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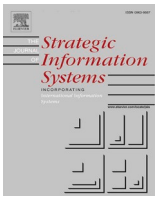

Sustaining IT outsourcing performance during a systemic crisis: A configurational approach

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ABSTRACT

The COVID-19 pandemic set off a systemic crisis that spread rapidly across the globe in early 2020, significantly affecting the outsourcing industry. Information Technology (IT) vendors as well as client firms found it challenging to maintain their performance levels. The Information Systems (IS) outsourcing literature, notably, had little insight to offer to client firms about effective IT outsourcing strategies for a systemic crisis. However, the literature did discuss two distinct yet interconnected logics for understanding IT outsourcing performance in non-crisis contexts. Whereas one logic revolves around the possession of strong internal capabilities, the other centers on the externalization of services. Building on this work, we develop a conceptual model to guide a configurational analysis centering on the sustenance of IT outsourcing performance during a systemic crisis. Based on the findings emerging from a fuzzy-set qualitative comparative analysis (fsQCA) of 200 companies across 13 countries, we theorize six organizational logics that client firms can consider to sustain IT outsourcing performance. These logics entail different combinations or configurations of client-firms' IT outsourcing characteristics and the characteristics of the crisis faced. As systemic crises can engender more or less intense uncertainty, thus affecting the strategic options available to decisions makers, we also use our findings to theorize organizational logics that can enable performance sustenance during low, medium, and high severity crises. We discuss our research's contributions to the IS outsourcing literature as well as its practical implications.

Introduction

The COVID-19 pandemic presented a unique opportunity to examine how companies sustain Information Technology (IT) outsourcing performance during a systemic crisis. A *systemic crisis* is understood as one that simultaneously affects interconnected human, economic, social, and technological subsystems, severely disrupting established organizational logics and management practices (Umar et al. 2021; Zattoni and Pugliese 2021). Starting in November 2019,[1, 2, 3, 4, 5 and 6] COVID-19 spread quickly, posing a significant risk to the delivery of outsourced IT and IT-enabled business services around the globe. By significantly impeding the delivery of outsourced and offshored services, the pandemic impacted flourishing businesses adversely. As many countries moved

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[1] https://www.pressdemocrat.com/article/news/timeline-headlines-events-from-two-years-of-pandemic-coverage/.

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towards full lockdown modes, vendor and client firms were forced to quickly implement alternative strategies for service delivery.[2] In some countries, vendors struggled to remain functional as delivery-center personnel were compelled to work from home using unstable residential broadband services and sometimes even without these.[3] Some companies with offshore delivery centers, such as Telstra, had to cease operations during lockdowns, forcing them to quickly ramp-up capabilities onshore to ensure service quality and continuity.[4] In extreme cases, client firms such as Westpac, an Australian bank, had to bring back operations in-house.[5]

The examples above illustrate that the sustaining of IT outsourcing performance was a major challenge for client firms because of the ripple effects of the systemic crisis on multiple factors across organizational, social, and technological domains (Bratianu 2020; Himmelreich et al. 2021). The far-reaching disruption of global supply chains (Kano and Oh 2020; Panwar et al. 2022) was but one notable presentation of the crisis. Possibly because systemic crises are rare events, the information systems (IS) outsourcing literature offers little insight to client firms regarding how IT outsourcing performance can be sustained despite the intense uncertainty generated by such crises. To address this lacuna, our article is guided by the following research question: *How do different combinations of client firms' IT outsourcing characteristics and features of a systemic crisis affect client firms' ability to sustain IT outsourcing performance?*

We address the question using a configurational lens and analytical strategy. Our focus on identifying different configurations or combinations of organizational IT outsourcing characteristics that are effective in a systemic crisis is in sharp contrast to the predominant approach of studying individual and interaction effects of specific variables on IT outsourcing performance (e.g., Krancher et al. 2022; Mani et al. 2010). A major strength of the configurational approach is that it can reveal a richer set of theoretically and practically relevant insights when outcomes depend on interdependencies between multiple variables, as in the case of systemic crises (Bansal et al. 2020; Fink 2010; Furnari et al. 2021; Lee et al. 2019).

The systemic crisis spawned by COVID-19 presented client firms with major difficulties along three dimensions. First, client firms' IT services to end users (whether internal employees or external customers relying on an outsourced service) faced possible disruption because of vendors' inability to ensure service quality and continuity. The lockdowns in many countries in early 2020 contributed to the uncertainty of potential disruption. Second, client–vendor relationships came under severe stress, with both clients and vendors struggling to resume services and meet service-level agreements. The resulting blame-game dynamics (Lacity and Hirschheim 1993) increased the likelihood of client–vendor relationships becoming damaged. Third, client firms' revenue streams were affected adversely due to vendors' inability to resume services, increasing the prospect of financial loss.

In the light of the above, in our study we focus on three dimensions of IT outsourcing performance during systemic crises: sustenance of (i) service quality, (ii) vendor relationships, and (iii) revenue. We assume that client firms that sustain these three dimensions do better in terms of sustaining their overall IT outsourcing performance. It is perhaps good to note here that in earlier non-crisis IS outsourcing studies, attention has by and large been on the mitigation of risks that could negatively affect the sustenance of service quality, vendor relationships, and revenue, especially the mitigation of risks due to opportunistic vendor behavior.

Regarding non-crisis contexts, broadly, the literature presents two distinct logics to explain client firms' ability to cope with the uncertainties associated with IS outsourcing: a reliance on *internal capabilities* and the *externalization of services*. The first logic maintains that client firms protect themselves from IT outsourcing uncertainties by having strong internal capabilities, an idea anchored in the resource-based view (RBV) of the firm (e.g., Karimi-Alaghehband and Rivard 2020; Lee et al. 2019). This perspective suggests that opportunistic vendor behavior can be circumvented by reducing resource dependency on vendors and increasing client firms' own internal capability – i.e., in-house/retained capabilities (Feeny and Willcocks 1998), thereby improving IT outsourcing performance. Anchored in social exchange theory (SET), the second logic maintains that IT outsourcing performance is a function of appropriate outsourcing decisions. It lays emphasis on the mechanisms used by client firms to manage their relationships with vendors, including but not limited to contractual and relational governance mechanisms (e.g., Huber et al. 2013; Kern and Willcocks 2000; Lioliou et al. 2014). According to this logic, a successful externalization of services can lead to strategic outsourcing alliances and partnerships that deliver value by allowing client firms to tap into strategic IT capabilities available in the market (Lee et al. 2019; McFarlan and Nolan 1995; Quinn 2000; Su et al. 2016). These two logics are not mutually exclusive. Many scholars regard reliance on internal capabilities and the externalization of services as mutually reinforcing, and underline the complementarities that exist between the relational concepts in transaction cost economics (TCE) (e.g., Lioliou and Zimmerman 2015; Goo et al. 2009) and the RBV concepts of capabilities and dynamic reconfiguration of resources (e.g., Cullen et al. 2005; Feeny and Willcocks 1998; Karimi-Alaghehband and Rivard 2020; Lee 2001; Weigelt 2009).

Putting the literature to one side, as COVID-19 set off a systemic crisis, not all client firms had the requisite internal capabilities and/or the possibility of externalizing services. This presents an intriguing puzzle regarding whether and how these client firms were able to sustain IT outsourcing performance. For our investigation, we build on existent arguments rooted in the RBV, TCE, and SET to develop a conceptual model. The model includes four IT outsourcing characteristics of client firms – i.e., *in-house capabilities*, *degree of outsourcing*, *number of vendors*, and *global footprint* – and two characteristics of systemic crises that capture crisis severity – i.e., *impact of crisis* and *requests for financial relief* by client firms. The model guides our fuzzy-set qualitative comparative analysis (fsQCA), the results of which bring to light multiple combinations of client firm and crisis characteristics that allowed performance sustenance in the wake of COVID-19.

[2] https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/how-cios-can-work-with-outsourcing-providers-to-navigate-the-coronavirus.

[3] https://www.techtarget.com/searchcio/tip/The-impact-of-Indias-pandemic-lockdown-on-IT-outsourcing.

[4] https://www.itnews.com.au/news/telstra-to-have-australian-agents-answer-all-inbound-calls-from-2022–550267.

[5] https://www.finextra.com/newsarticle/38716/westpac-rolls-back-offshore-outsourcing-for-customer-facing-contact-roles.

Based on our findings, we theorize six organizational logics or combinations of IT sourcing strategies that can be expected to facilitate the sustenance of client firms' IT outsourcing performance during systemic crises of varying severity. We encapsulate these logics in theoretical propositions to guide future research and practice. We also theorize organizational configurations that would enable performance sustenance conditional on whether a systemic crisis is of low, medium, or high severity. Overall, our research advances understanding of how client firms can avoid IT outsourcing performance decline when confronted with a systemic crisis. We discuss the contributions of the research to the IS outsourcing literature and its implications for practitioners more fully in the final section of the article.

Research background and conceptual model

COVID-19, systemic crisis, and uncertainty

The COVID-19 outbreak gave rise to a systemic crisis involving great uncertainty. Numerous unknowns – ranging from the infectiousness of the disease-producing virus and the pathways to stop its spread, through the short and medium-term impact on consumer, labor, and organizational decisions, to long-term shifts in patterns of capital investments and international trade, outsourcing, and offshoring – contributed to the uncertainty (Baker et al. 2020; Wernli et al. 2023). While the management literature in general and the IT outsourcing literature in particular have long recognized that different forms of uncertainty are ubiquitous in the business environment and affect companies' decisions such as those connected to outsourcing (see e.g., Aubert et al. 2004; Milliken 1987), systemic crises tend to generate more severe uncertainty by simultaneously affecting the complex set of interconnected elements making up the business ecosystem. As such, there is much research interest in understanding how companies adapt their strategies when facing the intense uncertainty associated with systemic crises and with what consequences for performance. It is generally assumed that companies which are creative and proactive in exploiting opportunities by reconfiguring their business model's key activities, client relationships, partnerships, resources, and value proposition, are likely to be more resilient in the face of the uncertainty of systemic crises (Clauss et al. 2022; Mancuso et al. 2023).

Company resilience is viewed as the ability to adapt to uncertainty or to an adverse situation. An intense increase in business uncertainty in the wake of COVID-19 has kindled scholarly interest in understanding how companies become more resilient. In a well-cited essay, Sakurai and Chughtai (2020) ascribe the high uncertainty generated by a systemic crisis to the imperative of having to adapt organizational and managerial strategies and practices to new norms and challenges, suggesting that information systems can foster resilience. In a comparable vein, other researchers have also speculated that the design and use of information systems may enable companies cope better with a systemic crisis (see e.g., Ågerfalk et al. 2020). Taking this line of inquiry forward, Floetgen et al. (2021) show that mobility platforms leverage socio-technical factors to increase resilience, allowing organizations impacted by the uncertainty of a systemic crisis to resume services. Other work highlights however that resilience may not come easily; for instance, because of the challenges posed to team collaboration by the necessity of having to change work arrangements in an uncertain environment (Waizenegger et al. 2020). While, overall, this emerging body of work has generated useful insights regarding the significance of company resilience for navigating through the uncertainty of a systemic crisis, not much research has come forth to shed light on how systemic crises affect a key element in IT outsourcing settings, namely, inter-organizational relations (Lee et al. 2019).

Because IT outsourcing by its very nature entails a relationship with external firms (viz. vendors) who provide all or part of the client company's IT assets, IT personnel, and/or IT operations, the effectiveness of an IT outsourcing strategy depends on the quality of inter-organizational relations (Lee et al. 2019). Notably, though, client-vendor inter-organizational relationships came under severe stress following the COVID-19 outbreak. Most client firms design their business continuity and recovery procedures based on the assumption that multiple delivery centers will operate as backup sites to allow a rapid response to unexpected events.[6] However, business-press reports highlight that the degree of uncertainty that followed COVID-19 challenged IT outsourcing to such an extent that even contingency plans designed to ensure sustained performance were put under extreme pressure, often failing to safeguard service quality and continuity, affecting client firms' relationships with vendors negatively, and jeopardizing client firms' performance. While we have some evidence from the 2007–2008 global financial crisis that in times of great uncertainty, firms tend to increase their investment in outsourcing to reduce costs (Edvardsson and Teitsdóttir, 2015), the IS outsourcing literature offers little insight into how performance along the dimensions of service quality, vendor relationships, and revenue is sustained by client firms during a systemic crisis.

IT outsourcing performance – non-crisis context

Many studies have examined how *IT outsourcing performance* (or, "performance", from here on) is influenced by a range of variables – including client-firm capabilities, client-vendor relationship characteristics, and contractual and governance complexity (Mani et al. 2010; Krancher et al. 2022; Ramasubbu et al. 2008). In this context, researchers have often used one of three theoretical lenses to explain performance: TCE, SET, and RBV. Researchers using the TCE lens argue that because the engaging of vendors increases client firm's uncertainty and costs, performance will likely decline (Karimi-Alaghehband et al. 2011). However, client firms can counter this by reducing information asymmetries to curb opportunistic behavior by vendors (McIvor 2009). TCE-anchored research also suggests

[6] https://corrs.com.au/insights/the-future-of-outsourcing-in-the-aftermath-of-covid-19.

that – should the client firm have alternative service-provision sources, either in-house or through a network of vendors – uncertainty and the risk of vendor opportunism are reduced, contributing to the client firm's ability to sustain performance. Offering a different perspective, RBV-anchored research maintains that above-average performance and its sustenance come from developing (unique) capabilities in-house. This work also holds that the client firm's ability to manage outsourcing exceptionally well can mitigate opportunistic behavior by vendors. In a comparable vein, SET theorists recognize the benefits of mitigating vendors' opportunistic behavior and leveraging superior market capabilities (Lee et al. 2019). It is held that developing strategic partnerships with a small number of vendors should increase the value the client firm can extract from its outsourcing relationships.

Existing research, thus, provides some insight into the factors that could influence client firms' performance by allowing them to tackle the uncertainty inherent in IT outsourcing. Overall, as regards non-crisis contexts, two distinct logics for achieving and maintaining superior performance can be identified in the literature: the logic of reliance on internal capabilities and the logic of externalization of services. We use these two logics as a starting point for our examination of sustenance of IT outsourcing performance during systemic crises.

The *logic of reliance on internal capabilities* centers on client firms' exercise of control over relationships with vendors through reliance on internal capabilities, which mitigates the risk of outsourcing hazards (Willcocks et al. 1999) and improves performance (Oshri et al., 2019a; Karimi-Alaghehband and Rivard 2020). Client firms are viewed to exercise control by investing in two main internal capabilities: in-house retained capabilities (Willcocks et al. 1999; Mani et al. 2010; Karimi-Alaghehband and Rivard 2020) and global footprint (Oshri and Van Uhm 2012).

In-house retained capabilities allow client firms to reduce uncertainty through the monitoring of vendor performance and better vendor management (Feeney and Willcocks 1998). Studies by Mani et al. (2010) and Oshri et al. (2019a) show, for example, that client firms' in-house retained information-processing capabilities decreased outsourcing risks and increased outsourcing performance. Global footprint – in the form of wholly-owned offshore centers (i.e., captive centers) (Oshri 2011) that provide IT-enabled business services to a client firm – can lessen the risk of low-quality service by allowing the client firm to tap into the pool of knowledge and skills available at an offshore location (Holmstrom-Olsson et al. 2008; Leonardi and Bailey 2008). Additionally, if needed, with a *global footprint* a client firm can switch from externalizing the service to bringing it back in-house (Oshri et al. 2019b: Whitten et al. 2010; Whitten and Leidner 2006). In short, strong internal capabilities contribute to the outsourcing performance of client firms and to performance sustenance because client firms retain critical domain knowledge vis-à-vis outsourced services and can exercise control to deter vendors from behaving opportunistically (Oshri et al. 2019a; Bapna et al. 2010).

The *logic of externalization of services* is indeed externally oriented, as evident in studies that lay emphasis on inter-organizational relations between client firms and vendors (e.g., Goo et al. 2009; Gopal and Koka 2012; Kern and Willcocks 2000). This logic advocates for the externalization of services based on the assumption that client firms can build or obtain superior capabilities by having outsourcing alliances (Quinn 2000; Chiesa et al. 2004; Su et al. 2016). Studies that adhere to this perspective consider the degree of outsourcing (Dedrick et al. 2011) and the number of vendors as key factors in client firms' outsourcing strategy (Lee at al. 2019). Furthermore, managing outsourcing as a form of alliance is seen to offer advantages to client firms (McFarlan and Nolan 1995; Willcocks and Kern 1998; Kotlarsky et al. 2023). However, outsourcing alliances can increase client firm's dependency on vendors, increasing the risk of vendor opportunism (Lioliou and Zimmermann 2015). The risk can arguably be addressed by reducing over-dependence on vendors and ensuring that critical capabilities are kept in-house (Grimpe and Kaiser 2010). Other studies, however, underline the benefits of client firms partnering with vendors to access strategic competencies that are not available in-house, say, innovation capabilities (Aubert et al. 2015; Gambal et al. 2022; Kotlarsky et al. 2023). But strategic partnerships also increase client firms' dependency on vendors, possibly increasing vendors' inclination to behave opportunistically (Dawson et al. 2010; Lioliou and Zimmermann 2015). To safeguard against this last risk, again, either internal capabilities or the possibility to switch vendors as and when needed may help.

The theoretical foundations of the above two logics differ, with the concept of internal capabilities being grounded in the RBV and the idea of service externalization being anchored in perspectives on inter-organizational relations such as TCE and SET. Regardless, both logics point to the importance of mitigating the uncertainty and hazards of IT outsourcing for better performance outcomes. Interestingly, some scholars view the hazards described in the IS outsourcing literature as an opportunity to build a theoretical bridge between these two logics. For example, arguing that the concept of vendor opportunistic behavior is incomplete, Lioliou and Zimmermann (2015) propose social capital as a relational concept to complement TCE-based arguments. Similarly, Kern and Willcocks (2000) model relational aspects alongside contractual concepts, suggesting that a partnership approach requires both elements. Others have examined the respective power of RBV and TCE to explain outsourcing outcomes, indicating that neither perspective can fully explain outsourcing performance (McIvor 2009).

The literature also describes several sourcing strategies client firms can choose from, each having implications for performance. At one end of the continuum is the total outsourcing strategy, in which the client firm outsources a large portion (> 80 %) of its IT spend to either a few or many vendors. At the other end is the in-house sourcing strategy, with minimal outsourcing (< 20 %) to a few vendors (Oshri et al. 2023; Metters 2008). Between these two extremes is the so-called selective sourcing strategy, often characterized by outsourcing to a relatively small number of specialist "best of breed" vendors (Lacity et al. 1996). Along with IT spend, the number of vendors is an important factor. Client firms can decide to pursue multi-sourcing, a sourcing strategy for procuring interdependent IT and business services from external vendors to achieve optimal business goals (Oshri et al. 2019a). Multi-sourcing makes it easier to switch between vendors, thus providing some security against vendor opportunistic behavior. In contrast, a single-vendor outsourcing strategy is likely to increase the risk of lock-in and vendor opportunism (McIvor 2009), compelling strong in-house capabilities as a risk mitigation approach. Towards this end, client firms could augment their in-house delivery centers with vendor staff and/or invest in a strong retained organization (Feeny and Willcocks 1998; Oshri et al. 2023) and increase their global footprint. Risk is also argued to be

reduced by pursuing a plural sourcing strategy that combines in-house delivery of a particular business process or service with outsourcing (either single- or multi-sourcing) (Sako et al 2016).

Drawing on the above discussion, we present a conceptual model to guide the configurational analysis of IT outsourcing performance during a systemic crisis.

Conceptual model – crisis context

The conceptual model we present in Fig. 1 captures six factors that can prima facie be deemed important for sustaining IT outsourcing performance during a systemic crisis. Whereas four of these factors refer to the outsourcing characteristics of client firms (*in-house capability*, *global footprint, degree of outsourcing*, and *number of vendors*), the other two pertain to the severity of a systemic crisis (*impact of crisis* and *requests for financial relief by client firms*). Different mixes of the four client-firm IT outsourcing characteristics can be viewed to reflect different degrees of the two logics discussed above (reliance on internal capabilities and the externalization of services). Furthermore, the two factors concerning the severity of a systemic crisis can be interpreted to capture the degree of uncertainty faced by client firms. We discuss all six factors below. Our configurational analysis is directed at understanding how different configurations or combinations of these six factors influence the sustenance of IT outsourcing performance in the wake of a systemic crisis. In this regard, we view sustained overall IT outsourcing performance to be a three-dimensional composite of sustained revenue, sustained service quality, and sustained vendor relationships.

Client firm IT outsourcing characteristics

Of the many factors that feature in discussions of the logic of reliance on internal capabilities and the logic of externalization of services, the four factors identified in Fig. 1 would seem to be particularly important for understanding sustained IT outsourcing performance. We review the relationship suggested by past research between each factor and IT outsourcing performance.

Number of vendors. Studies indicate that the number of vendors can affect a client firm's relationships with its vendors and, thus, performance. In particular, subject to the degree of outsourcing, the number of vendors can affect the client firm's dependency on vendors. While contracting with a single vendor should reduce coordinating and monitoring costs (Ngwenyama and Bryson 1999), it increases the risk of over-dependency on a single vendor because of increased potential for vendor opportunism. On the other hand, while contracting with a high number of vendors is likely to increase the cost of coordinating and monitoring (Bapna et al. 2010), it could mitigate vendor opportunism because the client firm can switch vendors (Su and Levina 2011; Susarla 2012; Wiener and Saunders 2014; Oshri et al. 2019a). As such, the number of vendors can be expected to have implications for client–vendor relationships and the overall IT outsourcing performance in a systemic crisis.

Degree of outsourcing. This refers to the extent to which the client firm has outsourced its IT and IT-enabled business services. It is often measured as the ratio of IT spend on third parties (i.e., outsourcing) to total IT spend (Lacity and Willcocks 1995; Lee et al. 2019). The degree of outsourcing varies, from firms that outsource almost everything (i.e., total outsourcing), to firms that rely predominantly on services that are sourced in-house while outsourcing some services to external vendors (Lacity et al. 1996). The degree of outsourcing also affects client firm's dependency on vendors and, thus, performance, with a higher degree of outsourcing increasing the risk of dependency on vendors, which may trigger vendor opportunism. However, a higher degree of outsourcing could also lead to a strategic partnership through which the client firm benefits from accessing unique vendor capabilities, which can be advantageous from a performance perspective. A lower degree of outsourcing implies low dependency on vendors and greater control over the delivery of services by the client firm. Overall, this factor can have implications for vendor relationships, service quality, and revenue.

In-house capability. This refers to the set of IT and management capabilities (e.g., domain knowledge and contract management) that are retained by the client firm to ensure that the outsourcing engagement has a positive impact on performance (Feeny and Willcocks 1998; Mani et al. 2010; Oshri et al. 2019a; Karimi-Alaghehband and Rivard 2020). Research findings consistently show that in-house capability influences client firm's ability to manage its outsourcing engagements well. Furthermore, strong in-house capability enables client firms to mitigate vendor opportunism. Conversely, a lack of client in-house capability likely compromises the monitoring and proper management of vendors, thus having a negative influence on client-vendor relationships, vendor performance, and

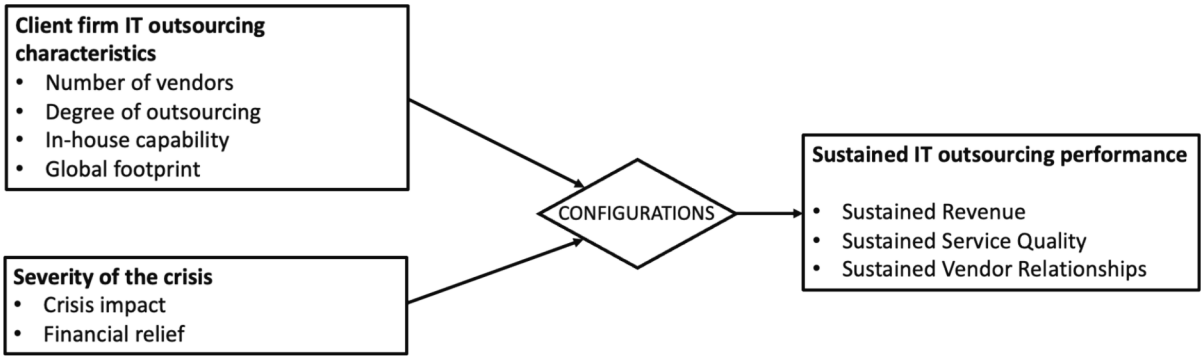

Fig. 1. Conceptual model of factors affecting client-firm performance in a systemic crisis.

consequently outsourcing performance. As such, client in-house capability is an important factor to consider in the context of a systemic crisis.

Global footprint. In the outsourcing context, global footprint refers to client-firm owned and operated service delivery centers, that are usually offshore and nearshore (Oshri 2011; Holmstrom-Olsson et al. 2008). A global footprint allows client firms to source services in-house from their wholly owned centers. A significant global footprint (e.g., a high number of captive centers spread over different geographic regions) is likely to counter vendor opportunism, because the client firm has the option of "back-sourcing" services (Oshri et al. 2019b, Whitten et al. 2010) should vendors behave opportunistically. Furthermore, client firms with a significant global footprint could avoid service disruptions caused by a systemic crisis by transferring these from impacted regions to regions that are not impacted or are impacted less, thus sustaining service quality and continuity.

Crisis severity characteristics

Crisis impact. This variable refers to the social and institutional impact of a systemic crisis. The stronger the impact, the more the uncertainty generated by the systemic crisis. We operationalized it as the impact of COVID-19 in the countries in our data sample. It was measured using publicly reported data on the number of deaths per 100,000 population in a country and the stringency of the lockdown measures in that country.

Financial relief.

This variable refers to the individual hardship produced by a systemic crisis for companies. The more the hardship experienced, the more the uncertainty generated by the systemic crisis. We operationalized it as client firms' requests to vendors for financial relief, which can be interpreted to express the extent to which client firms struggled to cope with the systemic crisis.

Sustained IT outsourcing performance

Sustained revenue. Many studies have tied IT outsourcing decisions and capabilities to the financial performance of client firms (e.g., Mani et al. 2010; Gewald and Gellrich 2008; Wang et al., 2008). A reduction in costs (Domberger et al. 2000) as well as an increase in stock price (Madison et al. 2006) have been suggested to reflect the positive effect of IT outsourcing on financial performance. Other research indicates that IS outsourcing reduces non-IT operating costs (Han and Mithas 2013) and leads to productivity gains (Chang and Gurbaxani 2012). Specific IT outsourcing decisions – such as the decisions to offshore, to develop relational governance with suppliers, and to retain in-house capability (Lacity et al., 2009) – have all been linked to improved financial performance. Overall, although the accumulated evidence suggests that IT outsourcing decisions and capabilities lead to improved financial performance, the IS outsourcing literature also points to tensions between factors affecting performance, for example, the tension between increased externalization of services and vendor opportunism.

Sustained service quality. In the context of IT outsourcing, sustained service quality is understood as the client firm's ability to ensure uninterrupted service to end-users. This may depend on either client in-house capability or vendors' ability to respond effectively according to the need of a specific context. In the case of externalization of services, client firms can mitigate the risk of service discontinuity by having disaster recovery procedures in place to ensure service delivery at the expected quality levels. These procedures are captured in service level agreements (SLAs) as part of the contract between the client and vendor. On the other hand, client firms with strong in-house capability and global footprint can deploy these capabilities to ensure sustained service quality should vendors fail to do so.

Sustained vendor relationships. In IT and business services outsourcing, the client–vendor relationship is undergirded by relational governance based on trust and informal control (Huber et al. 2013; Lioliou et al. 2014) and designed to influence inter-organizational behavior. Attributes of relational governance such as trust, communication, knowledge sharing, and partnership are reported to improve IT outsourcing outcomes (Lacity et al. 2016). For example, a partnership between a client firm and a vendor, which is based on risk sharing, results in greater client satisfaction and better financial performance (Saunders et al. 1997; Oshri et al. 2015). However, a crisis can challenge relationships between client firms and vendors, considerably straining both control and flexibility (Lacity and Willcocks 1995).

Methods

The COVID-19 pandemic produced a systemic crisis by affecting all components of the global economic and social system (Kano and Oh 2020; Panwar et al. 2022). Even though companies experienced different levels of uncertainty depending on their country, industry, and organizational contexts, the systemic crisis affected all to a greater or lesser degree by disrupting operations (Angeli et al. 2021). Because systemic crises simultaneously affect multiple variables at different levels of a system, they compel decision makers to weigh and manage complex administrative and organizational tradeoffs. In such a situation, configurational theorizing is recommended (Furnari et al. 2021), because outcomes such as performance sustenance are likely to depend on specific configurations of multiple variables rather than on the level of one or two particular variables. Moreover, there is the possibility of equifinality (see e.g., Doty et al. 1993) of different configurations of variables – i.e., different configurations could potentially lead to the same outcome (Lee et al. 2019; Misangyi et al. 2017), making it vital to identify the range of configurations that companies could consider as they face off a systemic crisis.

We used a fuzzy-set qualitative comparative analysis (fsQCA), which employs set-theory, formal logic (Boolean algebra), and counterfactual analysis for causal inference (Ragin 2008). This is different from causal-effect studies, which are variance-based analyses that estimate the independent effects of explanatory variables on an outcome of interest. Such studies can handle at most three-way interactions between explanatory variables. In contrast, fsQCA can incorporate any number of relevant variables to determine

how co-occurrences of specific variables (i.e., conditions) are associated with the occurrence of an outcome (Rutten 2020, 2022). As such, fsQCA can shed more complete light on the complexity of the relationships that underpin an outcome (Furnari et al. 2021) such as the sustenance of IT outsourcing performance. The method has been recently shown to be particularly suitable for investigations such as ours (see e.g., Greckhamer et al. 2018; Mikalef et al. 2019).

We collected data for the fsQCA using a survey instrument developed by two of the co-authors. The survey items were informed by the literature and conversations with other academics and practitioners well-versed with IS outsourcing practices. The pre-pilot version of the instrument was reviewed by seven experienced IT decision makers from leading IT outsourcing client firms. We then did a pilot test of the instrument with 12 international companies to establish that respondents would be able to understand all questions and respond to these. This only led to minor refinements of the instrument to further sharpen the clarity of some items. The online data collection was facilitated by a global market research firm that targeted 2100 companies. We received completed and usable responses from 200 companies in August 2020 for a response rate of 9.5 %. These 200 companies spanned seven industrial sectors and 13 countries (see Appendix A for a more detailed breakdown of industries and countries). To ensure that are survey respondents were IT decision makers knowledgeable about the variables of interest to us, we used a set of screening questions – for example, "I am heavily involved in or very knowledgeable about decisions concerning our firm's IT outsourcing and offshoring".

Variables and measures

Table 1 summarizes all the variables, their measures, and the associated descriptive statistics. Briefly, in the light of our conceptual model, we operationalized the overall IT outsourcing performance of client firms through items pertaining to sustained revenue, sustained service quality, and sustained vendor relationships. For example, in relation to sustained service quality, we relied on the following item: "To what extent has your company been negatively affected by COVID-19 at an operational level, namely, service disruption?". Responses were recorded using a 5-poing Likert scale, where 1 stood for "has been affected very little" and 5 stood for "has been affected very much". As regards the IT outsourcing characteristics of client firms, we asked respondents to indicate on a 5-point scale whether the developing of in-house capability and global footprint had proven successful in relation to managing the crisis triggered by COVID-19, where 1 stood for "very little" and 5 stood for "very much". To measure client firms' degree of outsourcing, we used the ratio of their total global IT spend with third parties to the total global annual IT spend. For the number of vendors, we asked respondents how many vendors were delivering third party IT/BPO services.

As for the severity of the COVID-19 crisis, we operationalized crisis impact using data on mortality rates and lockdown stringency in countries where client firm's headquarters were located. For the COVID-19 mortality rates, we depended on publicly available data at: https://coronavirus.jhu.edu/data/mortality, categorizing the companies in our sample as having either a high (above average) or low

Table 1
Summary of variables, measures, descriptives, and calibrations.

	Measure	Mean	SD	Full non-membership anchor	Cross-over anchor	Full membership anchor
Causal conditions						
COVID-19 impact (COVID)	Binary 1–0, based on lockdown stringency and COVID-19 mortality	0.72	0.45	1.00	N/A	0.00
High number of vendors (VENDORS)	*How many major vendors are you currently using to deliver third party IT/business process (BPO) services?*	4.67	2.37	2.00	3.00	6.00
High client in-house capability (INHOUSE)	*Did "developing critical capabilities in-house" before COVID-19 prove successful in managing the crisis?* (Likert scale 1–5)	3.64	1.35	2.00	3.00	5.00
High global footprint (GLOBAL)	*Did pursuit of "global footprint of delivery and design centers" before COVID-19 prove successful in managing the crisis?* (Likert scale 1–5)	3.39	1.41	2.00	3.00	5.00
High financial relief during COVID-19 (FINREL)	*Did your company ask vendors for any of the following short-term financial relief measures following COVID-19?* Sum of 4 options: • Price reductions • Deferred payment • Extended warranties/support• Longer payment terms	1.70	1.22	0.00	1.00	4.00
High degree of outsourcing (RATIOOUTS)	Ratio of third party IT spend (*What is your total global annual IT spend with third parties?*) to total IT spend (*What is your total global annual IT spend?*)	0.28	0.17	0.17	0.23	0.35
Outcomes (sustained IT outsourcing performance)						
Sustained service quality	*To what extent has your company been negatively affected by COVID-19 at an operational level, namely, service disruption?*	2.57	1.13	4.00	3.00	1.00
Sustained revenue	*To what extent has your company been negatively affected by COVID 19 as regards revenue?*	2.44	1.15	4.00	3.00	1.00
Sustained vendor relationships	*To what extent has your company been negatively affected by COVID 19 as regards relationships with vendors?*	2.76	1.16	4.00	3.00	1.00

(below average) mortality rate. As for lockdown stringency, we used the Financial Times lockdown stringency monitor at https://ig.ft.com/coronavirus-lockdowns/, which indicated that the UK, US, DE, BE, LX, and NL had relatively high levels of restrictions, and that NZ, AU, JA, NO, FI, DA, SW had relatively low levels of restrictions. Using these indicators, we recorded crisis impact as a 1 (high impact) – 0 (low impact) binary. With respect to the financial-relief variable, we asked respondents to indicate whether or not they had asked for price reductions, deferred payment, extended warranties/support, and longer payment terms. The simple sum of responses was taken as the measure of level of financial relief requested by client firms.

Calibration

Crisp fsQCA operates on the basis of binary set-membership scores, which are derived from the transformation of variable values through calibration (Mikalef et al. 2019). The analysis adopts a nuanced approach to set-membership suitable for representing continuous variables. As our variables were measured using different scales and our sample was heterogeneous in terms of the industrial sectors and countries covered, we used a percentile-based rationale to calibrate set memberships (Mikalef et al. 2019; Ragin 2008) as informed by contextual knowledge (Lee et al. 2019; Koo et al. 2019). Calibration is a crucial step in fsQCA as it transforms raw data. More than that, however, it is a process for assessing to what degree cases meet the criteria that define a set, before assigning a value to set membership (Rutten 2021). We combined our percentile-based rationale with a careful examination of the sample cases and contextual knowledge to determine appropriate set-membership thresholds, i.e., anchors. The percentiles provided an initial indication of the thresholds based on the sample distribution of the scores. In line with past research (Fiss 2011; Ragin 2008), we computed percentiles such that the upper 25th percentile served as the threshold for full membership, the lower 25th percentile served as the threshold for full non-membership, and the 50th percentile represented the cross-over point. We then examined the results and cases to see whether the obtained anchors were satisfactory based on theoretical and practical knowledge.

As regards in-house capability and global footprint, because these were measured using 5-point scales, an objective calibration was possible based on respondents' answers (Chang and Cheng 2014; Cheng et al. 2013; Leischnig and Kasper-Brauer 2015). As answers 1 and 2 on the 5-point scales indicated that in-house capability and global footprint had proven to be successful to a very little or a little degree, full non-membership of the categories "high in-house capability" and "high global footprint" could be set at 2, the cross-over value could be set at 3, and the full-membership anchor could be set at 5 (a response indicating very high degree of success). The calibration of "high degree of outsourcing" was more challenging because of the sample encompassing a wide range of companies. As such, relying solely on the percentile-based rationale, we used the sample distribution of the values of the variable to set full non-membership at 0.17, the cross-over anchor at 0.23, and the full membership anchor at 0.35. To calibrate "high number of vendors", although the sample-distribution mean of the number of vendors is 4.67, based on our theoretical and practical understanding we set the cross-over anchor at 3. If the number of vendors was 2 or less, we deemed it to be fully non-high for our calibration. To be fully high, the number of vendors had to be 6 or more.

The category "high financial relief" was calibrated based on the number of forms of financial relief asked for. Accordingly, we set the full non-membership anchor at 0 (no financial relief requested), the cross-over anchor at 1 (only 1 form of financial relief requested), and the full membership anchor at 4 (all four forms of financial relief requested). Furthermore, as regards the calibration of sustained revenue, sustained service quality, and sustained vendor relationships, we designated cut-off points using the responses on the 5-point scales to measure the variables. We set our anchors as follows: the full membership anchor at 1 to capture cases of the focal performance dimension having been "affected negligibly" following COVID-19; the cross-over anchor at 3 to capture cases of the focal performance dimension having been "affected moderately"; and the full non-membership anchor at 4 to capture cases of the focal performance dimension having been "affected hugely".

The fsQCA algorithm

We used the software package fsQCA 3.0 (Ragin 2008) for applying the fsQCA algorithm for the sufficiency analysis of the truth tables (see Appendix B). When provided our six predictive causal conditions for the performance dimensions, the algorithm produced 2^6 rows, where each row indicates a possible combination (i.e., configuration) of the conditions. The algorithm sorted the sample of 200 observations into rows, based on the number of causal conditions they contained. The truth tables could be reduced based on the minimum number of cases (i.e., frequency threshold) for which a configuration was considered relevant. In the light of our sample size and past work (Mikalef et al. 2019), we set the frequency threshold at 5. The second criterion used to reduce the truth tables was the consistency level, i.e., the extent to which a configuration could be regarded as sufficient for the expected outcome. We set the consistency level at 0.9.

Next, the fsQCA algorithm reduced the truth tables to simpler, equifinal configurations that were sufficient to produce a focal outcome. In this regard, the fsQCA algorithm employs difficult and easy counterfactual analyses to produce parsimonious and intermediate solutions. Whereas the parsimonious solutions are based on both easy and difficult counterfactuals, the intermediate solutions are based only on easy counterfactuals. In particular, the "easy" counterfactual analysis handles a configuration that does not contain any empirical cases by adding a condition that is proven to yield the focal outcome; in contrast, the "difficult" counterfactual analysis handles an empty configuration by deleting a condition that is known to be redundant (Ragin 2008, p. 162).

To derive our results, we adopted the methodology suggested by Ragin and Fiss (2008), which has been used in recent studies (Lee et al. 2019; Misangyi et al. 2017). Specifically, we considered both the parsimonious and intermediate solutions, identifying as the core conditions those that were present in both the solutions and which thus presented a stronger association with a focal outcome. Following prior work, we regarded peripheral conditions as those that only appeared in the intermediate solutions, and thus could be

deemed to be more weakly associated with a focal outcome. We ran the analyses separately for our three performance dimensions (viz. revenue, service quality, and vendor relationships). In all three cases, the six causal conditions included in-house capability, global footprint, degree of outsourcing, number of vendors, crisis impact, and financial relief.

Results

The fsQCA parsimonious and intermediate solutions for sustained revenue, sustained service quality, and sustained vendor relationships are shown in Table 2. The number of cases per intermediate solution is also indicated. Fig. 2 displays the configurations using standard fsQCA notation.

When inspecting fsQCA solutions, it is important to consider the consistency and coverage measures. Consistency is the degree to which a specific combination of conditions (i.e., a configuration) consistently identifies a specific outcome (Ragin 2008). Consistency measures are produced for individual configurations as well as the overall solution (i.e., the set of configurations associated with a specific outcome). The consistency measures for the overall solutions for the three performance outcomes were 0.86 (sustained revenue), 0.88 (sustained service quality), and 0.89 (sustained vendor relationships), which are all above the 0.80 threshold suggested by Ragin (2008). Furthermore, the consistency measures for individual configurations were mostly around the value 0.90, with the configuration VR3 showing the highest consistency at 0.95 and configuration R3 showing the lowest consistency at 0.88. All consistency measures can be taken to be satisfactory and robust.

The coverage measure in fsQCA indicates the empirical relevance of either a specific configuration or the overall solution by considering how many cases that displayed the focal outcome were covered by a specific configuration or the overall solution set of configurations (Koo et al. 2019; Lee et al. 2019). In addition, whereas raw coverage is a configuration-related measure indicating how many cases that displayed the focal outcome were represented by a specific configuration, unique coverage is a measure of how many cases were represented by a specific configuration without a representation overlap with other configurations. Although coverage provides an indication of empirical relevance, this does not automatically translate into theoretical relevance (Lee et al. 2019) inasmuch as rare configurations can also be theoretically valuable.

Configurations

Configurations for sustained revenue. Four configurations in Fig. 2, R1 – R4, are associated with client firms sustaining their revenue levels following COVID-19. In R1 and R2, high COVID-19 impact and the absence of financial relief requests are the two core conditions. In R1, these two core conditions combine with high in-house capability and high global footprint; in contrast, in R2 they combine with a low number of vendors, low in-house capability, and low global footprint. In R3, high COVID-19 impact is a core condition, together with high in-house capability, high degree of outsourcing, and high global footprint. In R4, regardless of COVID-19 impact, high degree of outsourcing is a core condition, together with a low number of vendors; additionally, high financial relief, high global footprint, and high in-house capability are peripheral conditions.

Configurations for sustained service quality. In Fig. 2, sustained service quality is associated with five configurations, S1 – S5. Of these five, S1 and S2 include high COVID-19 impact and low financial relief requests as core conditions; with additionally, high in-house capability and high global footprint as peripheral conditions in S1; and low global footprint, low in-house capability and low number of vendors as peripheral conditions in S2. Furthermore, S3 and S4 configurations include high in-house capability and low numbers of vendors as core conditions; with additionally, high global footprint and high COVID-19 as peripherals in S3; and high global footprint, high degree of outsourcing, and high financial relief requests as peripherals in S4. Differently, S5 includes low COVID-19 impact and low in-house capability as core conditions, together with high number of vendors, low global footprint, high degree of outsourcing, and absence of financial relief requests as peripherals.

Configurations for sustained vendor relationships. Fig. 2 shows six configurations, VR1 – VR6, to be associated with this outcome. In

Table 2
Configurations included in the parsimonious and intermediate solutions for sustained IT outsourcing performance.

Outcome	Parsimonious solution	Intermediate solution
Sustained Revenue	COVID&~fFINREF	**COVID**&fINHOUSE&fGLOBAL&~fFINREF (20 cases)
		COVID*~fVENDORS*~fINHOUSEQ*~fGLOBAL***~fFINREF** (20 cases)
	COVID&fINHOUSE&fRATIOOUTS	**COVID&fINHOUSE&**fGLOBAL&**RATIOOUTS** (11 cases)
	~fVENDORS*fRATIOOUTS	**~fVENDORS***fINHOUSEQ*fGLOBAL***RATIOOUTS***fFINREF
Sustained Service Quality	COVID*~fFINREF	**COVID***fINHOUSEQ*fGLOBAL***~fFINREF** (20 cases)
		COVID*~fVENDORS*~fINHOUSEQ*~fGLOBAL***~fFINREF** (20 cases)
	~fVENDORS*fINHOUSEQ	COVID***~fVENDORS*fINHOUSEQ***fGLOBAL (11 cases)
		~fVENDORS*fINHOUSEQ*fGLOBAL*fRATIOOUTS*fFINREF (15 cases)
	~COVID*~fINHOUSEQ	**~COVID***fVENDORS***~fINHOUSEQ***~fGLOBAL*fRATIOOUTS*~fFINREF (11 cases)
Sustained Vendor Relationships	COVID*~fFINREF	**COVID_direct***fINHOUSEQ*fGLOBAL***~fFINREF** (20 cases)
		COVID*~fVENDORS*~fINHOUSEQ*~fGLOBAL***~fFINREF** (11 cases)
	~fINHOUSEQ*fRATIOOUTS	~COVID*fVENDORS***~fINHOUSEQ***~fGLOBAL***fRATIOOUTS***~fFINREF
		COVID*fVENDORS*~**fINHOUSEQ***fGLOBAL***fRATIOOUTS***fFINREF (15 cases)
	~fVENDORS*fRATIOOUTS	**~fVENDORS***fINHOUSEQ*fGLOBAL***fRATIOOUTS***fFINREF (6 cases)
	~COVID*fFINREF	**~COVID***fINHOUSEQ*fGLOBAL*fRATIOOUTS***fFINREF** (14 cases)

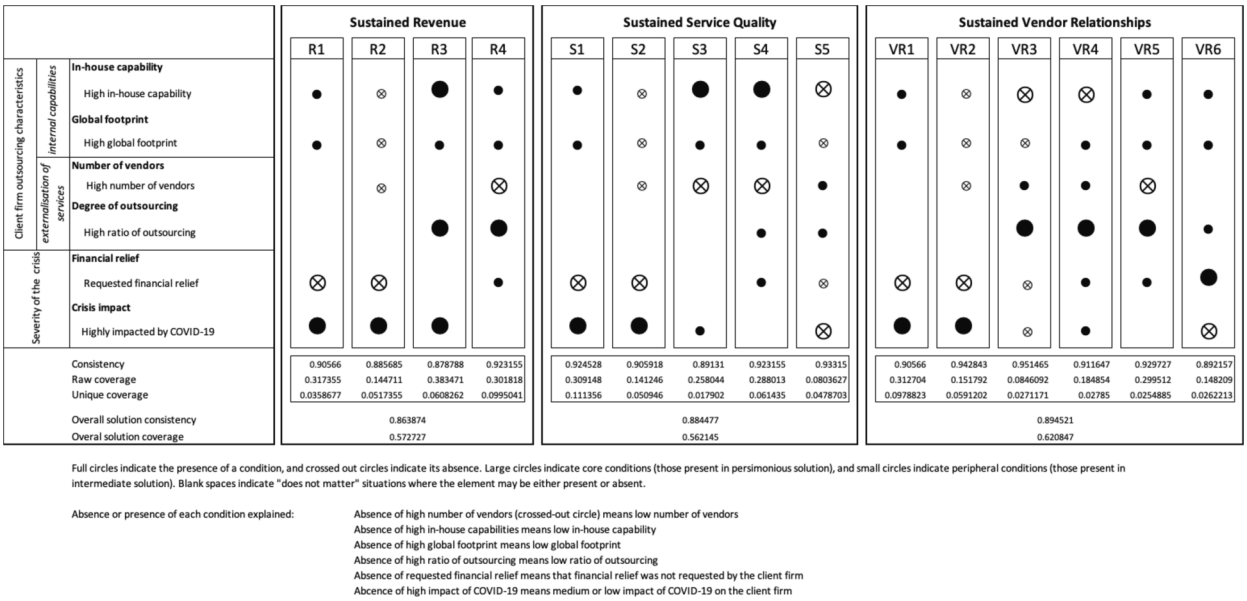

Fig. 2. Configurations that sustained IT outsourcing performance following the COVID-19 pandemic.

configurations VR1 and VR2, absence of financial relief requests and high COVID-19 impact are the core conditions, together with high in-house capability and high global footprint as peripherals in VR1 and low number of vendors, low in-house capability, and low global footprint as peripherals in VR2. In contrast, VR3 and VR4 include high degree of outsourcing and low in-house capability as the core conditions, together with high number of vendors, high global footprint, high requested financial relief, and high COVID-19 impact as the peripherals in VR3 and high number of vendors, high global footprint, high requested financial relief, and high COVID-19 impact as peripherals in VR4. The VR5 configuration includes high degree of outsourcing and low number of vendors as the core conditions, together with high in-house capability, high global footprint and high financial relief as peripherals. Lastly, VR6 identifies low COVID-19 impact and high financial relief requests as core conditions, together with high in-house capability, high global footprint, and high degree of outsourcing as peripherals.

Post-hoc analysis

After obtaining the configurations for each outcome, we examined the results further for additional insights that might allow a more refined explanation of the obtained solutions. We first considered whether the configurations could be industry-specific. Appendix A shows that the sampled client firms span several sectors. Because in these sectors client firms may have used supply chains and vendors differently, resulting in different levels of dependency during the COVID-19 pandemic, we examined the data for industry clustering around specific configurations. We did this by retracing and mapping the industry affiliations of the exemplary cases identified by the software for each configuration. This analysis revealed a good industry spread for each configuration, indicating that none of the pathways to sustained overall outsourcing performance – viz. sustained revenue, service quality, or relationships with vendors – was industry specific.

Additional post-hoc examination concerned the identification of "necessary conditions", i.e., conditions that are necessary to ensure a certain outcome, but on their own are not sufficient to guarantee its presence. Dul (2016) illustrates the concept by considering how croutons are an essential component of a Caesar salad. Without croutons, a Caesar salad would not be complete; however, croutons cannot produce a Caesar salad without the presence of other ingredients. Identifying necessary conditions can be valuable from a business perspective, as it pinpoints the basic requirements or behaviors that are essential to achieve a specific performance outcome. This can be done by looking at whether the configurations that are sufficient combinations for the presence of an outcome, all include one or more specific conditions; these conditions can then be regarded as the necessary ones. To illustrate, as all combinations of ingredients that lead to a Caesar salad would include croutons, croutons can be regarded as a necessary condition. To avoid false positives deriving from a simple examination of the existing configurations however (Dul 2016), we ran a necessity analysis for each condition and for each outcome (see Appendix B). For this, we followed the practice of using a consistency threshold of 0.9 to identify whether a specific condition was necessary for an outcome to materialize. All conditions showed consistency well below 0.9, indicating there were no necessary conditions.

Discussion

Our interest in this study was to advance understanding of client firms' ability to sustain IT outsourcing performance during a

systemic crisis, a topic that has so far not received methodical attention in the IS outsourcing literature. Guided by two key logics that we inferred from the existing IS outsourcing research – viz. reliance on internal capabilities (Karimi-Alaghehband and Rivard 2020; Oshri et al. 2019a; Mani et al. 2010) and reliance on the externalization of services (Goo et al. 2009; Gopal and Koka 2012; Kern and Willcocks 2000) – we conducted a configurational analysis (e.g., Fink 2010; Koo et al. 2019; Lee et al. 2019) that surfaced six distinct combinations of four client-firm IT outsourcing characteristics and two systemic-crisis characteristics that facilitate performance sustenance during a systemic crisis.

Like any other research, ours is also bounded by conceptual and contextual assumptions (Rivard 2014). As regards the former, we follow the scholarly discourse grounded in the RBV, TCE and SET, which suggests that client firms will rely on either internal capabilities or the externalization of services or some combination of the two to cope with IT outsourcing uncertainty, mitigate outsourcing hazards, and improve and sustain performance. As regards contextual assumptions, our model circumscribes four factors connected to the IT outsourcing characteristics of client firms and two factors connected to the severity of a systemic crisis. We assumed these six factors to be the most relevant ones for understanding client firms' ability to sustain overall IT outsourcing performance and its composite dimensions of sustained revenue, service quality, and vendor relationships.

Empirical results support our *a priori* observations concerning the importance of internal capabilities and the externalization of services for sustaining IT outsourcing performance. In Fig. 3, the empirical results are reorganized to show six organizational logics that were effective in the wake of COVID-19. On the one hand, Logics 1, 2, and 3 present configurations of client firm and systemic crisis characteristics that were associated with the sustenance of overall outsourcing performance. On the other hand, Logics 4, 5, and 6 present configurations that were associated with the sustenance of individual performance dimensions of revenue, service quality, and vendor relationships. We discuss these logics below and, generalizing from our findings, we formulate six theoretical propositions. The logics and the related propositions suggest organizational strategies that client firms could consider to effectively deal with the uncertainty of IT outsourcing during systemic crises. Furthermore, as COVID-19 led to client firms facing different levels of uncertainty (a salient feature of systemic crises), we use our findings to theorize effective organizational configurations for crises of low, medium, and high severity.

Theorizing performance-sustaining organizational configurations

Logic 1: Sustained overall outsourcing performance through reliance on internal capabilities. In Fig. 2, configurations R1, S1, and VR1 reveal a pattern in which internal capabilities were important for sustaining overall IT outsourcing performance following COVID-19. Specifically, high in-house capability and global footprint, albeit not core conditions, were valuable for client firms that faced high crisis impact but did not request financial relief. Furthermore, the number of vendors and the degree of outsourcing were not of relevance to the performance outcome. The pattern suggests a logic of relying on internal capabilities as the key mechanism for navigating through the uncertainty and hazards of IT outsourcing during a systemic crisis. From a sourcing strategy perspective, the logic would suggest that client firms have strong vendor management capability (Feeny and Willcocks 1998) and alternative captive centers as a security against vendors failing to cope with the systemic crisis. In the light of this discussion, we generalize:

Proposition 1. *During high impact systemic crises that do not compel requests for financial relief by client firms, in-house capability and global footprint help sustain overall outsourcing performance regardless of the degree of outsourcing and number of vendors.*

Logic 2: Sustained overall outsourcing performance through reliance on internal capabilities and externalization of services. Configurations R4, S4, and VR5 present a different pattern in which client firms' requests for financial relief are a peripheral condition. The pattern also includes high in-house capability (peripheral condition) and global footprint (peripheral condition), as well as high degree of outsourcing (core condition in configurations R4 and VR5, and peripheral in S4) and low number of vendors (core condition). The low number of vendors condition suggests that it should be feasible for client firms to replicate vendors' capabilities in-house and that

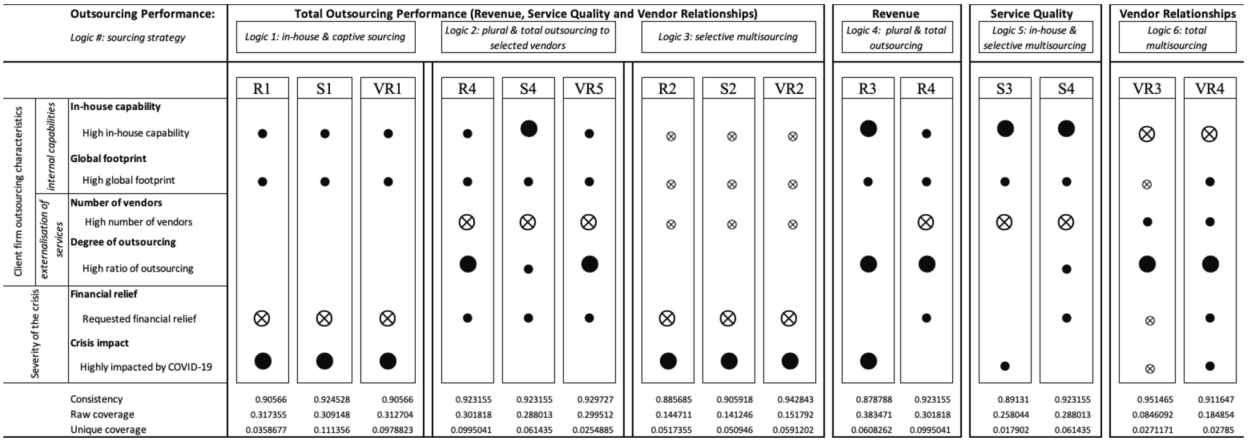

Fig. 3. Configurations for sustained IT outsourcing performance.

client firms must exercise due diligence when selecting vendors because of the relatively large volumes of outsourced services they would be entrusted with. The pattern, overall, suggests a logic of relying on both in-house capabilities and external providers (i.e., both make and buy) for dealing with IT outsourcing uncertainty and hazards during a systemic crisis. As regards the "buy" mechanism, total outsourcing (> 80 % of total IT spend) and plural sourcing (Krzeminska et al. 2013; Rai et al. 2015; Sako et al. 2016) are suggested. In view of this discussion, we generalize:

Proposition 2. *During systemic crises that compel requests for financial relief by client firms, a high degree of outsourcing, in-house capability and global footprint, and a low number of vendors help sustain overall outsourcing performance, regardless of the level of crisis impact.*.

Logic 3: Sustained overall outsourcing performance through reliance on selective externalization of services. A third pattern is reflected in configurations R2, S2, and VR2, which shows that overall outsourcing performance was sustained by client firms that, regardless of the degree of outsourcing, had low number of vendors (peripheral condition), low in-house capability (peripheral condition), and low global footprint (peripheral condition). Furthermore, as in the case of Logic 1, these client firms experienced high COVID-19 impact (core condition) but were not driven to request financial relief (peripheral condition). The configurations suggest a logic of selective multi-sourcing strategy involving a small number of best-of-breed vendors to keep coordination costs low (Bapna et al. 2010; Poston et al. 2009). Moreover, close ties with a few best-of-breed vendors provide client firms a pathway to building strategic partnerships (Su et al. 2016). A resultant shift from transactional to collaborative relationships with vendors can be a crucial factor that allows client firms to cope with a systemic crisis. As such, we generalize:

Proposition 3. *During high impact systemic crises that do not compel requests for financial relief by client firms, low in-house capability, global footprint, and number of vendors help sustain overall outsourcing performance, regardless of the degree of outsourcing.*

Logic 4: Sustained revenue through reliance on internal capabilities and the externalization of services. Configurations R3 and R4 show a pattern that enabled firms to sustain their revenue performance through a high degree of outsourcing and high in-house capability (core condition in R3 and peripheral condition in R4) and high global footprint (peripheral condition). The pattern is explained by client firms' competence in using their high in-house capability and global footprint to effectively control vendor opportunism. A high degree of externalization of services by pursuing total outsourcing increases client firms' exposure to potential vendor opportunism (Su and Levina 2011; Bapna et al. 2010), increasing the salience of internal capability. The pattern indicates a logic centering on plural sourcing for sustaining revenue, with global footprint serving as a risk mitigation mechanism because client firms could repatriate services and deliver them from own centers should vendors fail to deliver during a systemic crisis. We generalize:

Proposition 4. *Regardless of the impact of a systemic crisis and the requests for financial relief by client firms, high degree of outsourcing and high in-house capability and global footprint help sustain revenue.*

Logic 5: Sustained service quality through reliance on internal capabilities and a low number of vendors. In configurations S3 and S4, a pattern is visible for sustaining service quality by simply having high in-house capability (core condition) and a low number of vendors (core condition). Furthermore, the pattern shows that regardless of the severity of COVID-19 and the client firms' requests for financial relief, a high global footprint helped to sustain service quality. While in-house capability is a vital resource, having only a few best-of-breed vendors could facilitate the building of strong relational ties and a collaborative ecosystem (Su and Levina 2011). This arguably improves client firms' ability to ensure service quality during a systemic crisis. We generalize:

Proposition 5. *Regardless of the impact of a systemic crisis and the requests for financial relief by client firms, a high in-house capability and a low number of vendors help sustain service quality; a high global footprint is also helpful in this regard.*

Logic 6: Sustained vendor relationships through a high degree of service externalization. Configurations VR3 and VR4 show another interesting pattern, in which vendor relationships were sustained through a high degree of outsourcing (core condition), low in-house

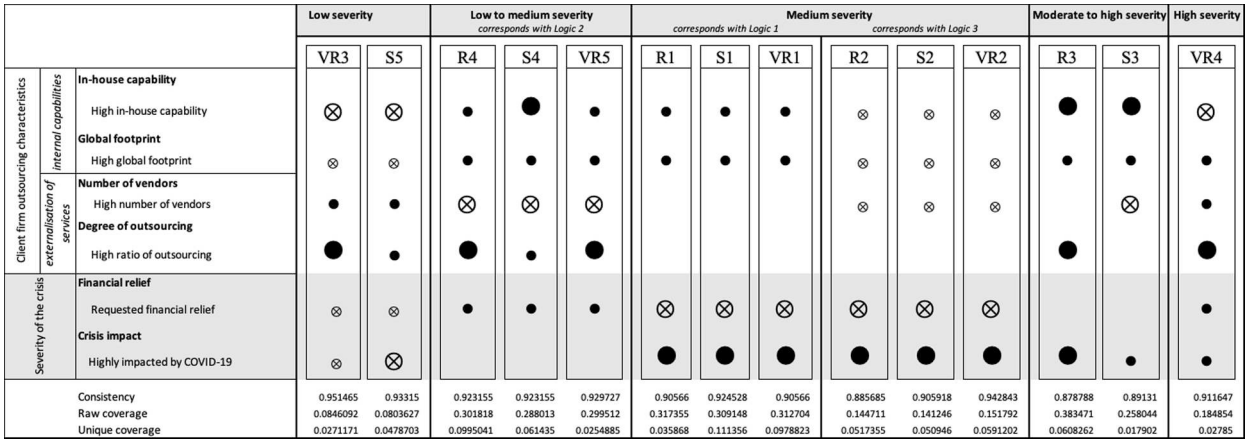

Fig. 4. Configurations by severity of systemic crises.

capability (core condition), and a high number of vendors (peripheral condition). The greater externalization of services implied by the high degree of outsourcing would have increased dependency on vendors given the low in-house capability. However, having many vendors during COVID-19 appears to have helped, arguably because client firms could address vendor opportunism by switching between vendors and thus exercise more control. These configurations suggest a total outsourcing strategy, possibly configured as a multi-sourcing arrangement (Su and Levina 2011; Wiener and Saunders 2014; Oshri et al. 2019a; Krancher at al. 2022) with many vendors to allow switching between vendors as a protective mechanism. We generalize:

Proposition 6. *Regardless of the impact of a systemic crisis and the requests for financial relief by client firms, a high degree of service externalization when there is low client in-house capability helps sustain vendor relationships*.

Theorizing Effective Organizational Configurations by Severity of Systemic Crises

The six logics detailed above reflect organizational configurations that can sustain IT outsourcing performance during systemic crises, a hallmark of which is the intense uncertainty they engender. The intensity of uncertainty produced by a systemic crisis can be expected to be associated with the crisis severity. This can influence how effective an organizational configuration is vis-à-vis performance sustenance. As such, it is worth exploring how variations in the severity of COVID-19 that client firms experienced were linked to performance-sustaining organizational configurations. In our data, crisis severity was operationalized through the level of crisis impact and the requests for financial relief by client firms. As such, whereas the absence of these two factors in our configurational analysis can be interpreted to indicate low crisis severity, their presence can be interpreted to indicate high crisis severity. By extension, the presence of one factor but the absence of the other can be taken to indicate medium crisis severity. Additionally, as shown in Fig. 4, one can also distinguish between low-to-medium and medium-to-high levels of crisis severity. Based on our findings, we theorize next the organizational configurations likely to be effective in sustaining performance during crises of low, medium, and high severity.

Low degree of systemic crisis severity. In Fig. 4, in the context of configurations VR3 and S5, crisis impact as well as requests for financial relief were absent factors or conditions, indicating that client firms faced less intense uncertainty. In this situation, consistent with earlier literature, externalization of services was an effective strategy for sustaining performance. In the light of this, when crisis severity is low and a client firm is lacking in-house capability and global footprint, total outsourcing can be expected to be an effective strategy – client firms can hope to do well through a high degree of outsourcing and many vendors.

Low to medium degree of systemic crisis severity. Three configurations – namely R4, S4, and VR5 – entailed requests for financial relief as a peripheral factor or condition. At the same time, it is not clear from our analysis whether in these cases the client firms also faced significant crisis impact. Overall, though, the requests for financial relief suggest a somewhat higher level of uncertainty for client firms. In such a context, our findings identify a plural sourcing strategy as the effective arrangement for sustained performance. Client firms can be expected to do well by combining internal delivery (based on in-house capability and captive centers) with total outsourcing (albeit with a small number of select vendors).

Medium degree of systemic crisis severity. Several configurations – R1, S1, and VR1 (underpinning the discussion of Logic 1) and R2, S2, and VR2 (underpinning the discussion of Logic 3) – entailed significant crisis impact even though client firms did not request financial relief. Under these circumstances, relying on either in-house capability and captive sourcing strategies (see Logic 1 discussion above) or on selective multi-sourcing (see Logic 3 discussion above) affords client firms two pathways for sustained performance. The first pathway is likely to require significant investments in developing in-house capability and global footprint. The second pathway, in contrast, needs minimal investment as regards in-house capability and global footprint but does require that a client firm to elevate its dependency on vendors by strategically collaborating with the vendor ecosystem.

Moderate to high degree of systemic crisis severity. Two configurations in Fig. 4 – R3 and S3 – concern client firms that regardless of whether financial relief was requested or not, faced significant crisis impact. Given the associated uncertainty, we surmise from our findings that client firms can expect to sustain their performance by relying on a strong in-house capability that is complemented by the presence of a global footprint (i.e., captive centers).

High degree of systemic crisis severity. Configuration VR4 concerns firms for whom COVID-19′s impact was high and which were driven to request financial relief. These firms arguably had to deal with the most intense uncertainty, and to effectively sustain performance they had to pursue total outsourcing involving a high number of vendors and had to have a high global footprint. This indicates that when crisis severity is high, client firms can try several mechanisms to maintain performance levels – including vendor switching, repatriating outsourced services to captive centers, and partnering with a few select vendors as part of a total outsourcing strategy.

Contributions to theory and practice

Our inquiry was motivated by a desire to develop understanding of how client firms might sustain their IT outsourcing performance during a systemic crisis, such as the one triggered by COVID-19. By doing so, the research aimed to contribute to the IS outsourcing literature, which has not yet systematically explored the performance implications of different organizational capabilities and choices available when client firms are confronted by systemic crises. In this regard, our upfront conceptualization expands the IS outsourcing literature by exploring the notion of a systemic crisis in outsourcing and examining its implications for performance. In doing so, we extend the current discourse in the IS outsourcing literature that examined performance in non-crisis situations to now consider sustaining performance in crisis settings. We took as our starting point the existing discussions regarding a reliance on either the

possession of internal capabilities or on the externalization of services to sustain performance in non-crisis contexts. Then, we conducted a configurational study to identify the combinations of client firms' IT outsourcing characteristics and COVID-19 crisis characteristics that were associated with the sustenance of overall IT outsourcing performance and its component dimensions of revenue, service quality, and vendor relationships. The results of the analysis bring to light the organizational configurations that were effective in allowing client firms to maintain performance levels despite the uncertainty that followed the spread of COVID-19. We enrich the IS outsourcing literature by using the study's findings to theorize and generalize six organizational logics for performance sustenance during systemic crises.

Interestingly, our research suggests that performance can be sustained during systemic crises by employing a range of sourcing strategies. Some of these reflect a balancing act between the retaining of internal capabilities and the externalization of services (see, for instance, the discussion of Logics 2 and 4 above). This is consistent with the view that the higher uncertainty and risks associated with pursuing some degree of outsourcing, call for a strong internal capability in the form of an effective retained organization (Feeny and Willcocks 1998; Oshri et al. 2023). In terms of theoretical undergirding, such sourcing strategies imply a complementarity between the RBV concept of internal capabilities and the TCE and SET based perspective on externalization of services. Others sourcing strategies that can be expected to help sustain performance during systemic crises reflect an emphasis on either the retaining of internal capabilities (see the discussion of Logic 1 above) or on the externalization of services (see the discussion of Logic 3 above). This suggests a competing explanation that sits between the argument for investing in unique capabilities (RBV) as a mitigation approach for enhancing control by the client firm, albeit at a high cost (Logic 1), versus a partnership approach (SET) that promotes relational governance of selected vendors in tandem with weaker contractual governance, and requiring minimum investment in internal capabilities. These insights augment the IS outsourcing literature, exposing a range of organizational configurations that can sustain performance during systemic crises.

Furthermore, our research speaks to an emerging stream of work in the IS domain that has started to examine organizational resilience under systemic-crisis conditions, but has not yet explored how resilience is tied to inter-organizational relationships (e.g., Floetgen et al. 2021, Sakurai and Chughtai 2020). In this context, the results of our study show that there are different pathways to achieving resilience during a systemic crisis. Particularly, our findings suggest that, depending on the intensity of uncertainty of a systemic crisis, client-firm resilience seems to depend on pursuing different sourcing strategies that imply different inter-organizational relationships. When crisis uncertainty is high, resilience depends on pursuing both an in-house sourcing strategy and an outsourcing strategy. When crisis uncertainty is low, however, resilience requires depending on a single sourcing strategy such as outsourcing. Our study, therefore, enriches the scholarly conversation on resilience during systemic crises.

This research also has implications for practice. While client firms usually have business continuity procedures in place to address service incidents, the challenges posed by the uncertainty of a systemic crisis are of a different order of magnitude. Not surprisingly, then, client firms struggled to sustain performance following COVID-19, with some of them having to bring back operations in-house and suffer reputation and revenue loss. Our study is one of a handful to offer specific managerial insights regarding how to cope with a future systemic crisis. It shows that client firms have a variety of options when it comes to combining internal capabilities and the degree of service externalization to sustain overall outsourcing performance and the revenue, service quality, and vendor relationships components thereof. Moreover, it identifies effective options for client firms for systemic crisis of low, medium, and high severity. As shown in this article, internal capabilities are critical for being able to exercise control in uncertain times. But internal capabilities may mean high implementation costs, especially when developing a strong retained organization and establishing a high number of captive centers. Client firms can also weigh the service externalization pathway, although the benefit of this is likely to be conditional on the strength of their internal capabilities. Indeed, weak internal capabilities require selective multi-sourcing involving a small number of vendors. The resultant strategic partnerships with vendors can be expected to be both more value generating and risk mitigating by discouraging vendor opportunism. A high number of vendors can burden a client firm with high coordination costs, particularly in the absence of sufficient internal capabilities and a crisis situation. All in all, this research offers client firms several options that they can consider, keeping in mind the degree of investment in internal capabilities and service externalization.

Limitations and future research

As any other piece of research, our study also has some limitations. First, our empirical focus in this research was limited to whether client firms had a high/low in-house capability. As such, we do not yet know what effect, if any, other capabilities such as past experience and contractual-governance skills (Lacity et al. 2016) may have on the set of effective organizational configurations for dealing with a systemic crisis. Future research can examine this to advance our understanding further.

Second, this article articulated a set of theoretical propositions. The propositions imply relationships between the severity of a systemic crisis, client firm's IT outsourcing characteristics, and IT outsourcing performance. Relatedly, we suggested that certain sourcing strategies are likely to be more effective in sustaining performance in the event of a systemic crisis. We did not test these propositions, however. This provides an interesting future opportunity for scholars to take the literature forward by confirming or disconfirming the propositions.

Third, our dataset included firms that are located in countries that are prominent players in the outsourcing industry (viz. USA, UK, and Japan). We also consulted a reliable source to assess the impact of COVID-19 in these countries. However, we acknowledge that it is challenging to capture the true impact of a crisis such as COVID-19 on client firms in a specific country. In this regard, it would be of value to verify our results using additional measures of crisis impact.

Last but not least, in this paper we examined how variations in the severity of a systemic crisis were linked to performance-sustaining organizational configurations. We proposed that the intensity of uncertainty organizations experienced during a

systemic crisis can be associated with the degree of severity. Such framing allowed us to draw conclusions about the link between degrees of crisis severity and sourcing strategies. Future research can advance this line on inquiry by considering the capabilities a client firm needs to develop, and which existing capabilities can be spontaneously recombined to cope with turbulent environments (Pavlou and El Sawy 2010).

CRediT authorship contribution statement

Ilan Oshri: Writing – original draft. **Federica Angeli:** Writing – original draft. **Julia Kotlarsky:** Writing – original draft. **Jatinder S. Sidhu:** Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Appendix A:. Descriptive overview of companies and respondents included in the sample

	Number of respondents	Percentage
Headquarter country		
United Kingdom	40	20.0 %
United States	60	30.0 %
New Zealand	5	2.5 %
Australia	15	7.5 %
Germany	20	10.0 %
Netherlands	7	3.5 %
Sweden	4	2.0 %
Norway	6	3.0 %
Japan	20	10.0 %
Belgium	10	5.0 %
Finland	6	3.0 %
Denmark	4	2.0 %
Luxembourg	3	1.5 %
Total	**200**	**100 %**
Industrial sector		
Retail/Consumer Goods	35	17.5 %
Finance and Insurance	39	19.5 %
Manufacturing/Industrial Goods	38	19.0 %
Healthcare and Pharma	27	13.5 %
Mining	3	1.5 %
Energy and Utilities	18	9.0 %
Technology, Media and Telecoms	40	20.0 %
Total	**200**	**100 %**
Revenue		
Below US$500 million	9	4.5 %
US$500 million – US$1 billion	52	26.0 %
US$1 billion – US$5 billion	76	38.0 %
US$5 billion – US$10 billion	45	22.5 %
More than US$10 billion	18	9.0 %
Total	**200**	**100 %**
Respondents' position with respect to outsourcing/offshoring decisions		
Final decision-makers	122	61 %
Highly involved in decision-making	54	27 %
Highly informed about this line of decision-making	24	12 %
Total	**200**	**100 %**

Appendix B:. Truth tables

Table B.1: Truth table Sustained Vendor Relationships.

COVID_direct	fVENDORS	fINHOUSEQ	fGLOBAL	fRATIOOUTS	fFINREF	number	fC19RESVENDORS	raw consist.	PRI consist.	SYM consist
1	0	1	1	1	0	6	1	0.967642	0.92048	0.920479
1	0	0	0	1	0	5	1	0.966978	0.914378	0.944908
1	0	0	0	0	0	6	1	0.963964	0.90212	0.902121
0	1	0	0	1	0	6	1	0.951465	0.886266	0.886266
1	1	1	1	0	0	5	1	0.935387	0.839402	0.839402
0	0	1	1	1	1	7	1	0.933333	0.809734	0.809734
1	1	1	1	1	0	11	1	0.930122	0.829893	0.829893
1	0	1	1	1	1	8	1	0.927982	0.83491	0.83491
1	0	1	1	0	0	5	1	0.925992	0.829042	0.829042
1	1	0	1	1	1	5	1	0.911647	0.785366	0.785366
0	1	1	1	1	1	8	1	0.903606	0.701825	0.722338
1	1	0	1	0	1	8	0	0.895942	0.733265	0.733265
0	1	1	1	1	0	5	0	0.893191	0.656652	0.666667
1	1	1	1	0	1	22	0	0.891807	0.768149	0.768149
1	1	1	1	1	1	18	0	0.890601	0.764641	0.773185
1	0	0	1	0	1	6	0	0.870951	0.658311	0.658311
1	0	1	1	0	1	7	0	0.870883	0.708369	0.708369

Table B.2: Truth Table Sustained Service Quality.

fVENDORS	fINHOUSEQ	fGLOBAL	fRATIOOUTS	fFINREF	COVID_direct	number	fC19RESOPS	cases	raw consist.	PRI consist.	SYM consist
1	1	1	0	0	1	5	1		0.967693	0.916424	0.916424
0	1	1	1	0	1	6	1		0.967642	0.927291	0.927291
0	1	1	0	0	1	5	1		0.958538	0.907921	0.907921
0	0	0	0	0	1	6	1		0.944144	0.865606	0.865607
1	0	0	1	0	0	6	1		0.93315	0.867754	0.867754
0	0	0	1	0	1	5	1		0.929595	0.813531	0.813531
0	1	1	1	1	0	7	1		0.923256	0.832487	0.832487
0	1	1	1	1	1	8	1		0.923106	0.836523	0.836523
1	1	1	1	0	1	11	1		0.920963	0.80712	0.807119
0	1	1	0	1	1	7	1		0.900823	0.780448	0.780447
1	0	1	0	1	1	8	0		0.89313	0.723781	0.72378
0	0	1	0	1	1	6	0		0.884404	0.720145	0.720145
1	0	1	1	1	1	5	0		0.88233	0.69158	0.691579
1	1	1	1	0	0	5	0		0.87984	0.737226	0.737226
1	1	1	0	1	1	22	0		0.879465	0.739501	0.7395
1	1	1	1	1	1	18	0		0.86492	0.713195	0.713195
1	1	1	1	1	0	8	0		0.820328	0.592262	0.598496

Table B.3: Truth Table Sustained Revenue.

fVENDORS	fINHOUSEQ	fGLOBAL	fRATIOOUTS	fFINREF	COVID_direct	number	fC19RESREV	cases	raw consist.	PRI consist.	SYM consist
1	1	1	0	0	1	5	1		0.952667	0.861538	0.861538
0	1	1	1	0	1	6	1		0.949911	0.859453	0.859453
1	1	1	1	0	1	11	1		0.946065	0.862457	0.862456
0	1	1	1	1	0	7	1		0.933333	0.841912	0.841912
0	0	0	0	0	1	6	1		0.924324	0.782383	0.810376
0	1	1	1	1	1	8	1		0.918229	0.774793	0.774793
0	1	1	0	0	1	5	1		0.908158	0.743781	0.743781
1	1	1	1	1	1	18	1		0.906009	0.799232	0.799232
0	0	0	1	0	1	5	1		0.904673	0.741554	0.741554
1	1	1	1	1	0	8	0		0.895082	0.764359	0.764359
1	0	0	1	0	0	6	0		0.884615	0.733051	0.733051
0	0	1	0	1	1	6	0		0.874937	0.673602	0.673602
0	1	1	0	1	1	7	0		0.871257	0.66075	0.660749
1	1	1	0	1	1	22	0		0.867122	0.716209	0.716208
1	0	1	1	1	1	5	0		0.866265	0.692805	0.692804
1	0	1	0	1	1	8	0		0.858176	0.672238	0.672238
1	1	1	1	0	0	5	0		0.85781	0.669767	0.669767

Table B.4: Necessity analysis for Sustained Revenue.

Analysis of Necessary Conditions
Outcome variable: fC19RESREV
Conditions tested:

	Consistency	Coverage
fVENDORS	0.665372	0.705981
COVID_direct	0.695868	0.610145
fINHOUSEQ	0.737190	0.735974
fGLOBAL	0.806611	0.728358
fFINREF	0.680992	0.765800
fRATIOOUTS	0.704132	0.796262

Table B.5: Necessity analysis for Sustained Vendor Relationships.

Analysis of Necessary Conditions
Outcome variable: fC19RESVENDORS
Conditions tested:

	Consistency	Coverage
COVID_direct	0.718241	0.639130
fVENDORS	0.655294	0.705630
fINHOUSEQ	0.758958	0.768977
fGLOBAL	0.763844	0.699999
fRATIOOUTS	0.688926	0.790654
fFINREF	0.664496	0.758365

Table B.6: Necessity Analysis for Sustained Service Quality.

Analysis of Necessary Conditions
Outcome variable: fC19RESOPS
Conditions tested:

	Consistency	Coverage
COVID_direct	0.697161	0.640580
fVENDORS	0.609700	0.677920
fINHOUSEQ	0.731860	0.765677
fGLOBAL	0.783911	0.741790
fRATIOOUTS	0.664037	0.786916
fFINREF	0.641956	0.756506

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