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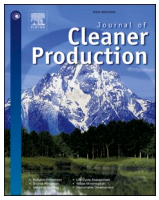

The local supply chain during disruption: Establishing resilient networks for the future

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ABSTRACT

This paper explains the evolving role of the local supply chain across different disruption scenarios. A systematic literature review of 91 papers from 33 journals supports definition of the local supply chain and explication of benefits before, during and after COVID-19 disruption. Resilience emerges as the prevalent benefit at each stage, but to varying scales. In the pre-COVID-19 era, where the local supply chain serves as a back-up approach to the more dominant global supply chain, localisation's capacity to absorb change promotes resilience to mitigate low-magnitude disruption. At initial outbreak of COVID-19 disruption the local supply chain was necessitated as an emergency response to the untenability of global operations, demonstrating transformational resilience to survive. As disruption continued, the local supply chain upscaled and adapted to recover. In the post-COVID-19 era, resilience is expected to remain a strategic priority, promoting continued investment in local operations to thrive with embedded resilience. As a result, the COVID-19 pandemic welcomed a point of transition for the local supply chain as capacities and benefits are revaluated and localisation recognised as critical in developing resilient supply networks for the future. This study consolidates this evolution to offer a propositional framework showcasing the local supply chain across different disruption scenarios. This offers long overdue definition and explanation of the local supply chain and its relationship with resilience, addressing an existing lack of academic attention and encouraging alignment of local-versus-global decisions with changing strategic priorities.

1. Introduction

The local supply chain has long been considered inferior to its dominant global counterpart (Chopra and Sodhi, 2014). The global supply chain is widely acclaimed for its cost cutting benefits, as cheaper overseas manufacturing helps to meet demand in increasingly competitive markets (Sáenz et al., 2018). In contrast, local supply chains are best recognised for their shorter distribution channels (Serel, 2015) which permit adaptability and flexibility (Moradlou et al., 2021). Whilst there are clear benefits to both, the strategic benefits of the global supply chain have traditionally outweighed those of the local supply chain (Grivins et al., 2016). However, the unprecedented disruption of the COVID-19 pandemic challenges this (Zhang et al., 2023), welcoming a new era in which localisation's flexible and adaptable capacities align with the prevalence of resilience as a strategic priority (Dube et al., 2022; Sudan et al., 2023). While recent research focuses on the negative impact of COVID-19 on global supply chains (Kazancoglu et al., 2023), this paper highlights the increasing value of the local supply chain, delineating its role and benefits across different scales of disruption.

During COVID-19 disruption, global operations became untenable (Bassett et al., 2021); breakdown of global infrastructure, loss of workforce, and travel restrictions blocking many aspects of global trade (Kholaif et al., 2023) highlighted ineffectiveness and inefficiencies (Rahman et al., 2022). As an emergency response, firms switched to local supply networks (Panwar et al., 2022), in some cases establishing entirely new supply chains to mitigate disruption and meet new demands (Fearne et al., 2021). These local supply chains were able to adapt quickly to manage significant demand shifts, relying on collaboration and innovation amongst local partners to survive and promote recovery in local markets (Kapoor et al., 2021; Kovács and Falagara Sigala, 2021). This implicates an ability to transform and upscale operations, contradicting the inferior presentation of the local supply chain in pre-COVID-19 times, whilst simultaneously magnifying the weaknesses of the global supply chain (Kazancoglu et al., 2023). Consequently, the post-COVID era welcomes a point of transition as operations and markets fundamentally change (El Korchi, 2022; Zhang et al., 2023). New insights are needed to understand this change and inform future directions relating to local-versus-global decisions (Thilmany

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et al., 2021).

Existing understandings of the local supply chain largely pre-date the COVID-19 pandemic, however, in pre-COVID-19 literature the local supply chain is often limited to a point of comparison to highlight the strengths of global supply chains. Accordingly, explanation of the implementation and benefits of the local supply chain is long overdue. In particular, the role of localisation in mitigating disruption requires explication. It is widely accepted that the local supply chain promotes resilience (Hendry et al., 2018), but the scale of disruption influences the level of resilience, and consequently localisation required (Stone and Rahimifard, 2018). This means that the local supply chain will assume different roles and realise different benefits as disruptive events occur. The COVID-19 pandemic, which witnessed disruption unlike any other in recent memory (Notteboom et al., 2021), offers an opportunity to capture and map the evolution of the local supply chain before, during and after disruption.

This paper undertakes a systematic literature review to define and explain the local supply chain across three stages of disruption: the pre-COVID-19 era; COVID-19 disruption; and the post-COVID-19 era. This seeks to address the research question: *how has the role of the local supply chain evolved throughout COVID-19 disruption?* Addressing this question offers several theoretical contributions. First, overdue definition and explanation of the local supply chain is delivered, reflecting recent evolutions. In the pre-COVID-19 era, this addresses the dominance of global supply chains in literature to bring to the fore benefits of the local supply chain which have long been undermined. Diverse insights from literature published during the COVID-19 era, which drastically increased in response to disruption (Fig. 2), are consolidated to depict the prevalence of the local supply chain and its increasing value during disruption. Early publications from the post-COVID-19 era are also reviewed, permitting consideration of the role of the local supply chain in building resilient supply networks for the future. Second, this study distinguishes between different types of resilience, explaining the role of the local supply chain in each. Resilience emerges as the key benefit of the local supply chain before, during, and after COVID-19, but to varying levels. This is clarified via application of Stone and Rahimifard's (2018, p214) scale of resilience that conceptualises: **resilience** as the *"capacity to absorb change"* (pre-COVID-19 era)*;* **adaptability** as the *"capacity to evolve a given form of operation"* (on going COVID-19 disruption); and **transformability** as the *"ability to completely change an untenable system of operation"* (COVID-19 outbreak). Third, reflection on the findings also propose an extension to Stone and Rahimifard's (2018) scale via the addition of **resilience embeddedness** (post-COVID-19 era)**.** This study presents four strategies tailored to the different levels of disruption and associated resilience benefits: mitigate, survive, recover and thrive. This is consolidated to offer a propositional Local Supply Chain Mitigate, Survive, Recover, Thrive (MSRT) Framework (Fig. 3) for Resilience to depict strategic response to disruption across different scales.

Considering practical implications, such renewed understanding of local supply chains can support strategic decision making for supply chain managers going forward. Resilience remains a key strategic priority in the post-COVID-19 era. Continued investment in local operations is encouraged to embed resilience, which is important as mass disruptions can be expected to increase in the coming years (Carissimi et al., 2023). Importantly, this does not reject a return to global operations, but rather promotes a mixed local-global approach in which the adapted capacities of both are leveraged to align with strategic goals. Institutional actors can also support continued localisation, as governments, NGOs and policy makers were critical in COVID-19 recovery and supporting localised future networks for resilience. Beyond resilience, this paper highlights additional development areas for the local supply chains of the future: environmental and socio-economic resilience should be included in strategic decision making; and increased investment in technology is necessary to advance localisation and mitigate future disruptions.

The rest of this paper is organised as follows. Section 2 details the method, following Tranfield et al. (2003) protocol for systematic literature review. Descriptive findings presented in Section 3 offer a bibliometric analysis of local supply chain literature ranging 2012–2022. This underpins thematic analysis for Section 4, which delivers a detailed discussion of the local supply chain and its evolution across the pre-COVID-19, COVID-19 disruption, and post-COVID-19 eras. Finally, Section 5 concludes the paper with a reflection of the key findings and their theoretical and practical implications, as well as outlining a future research agenda.

2. Method

A systematic literature review (SLR) is selected as the most appropriate method for addressing the research question, with SLRs common to supply chain research (see for example: Pilbeam et al., 2012; Cheng et al., 2015; Soosay and Hyland, 2015; Pisani and Ricart, 2016; Stone and Rahimifard, 2018; Durugbo et al., 2021; Kapoor et al., 2021; Carissimi et al., 2023). The SLR meticulously assesses existing literature in a defined topic (Soosay and Hyland, 2015), allowing for the analysis and synthesis of a broad range of information into a holistic understanding of a specified research question (Stone and Rahimifard, 2018). This analysis and synthesis of ideas not only aids wider scholarly dissemination of key concepts, but also effectively creates new knowledge, thus producing new research findings (Rousseau et al., 2008). However, this can only be achieved when the SLR is carried out in a defined manner, with comprehensiveness, specificity, transparency, and replicability setting it apart from a standard literature review (Tranfield et al., 2003). As such, the requirements for selection and inclusion of literature are rigorous, with the SLR following a strict process. While ensuring thoroughness, this also ensures bias is minimised (Soosay and Hyland, 2015) and an audit trail of actions is created (Durugbo et al., 2021) to "enhance the legitimacy and authority of the resultant evidence" (Tranfield et al., 2003, p. 208). Combined, this provides researchers a reliable basis to formulate opinions and considerations for further research (Soosay and Hyland, 2015; Carissimi et al., 2023).

To achieve an accurate audit trail, the research protocol proposed by Tranfield et al. (2003) was followed, which includes ten phases: (1) identification for the need for review; (2) preparation of a proposal for a review; (3) development of a review protocol; (4) identification of research; (5) selection of studies; (6) study quality assessment; (7) data extraction and monitoring progress; (8) data synthesis; (9) report and recommendations; and (10) getting evidence into practice. While guided procedurally by Tranfield et al. (2003), the detail of the research protocol is guided by the aim of the research and more specifically, sub-research questions which help operationalise the SLR (Pilbeam et al., 2012): *how has the role of the local supply chain evolved throughout COVID-19 disruption?*

To address this question, keywords were chosen to guide the search. Keywords were carefully selected by the research team based on key concepts that had informed the research questions which were then converted to search terms (Koberg and Longoni, 2019; Sudan et al., 2023). A key determinant of keyword selection came from the necessity to identify the unit of analysis (localisation), the unit of observation (the supply chain) and the context of study (disruption). This meant searches were directed using search terms from each, with synonymous terms informed by literature (Table 1). Keyword search was not restricted to title, abstract, or keyword, and while this did greatly increase search results, it ensured important articles that used keywords throughout the paper were not excluded. Another criteria used at this point was time-frame, again informed through literature. Recent literature draws comparisons between the financial crisis of 2008–2009 and the COVID-19 pandemic, whilst stressing that the latter *"presents new and unprecedented impacts on global supply chains"* (Notteboom et al., 2021, p180). Consequently, we used the financial crisis and COVID-19 as time-frames for the study: the pre-COVID era spans recovery from the financial crisis to outbreak of COVID-19 (2012–19); the COVID-19 era

Table 1
Search strategy.

	Unit of Analysis	Unit of Observation	Context of Study
Search Terms	Locali* Deglobali*/De-globali* Slowbali*/Slow-bali* Backshoring/Back-shoring Reshoring/Re-shoring Onshoring/On-shoring Inshoring/In-shoring	"Supply chain" "Value chain"	Disruption Uncertainty Volatility Ambiguity Complexity Interruption Disturbance Emergency

relates to peak disruption at the outbreak (2020–21); anything beyond 2021 represents recovery of the post-COVID-19 era. This encouraged inclusion of papers ranging from 2012 to 2022 only. Additional search criteria excluded non-peer-reviewed journal articles, non-full text journal articles, and non-English language journal articles. While this broad initial search may generate a significant number of responses, it was important to remove articles through carefully designed criteria rather than through mass exclusion or oversight. Boolean operators "OR" and "AND" were used to ensure an efficient search strategy was created. As advocated by Räisänen et al. (2021), when literature is fragmented across discipline areas, multiple databases should be selected to give complete insight. As such, searches were carried out using four databases commonly used in SLR research (see for example Kuzma et al., 2020; Atanasovska et al., 2022; Kumari et al., 2022; Dinh et al., 2024; Hunger et al., 2024) – EBSCO (Business Source Complete); ProQuest; Web of Science; and Emerald.

The initial search resulted in 9731 articles before automatic reduction, followed by manual reduction took place to remove duplicated pieces reduced results to 8856. Forty-eight non-full-text, non-peer-reviewed, or non-English pieces that were not excluded by database search filters were manually removed. Leaving over 8000 articles, this was still too large to do anything meaningful with so further criteria were imposed. As advocated by Durugbo et al. (2021), Pisani and Ricart (2016) and Soosay and Hyland (2015) reductions were made by journal quality with only 3* and 4* CABS journals considered for final inclusion. The final screening stage involved reviewing all titles and abstracts for appropriateness – primarily a clear emphasis on supply chains during a disruptive event, resulting in a refined list of ninety-two papers. All papers in the final selection were read in their entirety, with two further papers removed due to lack of relevance. Prior to submission, this process was repeated to ensure no new, relevant work had been published but missing; one additional paper was added. This process can be seen in full detail in the PRISMA diagram in Fig. 1 adapted from Page et al. (2021).

The final selection of papers provided a rich data set from which to decipher understandings of local supply chains before, during, and after disruption, and to address the research question: *how has the role of the local supply chain evolved throughout COVID-19 disruption?*

3. Descriptive results

To begin, descriptive analysis of the literature was undertaken as

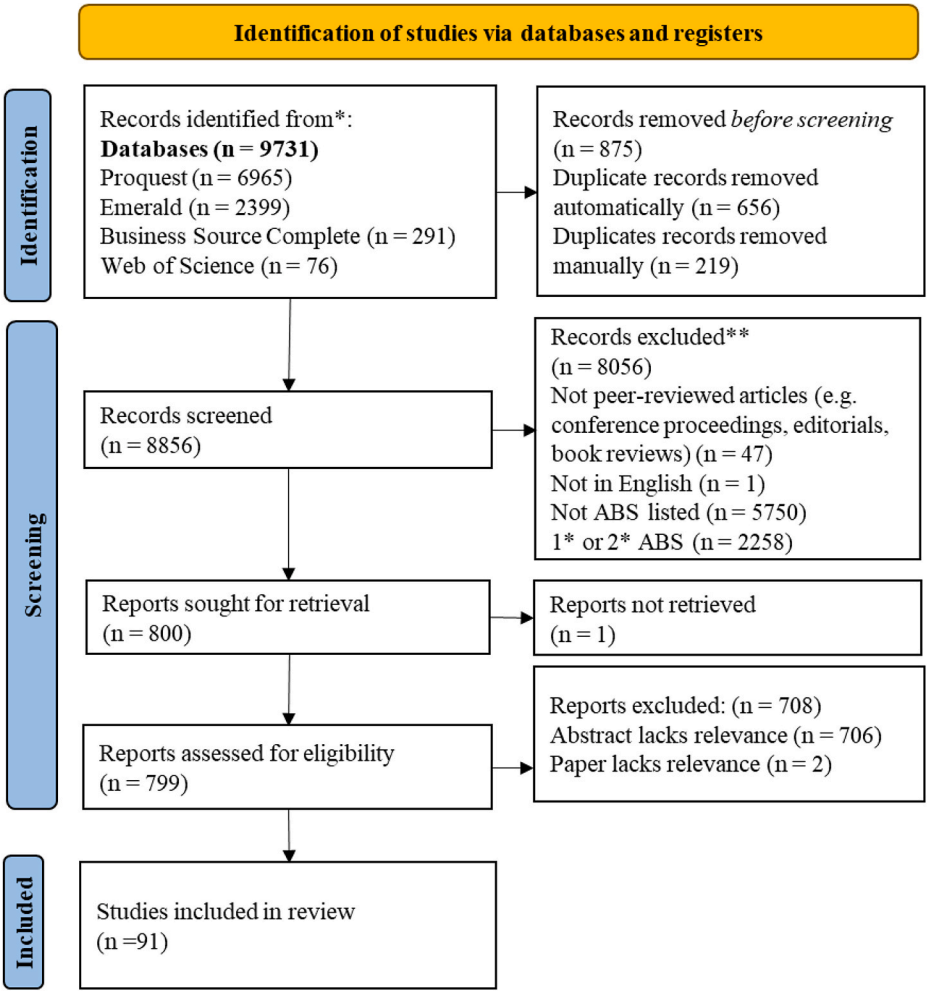

Fig. 1. Prisma.

advocated by (Seuring and Müller, 2008) – this not only provides a clearer assessment of the literature (Pisani and Ricart, 2016), it also complements the thematic analysis that proceeds it (Tranfield et al., 2003). Bibliometric categorisations were first extracted and a summary of the information contained in each article was prepared using descriptive, methodological, and theoretical categories (Pilbeam et al., 2012). The articles included in the final review were found across a range of topic areas and journal titles, as seen in Table 2.

In terms of timing of release, a pattern appears to emerge with article numbers increasing after distinct disruptive events, for example the Russian annexation of Crimea; the UK formally leaving the EU; and the COVID-19 outbreak (see Fig. 2). In 2020 and 2021, which represent Brexit and COVID-19, 15 and 21 articles were published respectively, which is over one third of total articles in these two years.

To categorise by methodology, Natarajarathinam et al. (2009) classification is applied, which uses a grouping based on: conceptual or theoretical papers (including literature reviews); analytical papers (involving simulation or modelling of real world issues); empirical papers (involving collection and evaluation of real world data); and applied papers (involving collection of thoughts and opinions) (Table 3). Conceptual papers are the most common paper found over the past decade, with all other types approximately equal in popularity.

Contextually, of the 91 papers included in the review, 39 are focused on localisation out-with disruption and 52 discuss localisation in high-magnitude disruption, with 22 of those specific to COVID-19. Other disruptive events included economic sanctions (Davarzani et al., 2015); global economic crises (Kinkel, 2012); Brexit (Moradlou et al., 2020); natural disasters (Day, 2014; Carvalho, 2014; Oh and Oetzel, 2022; or Todo et al., 2015); humanitarian operations and disaster relief (Charles et al., 2016; Kovács and Falagara Sigala, 2021); and large-scale product recalls (Lawson et al., 2019). Within the COVID-19 research sample, a number focus on how supply chains will be shaped in the future as an outcome of the COVID-19 pandemic (e.g. Elliott et al., 2020; Finkenstadt and Handfield, 2021; Helm, 2020; Kapoor et al., 2021).

The final stage of descriptive analysis addressed key theories used throughout the articles. However, the nature of the articles lacked consistency in the reporting or use of key theories. A high number of papers reported broad theories, for example; globalisation (Cuervo-Cazurra et al., 2020; Elliott et al., 2020); regionalisation (Kim et al., 2020); international manufacturing networks (Cheng et al., 2015); global production and supply networks (Sytch et al., 2022); or the Global Factory Concept (Hannibal and Knight, 2018). There were some more focussed theoretical lenses adopted including: Eclectic Theory (Ellram et al., 2013; Moradlou et al., 2021); Internalisation Theory (or a variant of it) (Buckley, 2020; Khuntia et al., 2021; Oh and Oetzel, 2022) and Theory of Constraints (Oglethorpe and Heron, 2013). As well as this there were a variety of supply chain-specific theories including: Complex Adaptive Supply Network (CASN) (Day, 2014); Supply Network Configuration Perspective (Srai et al., 2020); Supply Chain Resilience (SCRES) (Hendry et al., 2019); Supply Chain Decision Making (SCDM) (Gunessee and Subramanian, 2020); and Supply Chain Disruption Propagation or the "Ripple Effect" (Li et al., 2021). A number of specific theories were also found, used in papers more focussed on modelling, for example, Value Stream Mapping (Finkenstadt and Handfield, 2021) or economic modelling, for example the Newsvendor Model (Garvey and Carnovale, 2020) or spatial economic theory (Fujita and Hamaguchi, 2016).

Table 2
Journal titles.

Journal Title	Articles retrieved per source
International Journal of Operations & Production Management	18
Journal of International Business Studies	12
Supply Chain Management: An International Journal	9
Journal of Supply Chain Management; MIT Sloan Management Review	5
International Journal of Production Economics	4
Management and Organization Review; Production Planning & Control; Supply Chain Management	3
Environmental and Resource Economics; European Journal of Operational Research; International Journal of Production Research; Progress in Human Geography; World Development	2
Accounting, Auditing & Accountability Research; Annals of Operations Research; California Management Review; Global Strategy Journal; International Business Review; Journal of Economic Dynamics & Control; Journal of Economic Literature; The Journal of Economic Perspectives; Journal of International Economics; Journal of Operations Management; Journal of Regional Science; Journal of the Academy of Marketing Science; Journal of the Association for Information Systems; Journal of World Business; Management International Review; Organization & Environment; Papers in Regional Science; Risk Analysis: An International Journal; Transportation Research: Part E logistics and Transportation Review.	1

4. Discussion

Whilst descriptive findings thus far provide valuable insight, the limitations of bibliometric analysis alone must be acknowledged, encouraging thematic analysis to extract the main findings of the SLR. To conduct this, an abductive approach (Seuring et al., 2021) was adopted. While not beginning with theoretical concepts as such, pre-defined chronological constructs were used for categorisation i.e. pre-, during- and post-COVID-19. Beyond this, a more open approach was taken as for heterogeneous data, interpretive methods are more suited for the bulk of the analysis (Pilbeam et al., 2012; Stone and Rahimifard, 2018), allowing more organic exploration of relevant issues and trends in the literature (Cheng et al., 2015). This welcomed thematic interpretation of literature, with themes initially coded independently by a member of the research team, before being verified by a second member. Discussion surrounding any disagreements ensured the SLR followed a best practice protocol (Pilbeam et al., 2012). The analysis will be presented throughout this section, which discusses evolving understandings of the local supply chain for the pre-COVID-19, COVID-19 disruption, and post-COVID-19 eras. Future directions to support local supply chain decisions and implementation are also offered. The key findings are presented in Fig. 3.

4.1. Local supply chains in the pre-COVID-19 era

Local supply chains lack explicit definition in pre-COVID-19 literature. To some extent this is because global supply chains were prevalent and benefit from greater academic attention. This encouraged presentation of local supply chains as a point of comparison, offering a somewhat tautological definition of local operations as the opposite of the global supply chain. Overlapping terminologies further prevented definition of localisation and instead present it as an umbrella term for a range of locally-focused supply chain activities: localisation, near-shoring, reshoring, back-shoring, or regionalisation. The same is true of global supply chain literature: internationalisation, off-shoring, global outsourcing, or global supply chains. This suggests a spectrum, where firms localise or globalise supply chain activities to varying degrees (Casson, 2013; Coe, 2012; Oglethorpe and Heron, 2013; Verbeke et al., 2018).

Nonetheless, global supply chains emerge as the favoured approach in the pre-COVID-19 era (Chopra and Sodhi, 2014). Put simply, this is because global supply chains better suited the strategic priorities of 'normal' operating times, overpowering the benefits of the local supply chain (Cheng et al., 2015). Global supply chains offered low-cost economies of scale (Dallas et al., 2020; Lorentz et al., 2012) with increasingly skilled and customised manufacturing (Hummels et al.,

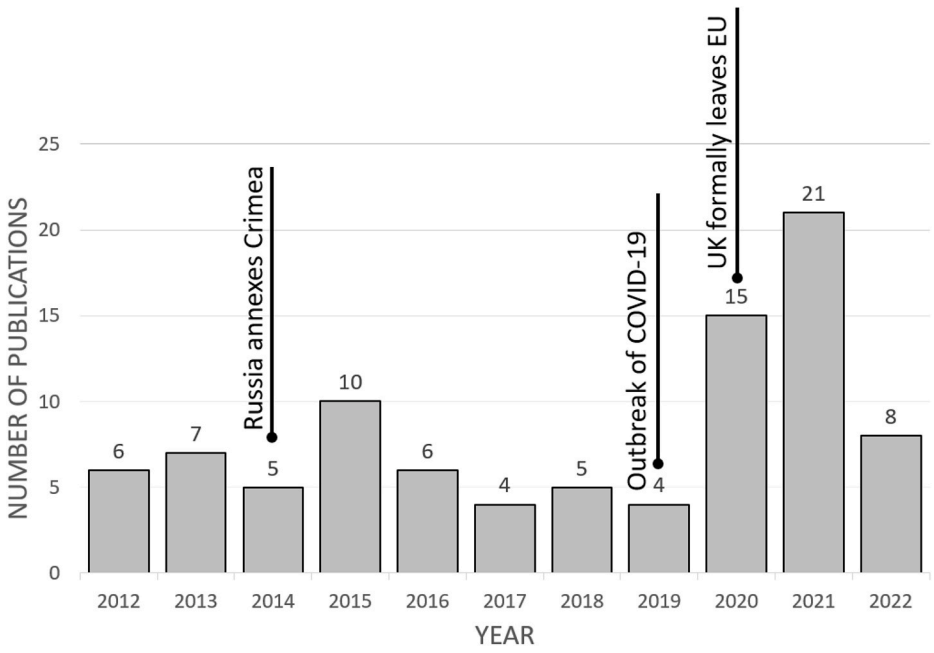

Fig. 2. Distribution by Year.

Table 3
Methodology type.

Methodology Type	Number of Papers
Conceptual/Theoretical	39
Analytical	18
Empirical	18
Applied	16

2018; Moradlou et al., 2021) supported by emerging technologies (Cuervo-Cazurra et al., 2020; Hannibal and Knight, 2018). This encouraged their presentation as a means for competitive advantage (Casson, 2013; Cavusgil and Cavusgil, 2012). In contrast, the prevalent benefit of the local supply chain was shorter distribution channels (Charles et al., 2016; Serel, 2015) that promote flexibility (Moradlou et al., 2021). This presented local supply chains as more robust and resilient (Brandon-Jones et al., 2014; Hendry et al., 2019), however, this struggled to compete with the strategic benefits of the global supply chain (Hameel et al., 2018; Huq et al., 2021). In particular, the prevalence of cost-efficiencies cannot be ignored (Chopra and Sodhi, 2014; MacCarthy et al., 2016), maximising the appeal of global markets and deterring implementation of more costly localised operations (Serel, 2015).

This said, local and global supply chains were not mutually exclusive (MacCarthy et al., 2016) and a mixed approach was recommended (Chopra and Sodhi, 2014; Serel, 2015; Zhang and Huang, 2012). This is where resilience comes in; the complexity of global chains exacerbated disruption (Fujita and Hamaguchi, 2016; Huq et al., 2021; Kamalahmadi and Parast, 2017), whilst the responsiveness of local chains maximised speedy response to demand peaks or supply shortages (Serel, 2015) to mitigate disruption (Lawson et al., 2019; Tukamuhabwa et al., 2017; Zhu, 2015). Accordingly, a combination of global and local supply chain partners helped to establish supply eco-systems (Otto et al., 2017) to address different strategic needs (Shih, 2014) and mitigate risk (Zhu, 2015). Specifically, global suppliers offered steady and affordable supply of goods, whilst a portfolio of back-up local partners protected this by promoting responsiveness to change. This was considered an effective supply chain risk mitigation tactic (Kamalahmadi and Parast, 2017), commonly driven by a product or demand focus (Chopra and Sodhi, 2014; Davarzani et al., 2015). Stable demand product portfolios were able to enjoy the low-cost options of global supply partners, whilst demand instability required the flexibility and responsiveness of local supply chains (Shih, 2014; Zhang and Huang, 2012). Accordingly, localisation served as a back-up option for flexibility for the more favourable global supply chain. This reflects the relatively low risk of disruption in the pre-Covid era, with the emphasis on market volatility rather than high magnitude disruptive events (Ju et al., 2015; Tukamuhabwa et al., 2017). Considering Stone and Rahimifard's (2018, p214) classifications of resilience, localisation in the pre-COVID-19 era built resilience for the "capacity to absorb change".

Importantly, some criticism of the 'localisation as a back-up' approach does emerge in pre-COVID-19 literature. Local supply chains activated during times of disruption suffered from compromised capacity and quality (Davarzani et al., 2015; Day, 2014; Tukamuhabwa et al., 2017). This was largely due to poorly established relationships, inexperience of local suppliers or the effects of the disruption itself. The distinction between reactive and proactive localisation for resilience must be considered here. During peak times of disruption, firms had to reactively adapt (Birkie et al., 2017; Day, 2014; Hendry et al., 2019) from their global to local supply base. This was not always effective, as global disruptions trickled down to local operations and not all products, particularly those customised or reliant on global economies of scale, could be easily substituted (Fujita and Hamaguchi, 2016). This is different from proactive localisation for resilience, where operations localised slowly (Chopra and Sodhi, 2014) to strategically adjust operations from a global to local supply base (Shih, 2014). In this context, local suppliers were carefully selected and collaborative and coordinated relationships established to realise the benefits of localisation and reduce uncertainties (Soosay and Hyland, 2015). Such a proactive approach to localisation was widely recommended (Lorentz et al., 2012) to mitigate disruption (Kamalahmadi and Parast, 2017), but was not widespread in the pre-COVID-19 era. Low-magnitude or unlikely risks meant resilience was not a priority (Ju et al., 2015; Tukamuhabwa et al., 2017), but rather an additional cost that could be avoided (Chopra and Sodhi, 2014; Lawson et al., 2019).

Of course, resilience was not the only motive for localisation in the pre-COVID-19 era, but it is interesting that many other benefits can also be linked to resilience. The local supply chain's shorter distribution channel reduced transportation and avoided inventory build-ups,

	Mitigate	Survive	Recover	Thrive
Scale of Disruption	Low-magnitude market disruption	Short-term major market disruption	Long-term major market disruption	Post-disruption recovery
Local Supply Chain Strategic Role	A back-up	An emergency response	A necessity	A critical capacity
Actions	Coordinate a portfolio of carefully selected local suppliers that can be leveraged as needed	Abruptly shift from untenable suppliers to adapted & new emergency local suppliers	Focus engagement & investment in collaborative & innovative relationships in local supply chain	Continue development of integrated networks spanning evolved local-global capacities
Relationship with Resilience*	Resilience to absorb change	Resilience transformability for untenable operations	Resilience adaptability for evolving operations	Resilience embeddedness for future operations
Additional Benefits	Speed, adaptability, waste reduction, economic development	Government support, increased nationalism, self-sufficiency	Collaborative & innovative supply chains, reduced environmental impacts, prioritised social sustainability	Local networks with improved trust and reliability, capacity to meet unprecedented demand, environmental and socio-economic resilience

Fig. 3. A local supply chain mitigate, survive, recover, thrive (MSRT) framework for resilience.

lowering environmental impacts and waste (Shih, 2014) whilst simultaneously reducing costs and environmental taxes (Serel, 2015). Literature suggests that this is closely interrelated with resilience (Matopoulos et al., 2015; Stone and Rahimifard, 2018); resilient supply chains promote resource efficiency to compliment environmental goals, whilst the risk of depleting natural resources required a resilient supply chain approach. To a lesser extent, the local supply chain was also linked to social sustainability (Srai et al., 2020), with localised operations circulating wealth and promoting economic development in local economies (Cuervo-Cazurra et al., 2020). Considering resilience, this offers some protection from the turbulent nature of global economies (Wells, 2016). This is reflected in the 'protectionist approach' that followed the 2008-09 financial crisis and motivated localisation in the pre-COVID-19 era, where global markets were avoided to promote resilience against further economic disruption (Dallas et al., 2021). Other localisation benefits implicated in literature include: the close cultural proximity of local suppliers (Pilbeam et al., 2012); greater capacity for connectedness and strong relationships to facilitate problem solving (Lawson et al., 2019) and innovation (Moradlou et al., 2021); and consumer demand for locally produced goods (Oglethorpe and Heron, 2013), which are often associated with high quality (Moradlou et al., 2021). Nonetheless, resilience remains the dominant motive for localisation in the pre-COVID-19 era (Moradlou et al., 2021).

Regardless of the motives, local-versus-global decisions required strategic and rational decision making (Lorentz et al., 2012) by supply chain managers (Huq et al., 2021). This was complicated by the conflicting and overlapping benefits of local and global supply chains (Fujita and Hamaguchi, 2016) and contextual variance of markets (Wells, 2016). The highly contextual nature of local-versus global drivers is particularly important, preventing conclusive presentation of global chains as the better option (Hameel et al., 2018). In fact, pre-COVID-19 literature highlights several criticisms of the global supply chain, such as increasing complexity, cost, failure (Lorentz et al., 2012), inequality, and regulation (Cuervo-Cazurra et al., 2020). Of particular significance to this study is the 'drastic volatility' of global markets which heightened the need for dynamism (Cavusgil and Cavusgil, 2012, p206). Building on this, some studies suggest diminishing appeal in the global chain (Cuervo-Cazurra et al., 2020) and increasing political support for localisation in the pre-COVID-19 era (Ellram et al., 2013; Moradlou et al., 2021; Witt, 2019). Whilst this welcomed deglobalisation of some supply chain activities (Kinkel, 2012), this did not drive widespread localisation. Rather, this suggests a gradual shift on the spectrum from a strong global focus towards regionalisation of some supply chain activities (Huq et al., 2021; Kim et al., 2020; Moradlou et al., 2020). Reinforcing this gradual shift as opposed to deglobalisation, Verbeke et al. (2018) contend that many global supply chains were never truly global, but rather comprised some global activities to varying degrees. Moreover, supply chain reshaping (Buckley, 2020; Petricevic and Teece, 2019) or implementation of technologies such as additive manufacturing (Hannibal and Knight, 2018), helped to mitigate the increasing complexity of the global supply chain, demonstrating continued global focus in the pre-COVID-19 era (Cuervo-Cazurra et al., 2020).

Either way, any transition towards a more local approach was driven by diminishing appeal of global markets rather than the increasing value of localisation. In fact, Durugbo et al. (2021) argue that the value of local supply chains lack definition in the pre-COVID-19 era. This is perhaps because value is heavily dependent on the extent to which it realises the drivers of its implementation (Haleem et al., 2018). As resilience was the dominant driver (Moradlou et al., 2021), this returns to the relatively

low importance of resilience in the pre-COVID-19 era. That is, the low risk of disruption limited interests in the local supply chain beyond a 'back-up' approach for flexibility. Most prominently, localisation was a strategic choice, embedded as an effort to absorb change in supply chains that globalised to realise more important strategic goals.

4.2. Local supply chains during disruption

Definitions of localisation during COVID-19 disruption remain scarce, but the presentation of the topic in literature does appear to evolve. Different terminologies remain (on-shoring, near-shoring, regionalisation), but global supply chains are no longer a point of comparison. This is because global operations became an untenable approach that exacerbated disruption (Dallas et al., 2020) and local operations exerted dominance. Macroeconomic shocks rendered some global supply chains completely inactive (Bassett et al., 2021) forcing supply chains to transform (Moradlou et al., 2021; Srai et al., 2020) towards localisation as the only viable option for many. In this context, the local supply chain was an emergency response to the unprecedented disruption of the COVID-19 pandemic.

Resilience remains at the fore here, but manifests differently than in the pre-COVID-19 era. COVID-19 forced a reactive and abrupt shift to local supply chains (Bassett et al., 2021; Boehme et al., 2021) as global operations became untenable (Kapoor et al., 2021). This is representative of Stone and Rahimifard's (2018, p214) resilience transformability: the "ability to completely change an untenable system of operation". This is distinct from the resilience ("capacity to absorb change") of the pre-COVID-19 era witnessed in proactive, gradual and strategic localisation. Distinction must also be made with firms that had pre-existing localised operations. Whilst 'preparedness' typically helps to minimise disruption (Kovács and Falagara Sigala, 2021), many were not prepared for the scale of COVID-19 disruption (Li et al., 2021; Srai et al., 2020; van Hoek, 2020) and even those with established local 'back-up' chains had to adapt (Kapoor et al., 2021). This was less dramatic than complete transformability, representing Stone and Rahimifard's (2018, p214) adaptability, or the "capacity to evolve a given form of operation". More specifically, adaptative capacity was required to modify or repurpose pre-existing local supply chains and many firms required to find entirely new roles within this (Bassett et al., 2021). Either way, COVID-19 required a rapid shift in operations (Boehme et al., 2021) towards local operations. Thus, whilst resilience remains the prevalent motive in both the pre-COVID-19 era and during COVID-19 disruption, this manifests at different levels: normal operating times required local back-ups for the capacity to absorb change; high magnitude disruptions ranged from complete localised transformation of global chains to adaption of local operations.

As transformation happened abruptly in response to disruption, decision making was essentially removed during COVID-19 disruption. The inaccessibility of global operations and loss of capacity in internal operations (Brakmanet al. 2021; Kovács and Falagara Sigala, 2021) combined with dramatic demand shifts (Handfield et al., 2020; Sheffi, 2021) left firms with little choice but to turn to local partners to meet demand. Such emergency establishment of local supply chains was problematic (Bassett et al., 2021; Srai et al., 2020), adding to supply chain risk (Hitt et al., 2021) and exacerbating disruption (Kapoor et al., 2021). There was no time for careful and deliberated supplier selection and recruitment. Rather, the formalities of such processes were compromised as a reliance fell upon digital platforms, social media, and personal connections to form new, transformed local supply chains (Bassett et al., 2021). Despite newly formed relationships, suppliers had to work closely to solve problems (Boehme et al., 2021) and share assets and resources more freely to meet demand (Bassett et al., 2021; Kovács and Falagara Sigala, 2021; Sarkis, 2021). Decisions had to be made quickly, but high levels of risk meant that mistakes could not be afforded (Kovács and Falagara Sigala, 2021). Supply chain technologies helped with this for some (Sarkis, 2021) (additive manufacturing supported decentralisation for a more local approach; communication technologies promoted efficiency and transparency (Boehme et al., 2021; Hitt et al., 2021); automation compensated for loss of workforce (Brakman et al., 2021)), but for others a lack of established technological capacity magnified weaknesses (Kapoor et al., 2021). Additionally, emergency localised supply chains lacked the capacity of global operations, precluding operational efficiencies and increasing costs, risk, and waste (Bassett et al., 2021). However, significant re-prioritisation of supply chain needs (Boehme et al., 2021) meant that loss of capacities and cost-efficiencies were less of a concern than in the pre-COVID-19 era. During COVID-19 disruption, the goal of local supply chains was to successfully deliver products and survive, not to cut costs or meet strategic goals. This meant dominant supply chain strategies of the pre-COVID-19 era were no longer relevant (Sarkis, 2021).

Wider institutional factors also precluded localisation as a choice (Handfield et al., 2020). At a policy level, firms were encouraged to upscale local production to limit foreign trade as the global spread of the virus escalated (Dallas et al., 2021; Bassett et al., 2021). This is different to political support for localisation in the pre-COVID-19 era. During COVID-19 disruption, high levels of volatility, uncertainty, complexity and ambiguity (Buckley, 2020) welcomed nationalistic regulation in response to rising unemployment and hardships in local economies (Hitt et al., 2021). Localised clusters of firms, governments and NGOs (Kovács and Falagara Sigala, 2021) worked collectively to support local recovery (Curran and Eckhardt, 2021).

As disruption continued after initial out-break, benefits of localisation beyond resilience for survival were brought to the fore (Kapoor et al., 2021). Increased nationalism (Dallas et al., 2021; Hitt et al., 2021), a drive for self-sufficiency (Shih, 2020), prioritisation of social sustainability (Sarkis, 2021; Sydow et al., 2021), and reduced environmental impacts (Elliott et al., 2020; Helm, 2020) reinvigorated the appeal of operating in local markets. Suppliers enjoyed working closely in local networks (Boehme et al., 2021) as capacity for collaboration and supply chain innovation expanded (Kapoor et al., 2021; Kovács and Falagara Sigala, 2021). This suggests further evolution of localisation: from a 'back-up' approach for flexibility to the more favourable global supply chain in the pre-COVID-19 era; to an emergency response to the untenability of global operations at the outbreak of COVID-19; and then to a valued and prevalent approach for collaborative, innovative, and sustainable operations to support the recovery of local markets and society as COVID-19 disruption continued. Such evolution is undoubtedly driven by adapted strategic priorities in response to levels of disruption. This raises a query as to the appeal of localisation as disruption diminishes and global operations become tenable once again in the post-COVID-19 era.

4.3. Local supply chains in the post-COVID-19 era

As markets continue to recover from COVID-19 disruption, it is difficult to draw conclusions about localisation in the post-COVID-19 era. However, several key themes emerge from the literature: local supply chains have developed new and up-scaled capacities; weaknesses in the global supply chain are highlighted; and there is heightened and ongoing need for resilience as a strategic priority. These themes drive change, presenting the post-COVID-19 era as a welcome point of supply chain transition (Boehme et al., 2021) in both practice and academia. The scale of COVID-19 disruption forces profound rethinking of even the most efficient supply chain (Sydow et al., 2021) to prioritise a more resilient approach to mitigate future disruptions (Contractor, 2022). This said, scholars suggest that the pandemic is speeding up changes that were already underway before COVID-19 (Witt, 2019), perhaps most significantly reversing globalisation (Ciravegna and Michailova, 2022) to heighten interests in local operations.

Whilst literature struggles to offer clear consensus on local-versus-global prevalence in post-COVID-19 era, some studies suggest the local supply chain retains dominance. This can be linked to the upscaled

capacity of local supply chains and heightened weaknesses of global supply chains. Fresh from the shock of COVID-19 disruption, the upscaled local supply chain has demonstrated its capacity to meet unprecedented demand (Ciravegna and Michailova, 2022), whilst a localised approach promotes self-sufficiency against the threat of further disruption (Dallas et al., 2021). Many seek to maintain newly established supplier relationships that prove to be effective (Boehme et al., 2021) and support innovation to further recovery (Contractor, 2022). As global markets open back up, increased threats and continuing restriction of global trading environments (Curran and Eckhardt, 2021) reignite the significance of geographical borders and trade buffers (Witt, 2019). In an effort to manage this via improved trust and reliability, supply chains are likely to become closer and more integrated (Hitt et al., 2021), furthering a local approach.

Conversely, some studies welcome a return of the pre-COVID-19 dominant global supply chain. This is driven by demand for economies of scale (Dallas et al., 2021) and access to knowledge and innovations in global markets (Hitt et al., 2021). However, as the costs of global production are expected to increase (Sydow et al., 2021), cost benefits of the global supply chain in 'normal' times are diminished (Ciravegna and Michailova, 2022). Moreover, as many organisations have downsized (Ciravegna1 & Michailova, 2022) and capacities lost during disruption cannot be easily reactivated (Hitt et al., 2021) it is not as simple as returning to pre-COVID-19 global partners. Accordingly, global chains are not expected to rebound to the same extent as the pre-COVID-19 era, forever changed by COVID-19 disruption (Curran and Eckhardt, 2021; Witt, 2019). Establishing robust global networks to mitigate future disruptions presents a major challenge (Sytch et al., 2022).

Importantly, a lack of agreement in local-versus-global literature returns attention to the need for a mixed approach. Both local and global chains have been re-evaluated (Shih, 2020), inviting reconsideration of the spectrum of local to global activities (Shih, 2020) as opposed to a wholly localised or globalised approach (Curran and Eckhardt, 2021). Many studies imply a sway towards more localised supply chain activities such as regionalisation (Ciravegna1 & Michailova, 2022; Hitt et al., 2021) in the post-COVID-era, exploiting the increased appeal of local operations and simultaneously permitting cautious engagement with global markets (Hitt et al., 2021). Local and global operations are highly contextual (Witt, 2019) and decisions can be based on a number of factors (Sytch et al., 2022). This supports a more balanced approach with continued interests in localised supply chain activities (Sydow et al., 2021). This is different to both the pre-COVID-19 era where decisions dominated by cost encouraged global prevalence and COVID-19 disruption where decision making was essentially removed and local operations necessitated. Improved balance of local and supply chain activities helps to mitigate future disruptions (Bassett et al., 2021; Dallas et al., 2021) by establishing resilient networks that be called upon in disruptive events (Oh and Oetzel, 2022; Sytch et al., 2022).

This increased need for resilience and drive for ongoing localisation is magnified by environmental sustainability concerns in the post-COVID-19 era (Sarkis, 2021; Sydow et al., 2021). Links between local supply chains and environmentalism have already been acknowledged in the pre-COVID-19 era: shorter distribution channels reduce environmental impact and waste and support responsiveness to disruptive events. However, in the post-COVID-19 era lines between the natural environment and its disasters, and business and its disruption have become blurred (Oh and Oetzel, 2022). There is greater understanding of the likelihood and impact of environmental disruptions (Sarkis, 2021), which include disease outbreaks like COVID-19 (Oh and Oetzel, 2022). This means environmentally resilient operations are now a much more powerful motive in local-versus global decision-making (Nayak and Choudhary, 2022). Reinforcing this, capacities for responsive, environmentally-maximised operations drive supplier and location selection criteria (Oh and Oetzel, 2022) and favour a local approach. As well as increasing appeal of local supply chains, demand for environmental and resilient operations contradicts oversaturation and urbanisation of global markets that were once relied upon for low-cost labour (Oh and Oetzel, 2022). Accordingly, Curran and Eckhardt (2021) consider environmental sustainability implications a positive outcome of COVID-19, whilst Hitt et al. (2021) predict climate change will be the biggest driver of change going forward.

Positive social impacts are also sought in the post-COVID-19 era (Oh and Oetzel, 2022; Witt, 2019) and drive a local approach. Socio-economic resilience has become a priority in local economies, supported at institutional levels (Oh and Oetzel, 2022) and driven by increased nationalism and protectionism (Contractor, 2022). The post-COVID-19 era welcomes the return of the interventionist state (Ciravegna and Michailova, 2022) and supply chains are more invested in lobbying for support (Hitt et al., 2021). For example, the local suppliers that played such a significant role in the pandemic now call for support to ensure their survival in the post-COVID-19 era (Ciravegna and Michailova, 2022). Globally, heightened inequalities and continuing social unrest fuels avoidance of global markets, furthering nationalism and a local approach (Ciravegna and Michailova, 2022). However, as stability improves in developed markets over time, attention may return to global inequalities exacerbated by the pandemic and drive engagement with emerging markets (Ciravegna and Michailova, 2022).

In the post-COVID-19 era, information sharing and the capacity to respond quickly in open and interconnected supply chains is critical (Finkenstadt and Handfield, 2021). This presents an interesting new relationship between resilience and technology, with technology providing real-time information to mitigate disruption (Oh and Oetzel, 2022). In a local context, low-cost manufacturing drives the need for technological development, relying on automation and robotics to meet cost and efficiency objectives whilst protecting resilience (Witt, 2019). In a global context, technologies are implemented to mitigate weaknesses in the global supply chain (Sydow et al., 2021), paving the way for a return of global operations (Contractor, 2022). For example, additive manufacturing facilitates a more resilient approach to global operations (Boehme et al., 2021), whilst control towers comprise layers of information to signal supply chain changes and inform data-driven decision making (Finkenstadt and Handfield, 2021). Thus, in the post-COVID-19 era, both local and global supply chains increase reliance on technology (Sarkis, 2021).

5. Implications & future research agenda

This study depicts the evolving role of the local supply chain as the level of disruption changes. In the pre-COVID-19 era, literature presents the local supply chain as a back-up approach to promote flexibility for the more dominant global supply chain for low-magnitude market disruption. During the COVID-19 outbreak, where unprecedented global disruption was witnessed, the local supply chain was necessitated as an emergency response as global operations became untenable. As high-magnitude COVID-19 disruption continued, literature highlights the increasing value of the local supply chain, as local operations upscaled to drive recovery. Whilst post COVID-19 literature remains in infancy, early studies reviewed welcome a revaluation of the local supply chain, presenting it as a critical capacity for resilient and innovative supply networks for the future. The different roles of the local supply chain across these stages of COVID-19 disruption align with changing strategic priorities. Resilience is key within this, remaining the leading benefit of the local supply chain. However additional benefits of localisation are brought to the fore, magnified by the unprecedented scale of COVID-19 disruption. Whilst global supply chains are not rejected, this study supports a more balanced local-global approach going forward, in which the benefits of both can be leveraged and resilient networks can be established in preparation for future disruptions. This contributes to a body of research recognising COVID-19 as a '*window of opportunity*' (Ferrari et al., 2023, p1) to extract key learning and new understandings

from the disruption (Zhang et al., 2023).

5.1. Theoretical implications

The prioritisation of the local supply chain in this study is novel, counteracting existing literature where the global supply chain dominated academic attention. By consolidating diverse understandings of localisation, long overdue definition and explanation of the local supply chain is offered. In doing so, the local supply chain is no longer limited to a point of comparison for the global supply chain, but presented as a strategic asset with distinct value. Such value is demonstrated via the explication of localisation benefits from existing literature, which include resilience, speed, adaptability, self-sufficiency, nationalism, collaboration, innovation, trust and environmental and social sustainability advancement.

Categorisation of the role and benefits of the local supply chain according to level of disruption supports further definition. Building on resilience as the leading benefit, this captures the evolving relationship between localisation and resilience. This expands beyond the broad assumption that local supply chains support resilience to demonstrate how this is leveraged according to different disruption needs. Application of Stone and Rahimifard (2018) scale of resilience guides clarification and conceptualisation of the relationships between the local supply chain and resilience across different disruption scenarios: the local supply chain for low-magnitude disruptions offers **resilience** capacity to absorb change; for short-term major market disruption the local supply chain offers **resilience transformability** as existing operations become untenable; over time the local supply chain promotes **resilience adaptability** through continuing evolution as high magnitude disruption continues. Importantly, as post-disruption is not represented in Stone and Rahimifard's (2018) resilience scale, this study proposes extension of the scale to include **resilience embeddedness.** This reflects the continued evolution of local operations as implicated in the post-COVID-19 era, where resilience is presented as a key strategic priority. This study presents four strategies to realise resilience across each scenario: **mitigate**, **survive**, **recover** and **thrive**. This is consolidated into a propositional Local Supply Chain Mitigate, Survive, Recover, Thrive (MSRT) Framework (Fig. 3) for Resilience, depicting strategic response to different disruption scenarios (Fig. 3).

5.2. Managerial implications

Alongside theoretical implications, the MSRT framework (Fig. 3) offers managerial implications. Renewed and clarified understanding of the role of the local supply chain in promoting resilience across different scenarios are consolidated to guide strategic decision making during disruption. Local supply chain implementation can be tailored according to threat of disruption and strategic priorities. Delineated actions and outcomes of mitigate, survive, recover, thrive add specificity and applicability. Whilst strategic priorities are highly contextual, early post-COVID-19 research suggest resilience remains a leading strategic priority for many (El Korchi, 2022; Zhang et al., 2023). This welcomes a revaluation of the local supply chain, supporting its role in developing innovative and resilient supply networks for the future. As mass disruptions are expected to increase in the coming years (Carissimi et al., 2023) and environmental and socio-economic resilience become increasingly important (Nayak and Choudhary, 2022), now is the time for development to leverage upscaled local operations.

The critical review of literature also highlights key barriers and challenges that must be overcome to leverage the benefits of the local supply chain. Whilst resilience remains a strategic priority, cost as driving factor in decision making will return as markets stabilise. As this drives appeal of global markets, caution must be exercised to carefully balance cost factors with the need for resilience. This study evidences that localisation as a back-up is not sufficient in high-magnitude disruptions as reactive emergency responses preclude strategic decision making and exacerbate risk (Bassett et al., 2021; Srai et al., 2020). Local networks established during COVID-19 offer improved trust, collaboration and innovation for embedded resilience going forward.

Technologies may offer some solution to cost and decision-making challenges. Advanced manufacturing technologies such as robotics and automation can help to lower costs (Witt, 2019), whilst digitised control towers can help signal information for decision making (Finkenstadt and Handfield, 2021). This helps to establish resilience and addresses some of the capacities lost through the breakdown of global operations. Thus, investment in technology is recommended to further advance and drive implementation of the local supply chain.

5.3. Societal implications

Continued investment and implementation of the local supply chain must also be supported at societal levels. This study highlights increased nationalism and protectionism (Contractor, 2022) and continued need for socio-economic resilience (Oh and Oetzel, 2022). Growing social unrest and exacerbated inequalities in the post-COVID-19 era fuel avoidance of global markets (Ciravegna and Michailova, 2022), whilst the valued role of governments and NGOs in driving recovery during COVID-19 disruption welcomes a collective approach (Curran and Eckhardt, 2021; Kovács and Falagara Sigala, 2021). This presents an opportunity for supply chain and wider institutional actors to work together to establish and incentivise a localised approach. Policy makers must balance easing of global trade regulations alongside the need to protect small local suppliers that were critical during the pandemic. Heightened appreciation for social sustainability and a collective need for societal recovery should be leveraged to introduce government support and policy that supports local SMEs in the continually changing local market. Incentivisation may derive from the clarified role of the local supply chain and associated benefits as presented in this study.

5.4. Limitations

Whilst contributions are significant, systematic reviews are predisposed to limitations and these must be acknowledged. In this study, limitations revolve primarily around the search strategy that was used. Firstly, stringent judgements, for example: non-English language papers; non-CABS 3/4* rated journals (which excludes sources like CABS 1/2*, book chapters, PhD theses, industry press and so on); and papers out with a 2012–2022 timeframe mean that some sources which could provide further value are excluded. Search dates are further limiting in that, whilst intended to represent pre-, during, and post-COVID-19 eras, other disruptive events occurred during this time period: the longer-term aftermath of the 2008 global financial crisis; the War in Ukraine (2014/2022); the United Kingdom voting to (2016), and then leaving (2020) the European Union; and Trump's Presidential election win and subsequent impact on the USA's global relations (2017–2021). Therefore, whilst efforts were made to isolate pre-, during-, post-eras of one specific disruptive event (COVID-19), it must be acknowledged that disruption and exists outside of this, meaning non COVID-19 disruption-based articles will have been included.

There were also more subjective judgements that were made during the search and reduction of papers, for example the selection of keywords, or the researcher judgement to exclude papers based on abstract or full-text review. While two researchers were utilised in the exclusion process in an attempt reduce researcher bias and validity threats, it must be accepted researcher judgement may still have impacted the inclusion/exclusion of less relevant/more relevant papers. Limitations regarding outputs can also be identified. Conceptual papers account for nearly half of total papers included in the discussion resulting in a lack of empirical data to support ideas. Included papers also lack homogeneity with regards to variables like geographical location or level, industry or context, or theories employed.

Throughout the process limitations are offset where possible,

however, even when acknowledging the limitations that cannot be offset, the review still provides valuable insight into existing and future local supply chain theory and practice.

5.5. Future research agenda

This study is completed four years beyond the initial outbreak of COVID-19, and thus captures insights as supply chains continue to transition. Whilst this does explicate evolving understandings of local supply chain and provide recommendations for continued investment in localisation, empirical investigation is required to fully assess the impact. It is notable that local supply chains as a whole lack empirical investigation, with 39 out 91 studies being conceptual literature reviews or opinion pieces. But as we enter a new era of local supply chains, the need for empirical research is heightened. As well as validating definitions and benefits of the local supply chain presented in this study, empirical research should seek clarification of different scales of disruption. The application of Stone and Rahimifard's (2018) resilience, transformability and adaptability and the proposed extension to include resilience embeddedness offers a timely conceptual framework for further investigation, with particular reference to empirical validation of mitigate, survive, recover and thrive strategies.

Clarification of the interrelations between local and global supply chains is also needed. This study does not reject the global supply chain, but rather acknowledges that it too has evolved, presenting some insights for the adapted global chain. Such insights contribute to recent research that seeks to explain the returning role of the global supply chain in the post-COVID era (Kazancoglu et al., 2022; Sudan et al., 2023; Zhang et al., 2023). Whilst this is important, global supply chain research should not compromise that of the local supply chain, as it did in pre-COVID-19 literature. Moreover, local and global supply chains should not be compared and considered in opposition to one another. This study finds implications for a spectrum of local-global activities, but this has yet to be conceptualised. In a theoretical context, conceptualisation would decipher overlapping and synonymous terms that continue to create confusion in literature. Practically, this would support local and global supplier decisions, paving the way for a mixed local-global approach in which the benefits of both can be better leveraged.

The need to support a more localised approach returns attention to the role of technology. Whilst technology is expected to play an increasingly important role in developing local supply networks for the future (Oh and Oetzel, 2022), there is a lack of explicit explanation of how or where. Technology is highly subjective and COVID-19 literature found it assisted some supply chains in mitigating disruption, whilst for others a distinct need for greater technological uptake was evidenced. Research is needed to clarify the value of different technologies across different scenarios of disruption and localisation.

Finally, the nature of future disruptions is also worthy of investigation. This study defines and explains the role of local supply chains in building resilience in the context of COVID-19 disruption, but similar studies focused on environmental and socio-economic disruption would expand understandings across further disruption scenarios.

CRediT authorship contribution statement

Natalie McDougall: Writing – review & editing, Writing – original draft, Validation, Formal analysis, Conceptualization. **Andrew Davis:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis.

Declaration of competing interest

None.

Data availability

No data was used for the research described in the article.

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