

Bridging the gap between Supply Chain Control Tower providers and researchers

Nicolò Trifone*, Martina Baglio*, Fabrizio Dallari*

* *School of Industrial Engineering, LIUC - Università Cattaneo, Corso Matteotti 22, 21053, Castellanza (VA), Italy (ntrifone@liuc.it, mbaglio@liuc.it, fdallari@liuc.it)*

Abstract: Over the last ten years, supply chains worldwide have experienced unprecedented shocks that altered global market conditions. Alongside long-term environmental changes, new disruptions (such as conflicts, cybersecurity breaches, and economic recessions) have driven the emergence of novel technologies that are able, for example, to improve the resilience of companies or help them achieve sustainable performance in a broader sense. Consequently, supply chains across various sectors have continuously evolved, adopting digital solutions. More specifically, one area of significant interest for the research community is the Supply Chain Control Tower (SCCT): initially inspired by the aviation industry, SCCT is a centralized system first introduced for managing transportation, and today seen also as an enabler for end-to-end visibility across the entire supply chain through the integration of information from hardware and software technologies. While some researchers have been able to offer formal definitions of SCCTs, it is unclear if their point of view converge with those of the practitioners. Furthermore, albeit existing research has highlighted the characteristics and benefits of SCCTs providing a broad conceptual understanding, it is not yet clear which of the analyses such a tool can theoretically enable are available from technology providers. To fill this gap, this paper conducts semi-structured interviews with service providers to explore what they mean by SCCTs and which of the functionalities identified in the literature are available to organizations. The document offers guidance to researchers and practitioners interested in this dynamic field by exploring the comprehension and practical uses of SCCTs from the providers' perspective compared to the academic one.

Keywords: digital supply chain; supply chain management; supply chain sustainability; supply chain visibility; supply chain Control Tower.

1. Introduction

The world has experienced several shocks in the last ten years, from the rapid global spread of COVID-19 to the Ukraine war (Panwar et al., 2022). These have significantly impacted manufacturing companies, affecting their supply chain and leading to new challenges and needs for supply chain managers (Bennett et al., 2020). Supply chains have started to use digitalization to move from a traditional supply chain to a digital supply chain to help supply chain managers gain a competitive advantage, creating sustainable value for organizations (Taddei et al., 2024) and responding more promptly to the rapid changes in the markets (Patsavellas et al., 2021). Visibility is fundamental to building a resilient supply chain (Yan et al., 2012); it is an essential element in facing new instability, responding to disruptions, maintaining the continuity of operations, and controlling the supply chain effectively (Trzuskawska-Grzesińska, 2017). In this regard, the Supply Chain Control Tower (SCCT) is a tool whose effectiveness has been demonstrated in the literature as a visibility enabler (Vlachos, 2021): several definitions of SCCT exist, including different aspects of the supply chain, technologies, and output obtained. However, despite the pressing need to explore new technological solutions in the supply chain, there is a need for more understanding and investigation of organizations' SCCT to better define

its boundaries in terms of the supply chain process covered and benefits gained (Patsavellas et al., 2021). To fill this gap, the present research aims to provide insights into the SCCT, answering the following research question (RQ): "What are the main features of a SCCT according to the definitions given by scholars and the practitioners' point of view?". The study starts by presenting a literature review to investigate the scholar's perspective on the topic. Semi-structured interviews were conducted to collect information and examine the practitioners' points of view to better define the features of SCCT's actual solutions in the market. The results contribute to enlarging the body of knowledge on SCCT, giving a shared definition by both scholars and practitioners. Moreover, the study allows supply chain managers to have a benchmark tool that helps them to identify the SCCT among the different technological solutions available in the supply chain context.

2. Theoretical background

The “Control Tower” is a tool that originated in aviation around 1920 for monitoring air traffic; from there, it was first used in logistics under the name Logistic Control Tower or simply Control Tower (CT), and then extended to supply chain management under the name of SCCT.

(Vlachos, 2021). Therefore, scholars consider CT and SCCT to be two distinct concepts and the analyses that can be performed by a SCCT also include those of a CT (Quadrat-Ullah and Ali, 2023). For this reason, in this study references will be made to the second.

SCCT is a complex system comprising supply chain technologies, organizations, and processes, which plays a key role in today's supply chain management, given that it is related to various aspects, from demand visibility to risk management (Trzuskańska-Grzebińska, 2017). It is used to visualize the supply chain processes and, starting from the data collected, make decisions. Therefore, analytics plays an important role: they are typically categorized into descriptive, diagnostic, predictive, and prescriptive (Quadrat-Ullah and Ali, 2023). Among them, diagnostic analyses can be considered an extension of descriptive analyses (Lepenioti et al., 2020). Specifically, descriptive analyses include algorithms that show the current state of a process and enable monitoring with the possibility of issuing alerts in the case of abnormal behavior and understanding its causes (Lepenioti et al., 2020); predictive analytics can produce predictions about future trends in certain variables, and prescriptive analyses can give recommendations on optimal mitigating or proactively implement actions (Lepenioti et al., 2019). The literature shares different views on the specific features of a SCCT, making also unclear the scope of application: for example, although Yan et al. (2012) refer only to descriptive analyses, Vlachos (2021), Wycisłak (2022) and Zhang and Xiao (2023) also mentions predictive analyses, and Kulkarni (2023), Liotine (2019), Patsavellas et al. (2021) and Topan et al. (2020) adds that a SCCT is also capable of also performing prescriptive analyses.

To date, it has been pointed out in the literature that there is a need for more understanding and investigation of organizations' views on SCCT (Patsavellas et al., 2021). To the authors' best knowledge, no study on the state-of-the-art of SCCT can state whether the available solutions have the features discussed in the literature and the practitioners' point of view. For this reason, it is relevant to address a study of the features that technology providers believe are typical of a SCCT and the functionality that these tools include to support client organisations: this allows for a clear definition of SCCT and how any gaps between literature and practice can be bridged.

3. Methodology

To outline the main features and definition of SCCT and compare to the practitioners' perspectives, the study conducted is exploratory in nature. The main features that emerged from the academics were considered to guide the investigation of the empirical viewpoint to obtain and compare a view of both literature and practice on SCCT. Specifically, as practitioners, the authors decided to consider the perspective of SCCT providers and not users, as they have a deeper understanding of the characteristics of a SCCT and the analyses that can be performed with the tool. For this reason, the methodology was structured into different stages: first, a preliminary literature review

was carried out to determine the definition and main features of a SSCT. Second, semi-structured interviews were conducted to get insights into the practitioners' perspectives. Therefore, an analysis of the two points of view has been carried out.

3.1 Literature review method

The literature research followed a structured process: the search was performed on Scopus, and the papers resulting were screened according to a content analysis of the title, abstract, and full text. Throughout the search on Scopus, it was possible to extract publications and determine the main features of the SSCT as well as the definition given by researchers. Given the research aim, the keywords chosen were "Control Tower*" AND "supply chain*"; the second term was included to limit the search to the context of supply chain management. Indeed, "Control Tower" is widely used in other areas such as aeronautics. The search was limited to English-language documents at the final publication stage; this survey led to 39 documents (final update in March 2024). A preliminary investigation of these documents was carried out to screen out only those whose titles and keywords were appropriate to the study's objectives. In the second round, the focus of the analysis moves to the abstract and finally to the full text. In the end, ten documents were deemed suitable for this purpose, covering a period from 2012 to 2024. The results of the literature analysis were presented in the following Findings Section (Section 4).

3.2 Semi-structured interviews

The development of theory is aided by qualitative methodology (Glaser and Strauss 1967), with the interview serving as the most popular method for data collection in the field of supply chain management (SCM) (Seuring, 2008). It created a consensus that is a recurring methodological practice in SCM research (Fritz and Ruel, 2023).

Table 1: Interviewees information

Alias	Job Title	Firm size [# employees]	Experience [# years]
S	Senior Sales Director	200 - 500	31
G	Product Manager	1.000 - 5.000	22
R	Customer Service Manager	1.000 - 5.000	34
T	Managing Director	200 - 500	24
B	Product Manager	200 - 500	18

The authors evaluated two potential methods for selecting experts that have been documented in the literature: information-oriented sampling and random sampling. The former is better suited for situations in which the goal of

the research is to generalize findings to the entire population, while the latter is better suited for gathering information from a small sample that has particular characteristics (Flyvbjerg, 2006). Because of this, the latter was used in the current work to guarantee the choice of specialized providers with in-depth knowledge of SCCT (Brandtner et al., 2021) based on a database developed by the authors, which contained the Italian contacts of the authors professional network. Since they work in companies of varying sizes and are people with many years of experience in SCCT, it was considered appropriate to investigate their views. Table 1 summarises the characteristics of the panel of experts interviewed.

The semi-structured interviews were conducted face-to-face or via videoconferencing if the interviewees were distant or unable to meet in person. Interviews lasted up to 60 minutes. The authors verified the accuracy of the results before they were analyzed: after being digitally transcribed, the interview results were emailed to the interviewees, who verified the accurate results, providing clarifications and corrections where necessary (Hagens et al., 2009). Before the interview questions, an instructional presentation was shown detailing the features and functionalities of SCCT, together with the contextualization of the investigation and the description of the SC process through the SCOR model, to set the tone for the discussion (Patsavellas et al., 2021).

Following that, the interviewer asked very few questions to keep the conversation as open-minded as possible (Fritz and Ruel, 2023) and to leave respondents free to articulate in their preferred manner. The questions were derived from the results of the literature review (Patsavellas et al., 2021). For the purpose of replication in research (Aguinis and Solarino, 2019), the questions submitted to the interviewees are as follows:

Q1. What are the sources of the information used by a SCCT?

Q2. How do analytics support decision-making (Descriptive / Predictive / Prescriptive)?

Q3. What are the processes to which it is possible to apply such analysis?

Q4. In your personal view, is it possible to achieve real-time visibility and end-to-end supply chain visibility?

4. Findings

The following section describes the literature on SCCT (Section 4.1) and practitioners' conceptions (Section 4.2).

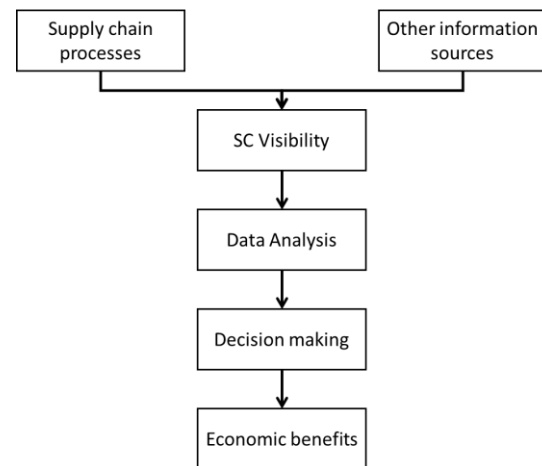
4.1 A SCCT according to the literature

The entire literature analyzed agrees on defining a SCCT as a system for centralising information on the entire supply chain from information systems (such as ERP, WMS, etc.) from multiple endogenous and exogenous sources to provide visibility for decision-making (Figure 1) to obtain economic benefits.

In this sense, some references point to the fact that SCCT more specifically enables end-to-end visibility, i.e., relating to the flow of information from upstream to downstream

in the supply chain (Suherman and Simatupang, 2017). In particular, the Socio-Technical System is a reference often used to describe SCCT as a complex in which there is an interaction between people and technologies (Din et al., 2023; Patsavellas et al., 2021; Topan et al., 2020; Vlachos, 2021; Wycislak, 2022; Yan et al., 2012). Less famous is the MAPE-K loop, a framework that describes the interaction between the tool and endogenous and exogenous information sources (Alias et al., 2014).

Figure 1: Main common features of a SCCT in the literature



While many scholars refer to "real-time visibility," meaning that a SCCT can collect data and provide insights to its users in real-time (Din et al., 2023; Liotine, 2019; Patsavellas et al., 2021; Topan et al., 2020; Vlachos, 2021; Yan et al., 2012; Zhang and Xiao, 2023), others are sceptical about this, expressing how, with the technology available today, it is difficult to achieve such a feature (Alias et al., 2014).

According to some academics, the analyses that the tool allows are not limited to providing descriptive information on the trend of specific performances or on alerting the user when certain indicators exceed critical thresholds (descriptive analysis) but also include the possibility of predicting (predictive analysis) the trend of demand or specific performance indicators (Kulkarni, 2023; Liotine, 2019; Patsavellas et al., 2021; Topan et al., 2020; Vlachos, 2021; Wycislak, 2022; Yan et al., 2012), to suggest corrective actions or even intervene autonomously (prescriptive analysis) in predetermined situations (Kulkarni, 2023; Liotine, 2019; Patsavellas et al., 2021; Topan et al., 2020).

Based on the literature, the SCCT provides visibility into multiple supply chain processes. To organize information harmoniously, the authors classified the processes mentioned by scholars within the supply chain operations reference (SCOR) model. This is a widely used model across large organizations in various industries, as it has been proven to be a viable model for supply chain analysis and improvement (Ntabe et al., 2015; Zhou et al., 2011). Specifically, the model has four layers of process detailedness, and the authors refer here to Level 1, which contains five basic processes. For the definition of the competency activities to these processes, it was decided to refer to what was stated about them by Li et al. (2011) and

Zhou et al. (2011): the improvement of effective management of SCs (Plan), the management of the relationship between manufacturers and suppliers including the selection of key suppliers (Source), the process of transforming raw materials into finished products for the purpose of meeting demand (Make), the management of orders including transportation, warehousing, inventory activities (Delivery) and the management of reverse logistics (Return). Among these, the authors decided not to focus on the Return phase since, according to Zhou et al. (2011), it is a process not present in the first version of the SCOR model and not as mature as the others. The Plan phase is the most mentioned within the various papers that make up the literature reviewed: 80 percent of them mention how a SCCT supports the Plan phase by helping to forecast demand and manage demand variations with effective communication between supply chain partners (Liotine, 2019; Vlachos, 2021; Yan et al., 2012), to optimized resource planning and management (Alias et al., 2014), to effective decision making and monitoring of strategic supply chain variables (Din et al., 2023; Patsavellas et al., 2021). SCCT's support for the Source phase is mentioned concerning its contribution to procurement management (Vlachos, 2021; Zhang and Xiao, 2023) and the effective communication it enables with suppliers (Topan et al., 2020; Zhang and Xiao, 2023) while its use in Make is cited mainly for the support it provides from the viewpoint of visibility in production (Liotine, 2019; Topan et al., 2020; Vlachos, 2021; Zhang and Xiao, 2023) and for the possibility of performing bottleneck analysis (Kulkarni, 2023). Delivery, finally, is mentioned by all the documents considered, proving to be by far the main phase associated with SCCT: from optimizing distribution plans and inventory (Alias et al., 2014; Din et al., 2023; Vlachos, 2021; Wycislak, 2022; Yan et al., 2012), to the increase in visibility and flexibility related to transportation or inventory management (Kulkarni, 2023; Liotine, 2019; Topan et al., 2020; Yan et al., 2012; Zhang and Xiao, 2023).

4.2 A SCCT according to practitioners

All providers agree to define SCCT as a tool that contributes to the management and analysis of data to support decisions at a strategic and collaborative level in the supply chain, gathering and synthesizing information from various sources along the supply chain. In this sense, they have demonstrated alignment with what is shared in the literature (Figure 1).

T states that the distinctive feature of SCCT is the fact that it uses information that is also available in other applications, such as ERP systems, but intends to organize and visualize such data in a way that it is quickly available and understandable for the improvement of the supply chain manager's decision-making capacity. The interviewees were able to share with the author's concrete examples of SCCTs developed for their customers, and it revealed how the information is used both for the optimization of individual company processes, such as distribution planning or reporting for performance management purposes, but also for evaluation,

coordination, and collaboration with companies up and down the chain. In fact, all providers interviewed provide SCCTs capable of giving information on stock at suppliers or on performance indicators for the comparison of various suppliers, and it is often also used for customer relationship management. Furthermore, according to R, the most significant benefit of using SCCT is achieved when customers provide their sales forecast information to suppliers so that the suppliers' forecasts exactly match those of the customers and the end-to-end supply chain is synchronized.

Although all interviewees agreed that end-to-end visibility is the ultimate goal of a SCCT that integrates information from upstream to downstream, T was the only actor who was skeptical about the possibility of actually achieving end-to-end supply chain visibility: according to him, the term is more of a fad with which providers try to sell their solutions since effective integration of information covering the entire supply chain is only possible today in the case of large players who have the economic and technological resources to obtain all the information they need. Only in these circumstances, in his opinion, is it possible to overcome the limitations of unavailable information from players in the chain who have not yet digitized their processes or do not intend to make it available.

Respondents also disagreed on the timeframe for the development of the analyses. According to most of the practitioners, SCCT allows for the analysis of indicators with real-time updates. However, T and R were sceptical about this: since technologies need time for data transfer and output processing, in their view it would be more appropriate to speak of 'near real time visibility'.

All SCCT providers agree that SCCT can provide descriptive analysis. In addition to this, according to S, the tool can increase product availability and synthesize information to provide decision-makers with summaries of key performance indicators for their tasks. Moreover, G pointed out that the descriptive capacity of SCCT is not limited to the pure synthesis and description of information within a dashboard of indicators but extends to the analysis of historical data to also highlight the constraints and exogenous variables that need to be considered in decision-making. More specifically, a subject of focus in almost all interviews was the alerting capacity. All interviewees stated that it is one of the most important features of a SCCT, and according to S, G, and T it is a crucial feature for exception management and consequent supply chain risk management through notification of unforeseen events that burden the entire supply chain. These interviewees also specified how the alerting feature plays a relevant role when dealing with forecasting, mentioning the "inherent bias": since in the planning phase it is not possible to be entirely sure that the expected value will coincide with the value that will occur, quick notification of any deviation makes it possible to better manage this bias, embedded in the planning process, and consequently reduce the forecasting error. However, the providers emphasized that some effort is needed in defining thresholds for the generation of such

notifications when implementing SCCT: too many alarms could confuse the users and increase the time in detecting the critical phenomena, and conversely, too few alarms mean that relevant phenomena are overlooked to the detriment of supply chain performance. Looking beyond descriptive analyses, only S and T have declared during the interviews how their tools can perform prescriptive analysis, providing proactive suggestions for exception management and implementing autonomous actions in the case of decisions that, during implementation, have been determined to automate. However, B is quoted as saying that although, to date, their SCCT lacks predictive and prescriptive functionality, his team is working on improving the analysis capability for the future. In addition to this, the authors were able to observe the predictive capabilities of SCCT in the context of demand and operational planning, and in this area, there was an absence of consensus on the best mode of predictive data analytics. In fact, although G showed how with the tool provided by his company it is possible to generate demand forecasts with the use of "best fit" logic (whereby various forecasting algorithms are run on historical data and the one that commits the lowest forecast error is chosen to forecast future demand) R and T stated how such an approach is not appropriate because it is based on the strong assumption that the future will be the same as the past.

From the point of view of the SCOR model, some differences emerged in the solutions analyzed, in the sense that not all solutions allow for the same analyses: this brings out how in reality, there is much heterogeneity from this point of view. In a few cases the SCCTs of the surveyed providers allow covering all steps of the SCOR model. Regarding the Plan phase, scenario analysis was mentioned as one of the key features of their solution, employed for the purpose of decisions impacting the individual company as in the case of S, or network planning as for G. Providers' SCCTs also enables to plan promotions, manage workload within the network, and, when predictive analysis is included, forecast the future value of demand. Related to Sourcing, T showed how his solution allows buyers to have a dashboard with items available from suppliers and related attributes, and in addition to this functionality B also mentioned the ability to compare various suppliers based on performance indicators. B and G provided examples of how the SCCT supports the Make phase by showing production-related information in the first case and in the second case by reporting imbalances in the saturation of work teams, resulting in proactive action. The Delivery phase is undoubtedly the most mentioned in the interviews: R and T referred to the possibility of analysis of performance indicators related to inventory, and, in addition to that S mentioned the possibility of alerting in case of stockout or overstock situations. From another point of view, B explicitly stated how his solution focuses more on transportation, and in particular how, for some customers, he collaborates with S to provide a SCCT by integrating the functionality of both covers more fully the Delivery phase.

5. Discussions

The literature on SCCT indicates that the primary purposes of the tool include helping to improve decision-making capacity while simultaneously collaborating and coordinating with upstream and downstream actors in the supply chain (Liotine, 2019; Patsavellas et al., 2021; Wycislak, 2022; Zhang and Xiao, 2023). All practitioners have fully shared this view, and they were able to provide concrete examples of it. However T demonstrated his skepticism about the possibility of achieving end-to-end visibility with SCCT, proving at odds not only with other interviewees but also with some of the scientific literature (Patsavellas et al., 2021; Vlachos, 2021; Wycislak, 2022; Yan et al., 2012; Zhang and Xiao, 2023). The results of the interviews confirmed his point of view, as in a few cases, it was possible to see SCCTs covering all phases of the SCOR model, thus providing visibility from upstream to downstream of the SC.

Regarding the timeliness with which the analysis is conducted, there are two contrasting opinions in the literature, and both are supported by practitioners. Some scholars claim that SCCT allows real-time analysis (Din et al., 2023), and most practitioners agree by emphasizing the reactivity of the tools to manual user inputs that change the planned value of the promotion or orders to suppliers. However, this view is not universally shared in the literature, as some prefer to speak of visibility in “near real-time” (Zhang and Xiao, 2023) since, as also cited by T, real-time analyses are challenging to perform due to the fact that sharing and processing data from reality takes time. On the topic, T also states how the fact that SCCT enables timely decisions is particularly impactful for the fast-moving consumer goods sector and, in general for products that have a low shelf life: the management of products characterized by short period between production and consumption implies that any time gain enabled by timeliness allows to gain value in the supply chain management. His view is supported by the literature, as it is pointed out that SCCT is particularly well suited for the consumer goods sector due to the fact that they are typically highly perishable (Wycislak, 2022).

About the analysis that can be performed, B said that he is a provider of SCCT even though the analyses that his tool allows fall only into the category of descriptive analyses. This view, according to which a SCCT allows for descriptive and not necessarily predictive and prescriptive analysis, is supported by scholars who define the tool by mentioning only the ability to describe performance indicators (Kulkarni, 2023) or which do not generally mention the possibilities of predictive or prescriptive analyses (Din et al., 2023). Anyway, this perspective is not shared by R, who was at odds not only with another respondent but also with the literature, according to which SCCT must also enable prescriptive and predictive analyses, and in this sense, is distinct from the Control Towers employed for airflow management.

Notably, a misalignment between academics and providers on the topic of analysis was observed in some cases. Some providers labelled with the term "prescriptive" analysis some features that actually are not. This is the case of S, B, and G, who explicitly stated how a SCCT capable of

reporting anomalies with alerts allows for prescriptive analyses, when in fact the literature agrees that this feature falls instead in the realm of descriptive analysis (Lepenioti et al., 2019). That notwithstanding, the solution provided by S has been categorized by the authors as actually capable of performing prescriptive analyses in that they allow not only highlighting alerts but also providing suggestions or making decisions independently. This suggests that practitioners are not aligned with what is said in the literature from a knowledge perspective, even if only for some of the features examined during the interviews.

Concerning the processes that can be analysed by a SCCT, then, literature and providers agree on making the Delivery phase of the SCOR model the most popular.

6. Conclusions

Since literature demonstrated how SCCT is critical to the management of modern supply chains (Din et al., 2023; Liotine, 2019; Wycislak, 2022; Yan et al., 2012; Zhang and Xiao, 2023), but it lacks a shared definition of the tool's characteristics, this study provided clarity around the term. In particular, starting with an analysis of the scholars' view, it was possible to set up a comparison with the providers' perspective since, to the authors' best understanding, no study had so far considered it. It was possible to answer to the research question with a shared definition of a SCCT as a “tool that gathers information from supply chain partners and the external environment to provide visibility by making possible various forms of analysis on processes, in order to derive economic benefit”. Building on this, it was possible to understand the gaps with respect to what providers understand.

Practitioners' views proved to be shortsighted and, in some cases, inconsistent with what scholars were saying. Numerous providers took an unobjective view. They demonstrated confusion relative to concepts that are well delineated in the literature: regarding the analyses that their tools are capable of performing, some of them mislabeled the functionality of SCCT. Finally, the study highlighted how, in several respects, the literature is not aligned with the state of the art of providers. In this sense, the typical mismatch is confirmed (Stahl et al., 2023), given that the prescriptive and predictive analyses that many authors associate with SCCT characteristics (Liotine, 2019; Patsavellas et al., 2021; Topan et al., 2020) are still far from what may actually be feasible with the tools available in practice.

The research helps to provide a shared definition of SCCT and highlight features supported by only a few academics, and for this to outline directions for future research that can deepen the topic. It also enriches the body of literature by considering providers' perspectives and reflections about the alignment between practice and research. Finally, it provides supply chain managers and end users of SCCT with guidelines for a complete understanding of the analyses that a SCCT enables. Additionally, it empowers managers to pinpoint the critical aspects of the Control Tower to focus on when evaluating a purchase.

The study is not without limitations. First, the body of literature analyzed could be expanded to improve understanding of SCCT: including more general keywords in the search could broaden the spectrum of inquiry, and a greater focus on the benefits of the tool from a sustainability perspective could broaden the definition to relevant topics. Second, the sample of respondents could be enlarged both geographically and numerically so that the results would be more generalizable. Regarding the conceptual models mentioned throughout the literature, it would be interesting to understand whether the MAPE-K Loop and the Socio-Technical System model, cited in the literature as descriptive of the critical components of a SCCT (Alias et al., 2014, Vlachos, 2021), are also employed by supply chain managers. At the same time, it is essential to understand whether they are also aligned with the literature from the perspective of the benefits and challenges that a SCCT entails. Indeed, since they are the end users of a SCCT, their views are not primarily about technologies and are more objective than those of providers. Finally, since some academics have mentioned the possible benefits that could arise from the application of Artificial Intelligence in SCCT analysis (Kulkarni, 2023; Liotine, 2019), it would be interesting to investigate this topic further.

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