

Business Maturity Models for Small and Medium-Sized Enterprises: A Systematic Literature Review

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Abstract

Small and medium-sized enterprises (SMEs) play a key role in national economies around the world but face pressure to sustain their competitiveness in domestic and global markets. SMEs should check their position periodically and figure out what they need to do next. Maturity models are suitable tools for documenting SMEs' current state, for developing the company's future vision and path and for comparing capabilities between companies. This study's aim is to obtain an overview of existing maturity models focused on SMEs by conducting a systematic literature review (SLR) of the publications on business maturity models from the lens of SMEs. As a result of this study, growing trend for business maturity models for SMEs is identified. Many of these models have a digital theme.

Keywords: SME, maturity model, business maturity model, systematic literature review

INTRODUCTION

Small and medium-sized enterprises (SMEs) play a key role in national economies around the world, generating employment, adding value and contributing to innovation (Organisation for Economic Co-operation and Development [OECD], 2017). SMEs represent a major part of most modern economies and form the backbone of countries' national economies (European Commission, 2011; Saarela, Kauppila, Niinikoski, Muhos, & Leviäkangas, 2015; Storey, 1994). Due to global competition,

technological advances and consumers' changing needs, SMEs are under tremendous pressure to sustain their competitiveness in domestic and global markets (Singh, Garg, & Deshmukh, 2008). More than large companies, SMEs face resource constraints in terms of finance, information, management capacity, etc. (Hollenstein, 2005), and they have fewer human resources than larger firms to screen the external environment for valuable information, for example (Spithoven, Vanhaverbeke, & Roijakkers, 2013).

Like other enterprises, SMEs should check periodically how they are fulfilling their growth goals to determine if they should change their business behaviour to reach those goals (Lent & Brown, 2006). As mapping the developmental stage of businesses is complicated, business maturity models usually focus on a single aspect of business (Naskali et al., 2018), and assessment is often done using different kinds of maturity models that measure a company's ability for continuous improvement (Fraser, 2002).

Maturity models

Maturity models "typically represent theories about how an organization's capabilities evolve in a stage-by-stage manner along an anticipated, desired, or logical path" (Röglinger, Pöppelbuß, & Becker, 2012, p. 4). Practitioners' adoption of maturity models and researchers' academic interest in maturity models have been increasing (Becker, Knackstedt, & Pöppelbuß, 2009). Nowadays, the market is replete with different types of maturity and growth models that are designed to be used in general or specific business fields. Due to changes in the business environment, the need for specific models has increased in the SME business field (Saarela, Simunaniemi, Muhos, & Leviäkangas, 2018). Maturity models may help to determine where SMEs stand and figure out what they need to do next. Since the widely used and popular Capability Maturity Model (CMM) was launched by the Software Engineering Institute over two decades ago (Paulk, Curtis, Chrissis, & Weber, 1993), hundreds of maturity models have been proposed by practitioners and researchers across multiple domains (Naskali et al., 2018; Pöppelbuß & Röglinger, 2011). Maturity models have a long history and models are developed for various purposes. Many maturity models have also been developed by consultants and associations (e.g. Anderl et al., 2015; Felch, Asdecker, & Sucky, 2019). Maturity model research has been applied in more than 20 domains, but it is still heavily dominated by software development and software engineering models (Wendler, 2012).

According to Mettler et al. (2010, p. 334), 'maturity' "implies evolutionary progress in the demonstration of a specific ability or in the accomplishment of a target from an initial to a desired or normally occurring end stage". Maturity models divide evolutionary progress into a sequence of levels or stages that form a logical path from an initial state to a final level of maturity (Becker et al., 2009; Mettler et al., 2010). These levels and stages are used in maturity models to derive and prioritise improvement measures and control the progress of change (Iversen, Nielsen, & Norbjerg, 1999).

de Bruin, Freeze, Kulkarni and Rosemann (2005) have identified descriptive, comparative and prescriptive purposes for developing a maturity model. Citing Becker et al. (2009), de Bruin et al. (2005), Iversen et al. (1999) and Maier, Moultrie and Clarkson (2009), Pöppelbuß and Röglinger (2011) clarified that maturity models serve a descriptive purpose if they are applied for 'as-is' assessments where the current capabilities of the entity under investigation are assessed with respect to given criteria, a comparative purpose if they allow for internal or external benchmarking and the maturity levels of similar business units and organisations can be compared, or a prescriptive purpose if they indicate how to identify desirable maturity levels and provide guidelines on improvement measures.

Business maturity models provide information about a company's current status and how to improve it (Röglinger et al., 2012) and offer a simple but effective tool to measure companies' capabilities and contribute to transformation and the development of competencies in companies by initiating a change process (Mettler et al., 2010; Wendler, 2012). They can also be used in developing a company's future vision and path, as benchmarking tools to compare firms with each other to set development goals or as self-review frames and managerial tools for self-improvement action (Felch, Asdecker, & Sucky, 2019; Leino, Kuusisto, Paasi, & Tihinen, 2017; Röglinger et al., 2012). Many business maturity models have roots in CMM (Paulk et al., 1993; Wendler, 2012), and have adopted CMM's five-level approach (level 1 – initial, level 2 – managed, level 3 – defined, level 4 – quantitatively managed and level 5 – optimised), which describes an evolutionary path of increasingly organised and systematic maturity stages.

Business maturity models are either generic or specific maturity models. Generic maturity models can be applied generally, whereas specific maturity models are designed and applied mainly to a specific business type (Blondiau, Mettler, & Winter, 2016). Moreover, business maturity models can be classified based on the business type targeted. Jones, Muir and Beynon-Davies (2006) noted that three main business types are identified within the models: SMEs, large enterprises and non-specific companies.

Business maturity models have also been subject to criticism. For instance, they have been characterised as “step-by-step recipes” that simplify business reality (Pöppelbuß & Röglinger, 2011). Maturity models have faced questions on their lack of empirical foundation and validity (Lasrado, Vatrappu, & Andersen, 2015; Mettler, 2011; Pöppelbuß & Röglinger, 2011). Researchers have criticised maturity models for differing quality: for instance, Mettler (2011, p. 82) states that most maturity models are based on “good practice” or “success factors” derived from projects that have demonstrated favourable results. Lasrado et al. (2015) observed that empirically validated maturity models are quite rare. According to these criticisms, models have mistaken structural assumptions (Lasrado et al., 2015), and they tend to neglect the potential existence of multiple equally advantageous development paths (Teo & King, 1997). Further criticism refers to narrow design methods, unsatisfactory documentation of the design process, the many almost identical maturity models and a non-reflective adoption of the CMM approach (Becker et al., 2009; Iversen et al., 1999; Lasrado et al., 2015; Mettler, 2011; Pöppelbuß & Röglinger, 2011). According to criticism, maturity models should not focus on a series of levels toward a predetermined “final state” but on the factors that influence evolution and change (King & Kraemer, 1984; Naskali et al., 2018).

Systematic literature review (SLR)

SLRs are well suited to identify gaps in the literature, generate recommendations for future research and reduce selection and data extraction bias (Grant & Booth, 2009). Selection bias (when the author chooses only the research material which is consistent with their personal research goals and opinions) is minimised by defining clear inclusion and exclusion criteria for the literature review prior to the literature review (Liberati et al., 2009). Data extraction bias (when the author takes too much or too little data from included studies) is minimised by extracting research findings with a standardised form and reviewing them with a minimum of two reviewers (Nightingale, 2009; Liberati et al., 2009).

According to Armstrong, Hall, Doyle, and Waters (2011), “Systematic reviews use a transparent and systematic process to define a research question, search for studies, assess their quality and synthesise findings qualitatively or quantitatively”. SLRs are based on clearly formulated research questions,

appraise the quality of reviewed literature and identify relevant literature systematically according to specific criteria to give an unbiased and balanced summary of the literature around the topic (Khan, Kunz, Kleijnen, & Antes, 2003). SLRs' advantage over traditional literature reviews is their explicit presentation of the method of search, appraisal, synthesis and analysis of the literature (Grant & Booth, 2009).

Comprehensive reviews of business maturity models relate to business process management (Röglinger et al., 2012; Tarhan, Turetken, & Reijers, 2016), software processes (von Wangenheim, Hauck, Salviano, & von Wangenheim, 2010), project management (Backlund, Chronéer, & Sundqvist, 2014), process improvement (Helgesson, Höst, & Weyns, 2012) and information systems (Mettler, Rohner, & Winter, 2010). However, reviews of business maturity models for SMEs are lacking. We aim to obtain an overview of the existing business maturity models for SMEs by answering the following research question:

- *What are the existing business maturity models for SMEs and what do they focus on?*

To answer this question, this article reviews what kind of business maturity models for SMEs are currently offered in the literature in order to estimate the need for new models. This review is performed by conducting a systematic literature review (SLR) on business maturity models for SMEs.

METHODS

As a standard international definition of SME does not exist, this study uses the definition from the OECD (2017), which refers to SMEs as firms employing up to 249 persons. We first examined high-quality entrepreneurship-related peer-reviewed journals to identify best practices to include in the SLR. The *Association of Business Schools Academic Journal Quality Guide* (2018) and the *Australian Business Deans Council Journal Rankings List* (2016) were used to identify high-quality peer-reviewed entrepreneurship journals. Five high-quality journals were selected: *Small Business Journal*, *Journal of Small Business Management*, *Journal of Business Venturing*, *Entrepreneurship* and *Regional Development, Entrepreneurship, Theory and Practice*. SLR articles from these journals was read, and findings from them were used together with SLR background knowledge to define the SLR method for this article (Table 1).

Table 1: SLR method

Step #	Step name	Step description
1	Justifying the use of SLR	Choice of the SLR over the traditional maturity model is decided.
2	SLR scope	Research material and database focus are defined.
3	Search argument	Keywords used and other search arguments are defined.
4	Systematic search	A systematic search is conducted according to set practices to identify the group of articles.

5	Classification process	A classification process is used to modify the group of articles.
6	Data matrix	Comparable data is extracted and summarised in matrix format.

This step-by-step SLR method is described in the following section.

Justifying the use of SLR (Step 1)

As described, SLRs help give an unbiased and more balanced summary of the literature compared to traditional literature reviews. SLRs are well suited to identify gaps in the literature, generate recommendations for future research and reduce selection and data extraction bias, which may occur when large datasets are processed. Finally, SLRs increase the reliability of the literature review and make it more transparent for future studies. With these factors in mind, the use of SLR over the traditional literature review method felt well-grounded, and we decided to use SLR.

SLR scope (Step 2)

A clear focus for the research material and the databases to be used was set to minimise selection bias and increase the SLR's transparency. The scope of the SLR was business articles written in English with a business focus and published in peer-reviewed journals, as they are recognised as well-validated knowledge that is more likely to have a bigger impact in scientific research than articles published in other sources (Podsakoff, MacKenzie, Bachrach, & Podsakoff, 2005).

The research databases selected to identify articles were Scopus and the Web of Science, which are considered to be among the most extensive academic databases for scientific knowledge (Guz & Rushchitsky, 2009). Subject area filters were decided for both databases to narrow the search to the business field. In Scopus, the subject area "Business, Management and Accounting" was used, whereas in Web of Science the subject area "Business & Economic" was used.

Search argument (Step 3)

The keywords used and the search processes were defined step by step. As a starting point, the search was narrowed first to article titles and abstracts. Test searches were first conducted in Scopus with test keywords to get a better understanding of the topic. The conjunction "OR" was used between keywords in the test search lists and the wildcard character "*" was used at the end of each keyword to take different words with the same stem into account.

Distinct topic groups were then defined to group similar keywords together to simplify the search process. This led to the creation of two topic groups: "maturity-related" and "SME-related". Keywords from the test searches were divided into these topic groups. If the keyword did not fit one of the topic groups, it was discarded. The topic groups were then used together in the following test searches by using the conjunction "AND" between topic groups and "OR" between keywords in the topic group as before. After some follow-up searches and changes in topic groups, the final versions of topic groups are defined in Table 2.

Table 2: Chosen topic groups

Topic group	Topic group description	Topic group keywords
Maturity-related	Topic group that includes maturity related terminology	“maturity model*”, “maturity matrix*”, “maturity grid*”, “maturity framework*”, “maturity level*”
SME-related	Topic group that includes company related terminology	“micro-compan*”, “micro-enterprise*”, “micro-firm*”, “micro-business*”, “microcompan*”, “microenterprise*”, “microfirm*”, “microbusiness*”, “micro compan*”, “micro enterprise*”, “micro firm*”, “micro business*”, “micro company*”, “small firm*”, “small business*”, “small organisatio*”, “small organizatio*”, “small enterprise*”, “SME*”, “Small and medium-sized enterprise*”, “small and medium-sized firm*”, “small and medium-sized organization*”, “small and medium-sized organisatio*”

Systematic search (Step 4)

The topic group pair used to conduct the final search in Scopus and Web of Science found 162 articles in the “Business, Management and Accounting” subject area in Scopus and 18 articles in the “Business & Economic” subject area in the Web of Science. Eleven duplicate articles were removed from the search results, leaving 169 articles. Nine articles that were not in English or that were conference papers were removed, leaving 160 articles.

Classification process (Step 5)

The classification process introduced by Thorpe, Holt, Macpherson, and Pittaway (2005) was used to limit the article group only to the articles that proposed a new maturity model in the SME context. The articles were assigned into three groups, according to set classification criteria: relevant studies (A), studies in which the relevance was still unclear (B) and non-relevant studies (C). When all the articles were assigned to these groups, articles in group B were re-reviewed and assigned either to group A or C, and articles in group A were taken forward to further review (Thorpe et al., 2005).

We applied the classification process twice with multiple reviewers to minimise selection bias. During the first classification process, the articles’ title and abstract were read and the articles were classified into groups A, B and C, according to the first classification criteria, which was “title and/or abstract of the article includes SME and maturity perspective”. This left 67 articles in group A.

During the second classification process, the group A articles’ abstract and full text were read, and the articles were classified into groups A, B and C, according to the second classification criteria, which was “according to the abstract or full text of the article, the article creates or refines a business maturity model for SMEs”. This left 20 articles in group A, which formed the final article group. A summary of the classification criteria can be seen in Table 3.

Table 3: Used classification process step by step

Phase of inclusion-exclusion process	Number of articles
Before 1 st classification process	160
1 st classification process: A, B, C grouping	62 (group A), 61 (group B) and 37 (group C)
1 st classification process: re-review	67 (group A) and 93 (group C)
2 nd classification process: A, B, C grouping	20 (group A), 3 (group B) and 44 (group C)
2 nd classification process: re-review	20 (group A) and 47 (group C)
After 2 nd classification process	20

Data matrix (Step 6)

To minimise data extraction bias, visualise the data and straightforwardly follow the analysis processes, comparable data was combined from the article group into a matrix form. Five categories reference, name, industry, focus and levels, were used to gather the data from the article pool. An article comparison matrix for the final article group is in Table 4.

Table 4: Article comparison matrix

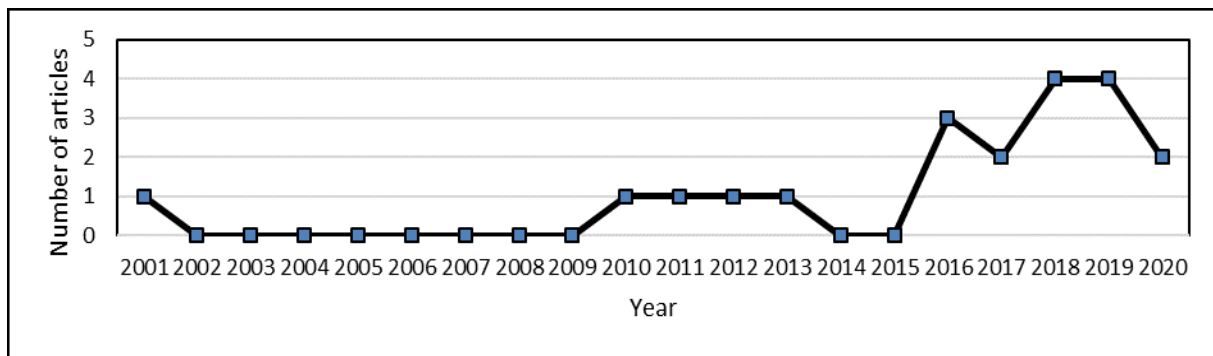
Reference	Name	Industry	Focus	Levels
(Adrodegari & Saccani, 2020)	A maturity model for the servitisation of product-centric companies	General	Servitisation maturity model for companies	5
(Cataldo, Astudillo, Gutiérrez-Bahamondes, González-Martínez, & McQueen, 2020)	Towards an integrated maturity model of system and e-business applications in an emerging economy	General	Integrated maturity model of business systems and e-business applications	3
(Batista et al., 2019)	Knowledge management for food supply chain synergies—a maturity level analysis of SME companies	Food manufacturing	SME knowledge management adoption maturity model	4
(Omotayo, Boateng, Osobajo, Oke, & Obi, 2019)	Systems thinking and CMM for continuous improvement in the construction industry	Construction	Capability maturity model (CMM) for SME construction companies in Nigeria	5
(Pirola, Cimini, & Pinto, 2019)	Digital readiness assessment of Italian SMEs: a case-study research	General	Industry 4.0 digital readiness maturity model for SMEs	5
(Parra, Tort-Martorell, Ruiz-Viñals, & Gómez, 2019)	A maturity model for the information-driven SME	General	Information-driven decision-making process maturity model for SMEs	5

(Andriani et al., 2018)	Aligning business process maturity level with SMEs growth in Indonesian fashion industry	General	Business process maturity model for SMEs	5
(Isoherranen & Ratnayake, 2018)	Performance assessment of microenterprises operating in the Nordic Arctic region	General	Operational excellence maturity model for microenterprises in the Nordic Arctic region	5
(Igartua, Retegi, & Ganzarain, 2018)	IM2, a maturity model for innovation in SMEs	General	Innovation maturity model tool for small enterprises	5
(Mamoghli, Cassivi, & Trudel, 2018)	Supporting business processes through human and IT factors: A maturity model	General	Maturity model related to IT and human factors which improves companies' business processes	3
(Prashar, 2017)	Energy efficiency maturity (EEM) assessment framework for energy-intensive SMEs: Proposal and evaluation	General	EEM framework for energy-intensive SMEs	5
(Triandini, Djunaidy, & Siahaan, 2017)	A maturity model for e-commerce adoption by small and medium enterprises in Indonesia	General	E-commerce maturity model for Indonesia SMEs	4
(Tontini, de Carvalho, da Costa Schlindwein, & Tomarevski, 2016)	Maturity model of procurement and supply management in small and medium-size enterprises: A benchmarking of hospitals and metal-mechanic companies	General	Procurement and supply management maturity model for SMEs	4
(Boonsiritomachai, McGrath, & Burgess, 2016)	Exploring business intelligence and its depth of maturity in Thai SMEs	General	Business intelligence maturity model for SMEs	5
(Ganzarain & Errasti, 2016)	Three stage maturity model in SMEs towards industry 4.0	General	Industry 4.0 stage process model for companies	5
(Powell, Riezebos, & Strandhagen, 2013)	Lean production and ERP systems in small- and medium-sized enterprises: ERP support for pull production	General	ERP system capability maturity model for SMEs	5
(Savino, Mazza, & Ouzrout, 2012)	PLM maturity model: A multi-criteria assessment in southern Italy companies	Electromechanical	PLM maturity model based on an AHP multi-criteria method for SMEs	5
(Sinha, Jochem, Geers, & Heinze, 2011)	Maturity measurement of knowledge-intensive business processes	General	Business process maturity model for SMEs	5
(Plomp & Batenburg, 2010)	Measuring chain digitisation maturity: An assessment of Dutch retail branches	Retail	Chain digitisation maturity model for Dutch retail sector	4
(Sturkenboom, Van Der Wiele, & Brown, 2001)	An action-oriented approach to quality management self-assessment in small and medium-sized enterprises	General	Quality management maturity model for SMEs	5

RESULTS

The results were derived by combining knowledge from the article comparison matrix, the full text of the articles and the article analysis data gathered from Scopus and Web of Science. According to our findings, the article group revealed SME business maturity model research trend: it has been growing steadily in recent years (Picture 1).

Picture 1: Publication trend of articles in the article group



Articles' subject areas were compared in Scopus to see what other subject areas articles included in addition to Business, Management and Accounting (Table 5). Engineering, Computer Science, and Decision Science were identified as the most common subject areas.

Table 5: Other subject area focuses

Subject area	Number of articles
Engineering	8
Computer Science	5
Decision Science	5
Energy	1
Environmental Science	1

Researchers emphasized SMEs big role in economy (e.g. Batista et al., 2019; Isoherranen & Ratnayake, 2018; Andriani et al., 2018). Many articles agreed that there is a lack of maturity models developed for SMEs (Jochem et al, 2011; Igartua et al., 2018; Triandini et al., 2017; Tontini et al., 2016; Sturkenboom et al., 2001). They felt that existing models were mainly developed to large and couldn't be applied often to SME context with good results. The model was seen either as a bad fit to SME-context (e.g Triandini et al., 2017) or too complex for SMEs (e.g Jochem et al, 2011; Sturkenboom et al., 2001).

In most of the articles, business maturity models were built so that SMEs main challenges could be addressed. Typically, articles identified SMEs limited resources as the biggest challenge which should be taken account when SME business maturity model is created (e.g Adrodegari & Saccani, 2020; Batista et al., 2019; Prashar, 2017; Jochem et al, 2011; Plomp et al., 2010). In addition, small workforce

(Batista et al., 2019; Omotayo et al., 2019), workforce's inadequate experience (Adrodegari & Saccani, 2020; Prashar, 2017), and complexity of the topic (Pirola et al., 2019; Powell et al., 2013; Omotayo et al., 2019) were big challenges which many articles took into account in their SME business maturity model.

Sixteen articles did not have a specific industry focus, whereas four articles had a clear industry focus. Moreover, there were no clear industry trends. Most articles (14) used the five maturity levels from the CMM maturity model. Six articles used either 3, 4 or 6 maturity levels. The focus of the maturity models varied a lot between the articles. However, some other similarities were found between the articles, and they were grouped together (Table 6).

Table 6: Found similarities between analyzed maturity models

Grouping criteria	Description
Digital focus	Many maturity models had a digital theme. This included themes like E-Business (Cataldo et al., 2020), Business Intelligence (Boonsiritomachai et al., 2016), Industry 4.0 (Ganzarain & Errasti, 2016; Pirola et al., 2019), ERP (Powell et al., 2013), PLM (Savino et al., 2012) and IT (Mamoghli et al. 2018)
CMM focus	There were two CMM-based models: Omotayo et al. (2019) construction CMM and Powell et al. (2013) ERP CMM
Holistic approach	Many articles took company aspects holistically into consideration in their maturity models (e.g Isoherranen & Ratnayake, 2018; Igartua et al., 2018; Jochem et al, 2011; Sturkenboom et al., 2001; Pirola et al., 2019)
Clear specific focus	Some of the articles had a clear distinct topic focus. This included topic like E-commerce (Triandini et al., 2017) and Energy-Efficiency (Prashar, 2017)
Supply chain focus	Multiple articles had supply chain aspect in their maturity models (e.g Batista et al., 2019) (Isoherranen & Ratnayake, 2018) (Tontini et al., 2016)

Many maturity models had a digital focus, including e-business (Cataldo et al., 2020), e-commerce (Triandini et al., 2017), business intelligence (Boonsiritomachai et al., 2016), industry 4.0 (Ganzarain & Errasti, 2016; Pirola et al., 2019), Enterprise Resource Planning (ERP) (Powell et al., 2013) and IT (Mamoghli et al., 2018). Ganzarain & Errasti (2016) and Pirola et al. (2019) had a similar industry 4.0 focus for their maturity models. They both identified lack of industry 4.0 knowledge and in-house capabilities and radical changes and opportunities of industry 4.0 as central challenges for SMEs. Hence, they defined specific industry 4.0 models for SMEs to help them to define vision and strategy for industry 4.0 activities.

Nine articles had a country or local area focus for the business maturity model: one each for South America and Africa, four for Europe and three for Asia. Some of these emphasised SME maturity model differences between countries. Omotayo et al. (2019) and Cataldo et al. (2020) emphasised the need for SME maturity models in developing countries. It is argued that existing maturity models even in an SME context have a bias towards developed economies and cannot be applied in developed countries as such with good results (e.g. Cataldo et al., 2020; Triandini et al., 2017). These findings suggest that there should be different types of models for SMEs in developing and developed countries.

DISCUSSION

The goal of this article was to obtain an overview of existing business maturity models for SMEs and what do they focus on. This was achieved by conducting SLR which led to the identification of 20 articles that created or refined a business maturity model for SLR. These articles were then analyzed to fulfill the goal of the article.

The analysis revealed that there is a growing trend for business maturity model research in the SME context. Existing SME business model research is diverse, but some similarities can be seen between the models. For example, there are many models that have a digital theme. The findings are also consistent with the findings of Van Looy, Poels and Snoeck (2017), who found that typically maturity models' focus is on e.g. for project management, knowledge management, business-IT alignment, or specific process types such as software processes

Surprisingly, most of the articles were not based on the CMM approach. Instead, most of the articles used previous research in their field and focus areas to build more specific models. Limited resources, small workforce, workforce's inadequate experience and topic complexity are the most common SME challenges that articles address in their models. Many articles describe the lack of SME focused maturity models and emphasize SME focus in their models. Some of the articles emphasize the need for SME business maturity models specifically designed to developing economy context.

These findings open up many research opportunities for future studies. The findings strongly suggest that there is still a need for SME focused business maturity models. SME maturity models could be investigated to see if there are some trends in a larger context. Further research should also be done to identify SME business maturity model differences between developing and developed countries to improve future models. Based on the findings, the overarching concern, is that there is a lack of micro-enterprise focused maturity models. Despite the fact that micro-companies are the dominant sub-group of SMEs enterprise type in the economy (Saarela, Niinikoski, Muhos, Isoherranen, & Leviäkangas (2018), (5) articles mentioned micro-enterprises (Andriani et al., 2018; Prashar, 2017; Igartua et al., 2018; Tontini et al., 2016; Isoherranen & Ratnayake, 2018) but only (2) article took micro-enterprises into account as a sub-group of SME in business maturity model (Isoherranen & Ratnayake, 2018; Igartua et al., 2018). This represents a potential gap, as prior studies suggest that for SMEs maturity models to be useful.

According to the authors, the SLR was designed and implemented successfully but some need for improvement was also identified. Basic SLR practices were fulfilled. The SLR was based to clear research question, the quality of the literature was reviewed and the SLR process was conducted systematically step by step. Clear inclusion-exclusion criteria were defined and followed in advance to minimize selection bias. Matrix-form was used to gather data systematically from articles and reviewed by multiple authors to minimize data bias. However, when findings from the article group were made, the full text of articles was still used to make some findings. Ideally, only the data in the matrix-form should have been used to keep data bias minimized.

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