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**Horizontal supply chain collaboration amongst small enterprises:
Insights from UK brewery networks**

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Horizontal supply chain collaboration amongst small enterprises: Insights from UK brewery networks

Collaborating with rival firms is counterintuitive but can lead to mutual benefits if implemented successfully. This research paper investigates how horizontal collaboration amongst small businesses can support supply chain activities and lead to network enhancement. A cross-case analysis of five umbrella organisations, each consisting of multiple breweries, was performed. Their collaborative activities were investigated through semi-structured interviews, site-visits and documentation in this exploratory, qualitative study. The findings contribute to the development of a conceptual framework that shows the linkages between group formation, collaborative activities and supply chain outcomes. Horizontal initiatives are dependent on the formation of a unifying umbrella organisation and the management resources required to form and sustain the group should not be underestimated. The comparison across five networks included in the study suggests that social mechanisms can lead to network development. However, the relationship between the umbrella organisation and its members needs to be formalised to ensure sustainable operations and the delivery of expected outputs.

Keywords: co-operation; coopetition; umbrella organisation; network governance; network facilitation; case study

1 Introduction

Small enterprises face considerable challenges within their operating environment and often struggle to become sufficiently profitable, which in turn stifles investment in long term goals and growth. They are positioned in a fiercely competitive situation, sandwiched between large global companies and comparably sized, rival firms. A combination of resource paucity and economies of scale can render small firms uncompetitive, unprofitable and unsustainable (Morris *et al.* 2007; Zaridis *et al.* 2020). When operating independently they often suffer the effects of power asymmetry during negotiations, which leads to an unequal distribution of profits along

the supply chain (Nyaga *et al.* 2013; Fu *et al.* 2020). In response to these issues, horizontal supply chain collaboration has been employed as a strategy amongst small and medium-sized enterprises (SMEs)¹ to pool resources and refocus competition towards larger, dominant companies (Gnyawali and Park 2009).

Supply chain collaboration (SCC) can occur horizontally (Barratt 2004) and vertically (Ellram and Cooper 1990) to deliver superior performance, although successful deployment requires investment and judicious planning (Ramanathan and Gunasekaran 2014). Inter-organisational relationships at a dyad level are complex and multi-faceted, necessitating conditions such as trust (Han *et al.* 2021) in addition to collaborative competencies and strategic goal alignment (Goffin *et al.* 2006; Cao *et al.* 2010). These issues are exacerbated in the context of multi-organisational networks (Provan and Kenis 2008), especially amongst competitors (Bengtsson and Kock 2000). The counter-intuitive concept of collaborating with competitors can be explained by their homogeneity, as they face similar challenges and possess compatible resource endowment (Dorn *et al.* 2016). This allows a cooperation strategy in developing and increasing the market, followed by competing over the larger, available share (Pathak *et al.* 2014). For small businesses, this type of relationship is a necessity and driven by a need to reduce costs, develop operational capabilities and increase market share, i.e. strategically align their resources for mutual competitive advantage (Gnyawali and Park 2009).

SCC research has previously concentrated on vertical, dyadic relationships (Soosay and Hyland 2015; Chen *et al.* 2017). However, following industry trends, companies are increasingly willing to engage in horizontal SCC if they perceive mutual benefits (Cygler *et al.* 2018). Logistics provision (Pan *et al.* 2019) and innovation (Soosay *et al.* 2008; Melander

¹ The term SME is used in accordance with references from the literature but the focus of this study is small enterprises. The umbrella organisations that represent each case are comprised almost entirely of small businesses.

and Pazirandeh 2019) are two areas where horizontal collaboration has been successfully implemented. This range of activities from transportation operations to joint technology development (where confidential information and future investments are exchanged) suggests that the limitations of integration, even between rivals, are being erased (Sharma *et al.* 2019).

A major problem that small businesses face is the implementation of horizontal collaboration. Although the conceptual advantages are well documented, they are not always realisable (Camarinha-Matos and Abreu 2007) or understood by SMEs (Luo *et al.* 2018). Practitioners may have never considered horizontal collaboration as an option for competitive advantage (Luo *et al.* 2018) and they need to select effective collaborative activities and a framework to manage inter-organisational relationships (Matopoulos *et al.* 2007). This study addresses these problems by investigating the issues that small brewery networks face, along with the factors that contribute to their sustained operation and successful delivery of group objectives.

Prior research in the domain of SCC is extensive but horizontal relationships are still being explored, especially amongst small businesses (Lotfi *et al.* 2021; Prim *et al.* 2021; Zaridis *et al.* 2020). SCC activities do not occur in a vacuum but require governance for their implementation (Matopoulos *et al.* 2007). However, the role of network governance in horizontal SCC is not well understood in terms of its evolution (Lotfi *et al.* 2021) and facilitation of specific activities (Flanagan *et al.* 2018). Indeed, there is a call for research to explore the role of professional networks in SCC through different relationships and social mechanisms (Prim *et al.* 2021). There is also a need to examine collaboration using a variety of theoretical perspectives (Zaridis *et al.* 2020) and analyse the reasons for failure (Bills *et al.* 2021). Experimental studies that put forward mathematical models are more prevalent than exploratory research (Pan *et al.* 2019). Thus,

the topic would benefit from detailed, empirical investigation (Chen *et al.* 2017) of other horizontal activities beyond that of transportation management (Soosay and Hyland 2015).

For this reason, the work here investigates the formation, functioning and outcomes of five brewery networks that were established to deliver horizontal SCC activities. The craft brewing sector is an ideal context due to its high level of collaborative activity (Kraus *et al.* 2018; McGrath *et al.* 2019). By studying horizontal SCC in an established network, the following research questions can be addressed – *which horizontal SC activities can be successfully implemented and how is horizontal SCC successfully facilitated amongst multiple, small enterprises?* Using an exploratory, cross-case analysis, the full range of SCC activities were examined for five umbrella organisations. Each one being responsible for aligning members, acquiring resources and delivering collaborative objectives.

This study contributes to the literature by bringing together horizontal SCC and network governance that need to be considered in unison when multiple firms are involved. First, a conceptual framework is presented that separates business objectives from the underpinning management requirements and shows the linkages between group formation, collaborative activities and supply chain outcomes. Based on small businesses, it highlights the most suitable horizontal SCC initiatives and the resource requirements needed to deliver them. Second, it draws empirical data from five cases that operated under the same environmental conditions but displayed different outcomes. This comparison allows inferences to be made regarding network facilitation and its contribution to group success and failure. It adds to the debate on transactional and social mechanisms that support network development. Here we observe a move from informal, relational governance towards formalisation as a contributing factor to sustainable collaborative activity.

The paper is structured as follows: section 2 presents a literature review on supply chain collaboration, focusing on horizontal relationships between small firms and the subsequent outcomes. The research methodology applied during the study is discussed in section 3. The findings are presented in section 4, and section 5 synthesises the data with previous literature. Section 6 concludes the paper by highlighting the main research contributions, managerial implications, limitations of the study and direction for future research.

2 Literature Review

2.1 Supply Chain Collaboration

Collaboration has come to represent close, long-term inter-organisational relationships that provide synergistic benefits to the participants (Spekman *et al.* 1998). These strategic alliances enable efficiency savings, quality improvements and joint projects to enhance competitive advantage along the SC (Goffin 2006). Soosay and Hyland (2015) reviewed 17 definitions of SCC, which are predominantly based on vertical, supplier–buyer relationships. The core aspects incorporate information exchange (Spekman *et al.* 1998), collective decision-making (Stank *et al.* 2001), common vision/goals (Sanders and Premus 2005) and sharing resources (Richey *et al.* 2012). However, SCC is a complex practice due to the number of variables involved and it is not always successfully deployed (Barratt 2004). Simatupang and Sridharan (2005) proposed a framework which enables key features of SCC to be scrutinised and improved. Cao *et al.* (2010) subsequently developed an instrument with seven interconnecting elements: information sharing, goal congruence, decision synchronisation, incentive alignment, resource sharing, collaborative communication, joint knowledge creation. This particular framework has gained traction in the SC literature (Huang *et al.* 2020).

One of the issues with SCC is that its success is not merely dependent on motivation and opportunity but also based on dimensions such as trust and organisational culture (Goffin *et al.* 2006; Zhang and Cao 2018). Effective collaboration requires a comprehensive skill set to manage joint operations, resources and relationships (Acquah *et al.* 2021). Partner selection has an impact on successful SCC but this factor cannot always be controlled and barriers arise through asymmetry (Michalski *et al.* 2018). This is an issue for SMEs that are often dependent on powerful players to meet their resource needs (Gnyawali and Park 2009; Nyaga *et al.* 2013; Pfeffer and Salancik 2003). Sufficient organisational compatibility is an antecedent to collaboration and as companies become increasingly homogeneous, it paves the way for horizontal relationships to develop (Dorn *et al.* 2016).

2.2 Horizontal Supply Chain Collaboration

The different types of collaborative relationship that exist within a supply network can be divided into two main categories. Vertical collaborations occur along the supply chain and typically include a focal firm with its customers/suppliers. Horizontal collaboration occurs across the supply chain and can be between independent parties or competitors that are situated at the same level (Barratt 2004). We define horizontal SCC as: *'The ability of rival companies to work across organisational boundaries to create, manage and deliver collaborative initiatives.'* It is goal focused, yet recognises the relational underpinnings necessary to harness synergies for competitive advantage, as suggested by Fawcett *et al.* (2008). Regardless of the type of relationship, the purpose is the same, to enhance performance through the capitalisation of resources, capabilities, processes and routines (Soosay and Hyland 2015).

Collaboration amongst competing firms seems paradoxical but the business environment in which SMEs operate creates drivers to develop competitive strategies (Zaridis *et al.* 2020). All firms in a given industry face competitive pressures, however, SMEs are excessively disadvantaged through market entry barriers set by large players. This is the case in

commodity industries where customers are price sensitive and economies of scale determine market share through a cost leadership advantage (Porter 1980). SMEs are unable to compete in terms of scale economies and must either accept a cost disadvantage or innovate to develop competitive advantage. This can be achieved at a firm level (e.g. differentiation) but horizontal SCC is able to provide further market opportunities that cannot be realised individually (Morris *et al.* 2007). SMEs compete against large firms as well as one another and it is to their advantage to reduce competition. This is achieved through cooperation in developing and increasing the market, followed by competing over the larger, available share (Pathak *et al.* 2014). This approach allows SMEs to focus their collective efforts against large, dominant companies with a view to increasing their customer base and sales opportunities.

Competitiveness may also be enhanced through SC efficiencies that aim to reduce costs and improve profit margins (Bititci *et al.* 2007). Economies of scale can be realised through group purchasing, which has the added advantage of lowering power asymmetry during supplier negotiations (Yu 2014). There are opportunities for efficiency savings through horizontal logistics collaboration, which is a growing research topic (Pan *et al.* 2019). Resource pooling based on non-physical asset combination is also applicable for downstream customer focused activities, i.e. bargaining leverage with powerful distributors/customers to improve selling price and reduce dependencies (Pfeffer and Salancik 2003; Nyaga *et al.* 2013). Knowledge transfer for product and process innovation is readily adopted by SMEs (Prim *et al.* 2021).

A selection of case-based studies is presented in Table 1 that capture the motivations for horizontal collaboration amongst SMEs. In addition to market development (Pathak *et al.* 2014; McGrath *et al.* 2019) and economies of scale (Flanagan *et al.* 2018), resource pooling can provide access to production capacity and capabilities without the associated capital investment (Vallejos *et al.* 2007; Chen *et al.* 2019). Resource pooling is a signature theme of collaboration and can also be used to meet large customer demand (Leat and Revoredo-Giha 2013) and facilitate

growth (Kraus *et al.* 2018). Finally, horizontal SCC can be developed by governing bodies (Vallejos *et al.* 2007) and non-partisan institutions (Balcik *et al.* 2019). Collaboration amongst SMEs tends to involve multiple actors to maximise resource pooling and economies of scale (Gnyawali and Park 2009).

Table 1. Horizontal Supply Chain Collaboration

Reference	Context & motivation	Collaborative initiatives	Collaborative elements	Mechanism	Supply chain impact
Leat and Revoredo-Giha (2013)	UK agri-food SC. Formal collaboration between rivals & stakeholders to manage risks and increase resilience of pork production (small farms).	Joint risk assessment and mitigation through farm monitoring and production standards. Transparent pricing and aggregated supply to large retailers.	Significant evidence of all collaboration elements being implemented, SC partners align their businesses to ensure joint order fulfilment.	Large retailers demand stable supply and logistical efficiency, feasible through collectivisation of small producers.	Supply disruptions to retailer are mitigated through horizontal aggregation policy, dampens price volatility.
Vallejos <i>et al.</i> (2007) [†]	Automotive manufacturing SC. Brazilian die producers selected by government and banks to build SME competency.	A company secures a large contract with a customer, sub-contracts work to competitors. Group bids with elected project leader.	High levels of information sharing, decision synchronisation, resource pooling and alignment to submit bids and fulfil joint orders.	Each company has detailed knowledge of capacities and capabilities of their competitors' operations.	Capacity sharing improves SC productivity and profitability. Idle capacity within network is accessible and utilised.
Lyson <i>et al.</i> (2008) [†]	USA agri-food SC. Small farms nationally organised through formal co-operative structure to combine assets.	Producers coordinate supply through distribution centres and processing facilities, which are owned by their competitors.	Collective goals and SC alignment are paramount to supporting this type business model. Decision-making is centralised.	The coordinated SC necessitates relinquished autonomy in favour of stable demand, access to resources and economies of scale.	The cooperative SC is efficient enough to compete with large 'business' farms, while remaining profitable.
Flanagan <i>et al.</i> (2018)	Brewing SC. Small, nascent firms in the USA. Engagement in joint operational activities to pool resources and improve efficiencies.	Group purchasing of raw materials and resource pooling. Joint process improvement and problem solving.	Information sharing, common goals, incentive alignment and resource sharing are evident but adopted on circumstantial basis.	Transfer of operational expertise and tacit knowledge. Resource pooling as risk mitigation strategy.	SC efficiencies through processes improvement and negotiated material price reduction.
Kraus <i>et al.</i> (2018)	Brewing SC. Resource-constrained SMEs in German-speaking countries. Goal to facilitate growth.	Mutual investment to establish sales outlet. Joint production for co-branded products.	Incentive alignment for shared costs, risks and benefits for sales outlet. Resource sharing for production and marketing.	Removal of intermediaries between production and consumer provides the producers with direct customer access.	Shortened SC leads to increased mutual profitability and responsiveness to customer demand/preferences.
Balcik <i>et al.</i> (2019)	Humanitarian SC (Caribbean). Network design for dispersed disaster response agencies. Intergovernmental agency led.	Joint procurement and ownership of materials. Collective inventory prepositioned in specific locations.	Significant collaboration to achieve mutual goals, especially incentive alignment and resource sharing.	Extensive sharing resources, which requires joint investment. High risk/reward strategy is possible because non-competitors.	Major reduction in total network inventory through collaborative prepositioning versus decentralised policy.
McGrath <i>et al.</i> (2019)	Brewing SC (USA). Collaboration among entrepreneurial micro-breweries owners to compete against multinationals.	Mentoring new businesses on best practice with distributors, retailers, suppliers. Material and equipment pooling.	Prevalent information sharing to increase market share. Some degree of resource sharing.	New entrants developed through business and technical support to maintain industry standards.	Quality improvement acts as self-marketing for sector. Customers do not differentiate between brands.
Chen <i>et al.</i> (2019) [‡]	Manufacturing SC. Two competitors manufacture partially substitutable products for cost reduction.	Collaborative component production through wholesaling or licencing of process technology with competitor.	More contractual in nature but the competitors are still leveraging each others' resources.	Collaborate with facilities/technology upstream. Compete downstream for customer demand.	Lowered manufacturing costs for one firm, while providing increased orders for the partner

Table notes: [†] From (Pathak *et al.* 2014). [‡] Quantitative model.

2.3 Collaborative Initiatives, Management & Impact

In Table 1, each horizontal collaboration has been separated into two parts. The collaborative initiative (business objective) and collaborative elements (relational management). The management strategy can be based on the framework proposed by Cao *et al.* (2010), which holistically captures the constituent elements of SCC. The purpose of this partition is to highlight the different levels of management that are required to support various business objectives. For example, the group purchasing of raw material noted by Flanagan *et al.* (2018) requires less relational integration than establishing a joint sales outlet as identified by Kraus *et al.* (2018). Utilising each other's production facilities (Vallejos *et al.* 2007) requires each firm to have detailed knowledge of their rival's production capabilities, work-loads and cost-structures. This type of capacity sharing requires a significant level of transparency and could be considered a horizontal equivalent of SC open-book costing. However, these activities can be considered as an ideal state for horizontal SCC because such practices are not always witnessed within the SME context (Bengtsson and Johansson 2014).

The goal of horizontal SCC is competitive advantage, which is manifested at a firm, inter-firm and network level (Dorn *et al.* 2016). A particular initiative may have an impact at different levels. Mentoring and training fledgling businesses leads to knowledge and skills improvement at the firm level but also enhances the overall product quality and reputation of that network (McGrath *et al.* 2019). A significant number of horizontal SCC benefits are derived through vertical channels, i.e. the horizontal firms act as a unified hybrid organisation in their buyer-supplier relationships. From Table 1, these benefits include: enhanced resilience to disruption (Leat and Revoredo-Giha 2013); increases in productivity and profitability (Vallejos *et al.* 2007); competitive advantage against large enterprises (Lyson *et al.* 2008); operational efficiencies (Flanagan *et al.* 2018); SC agility through increased customer responsiveness (Kraus *et al.* 2018); lead time reduction through shared inventory (Balcik *et al.* 2019).

2.4 The Role of Network Governance

A horizontal collaboration involving multiple firms adds an additional layer of complexity, which necessitates forming an inter-organisational structure to manage that layer effectively. A form of governance is required to cohere the independent firms, support collective action and resolve conflicting priorities (Provan and Kenis 2008). This mode of conducting economic activity is recognised as network governance and it is an alternative to markets and hierarchies. It is often characterised by the use of social mechanisms to coordinate exchanges, rather than formalised, contractual agreements because networks are not usually legal entities. It follows the argument that social contracts, built on trust, provide a more efficient mode of governance to manage exchanges and can reduce the costs associated with coordination, modification and safeguarding (Jones *et al.* 1997; Provan *et al.* 2007; Williamson 1979). “*Non-contractual methods of governance are critical to successful exchange because of the difficulty of creating comprehensive contracts*” (Lambe *et al.* 2001, p. 2). SMEs can take advantage of relational governance to create an economical exchange system that bypasses restrictive transaction costs (Human and Provan 2000; Jones *et al.* 1997).

Network governance provides an opportunity for multilateral collaboration but its effectiveness in delivering network-level outcomes is determined by a number of factors, including the inter-organisational form. The main forms are: shared governance which is decentralised and managed by all the participating network members; a lead organisation from within the group acts as a centralised hub and maintains network duties; a separate network administrative organisation is established to govern network activities (Provan and Kenis 2008). Structural and relational antecedents will influence the form but a lead firm or third-party is more likely when there are many participants (Mueller 2021; Provan and Kenis 2008). Multilateral collaboration allows SMEs to compete more effectively through increased resource pooling but requires careful structuring to facilitate both collective and individual member goals so that autonomy is not excessively compromised (Cragg *et al.* 2020; Provan *et al.* 2007).

Dependence on social mechanisms does not mean that all inter-firm interactions, activities and management are purely informal, in reality, a spectrum exists between the relational and the contractual. Relational governance utilises trust and social norms to minimise opportunism but the approach can lead to contractual ambiguity and benevolence is not always reciprocated (Cao and Lumineau 2015). In a content analysis of business networks amongst SMEs, Cisi and Sansalvadore (2019) propose a classification scheme that acknowledges the role of quasi-informal governance that incorporates both formal and informal agreements. Indeed, there exists a debate between the ‘substitutive or complementary role of transactional and relational mechanisms’, which may depend on the life cycle stage of collaboration (Bills *et al.* 2021). Their study of networks (comprised of competing service providers) found that transactional mechanisms preceded informal contracts as social ties developed over time.

3 Methodology

The research design is based on the case study method to support contextual, exploratory research with the purpose of theory elaboration (Ketokivi and Choi 2014). It is a cross-sectional study and incorporates multiple cases in an industrial setting. The case method is appropriate because it (1) permits complex phenomena to be studied within their contexts (Baxter *et al.* 2008) while capturing rich, descriptive insights (Barratt *et al.* 2011); (2) the research questions are of an exploratory nature (Eisenhardt and Graebner 2007) and are based on multiple cases (Yin 2011); (3) the research is contextualised within an emerging industry with limited existent knowledge (Eisenhardt 1989). The context for this study was the UK craft brewing sector and the unit of analysis was an umbrella organisation, which was comprised of multiple, independent companies. The umbrella organisations were formed to stimulate horizontal collaboration amongst the competing breweries and this research investigates their effectiveness.

3.1 Case Context

The context for this study is the UK brewing sector, which is highly competitive and includes global giants such as Heineken and Carlsberg that dominate the market. Nearly 75% of the beer consumed in the UK was supplied by four international drinks companies. Sales exceeded 8 billion pints in an industry worth £20 billion (Forde 2018). The remaining 25% market share is unequally divided between c.1,900 breweries (BBPA 2020). The lion's share being retained by a few large national breweries with turnovers in excess of £36 million. The majority of breweries are small, local companies that have turnovers below the £1 million threshold. The four multi-nationals operate less than ten UK based brewing facilities between them, while each independent has to plan–source–make–deliver–return individually. Small companies struggle to compete in a commodity market against these economies of scale, dedicated logistics services and operational efficiencies. They are forced into competing with one another within the confines of a severely restricted market. Even their value proposition as a local, community based businesses faces erosion as the corporate monoliths strategically acquire small breweries to fight in this market segment (Davies 2015).

3.2 Case Selection

Each case was an umbrella organisation, which provided a formalised structure to stimulate and manage horizontal SCC initiatives amongst geographically clustered breweries. The brewing industry was chosen because it is collaborative by nature and fosters a high level of cooperative activity (Flanagan *et al.* 2018; McGrath *et al.* 2019). Following a search for umbrella organisations across the UK, five cases were found, which satisfies the recommendations of Eisenhardt (1989) for a cross-case analysis. The first organisation was interviewed following a referral by a government agency. This led to snowball sampling whereby additional networks were suggested. Internet and academic literature were also used to identify potential cases. Each umbrella organisation selected was identifiable as an established and distinct entity with a

mission statement, external (public) presence, 10+ members and regionally located. Horizontal collaborations among a few breweries based purely on a personal relationship were ineligible. Using these search methods, only five cases met the selection criteria for networks that have been established since the year 2000 when the craft brewing sector began to expand.

Details of the umbrella organisations are presented in Table 2. The majority of breweries across all of the cases are small enterprises with turnovers that rarely exceed a few million pounds. The reason for this concentrated size distribution is the Small Brewers Relief that halves the Beer Duty rate for production levels up to 5,000 hectolitres and is tapered thereafter to the full rate. The EABC used this production limit as membership criteria. Both the CBA and WBC included a large enterprise that was independently owned. The large enterprises in the LBA (and one in the CBA) were breweries of varying sizes that have been taken over by multinational drinks producers. They have been classified as large enterprises on the premise that they have access to the resources (investment, distribution, sales outlets, etc.) associated with a large company. Each of the umbrella organisation founders owned a small brewery (except WBC) and the larger members did not contribute additional resources despite their size.

The umbrella organisations supported a range of horizontal activities that could be investigated, along with the success of the network. They achieved different levels of integration, activity and sustainability that provided unique insights. The organisations all operated within a common environmental setting with fixed structural variables (e.g. legislation and tax), which allowed inferences regarding specific activities and managerial practices. The five cases had similar objectives and operating environments, yet differing outcomes that this research sought to elucidate.

Table 2. Umbrella Organisations

Case	Established	No. of members	Size distribution	Organisation type	Mission
CBA	2013	20-30 [†]	SE and 2x LE	Unincorporated trade association	“The group aims to promote [location] beers and brewers both in and out of [location], encourage the exchange of technical knowledge and act as an informal trade association to boost members’ buying and selling power.”
DBC	2003	20-30 [†]	SE	Unincorporated trade association	“The DBC meet to share lifelong skills and to discuss the promotion and distribution of the fine ales produced, working together to supply the very best cask conditioned, real ales locally and nationally.”
EABC	2002	40-50	SE	Private company limited by guarantee	“To create a thriving economy, foster networking for small breweries in [location] such that they can fulfil their aspirations in a wholesome manner. To create equitable opportunities for small breweries, and create a future for all members to succeed.”
LBA	2010	90-100	SE and 5x LE	Unincorporated trade association	“The LBA exists to promote excellence in all aspects of brewing within [location]. We aim to achieve this through promoting its member breweries, participating in any suitable event, promoting the sale of beer, supporting the improvement of brewing skills among the membership.”
WBC	2017	70-80	SE and 1x LE	Government facilitated business network	“WBC aims to promote the manufacture, appreciation and consumption of [location]-made alcoholic drinks products throughout the UK and beyond, and to provide a point of contact for those who wish to learn more.”

Table notes: [†]At peak membership. SE–small enterprise. LE–large enterprise.

3.3 Data Collection

Primary data was collected through fifteen semi-structured interviews, facility tours, correspondence and field notes (Table 3). The semi-structured interviews lasted between 30-90 minutes and were conducted in person at the interviewees’ premises when possible. On-site interviews that incorporated a facility tour provided invaluable contextual information. Two interview protocols were prepared. The first protocol was aimed at the umbrella organisation to understand its establishment, practices and outcomes (see Appendix A for sample questions). The second protocol focused on the brewing supply chain and how the constituents (maltster, farmer, etc.) collaborated with the umbrella organisation. Email and telephone correspondence was also used to elicit further details and clarify queries. Secondary data was collected through organisation documents, promotional material and popular press articles. The LBA founder produced a range of documentation, including: budgets, regulations, costed projects and internal memorandums. The field-researcher in this work spent two days physically investigating the EABC supply chain, which included a day with the founder. During this time the researcher

observed the founder interacting with (vertical) SC members. Again, this additional perspective was able to supplement formal interview data.

Table 3. Case and data collection details

Case	Interviewee position	Primary data	Secondary data
CBA	Founder & brewery owner	I1	Business news, trade magazines, social media
	Member brewery - head brewer	I2	
DBC	Founder & brewery owner	C1	Business news, trade magazines, website
	Member brewery - dispense manager	I3	
EABC	Founder, EABC director & brewery owner	I4	Business news, trade magazines, website, promotional video
	Maltster - sales manager	I5/O	
	Farmer & retail outlet	I6/O	
	Seed merchant - managing director	I7	
	Plant biologist - senior scientist	I8/O	
	Member brewery - owner	I9/O	
	Non-member brewery - owner	I10/O	
LBA	Founder & brewery owner	I11/O/D	Business news, trade magazines, website, promotional video
	LBA Secretary	I12	
WBC	Network developer - specialist consultant	I13	Business news, trade magazines, website
	Member brewery - owner	I14	
	Member brewery - owner	I15	

Table notes: I-interview; C-correspondence; O-observation (site tour); D-documentation.

3.4 Data Analysis

An inductive and deductive approach were combined during the analysis process to ensure that the research questions were answered whilst capturing emergent themes, as recommended by Bingham and Witkowski (2021). The raw data was initially coded (deductive approach) based on concepts identified in the literature review (Miles *et al.* 2020). This captured the context and drivers towards horizontal SCC for each case, as considered in Table 1. The next step of our coding process aimed to identify the supply chain initiatives that each of the case organisations were practicing, based on the literature (Matopoulos *et al.* 2007). Having established the activities, the exercise progressed towards emergent aspects (inductive approach) regarding their enablement and outcomes (Miles *et al.* 2020). This element of coding focused on the formation and functioning of the umbrella organisation, which is an integral part of horizontal collaboration when multiple firms are involved (Provan and Kenis 2008). The coding structure is outlined in Table 4, which highlights the aggregated categories and interrelationships

between the data (Miles *et al.* 2020). The collaborative initiatives are presented in further detail in Table 5 along with their management requirements and outcomes in Table 6. NVivo Software was used to organise and code the collected data, which has the advantage of supporting memos to record reflections during the analysis (Corbin and Strauss 2014).

Throughout the research process, the following tactics were employed to ensure validity and reliability (Yin 2011; Gibbert *et al.* 2008). Case studies from the horizontal SCC literature were identified and analysed to understand common SC themes which aided coding and categorisation. Empirically observed patterns were comparable with established research such as Dorn *et al.* (2016); Gnyawali and Park (2009); Pathak *et al.* (2014); Provan and Kenis (2008); Pfeffer and Salancik (2003). The researchers have significant experience working with the brewing sector, which aided interview protocol preparation to ensure that the data collected answered the research questions. For each case study, a database was created that contained the interview transcripts, field notes and additional primary/secondary data. A summary of the findings was sent to the umbrella organisation founder/developer to ensure that the data collected was correct. To promote transparency, an overview of the research process is illustrated in Figure 3 (Appendix B), which links the case selection, data collection, data coding and data analysis.

Table 4. Coding structure

Aggregate category	2nd-order categories	Data reduction (1st-order code)
		Promotion of products and businesses
	Mission	Collaborative activities Knowledge & skills exchange

Motivation	Inspiration	Existing collaborations Organic development Government support

	Collaborative Nature	Social interaction Mutual support

	Sector Enhancement	Market growth Quality improvement Reduce competition
-		-----
		Network & Communication
		Education & Training
	Resource requirements	Marketing & Promotion
Collaborative Initiatives	Collaborative elements	Joint Events
	Initiative outcomes	Supply
	Barriers	Production Distribution Product Development
-		-----
		Organisation type
	Formation	Eligibility criteria Initiation

	Governance	Structure Management Resource Extent of formalisation
Umbrella Organisation	Business Objectives	Goal alignment Agreement

	Organisational outcomes	Activity level Delivery of objectives Influencing factors

4 Findings

Part one of this section recognises the initial inspiration and environment that led to the formation of each umbrella organisation. Part two compares the cases with respect to the horizontal collaborative initiatives and associated management. The final part identifies the outcomes and influencing factors for each case organisation.

4.1 Within Case: Context & Motivation

The *EABC* was established during the early 2000's, when purchasing small batches of production materials was uneconomical and rendered some unavailable. Online payments and e-shops were in their infancy, while consolidated shipping was unsophisticated. The industry structure for small breweries was unfavourable and prompted the *EABC* founder to contact rival companies in order to aggregate resources. He had a vision to collectively win market share from the large drinks producers rather than compete against small, local businesses and sought to achieve this through SC efficiencies and product enhancement. Competing against large producers on price was deemed futile and contributed to lower profits among the small breweries.

The main reason we got together was because we wanted to remove the aggression between brewers vying with each other for custom in a highly competitive market. We set out to make a new market to give our beers a premium position. We discussed the problems we all had in sourcing barley and decided we needed to have a formal structure to get our own malt supply. We set out to form a co-operative so we could then buy and negotiate on behalf of our members as well as talk about our problems and help each other. –*EABC* (Press 2014)

The founder secured public funding to resource the establishment of a formal Cooperative. The award was used to hire an 'ambassador' (a senior figure in the craft brewing industry) to network and persuade breweries to become members, based on a set of clearly defined business objectives.

The *DBC* was also established in the early 2000's but through marketing events that were regularly staged within the sector. At these events, such as beer festivals, multiple breweries showcase and sell their products directly to consumers alongside direct competitors. Counterintuitively, these externally organised events provided an organic networking structure for the participating breweries within their geographical location. Although competing for sales, the nature of the industry dictates that multiple contributing breweries are necessary to attract custom and render them successful. The founder perceived an opportunity for collaborative event logistics and engaged with the other breweries to informally implement a system. Joint event logistics provided immediate benefits and then, as a respected and established brewer, he was able to establish the group with the aid of a few core members.

It all started with the festivals and then saying "oh we'll take all the beer orders at this festival", and one of the brewers would do it. It was that kind of cooperation in real terms, moving stuff about. Delivery was an easy thing to do and that was very, very good. That saved time, it saved money [Barry], whom I regard as the father of craft brewing in [Location], did a great job in getting everything off the ground. – DBC

The *LBA* was initiated during a social networking event that was organised by a local brewery. There was a universal recognition that "[Location] seemed well behind the curve in terms of its presence in the sector." Emerging breweries lacked consistency in terms of product quality, which had a negative effect on the craft sector because "you're only as strong as your weakest link." Many of the new business owners were untrained, unqualified and lacked commercial skills relevant to the brewing industry. Penetrating the market and securing contracts at sales outlets was also problematic and restricted growth.

What started it was a craft brewer ringing round and saying, "Why don't we all get together and have a beer?". So the talk that evening got round to, "Look, how do we make the [Location] brewing scene really interesting, really exciting and something that is a benefit to everyone? How do we help each other?" –LBA

The founder was inspired following a visit to the DBC, where he investigated their organisation and operations. He did not seek to replicate their exact structure but to gain ideas and apply them in his particular setting. The LBA breweries were collectively motivated to develop their region into an international centre of brewing excellence, while promoting their products through horizontal collaboration.

I visited the DBC and looked at what they did and how they operated. They ran schemes to centrally organise beer supply to festivals and things like that whereas individuals they couldn't send beer because it was too costly but if they did it collectively, then they could afford to do it. We looked at everything but had no single model. We just wanted to set something up that would help us all. – LBA

The CBA was formed to “promote beers and brewers... encourage the exchange of technical knowledge... boost members’ buying and selling power.” The founder had researched collaborative organisations within the UK and overseas, including the USA where the craft brewing sector was thriving. He was inspired by the LBA but sought to expand their vision and include joint procurement activities. The brewing industry exhibits cooperative behaviour and contacting rival business owners was not a barrier to networking. One of the large, national breweries initially supported the network and was able to host events but was not interested in sharing their supplier discounts. As a matter of perspective, the disparity in size between the large brewery and the small enterprises that comprised the majority of the umbrella organisation was over an order of magnitude (in terms of revenue). All breweries, regardless of size, were invited to join the CBA.

We are keen on working together to promote [Location] as a beer connoisseur's destination, as a county which produces an incredibly diverse and high-quality range of beers which just needs to be showcased to the rest of the world. Working together we can do this more effectively. – CBA

The WBC is a network of breweries, initiated as part of a larger government strategy to develop the food & beverage sector in the locality. A specialist beverage consultancy was publicly funded to engage with breweries and develop the sector in terms of: innovation, operations, marketing, skills training and export. As part of the strategy, there was an expectation that the breweries would collaborate in order to achieve sector goals.

The key objectives are to help businesses achieve accelerated growth in sales, profit and staff numbers... collaboration will take a number of forms and could include: sharing of resources; joint sales initiatives; access to market insights and knowledge; sharing experiences and lessons learnt. – WBC

Breweries were invited to attend consultative networking events to identify needs and stimulate collaborative activities. The publicly funded body organised initial events and engagement. This government-led initiative was influenced by a previous attempt by the private sector to establish their own business association. A group of drinks producers (not limited to breweries) formed an alliance to “promote the [Location] drinks industry”. Although the business association was inclusive, the core proponents were brewers. This initial private sector network was unable to garner sufficient support to remain in operation but it eventually contributed to the WBC formation when the original founder/members were contacted by government consultants.

The aim is to create an ‘umbrella identity’ for all [Location] drinks producers, overcoming what is a problem with the industry, the relatively small scale of many producers. – WBC

4.2 Cross-case comparison: Collaborative initiatives & management

The horizontal SC practices for each umbrella organisation are presented in Table 5 and discussed further in Section 5. The case organisations engaged in many of the initiatives but the EABC

displayed exceptionally high levels of activity, especially with respect to involving vertical SC actors. This was manifested through collaborative purchasing, joint sales and product development. The EABC represented its group of member breweries to the farmers, maltster, seed merchant and plant research centre. This was in an effort to develop differentiated ingredients as a unique selling proposition. The EABC aimed to ‘shorten the supply chain’ through local supply and they established a permanent sales outlet for the group’s products.

Start at the till. The product you’re creating, how much does it have to sell for to pay the retailer profit, how much to make a profit for the brewer, how much then if you’re going to use this best malt, how much has the farmer to get paid to grow that barley to make that malt at the best quality and knowing that all that what you say has to be true because people can look at social media. –EABC

This type of output was not achieved by the other organisations and it necessitated an organisational strategy and significant management resources, which was clearly understood by the founder.

I viewed that the only way to get people together was if there was a financial benefit to them... [because] we had funding we sent our ambassador along to talk to them and to recruit them, saying exactly what we were going to do. –EABC

The LBA was highly active and achieved considerable success but they did not attempt to integrate so prominently with vertical SC members, except on an event basis and this was customer focused. The EABC had the governance structure to deliver such outputs whereas the LBA operated initially under an entrepreneurial style leadership to ‘get things going’. Participants contributed their resources to action initiatives, although as membership increased, a more standardised administrative structure was adopted.

So one of our favourite sayings in the first few years, “That’s a great idea. Are you [going] do it?” Okay? Because we can all have good ideas. Wouldn’t it be great if we did X, Y and Z? But unless we’re [going] do it, it ain’t [going to] happen. –LBA

The management aspect of each collaborative initiative is presented in Table 6 and it is evident that each one requires different levels of resource to implement. These ranged from general administrative tasks for networking or coordinating logistics on an event basis, through to consolidating purchasing orders and distribution of raw materials. The governing body was ultimately responsible for managing the initiatives and assigning tasks to members if appropriate. Not all initiatives could be implemented and size asymmetry between member breweries proved to be a barrier to collaboration. This was encountered by the CBA for joint purchasing, whereby asymmetry affected the potential benefits amongst members. The EABC countered this issue through restricting admission to breweries below a certain production threshold.

Different sized brewers with different needs... cheaper for mid-sized companies to go direct to source... larger companies split and the business side's not inclined towards collaborating – CBA

Table 5. Horizontal supply chain initiatives

Initiative	CBA	DCB	EABC	LBA	WBC
Network & Communication	Regular meetings	Regular meetings. Inter-brewery email facility	Regular meetings. Ambassador recruited to engage with breweries	Regular meetings; e-bulletin board. Secretary managed engagement.	Regular meetings externally organised
Education & Training	Informally encouraged between breweries	Occasional external technical presentations	Regular 'hands-on' internal support from Director.	Regular technical presentations.	Subsidised training externally provided.
Marketing & Promotion	Promotional activities at externally organised events	Promotional activities at externally organised and group organised events	Support to find new markets, sales and raise consumer awareness.	Promotion of breweries, products and brewing skills.	Promotional activities externally organised.
Joint Events	Coordinated logistics and shared costs for external events	Organisation of a small festival and coordinated logistics	Promotional events. Barley to Beer project.	Regularly organised festivals and coordinated logistics.	Informal arrangements between individual breweries.
Supply	Negotiated raw material discounts for group members, de-centralised purchasing.	No formal joint procurement, informal only.	Centralised procurement facility, achieved economies of scale for raw materials.	No formal joint procurement, informal only.	No formal joint procurement, informal only.
Production	Joint production of CBA branded beers for events and promotional purposes.	Informal collaborative brewing and equipment sharing.	Support for installation and commissioning of production equipment.	Joint production of LBA branded beers for events and promotional purposes.	Informal collaborative brewing
Distribution	Logistics provided for events along with joint sales.	Logistics provided for events along with joint sales.	Sales outlet established for EABC members' products.	Logistics provided for regular events, standardised transportation price.	Informal logistics sharing, reluctance to share customer details.
Product Development	Joint product creation for specific events. Informally discussed production techniques and product styles.	Discussions regarding raw material varieties and production techniques, simulated by technical input.	Worked with maltster, farmer and seed merchant to develop Malt Coast branded ingredients.	Regular technical presentations to improve quality (key driver) and develop new products/techniques.	External public body currently attempting to initiate activity.

Table 6. Initiatives & management

Initiative	Prevalence across cases	Management	Initiative outcome
Network & Communication	Foundational activity for all cases	General administrative duties	Enhanced networking supports all other initiatives
Education & Training	Core activity that complements group meetings for all cases	Organise speakers and facility tours	Product quality improvement across the craft brewing sector
Marketing & Promotion	Core activity for all cases with a customer focus both physically and digitally	Coordinating role for product logistics to a common location. Website creation and maintenance	Increased market exposure and introduction to new customers. Development of 'craft brewing scene'.
Joint Events	Common activity ranging from logistics coordination through to resourcing and staging a festival	Staging a festival requires financial contributions along with planning and managing event operations	Cost-saving for logistics. Market access that individual breweries ordinarily precluded from
Supply	2/5 organisations implemented. Two models: raw material discounts for members, decentralised purchasing; group purchase of materials, centralised purchasing	Group discount requires supplier negotiation. Joint purchasing requires a legal Co-operative structure, payment terms, centralised warehouse and distribution	Cost-savings for raw materials. Challenging to implement due to bespoke ingredient requirements, redistribution to individual sites and centralised purchasing facility
Production	Common activity to produce a special batch at a member's facility	Host brewery responsible for organising materials, labour and production.	Aids marketing through product creation and media exposure. Facilitates knowledge sharing and relationship building
Distribution	Common activity for each case to move products to an event venue	Coordinating role to organise capacity and transportation	Cost-saving for logistics and simple to implement
Product Development	Common activity as an outcome from technical training. A priority for EABC (differentiation) and LBA (quality improvement)	Enveloped within joint production and training. Significant engagement of EABC with vertical SC members.	Product quality improvement across sector and marketing benefits through differentiation.

4.3 *Umbrella Organisation*

The EACB is highly active and an example of successful horizontal collaboration, resulting in the establishment of a Co-operative (registered UK Limited company). The founder received funding for its formation, which supported extensive networking (through a third party) and a clear presentation of the group's objectives. The Co-operative has engaged in a full range of collaborative initiatives, adapting its objectives with its operating environment. E.g. there was an initial emphasis on material cost-reduction through joint procurement that has re-focused towards traceability for marketing purposes.

The DBC is now inactive, although inter-brewery meetings were well attended and it experienced immediate benefits through distribution to promotional events. The DBC integrated sufficiently to stage a beer festival and technical training. Other supply chain initiatives (e.g. procurement) were raised but an abundance of discussion with no resulting action meant that time-constrained members were deterred and focused on their individual businesses. 'The meetings were getting less well attended, so it slipped into decline, and eventually disbanded' (DBC). Poor delivery of the beer festival and a lack of membership contribution towards activities were additional factors.

The LBA is highly active and successfully brought together competing breweries to achieve its objectives (promoting members' products and businesses). The organisation is recognised nationally in its sector and invited to participate at events. It has organised a number of festivals that are increasing in size each year, along with its membership. The LBA has encouraged the affiliation of corporate supporters from allied trades that pay fees so that they can attend meetings and promote their services to the breweries, thus creating an additional income stream. Bimonthly networking/training events provide the platform for further informal, localised horizontal collaboration.

The CBA currently exhibits low activity, although the organisation had initial success in attracting member breweries of all sizes and collaborating in terms of joint events, products and some raw material discounts. However, it gradually ‘fizzled out’ as the founder could not commit his (voluntary) time to organise the group of businesses. The larger breweries were selective in collaborative initiatives, based on their individual firm benefits. The organisation is still active but operates casually amongst the smaller breweries who infrequently sell their products together at externally organised events.

The WBC is active but networking, training and promotional events are all facilitated by government bodies, with approximately half of the eligible breweries participating. This includes a joint, online sales site. The members are aware of existing umbrella organisations but they have not created a self-directed group. The precedent business association engaged in similar promotional activities but dissolved due to insufficient membership, however, the current externally organised network is considered an indirect outcome.

Each umbrella organisation functioned within the same industry structure, however, results ranged from sustainable collaboration through to disbandment. The current status of each case organisation is presented in Table 7 along with some of the influencing factors. The CBA and DBC were initially well supported by participating members but they eventually declined due to management resource constraints

...it needs to be co-ordinated by someone who has the time and inclination to pull it all together, and therein lay the demise of the collective. – DBC

It was set up several years ago but fizzled out because I didn’t have enough time to organise it all and keep it going... it was all voluntary and there wasn’t enough time to do it and run my own business. – CBA

The EABC and LBA are currently in operation and have succeeded in delivering their business

objectives. They both displayed an ability to align collective goals and implement their vision. Forming a group and aligning the business objectives of multiple, small companies was a resource-intensive undertaking. The EABC and LBA were capable of putting in place a management structure, aided by a remunerated administrative role. The WBC is in operation but its long-term continuation will be dependent on its members taking organisational responsibility. Participating in an umbrella organisation is voluntary and each member brewery makes a value judgement regarding their firm's resource input compared with the benefits that they receive.

They decided that they needed a secretary because none of them had the time to do the admin... organising the meeting, taking the minutes, looking after the bank account... stuff on the website. –LBA

I reckon within 24 months the coffers will dry up from the Government. So, this is our opportunity to create the foundations... it's showing commitment and it's creating a budget that can actually support all the values that we're trying to achieve and do. – WBC

Table 7. Case Outcomes

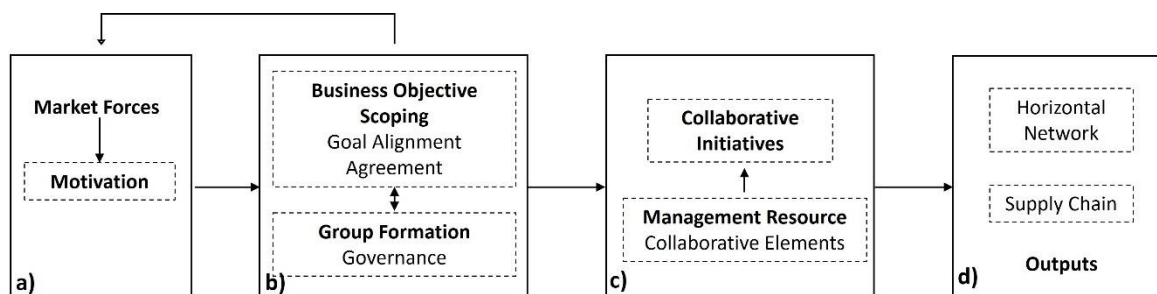
Organisation	CBA	DCB	EABC	LBA	WBC
Current status	Low activity	Inactive	High activity	High activity	Active
Initial network development	Founder	Founder	Founder with government grant	Founder	Government facilitator
Eligibility criteria	Geographical	Geographical	Production limit	Geographical	Geographical
Ongoing management resource	Founder (voluntary)	Founder (voluntary)	Director (membership fees)	Secretary (membership fees)	Government funded
Governance approach	Social mechanisms	Social mechanisms	Formal (legal entity)	Social-formal (association rules)	Social (facilitated)

5 Discussion

A collaboration tends to be an amalgamation of several business objectives, management practices and outputs. The model presented in Figure 1 attempts to delineate the critical aspects of

horizontal collaboration that lead to successful outcomes. Group formation is a precursor to the execution of collaborative initiatives and requires the alignment and agreement of multiple, rival firms. This significant task of establishing an umbrella organisation should not be underestimated. However, it does not guarantee sustainable operations once formed due to the continual management resources required to support activity (Provan and Kenis 2008).

Figure 1. The empirical stages of horizontal collaboration for improved performance.



5.1 Initiation

The motivation to engage in horizontal collaboration is generated by industry pressures, (Box 1a). Each brewery (pre-umbrella organisation) exists within an operating environment and is subjected to competitive forces that drive offensive/defensive strategies (Porter 1980). These pressures stimulate a response to increase market share or improve SC efficiencies (Pathak *et al.* 2014). Applying Porter’s forces to the EABC, the major threats to profitability were: rivalry amongst existing firms (local breweries and corporate drinks producers); bargaining power of suppliers that were indisposed to the batch sizes, credit terms and delivery requests of the microbreweries; bargaining power of the buyers that labelled ale products as commodity items and were price sensitive. New (local) entrants were not perceived as a major threat due to the dominance of the multinational firms.

The EABC founder reacted to these forces with a vision for horizontal collaboration, which would improve the negotiation terms with suppliers, move away from commodity product pricing and deflect local rivalry towards the large drinks producers (Zaridis *et al.*

2020). Competitive advantage is based on local market access, brand identity and product appeal. Small companies are resource poor and less efficient compared with large organisations such that cooperation with rival firms is a favourable option (Gnyawali and Park 2009). McGrath *et al.* (2019) suggest that this behaviour is a fundamental feature of entrepreneurial activity and necessary for acquiring economies of scale (Morris *et al.* 2007) or additional resources (Ciabuschi *et al.* 2012). The initial phase of horizontal SCC had many similarities to entrepreneurial activity, which seeks to create value in the face of dynamic market forces (Gartner 1990).

5.2 Scoping & Group Formation

The second phase (Box 1b) reveals the dichotomous nature of horizontal collaboration, although business objective scoping and group formation tend to occur concurrently. The vision consists of the intended business goals but are based on the establishment of an umbrella organisation. The LBA's vision was to promote members' products, the CBA sought to reduce raw material costs, the DBC wanted to improve event logistics efficiencies and the EABC all of the above. Whatever the goal, the group is now responsible for project delivery and realising benefits that cannot be attained in isolation (Dyer and Singh 1998). However, there are 'hidden costs' associated with group formation and ongoing management that should be calculated prior to a venture. These include substantial personnel time, which is often absorbed into an organisation's cost structure. Implementing close working relationships bears transaction costs (Richey *et al.* 2012) and can be the reason for the termination of an alliance (Cygler *et al.* 2018). This was the experience of the CBA and DBC, ongoing management was provided voluntarily by the founders and eventually became unsustainable. Conversely, the EABC and LBA charged membership fees and were able to pay for group administration (Provan and Kenis 2008). Additionally, in the early stages of group formation, the EABC had funding to sponsor a central figure to orchestrate activities while the LBA ensured members contributed to group

initiatives. Each founding brewer successfully established an umbrella organisation but they opted for different modes of governance, which impacted their long-term sustainability. This leads to the first proposition of the study that can be tested in future research.

P1: In the context of multiple firms, the availability of management resources is positively related to sustainable horizontal SCC.

Goal Alignment: Creating a cohesive group from multiple, rival businesses requires goal alignment and incentivisation. These are acknowledged as key factors in SCC (Cao *et al.* 2010) because benefits need to be understood to offset any investment costs (Simatupang and Sridharan 2005). The EABC founder employed a recognised industry leader to sell the vision and champion the Co-operative formation. At an operational level, this activity involves contacting, visiting and organising group events, which is labour intensive. However, it should be performed judiciously because strategic alignment is an essential antecedent to performance improvement (Skipworth *et al.* 2015). The CBA attained a measure of goal alignment between members in order to negotiate material discounts with suppliers. Unfortunately, firm size asymmetry within the group prevented centralised purchasing due to the negligible benefits for larger breweries. Power asymmetry is a consistent issue in SC relations and forces the weaker party to accommodate a larger player's conditions (Nyaga *et al.* 2013; Fu *et al.* 2020). This is an acute issue for small firms but horizontal collaboration was used as a vehicle to increase bargaining power. Ironically, vertical asymmetry was a driver towards collaboration but horizontal asymmetry limited its efficacy. The EABC addressed this issue by restricting membership to breweries below a certain production threshold.

P2: In the context of multiple firms, increasing goal alignment is positively related to the opportunities to engage in horizontal SCC.

Agreement: The level of formality amongst group members contributed to the organisational outcome and a more formalised approach ratified collective goals and expectations

(Cygler *et al.* 2018; Dorn *et al.* 2016). The CBA took an informal approach to inter-organisational agreement, while the LBA created a document to stipulate objectives and membership criteria. The EABC was formalised as a legal entity (UK Limited Company). The agreement can be formal or informal but usually covers cooperative aspects only, which follow fixed rules, whereas competition is based on social contracts (Dorn *et al.* 2016). The WBC were prepared to share information for collaborative upstream activities but would not discuss their customers. When asymmetry exists, formalised agreements can protect weaker parties, especially those with a lower resource endowment (Ganguli 2007). This may explain the informal nature of the CBA, which included business of a considerable size differential. Larger companies may lose an advantage if contractually tied with smaller players. The specifics of collaboration may also influence agreement formalisation. The EABC operated a centralised procurement facility for its members that would be difficult to manage on a casual basis. A formalised structure was necessary for a UK agri-food collaboration that organised marketing, transportation, and payment on behalf of its members (Leat and Revoredo-Giha 2013).

P3: In the context of multiple firms, formalising agreements is positively related to sustainable, horizontal SCC.

5.3 Collaborative Initiatives

The umbrella organisation provides the platform to execute the collaborative initiatives (Box 1c).

Networking & Communication was a foundational theme due to their integral role in group formation and ongoing meetings (Bengtsson and Kock 2000). This additionally created the opportunity for specific, localised collaborations when it was not practicable to align the entire organisation. Thus, allowing some firms to pursue deeper integration without the laborious efforts of attaining consent, the trade-off being reduced economies of scale.

Education & Training were incorporated into group meeting to discuss product and process development. Knowledge sharing is a key component of horizontal collaboration amongst small firms (Gnyawali and Park 2009). The appeal could be based on the simplicity of set-up, minimal investment costs and a wide range of benefits. Knowledge sharing can lead to: product development, innovation, process improvement, market insights and efficiency savings (Soosay *et al.* 2008; Melander and Pazirandeh 2019; Sharma *et al.* 2019). It can deliver value at both the focal firm and network level. Within the DBC, non-paying customers were highlighted, that allowed other members to avoid litigation or loss. The LBA sought to improve all brewers' technical skills and hence, product quality for the region. Established brewers were willing to share their technical expertise and industry knowledge gratis (Kraus *et al.* 2018; Flanagan *et al.* 2018).

Marketing & Promotion of breweries and their products were readily accepted. It followed the premise of cooperation to develop the market, followed by competing over the larger, available share (Bengtsson and Kock 2000; Pathak *et al.* 2014). Organising a festival type event is a high risk venture because of unpredictable demand and no guaranteed return. Sharing investment costs and risk was an enabler for participation and provided the opportunity to generate supernormal profits (Dyer and Singh 1998). The LBA members also created advertising material at a reduced cost. Through financial pooling, they could access resources that they could not afford individually, a signature theme of horizontal SCC (Huang *et al.* 2020).

Joint Events were comprised of multiple collaborative initiatives but were conducted on an intermittent basis, i.e. not associated with regular operations. This suited the breweries because they did not want interference in the day-to-day running of their business. Joint Events focused on the activities supporting festivals that included marketing, production and logistics (McGrath *et al.* 2019; Kraus *et al.* 2018; Flanagan *et*

al. 2018). Logistics provision for events may be provided by a member brewery or external party. The LBA agreed to an internal cost-structure for shared transportation for their events. Internal service provision can incorporate many SC activities such as warehousing and processing, as recorded by Lyson et al. (2008).

Supply – Group purchasing is a core motivation for collaboration amongst SMEs to achieve economies of scale and increased bargaining power (Yu 2014; Fu *et al.* 2020; Zaridis *et al.* 2020). However, it is not easily implemented and requires significant member alignment for supplier selection and scheduling. The ongoing management of such an initiative should be relatively low once an ordering system is in place but this was not realised for the breweries investigated by Flanagan *et al.* (2018). The instigating buyer had to resource ‘the leg work’ of manually contacting breweries to collate orders and the EABC also operated in an unsophisticated, labour intensive manner. The EABC’s success is attributed to the founder persuading other breweries to join the cost-saving, purchasing scheme.

Production was limited to speciality products, which were branded for promotional purposes. Capacity sharing requires a significant level of transparency and is described by Vallejos *et al.* (2007), where each firm has detailed knowledge of their rival’s facilities, workloads and cost-structures. This practice could be considered the equivalent of horizontal SC open-book costing. Capacity sharing in brewing would require the divulgence of product ingredients, which is a source of competitive advantage through differentiation and unlikely to occur (Porter 1980). The value in collaborative production came through the learning and relationship building associated with joint activities (Bititci *et al.* 2007).

Distribution mainly occurred in the form of joint logistics and sales at events. Horizontal logistics collaboration has been implemented in various sectors to improve SC efficiencies (Soosay and Hyland 2015; Pan *et al.* 2019). However, the breweries were content to sell their products at a common outlet but they would not share their permanent customer

details for confidentiality reasons. Thus, collaborative downstream distribution to a regular customer base is unlikely to occur. The EABC established a sales outlet for its members and Kraus *et al.* (2018) also reported joint sales for SMEs in the brewing sector. This is the exception rather than the norm due to the significant investment of resources, risks and ongoing management.

Product Development tended to be an outcome of group training and production, despite innovation being recognised as a strategy for competitive advantage among small businesses (Morris *et al.* 2007; Soosay *et al.* 2008; Gnyawali and Park 2009). Brewing is a low-tech industry, which limits the opportunities for innovation. The EABC was the exception and engaged with 1st and 2nd tier suppliers to source locally grown barley as a differentiation strategy. It was necessary to gain agreement between the breweries, farmer and maltster because the farmer required a forward contract to grow the barley and the maltster needed combined orders to fulfil their minimum batch size. There needed to be sufficient goal congruence and decision synchronisation amongst the horizontal members prior to collaboration with the vertical SC (Cao *et al.* 2010; Yu 2014).

P4: In the context of multiple firms, initiatives that involve vertical SC engagement require a greater degree of goal alignment and increased management resources.

5.4 Managing Horizontal Collaboration

The execution of SC initiatives amongst multiple, independent firms requires a facilitation mechanism to align goals, acquire resources and coordinate activities (Provan and Kenis 2008). This was observed in our cases by establishing an umbrella organisation that provided a network structure. Although all of the organisations were initially successful, only two were able to become self-sufficient and fully deliver their objectives. This can be attributed to a level of formality in their approach to network governance and supports the complementary role of

transactional and relational mechanisms (Cisi and Sansalvadore 2019; Bills *et al.* 2021). Strictly speaking, only the EABC created a legal entity that could be considered a formal organisation (Provan and Kenis 2008) but the LBA stipulated rules for its members, created internal (non-legally binding) contracts and charged membership fees. This contrasts with the other networks that relied entirely on social mechanisms (including external facilitation) and illustrates the concerns regarding opportunistic behaviour that contributed to their decline (Cao and Lumineau 2015). The continued operation of the CBA and DBC relied on the benevolent actions of their respective founders, which proved to be unsustainable.

The case outcomes mark a distinction between network formation and continued operation, highlighting the role of transactional versus relational mechanisms during different life cycle phases. Bills *et al.* (2021) found that a transactional approach preceded social interactions in their study of collaborating service providers due to the time required to build relationship. However, the brewery networks were initiated informally and evolved to a more formalised structure during operation. This apparent contradiction may be explained by the sector, whereby the brewing industry is relatively simple and fosters a great deal of informal horizontal collaboration such that social interaction already exists (Lotfi *et al.* 2021; Prim *et al.* 2021). Additionally, the smallness of the breweries creates a barrier to producing costly legal contracts, especially if the network outcomes have not been fully analysed to garner support (Cragg *et al.* 2020).

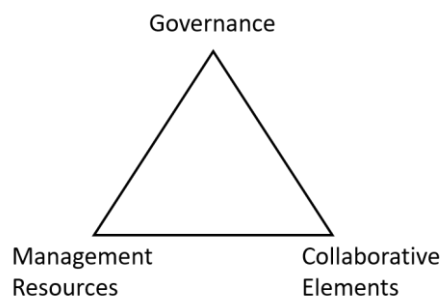
The issue of resource acquisition proved to be a serious problem for the umbrella organisations (Mueller 2021). Following formation, the organisational representatives may select the most appropriate collaborative initiatives to create value for the group but then fail to deliver them due to a lack of human resources required for execution. In these types of ‘voluntary membership’ organisations, the governing body has no authority to delegate duties. This leads to a reliance on its members’ willingness to participate in

operationalising the collaboration or the governing body assumes the burden (Pathak et al. 2014). If the membership cannot be mobilised, financial contributions are necessary to resource the scheme. Governance and management resources satisfy different functions, although they may originate from the same source.

Knowing *what to do* in terms of business strategy and *who will do it* needs to be complemented with *how to do it*. This is the third vertex on the collaboration triangle that is presented in Figure 2. The collaborative elements developed by Cao *et al.* (2010) provide an understanding of the mechanics of SCC. Together, they form a comprehensive framework that can be applied to ensure effective integration. The elements can create an environment that is conducive to collaboration and even indicate resource requirements but they cannot be used to identify business opportunities. Hence, all three aspects noted on the triangle are necessary to promote successful horizontal collaboration in the context of multiple participants (Provan and Kenis 2008; Cao *et al.* 2010; Pathak *et al.* 2014).

P5: In the context of multiple firms, the synergistic contribution of governance, management resources and collaborative elements is positively related to successful and sustainable horizontal SCC.

Figure 2. The collaboration triangle



6 Conclusions

Horizontal SCC is a strategy that brings together rival firms in order to combine resources and gain mutual benefits for competitive advantage. When implemented successfully it can unlock new business opportunities, efficiency savings and refocus competition. However, horizontal SCC is a complex undertaking when multiple firms are involved and requires the formation of a facilitating organisation. Additionally, a considerable level of management resources (relative to small businesses) are required to initiate and sustain activity. An umbrella organisation acts as the vehicle to deliver business objectives and is responsible for member alignment, agreement and governance. A major issue for sustaining activity is the management of resources because the governing body has no power to delegate workload, thus relying on voluntary contributions or financial investment that needs to be justified to its members.

Social mechanisms permit networks to be established when there are insufficient resources to create contractual agreements. However, unless a degree of formalism is introduced, there is a risk of opportunism that can lead to failure. This occurred when member firms did not contribute to network orchestration and the founders withdrew their facilitating support. This work adds to the debate regarding the substitutive or complementary role of social and transactional network governance. Our findings suggest that in the context of small breweries, social mechanisms need to be complemented by formal agreements to enable sustainable operations. Legally binding contracts may not always be necessary but network rules, regulations and contributions should be formalised. These findings also add to the work by Cao et al. (2010) to postulate that three components are necessary for sustainable horizontal SCC amongst multiple firms: (i) governance (for leadership), (ii) management resources (to make it happen) and (iii) collaborative elements (the know-how).

6.1 Practical Implications

An initiator of (multiple firm) horizontal SCC should be aware that they face the task of establishing an umbrella organisation and that they will be responsible for acquiring or providing the resources to achieve this necessary step. In addition, the founder should expect to carry over these responsibilities unless they put an alternative organisational structure in place. For this reason, the group formation stage is vital and should be approached with strategic intent, i.e. to sell the collective vision and acquire resources. The founder should clearly communicate the business plan to garner allegiance, although the commitment of members will only be fully understood following a formalised request for resources. Once operational, the governing body needs to adapt its objectives to the evolving business environment and also appreciate the limitations to what can be achieved. For example, engaging in certain SC activities, such as procurement, requires a higher level of integration and an organisational form that permits joint financial transactions.

In terms of specific initiatives, the leading body should first consult with its members and perform a feasibility study, this engagement process additionally manages expectations and elicits further opportunities/pitfalls. Networking is the foundation to all other initiatives, both at a network and localised level. Following this, the most prevalent activities were training and marketing. There was a universal acceptance of the need to develop the sector that they operate within, to ensure consistent product quality and gain sales opportunities. The breweries also preferred to collaborate on an event basis rather than interfere in their regular day-to-day operations. They were motivated to sell products side by side at an event but sharing regular customer details for joint distribution was rejected and fixed the border between competition and collaboration. Size asymmetry amongst members was a barrier to collaboration because it affects the realisable benefits for certain activities. Finally, the members need to see benefits for their invested time/finances to motivate them towards continued participation.

6.2 *Limitations & Future Research*

The research has its limitations and was conducted in a specific industry that has its own structural constraints that will influence the collaboration process. The interview data was collected from key informants but these perspectives could be supplemented with more member's views to enable a broader network analysis. This work highlighted the progress of the organisations over time but from a single, retrospective position. Data collection at different stages of network evolution would provide additional information on successful facilitation. This exploratory study sets a precedent for several avenues of further investigation, including testing of the propositions. (1) This work has revealed that a connection exists between specific collaborative initiatives and the undergirding collaborative elements. The next step is to establish a more sophisticated correlation between them. For instance, what levels of each element are needed to deliver joint procurement versus transportation? (2) Collaborative activities can incorporate external parties or horizontal members that provide equivalent services (e.g. logistics provision). The two different models will affect the group dynamics and it would be pertinent to know which is the most beneficial at a network level. (3) Some member firms actively engaged in knowledge transfer activities but did not progress to physical endeavours. The propensity towards information versus task based collaboration requires further study to understand member perceptions and motivational factors. (4) The founders displayed leadership qualities to promote their vision of horizontal collaboration. As entrepreneurs, these qualities would also be evident in the context of their own company. The requirements of forming and leading a business versus a group of rival businesses would be an interesting topic to explore.

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Appendices

A Interview Protocol

Part 1: Umbrella organisation introduction/motivation & context

1. As a general introduction, what is the ABC (umbrella organisation) and what does it do?
2. What inspired the creation/formation of the ABC?
3. Were there particular market conditions that led to the ABC's formation?
4. What were the events leading to the formation?
5. What were the subsequent activities of the alliance?
 - positive experiences
 - negative experiences

Part 2: Operationalising

1. What is the ABC in terms of a legal entity?
2. Can you explain the organisational structure?
3. How was this particular type of organisation arrived at rather than another?
4. Can you describe the process required to set it up?
5. What would I need to do to replicate elsewhere?
6. What challenges did you face when establishing the ABC?

Part 3: Member Contributions & Benefits

1. What contribution does each member brewery make to the alliance
 - how does this vary among members?
2. Do the member breweries pay a subscription?
 - what is the subscription fee?
3. What benefits do the breweries receive from being part of the ABC
 - what services are provided?
4. Are member benefits equally distributed among the group?
 - are there inequalities between member contribution and benefits?

Part 4: Collaborative initiatives

1. What are the different types of collaborative activities between the member breweries – please provide examples?
 - Are there any joint purchasing related activities - please explain?
 - Are there any joint production related activities - please explain?
 - Are there any joint logistics related activities - please explain?
 - Are there any joint sales and distribution related activities - please explain?

Part 5: Continued operations

1. How sustainable is the ABC?
2. Will the organisational structure need to change for future challenges and opportunities?
3. How does the current format of the alliance promote or restrict collaborative activities?

4. What do you see as the future direction of the ABC?
5. What would be the next level of collaborative activity?
 - how could this be facilitated?
 - what would be the benefits?

B *Research Process*

Figure 3. Research Process

