advantages brought by the expertise of CMCs [8];[9];[10];[11].

There are many reasons why brand owners are going the production/manufacturing outsourcing route globally. Outsourcing has resulted in the development of a new paradigm that offers companies new opportunities for improving their bottom lines through the conversion of fixed costs to variable costs [1]. They do this by reducing or eliminating in-house production capabilities and replacing them with CMCs [11]. The essence of manufacturing outsourcing is the use of the production facilities of other firms rather than their in-house facilities or making new manufacturing investments [5]. For this research we define CMCs as manufacturing companies that make products for any brand owner, including retailers and other manufacturing companies.

2.2. Critical success factors (CSFs)

Critical success factors (CSFs) are those that are critical to the success of any organisation [12]. If the objectives associated with these factors are not achieved, the organisation could fail, perhaps catastrophically [12]. CSFs are those characteristics, conditions, or variables that, when properly implemented, maintained, or managed, could have a significant impact on the success of the firm competing in a particular industry [13]. According to [14], CSFs are the limited number of areas in which satisfactory results would ensure successful competitive performance for the individual, department, or organisation. CSFs are the few key areas where 'things should go right' for the business to flourish and for the manager's goals to be attained [15]. Identification of the CSFs could therefore be an important element in the eventual development of a firm's strategy and an integral part of the strategic planning process [13].

To be genuinely effective, CSFs need to be part of a planning process, a management system, production or programme goals, or a specific individual pursuit [15].

3. RESEARCH METHODOLOGY

The researcher conducted a Delphi study for data collection and thematic content analysis (TCA) in order to analyse the data and so achieve the research objectives [1].

The aim of this research was to solve the problem of sustainable CM in South Africa while contributing to the research in manufacturing outsourcing and CM [1]. This study adopted an exploratory research strategy and used the empirical research method, the Delphi method, to collect views, experiences, and opinions on contract manufacturing from experts in that field [1]. Exploratory research is a study that seeks to answer a question or address a phenomenon [16]. In this case, the phenomenon was CMCs failing to become strategic supply chain partners to brand owners in South Africa [1].

The Delphi method is a unique way of eliciting and refining a group judgement, based on the rationale that *n* heads are better than one when exact knowledge is not available [17]; [18]; [19]. Figure 3.1 describes the process followed in a Delphi method according to [19].

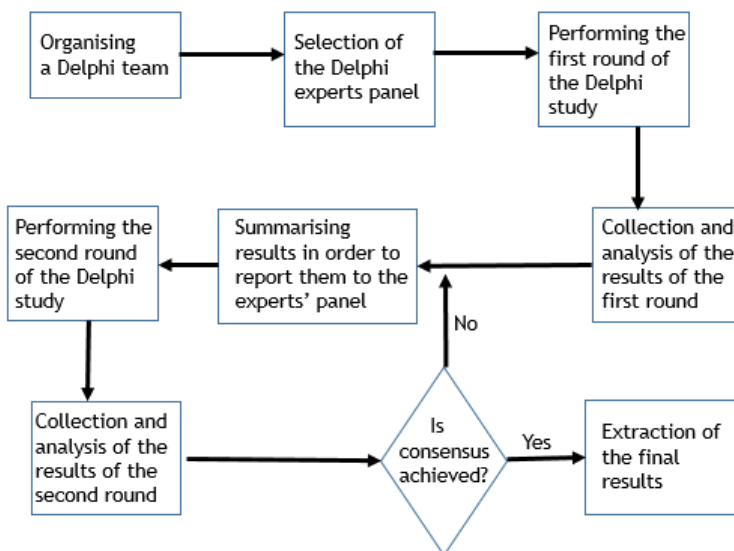


Figure 3.1: The Delphi process [19]

This paper describes the process that was followed, up to summarising the results of the first round of the study. According to [20], the literature on the Delphi method suggests that several iterations are required to reach expert consensus. However, a study of articles on the application of the Delphi technique between 2015 and 2018 found that the number of rounds that were most frequently taken to reach consensus was two (Sossa *et al.*, cited by [20]); thus two iterations should be sufficient to reach consensus. The studies do not indicate an optimal number of expert participants; however, [20] indicates that ranges of 11 to 20, 21 to 30, and 31 to 40 experts are the most commonly used.

For this study, 23 invitations were sent out to various experts who had worked with contract manufacturing. Eighteen responses were received.

3.1. Expert panel identification

The participants were selected from some of the leading local and multinational consumer products brand owner companies, based on the following criteria:

- Had worked with CMCs in a consumer products supply chain for at least one year.
- Had worked with CMCs in supply chain, quality, procurement, operations, process engineering, or other relevant positions.

3.2. Delphi rounds

3.2.1. Round 1

A questionnaire with open-ended questions was developed for use in the first round of the Delphi study. An open-ended question in a survey is one in which possible answers are not suggested, and the respondent answers in their own words [21]. The open-ended questionnaire serves as the cornerstone for seeking specific information from a particular content area (Custer *et al.*, 1999, cited by [22]). Open-ended questions should be specific to provide meaningful, interpretable data; therefore, the formulation of the question is important. The formulation is to be neutral, but also inviting of an answer. It should be as short as possible, and should contain the correct questioning word. This is especially true when there is no interviewer who can help in understanding the question [23].

A questionnaire is only as good as the questions it asks [23]. The researcher should ensure that the questionnaires are as well designed as possible and that the questions are as precise and as easy to answer as possible. For this study, the types of question that were put to the experts were based on their experiences, from initiating a CM supply relationship to the lessons learnt from working with CMCs. The questionnaire was divided into three sections. The first section was for collecting participants' profile data. The nine questions asked in this section included: "How many years have you used CMCs?"; "What percentage of total business did the CMCs contribute?"; and "What supply model did you use with the CMC?". The second section had nine questions that were divided into five subsections and that asked participants to describe the process they went through to select a CMC to work with and the successes and difficulties they faced. The five subsections were: problem identification (one question); evaluating alternatives (one question); decision to use a CMC (two questions); selecting the CM partner (one question); and implementing successes and challenges (four questions). Questions such as "What were the main factors considered in selecting the CMC?" and "What were the major challenges you faced when working with the CMC?" were asked. The last section focused on lessons learnt and their views on the critical success factors for successful CMCs. It has four subsections and five questions. The subsections were titled 'Lessons learnt' (two questions); 'Support and advice' (one question); 'Risks' (one question); and 'Critical success factors' (one question). Questions asked included: "What are the main lessons learnt by using a CMC?"; "What support and advice did you/would you give to the contract manufacturing companies you work with to enable them to be your strategic supply chain partners?"; and "In no particular order, what do you consider to be the most critical factors when selecting a contract manufacturing company to work with? Please give reasons".

The purpose of this first-round questionnaire was to establish the main CSFs; and the questions were developed to capture these in as much detail as possible.

These questions were captured on Google Forms and emailed to all participants selected according to the stated criteria. The data collected from the responses was analysed using TCA, which was selected as the primary analytic technique because it enables researchers to explore the findings from large samples and to break the information into patterns (themes) within the data [24];[25];[26];[27];[28]. [24] described TCA as a descriptive presentation of qualitative data. Qualitative data may take the form of interview transcripts collected from research participants or other identified texts that reflect experientially on the topic of study. A satisfactory TCA portrays the thematic content of interview transcripts (or other texts) by identifying common themes in the texts that are provided for analysis [25]. The researcher groups and distills from the texts a list of common themes in order to give expression to the communality of the participants' voices [27]. A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning in the data [26].

[26] defined the six steps of the thematic analysis process (Figure 3.2) as collecting data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing the report. These steps were followed to analyse the data in this study.

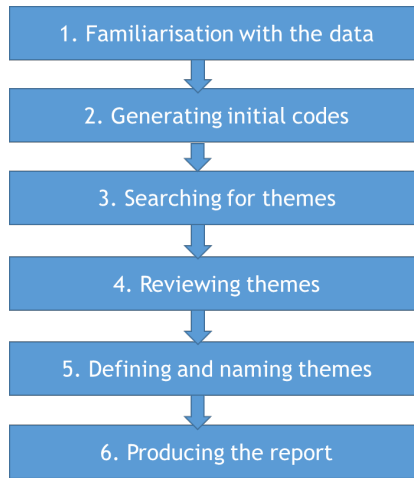


Figure 3.2: Six-step thematic analysis process (Adapted from [26])

For this study an inductive approach [26] was used, in which there were no preset codes or categories to fit the data; instead, the themes and key points emerged as we worked through the data. This ensured that the analysis process was driven by the data collected during the survey rather than any analytic preconceptions [29]. MS Excel was used to summarise the participants' responses and to quantify the frequencies of the responses for each question.

4. RESULTS

4.1. Work experience

The participants had all worked with CMCs in various functions, including quality, supply chain, procurement, operations, and continuous improvement, as shown in Figure 4.1.

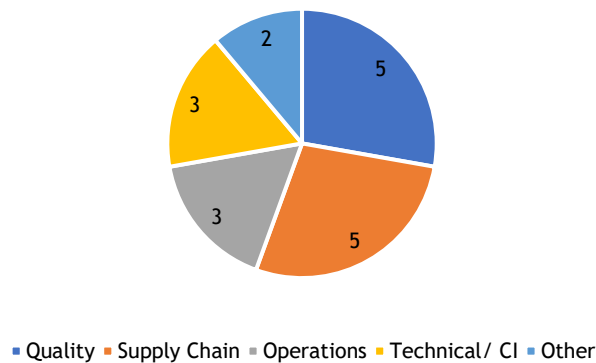


Figure 4.1: Participants' work experience with CMCs

The participants had also worked with CMCs for periods ranging from one year to over 15 years, as shown in Figure 4.2.

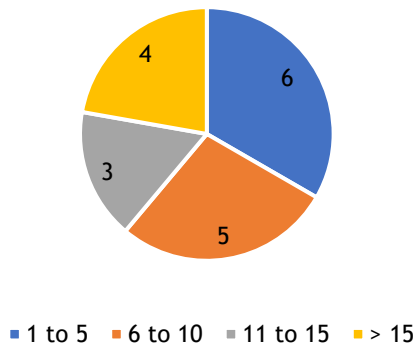


Figure 4.2: Participants' years working with CMCs

4.2. Job titles

The participants had the following job titles: supply chain director, operations director, group quality director, demand and supply manager, technical manager, procurement manager, collaborative manufacturer technical manager, homecare category quality manager, quality control manager, manufacturing manager, third-party manufacturing engineer, operations manager, associate professor, continuous improvement specialist, third-party manufacturing quality specialist, divisional manager - paper/ homecare/ personal care categories, quality assurance leader, and quality improvement manager.

4.3. Frequency of using CMCs

The participants indicated that they used CMCs all the time, with only one participant responding that they had used CMCs occasionally (Figure 4.3).

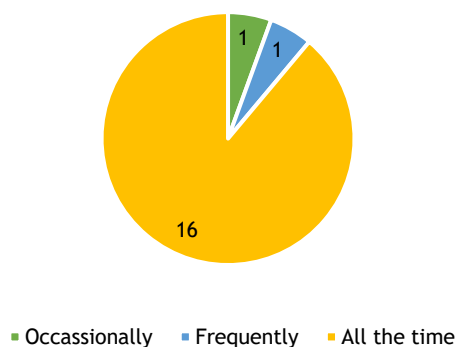


Figure 4.3: Frequency of using CMCs

4.4. CMCs' contribution to business turnover

Only four participants indicated that the CMCs they worked with had contributed less than 10% to the total business turnover. Six participants reported a contribution of between 11 and 30%, and eight participants indicated a contribution of over 31%, as shown in Figure 4.4. This showed the significance of the CMCs to the brand owners with which they worked.

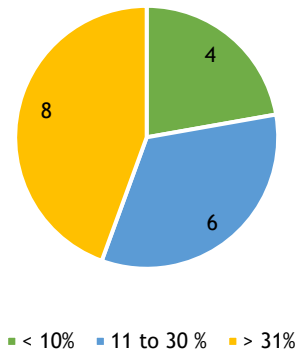


Figure 4.4: CMCs' contribution to turnover

4.5. CM model used

Thirty-nine per cent of the participants (seven) responded that they used the model where they supplied all materials to the CMCs for conversion; 17% (three participants) indicated that they had allowed the CMC to source all materials fully; and 44% (eight) had used both fully sourced and material supply models. This is shown in Figure 4.5.

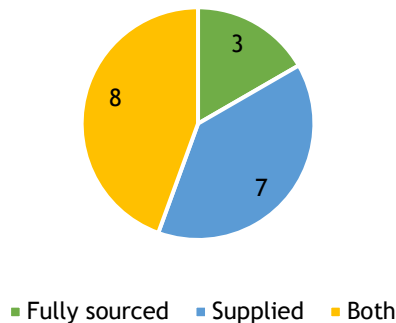


Figure 4.5: CM model used

For the questions in the sections that follow, the responses from the participants were grouped into the different response categories that emerged. The number of times the same response was given was noted. This helped to identify the most common responses for each question.

4.6. Reasons for using a CMC

Nine reasons for using CMCs were mentioned by the participants. Extra capacity was mentioned by all 18 participants. The next-highest reason mentioned was the specialised technology that the CMCs offered (11 responses), followed by no capex investment (eight responses) and by flexibility/agility/reactive capacity and innovation/speed to market (both with six responses). The top five were completed by cost reduction mentioned by five participants). All these responses are shown in Figure 4.6.

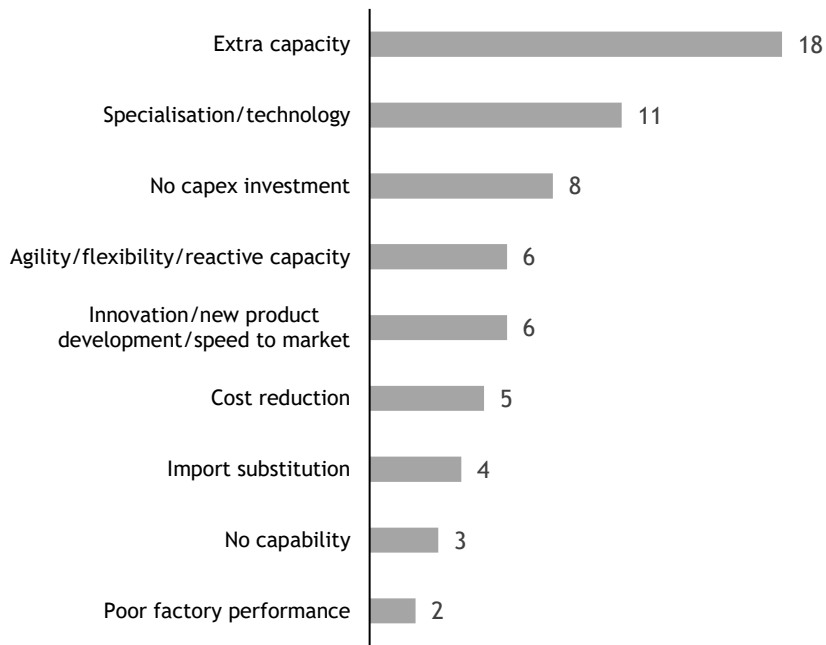


Figure 4.6: Reasons for deciding to use a CMC

4.7. CMC selection considerations

Once the decision had been made to outsource manufacturing to a CMC, the participants mentioned ten considerations. The top five considerations before selecting the CMC with which to work were as follows: a financial/commercial assessment (mentioned by seven participants); quality assessment (six); production and supply capability (six); capacity assessment (four); and reputation/performance (four). Four other considerations had two responses each: confidentiality; business processes; certifications and accreditations; and ethical practices. The full list is in Figure 4.7.



Figure 4.7: CMC selection considerations

4.8. Selection criteria for CMCs

On the question of the criteria that were used to select the CMCs with which the participants worked, 16 different criteria were mentioned. The most common ones were the quality system (10 responses); certifications, accreditations, and compliance (nine); capacity (eight); cost/pricing (six); technology (five); and ethical practices (five responses) (see Figure 4.8).



Figure 4.8: Selection criteria for CMC

4.9. Performance measurement and monitoring areas

Six areas for performance measurement and monitoring were mentioned by the participants (Figure 4.9). The top performance measurement areas were quality (15 responses); supply performance (11); cost (10); material usage/waste (four); and safety (three). The participants also responded that the performance indicators were communicated and included in the contract and service level agreement (SLA). Performance was monitored by reviewing a performance dashboard in daily, weekly and/or monthly meetings to measure expected performance against actual performance and to highlight areas requiring corrective action.

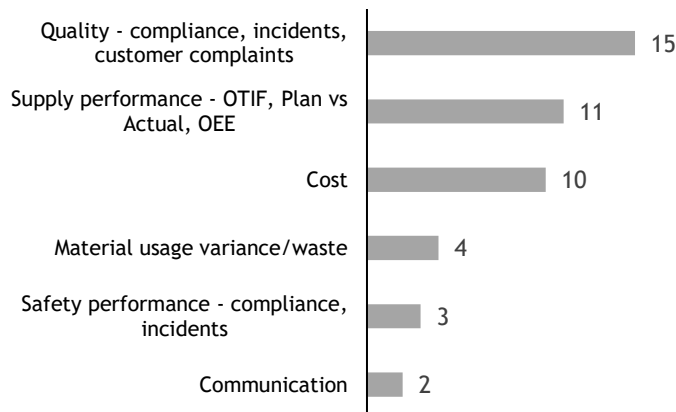


Figure 4.9: Performance measurement areas

4.10.Challenges and frustrations

Fifteen problems or difficulties ('challenges') emerged from the participants' responses. The main ones were: poor quality performance (six responses); increased conversion cost (four); poor supply performance (four); poor/inadequate communication (three); and no Continuous Improvement (CI)/problem-solving programme and inadequate skills (two mentions each) (Figure 4.10).

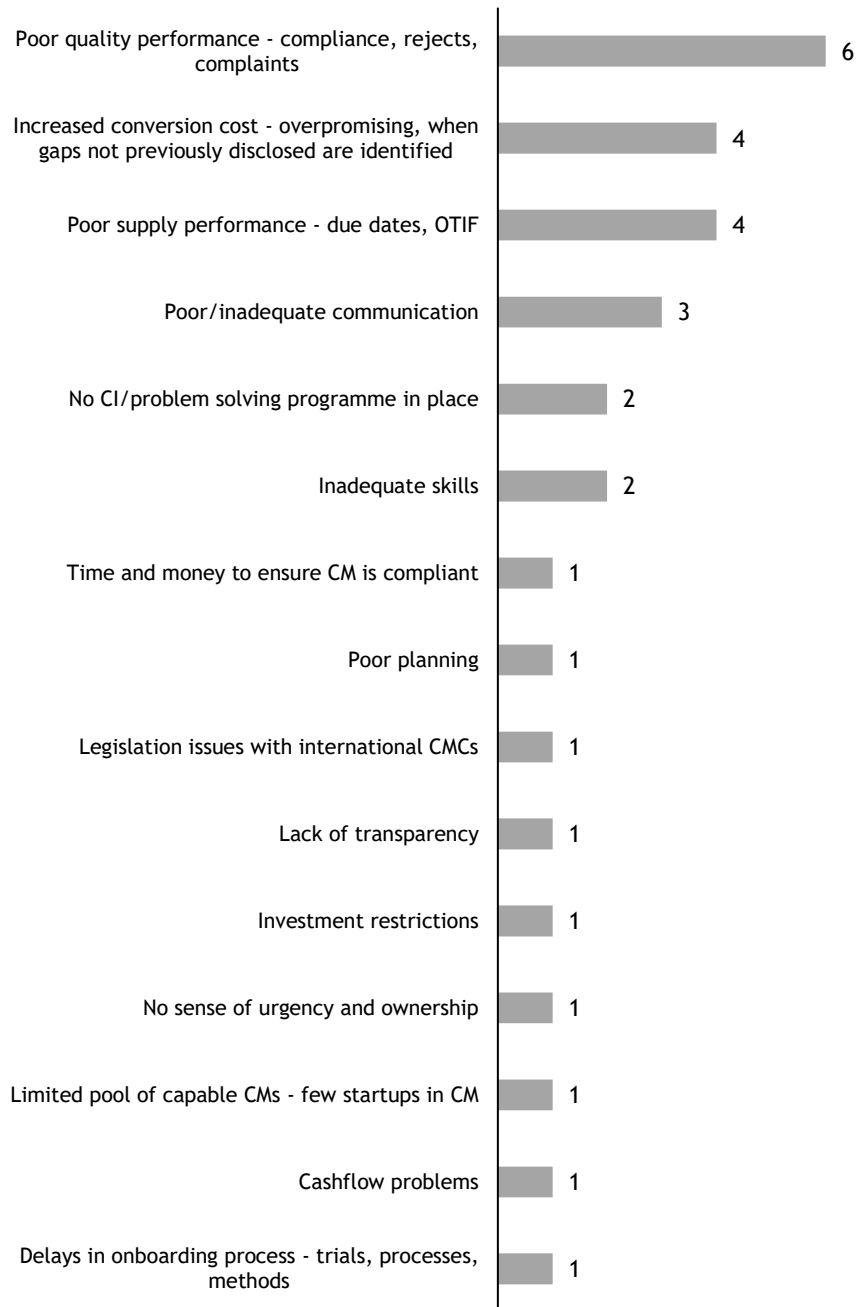


Figure 4:10: Challenges and frustrations

4.11. Lessons learnt

Seventeen lessons learnt by using CMCs were mentioned by the participants, the most common being that CMCs are an extension of the brand owner's business, and should be considered a strategic partner (five responses). Others that were mentioned (three times each) were that CMCs could help to increase profitability and improve service levels; trust/communication and transparency are key; and the need to document and sign a SLA with KPIs for both the CMC and the brand owners. This showed that CMCs have an important place in the supply chains of most brand-owner companies.

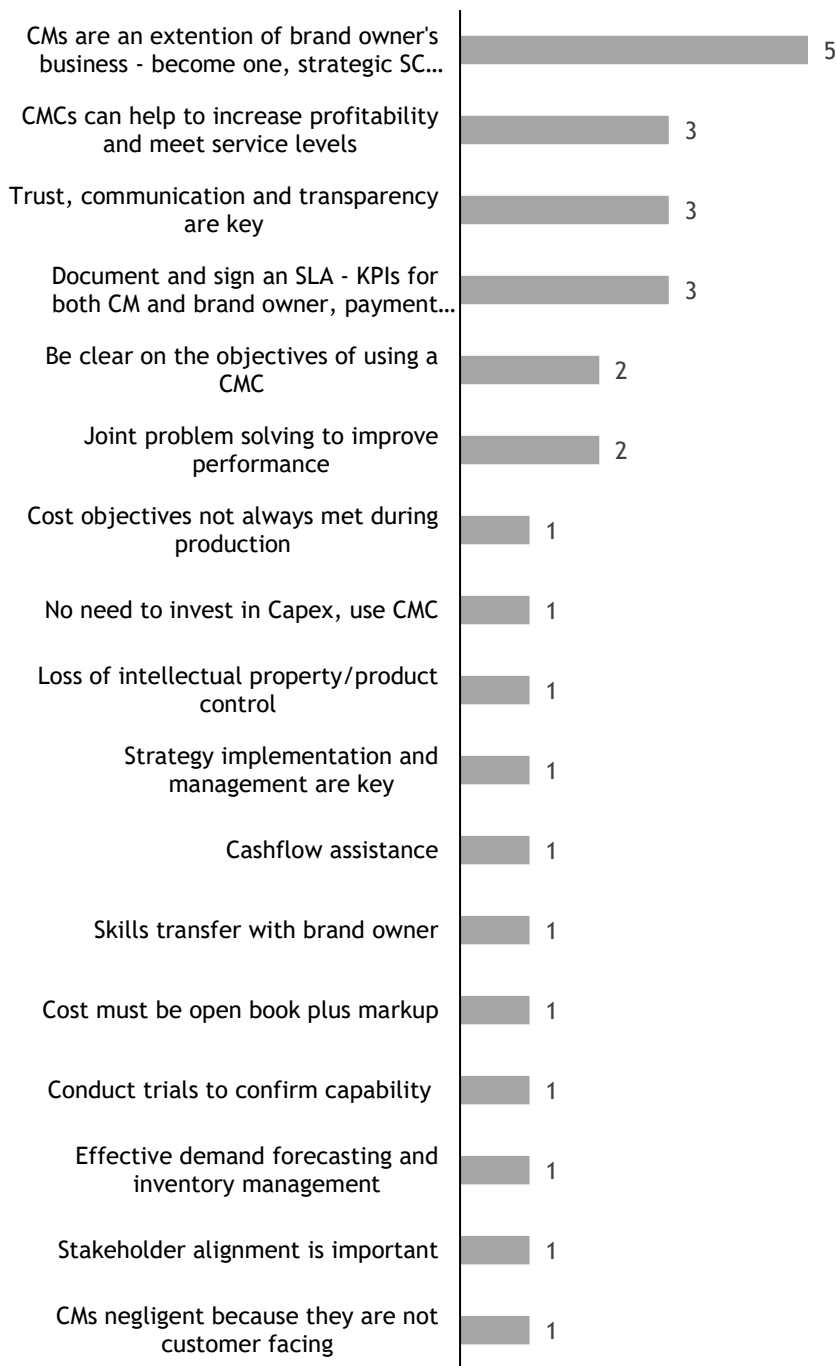


Figure 4.11: Lessons learnt

4.12.Support for CMCs

Ten forms of support emerged from the participants' responses (Figure 4.12). The most commonly cited form of support offered by the brand owners to the CMCs was investing in their capacity and capability (six responses), followed by business partnering with them (four). Cashflow support (three) and assistance in complying with quality requirements and compliance (two) and production and supply performance improvement support (two) completed the top five.



Figure 4.12: Support for CMCs

4.13.Reasons why they would still use CMCs

Five reasons why the participants would continue to use CMCs emerged from their responses. The most frequently cited reasons for continuing to use CMCs in the future were to avoid spending capex to increase internal capacity to meet demand (six responses); and that CMCs are an essential part of the business and can add value (six). The third most-often mentioned reason was that, as long as the CMCs continue to demonstrate their ability to meet the KPIs, brand owners will continue to use them (three). Speed to market (two responses) and whenever in-house capacity was exceeded (one) completed the five reasons.

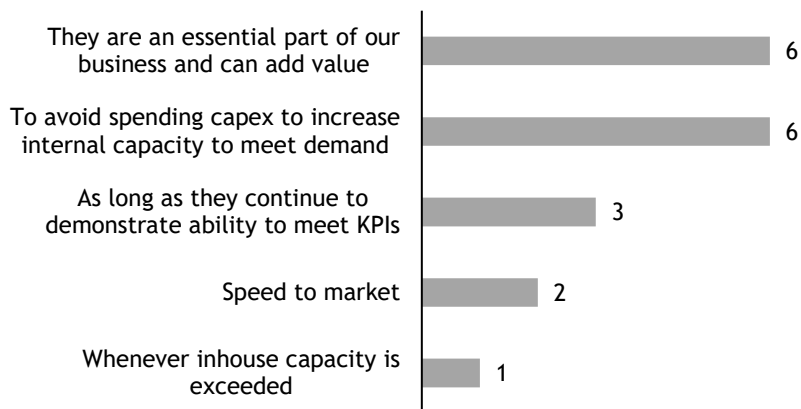


Figure 4.13: Reasons why brand owners would still use CMCs

4.14. Major risks

Seven risks of using CMCs to make their products emerged from the responses (Figure 4.14). Those that were cited the most were intellectual property leaks (eight responses); poor compliance with regulations and standards (four); collusion with competitors (four); and failure to meet contract requirements (three). The financial viability/stability of the CMC, the gross margin impact, and skills retention were joint fourth, with two mentions each.

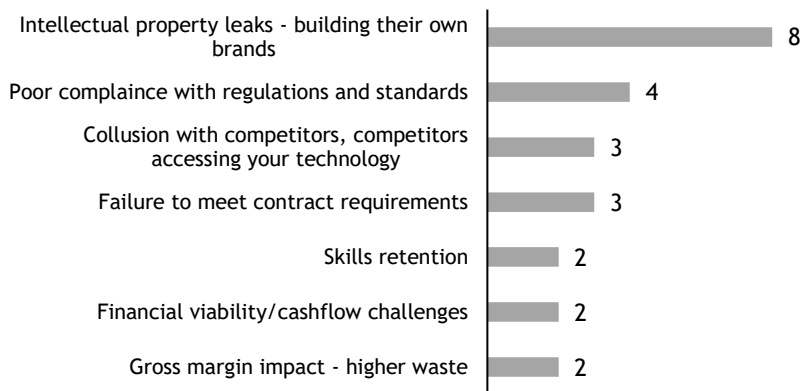


Figure 4.14: Major risks of using CMCs

4.15. Critical success factors

The participants mentioned 14 factors that are critical for CMCs to succeed (Figure 4.15). Cost performance (14) and quality performance (12) emerged as the two main critical success factors for CMCs. These were followed by flexibility/agility (eight responses); skills and equipment/technology capability (eight); and supply reliability (six). Rounding off the top five was industry reputation (five responses).

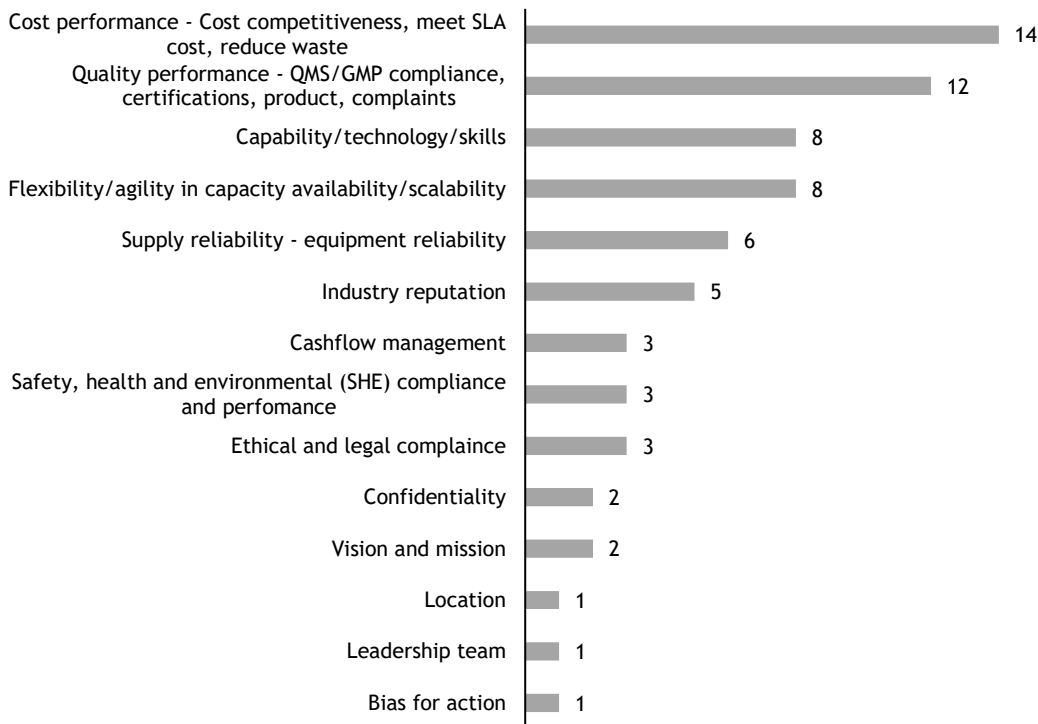


Figure 4.15: Critical success factors

4.16. Summary of results

The responses from the participants are summarised in Table 4.1, which shows the categories that were mentioned in the responses to the different questions (as shown in Figures 4.6 to 4.15). The categories were assigned to themes that were based on common manufacturing company performance areas.

Table 4.1: Themes emerging from participants' responses

Question	Total response categories emerging	Top categories identified to group elements. A top category is made up of responses mentioned at least twice per question by the participants.	Frequency with which the element was cited by participants	Themes emerging from the categories (performance areas)
Reasons for using CMCs	9	Extra capacity Specialisation/technology No internal capex investment Agility/flexibility/reactive capacity Innovation and NPD/speed to market Cost reduction Import substitution Access to specialised capability Poor factory performance	18 11 8 6 6 5 4 3 2	Capacity Capacity Finance Capacity Capacity Finance Capacity Capacity Capacity
Considerations for using a CMC	10	Financial/commercial assessment Quality assessment Production and supply capability assessment Reputation/performance Capacity assessment Certifications and accreditations Ethical practices Confidentiality Business policies	7 6 6 4 4 2 2 2 2	Finance Quality Capacity Reputation Capacity Quality/SHE Ethics Ethics Business system
Selection criteria for CMCs selected to partner with	16	Quality system Certifications, accreditations and compliance Capacity Cost/ Pricing Ethical practices Technology capability SHE system Reputation/ track record Skills capability Location Financial performance/cashflow Supply reliability Speed of implementation/ turnaround time	10 9 8 6 5 5 4 4 4 3 3 2 2	Quality Quality Capacity Finance Ethics Capacity SHE Reputation Capacity Location Finance Supply Capacity
Performance measurement and monitoring areas	6	Quality - compliance, incidents, customer complaints Supply performance - OTIF, plan vs actual, OEE Material usage variance/waste Cost Safety performance - compliance, incidents Communication	15 11 10 4 3 2	Quality Supply Finance Finance SHE Business partnering

Question	Total response categories emerging	Top categories identified to group elements. A top category is made up of responses mentioned at least twice per question by the participants.	Frequency with which the element was cited by participants	Themes emerging from the categories (performance areas)
Challenges and frustrations with CMCs	15	Poor quality performance - compliance, rejects, complaints	6	Quality
		Increased conversion cost - overpromising, when gaps not previously disclosed are identified	4	Finance
		Poor supply performance - due dates, OTIF	4	Supply
		Poor/inadequate communication	3	Business partnering
		No CI/problem-solving programme in place	2	Capability
		Inadequate skills	2	Capability
Lessons learnt	17	CMs are an extension of brand owner's business - become one, strategic SC partner	5	Business partnering
		CMCs can help to increase profitability and meet service levels	3	Business partnering
		Trust, communication, and transparency are key	3	Business partnering
		Document and sign an SLA - KPIs for both CM and brand owner, payment terms	3	Business partnering
		Be clear on the objectives of using a CMC	2	Business partnering
		Joint problem-solving to improve performance	2	Business partnering
Support for CMCs	10	Invest in their capacity and capability	6	Business partnering
		Business partner with them - extension of manufacturing, share long term goals	4	Business partnering
		Cashflow support	3	Finance
		Quality compliance - alignment of quality standards	2	Quality
		Production and supply performance improvement	2	Capacity
			2	Capacity
Reasons why they would continue to use CMCs	5	They are an essential part of our business and can add value	6	Business partnering
		To avoid spending capex to increase internal capacity to meet demand	6	Finance
		As long as they continue to demonstrate ability to meet KPIs	3	Capability
		Speed to market	2	Capability
Major risks of using CMCs	7	Intellectual property leaks - building their own brands	8	Reputation
		Poor compliance with regulations and standards	4	Ethics/legal
		Collusion with competitors, competitors accessing your technology	3	Ethics/legal
		Failure to meet contract requirements	3	Capability
		Skills retention	2	Capability
		Financial viability/ cashflow challenges	2	Finance
		Gross margin impact - higher waste	2	Finance

Question	Total response categories emerging	Top categories identified to group elements. A top category is made up of responses mentioned at least twice per question by the participants.	Frequency with which the element was cited by participants	Themes emerging from the categories (performance areas)
Critical success factors for CM	14	Cost performance - cost competitiveness, meet SLA cost, reduce waste	14	Finance
		Quality performance - QMS/ GMP compliance, certifications, product, complaints	12	Quality
		Capability/technology/skills	8	Capability
		Flexibility/ agility in capacity availability/ scalability	8	Capacity
		Supply reliability - equipment reliability	6	Capacity
		Industry reputation	5	Reputation
		Cashflow management	3	Finance
		SHE compliance and performance	3	SHE
		Ethical and legal compliance	3	Ethics/legal
		Vision and mission	3	Ethics/legal
		Confidentiality	2	Business systems
			2	Ethics/legal

The aim of this study was to answer the research question, “What factors do brand owners consider as critical for their current or potential providers of outsourced manufacturing services (CMCs) to become a successful and sustainable business and a strategic partner in the brand owner’s supply chain?”. The main themes that emerged from the analysis of the responses from the participants are regarded as the critical success factors, and are discussed below.

4.16.1. Quality performance - Responses fitting the quality theme were mentioned in the selection criteria for CMCs as one of the main performance measures, and were at the top of the question about challenges and frustrations. The experts’ responses ranged from the need for CMCs to have quality management systems that comply with the brand owners’ standards and/or international standards, to the need for experienced and qualified personnel in the quality department. One expert responded to the question about how they could support CMCs as follows:

- Align with quality standards
- Adherence to quality requirements.

On the question of the challenges that they faced in working with CMCs, some of the experts mentioned:

- *The inability to meet our quality standards.*

Responding to the question of the role of CMCs in their supply chain, one expert said:

- *Its role is to supply our required goods, meeting our quality standards, due date, and the specified quantity.*

Unlike component or material suppliers, CMCs make products that land on shelves with no value addition by the brand owner; so the requirement for quality is critical. This requires CMCs to understand clearly the quality requirements of their brand-owner customers and to develop systems and practices that help them to comply with these requirements all the time. CMCs could apply different methods to understand their customers’ quality standards in order to be able to meet them. They could use customer satisfaction surveys, meet with customers to be aligned with their requirements, undertake regular performance reviews, use questionnaires, and perform a market analysis. This would help the CMC to identify gaps in their current quality management systems, to develop an implementation plan to close the gaps, establish the standards to follow, and define their quality objectives.

4.16.2. Supply performance - Participants cited the ability of a CMC to supply the right product when required as a critical factor for success. This is because brand owners engage CMCs to make sure that they can fulfil customer orders; so it is critical for a CMC always to produce and supply the right product in the right quantity at the right time. Failure to do this compromises the brand owner’s business and strains the supply relationship. One expert commented:

- *Supply performance for the CMCs is monitored on a daily basis, thus deeming this a critical KPI. The agility and ability of the CMC to respond to demand is highly important.*

4.16.3. Financial performance - Responses fitting the finance theme were cited in all but one question. These elements were cited in comments, and ranged from cashflow management to the ability of the CMC to manage costs in order to ensure that they remain profitable. This is critical because the factors under this theme contribute significantly to the survival of the CMC. Some of the comments of the experts when responding to the question about the challenges they faced with working with CMCs were:

- *The initial conversion cost is likely to change after the compliance gaps are identified.*
- *Over-promising on cost in order to secure volumes.*

When responding to the question about some of the major problems they faced and the major risks when working with CMCs, some of the experts commented:

- *Their cashflow is always an issue - particularly holding stock of specific DOB materials.*
- *Currently cashflow for sufficient raw materials cover.*
- *Financial viability of the company: will it not close down due to cashflow challenges?*

This means that the financial performance of a CMC is critical to its continuing to supply brand owners and to its success as a business. CMCs should therefore have a financial management system that ensures that their costs are under control and that they run a profitable business so that they remain strategic supply chain partners of their brand-owner partners.

4.16.4. Reputation of the CMC - The factors cited under this theme show that brand owners are not willing to work with a CMC with a bad reputation in industry and society. Any bad publicity about the CMC could be associated with the brands it manufactures and, by extension, with the brand owner. Responses to the question about the criteria for selecting a CMC to work with included:

- *We also considered how long the company had been in operation and their track record as well as their leadership profiles.*
- *We tend to go on reputation and industry history.*

In this era of social media, anything negative about a CMC could become very public very quickly; so it is important that CMCs conduct their businesses in ways that do not damage their reputation.

4.16.5. Capability (skills and equipment/technology) - Some of the main reasons for using CMCs that were cited by participants were the availability of the right technology and the right skills at the CMC to make their products. This capability forms the core of the CMC's business and competitive advantage that makes it attractive as a supply partner. Investing in niche capability that is sought after by brand owners is a critical factor for the success of a CMC.

4.16.6. Ethics and legal compliance - Participants mentioned several factors under this theme, including compliance with ethical audits. Brand owners want to partner with CMCs that abide by the rules and legislation all the time. CMCs should ensure that they are always up to date with legislation in their area of business, and develop ethical management systems that help them to conduct their business in ethical ways. This includes ethical sourcing, which was cited by some of the experts.

4.16.7. SHE performance - Safety is the number one priority in most companies, and most of the participants came from big multinational companies that put SHE compliance at the top of their key priorities. It is therefore logical that they would expect the same focus on SHE in their strategic partners. CMCs should develop and implement SHE management systems that ensure that their employees work in safe ways with no risk to their health or the environment.

4.16.8. Business partnering - The responses that fitted under the business partnering theme were prominent in the questions about support for CMCs and lessons learnt. Brand owners are looking for strategic partnerships with CMCs. There is a paradigm shift in how CMCs are viewed by brand owners: they are no longer viewed simply as suppliers, but as strategic partners that could add value to the brand owner's business. Some of the responses from the experts were:

- *You establish them as a trusted business partner or an extension of your manufacturing process.*

- *Move the relationship beyond a transactional one and work with the customer to really be clear on what the longer-term objectives and capabilities needed are, and can support investing in advance to support the company strategy.*
- *Problem-solving training, better payment terms (cashflow can be a hand brake for some of them), support in sourcing from cheaper markets, technical support.*
- *CMC is an extension of your process; communication and transparency is key.*
- *Building strong, trusting relationships with CMCs is essential in achieving the business vision and goals.*

It is therefore critical for CMCs to seek a partnership relationship with brand owners that is based on trust, openness, and regular communication. Brand owners should create a business environment that allows CMCs to approach them freely without fear or feeling the need to hide information.

5. DISCUSSION

From the responses of the expert participants, it is clear that CMCs play a key role in manufacturing outsourcing and in the success of their brand-owner customers' supply chain. It is also clear that most of the CMCs with which brand owners work have not played this role to their expectations, judging by the responses to the difficulties that they have faced and the risks of working with CMCs. Looking at the responses through the lens of a CMC provides nuggets of information about what brand owners expect from them as strategic partners. At a strategic level, business partnering, reputation, and ethical compliance emerged strongly from the responses, sending a clear message to the managers of CMCs that they are regarded as long-term partners, and should therefore perform as partners, not just as occasional suppliers. With a strategic partnership based on openness, communication, and trust, most of the risks that were mentioned in the responses would be mitigated. These include the loss of intellectual property, CMCs becoming competitors, CMCs not sharing information, and CMCs not meeting the terms of the SLAs. CMCs should conduct business in an ethical manner, comply with legislation, and actively maintain a positive reputation if they are to remain in business and attract new brand owners. These responses also indirectly spoke to the type of leadership expected from the managers of CMCs. At an operational level, quality performance, supply performance, financial performance, and capacity availability emerged as key factors for sustainable CMCs. These are core manufacturing performance areas; so the message to the managers of CMCs is that their manufacturing systems and practices should be structured to best-in-class levels. Manufacturing is their main competitive advantage; so they should implement systems that ensure that they consistently produce quality products profitably, and supply them in full when they are required. This means investing in both people and equipment capability. The participants mentioned that one of the reasons that they decided to use CMCs was the availability of the right technology and the brand owners' inability or unwillingness to invest in new technology. This would give CMCs the opportunity to invest in new and relevant technology in order to attract more business from brand owners. SHE performance also emerged from the responses, and directly requires CMCs to be managed as properly functioning manufacturing companies that put employee safety and health first, and that engage in environmental sustainability programmes. Most brand owners drive their sustainability programmes on the basis of environmental, social, and governance (ESG) principles, and expect their strategic partners to do likewise. A key enabler of sustainable operations that did not emerge directly from the survey was that of culture. To remain profitable, CMCs should continually seek opportunities to improve quality and productivity and to cut costs in their value chain; and this should be a focus area for all employees that is embedded in the company's culture. CMCs should therefore develop and implement a culture that harnesses the collective power of their employees and stakeholders, setting them apart from their competitors and making them the preferred partners to brand owners.

6. CONCLUSION AND NEXT STEPS

The responses from the experts gave insights into what factors brand owners believe are important for the CMCs with which they want to partner in their supply chain. Based on the themes emerging from the analysis of the first round of responses from the experts, the next step is to identify the most critical factors and how they could be implemented by CMCs to achieve their sustainability objectives. A second questionnaire seeking consensus from the experts on the importance of each of the factors raised in round one will be developed and sent to the same experts. The output of this questionnaire will then lead to the development of a framework for sustainable contract manufacturing. This research is part of the author's studies towards a PhD in Industrial Engineering.

DECLARATION

This article is part of the PhD research conducted by Trust Mahove.

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