



**Exploring integrated solutions in the supply chain context: a dyadic perspective in an emerging economy setting**

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1           **Exploring integrated solutions in the supply chain context: a dyadic**  
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3           **perspective in an emerging economy setting**  
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## 11 Abstract

### 12 Abstract

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17 Provision of integrated solutions is a relational process in which suppliers address buyers'  
18 unique requirements through the integration of physical goods, services and knowledge.  
19 Although the integrated solutions in the supply chain context require both parties' involvement  
20 to the process, the concept is not yet fully understood from the dual perspectives of buyers and  
21 suppliers. This study explores integrated solutions process in the supply chain context from a  
22 dyadic perspective, in an emerging economy setting. The chosen setting is particularly  
23 important, due to the possibility of market dynamics affecting the process of integrated  
24 solutions. We adopt a perspective of dyadic relationship between buyers and suppliers in  
25 supply chains and use multiple case study research design to analyse relations between leading  
26 manufacturing companies and their suppliers in the consumer durables industry. Findings  
27 reveal a need for a new viewpoint based on a cyclical solutions process. Findings also show  
28 suppliers' limited awareness on integrated solutions, despite their full involvement in the  
29 integrated solutions creation process. Thus, one of the critical findings is the integration  
30 solutions process starts with the need recognition of the buyer. We develop a framework  
31 detailing the capabilities and tools needed for each stage of the integrated solutions process.  
32 Additionally, we propose a new definition for integrated solutions in the supply chain context,  
33 from a dyadic perspective in an emerging economy setting. To the best of our knowledge, this  
34 is the first study that explores the concept in the supply chain context reflecting a dyadic  
35 perspective of buyers and their multiple suppliers in an emerging economy context.  
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49 Keywords: integrated solutions; supply chain; buyer-supplier relations; product-service  
50 bundles; emerging economy  
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57 The authors have contributed equally to the production of this paper.  
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# Exploring integrated solutions in the supply chain context: a dyadic perspective in an emerging economy setting

## Abstract

Provision of integrated solutions is a relational process in which suppliers address buyers' unique requirements through the integration of physical goods, services and knowledge. Although the integrated solutions in the supply chain context require both parties' involvement to the process, the concept is not yet fully understood from the dual perspectives of buyers and suppliers. This study explores integrated solutions process in the supply chain context from a dyadic perspective, in an emerging economy setting. The chosen setting is particularly important, due to the possibility of market dynamics affecting the process of integrated solutions. We adopt a perspective of dyadic relationship between buyers and suppliers in supply chains and use multiple case study research design to analyse relations between leading manufacturing companies and their suppliers in the consumer durables industry. Findings reveal a need for a new viewpoint based on a cyclical solutions process. Findings also show suppliers' limited awareness on integrated solutions, despite their full involvement in the integrated solutions creation process. Thus, one of the critical findings is the integration solutions process starts with the need recognition of the buyer. We develop a framework detailing the capabilities and tools needed for each stage of the integrated solutions process. Additionally, we propose a new definition for integrated solutions in the supply chain context, from a dyadic perspective in an emerging economy setting. To the best of our knowledge, this is the first study that explores the concept in the supply chain context reflecting a dyadic perspective of buyers and their multiple suppliers in an emerging economy context.

Keywords: integrated solutions; supply chain; buyer-supplier relations; product-service bundles; emerging economy

## 1. Introduction

Service offerings have been increasingly used by organizations, as a tool to support their supply chain partners for solving their business problems. Consequently, suppliers' offerings for buyers tend to shift towards services, which necessitate the integration of physical products with services through bundling (Neely et al. 2011; Rapaccini 2015). Due to this shift, buyer-supplier relations in supply chains have been highly shaped by a

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2  
3 specific type of offerings, so-called integrated solutions. This is a long-term oriented  
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5 and complex process by which suppliers meet customers' unique needs by providing a  
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7 seamless combination of physical products, services, and information/knowledge  
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10 (Brady et al. 2005; Brax and Jonsson 2009). The concept has received increasing  
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12 attention in the literature (e.g. Rapaccini and Visintin 2015; Rasouli et al. 2019; Zhang  
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14 et al. 2016). However, the majority of the studies in the existing literature were  
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16 conducted in developed economies, and relatively few provide a dyadic perspective in  
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18 the supply chain through by focusing on the perceptions of both buyers and suppliers  
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20 (e.g. Brax and Jonsson 2009; Petri and Jacob 2016; Tuli et al. 2007). The perceptions of  
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22 integrated solutions from a dyadic aspect in the supply chain context, particularly in an  
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24 emerging economy setting, is a neglected area. This omission in the existing literature  
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26 not only indicates a gap in research, but it also carries great potential for elaborating  
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28 theory on integrated solutions, as one of the critical sources of competitive advantage  
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30 for companies operating in emerging markets (Sawhney, 2006), due to the ever-  
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32 increasing importance of services not only in these economies (OECD, 2000), but also  
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34 in the global economy (Hakanen 2014).  
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40 The potential contributions of this study are threefold. First, the literature is not  
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42 developed beyond a few studies that investigated value creation in supply chains, with  
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44 the addition of services to traditional manufacturing offerings, from a global supply  
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46 chain perspective (e.g. Bustinza et al. 2013; Finne and Holmström 2013). . In this study,  
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48 we aim to contribute to the global supply chain literature, with a particular focus on the  
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50 bundle of physical product and service processes.  
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53 Second, the provision of integrated solutions is considered as a new base for  
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55 value stream-centred systems integration (Davies 2004), which is a value co-creation  
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57 process (Brax and Jonsson 2009; Petri and Jacob 2016; Sjödin et al. 2016), requiring at  
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3 least two parties' (e.g. buyer-supplier) relations in supply chains. Therefore, the  
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5 integrated solutions concept can only be fully explored by reflecting the perspectives of  
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7 different supply chain members (Brady et al. 2005). By considering the views and  
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9 perceptions of both buyers and suppliers, we aim to better explore the integrated  
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11 solutions process in the supply chain context.  
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15 Third, as also mentioned above, most empirical research on integrated solutions  
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17 in the supply chain context has been conducted in a developed economy context (e.g.  
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19 Bastl et al. 2012; Brady et al. 2005; Windahl et al. 2004). This is not surprising, since  
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21 here, the service sector exemplifies a dominant role for the new knowledge-based  
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23 economy (Gallouj and Savona 2009). With this study, by focusing on the emerging  
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25 economy aspect in this ever-developing research area, we aim to develop a deeper  
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27 understanding of the concept. Like other previous studies on operations management  
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29 (e.g. Ahmed et al. 2019; Bouzon et al. 2015; Rahman et al. 2019; Shibin et al. 2018),  
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31 our focus is an emerging economy for several reasons. Emerging economy markets,  
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33 such as Turkey, are dynamic by nature, and are characterised differently from  
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35 developed countries (Gök and Özkaya 2011). For instance, these markets are highly  
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37 volatile (Kohers et al. 2006), has relatively smaller size, and less depth (Gök and  
38  
39 Özkaya 2011). They also characterised by a lower level of institutional development,  
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41 as well as the infrastructure and factor market developments, compared to developed  
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43 counties (Hoskisson et al. 2013). We propose that such characteristics might have  
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45 potential impact on the dynamics of buyer-supplier relations, and differentiate  
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47 integrated solutions processes from those in developed economies. More specifically,  
48  
49 although the requirements of solutions offerings by considering different customers'  
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51 needs vary across industries (Raja et al. 2013), the existing literature is scarce on  
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53 integrated solutions in the supply chain context in different industrial settings,  
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3 especially in an emerging economy context (Gebauer et al. 2012). Further research is  
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5 needed in diverse industries, such as durable goods, as the manufacturers in these  
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7 industries are potential parties of an integrated solution process (Hertz and Alfredsson  
8  
9 2003). Considering the needs of the consumer durables industry, as well as the above-  
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11 mentioned characteristics of emerging economies, we highlight the need for better  
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13 understanding integrated solutions from a dyadic perspective. Thus, this research  
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15 contributes to the current body of knowledge by addressing the following research  
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17 questions:  
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- 21  
22 (1) How is the integrated solutions concept in the supply chain context perceived  
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24 from a dyadic perspective in an emerging economy setting?
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26 (2) How can the integrated solutions process in supply chains be improved in an  
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28 emerging economy setting?
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30 (3) How can the required capabilities of buyers and suppliers for integrated  
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32 solutions in supply chains be developed to overcome challenges?  
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38 As our overarching theoretical anchors, we employed the Resource-Based View  
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40 (RBV) (Barney 1991; Peteraf 1993; Wernerfelt 1984) and Dynamic Capabilities View  
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42 (DCV) (Teece et al. 1997). When addressing unique business needs of their partners  
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44 through integrated solutions, supply chain members use critical resources as a part of  
45  
46 their offerings, in the form of bundles of physical products, services, and information  
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48 (Brady et al. 2005; Brax and Jonsson 2009). As RBV theorizes the competitiveness of  
49  
50 organizations through their access to the critical resources, it provides a strong  
51  
52 theoretical basis for integrated solutions, particularly in the supply chain context. For  
53  
54 RBV to be reflected in integrated solutions, it is important to conduct a detailed  
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56 examination the capabilities of supply chain members, and more generally, the role of  
57  
58 the resources. Also, DCV, grounded on RBV, theorises how to respond to the  
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3 challenges of dynamic market conditions by using all the capabilities of a firm. From  
4  
5 the perspective of integrated solutions in supply chain context, supply chain partners  
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7 should develop capabilities to better adapt to the changing market conditions throughout  
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9 the solution provision, which is a complex and longitudinal process. More specifically,  
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11 in our context, the capabilities of supply chain members are critical in solving unique  
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13 business problems to resolve the challenges of an emerging economy. As the conditions  
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15 within emerging economies are unstable, these two theories provide the theoretical basis  
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17 and initial directions for our study, and for elaborating on the subject.  
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22 Using a multiple case study design, our research contributes to elaboration of  
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24 these theories via revealing and addressing these gaps. We adopted within-case and  
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26 cross-case analysis techniques, reflecting both parties' perspectives concerning relations  
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28 between three buyer companies and nine suppliers, comprising 15 dyads.  
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31 The remainder of this paper is structured as follows. The next section reviews  
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33 the research on the relevant concept and theories to integrated solutions. The third  
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35 section outlines the research methodology. Fourth section presents the coding and  
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37 analysis. Then is followed by the discussion section. We continue with the conclusions  
38  
39 and implication of the study with limitations and further research directions.  
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## 43 **2. Literature review**

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45 Integrated solutions remain a relatively new, but increasingly established strategy,  
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47 especially in global business-to-business contexts (Petri and Jacob 2016). However, the  
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49 existing literature lacks a comprehensive view of the concept from diverse aspects,  
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51 such as a dyadic with a focus of required capabilities of supply chain partners (i.e.  
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53 buyers and suppliers), and in different settings, such as emerging economies.  
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### ***2.1. Integrated solutions process***

Among various definitions proposed for integrated solutions in previous studies (e.g. Davies et al. 2006; Nordin and Kowalkowski 2010), we follow the definition proposed by Storbacka et al. (2011, 699) throughout this paper:

‘...longitudinal relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer’s value-in-use’.

As implied in this definition, unlike the traditional view on transactional exchange-based buyer-supplier relationships, the provision of solutions requires a relational exchange (Davies 2004). Such a relational exchange identifies sequential processes which describe the development and implementation of the solutions (Petri and Jacob 2016; Tuli et al. 2007). The aim of integrated solutions, particularly in the supply-chain context, is considered as solving customers’ known or articulated problems (Sawhney et al., 2006) by simplifying processes, by taking on some of their responsibilities, and/or allowing letting them to concentrate on developing innovations (Nordin and Kowalkowski 2010; Normann and Ramirez, 1994).

The previous literature highlights that industrial customers demand more than simple products and services, they also require solutions from suppliers to ensure trouble-free operations (Davies et al. 2006). The prior literature also points out the inevitable need for co-creation of buyers and suppliers (Brax and Jonsson 2009; Petri and Jacob 2016; Sjödin et al. 2016). Aligned with this view, the widely accepted model on process-centric view of integrated solutions proposed by Tuli et al. (2007), shown in Figure 1, provides the fundamental foundation of this paper. It provides a strong

conceptual foundation for understanding the integrated solutions process, with its emphasis on the need for a process-centric and a dyadic view.

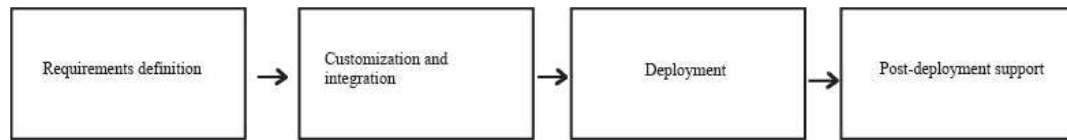


Figure 1. Process centric view-integrated solutions

Source: Adapted from Tuli et al. (2007)

This model's relevance and importance, especially for our first and second research questions, requires a more detailed examination of the stages of the model. The first stage starts with the customer's requirements definition, which highlights the need for greater insight into customer's value creation mechanism for providing a valuable solution. The second stage, customisation, and integration, involves providing a prototype of the products to understand their fit into the customer environment, as well as the solution. At this stage, a full approval regarding the solution is granted. The third stage, deployment, refers to the delivery of products and their installation in the customer's environment, which may entail new requirements, calling for further modifications. At this stage, Tuli et al. (2007) highlight the importance of anticipating the capabilities of buyer's employees and providing them with appropriate training. The final stage, post-deployment support, involves providing spare parts, operating information, and routine checks and maintenance, and addressing the wider creation of new products to meet evolving customer requirements over the course of the relationship.

Beside the different stages of the integrated solutions, the potential benefits and challenges encountered for both parties during the solutions provision should also be examined, to better explore the concept (Davies et al. 2006; Salonen 2011). Through

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2  
3 integrated solutions, suppliers can access greater market opportunities, increase their  
4 sales revenues, and extend their market reach, while performing tasks traditionally  
5 undertaken by their customers (Sawhney 2006). Similarly, as the suppliers take over  
6 customers' responsibilities and potential risks, they become more innovative in  
7 solutions provision, and enhance the value created for the customer (Davies 2004), as  
8 well as customer loyalty (Sawhney 2006). The solutions process provides steady  
9 revenues and, (more importantly, higher levels of growth and profitability for both  
10 parties (Davies et al. 2006; Salonen 2011). It should be noted that these potential  
11 benefits highlight the importance of the management of the criticality of the process,  
12 which can vary in different contexts.  
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26 Besides these benefits, companies also potentially face challenges during the  
27 process (Paiola et al. 2013). In general, the requirements associated with managerial  
28 improvement for both parties threaten the success of providing integrated solutions. The  
29 literature points to the following challenges for supply chain partners: ensuring a fit  
30 between product competences and the technical capabilities (Windahl et al. 2004),  
31 changing the mind-set in organisations towards service-dominant logic (Sjödin et al.  
32 2016), shifting from the transaction-based to the relationship-based approach (Oliva and  
33 Kallenberg 2003), improving internal efficiencies of operations (Salonen 2011), and  
34 fostering a strong, trust-based relationship (Nordin and Kowalkowski 2010). It is  
35 obvious that the organisations need to develop particular capabilities to address these  
36 challenges during the process of providing solutions (Davies et al. 2007; Raddats et al.  
37 2017). In this regard, our study emphasizes the importance of particular characteristics  
38 of emerging economy settings when analysing and interpreting such challenges and  
39 capabilities.  
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3 The model of Tuli et al. (2007) is based on a process-centric view for solutions,  
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5 and highlights the anticipation of required capabilities of both parties, but neither this  
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7 model, nor the existing literature, demonstrates the capabilities or the resources and  
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9 tools needed in each stage of the process, particularly in the supply chain context.  
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11 Therefore, this current study has the potential to extend Tuli et al.'s (2007) proposed  
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13 model. Moreover, we believe that specifying the capabilities required for particular  
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15 contexts would reduce challenges and obstacles, and the process would become less  
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17 flawed. Accordingly, we aim to shed further light on this process-centric view for  
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19 integrated solutions by elaborating the process, through identifying specific capability  
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21 requirements at each stage.  
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26 This inevitably places emphasis on dyadic relationships, as well as the  
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28 requirements and importance of capabilities throughout the integrated solutions process.  
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30 Therefore, RBV (Barney 1991; Peteraf 1993; Wernerfelt 1984) and DCV (Teece et al.  
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32 1997) are appropriate in providing theoretical grounding for not only Tuli et al.'s (2007)  
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34 process-centric view, but also for the integrated solutions concept in general, and for our  
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36 study.  
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## 41 ***2.2. Integrated solutions: Reflections from the Resource-Based View***

42  
43 RBV is one of the most frequently used theories in supply chain studies (e.g. Arellano et  
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45 al., 2019; Laosirihongthorn et al. 2019; Shibin et al. 2018; Yu et al.2017; Zaridis et al.,  
46  
47 2020). It also provides a strong theoretical basis for the concept of integrated solutions  
48  
49 because it approaches a firm's competitiveness in terms of its access to resources,  
50  
51 including capabilities and aspects other than the product itself. RBV posits that firms'  
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53 resources are of greater value when valuable, rare, inimitable, and non-substitutable  
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55 (known as VRIN characteristics), whereby they can be considered as critical sources of  
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57 competitive advantage (Barney 1991; Peteraf 1993; Wernerfelt 1984) resulting from  
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3 integrated solutions provision. As highlighted by Barney (1991), imperfectly imitable  
4 resources combine unique historical conditions (e.g. firm's unique path through history,  
5 unique historical events), social complexity (e.g. firm's culture and reputation), and  
6 causal ambiguity. The unique historical conditions and social complexity are difficult to  
7 achieve in the short-term, while causal ambiguity is important in hindering  
8 competitors' understanding of the relationship between a firm's resources and its  
9 sustained competitive advantage.  
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21 The reflection of RBV in integrated solutions requires a close and careful  
22 examination of the role of both parties (i.e. buyers/customers and  
23 suppliers/providers) in such solutions. Aligning with the aim of our study, parties  
24 are advised to combine their resources from a multi-actor, dynamic, and relational  
25 view (Hakansson et al. 2009). Supporting this argument, the literature suggests  
26 that the suppliers more successful in solutions provision are those capable of  
27 aligning resources and capabilities with buyers in a way that leads to sustainable  
28 value-creation (Möller and Rajala 2007). From the integrated solutions  
29 perspective, the factors mentioned above might have particular importance in  
30 specific market settings, such as emerging markets. The conversion of the  
31 resources into solutions includes sub-processes, such as interrelated work routines  
32 and tasks (Davenport 1993), and by absorbing, transforming, and leveraging these  
33 into solutions, organisations should be able to generate sustainable value  
34 (Srivastava et al. 2001). This conversion process is inevitably affected by market  
35 dynamics and characteristics. Thus, it is important to view integrated solutions  
36 from a dyadic perspective, especially in dynamic markets, as the suppliers and/or  
37 the buyers can improve their resources with VRIN characteristics, and it is  
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3 particularly valuable to acknowledge both parties' perspectives on the conversion  
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6 process of resources into solutions.

### 7 8 **2.3. Required capabilities for integrated solutions: Dynamic Capabilities View**

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10 Although DCV mainly addresses how a single company can achieve competitive  
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12 advantage in dynamic markets (Teece et al., 1997; Eisenhardt and Martin, 2000), the  
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14 role of dynamic capabilities is particularly critical on the competitiveness of systems,  
15  
16 including different entities, such as a supply chain. Thus, extending DCV beyond the  
17  
18 single-firm and to the relationships between different supply chain members (Defee and  
19  
20 Fugate, 2010) provides a wider perspective on creating sustainable competitive  
21  
22 advantage for each member. There have been investigations of the role of dynamic  
23  
24 capabilities in supply chains from different perspectives, such as performance  
25  
26 management, supply chain responsiveness and resilience (e.g. Agarwal et al., 2007;  
27  
28 Altay et al., 2018; Beske, 2012; Ekanayake et al., 2020; McAdam et al., 2017).  
29  
30 However, the literature is still evolving on how DCV can support the integrated  
31  
32 solutions process, by particularly considering the supply chain members (Saul and  
33  
34 Gebauer, 2018). It is important to note the prior research emphasizes the need for  
35  
36 diverse capabilities for companies and their supply chain partners in proposing an  
37  
38 inclusive set of products with additional services (Bastl et al. 2012; Windahl and  
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40 Lakemond 2006). There are a number of required capabilities for the parties involved in  
41  
42 the integrated solutions process (Davies, 2004; Davies et al. 2007; Tuli et al. 2007).  
43  
44 Some studies even argue that both the parties, but especially the suppliers, can develop  
45  
46 new capabilities during the solution-offering practices (e.g. Brady et al. 2005; Ceci and  
47  
48 Prencipe 2008; Zhang et al. 2016). Of these capabilities, the most frequently cited are  
49  
50 systems integration, operational service, business consulting, and finance (Davies et al.  
51  
52 2006; Neely et al. 2011). However, the dynamic capabilities required for different  
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54 stages of the integrated solutions process has not yet been studied in the supply chain  
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3 context. By considering these, and taking DCV as one of the theoretical anchors, our  
4 study addresses the need for identifying the capabilities that are required at each stage  
5 of the integrated solutions process.  
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9  
10 On the other hand, as competition through manufacturing capabilities alone is  
11 inadequate, organisations are advised to additionally focus on service capabilities to  
12 improve their competitive position (Voss 2005), by acting as a strategic business  
13 partner, especially during solutions provision (Nordin and Kowalkowski 2010). This  
14 view strengthens the need to maintain a dyadic perspective on exploring the capabilities  
15 for integrated solutions.  
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23  
24 As DCV also theorizes responses to the changing conditions and environment, it  
25 provides a sound theoretical basis for understanding the integrated solutions process  
26 from a dyadic perspective in different settings, such as an emerging economy, which is  
27 the current focus.  
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### 34 **3. Methodology**

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36 We adopt a multiple case study method following Siggelkow (2007). With this study,  
37 we drawn on integrated solutions research to elaborate theory via three case studies for  
38 a more detailed understanding of the integrated solutions concept, reflecting a  
39 previously unexplored setting, from the perspectives of the two parties involved. The  
40 case research method is chosen for four reasons.  
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48 First, because the focus is a relatively new concept, it can be better explored by a  
49 field study, particularly by case study research (Childe 2011; Lewis 1998; Voss et al.  
50 2002).  
51  
52  
53

54 Second, the case method allows a broader perspective on complex phenomena  
55 (Eisenhardt, 1989; Voss et al. 2002), and our aim is a comprehensive understanding of  
56 the integrated solutions in an unexplored setting. Also, the research aim of this study  
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1  
2  
3 requires an extensive and in-depth description, which makes case research particularly  
4  
5 appropriate (Yin 2003).  
6

7  
8 Third, case research is especially preferable, as this study aims to extend the  
9  
10 theory by elaboration efforts through iteration between the literature and the empirical  
11  
12 data (Voss et al. 2002; Childe 2011; Ketokivi and Choi 2014).  
13

14  
15 Finally, case research has become recognised as one of the most appropriate and  
16  
17 powerful methods for research on operations (Stuart et al. 2002; Voss et al. 2002), and  
18  
19 supply chain management (Ellram 1996; Seuring 2008). Also, this method allows the  
20  
21 researchers to develop theory on supply chain (Ellram 1996; Koulikpoff-Souviron and  
22  
23 Harrison 2005; Seuring 2008) and operations management (Stuart et al. 2002; Voss et  
24  
25 al. 2002; Childe 2011) by treating general theory as malleable, and by highlighting the  
26  
27 importance of serendipity, which leads to unanticipated findings (Ketokivi and Choi  
28  
29 2014).  
30  
31

32  
33 It should also be noted that case studies are employed by the majority of the  
34  
35 previous exploratory research into different areas of supply chain (e.g. Ahmed et al.  
36  
37 2019; Bouzon et al. 2015; Rahman et al. 2019; Shibin et al. 2018). We chose to focus on  
38  
39 Turkey as a rising emerging market, which provides new opportunities for firms seeking  
40  
41 to compete successfully not only domestically, but also globally.  
42  
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44  
45

### 46 ***3.1. Context of the study***

47  
48 The Turkish context is considered relevant for this study due to its growing  
49  
50 service sector, which accounted for 54.6% of Turkey's GDP in 2020, and  
51  
52 manufacturing sector (World Bank 2021), in which the companies seek for competitive  
53  
54 advantage through a range of service offerings. This support the view that the traditional  
55  
56 industrial economy is beginning to be replaced by a service economy, involving both a  
57  
58 service industry and relevant service activities executed in a manufacturing industry  
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2  
3 (Giannakis 2011). In addition to local organisations, around 20,000 multinational  
4  
5 companies operate in emerging markets such as Turkey (Eyring et al. 2011), and their  
6  
7 strong presence is likely to play an important role in emerging economies. Turkey has  
8  
9 been particularly attractive for multinational enterprises (MNEs) as a manufacturing and  
10  
11 service provision base. Turkey has become a critical supplier hub for European, Central  
12  
13 Asian, and Middle Eastern markets, as well as a site for talent and innovation of  
14  
15 international standards, and Turkish suppliers are becoming potential strategic partners  
16  
17 for the MNEs (Erdal and Tatoğlu 2002).  
18  
19

20  
21 Due to such potential, the parties in integrated solutions in supply chains could  
22  
23 either be a domestic firm in Turkey, or an MNE headquartered in a developed country.  
24  
25 It should also be noted that 2,672,458 companies (99.8% of the total number of  
26  
27 companies in Turkey) are small and medium sized enterprises (SMEs) and/or family  
28  
29 businesses, which account for 53% of total value added, and nearly 73% jobs in the  
30  
31 non-financial business economy (European Commission 2017). This means that  
32  
33 potential suppliers in an integrated solutions relation in Turkey are highly likely to be  
34  
35 SMEs. It emphasizes the need to analyse the perspectives of both parties, leading to a  
36  
37 better understanding of the integrated solutions and a more seamless development  
38  
39 process for solutions in both the emerging economy and global contexts.  
40  
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44

45 The consumer durables industry is considered relevant for this study due to the  
46  
47 limited existing literature on integrated solutions in the supply chain context in different  
48  
49 industrial settings, especially in an emerging economy context (Gebauer et al. 2012).

50  
51 Due to the need for further research in diverse industries, such as durable goods in  
52  
53 which manufacturers are potential parties of an integrated solution process (Hertz and  
54  
55 Alfredsson 2003), we have chosen the sector as our main focus. The consumer durables  
56  
57 industry in Turkey has great potential, as its manufacturing capacity is ranked first in  
58  
59  
60

1  
2  
3 Europe, and second worldwide (TURKBESD, 2021a), with 50 medium-scale  
4  
5 manufacturers, and nearly 500 suppliers of parts and components (Ministry of Trade  
6  
7 2019). However, the industry has recently experienced lower profit margins due to  
8  
9 severe competition (Atradius 2017), and it is essential that this sector invests in  
10  
11 innovation and new product development through research and development (R&D)  
12  
13 activities (Ministry of Trade 2019).  
14  
15  
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### 18 **3.2. Case selection**

19  
20 To address the research questions, we needed to select companies meeting the relevant  
21  
22 criteria. First, our case research should involve at least two parties in the supply chain,  
23  
24 buyers, and their supplier(s). Consumer durables manufacturers, as focal companies in  
25  
26 the integrated solutions, take the buyer role in the context of this research. We studied  
27  
28 three manufacturers (buyers) as cases (Buyer-X, Buyer-Y, and Buyer-Z) and nine of  
29  
30 their suppliers, covering 15 buyer-supplier dyads in total.  
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34

35 Integrated solutions processes are sector-specific. Thus, the consumer durables  
36  
37 industry was purposely chosen. The industry became a significant focus of production  
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39 in Turkey, especially in the last decade, with white goods production capacity of nearly  
40  
41 30 million units (TURKBESD 2021b). Of Turkey's products, 75% are exported to more  
42  
43 than 150 countries, including European countries, neighbouring countries in West and  
44  
45 Central Asia, and Africa (TURKBESD 2021a). Turkey has become a leading producer  
46  
47 for the European consumer durables market (TURKBESD 2021a). In order to determine  
48  
49 the sample frame, the companies with operations in Turkey were identified using the  
50  
51 website of White Goods Manufacturers' Association of Turkey (TURKBESD 2017),  
52  
53 which has seven members in total. A review on these companies' publicly available  
54  
55 sources (e.g. websites and company reports) revealed that '*solutions*', and the potential  
56  
57 role of these on company success, is frequently emphasized. Also, as confirmed by  
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3 TURKBESD (2021a), the number of patent applications is growing, and there is a  
4  
5 considerable amount of R&D and innovation activities in the sector. Thus, we decided  
6  
7 to conduct our research in the consumer durables industry in Turkey.  
8  
9

10 In line with the aim of the research, we used replication logic in our analysis.  
11  
12 Thus, while selecting cases, we purposively selected each case on the basis of their  
13  
14 likelihood of producing similar results or creating contrary results, due to predictable  
15  
16 reasons (Voss et al. 2002). By considering these, and following of Hoskisson et al.'s  
17  
18 (2013) recommendations, we selected three cases<sup>1</sup> as follows:  
19  
20

- 21  
22 • Buyer-X is a domestic firm operating as an industry leader in the chosen  
23  
24 emerging market since the 1980's.  
25  
26
- 27 • Buyer-Y is a well-reputed firm headquartered in a European country and  
28  
29 operating in the chosen emerging economy since the 1990's  
30  
31
- 32 • Buyer-Z is another well-reputed, market leader firm headquartered in another  
33  
34 European country, operating in the chosen emerging market since the early 20<sup>th</sup>  
35  
36 century.  
37  
38

39  
40 Industry leaders operating in the chosen market for a substantial period were  
41  
42 selected for this case research, since well-reputed companies are considered as being  
43  
44 more prone to the influence of the characteristics, dynamics and fluctuations of  
45  
46 emerging economies (Gök and Özkaya 2011). To increase the logical and empirical  
47  
48 adequacy of the theory, we gathered data from the purchasing managers and other  
49  
50 relevant senior managers in buyer companies, as well as their employees from different  
51  
52 departments,, which assured vertical contracting for theory elaboration (Fisher and  
53  
54  
55

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56  
57 <sup>1</sup> For confidentiality reasons, for the two manufacturers headquartered in European countries, neither the  
58  
59 company names nor their home countries are revealed.  
60

1  
2  
3 Aguinis 2017). Details on the respondents and interviewees for both parties are  
4  
5 specified in the data collection section. Such a purposive sampling process particularly  
6  
7 optimises the learning opportunities (Miles et al. 2013) and allows researchers to extend  
8  
9 the theory across a broad range of organisations in case study research (Eisenhardt  
10  
11 1989).  
12  
13  
14

15  
16 In order to choose the suppliers, after the interviews and observations during the  
17  
18 site visits to the buyers, we asked companies to provide details of their suppliers that  
19  
20 had been a part of their integrated solutions relations, whether successfully or  
21  
22 unsuccessfully. Although the majority of companies were able to provide the specific  
23  
24 contact information, for some we asked for a member of staff in commercial exchange  
25  
26 with their supply network to assist us. The three buyers (X, Y, and Z) were each  
27  
28 involved with between 1 and 3 suppliers; the total of nine suppliers are referred to as  
29  
30 Supplier/1-9.  
31  
32  
33

### 36 **3.2. Data collection**

37  
38 For the research design in general, and the data collection in particular, we followed the  
39  
40 recommendations of Childe (2011), Eisenhart (1989), Ketokivi and Choi (2014), Miles  
41  
42 and Huberman (1994), Yin (2003), and closely followed previous seminal works in  
43  
44 operations and supply chain management (e.g. Pagell and Wu 2009; Wilhelm et al.  
45  
46 2016). We used multiple sources of evidence, collected data through semi-structured  
47  
48 interviews, observations, and documentation. Data triangulation was utilised throughout  
49  
50 this research, to avoid data manipulation and to increase trustworthiness.  
51  
52  
53

54  
55 For triangulation purposes, we aimed to collect as many sources of evidence as  
56  
57 possible to obtain richer and more valid data (Silverman 2005), and to increase  
58  
59 robustness, by enhancing reliability and validity (Eisenhart 1989; Yin 2003).  
60

1  
2  
3 Triangulation between researchers provided us with diverse perspectives and  
4  
5 explanations of the findings, enhancing the validity (Maylor and Blackmon 2005). This  
6  
7 also helped us to control for potential biases of any one individual researcher.  
8  
9

10 To ensure the quality of the research, we used the four design tests proposed by  
11  
12 Yin (2003), as summarised in Table 1, with the relevant actions.  
13  
14

15 Table 1. Design test measures  
16

Design tests	Actions
Construct validity	An interview protocol was developed by researchers based on the literature and confirmed by experts in the field Multiple case design was used Interviews were conducted by two researchers Supporting sources were used
Internal validity	Open, axial and selective coding was performed
External validity	Multiple case studies were conducted Sampling rules were followed
Reliability	An interview protocol was developed by researchers based on the literature and confirmed by experts in the field Coding and transcripts were produced by two researchers

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34 Source: Yin (2003)  
35  
36

37  
38 Direct observations were employed throughout the fieldwork (before, during,  
39  
40 and after interview sessions), as well as during company visits, which also contributed  
41  
42 to triangulation between methods. Both researchers visited buyer and supplier sites  
43  
44 together, to reflect on and compare individual perspectives on the whole research  
45  
46 process.  
47  
48

49  
50 With the aim of triangulation across data, relevant documentation from both  
51  
52 parties' websites, other related web-sites, and publicly available case studies were also  
53  
54 used as a secondary source of data, in addition to interview transcriptions and field  
55  
56 notes of observations.  
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3 Our primary data collection was in-depth semi-structured interviews, which  
4  
5 provided us a flexible instrument for obtaining information from the field (Yin 2003).  
6  
7 For the interviews, we developed an interview protocol based on previous literature  
8  
9 (e.g. Petri and Jacob 2016; Storbacka et al. 2011; Tuli et al. 2007) by considering the  
10  
11 aims of the research and research questions. The majority of the questions were open-  
12  
13 ended, and iterative questioning techniques and probing questions were used to increase  
14  
15 credibility. The initial version of interview questions was checked and approved by five  
16  
17 other academics and professionals from the operations and/or the supply chain  
18  
19 management fields. After their feedback, revisions were made in order to clarify the  
20  
21 questions. A copy of the protocol can be found in the Appendix.  
22  
23  
24  
25

26 The buyer interviews were followed by the supplier interviews. As we adopt the  
27  
28 business-to-business relation-based approach (Dwyer et al. 1987), it was critical to  
29  
30 select respondents from across organisational levels in buyer companies for the in-depth  
31  
32 semi-structured interviews. At each buyer company, the protocol for interviews  
33  
34 necessitated that procurement management were interviewed before other relevant  
35  
36 functions potentially involved in the process (e.g. finance, supplier development, R&D,  
37  
38 and planning). After their interviews, these top management team members  
39  
40 recommended team members involved in the integrated solutions process for  
41  
42 interviews. In the supplier companies, all respondents were top managers, due to  
43  
44 relatively smaller scales of their organisations. Details of the interviewees are given in  
45  
46 Table 2. Most interviews were conducted face-to-face at the interviewers' workplaces,  
47  
48 but as if the respondents were abroad, or at their own request, some were conducted by  
49  
50 videoconferencing. Interviews lasted an average of 55 minutes.  
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Table 2. Interviewees

Interviewee	Pseudonym
<b>Buyer-X</b>	
Procurement manager-A	Hande
Procurement manager-B	Ahmet
Procurement employee	Ali
Supply employee	Sinem
Procurement employee	Berna
Procurement employee	Seda
Supplier development engineer	Haluk
R&D engineer	Mine
Finance employee	Fatma
Finance supervisor	Tunca
Finance specialist	Yasemin
<b>Buyer-Y</b>	
Procurement manager	Mert
Technology manager	Emre
IT manager	Serhat
IT manager	Serhat
Export manager	Cemil
Planning employee	Bilge
Planning employee	Gamze
Planning employee	Berke
Planning employee	Burcu
Warehouse operations specialist	Semih
<b>Buyer-Z</b>	
Technical purchasing manager	Aysu
Brand manager	Buket
Brand manager	Osman
E-commerce manager	Okan
Technical buyer	Dilay
R&D specialist	Batu



Interviewee	Pseudonym
<b>Suppliers</b>	
Supplier-1: Sales manager	Bulut
Supplier-2: Sales manager	Ceren
Supplier-3: Sales manager	Umut
Supplier-4: Chief executive officer	Aras
Supplier-4: Supply chain manager	Esra
Supplier-5: Chief executive officer	Mehmet
Supplier-6: Chief executive officer	Kemal
Supplier-7: Chief executive officer	Erdem
Supplier-8: Chief executive officer	Halil
Supplier-9: Quality Manager	Deniz

Source: Developed by the authors

As no interviewees expressed discomfort, the interviews were audio-recorded, with participant permission. During each interview one researcher led the interview and asked questions, while the other primarily took notes and recorded impressions, which supported the data analysis. After each interview session, we transcribed the interview data and notes, and discussed any possible misinterpretation. We then contacted interviewees through follow-up e-mails and/or phone calls for questions arising from the interview notes.

The second source of data was observations during site visits. On our visits to each firm, we both noted details regarding the processes potentially relevant to the integrated solutions, regarding purchasing, manufacturing, and maintenance processes. After each visit, we reviewed and edited our field notes and checked them for accuracy. Reviewing the interviews and site visits, we compared our complementary insights, and reflected our different perspectives and observations, which enhanced the creative

1  
2  
3 potential of our study, and potentially increased the confidence of our findings  
4  
5 (Eisenhardt 1989).

6  
7  
8 Following the interviews and observations, as sources of secondary data, we  
9  
10 obtained company documents,, including corporate materials, such as annual reports,  
11  
12 and publicly available sources such as websites, statistics on industry context, published  
13  
14 articles, and case studies. Although these were collected for both parties, the buyers  
15  
16 provided more and richer documentation, due to the company size and their position  
17  
18 and experience in the market. The data collected from different sources were organised  
19  
20 and classified for each company.  
21  
22

#### 23 24 25 **4. Analysis and findings** 26

27  
28 Coding, analysis, and interpretation of data are considered as the core of the case study  
29  
30 research in the previous studies (e.g. Garcia-Villarreal et al. 2019), as well as being the  
31  
32 most difficult part of the process (Eisenhardt 1989).  
33

34  
35 Data were coded independently by both researchers through open coding  
36  
37 (Strauss and Corbin 1990). During this phase, using an inductive process, we grouped  
38  
39 phrases, sentences, and paragraphs into codes and categories. We then conducted axial  
40  
41 coding to generate more abstract codes, and to merge or delete codes, allowing us to  
42  
43 associate codes with already established constructs (Strauss and Corbin 1990). Coding  
44  
45 was continued until the researchers reached definite agreement.  
46  
47

48  
49 We repeated iterations between data, literature, and theory until arriving at a  
50  
51 clear match between theory and data, which strengthens our findings' validity and  
52  
53 reliability, closely following previous studies, such as Pagell and Wu (2009) and  
54  
55 Wilhelm et al. (2016). This allowed us to preserve the data's original meaning and  
56  
57 context, while avoiding bias (Yin 2009). We analysed data in two steps: within-case and  
58  
59 cross-case analyses (e.g. Pagell and Wu 2009; Wilhelm et al. 2016).  
60

#### 4.1. *Within-case analysis*

To achieve the goal of combining, compiling, and structuring the entire range of data, and to make sense of the information, the first step of data analysis was within-case analysis, a process of data reduction and data management (Miles and Huberman 1994). Sources of the information provided about the companies in this section are either the primary or secondary sources; the latter are not cited in this section, to maintain the confidentiality of the companies. For this stage of the analysis, all primary and secondary data were used, but a particular focus was given to the buyers, as the focal companies of their supply chain.

The within-case analysis had three main aims. First, we tried to understand the chosen companies' organisational structures, their positions in the market, and their overall awareness on integrated solutions. Second, we identified their programs, policies and relevant practices for managing their operations relevant to integrated solutions provision process. Finally, we searched for any reference to required capabilities for solution provision, as well as any potential challenges. Focusing particularly on the buyers at this stage of analysis, we reflected not only the consumer durables manufacturer-supplier aspect, but also the manufacturer and their downstream members' aspect. The solutions are primarily provided by the supplier but can only be realised in a co-creation activity; therefore, it was particularly important to explore the awareness of solution provision for buyers' customers and/or their downstream partners. After making sense of the above-mentioned areas for the analysis, we then cross-referenced our results with the relevant literature, and then attempted to synthesise the different types of data.

Within-case analysis resulted in identification of the dyads between buyers and suppliers for integrated solutions provision. Figure 2 shows the dyads, and Table 3 provides descriptions of suppliers.

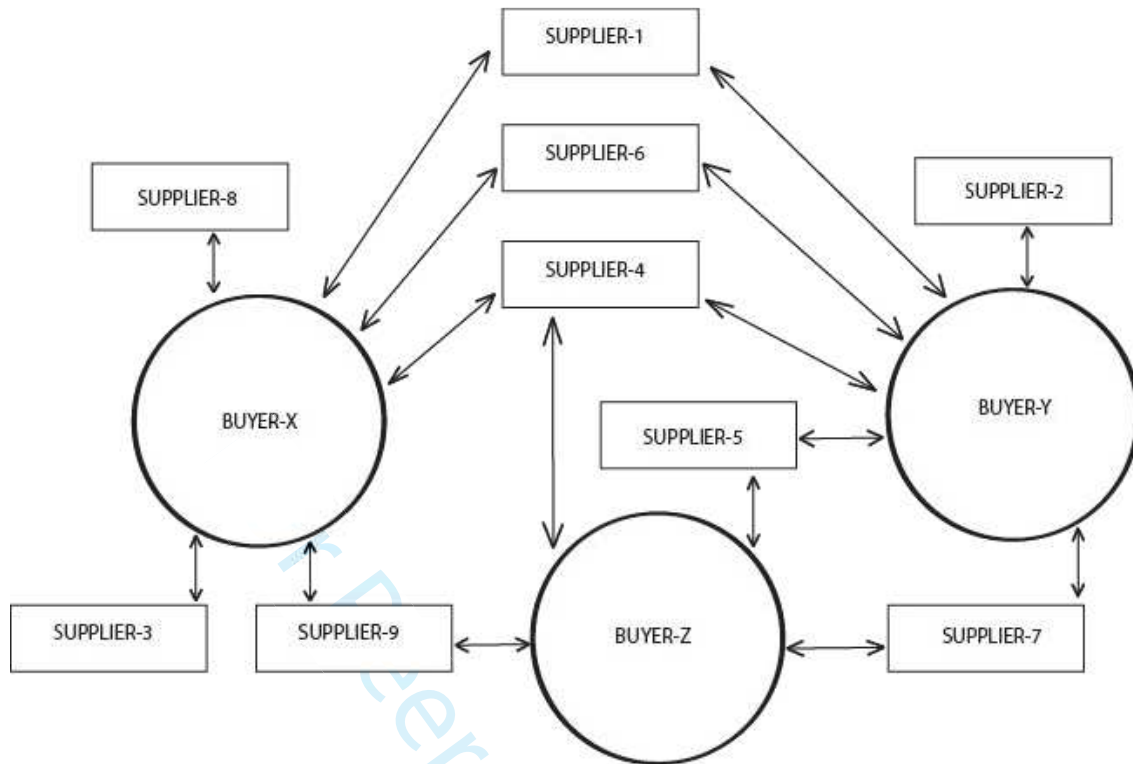


Figure 2. Dyads of buyers and suppliers for integrated solutions provision

Source: Developed by the authors

Table 3. Supplier description

Supplier-1	Plastic injection moulding company located in an industrial zone and has been operating in Turkey for 15 years.
Supplier-2	Machine and spare parts company with 30 years of experience in Turkey.
Supplier-3	Press company with 25 years of experience and producing user manuals for the consumer durables industry.
Supplier-4	Turkey's first and only self-drilling screws producing company, with 20 years of experience. Serves several industries, including consumer durables and automotive. Merged with a global market leader for engineered components in 2008.
Supplier-5	Production and event management company providing buyer companies' launch, publicity meetings, and motivational events.
Supplier-6	European company producing parts for washing machines for the consumer durables industry since 2014, with a production facility in Turkey.
Supplier-7	Turkish software company established in 2012. Provides several solutions, including mobile applications and solutions, and dealer management systems.
Supplier-8	Turkish injection moulding company with 35 years of experience. Main products are control panels, tabletops, and portholes. Also provides painting, printing, and assembly works.
Supplier-9	Turkey-based establishment with 30 years of experience. Provides mould designs, moulds, and laser cuts. Exported to Italy and India since 2009.

Source: Adapted from the internal documents provided by the suppliers

Following Eisenhardt's (1989) recommendations, we started our analysis by writing-up histories and descriptions for each case, as well as reflecting on the managers' awareness and perceptions regarding integrated solutions in each company.

#### 4.1.1. Buyer-X

Buyer-X is a group of 28 companies, 18 of which are operating in countries other than Turkey. The company has been operating in Turkey since 1980's. The company produces innovative and high-quality products for both the local and global markets. This world class company is the market leader for TVs, and is one of the major three major manufacturers for white appliances in Turkey. Also, the company has exports

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2  
3 valued at over \$2 billion (US) annually to 155 countries, and in the European market it  
4  
5 holds second place for TVs and is one of the five most successful white appliance  
6  
7 manufacturers. Thus, Buyer-X, the country's electronics export leader for the last 21  
8  
9 years, is considered as a symbol of national pride.  
10  
11

12 For convenience, most of Buyer-X's suppliers operate locally in Turkey, and the  
13  
14 company has the highest number of dyads among the others in the research. Since  
15  
16 Europe is its primary market, the company aims to sustain their position by responding  
17  
18 to new trends, and adding new products to the existing product portfolio, which requires  
19  
20 working with different suppliers, especially those with good potential for solutions  
21  
22 provision. Thus, it was not surprising that the managers at Buyer-X are well-informed  
23  
24 about integrated solutions. During the interviews, they used phrases like '*solution*  
25  
26 *partner*', '*business partner*', '*integration*', '*remedy*', and '*full-service supplier*', and  
27  
28 stated their expectation for '*innovation provision*' from suppliers during solutions  
29  
30 offerings. They further explained their innovation expectation, referring to '*finding and*  
31  
32 *proposing alternative sources and products*'. In line with these statements, Buyer-X is  
33  
34 the most cost-effective company amongst our sample. Despite requiring a minimum  
35  
36 level of quality, cost is their primary concern in purchasing, which could have an impact  
37  
38 on their perception of the integrated solutions. In this regard, an example quote from the  
39  
40 interviews is illustrative: Ali (Buyer-X) stated that '*...if solutions increase costs, they*  
41  
42 *have no value*'.  
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49 Triangulating interview data and site visit observation data revealed that, to  
50  
51 maintain its superior market position, the company invests heavily in R&D, which  
52  
53 potentially affects its expectation of solutions from its suppliers. They have eight R&D  
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55 centres globally, employing 1600 people, and are among the top three Turkish  
56  
57 companies, and the top 1000 companies investing intensively in R&D worldwide.  
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3 Furthermore, in 2017, with nearly 500 patent applications, Buyer-X is the only Turkish  
4 company in the top 100 companies in terms of number of European Patent Office  
5 applications. During the interviews, the managers mentioned that such achievements  
6 would be impossible without their suppliers' innovative solutions. Buyer-X has separate  
7 factories for electronics and white appliances, and a decentralised organisational  
8 structure, which fosters effective sharing of opinions among the employees. They  
9 argued that without this decentralisation, it would be more difficult to initiate a  
10 successful integrated solution provision process with their suppliers. Buyer-X  
11 confirmed that this open approach to communication is visible to suppliers, allowing  
12 them to be aware of the companies' solution needs. The company highlights that open  
13 communication within and between partners is a required capability, and any  
14 shortcoming in this is considered a challenge.  
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#### 32 4.1.2. Buyer-Y

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34 Buyer-Y is headquartered in a European country (not identified to preserve anonymity),  
35 and it is one of Europe's largest household appliances manufacturers. The company has  
36 a large manufacturing facility in Turkey, operating since 1990's. In 2013, it exported to  
37 29 countries. Recently, the brand has been taken over by an American world leader in  
38 home appliances, and now focuses exclusively on exports.  
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48 The company had 65 manufacturing and technology research centres globally in  
49 2018, employing a total of 92,000 employees. It is a leading Internet of Things (IoT)  
50 company and positions itself by adopting and prioritising 'solutions view' in operations,  
51 as well as continuously investing in innovative solutions. The company emphasizes its  
52 commitment being at the forefront of industrial developments, leading the field with its  
53 consumer-relevant product and service solutions. This stance is reflected in their  
54 upstream relations, by explicit demands for integrated solutions from suppliers. During  
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1  
2  
3 the interviews, they referred to suppliers as a part of their family, using phrases such as  
4  
5 ‘*solution partner*’. Buyer-Y also associated solutions with buying ‘*a package*’, which is  
6  
7 further discussed in the cross-case analysis section.  
8  
9

10 Buyer-Y operates regionally to deliver the best solutions for their consumers,  
11  
12 and they emphasize their innovation efforts, focusing variously on ‘*greater simplicity*  
13  
14 *intelligence*’, ‘*intelligence*’, or ‘*responsive*’. These aspects are revealed by both the  
15  
16 primary and secondary data analysis, and the company considers these as required  
17  
18 capabilities for an effective co-creation process of integrated solutions provision. All  
19  
20 the interviewees were unanimous in this, highlighting their awareness of the regional  
21  
22 variety in consumer needs and preferences, which, in this study, is particularly  
23  
24 important, as it reflects the supply chain in an emerging economy context, from a  
25  
26 dyadic view.  
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#### 30 31 32 4.1.3. Buyer-Z 33

34 Similar to Buyer-Y, Buyer-Z is headquartered in a European country, and is also one of  
35  
36 Europe’s largest household appliances manufacturers. The company comprises  
37  
38 approximately 450 subsidiaries and regional companies in 60 countries. It has been  
39  
40 operating in Turkey since 1910’s. Together with the sales and service partners, its  
41  
42 global manufacturing, engineering, and sales network covers nearly every country. The  
43  
44 company employs around 390,000 associates worldwide, including 17,000 in Turkey,  
45  
46 and it generated annual sales of EUR 73.1 billion in 2016. The company has three R&D  
47  
48 centres in different cities and has an international reputation as a leading supplier of  
49  
50 technology and services. It employs 59,000 associates in R&D globally at 120 locations.  
51  
52  
53

54 Buyer-Z is also a leading IoT company, well-known for its innovation focus. It  
55  
56 offers innovative solutions in various areas, such as smart homes, smart cities,  
57  
58 connected mobility, and has made connections between their operations and technology  
59  
60



1  
2  
3 creation processes. Similar to the other above-mentioned buyers, the impact of such a  
4  
5 solution creation focus is also visible in their relations with their suppliers. When the  
6  
7 participants were asked about solutions, they used keywords such as ‘*collaboration*’,  
8  
9 ‘*collaborator*’, ‘*solution partner*’, ‘*team member*’, ‘*win-win*’ and ‘*headlight*’ (in terms  
10  
11 of ‘*suppliers guide the way*’). The participants also described responsiveness and  
12  
13 flexibility as the key characteristics of solution partners.  
14  
15

16  
17 Stating that they strongly encourage suppliers to produce solutions, managers in  
18  
19 Buyer-Z frequently request suppliers to update technologies, and to share this know-  
20  
21 how with the company, and thus, be able to produce better solutions. To achieve this,  
22  
23 Buyer-Z utilises simultaneous engineering, i.e. they work with suppliers during the  
24  
25 design, which, as they stated, reduces designers’ workload, and creates an opportunity  
26  
27 for sharing expertise.  
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#### 31 32 **4.2. Cross-case analysis**

33  
34 Cross-case analysis helped us replicate and test the constructs in multiple settings (Yin  
35  
36 2003), through identifying similarities and differences in patterns and themes. By  
37  
38 triangulating primary data from the interviews and observation, as well as the secondary  
39  
40 data, we aimed to identify patterns across the three cases. The first pattern found was on  
41  
42 the buyers’ perceptions on solutions. All buyers labelled integrated solutions as  
43  
44 ‘*çözüm*’/ ‘*entegre çözüm*’, which in Turkish mean ‘*solution*’/ ‘*integrated solution*’  
45  
46 (respectively). When asked about meaning of these terms during the interviews, both  
47  
48 buyers and their suppliers used phrases like ‘*product-service bundles*’, supporting  
49  
50 previous definitions (e.g. Davies et al. 2006). Most managers involved in this research  
51  
52 were able to define ‘*integrated solutions*’, as reported in the literature, although they did  
53  
54 not refer to the term itself. Some used the term ‘*solution*’ without being able to explain  
55  
56 it as conceptualised in the literature. All strongly agreed that they demanded and/or  
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1  
2  
3 desired to offer '*integrated solutions*'.  
4

5 Relevant keywords regarding the meaning of '*integrated solutions*', as well as  
6 their perceptions on the solution providers mentioned both by buyers and suppliers,  
7 either during the interviews and/or in the secondary data sources, are given in Table 4.  
8 The table shows the keywords categorized according to the relevant buyers, which are  
9 also confirmed by at least one of their suppliers.  
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Table 4. Keywords used by buyers regarding solutions and providers

Keywords	Buyers			Representative quotes (from interviews)
	Buyer-X	Buyer-Y	Buyer-Z	
(Integrated)solution(s)- directly mentioned	✓	✓	✓	Hande/Buyer-X: <i>'They are solution partners for us. If supplier sees my warehouse as his, this is an important integration, this is a partnership'</i> .
Integration with suppliers	✓			
Product and service bundles	✓	✓	✓	Emre/Buyer-Y: <i>'When we buy a machine, supplier is responsible for installation and operation ... We're buying a package, we are free from problems'</i> .
Buying a package		✓		
A remedy for challenges	✓			Halil/Supplier-8: <i>'If you provide secondary operations (they mean including additional services), you add value to your product'</i> .
Value-added operations	✓			
Headlight			✓	Okan/Buyer-Z: <i>'Our supplier leads the way, and this is really valuable for us. Our relationship is good, and they are our solution partners'</i> .
Innovation	✓			
Flexibility	✓		✓	Aras/Supplier-4: <i>'You are a solution partner to customers, if you are solving problems without expecting anything, you are appreciated'</i> .
Responsiveness			✓	
Solution partner	✓	✓	✓	Umut/Supplier-3: <i>'... been working together since 1996, so we grew together, earned together, and sometimes lost together as partners... so Buyer-X is a special customer for us'</i> .
Business partner	✓	✓		
Special customer/buyer	✓	✓		
Family member		✓		
Full-service supplier	✓			
Strategic (relationship) partner	✓	✓		
Team member	✓	✓	✓	
Collaborator			✓	

Source: Developed by the authors based both primary and secondary data sources.

As given in Table 4, keywords such as *'collaborator'*, and *'solution partner'* highlight both parties' awareness of the importance of the efforts they each invest in their relationships. This supports the need for a shift from a transactional to a relational view, entailing that buyers should consider their suppliers as partners (Neely et al. 2011). Aras/Supplier-4 and Bulut/Supplier-1 respectively stated that *'We are making a technical sale, so we cannot make and offer and leave'*, and *'We are different gears of the same wheel'*, supporting previous research by highlighting the need of a long-term

1  
2  
3 relationship with both upstream and downstream partners in their supply chains  
4  
5 (Johnstone et al. 2009). It should be noted that, although a third of the suppliers'  
6  
7 managers (Suppliers 2, 3, and 8) were not fully aware of the concept, secondary data  
8  
9 sources, particularly websites state that they provide solutions. Also, during the  
10  
11 interviews, they emphasized that they regard their buyers are special customers, which  
12  
13 confirms the converging views of the buyers.  
14  
15

16  
17 As mentioned above sections, most of the suppliers are SMEs. Most of these  
18  
19 businesses are smaller scale, often family businesses with limited financial capacities  
20  
21 and managerial capabilities/experiences. This was identified as a further challenge for  
22  
23 Buyer-X and Buyer-Y, requiring more effort to create awareness regarding integrated  
24  
25 solutions for their suppliers.  
26  
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28  
29 Interestingly, further findings revealed as the tools and techniques used during  
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31 the solutions provision. These were mainly confirmed by the buyers' managers in  
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33 interviews, as well as in observations, and are also supported by the secondary data  
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35 sources. After a further cross-referencing process, the results that arise from the analysis  
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37 are given in Table 5.  
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Table 5. Buyers' tools and techniques used in integrated solutions

Tools and techniques	Companies		
	Buyer-X	Buyer-Y	Buyer-Z
Supplier development programmes	✓	✓	✓
Benchmarking	✓		
Backsourcing	✓		✓
Technology days and/or technical meetings with suppliers	✓	✓	✓
Simultaneous engineering			✓
Kanban system	✓		
Request for Quotation (RFQ) for solutions		✓	

Source: Developed by the authors based both primary and secondary data sources.

Findings of within-case analysis as well as the cross-case analysis presented so far addressed the first research question, revealing perceptions of the integrated solutions concept from a dyadic aspect in an emerging economy setting.

Our second research question addresses improvement integrated solutions provision process in an emerging economy setting, by investigating the stages of solutions process. Based on key findings, we revisited the previous model reflecting on process-centric view (Figure 1), the fundamental foundation of this paper. Our findings revealed patterns across three cases and reveal a distinctive process in this particular setting. Findings regarding this second question arose mainly from the primary data analysis, as presented below.

#### *4.2.1. Findings regarding the stages of the integrated solutions*

##### *Stage 1: Need recognition*

While demanding solutions, it is revealed that all three buyers first anticipate the need.

1  
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3 They particularly agreed that they demand solutions not for every product, but only for  
4  
5 critical products. This is similar to Petri and Jacob's (2016) study, which cited '*Problem*  
6  
7 *and Need Definition*' as the first stage of the solutions process. However, the critical  
8  
9 difference found by this study is that, in emerging economies, the process is triggered  
10  
11 by buyers as they have higher levels of awareness regarding the concept, and this is  
12  
13 confirmed by the within-case analysis.  
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16  
17 Managers of all buyers agreed that the process starts with their own awareness  
18  
19 of a need or a problem, which they convey to their suppliers. They also believed that  
20  
21 they need to make efforts to encourage their suppliers to provide solutions, although  
22  
23 they commonly mentioned that they prefer suppliers to offer solutions without this  
24  
25 stimulation. This is an interesting finding shared by all three buyers, although each  
26  
27 reported variation in the awareness level of their suppliers on integrated solutions. For  
28  
29 instance, suppliers of Buyer-Z have a relatively higher level of awareness than the  
30  
31 suppliers of the other two. Despite the differences and diverse standards in terms of cost  
32  
33 and quality among dyads observed during the site visits and revealed by the interviews,  
34  
35 analyses showed that buyers expect suppliers to be innovative while creating solutions.  
36  
37 Aligned with the previous literature, buyers expect suppliers, as experts with the  
38  
39 knowledge to modify and improve products, to find alternative sources and products  
40  
41 (Beyers 2005). They even considered this as a supplier selection criterion. Therefore,  
42  
43 buyers confirmed that while they are improving their supplier development programs  
44  
45 for those suppliers who lack prerequisite resources (e.g. financial capabilities), their  
46  
47 suppliers should work on innovation and also improve their capabilities. This result  
48  
49 highlights the importance of co-creation of value in solutions creation process (e.g. Petri  
50  
51 and Jacob 2016; Sjödin et al. 2016), with an emphasis on the acknowledgement of  
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53 suppliers' better knowledge of products and/or services.  
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### *Stage 2: Customer requirement definition*

Findings regarding the second stage supported Tuli et al.'s (2007), model as well as Grönroos' (2008) view highlighting the need for better understanding of customers' value creation mechanism for a valuable solution. In this stage, buyers commonly mentioned that they list the requirements regarding the solutions, and then discuss these at a technical meeting with the suppliers. This finding highlights the importance of the alignment of physical products and services while addressing customer needs, to improve value co-creation (Raja et al. 2013). It also underlines the criticality of improving suppliers' understanding of the buyers' perspective, and improved capability in identifying customer needs (Lusch and Vargo 2006).

Our findings also revealed that buyers particularly require cost reduction, quality, and responsiveness during solution provision. Buyers commonly agreed that they expect solutions for cost reduction, without compromise on quality, as indicated in a representative quote of Ali/Buyer-X: '*...if solutions increase costs, they have no value*'. These findings also supported the view that the decision-makers at procurement departments prioritise minimising acquisition costs, rather than maximizing long-term savings, as proposed by Alghisi and Saccani (2015). It should be noted that our finding regarding this stage of the process relates to the third research question on the required capabilities of buyers and suppliers for the integrated solutions. Results from a wider aspect regarding the third research question are also provided in the following section.

### *Stage 3: Customisation and deployment*

In general, our findings regarding this stage are aligned with the generic model, which provides a process-centric view. Both buyers and suppliers agreed that customisation and deployment is an integral and technical part of the solutions process. The results

1  
2  
3 suggested that suppliers need to customise the solution according to requirements,  
4  
5 deploy the solution calibrated to buyers' facility, modify the solution if needed, and  
6  
7 provide the necessary training. Tuli et al. (2007) recommended that suppliers need to  
8  
9 anticipate capabilities of buyers' employees, and provide appropriate training to  
10  
11 improve the utility of solution. Aligned with this view, our findings revealed that both  
12  
13 parties need technical and operational capability to overcome possible planning  
14  
15 challenges.  
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18  
19 Suppliers emphasized that this phase is particularly challenging, but also agreed  
20  
21 that it has a particular importance as it affects customer satisfaction. For instance,  
22  
23 Erdem/Supplier-7 stated during the interviews that '*...it is tiresome, but this is the phase*  
24  
25 *where we make the customer happy*'. Another supplier (Mehmet/Supplier-5) reported  
26  
27 that: '*...we are trying to do more for them. They have an expression; they say, "this is*  
28  
29 *Mehmet's touch"*'.  
30  
31

#### 32 33 34 *Stage 4: Post-deployment support*

35  
36 We believe this final stage needs a particular focus, as it is a critical indication of an on-  
37  
38 going relationship between buyer and supplier, emphasizing the shift towards relational  
39  
40 exchanges. As Tuli et al. (2007) also highlight this stage involves providing routine  
41  
42 maintenance, spare parts, and changing solutions or deploying new solutions when  
43  
44 customer requirements evolve, as part of an ongoing relationship with the customer,  
45  
46 involving feedback, interaction, and evaluation (e.g. visits to the customer). These  
47  
48 aspects are clearly supported by our findings in the emerging economy setting. Also,  
49  
50 aligned with the literature (e.g. Bastl et al. 2012) our findings reflected that both parties  
51  
52 agreed that solutions require a long-lasting relationship, characterised by a number of  
53  
54 behavioural aspects of effective supply chain management, such as interdependence,  
55  
56 commitment, and trust. As a representative quote from the interviews, Hande/Buyer-X,  
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3 explained interdependence as follows: *‘Such a relationship creates dependency. If a*  
4 *supplier has a financial problem without your knowledge, this means he has the flu, but*  
5 *you have tuberculosis. This means you need to act together to solve each problem’.*  
6  
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#### 10 11 4.2.2. Findings regarding the required capabilities

12 Our findings addressing the third research question are summarised in Table 6. We  
13 revealed the capabilities required for each stage of the integrated solutions. As  
14 evidenced by our analysis and presented above, an adapted version of Tuli et al.’s  
15 (2007) proposed model is required for an emerging economy context. However, our  
16 findings revealed that it is possible to categorise the buyers and suppliers’ required  
17 capabilities for undertaking the challenges of integrated solutions provision for each  
18 stage of the model. Table 6 presents representative quotes from the interviews, but these  
19 inferences are also supported by the analyses of the other data sources.. In general,  
20 requirements and capabilities given in the table were agreed by the buyer and supplier  
21 groups of all companies. Thus, the second column of the table indicates whether it is a  
22 requirement of buyers or suppliers. By cross-referencing with the literature, relevant  
23 capabilities can be categorised.  
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Table 6. Capabilities required for each stage of adapted new version of the model

Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 1: Need recognition</b>			
Buyers	<p>Sinem/Buyer-X: '<i>...these suppliers need to have a good financial structure to provide solutions</i>'.</p> <p>Ali/Buyer-X: '<i>...quality is a must. Moreover, there is pressure about the cost of products; therefore, to differentiate themselves, suppliers' ability to design is important. How can they change the design? ... they need to make some innovations to be different from others</i>'.</p>	<ul style="list-style-type: none"> <li>-Making investments</li> <li>-Financial structure improvements</li> <li>-Creativity and innovation</li> <li>-Alternative sources and products</li> </ul>	<ul style="list-style-type: none"> <li>-Financial capability</li> <li>-Innovation capability</li> <li>-Managerial capability</li> </ul>
<b>Model Stage 2: Customer requirement definition</b>			
Buyers	<p>Dilay/Buyer-Z: '<i>We have simultaneous engineering; the supplier is working with us in the design process. This decreases the workload of designers, and we also benefit from the supplier's know-how</i>'.</p> <p>Emre/Buyer-Y: '<i>These suppliers know our machinery and moulds better than us.... I mean we cannot make these deals with any supplier</i>'.</p> <p>Sinem/Buyer-X: '<i>...supplier needs to be sure about the product quality. Besides, inventory management... Moreover, the prices change constantly, so management of inventory is significant</i>'.</p>	<ul style="list-style-type: none"> <li>-Improved know-how</li> <li>-Improved quality</li> <li>-Cost reductions</li> <li>-Responsiveness</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>
Suppliers	<p>Aras/Supplier-4: '<i>If they have better forecasts, we specify our inventory level more accurately, and can answer customer requirements quickly</i>'.</p> <p>Bulut/Supplier-1: '<i>Their plans should be better, so I can see its reflection in my company</i>'.</p>	<ul style="list-style-type: none"> <li>-Planning improvements</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>

Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 3: Customisation and deployment</b>			
Buyers	<p>Tunca/Buyer-X: <i>'Sometimes a supplier may be good about producing what you need. But their capacity is not enough, creating a problem'</i>.</p> <p>Emre/Buyer-Y: <i>'We are talking about complex products. If a supplier is inexperienced, they could have no idea about what to offer...'</i></p>	<p>-Capacity expansions</p> <p>-Technical improvements</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>
Suppliers	<p>Aras/Supplier-4: <i>'The employees in R&amp;D are generally new graduates and are not good at mechanical details...'</i></p> <p>Bulut/Supplier-1: <i>'To develop an enduring relationship, we make investments in machinery. I am not making just the injection... I also set up a grouping area, so I am enhancing my line of work'</i>.</p>	<p>-More experienced workers</p> <p>-Capacity expansions</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>

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Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 4: Post-deployment support and/or whole integrated solutions process (stage 4 + whole process)</b>			
Buyers	<p>Sinem/Buyer-X: <i>'One of the biggest concerns is the sustainability of professionalism since the suppliers are family businesses...'</i></p> <p>Serhat/Buyer-Y: <i>'This supplier is not professional. But it is a local and an old supplier who provided us with a software. Since they have the know-how, we are still working with them'.</i></p> <p>Dilay/Buyer-Z: <i>'They are not coordinated inside the company. The sales department have no information regarding R&amp;D, or vice-versa... They are open to problems, and even a small problem will influence us. It is like a domino effect'.</i></p> <p>Haluk/Buyer-X: <i>'The departments are disconnected. We are producing white appliances, and there are five factories here. For instance, there is a supplier who works for two factories. I also want to meet up with the other managers to discuss our problems about the supplier in order to continue to work with them'.</i></p>	<p>-Improved sustainability of workforce</p> <p>-Improved communication</p> <p>-Professional behaviours</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>
Suppliers	<p>Mehmet/Supplier-5: <i>'It all depends on good communication. Everyone should respect each other. It seems emotional, but a successful relationship formation between parties depends on this, I mean on healthy communication, building trust, and cherishing each other'.</i></p> <p>Esra/Supplier-4: <i>'The better the communication between companies the higher the satisfaction with the result is. Sometimes, we have problems, we solve these problems with better communication. In that sense, communication creates value and continuous relations'.</i></p>	<p>-Improved communication</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>

Source: Developed by the authors based primary data and relevant literature.

The findings suggest that, during the whole process, managerial capability is the key capability to develop. Buyers agreed that miscommunication is a problem, for instance, with global suppliers due to language difficulties. However, findings also

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3 reflected that communication problems are not only experienced between buyers and  
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5 suppliers, but also between different departments within single organisations. Potential  
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7 reasons suggested for this included incompatible organisational cultures and different  
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9 organisational structures.  
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12 It should also be noted that the technical (e.g. Neely et al. 2011) and operational  
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14 capability (e.g. Davies et al 2006), was found to be a capability required for all except  
15  
16 the first stage. For the first stage, the foremost requirements identified were need  
17  
18 recognition, financial capability (e.g. Davies et al 2006), and innovation capability.  
19  
20

21  
22 Our findings also reveal that both parties need to acknowledge changing  
23  
24 requirements and act accordingly. For instance, both buyers and suppliers agreed on the  
25  
26 need to improve their existing capabilities, as well as to acquiring others when needed.  
27  
28 Therefore, the last stage of the former model should be revised because refereeing, and  
29  
30 highlighting the solution provision process are never-ending. As the requirements of  
31  
32 buyers evolve regarding the solution requested, suppliers need to alter and improve the  
33  
34 solutions offered. Thus, this process is not actually a linear step-by-step approach, but  
35  
36 rather, a continuous cycle. Thus, as one of the main contributions of this study, we  
37  
38 propose a new framework for an integrated solution process in an emerging economy  
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40 setting, as shown in Figure 3. This figure reflects a synthesis of all findings so far and  
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42 addresses our research questions.  
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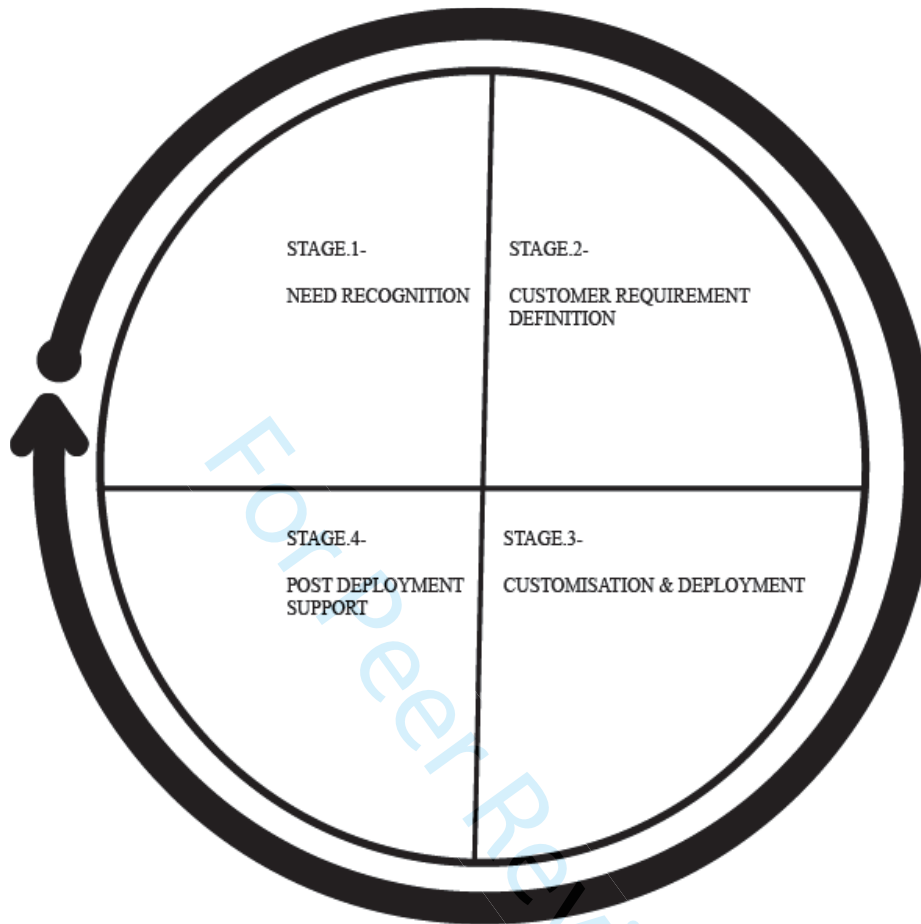


Figure 3. A new framework for the integrated solutions process

Source: Developed by the authors

#### 4.2.3. Findings regarding the main sources of the challenges

Furthermore, additional findings emerging from the analysis, mainly from the primary data sources, revealed three main sources of challenges critical for integrated solution provision: *organisational structure-decentralisation, power imbalance, and spill-over effect*. Due to the exploratory nature of this study, we believe these findings should be looked at in depth. In general, managers of all companies agreed that the organisational structure of their own firms and other parties play an important role in integrated solutions provision. Several challenges were cited in relation to misaligned

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3 organisational structures, such as increased inventory holding costs, slow operations,  
4  
5 low quality end products, and competitive disadvantage. The suppliers emphasized  
6  
7 power imbalance between parties and confirmed by the buyers. Suppliers associated this  
8  
9 challenge with buyers' usage of coercive power. Lastly, the spill-over effect within  
10  
11 supply chain, mentioned by both parties, emphasizes that if there is a problem in the  
12  
13 internal processes of the supplier, this may have a direct effect on the buyers' processes,  
14  
15 and the integrated solutions accordingly.  
16  
17

18  
19 *Organisational structure-decentralisation:*  
20

21  
22 Buyer-Y and Buyer-Z, headquartered abroad, have more highly centralised  
23  
24 procurement structures, making changing suppliers troublesome, and create additional  
25  
26 costs for buyers, such as increased inventory holding costs, or poor quality. For  
27  
28 instance, Buyer-Y has no incoming quality control, meaning they cannot detect low  
29  
30 quality material before it goes to production. However, Buyer-X has a more  
31  
32 decentralised structure, with its headquarters in Turkey, which gives them greater  
33  
34 flexibility in the production process. For example, in terms of their organisational  
35  
36 structure, they can use their initiative, and consider opinions of all related departments  
37  
38 during the whole procurement process. Such a structure helps buyers to speed up the  
39  
40 approval processes needed for solution development. From the suppliers' perspective,  
41  
42 this finding is also supported by their agreement that buyers' decentralised  
43  
44 organisational structure expedites the solution process. They even mentioned that  
45  
46 centralised organisational creates competitive disadvantage for buyer companies in  
47  
48 relation to local competitors, by increasing the length of the process. Further  
49  
50 investigation of the difference between national and international suppliers  
51  
52 demonstrates differences in approaches to work operating in emerging and developed  
53  
54 markets.. Representative quotes regarding these from the interviews are given below:  
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3 Dilay/Buyer-Z: 'Our suppliers in Turkey know each other very well, and are  
4 informing each other, resulting in no information security regarding technical  
5 details. This is wrong. I guess this is related with country's culture, and especially  
6 with organisational culture'.  
7

8  
9 Haluk/Buyer-X: (regarding a problem with a supplier in a developed country in  
10 Europe) 'Their attitude is really different. For a minor mistake, the quality manager  
11 of the supplier came from Italy. For a similar mistake, a Turkish supplier did not  
12 even respond. I forced them to give an explanation. But these guys are different, I  
13 guess this is due to their corporate structure, and having high quality standards'.  
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20  
21 *Power imbalance:*  
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23 The concept of power is central in purchasing and supply chain literature, since  
24 it allows one partner to influence/alter intentions and/or actions of another (Emerson,  
25 1962; French and Raven, 1959). As a result of this influence, a partner may reach better  
26 contract terms, transfer of responsibilities, or increased information sharing, etc.  
27  
28 (Meehan and Wright 2011). Although research on power relationships is common in the  
29 purchasing and supply chain literature, power issues are only seldom discussed in  
30 integrated solutions literature within a developed economy context (e.g. Finne et al  
31 2015; Lacoste and Johnsen 2015).  
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41 Findings reflected a power imbalance between parties because of the structure  
42 of case companies. Suppliers are mostly family businesses, and buyer companies are  
43 much more powerful corporations. Suppliers agreed that the power imbalance force  
44 them to respond when faced with a customer requirement regarding solutions. For  
45 example, in the interviews, Sinem/Buyer-X emphasized this dependence, stating '... *if*  
46 *they want to continue working with us, they need to do what we ask for*', which  
47 emphasizes coercive power. This also confirms the literature stating that the  
48 downstream partners in supply chain have reward and coercive power over their  
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3 upstream partners, through their control over whether to increase or reduce orders  
4  
5 (Finne et al 2015).  
6

7  
8 Buyers agreed on using coercive power, too. A representative quote from a  
9  
10 Buyer-X is as follows:  
11

12  
13 Haluk/Buyer-X: 'One of our suppliers had quality problems. Occasionally, the  
14 product came late which resulted in decreased number of our outputs. We told  
15 them 'if you cannot solve this problem, we will start to work with another  
16 supplier'. This was a huge problem for them, since they have been working with us  
17 for so many years. So, they solved the problems. This is a sort of an enforcement  
18 that we do.'  
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23  
24 The statement above supports the view that buyers, particularly, Buyer-X, use  
25 coercive power to achieve their goals. Suppliers believe that they will survive by  
26 making agreements with the buyers, and they act accordingly. Also, suppliers  
27 understand that they need to adapt themselves to the changing conditions, requirements,  
28 and even the behaviours of the buyers. Relevant quotes are as follows:  
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35  
36 Mehmet/Supplier-5: 'Most of the purchasing managers are snobs. We know how  
37 to deal with this, but this kind of behaviour turns a positive situation upside down.'  
38  
39 Halil/Supplier-8: 'If we want to continue working with them, we need to do what  
40 are we asked for.'  
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45 Moreover, due to the imbalance, suppliers agree to do what buyers require  
46 because they depend on buyer company testimonials on their websites. This emphasizes  
47 the use of referent power within the relationship. Referent power may be connected to  
48 company's reputation (Maloni and Benton, 2000) and referencing these reputable  
49 buyers on websites may attract new customers and increase suppliers' sales.  
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3 These findings further imply that, in an emerging economy, the awareness of  
4 suppliers' regarding integrated solutions is dependent on the awareness of buyers  
5 especially in the presence of a power imbalance between the two.  
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12 *Spill-over effect:*  
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14 Finally, a potential factor affecting the integrated solution process was noted by  
15 the participant buyers in the form of a spill-over effect, indicating that an action of a  
16 member in a supply chain may affect another (Allen et al. 2015). The findings  
17 highlighted that a problem in the internal processes of these suppliers, or even in their  
18 own suppliers, has a direct impact on the buyers' processes, and the integrated solutions  
19 accordingly. For example, late deliveries from a supplier's supplier has a negative  
20 impact on the solution provision process at the buyers' site. A representative quote is as  
21 follows:  
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34 Ceren/Supplier-2: "If I have a problem within my purchasing or quality inspection  
35 processes, it will have an impact on my customers' processes, too. If I miss a  
36 quality check, their final product will be defective. That is why they are also  
37 interested with our processes and quality levels"  
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42 **5. Discussion and conclusions**  
43

44 Our analysis results highlighted several practices which would lead to a more effective  
45 integrated solutions process within an emerging economy setting. First, the results  
46 presented the perspectives of buyers and suppliers on solutions with a dyadic view. The  
47 selected setting is characterised by high prevalence of SMEs and family businesses, an  
48 important feature in the growth and internationalisation of emerging economies (Alpay  
49 et al. 2008). However, traditional family businesses in Turkey tend to follow their  
50 founder's values (Koçel 2006). Generally, business culture in Turkey is characterised by  
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3 patriarchal relationships, high in-group collectivism, high uncertainty avoidance,  
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6 centralised decision-making, and high-power distance (Hofstede 1984; Kabasakal and  
7  
8 Bodur 2002, 2007). Due to these effects and dynamics, suppliers tend to provide the  
9  
10 solutions demanded by buyers to retain their customers and market share, and the  
11  
12 benefits obtained by the referent power of buyers, and these strengthen the requirement  
13  
14 of a dyadic view on integrated solutions in such markets. Considering these factors, and  
15  
16 maintaining alignment with the previous literature and findings presented above, we  
17  
18 propose a new definition for integrated solutions from a dyadic perspective in supply  
19  
20 chains in an emerging economy setting:  
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24  
25 A cyclical process of developing a relational exchange within and between buyers  
26  
27 and suppliers through co-creation of product-service bundles, with the core aim of  
28  
29 solving a specific problem and/or a need while adding value for both parties.  
30

31  
32 As also mentioned in the analysis, by building on the stages of Tuli et al.'s  
33  
34 (2007) model, this study proposed a new cyclical framework for integrated solutions  
35  
36 process in an emerging economy (Figure 3). Although the integrated solutions is  
37  
38 referred as a longitudinal relational process (e.g. Tuli et al. 2007; Storbacka et al. 2011),  
39  
40 the literature has not addressed how existing capabilities of both parties affect, develop  
41  
42 and even transform the integrated solutions provision. Also, the literature indicated that  
43  
44 the integrated solution process may be complex and extremely challenging for both  
45  
46 buyers and suppliers, and thus, development of integration solutions should be  
47  
48 considered as holistic, repetitive, and iterative (Brax 2005; Brax and Jonsson 2009).  
49  
50 Our findings showed that the integration solutions process in the supply chain context is  
51  
52 a continuous cycle rather than a linear step-by-step process, which is an important  
53  
54 contribution of our proposed framework to existing literature (e.g. Kowalkowski 2010;  
55  
56 Rajala et al. 2019; Tuli et al. 2007). We propose a new view, which points out an  
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3 ongoing need for both parties to improve existing capabilities and acquiring new ones in  
4  
5 order to react changing requirements of the integrated solutions provision process. Our  
6  
7 framework points out that the last stage of Tuli et al's (2007) model should be revised,  
8  
9 particularly for refereeing, and also highlighting the never-ending nature of the solution  
10  
11 provision process. This framework is particularly important in an emerging economy  
12  
13 setting which are volatile and therefore dynamic by nature (Kohers et al. 2006), and  
14  
15 have a lower level of institutional infrastructure and factor market developments  
16  
17 (Hoskisson et al. 2013).  
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22 In volatile markets, as showed by our results, buyers' requirements evolve in  
23  
24 terms of the solution requested. In such dynamic economies, suppliers should make  
25  
26 special efforts to alter and improve the solutions offered. Our study revealed that while  
27  
28 both buyers and suppliers are developing their capabilities for ongoing integrated  
29  
30 solutions process, they also need to adapt themselves to ever changing and evolving  
31  
32 market conditions. This result clearly supports both RBV (Barney 1991; Wernerfelt  
33  
34 1984) and DCV (Teece et al. 1997), the approaches adopted in this study. Thus, our first  
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36 proposition is as follows:  
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- 41 • Proposition 1: Integrated solutions provision is an ongoing cyclical process.  
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44 The most critical part of the framework is the process stages, demonstrating  
45  
46 modifications of the original process-centric model of Tuli et al. (2007), which is one of  
47  
48 the main contributions of this paper. The findings also highlighted that the capabilities  
49  
50 required for each stage might differ and requiring alternative tools and techniques for  
51  
52 meeting the challenges. In addition, the findings showed that it is possible to categorise  
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54 the required capabilities of buyers and suppliers for undertaking the challenges of  
55  
56 integrated solutions provision for each stage of the model.  
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3 The main capabilities required for the integrated solutions process are found to  
4  
5 be “managerial, financial, innovation, technical and operational”<sup>2</sup>. Managerial  
6  
7 capability is required for all stages of the process, while the technical, and operational  
8  
9 capabilities are necessary in the customer requirement definition, customisation &  
10  
11 deployment, and post-deployment stages. For Stage-1, in addition to managerial  
12  
13 capabilities, it is revealed that financial and innovation capabilities are required. The  
14  
15 static presence of these capabilities helps suppliers to achieve VRIN characteristics  
16  
17 described in RBV, and if suppliers improve these capabilities by changing requirements  
18  
19 demanded by buyers, this may result in sustainable competitive advantage. From the  
20  
21 buyers’ perspective, such a solution may aid their own competitive position in the  
22  
23 market.  
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28 Additionally, a number of tools and techniques appear as critical at each stage.  
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30 Our findings highlighted that supporting tools and techniques need are as follows: in  
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32 stage 1, “supplier development programmes”, and “Kraljic Matrix”; in stage 2,  
33  
34 “technical/cross-functional meetings”, and “ESI”; in stage 3, “compatible tools and  
35  
36 technologies”, and “quality improvement programmes”; and in stage 4, “routine checks  
37  
38 and maintenance”, and “alteration of solutions”<sup>3</sup>.  
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42 Some of the findings providing the basis for outcome have particular  
43  
44 importance. In general, it should be highlighted again that our findings revealed  
45  
46 suppliers’ limited awareness on integrated solutions, despite full involvement in the  
47  
48 solutions creation process, and thus, the integration solutions process should start with  
49  
50 the recognition of the needs of the buyer. Therefore, in our framework, Stage 1  
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56 <sup>2,3</sup> These required capabilities, and tools & techniques are also given in “Figure 4. Final conceptual model  
57  
58 for a cyclical integrated solutions process”, which is presented at the end of the Discussion and  
59  
60 conclusions section.

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2  
3 (recognition of buyers' need), is added to the original model. Aligned with our results,  
4  
5 the literature highlights that the suppliers become involved in the customers' processes  
6  
7 during the integrated solutions provision (Bardy et al. 2005; Windahl and Lakemond  
8  
9 2010). Also, our findings support research (e.g. Brax and Jonsson 2009; Davies 2004)  
10  
11 proposing that the integration solution is a customer-centric process necessitating a  
12  
13 collaborative and holistic approach by both parties.  
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16  
17 It is possible that our findings regarding the suppliers' limited awareness on  
18  
19 integrated solutions might be related with the buyer-supplier power imbalance, in the  
20  
21 context of our study. As mentioned in the methodology section, while buyers are  
22  
23 MNEs, most suppliers in the study are SMEs. Due to their smaller scale, and as most are  
24  
25 family businesses, their financial capacities and managerial capabilities/experiences are  
26  
27 more limited than MNEs.  
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31 The literature on integrated solutions presents very limited evidence on the need  
32  
33 for innovation capability (e.g. Brady et al 2005), but our findings regarding Stage 1  
34  
35 revealed buyers' requirement for creativity/innovation from their solution partners.  
36  
37 Buyers normally expect suppliers to find alternative sources and products, knowing that,  
38  
39 as experts with superior knowledge (Beyers, 2005), they understand how to modify and  
40  
41 improve the company's products. This also shows that buyers expect expert power from  
42  
43 suppliers, based on their understanding of customer needs (Finne et al 2015).  
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46  
47 Interestingly, contrary to prior literature (e.g. Petri and Jacob 2016), our results  
48  
49 revealed buyers' self-awareness of their problems, thus they do not demand solutions  
50  
51 for every product, but only for the critical ones. Our findings support the previous  
52  
53 literature indicating that the buyers should be able to perceive, determine and appreciate  
54  
55 the value of each solution provided (Windahl and Lakemond 2010). Thus, determining  
56  
57 the products and/or particular business problems that buyers primarily need solutions  
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3 for is critical for both the buyers and suppliers, especially at Stage 1. To better prioritise  
4  
5 their needs for solutions, buyers could use either an existing tool such as the Kraljic  
6  
7 Matrix (Kraljic 1983), or an alternative model developed specifically for this purpose  
8  
9 Kraljic Matrix is given as an example, as it is a tool which essentially identifies the  
10  
11 supply risk and the profit impact as well as supporting buyers' decisions on building  
12  
13 relationships with their suppliers by categorising the purchased products and services as  
14  
15 strategic, routine, bottleneck, or leverage. Buyers could list their specific business  
16  
17 problems and categorise them based on their criticality and potential added value for  
18  
19 their business, then decide on which of them should be supported by their suppliers  
20  
21 through solutions offerings. Within an emerging volatile market, there is constant  
22  
23 change of requirements for solutions, and where products are considered as critical  
24  
25 and/or bottleneck, it is crucial to maintain a long-term availability, which in turn  
26  
27 requires a good cyclic relationship with these suppliers. Therefore, such a tool would  
28  
29 enhance integrated solutions provision, especially in an emerging economy setting,  
30  
31 since prioritizing the products that require solutions avoids the unnecessary costs and  
32  
33 facilitates transforming integrated solutions into modular solutions, as proposed by  
34  
35 Rajala et al. (2019).  
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42 Stage 2, customer requirement definition, is associated with co-creation of value  
43  
44 and supports the former model. However, as Tuli et al. (2007) point out this stage is  
45  
46 complex for three reasons: (1) customers may not be fully aware of their business  
47  
48 needs, and thus cannot completely express them to suppliers; (2) requirement definition  
49  
50 involves not only asking for functional specifications of products, but also  
51  
52 understanding customers' broader business needs; (3) requirement definition includes  
53  
54 defining customers' current and future needs, as these may evolve over time. For these  
55  
56 reasons, and in line with the previous work on the need to improve existing capabilities  
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3 (e.g. Storbacka et al. 2011), both parties demand better communication skills from each  
4  
5 other, which helps to solve problems and sustain a long-term relationship. Moreover, to  
6  
7 better express their business needs, and for mutual understanding during meetings, both  
8  
9 parties need to establish and/or improve their operational and technical capabilities, as  
10  
11 suggested by Tokatli et al. (2008), especially in an emerging economy setting. This  
12  
13 further supports the ever-changing nature of capabilities emphasized by DCV.  
14  
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16  
17 Furthermore, as proposed in the literature (e.g. Brax and Jonsson 2009; Petri and  
18  
19 Jacob 2016; Sjödin et al. 2016), co-creation during the design stage becomes more  
20  
21 important while developing or redesigning products. In Stage 2, the use of early  
22  
23 supplier involvement (ESI) (Zsidisin and Smith 2005) and cross-functional teams  
24  
25 require the mobility of employees between various functions, within both buyers and  
26  
27 suppliers. This mobility can provide an effective mechanism to increase ESI, thus  
28  
29 increasing organisational learning, and developing/improving new technical or  
30  
31 operational capabilities (Brady et al. 2005; Ceci and Prencipe 2008) and supporting  
32  
33 DCV. Moreover, the solutions created due to these new or improved buyer and supplier  
34  
35 capabilities may lead to a sustainable competitive advantage through causal ambiguity,  
36  
37 developed through collaborative aspects of inter-firm relationships and supply chain  
38  
39 linkages, supporting RBT.  
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45 The results particularly regarding Stage 3, customisation and deployment, also  
46  
47 suggested that, operating in an emerging economy setting, buyers' procurement  
48  
49 managers take a strongly cost-oriented approach. To make their final products more  
50  
51 affordable for price-sensitive consumers, buyers select suppliers able to deliver  
52  
53 affordable high-quality solutions. Moreover, when suppliers develop the capability to  
54  
55 deliver high quality affordable solutions combined with other capabilities (e.g. technical  
56  
57 capabilities), they are more likely to develop an enduring relationship, resulting in  
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3 higher demand from buyers. Thus, buyers' requirements are strong incentives for  
4  
5 suppliers to develop new technical capabilities. Moreover, as they enhance their  
6  
7 production, it is possible for suppliers to find new customers, and enhance their market  
8  
9 share, and the solutions process is generally seen as a win-win situation. As buyers are  
10  
11 offered low cost, high quality purchase solutions, suppliers become more competent,  
12  
13 and increase prices, while orders stabilize over time (Tokatli et al. 2008).  
14  
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16  
17 In general, the findings revealed that the will to improve capabilities is  
18  
19 especially important at all stages for both parties, since buyers' and end customers'  
20  
21 requirements/needs also evolve over time, and thus change relatively quickly. This  
22  
23 supports DCV, which recommends to '*integrate, build, and reconfigure internal and*  
24  
25 *external competencies to address rapidly changing environments*' (Teece et al. 1997,  
26  
27 516). This alteration and/or improvement of capabilities is especially critical in  
28  
29 emerging economies, such as Turkey, in which the market is subject to fluctuations and  
30  
31 volatility. Moreover, the need to improve and/or alter capabilities may become a new  
32  
33 capability for these organisations, as it fosters responsiveness to market fluctuations.  
34  
35 Therefore, the ability to change capabilities as required may become a highly valuable  
36  
37 resource, especially for suppliers operating in emerging economies, and this may lead to  
38  
39 long-term competitive advantage, supporting both RBV and DCV.  
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44  
45 The findings indicated that Stage 3 is seen as more challenging for suppliers, but  
46  
47 it is particularly important from the customer satisfaction perspective. As the literature  
48  
49 suggests, suppliers providing a customised product increase customer satisfaction and  
50  
51 create a competitive advantage, as the process fosters differentiation through  
52  
53 confidential knowledge regarding customer companies and industries (Sawhney, 2006).  
54  
55 Therefore, although unique historical conditions may traditionally mean '*being at the*  
56  
57 *right place at the right time*' (Cousins et al. 2008, 36), suppliers in fact obtain particular  
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3 advantages in producing customised solutions by bundling confidential knowledge  
4  
5 regarding buyer companies and developing specific capabilities for their needs.  
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8 Our main finding regarding Stage 4, post-deployment support, is that it requires  
9  
10 an on-going relationship, and as the requirements may change, both parties may need to  
11  
12 improve their capabilities. This on-going relationship creates an immobile resource  
13  
14 which may become non-tradable for both parties. This relationship becomes impossible  
15  
16 to imitate as it firm-specific and socially complex for each buyer-supplier dyad, and as  
17  
18 it is a product of diverse organisational skills and corporate learning (Peteraf 1993).  
19  
20 Therefore, such a relationship may create sustainable competitive advantage, supporting  
21  
22 RBV.  
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25  
26 The findings suggested that the key capability to develop during the whole  
27  
28 process is managerial capability, and a critical barrier, miscommunication, was  
29  
30 identified. Potential reasons for this were revealed, such as language difficulties with  
31  
32 global suppliers as well as the different understanding and awareness levels of  
33  
34 '*integrated solutions*', supporting the findings of Baines (2009). Communication  
35  
36 problems were not only experienced between buyers and suppliers, but also between  
37  
38 departments in supplier and buyer companies. This is also aligned with the literature,  
39  
40 suggesting that it is critical to create effective communication both within the single  
41  
42 organisations, and between the organisations and their supply chain partners, especially  
43  
44 in terms of product-service bundling offerings (Alghisi and Saccani 2015; Kinnunen  
45  
46 and Turunen 2012). Our results provide a link between communication problems and  
47  
48 incompatible organisational cultures due to differences in organisational structures,  
49  
50 supporting the view of Baines (2009) on the importance of a clear understanding of  
51  
52 solutions and offerings.  
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3 Our further results provide three main sources of challenges during integrated  
4 solutions provision, namely, “organisational structure-decentralisation”, “power  
5 imbalance”, and “spill-over effect”. Regarding the organisational structure, the findings  
6 suggest a possible positive or negative impact on the process. For instance, a buyer’s  
7 decentralised organisational structure facilitates a smoother, faster, and shorter process,  
8 supporting the previous literature highlighting the role of decentralised decision-making  
9 on product-service bundling (e.g. Lexutt 2020). Thus, our second proposition is as  
10 follows:  
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- 22 • Proposition 2: If buyer organisation has a decentralised organisational structure,  
23 the duration of solution process is shorter.  
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28 It should also be noted that this finding is particularly important in the emerging  
29 economy setting, which supports previous literature on contingency approach, which  
30 assumes a link between organisational structure and performance (Miles and Snow  
31 1978; Venkatraman 1989). Supply chains are active systems requiring continuous  
32 adaptation to their environment to enhance their capabilities and allow responses to  
33 business opportunities as an integrated network (Romero and Molina 2011). Thus,  
34 businesses facing diverse environment types should demonstrate local presence and find  
35 ways to develop new organising principles, beliefs, or structures appropriate to the  
36 relevant business practices, (Töytari et al. 2018), and to cope with contextual diversity  
37 (e.g. the geographical location of the market and type of buyer etc.) (Ceci and Prencipe  
38 2008), which are particularly critical in the emerging economy setting. Moreover,  
39 within solution process, organisations need to consider technical, organisational, and  
40 socio-cultural aspects in such markets, and accordingly, to re-create or re-organise their  
41 offerings, resources, and capabilities, supporting the DCV (Morelli 2003).  
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3 The findings also indicated the existence of a power imbalance, since buyer  
4 companies are corporate, and more powerful than suppliers, which are often family  
5 businesses. Previous literature suggests that the companies' position in their supply  
6 chain may also affect development of solutions (Windahl and Lakemond 2006). In such  
7 supply chains, power is not fixed, and partners' relationships are flexible (Rothenberg-  
8 Aalami 2004). It is revealed in our analysis that power imbalance forces suppliers to  
9 respond to buyers' coercive power in response to their requirements (Raven 1958). This  
10 finding further emphasizes that suppliers' awareness regarding integrated solutions is  
11 dependent on the buyers' awareness in an emerging economy, especially in the presence  
12 of a power imbalance. Therefore, in the case of a power imbalance, it is essential for  
13 buyers to increase the awareness of the concept and trigger the initiation of a solution  
14 process.

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31 However, buyers' requirements may be costly, leading suppliers to engage in  
32 opportunistic behaviours, following their self-interest through using guile (Arrow 1971).  
33 This increases costs and reduces the possibility to develop a competitive advantage  
34 (Wright and Mukherji 1999). Therefore, the presence of power imbalances (e.g.  
35 coercive or referent power) may lead to opportunistic behaviour by suppliers in order to  
36 retain the business from buyers. This act of following self-interest may have a negative  
37 effect on the relationship between parties, as well as on the solutions process. Thus, we  
38 posit the following:

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50 • Proposition 3: The existence of power imbalance between buyers and suppliers  
51 negatively affects the integrated solutions process.
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55 • Proposition 4: In case of a power imbalance between buyers and suppliers,  
56 suppliers are likely to demonstrate opportunistic behaviour during solutions  
57 process.
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3 Finally, a spill-over effect was identified, indicating that an action of one  
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5 member in a supply chain may affect another (Allen et al. 2015), a factor potentially  
6  
7 affecting the whole integrated solution process. The literature suggests that this effect  
8  
9 exists across the entire supply chain, both downstream and upstream (Rothenberg-  
10  
11 Aalami 2004). It is also pointed out that even a second-tier's supply uncertainty can  
12  
13 negatively influence first-tier's product availability and performance (Kull and Closs  
14  
15 2008), and, accordingly, other downstream partners. The previous literature  
16  
17 recommends developing additional capabilities for first-tier suppliers (Wilhelm et al.  
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19 2016). Our findings also revealed that buyers should also support second-tier suppliers  
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21 for their first-tier suppliers, in line with the previous literature (e.g. Windahl and  
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23 Lakemond 2006). In an emerging economy setting, this could mean that a second-tier  
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25 supplier would need prompting from first-tier supplier to start offering integrated  
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27 solutions.  
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33 Thus, each party should demand solutions from upstream partners to foster the  
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35 integration of organisational competencies by creating the next level of value in  
36  
37 solutions offerings (Romero and Molina 2011). Such a collective demand would also  
38  
39 improve the whole supply chain's value co-creation. This finding is a critical  
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41 contribution to the literature (e.g. Alghisi and Sacconi 2015; Paiola et al. 2013), because  
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43 companies lacking internal capabilities or resources for developing solutions will need  
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45 to be open to support from upstream parties. Acknowledging and involving second-tier  
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47 suppliers in co-creation phase while developing solutions could create additional value  
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49 for both parties.  
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54 • Proposition 5: Acknowledging other supply chain partners (e.g. upstream  
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56 partners) during the solutions process might increase satisfaction with solutions.  
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3 The result of the above analysis and discussion informed the development of the  
4 conceptual framework shown in Figure 4. This framework could enhance the research  
5 agenda on integrated solutions, reflecting new aspects and expanding the range of  
6 contexts studied. Integrated solutions is an ever-evolving field of study, with an  
7 increasing amount of academic efforts devoted to exploring the concept in more detail  
8 and from different perspectives (e.g. Rapaccini and Visintin 2015; Rasouli et al. 2019;  
9 Zhang et al. 2016). However, despite a number of proposed frameworks for integrated  
10 solutions (e.g. Nordin and Kowalkowski 2010; Rajala et al. 2019; Tuli et al. 2007),  
11 there is a need to improve understanding of the concept through a reconceptualisation of  
12 integrated solutions in the supply chain context, especially from a dyadic perspective in  
13 an emerging economy setting. Former conceptualizations on integrated solutions (e.g.  
14 Tuli et al 2007) proposes a rather static, step-by-step approach. However, as stated in  
15 the post-deployment stage, the work as a solution provider (e.g. supplier) is never  
16 finished. With changing market conditions, buyers' requirements are also changing,  
17 which to some extent invalidates former conceptualizations. As a result, solution  
18 providers should reassess requirements, and restart the process from the beginning,  
19 making changes that will re-establish customer satisfaction. This is especially  
20 important for emerging economies with volatile conditions; however, Covid-19  
21 pandemic further emphasizes the need for reconceptualization in developed countries.  
22 Furthermore, research highlights the requirement of capabilities while developing  
23 solutions without specifying which capabilities and/or tools would facilitate progress  
24 and create benefits for a particular party at a particular stage of the integrated solutions  
25 process. Therefore, a reconceptualization is proposed to shed light to these gaps in the  
26 literature.  
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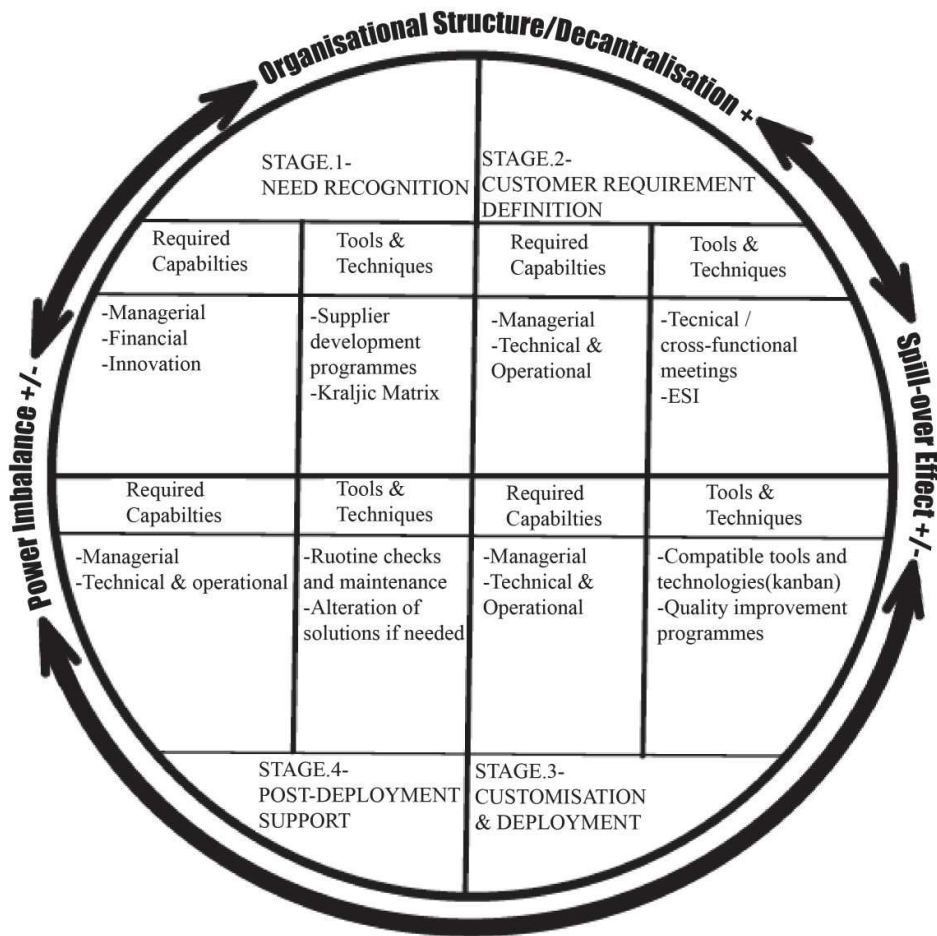


Figure 4. Final conceptual model for a cyclical integrated solutions process

Source: Developed by the authors

## 6. Implications of the study

### 6.1. Theoretical implications

This study makes several theoretical contributions. The first contribution is a dyadic perspective on extending existing knowledge on solutions, through focusing on perceptions of buyers and suppliers. This perspective allows the proposal of a new definition, with a focus on relational exchange and emerging economies. Accordingly, this study is one of the first to investigate the value of solutions from a global supply



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3 chain and sourcing perspective, thus opening the way for future studies on solutions to  
4  
5 examine dyadic and even triadic relationships.  
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8 Second, the chosen setting in this paper presents another contribution. To the  
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10 best of our knowledge, all previous studies on integrated solutions processes focused on  
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12 developed economies, such as the UK and Sweden. However, this study emphasizes  
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14 that emerging economies may also benefit from solutions, as their growing  
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16 manufacturing industries seek new ways to develop competitive advantage. Moreover,  
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18 the findings highlight that, due to the difference between high- and low-context  
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20 cultures, parties need to find new ways of organising principles or structures to cope  
21  
22 with contextual diversity. This involves being able to modify their offerings, resources,  
23  
24 and/or capabilities, which supports DCV approach. Dynamic capabilities are associated  
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26 with unique and idiosyncratic processes emerging from the path-dependent histories of  
27  
28 individual firms (Teece et al. 1997). Therefore, emphasis on co-creation of value and  
29  
30 cross-functional teams may further contribute to dynamic capabilities by increasing  
31  
32 organisational learning and aiding superior value. Moreover, this process is not linear in  
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34 emerging economies, and it is essential to develop situation-specific knowledge. This  
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36 helps to create dynamic capabilities which are complex and difficult to comprehend  
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38 (Simonin 1999), i.e., causally ambiguous, which also supports RBV.  
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45 The findings also affirm the importance of the '*need recognition of buyer*  
46  
47 *companies*' phase of the solutions process in an emerging economy setting, revealing  
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49 that suppliers' level of awareness regarding integrated solutions is dependent on that  
50  
51 of buyers, especially in an environment with a power imbalance. Accordingly, another  
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53 contribution is the framework for integrated solutions process, offering supplementary  
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55 tools, requirements, and capabilities required for each stage, and factors with positive  
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57 and negative effects on the solutions process, which should be tested in future studies.  
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3 Furthermore, acknowledging these issues is significant for research in this field, as it  
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5 has the potential to aid both parties in their transformation in developing solutions  
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8 (Bigdeli et al. 2018).  
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10 According to the findings, highlighting the need for a co-creation process,  
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12 suppliers need incentives from buyers in emerging economies, and this starts with buyer  
13  
14 companies' recognition of their own needs. As discussed in the previous section, this  
15  
16 may be due to the power imbalance observed between supply chain partners, and the  
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18 family-business suppliers who lack the required vision and capability (e.g. financial or  
19  
20 operational) to offer solutions. However, suppliers can learn from buyers even before  
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22 they have established a long-term relationship, by participating in value co-creation in  
23  
24 integrated solutions. This will improve their capabilities, supporting DCV. Another  
25  
26 possibility is that suppliers may demonstrate opportunistic behaviours in such relations.  
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28 In this regard, Agency Theory may be a foundation for the future studies in this field.  
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30 Moreover, since a dyadic, or even triadic perspective is needed, Agency Theory  
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32 focusing on principal and agent relationships may shed further light on solution studies,  
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34 especially where power imbalances exist.  
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40 In conclusion, earlier research expressed both the need for developing solutions,  
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42 and the lack of practical and applicable methodologies for providers of solutions (Chae,  
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44 2012). Thus, there is still a need, especially in emerging economies shifting towards a  
45  
46 service economy, to increase global suppliers' awareness of this concept, and aid them  
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48 in offering solutions in situations where the incentives are less obvious.  
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## 52 **6.2. Practical implications**

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54 Although this study was conducted in Turkey, practical implications for managers  
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56 discussed in this section are likely to be valid and relevant for other emerging countries  
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58 with similar economies, such as China and India, aiming to improve their position in  
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3 global markets (Gereffi et al. 2005). The study contributes to practical managerial  
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5 knowledge by suggesting that managers of industrial buyers in emerging economies,  
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7 should first focus on their internal needs, and then clearly demonstrate their demand for  
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9 solutions, especially if there is an imbalanced power relationship in their supply chain.  
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12 As one of the practical implications, it may be important for MNEs in emerging  
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14 economies to support their smaller-scale suppliers by increasing their awareness about  
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16 integrated solutions. Furthermore, where suppliers lack the financial capacity to provide  
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18 solutions, buyer companies may create supplier development programs beneficial to  
19  
20 both parties.  
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24 To create supplier awareness for solutions and avoid the negative effects of  
25  
26 imbalanced power relationships, stronger linkages between buyers and supplier can be  
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28 facilitated by appointing a person or a group as '*gatekeepers*' in companies to maintain  
29  
30 active communication with the other party, and also with external sources of  
31  
32 knowledge, such as academics (Eisenhardt and Martin 2000). Such linkages may also  
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34 be created by implementing practices such as cross-functional team meetings with  
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36 suppliers, and efforts for ESI.  
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40 This study also suggests that supplier managers must provide integrated  
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42 solutions offerings by better understanding of and giving timely and proactive responses  
43  
44 to customers' potential needs. However, this entails that suppliers improve their  
45  
46 operational and technical capabilities, and capacity may be a problem for small-scale  
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48 suppliers located in emerging economies. Buyers should solve this problem through  
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50 better planning and inform suppliers through compatible technologies. They may also  
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52 create supplier development programs, and aid suppliers financially, and/or  
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54 operationally.  
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3 This study also provides managers with supplementary tools, capabilities, and  
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5 understanding of the factors affecting the solutions process, with the potential to help  
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7 companies to hire optimum employees and avoid talent waste. Thus, the members of a  
8  
9 global supply chain may comprehend different perceptions of the process and consider  
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11 these to increase their own performance and achieve greater benefits from integrated  
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13 solutions relations.  
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17 An improved understanding of integrated solutions processes through a dyadic  
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19 approach is valuable for business development directors and managers responsible for  
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21 the global sourcing and marketing functions of business operations. However, solutions  
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23 are the affected by organisational structure, therefore companies need an improved  
24  
25 understanding of their internal workings. Companies with a centralised structure need to  
26  
27 create a more open environment that empowers employees.  
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31 As another practical implication is the increasing importance of cooperation  
32  
33 between academia and industry. Practical steps to increase suppliers' awareness, such as  
34  
35 developing service research centres through local universities, and offering training to  
36  
37 personnel, could aid these small-scale firms in developing solutions operations.  
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### 40 41 **6.3. Limitations and extensions to the research** 42

43  
44 There may be limitations to this study due to the chosen setting. To be able to support  
45  
46 and generalise the results, we invite more empirical research on integrated solutions in  
47  
48 other emerging economies within diverse industrial settings. Moreover, the constructs in  
49  
50 the conceptual framework were developed based on the findings in an emerging  
51  
52 economy setting, and may further be tested in different contexts and settings for  
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54 generalisation in future studies.  
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58 Conducting three cases allowed us to explain the variabilities, complexities and  
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60 depth of the phenomenon under investigation; however, future studies might also

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3 provide further insights by covering different sectors and including a larger number of  
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5 cases.

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8 The cases selected demonstrated some characteristics on cultural embeddedness.  
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10 Although this topic is mentioned throughout the paper, the data is unfortunately not  
11  
12 sufficiently rich to further develop this as a construct. Further research may develop a  
13  
14 specific focus on this issue.

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17 Researchers also may conduct a longitudinal study on different industries, and  
18  
19 also study solutions in cross-cultural settings. As a final recommendation, further  
20  
21 research can adopt the approach undertaken here to involve more supply chain partners.  
22  
23 As proposed for further study area by Rouquet et al. (2017), the ultimate downstream  
24  
25 partners, i.e., individual customers (Rothenberg-Aalami 2004), can also be included in a  
26  
27 similar research to explore company-customer co-creation.  
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31 It should also be noted that, this research is conducted in an emerging economy  
32  
33 setting and the nature of the study is exploratory, therefore, it would not be appropriate  
34  
35 to conduct a large-scale questionnaire-based quantitative study. However, such  
36  
37 different methods could be used in different settings in the future.  
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## 46 **Appendix: Interview questions**

### 47 *Questions for buyers*

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50 (1) Can you please provide some general information about your company and  
51 department (e.g. products, employees, headquarters)?  
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54 *(Please answer the following relevant questions by thinking about your global sourcing  
55 activities)*  
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- 57 (2) What type of materials, equipment, and services do you purchase?  
58 (3) Do you purchase some services beside other materials and/or equipment?  
59 (4) Can you tell us the whole procurement process in your company?  
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- 4 (5) What are the aspects of your procurement process that satisfy you?
- 5 (6) Are there any aspects of your procurement process that you would like to
- 6 change? What are they?
- 7 (7) What do you understand from the concept 'solutions'?
- 8 (8) Can you tell us the procurement process for solutions?
- 9 (9) Do you come up with some of these solutions together with your supplier(s)?
- 10 Any examples?
- 11 (10) What do you expect from your supplier(s) and the solutions found? Could you
- 12 explain using an example?
- 13 (11) How would you evaluate the solutions that your supplier(s) propose to you?
- 14 (12) How would you evaluate your supplier(s) that proposed the solutions?
- 15 (13) What criteria affect your decision when choosing a supplier?
- 16 (14) How could the solutions process be improved? Are there some steps in the
- 17 process that you would like to change?
- 18 (15) What type of benefits do you see with your supplier(s) providing you with
- 19 solutions? Any examples?
- 20 (16) What type of challenges do you see with your supplier(s) providing you with
- 21 solutions? Any examples?
- 22 (17) What precautions are you taking to minimise these disadvantages?
- 23 (18) How would you define your relationship with your supplier(s) in an integrated
- 24 solutions process?
- 25 (19) Is there a supplier with whom you have a better communication during solutions
- 26 process?
- 27 (20) What makes this supplier different from the others?
- 28 (21) How do you evaluate the continuity of your relationship with this supplier?
- 29 (22) Is there a supplier who has been unsuccessful in the solutions process?
- 30 (23) What could be the reasons for a potential disagreement?
- 31 (24) Could you share your comments about your suppliers in different countries?
- 32 (25) Are there any suppliers in other countries who offer solutions? If yes, please tell
- 33 more.
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38 **Questions for suppliers** are the adapted versions of the above-mentioned '*questions for*

39 *buyers*'.

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6	Figure 2. Dyads of buyers and suppliers for integrated solutions provision
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9	Figure 3. A new framework for the integrated solutions process
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Table 1. Design test measures

<b>Design tests</b>	<b>Actions</b>
Construct validity	An interview protocol was developed by researchers based on the literature and confirmed by experts in the field Multiple case design was used Interviews were conducted by two researchers Supporting sources were used
Internal validity	Open, axial and selective coding was performed
External validity	Multiple case studies were conducted Sampling rules were followed
Reliability	An interview protocol was developed by researchers based on the literature and confirmed by experts in the field Coding and transcripts were produced by two researchers

Source: Yin (2003)

Table 2. Interviewees

Interviewee	Pseudonym
<b>Buyer-X</b>	
Procurement manager-A	Hande
Procurement manager-B	Ahmet
Procurement employee	Ali
Supply employee	Sinem
Procurement employee	Berna
Procurement employee	Seda
Supplier development engineer	Haluk
R&D engineer	Mine
Finance employee	Fatma
Finance supervisor	Tunca
Finance specialist	Yasemin
<b>Buyer-Y</b>	
Procurement manager	Mert
Technology manager	Emre
IT manager	Serhat
IT manager	Serhat
Export manager	Cemil
Planning employee	Bilge
Planning employee	Gamze
Planning employee	Berke
Planning employee	Burcu
Warehouse operations specialist	Semih
<b>Buyer-Z</b>	
Technical purchasing manager	Aysu
Brand manager	Buket
Brand manager	Osman
E-commerce manager	Okan
Technical buyer	Dilay
R&D specialist	Batu

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Interviewee	Pseudonym
<b>Suppliers</b>	
Supplier-1: Sales manager	Bulut
Supplier-2: Sales manager	Ceren
Supplier-3: Sales manager	Umut
Supplier-4: Chief executive officer	Aras
Supplier-4: Supply chain manager	Esra
Supplier-5: Chief executive officer	Mehmet
Supplier-6: Chief executive officer	Kemal
Supplier-7: Chief executive officer	Erdem
Supplier-8: Chief executive officer	Halil
Supplier-9: Quality Manager	Deniz

Source: Developed by the authors

Table 3. Supplier description

Supplier-1	Plastic injection moulding company located in an industrial zone and has been operating in Turkey for 15 years.
Supplier-2	Machine and spare parts company with 30 years of experience in Turkey.
Supplier-3	Press company with 25 years of experience and producing user manuals for the consumer durables industry.
Supplier-4	Turkey's first and only self-drilling screws producing company, with 20 years of experience. Serves several industries, including consumer durables and automotive. Merged with a global market leader for engineered components in 2008.
Supplier-5	Production and event management company providing buyer companies' launch, publicity meetings, and motivational events.
Supplier-6	European company producing parts for washing machines for the consumer durables industry since 2014, with a production facility in Turkey.
Supplier-7	Turkish software company established in 2012. Provides several solutions, including mobile applications and solutions, and dealer management systems.
Supplier-8	Turkish injection moulding company with 35 years of experience. Main products are control panels, tabletops, and portholes. Also provides painting, printing, and assembly works.
Supplier-9	Turkey-based establishment with 30 years of experience. Provides mould designs, moulds, and laser cuts. Exported to Italy and India since 2009.

Source: Adapted from the internal documents provided by the suppliers

Table 4. Keywords used by buyers regarding solutions and providers

Keywords	Buyers			Representative quotes (from interviews)
	Buyer-X	Buyer-Y	Buyer-Z	
(Integrated)solution(s)- directly mentioned	✓	✓	✓	Hande/Buyer-X: <i>'They are solution partners for us. If supplier sees my warehouse as his, this is an important integration, this is a partnership'</i> .
Integration with suppliers	✓			
Product and service bundles	✓	✓	✓	Emre/Buyer-Y: <i>'When we buy a machine, supplier is responsible for installation and operation ... We're buying a package, we are free from problems'</i> .
Buying a package		✓		
A remedy for challenges	✓			Halil/Supplier-8: <i>'If you provide secondary operations (they mean including additional services), you add value to your product'</i> .
Value-added operations	✓			
Headlight			✓	Okan/Buyer-Z: <i>'Our supplier leads the way, and this is really valuable for us. Our relationship is good, and they are our solution partners'</i> .
Innovation	✓			
Flexibility	✓		✓	Aras/Supplier-4: <i>'You are a solution partner to customers, if you are solving problems without expecting anything, you are appreciated'</i> .
Responsiveness			✓	
Solution partner	✓	✓	✓	Umut/Supplier-3: <i>'... been working together since 1996, so we grew together, earned together, and sometimes lost together as partners... so Buyer-X is a special customer for us'</i> .
Business partner	✓	✓		
Special customer/buyer	✓	✓		
Family member		✓		
Full-service supplier	✓			
Strategic (relationship) partner	✓	✓		
Team member	✓	✓	✓	
Collaborator			✓	

Source: Developed by the authors based both primary and secondary data sources.



Table 5. Buyers' tools and techniques used in integrated solutions

Tools and techniques	Companies		
	Buyer-X	Buyer-Y	Buyer-Z
Supplier development programmes	✓	✓	✓
Benchmarking	✓		
Backsourcing	✓		✓
Technology days and/or technical meetings with suppliers	✓	✓	✓
Simultaneous engineering			✓
Kanban system	✓		
Request for Quotation (RFQ) for solutions		✓	

Source: Developed by the authors based both primary and secondary data sources.

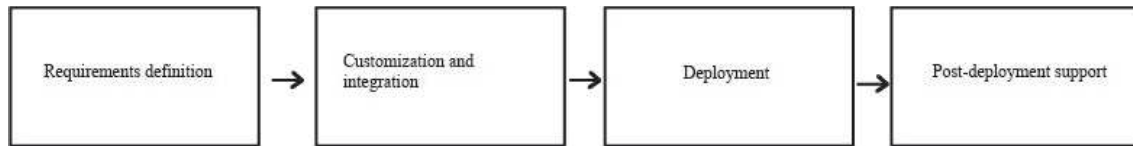
Table 6. Capabilities required for each stage of adapted new version of the model

Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 1: Need recognition</b>			
Buyers	<p>Sinem/Buyer-X: '<i>...these suppliers need to have a good financial structure to provide solutions</i>'.</p> <p>Ali/Buyer-X: '<i>...quality is a must. Moreover, there is pressure about the cost of products; therefore, to differentiate themselves, suppliers' ability to design is important. How can they change the design? ... they need to make some innovations to be different from others</i>'.</p>	<ul style="list-style-type: none"> <li>-Making investments</li> <li>-Financial structure improvements</li> <li>-Creativity and innovation</li> <li>-Alternative sources and products</li> </ul>	<ul style="list-style-type: none"> <li>-Financial capability</li> <li>-Innovation capability</li> <li>-Managerial capability</li> </ul>
<b>Model Stage 2: Customer requirement definition</b>			
Buyers	<p>Dilay/Buyer-Z: '<i>We have simultaneous engineering; the supplier is working with us in the design process. This decreases the workload of designers, and we also benefit from the supplier's know-how</i>'.</p> <p>Emre/Buyer-Y: '<i>These suppliers know our machinery and moulds better than us... I mean we cannot make these deals with any supplier</i>'.</p> <p>Sinem/Buyer-X: '<i>...supplier needs to be sure about the product quality. Besides, inventory management... Moreover, the prices change constantly, so management of inventory is significant</i>'.</p>	<ul style="list-style-type: none"> <li>-Improved know-how</li> <li>-Improved quality</li> <li>-Cost reductions</li> <li>-Responsiveness</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>
Suppliers	<p>Aras/Supplier-4: '<i>If they have better forecasts, we specify our inventory level more accurately, and can answer customer requirements quickly</i>'.</p> <p>Bulut/Supplier-1: '<i>Their plans should be better, so I can see its reflection in my company</i>'.</p>	<ul style="list-style-type: none"> <li>-Planning improvements</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>

Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 3: Customisation and deployment</b>			
Buyers	<p>Tunca/Buyer-X: <i>'Sometimes a supplier may be good about producing what you need. But their capacity is not enough, creating a problem'</i>.</p> <p>Emre/Buyer-Y: <i>'We are talking about complex products. If a supplier is inexperienced, they could have no idea about what to offer...'</i></p>	<p>-Capacity expansions</p> <p>-Technical improvements</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>
Suppliers	<p>Aras/Supplier-4: <i>'The employees in R&amp;D are generally new graduates and are not good at mechanical details...'</i></p> <p>Bulut/Supplier-1: <i>'To develop an enduring relationship, we make investments in machinery. I am not making just the injection... I also set up a grouping area, so I am enhancing my line of work'</i>.</p>	<p>-More experienced workers</p> <p>-Capacity expansions</p>	<p>-Technical and operational capability</p> <p>-Managerial capability</p>

Group	Representative interview quotes	Second order categories	Required capabilities
<b>Model Stage 4: Post-deployment support and/or whole integrated solutions process (stage 4 + whole process)</b>			
Buyers	<p>Sinem/Buyer-X: <i>'One of the biggest concerns is the sustainability of professionalism since the suppliers are family businesses...'</i></p> <p>Serhat/Buyer-Y: <i>'This supplier is not professional. But it is a local and an old supplier who provided us with a software. Since they have the know-how, we are still working with them'.</i></p> <p>Dilay/Buyer-Z: <i>'They are not coordinated inside the company. The sales department have no information regarding R&amp;D, or vice-versa... They are open to problems, and even a small problem will influence us. It is like a domino effect'.</i></p> <p>Haluk/Buyer-X: <i>'The departments are disconnected. We are producing white appliances, and there are five factories here. For instance, there is a supplier who works for two factories. I also want to meet up with the other managers to discuss our problems about the supplier in order to continue to work with them'.</i></p>	<ul style="list-style-type: none"> <li>-Improved sustainability of workforce</li> <li>-Improved communication</li> <li>-Professional behaviours</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>
Suppliers	<p>Mehmet/Supplier-5: <i>'It all depends on good communication. Everyone should respect each other. It seems emotional, but a successful relationship formation between parties depends on this, I mean on healthy communication, building trust, and cherishing each other'.</i></p> <p>Esra/Supplier-4: <i>'The better the communication between companies the higher the satisfaction with the result is. Sometimes, we have problems, we solve these problems with better communication. In that sense, communication creates value and continuous relations'.</i></p>	<ul style="list-style-type: none"> <li>-Improved communication</li> </ul>	<ul style="list-style-type: none"> <li>-Technical and operational capability</li> <li>-Managerial capability</li> </ul>

Source: Developed by the authors based primary data and relevant literature.



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Figure 1. Process centric view-integrated solutions

Source: Adapted from Tuli et al. (2007)

For Peer Review Only

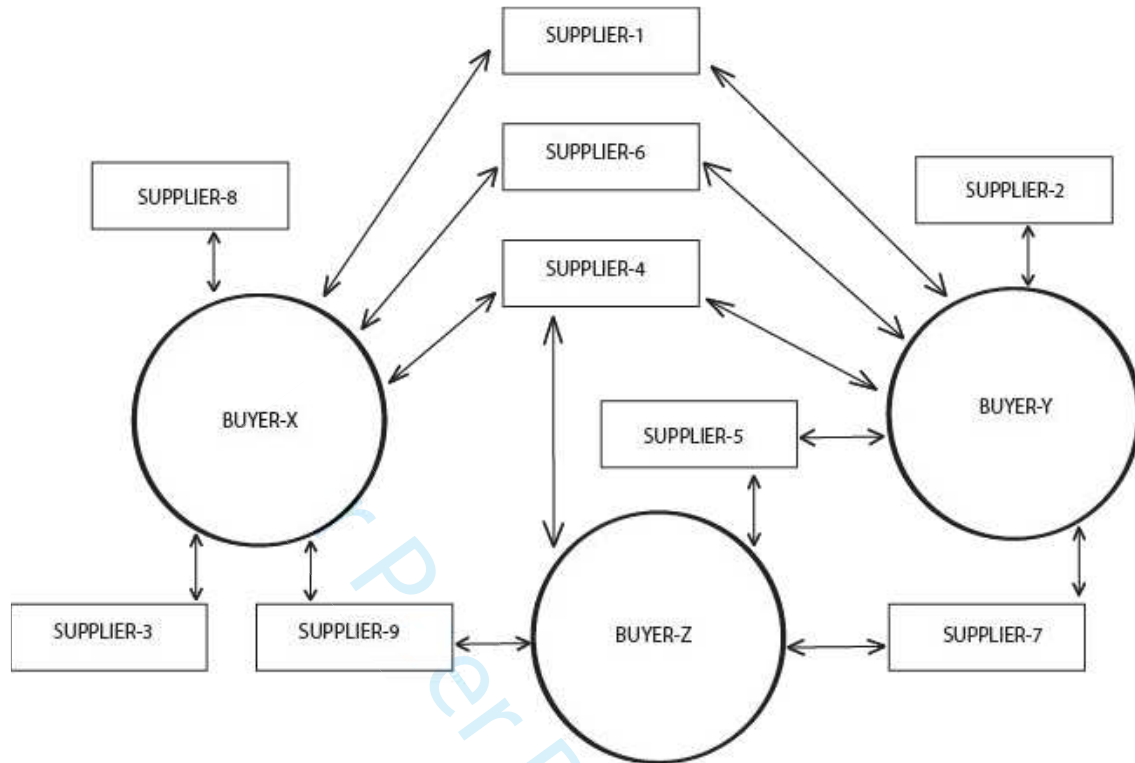


Figure 2. Dyads of buyers and suppliers for integrated solutions provision

Source: Developed by the authors

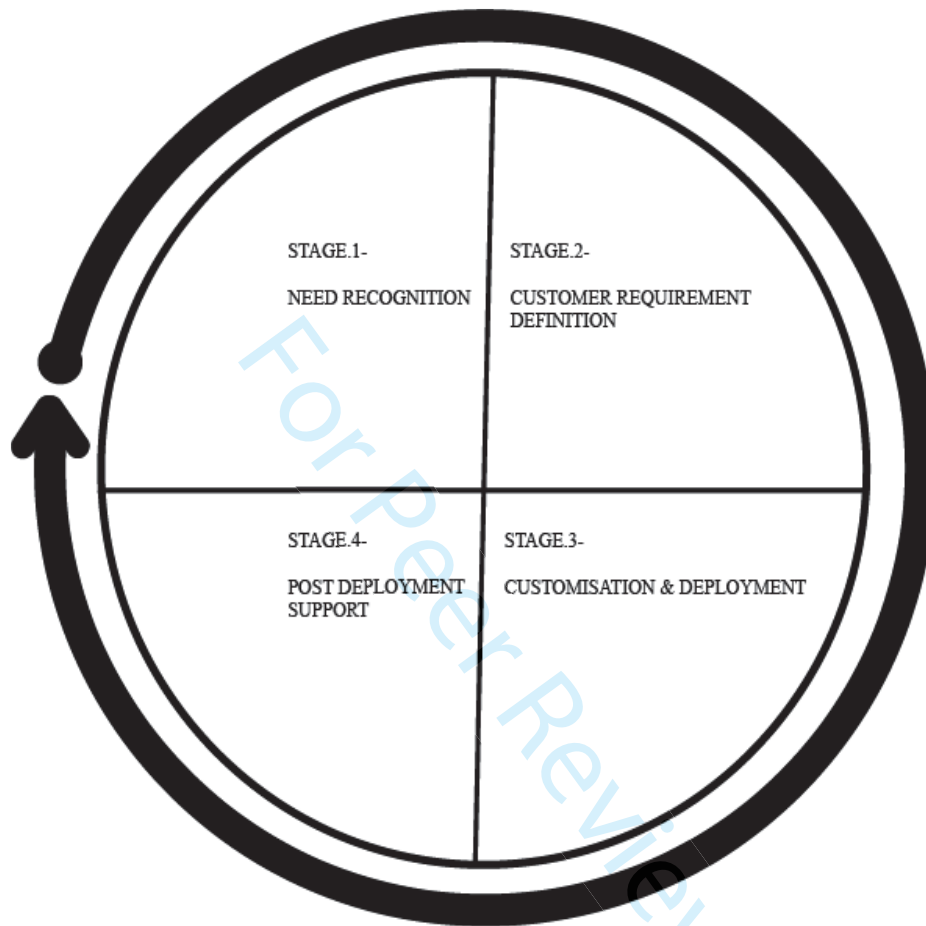


Figure 3. A new framework for the integrated solutions process

Source: Developed by the authors