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# Complementary Partnerships for SMEs: A Relational Capability Maturity Model from an ecosystem perspective

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**Abstract.** Inter-organisational relationships have been receiving increased attention in the context of the fourth industrial revolution. Technological advances in connectivity and digitisation are enabling vertically and horizontally integrated networks. The highly technical and dynamic environment in which various types of relationships exist requires a high level of cooperation and transparency between partners. The importance for Small and Medium Sized Organisations (SMEs) to develop and improve their relational capabilities is widely acknowledged. This research paper thus presents a tool and methodology that will enable SMEs to assess and improve these capabilities within the organisation. This paper aims to identify those requirements and practices described in the literature as conducive to sustainable relationship formation and development. A Relational Capability Maturity Model (RCMM) is proposed as a tool that will be able to address the requirements across the various functions of the organisation.

**Keywords:** Inter-organisational relationships, SMEs, Relational Capability Maturity Model, Relational capabilities

## 1 Introduction

Strong technological advances in connectivity and digitisation, are enabling integrated networks of firms, objects and systems. Transparent and flexible ecosystems are forming, cultivating dynamic, collaborative and symbiotic relationships between firms. These ecosystems are shaping new manners to create value. Increasingly, value is being created not only within firms, but rather within the rich interactions between them [1], [2]. The ecosystem perspective provides a powerful lens through which the transformation in the business landscape can be viewed, by emphasising the growing importance of relationships, partnerships, networks, alliances and collaboration [2].

'Ecosystems in a business context' is a concept derived from the biological sciences. Just as biological ecosystems consist of various interdependent species, business ecosystems similarly consist of a variety of interdependent organisations. These dynamic and co-evolving communities create and capture new value through sophisticated models of collaboration and competition [2], [3]. Multiple players of different types and sizes are brought together to serve markets in ways that are beyond the capacity of any single organisation or any traditional industry.

The complementarity between partners have been identified as a core theme towards ecosystems value creation [4]. Shared value creation provides complementary benefits to the partners and complementary benefits are what is at the core of a sustainable partnership [5]. Small and large firms have complementary strengths and weaknesses in terms of research and development (R&D). The flexible structures and agile operations of SMEs are especially suitable for the early stages of the innovation process where ideas are created and conceptualised [5], [6]. SMEs have a relative advantage in learning and knowledge creation in emerging and risky areas [7]. Large firms on the other hand, have existing structures that are suitable for testing, documentation and operation processes that are found at the later stages of innovation [5]. The deep specialisation of SMEs can complement the service offering of large firms where they do not have the internal expertise. Large firms can in turn, expose SMEs to the critical resources and capabilities required to realise innovating ideas [2], [7].

Complementary benefits can also be found in the product or service offering of the individual firms. New and specialised capabilities are often considered a prerequisite to enable growth to new areas. While large firms usually focus on the products and services with major potential, they are able to access new capabilities from specialist firms, with less capital investment required on their own part [2], [5]. For SMEs, this means that they are able to move into the markets of the large firm without acquiring additional capabilities [8]. The advantage of partnerships with firms who have chosen to specialise in those activities, is that these firms are likely to perform the activities better. As a result, every activity is being performed by a tightly focused firm [2]. Their first-mover advantage will be enhanced, enabling them to increase their market share [8].

Another very important benefit from a partnership is in the form of organisational support. SMEs often have growth constraints due to undeveloped organisational structures and a lack of management skills [9]. Larger firms often offer their smaller partners resources such as marketing, distribution, manufacturing or training, as well as industry related know-how and expertise [10]. Large firms may even open up their contact networks to smaller partners and reference customers in the emerging industry. The reputation of the large firm usually has a positive impact on the credibility of their smaller partners. Increased credibility means that the cost of acquiring new customers or partners and sustaining existing ones will reduce [11].

Large firms often pressure smaller partners to increase its competitiveness continuously to produce high quality services or products. SMEs would often receive customer-triggered relationship requirements, resulting in the need to customise technologies and systems specifically to suit their partners [5], [12]. While these adaptations

imply considerable, often non-transferable, investments by one or both parties, it simultaneously provides learning opportunities. The knowledge that SMEs acquire throughout the unique projects can be transferred to other partnerships or developed to products. In this regard, partnerships are seen as a key resource access to valuable organisational, technical and market knowledge held by key customers. This knowledge can then be used to improve and upgrade products and services, production facilities and organisational units and mechanisms [11].

For SMEs to be able to exploit the opportunities from ecosystems, the nature of the support available to SMEs require a shift in focus. The highly technical and dynamic ecosystem environment require a high level of cooperation and transparency between partners [13]. As a result, the establishment of partnerships and the development of trust simultaneously becomes increasingly critical and complex. For SMEs, who are traditionally known to suffer from severe resource constraints, creating partnerships with larger firms are becoming even more challenging [14], [15]. Partnerships between small and larger firms are often asymmetrical, and SMEs are mostly not equipped to deal with power imbalances due to their lack of resources [5].

For SMEs to be able to establish more sustainable partnerships, they require technical, organisational, and managerial capabilities that can address the challenges presented by dynamic environments and changing relationship requirements [10]. These relational capabilities enable firms to relate to other firms more successfully, contributing to both their own knowledge and to that of their relationships [16]. This paper aims to identify those requirements and practices described in the literature as conducive to sustainable relationship formation and development.

## 2. Methodology

The context of this research is centred predominately on SMEs, which can be considered to be a complex system of cultural, process, and technological components that interact with each other [17]. The research in this paper therefore followed the constructivist philosophical perspective, and was conducted primarily through an exploratory approach. Jabareen's (2009) conceptual framework analysis (CFA) method formed the foundation upon which the RCF was developed, with specific procedures modified according to the nature and requirements for this study. The CFA method is commonly used to build conceptual frameworks from multiple bodies of knowledge that belong to different disciplines [18]. Due to the ability of the CFA method to clarify conceptual linkages between different domains it was deemed an appropriated method to guide the development of the RCF. The six phases of the CFA method is summarised in Table 1

**Table 1: CFA methodology, adapted from Jabareen (2009)**

<b>Phase</b>	<b>Description</b>	<b>Section</b>
<i>Phase 1: Extensive reading and categorisation of data</i>	Read and categorise data from the spectrum of multi-disciplinary literature regarding the phenomenon in question [18].	Section 3

<i>Phase 2: Identifying concepts</i>	Read and reread the relevant data to discover concepts that are considered to be relevant to partnerships in the context of this study in some way.	Section 3
<i>Phase 3: Deconstructing and categorising concepts</i>	Identify the main attributes, characteristics and assumptions of each concept, and categorise the concepts accordingly.	Section 3
<i>Phase 4: Integrating concepts</i>	Integrate and group together similar concepts to reduce the number of concepts.	Section 4
<i>Phase 5: Synthesis</i>	Synthesise the concepts into a theoretical framework through a repetitive and iterative process.	Section 4
<i>Phase 6: Validate framework</i>	Validate whether the proposed framework and its concepts make sense not only to the researcher but also to other scholars and practitioners.	Not included in this paper

Phase 1 was completed through a systematised literature review to provide an exhaustive review of the literature that is currently available [19]. The advantages of this method are mainly seen in its rigour and transparent process [20]. Data was collected from Scopus. The search was completed by using a combination of the keywords “business ecosystem” and “SME”. The search delivered a total of 38 documents, which was then filtered through a series of criteria. After the initial screening process the final 22 documents were critically analysed (See Table 2).

**Table 2: Systematized review criteria**

<i>Criteria</i>	<i>Description</i>
<i>Search engine</i>	<i>Scopus</i>
<i>Latest search date</i>	<i>31 May 2017</i>
<i>Search terms</i>	<i>“SME” + “business ecosystem”; “Small business” + “business ecosystem”; and “Small firm” + “business ecosystem”.</i>
<i>Publication types included</i>	<i>Academic journals and conference papers</i>
<i>Publication types excluded</i>	<i>Magazines and news articles</i>
<i>Other excluding criteria</i>	<i>Foreign language papers; inaccessible papers; papers not relevant to topic; and repetitive papers</i>

After the initial screening process the final 22 documents were critically analysed. The data analysis criteria were broken up into two sections namely 1) descriptive statistics, and 2) qualitative criteria.

Through Phase 2, an in-depth review of the research domain has resulted in a comprehensive theory base which contains a large amount of implicit knowledge that needs to be made explicit. Through this review, 114 concepts have been identified that are deemed relevant to the main research objective of this study. Following Jabareen's (2009) CFA method as described in Table 1, each of these concepts was deconstructed into its main attributes and characteristics. This was done by labelling each of the concepts with a relevant theme that describes the attributes, characteristics of and assumptions around each. After each of the concepts has been deconstructed, Jabareen (2009)

explains that the concepts should be categorised accordingly. Following the theme allocation of each concept, the concepts that share similar themes were grouped together (Phase 3).

Phase 4 of the CFA method requires the concepts that have similarities to be integrated and grouped together. The concepts were integrated by grouping together the themes that had the strongest interrelations. This phase resulted in five main themes, each addressing a critical relational issue related to SMEs in dynamic business ecosystem environments. These themes include (1) goal congruency, (2) trust, (3) collaboration, (4) flexibility, and (5) learning.

Phase 5 of Jabareen's (2009) CFA method requires the concepts to be synthesized into a conceptual framework. This means that the 37 relational capabilities were consolidated into a conceptualization that will enable firms to identify and improve these capabilities. The framework development therefore constitutes two parts. The first which concerns the appropriate structuring into a conceptual framework, and the second which concerns an appropriate methodology needed to use the framework.

### 3. Themes and related relational capabilities

While the themes identified represent the requirements that SMEs must be able to meet in their B2B relationships if they operate in business ecosystems, it is necessary to convert each theme into the organisational means through which these relationship requirements can be addressed. The organisational means, referred to as relational capabilities, thus identify certain internal capabilities that SMEs would require to satisfy the relationship requirements. In total, 37 relational capabilities were identified, these are also included in Table 3

**Table 3: Summary of main themes and related relational capabilities**

Theme	Description	Relational capabilities
<b>Goal congruency</b>	In B2B relationships, partners work together towards reaching a common goal [21]–[24]. The level of goal congruency refers to the possibility for both firms to achieve their goals simultaneously [25]. According to Cuevas, Julkunen and Gabrielsson (2015), goal congruency can be viewed as a prerequisite for developing relationships of trust. If partnerships are goal congruent, the firms will view joint action as mutually beneficial [27].	<ul style="list-style-type: none"> <li>a) Establish shared relationship vision and goals;</li> <li>b) Establish organisational vision and goals;</li> <li>c) Developing partnering strategy;</li> <li>d) Identify potential partners;</li> <li>e) Uphold external reputation;</li> <li>f) Attract complementary partners; and</li> <li>g) Obtain market knowledge.</li> </ul>
<b>Trust</b>	Trust is widely associated with successful B2B relationships. Cooperation between partners, as well as the willingness for future collaboration, can arise directly from a strong relationship of trust. Conversely, conflict and uncertainty can be seen as a direct consequence of lack of trust [28], [29].	<ul style="list-style-type: none"> <li>a) Establish trustworthiness through behaviour;</li> <li>b) Assign boundary spanner;</li> <li>c) Measure relationship performance;</li> <li>d) Create and sustain unique value offering;</li> <li>e) Balance investment in relationships;</li> <li>f) Asses relationship risk; and</li> </ul>

		g) Manage intellectual property.
<b>Collaboration</b>	B2B relationships are increasingly involving the sharing of resources, allowing firms to create and share mutual benefits [30]. Firms with complementary capabilities and expertise are connected, providing the opportunity for mutually complementary action in pursuit of a common goal [31].	<ul style="list-style-type: none"> <li>a) Interpret and contextualise partner diversity;</li> <li>b) Understand partner requirements;</li> <li>c) Identify mutual opportunities;</li> <li>d) Adapt to relationship;</li> <li>e) Create joint knowledge; and</li> <li>f) Leverage external resources.</li> </ul>
<b>Flexibility</b>	B2B relationships are becoming increasingly agile and adaptive as they have the need to support faster and more flexible responses to constantly changing customer needs. Due to the dynamic business environment, B2B relationships need to be resilient and anti-fragile in order to display self-organising, flexible qualities that are capable of reconfiguring and overcoming shocks and disruptions [2].	<ul style="list-style-type: none"> <li>a) Maintain adaptable and flexible organisational structure;</li> <li>b) Enable product / process experimentation;</li> <li>c) Encourage interdisciplinary knowledge;</li> <li>d) Enable individual reflective capacity;</li> <li>e) Allocate internal resources to relationship;</li> <li>f) Balance relationship portfolios; and</li> <li>g) Establish contracting policy.</li> </ul>
<b>Learning</b>	Knowledge and data is created and exchanged between partners, offering various opportunities for firms to learn and increase their own internal knowledge. Firms must be able to integrate new data and knowledge within their systems and incorporate it into their internal processes [32].	<ul style="list-style-type: none"> <li>a) Manage internal tacit knowledge;</li> <li>b) Manage internal communication and information flow;</li> <li>c) Manage tacit knowledge between partners;</li> <li>d) Define communication channels between partners;</li> <li>e) Externalise data and information;</li> <li>f) Capture, store and retrieve data;</li> <li>g) Analyse data;</li> <li>h) Establish data exploitation strategy;</li> <li>i) Create data security architectures; and</li> <li>j) Determine relationship functional requirements.</li> </ul>

#### 4. A Relational Capability Maturity Framework

While there are various ways to measure process capabilities, the topic of capability improvement often refocuses on the content and guidelines of maturity modelling. Maturity models are well-known and widely used tools that enable users to assess the current state of maturity of capabilities in a certain domain. Maturity models further enables users to identify the strengths and weaknesses of those capabilities, and suggests an improvement plan to increase overall performance.

The concept of maturity can be traced back to quality management when Crosby (1979) introduced the idea of maturity stages building on each other [34]. One of the most recognised and most widely used maturity models today is the Capability Maturity Model Integration (CMMI®). The CMMI has its roots in the original Capability Maturity Model® for software (SW-CMM®), which was developed in 1986 in response

to a request from the federal government for a method to assess the capability of their software contractors. The Software Engineering Institute (SEI) developed a process maturity framework that would help organisations improve their software processes [35], [36]. The SEI defined the CMMI as “a reference or process model of mature practices in a specified discipline, used to improve and appraise a group's capability to perform that discipline” [37].

The structure of the framework developed in this article needs to address multiple dimensions of relational capability throughout various parts of an organisation. Furthermore, complex interrelations exist between the relational capabilities. For this reason, it was decided to construct the framework along two dimensions, the organisational construct and the relational construct. The structure is largely based on the structure of the Innovation Capability Maturity Model (ICMM) as developed by [38]. The ICMM guides its users to address the maturity of innovation capability, while considering the multiple dimensions of innovation, and the different parts of the organisation that is affected. The model is also designed with the applicability and practicality factor in mind. Relational capabilities share various fundamental aspects with innovation capabilities in the sense that it is multi-dimensional, dynamic and complex. The ICMM is consequently considered to be a suitable reference to structure relational capabilities. The structure that forms the Relational Capability Framework (RCF) is displayed in Figure 1.

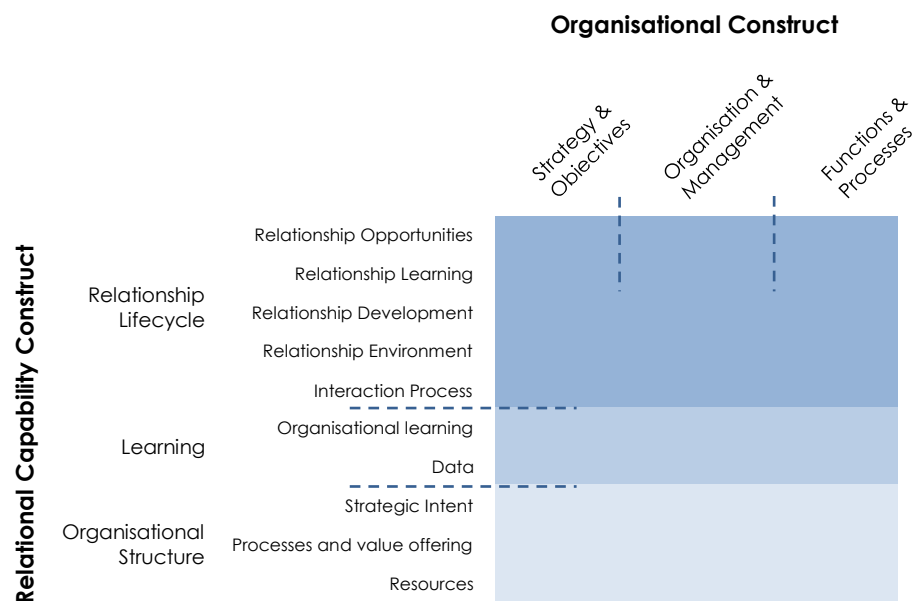


Figure 1: RCF structure, adapted from [38]



#### 4.1 Structure outline

The framework is structured along three dimensions. The dimensions include (1) Relational Capability construct, (2) Organisational Construct and (3) Relational Capability Maturity. The three dimensions are summarised in Table 4.

**Table 4: Three dimensions of the RCF**

<b>Relational Capability construct</b>	
<b>Relationship Lifecycle</b>	Relationships are not static, it rather evolves through a series of stages. This capability area refers to the practices, procedures and activities that are executed at the initiation of the relationship, through the growth phases of the relationship and the continuous interaction in the relationship.
<b>Knowledge and Information</b>	The transfer of knowledge between partners and the subsequent learning within the organisation is a fundamental part of B2B relationships. This process area addresses the capabilities to identify, acquire and manage knowledge. Also included is the organisations ability to capture, manage and utilise valuable data that is accumulated in the relationship.
<b>Organisational Structure</b>	The infrastructure, resources, strategy, policies and management necessary to support the relationships, and knowledge and information requirements.
<b>Organisational Construct</b>	
<b>Strategy &amp; Objectives</b>	The management response to uncertain environments, it includes the mission, vision and objectives. It provides targets and goals for the processes to steer the organisation in a particular direction.
<b>Organisation &amp; Management</b>	The formal structure and governance of the organisation that is defined with the purpose of fulfilling the strategy and objectives.
<b>Function &amp; Processes</b>	The activities that are performed within the organisation that drives the organisation closer to fulfilling its objectives.
<b>Relational Capability Maturity [39]</b>	
<b>Level 1: Initial</b>	Processes are mostly ad hoc and chaotic. A stable environment to support processes are not provided.
<b>Level 2: Managed</b>	The need for relational capabilities have been identified and defined. Foundation to implement processes have been created. Process adherence is periodically evaluated.
<b>Level 3: Defined</b>	Practices, procedures and tools have been defined and implemented. Outputs are consistent.
<b>Level 4: Measured</b>	Focus is managing and improving process performance. Activities and resources are integrated and aligned within organisation. Processes are continuously monitored and evaluated.
<b>Level 5: Optimised</b>	Synchronisation and institutionalisation of activities and processes. Organisation continually improves its processes based on a quantitative understanding of its business objectives and performance needs.

#### 4.2 Relational capabilities

The relational capabilities are at the core of the RCF. These capabilities were therefore categorised into the structure as it has been described in the previous section. The resulting two-dimensional face of the framework is displayed in **Error! Reference source not found.** Each of the capabilities was assigned an Organisational construct area and a Relational construct item which best defines the capability. For example,

based on its representative code (RL/SO1), capability ‘Establish shared relationship vision and goals’ is assigned to the Strategy and objectives area as it addresses the direction in which the relationships are steered. At the same time, it is assigned to the Relationship opportunities item, as it involves searching and identifying new opportunities, as well as determining the possible implications of these opportunities. The remainder of the capabilities are distributed in a similar manner. Each of the remaining relational capabilities were similarly categorised into the structure of the framework.

**Table 5: Relational Capability Requirements categorised into construct**

Organisational Construct	Strategy & Objectives	Organisation & Management	Function & Process
Relationship Lifecycle	<b>Relationship Opportunities</b>	<b>RL/SO1</b> – Establish shared relationship vision and goals	<b>RL/OM1</b> – Interpret and contextualise partner diversity <b>RL/FP1</b> – Identify mutual opportunities
	<b>Relationship Development</b>	<b>RL/SO2</b> – Create and sustain unique value offering <b>RL/SO3</b> – Leverage external resources	<b>RL/OM2</b> – Allocate internal resources to relationship <b>RL/FP2</b> – Adapt to relationship
	<b>Relationship Environment</b>	<b>RL/SO4</b> – Develop partnering strategy	<b>RL/OM3</b> – Obtain market knowledge <b>RL/OM4</b> – Uphold external reputation <b>RL/FP3</b> – Identify complementary partners <b>RL/FP4</b> – Attract complementary partners
	<b>Interaction Process</b>	<b>RL/SO5</b> – Establish contracting policy	<b>RL/OM5</b> – Assign boundary spanner <b>RL/FP5</b> – Define communication channels between partners
	<b>Relationship Learning</b>	<b>KI/SO1</b> – Understand partner requirements	<b>KI/OM1</b> - Manage intellectual property <b>KI/OM2</b> – Manage tacit knowledge between partners <b>KI/FP1</b> – Create joint knowledge
Knowledge & Information	<b>Organisational learning</b>	<b>KI/SO2</b> - Manage internal tacit knowledge	<b>KI/OM3</b> – Determine relationship functional requirements <b>KI/FP2</b> – Manage internal communication & information flow
	<b>Data</b>	<b>KI/SO3</b> – Establish data exploitation strategy	<b>KI/OM4</b> – Externalise data & information <b>KI/FP3</b> – Create data security architectures <b>KI/FP4</b> - Capture, store & retrieve data <b>KI/FP5</b> – Analyse data

Organisational Structure	<b>Strategic Intent</b>	<b>OS/SO1</b> – Establish organisational vision and goals	<b>OS/OM1</b> - Establish trustworthiness through behaviour <b>OS/OM2</b> – Balance relationship portfolios	<b>OS/FP1</b> – Enable individual reflective capacity
	<b>Processes and value offering</b>	<b>OS/SO2</b> – Maintain adaptable and flexible organisational structures	<b>OS/OM3</b> – Encourage interdisciplinary knowledge	<b>OS/FP2</b> – Enable product / process experimentation
	<b>Resources</b>	<b>OS/SO3</b> – Balance investment in relationships	<b>OS/OM4</b> – Assess relationship risk	<b>OS/FP3</b> - Measure relationship performance

## 5. Conclusion

This paper presents a model that describes the relational capabilities of small firms at three levels of detail. The 36 identified relational capabilities relates to the various aspects of the organisation through the organisational construct, providing a holistic view of the challenges associated with B2B relationships. At the same time, the granularity of the model allows that capability issues to be addressed incrementally and in part. The nature of the model is thus suitable for SMEs, for whom large, expensive and time-consuming projects are often not a feasible option. Future research to evaluate the maturity of the capability requirements in a wide range of firms is proposed. This would highlight the capability requirements as a firm develops. The aim is to enable owner-managers to improve their relational capability requirements proactively, and ultimately improve their ability to establish and sustain beneficial partnerships.

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