

The Early Stages of Growth in Technology- and Service-Based Firms

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Abstract

Many stages of growth models have been introduced to clarify management priorities during the early stages of business growth. However, many of these models are conceptual and universal, providing only limited benefits to specific industries and business contexts. The early stages of technology-based ventures have attracted broad interest, while less attention has been paid to the early stages of service-based firms. However, in recent years, interest in service-based businesses, as well as servitisation, has grown. This literature-based study explores and compares the early stages of growth in service-based and technology-based firms. On one hand, this study condenses the basic characteristics of recent empirical studies on the early stages of technology- and service-based firms. On the other, this study clarifies the central themes, sequential patterns and central differences in the early stages of service- and technology-based firms. This study pinpoints the importance of contextual understanding related to the early stages of business growth and encourages the scholars towards bridging the contextual gaps of this stream of literature.

Keywords

stages of growth, SMEs, micro-sized enterprises, technology-based firm, service-based firm.

Introduction

Growing small and medium-size enterprises (SMEs) stimulates demand through job creation, innovation and competition (Arzeni and Akamatsu, 2014; Muller et al., 2017). Early growth is the most critical period in determining whether a new business can survive. Despite massive empirical research into business growth, theoretical development has been slow (e.g. McKelvie and Wiklund, 2010; Davidsson and Wiklund, 2006; Delmar et al., 2003; Shepherd and Wiklund, 2009).

Business growth can be studied from multiple perspectives. Extant literature in this area includes perspectives such as static equilibrium theories (e.g. Coase, 1995), stochastic models (e.g. Gibrat, 1931), transaction-cost theories (e.g. Williamson, 1975), economics-of-growth theories (e.g. Penrose, 1959), resource-based theories (e.g. Penrose, 1959), evolutionary theories (e.g. Nelson and Winter, 1982), organisational-ecology theories (e.g. Hannan and Freeman,

1977), strategic-adaptation theories (e.g. Sandberg and Hofer, 1982), motivational theories (e.g. McClelland, 1961) and configuration theories (e.g. Churchill and Lewis, 1983; Greiner, 1972). This study focuses on the configuration perspective.

The configuration perspective deals with the growth process. According to Davidsson and Wiklund (2006), the configuration perspective focuses on how managerial problems occur and how they can be dealt with during the firm's presumed growth in its typical stages of development. Wiklund (1998) pointed out that, instead of focusing on factors leading to growth, this perspective concerns what growth brings to a company.

Business-growth processes, and the related stages of growth, are mostly described using generic-deterministic models; however, the latest developments are moving research toward more dynamic presentations of growth processes (see Levie and Lichtenstein, 2011; Muhos et al., 2010; Phelps et al., 2007; Muhos, 2015). Most of the growth research has not acknowledged qualitative and contextual differences in companies' growth processes (e.g. McKelvie and Wiklund, 2010; Shepherd and Wiklund, 2009).

Many stage models have been introduced to clarify management priorities during the early stages of business growth, but many of these models are conceptual and universal, providing only limited benefits to

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specific industries and business contexts. Technology-based ventures' early stages have attracted broad interest, while less attention has been paid to service-based firms' early stages. However, in recent years, interest in service-based businesses, as well as servitisation, has grown.

More in-depth research focusing on the dynamic and contextual nature of business-growth processes is needed to make the necessary paradigm shift.

This literature-based study explores and compares the early stages of growth in service-based and technology-based firms. This study's objective is to bridge the aforementioned research gap by analysing selected configuration studies focused on technology- and service-based businesses. By conducting an explorative in-depth meta-analysis of the most recent empirical models, this study seeks to integrate some of the main, common themes and sequential patterns presented in these models.

The following research questions are posed: What are the basic characteristics of recent empirical studies on the early stages of technology- and service-based firms? What are the central themes, sequential patterns and central differences in the early stages of service- and technology-based firms as revealed in recent empirical literature?

This study is based on a meta-analytical methodology designed to answer the research questions. A group of recent empirical-stage models of the early stages of service- and technology-based businesses was selected for meta-analysis and synthesis.

Method

This study conducts a meta-analysis of previous studies to integrate some of their findings. A meta-analysis is especially useful when the literature contains a large number of studies that deal with the same area of interest (Glass, 1976). This is the case with studies on growth configuration. Because this is a meta-analytical study, it does not include preliminary or secondary data. According to Cook et al. (1992), all studies combine evidence found in units of analysis. In a meta-analysis, these units are published reports.

This meta-analysis focuses on growth-configuration studies of the early stages of technology- and service-based businesses. The key phases of the research process that this study utilised are based on Cook et al. (1992) and Cooper et al. (2009). According to Cooper et al. (2009), the key phases of the meta-analytical research process are as follows: 1) problem formulation; 2) literature search; 3) data evaluation; 4) data

analysis; 5) interpretation of the results; and 6) public presentation.

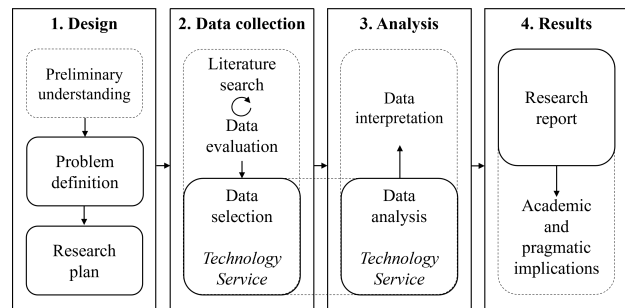


Fig. 1. Research process

First, in the design phase, preliminary understanding was generated through the literature review and the in-depth analysis of earlier extensive reviews of the growth stages' models (e.g. Muhos et al., 2010; Phelps et al., 2007). These meta-analyses provided a wide perspective on the broad configuration literature. After generating preliminary understanding, the problem was defined, and the research was planned, resulting in the research design of the meta-analysis. Second, during the data-collection phase, two rounds of a literature search and data evaluation were carried out, resulting in the selection of the final data sets (earlier published, see Muhos et al., 2017; Muhos et al., 2018). Third, the selected data were analysed following the logic of meta-analysis and data interpretation. Fourth, the results were explained, as were their implications for academics and practitioners who are interested in service-based firms' early stages.

Results

Literature search and data evaluation

Nine recent empirical configuration models of service-based firms' early stages were selected for the explorative meta-analysis presented in this study. The purpose of this meta-analysis is to describe these models' characteristics to lay a foundation for the development of reliable frameworks for self-evaluation and further analysis of service-based businesses' early stages. Parts 2 and 3 of the meta-analysis (2) literature search, 3) data evaluation) are reported in detail in (Muhos et al., 2017). The models selected and further analysed are presented in Table 1.

Fourteen recent empirical configuration models of technology-based firms' early stages were selected for the explorative meta-analysis presented in this

Table 1

The sample of recent empirical studies on service-based businesses included in the meta-analysis

No	Author(s), year	Stages
1	Shim et al. (2000)	5
2	Greiner and Malernee (2005)	4
3	Masurel and Van Montfort (2006)	4
4	Teeter and Whelan-Berry (2008)	4
5	Auzair (2010)	3
6	Van Tonder and McMullan (2010)	5
7	Witmeur and Fayolle (2011)	3–4
8	Ferreira et al. (2011)	5
9	Empson (2012)	5

study. The purpose of this meta-analysis was to describe these models' characteristics to lay a foundation for the development of reliable frameworks for self-evaluation and further analysis of service-based businesses' early stages.

Parts 2 and 3 of the meta-analysis (2) literature search, 3) data evaluation) of the meta-analysis are reported in detail in (Muhos et al., 2018; Muhos, 2011). The models selected and further analysed are presented in Table 2.

Table 2

The sample of recent empirical studies on technology-based businesses included in the meta-analysis

No	Author(s), year	Stages
1	Van de Ven et al. (1984)	5
2	Smith et al. (1987)	3
3	Kazanjian (1988); Kazanjian and Drazin (1990); Kazanjian and Drazin (1989)	4
4	McCann (1991)	4
5	Hanks et al. (1991)	4
6	Hanks and Chandler (1992); Hanks et al. (1994)	5
7	Hanks and Chandler (1994)	4
8	Poutziouris et al. (1999)	4
9	Mitra and Pingali (1999)	5
10	Abetti (2001)	3
11	Swiercz and Lydon (2002)	2
12	Kaulio (2003)	4
13	Garengo and Bernardi (2007)	4
14	Stam (2007)	5

Data analysis

To delineate the findings on these models, the main, common themes were determined through an in-depth meta-analysis during the study's earlier phases (Muhos et al., 2017; Muhos et al., 2018; Muhos, 2011). The main, common themes were similar in that both models focused on technology and on service-based businesses. The shared perspectives then were classified into the following nine themes: (1) Focus; (2) Power; (3) Organisational structure; (4) Decision-making systems; (5) Strategic management; (6) Development and delivery of services (service-based models)/Development and delivery of technology (technology-based models); (7) Marketing; (8) Human resources; and (9) Growth.

The meta-analysis delineated the models' findings based on the nine perspectives. Each theme, or category, was used to delineate each model's similarities as they relate to the particular theme. The models that focused on technology-based businesses were found to be consistent in content, with the sequential order of the challenges and activities related to each theme. However, the number of sequences varied from model to model based on the authors' various decisions, including the focus of the analysis. Some of the models focused on early stages, while others were more general. For these reasons, in some models, a stage was divided into two or more distinctive stages, while others used only one stage. Similar findings that applied to the models focused on service-based businesses. The delineation of the results is presented in Table 3.

Table 3

The relationship between the original stages described in the models and the two syntheses

Number, Model	Stages				
<i>Service-business models</i>					
1. Shim et al. (2000)	1	1	2	2	3
2. Greiner and Malernee (2005)	1		2		3
3. Masurel and Van Montfort (2006)	1		2		3
4. Teeter and Whelan-Berry (2008)	1		2		3
5. Auzair (2010)	1		2		3
6. Van Tonder and McMullan (2010)	1	1	2		3
7. Witmeur and Fayolle (2011)	1		2		3
8. Ferreira et al. (2011)	1	1	2		3
9. Empson (2012)	1		2		3
Sequencing for synthesis (service)	1		2		3

Table 3 [cont.]

Number, Model	Stages			
<i>Technology-business models</i>				
1. Van de Ven et al. (1984)	1	2	3	4
2. Smith et al. (1987)	1	2	3	4
3. Kazanjian (1988); Kazanjian and Drazin (1990); (1989)	1	2	3	4
4. McCann (1991)	1	2	3	4
5. Hanks et al. (1991)	1	2	3	4
6. Hanks and Chandler (1992); Hanks et al. (1994)	1	2	3	4
7. Hanks and Chandler (1994)	1	2	3	4
8. Poutziouris et al. (1999)	1	2	3	
9. Mitra and Pingali (1999)	1	2	3	4
10. Abetti (2001)	1	2	3	4
11. Swiercz and Lydon (2002)	1	2	3	4
12. Kaulio (2003)	1	2	3	4
13. Garengo and Bernardi (2007)	1	2	3	4
14. Stam (2007)	1	2	3	4
Sequencing for synthesis (technology)	1	2	3	4

Notes: A single number in the table = a single stage in the original model; 1, 2, 3, ...n = a related stage number in the synthetic self-evaluation framework; 0 = stages prior to the establishment of the business

To compare the two synthetic self-evaluation frameworks' central findings, only the early development of the firm, starting from its establishment, was included in this analysis. The stages describing what happened before the establishment of the firm, as well as the stages following the saturation of the new service or technology market, were not included in this analysis.

Interpretation

The selected models were analysed further to clarify each model's central characteristics. The condensed results of the analysis are presented in Tables 5 and 6.

Management priority: Focus

Table 5 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of management focus. Under this theme, the models described the changes in the manager's *focus*.

Managers of both technology- and service-based firms, during early growth, focus on establishing an

early customer base and reaching market acceptance. Moreover, growth-management issues in constant flux require attention. As a central difference, service-business management focuses first on development and delivery of services simultaneously with building market identity to survive, while managers of technology-based firms focus early on product and/or technology development and technical feasibility, then later the creation of a business and the commercialisation of products.

Management priority: Power

Table 7 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *power* issues.

This theme focused on who uses the power in growing technology and service businesses and how it is used.

The models agreed with the finding that the decision-making was owner-centric in the beginning, as the owner-manager or team of owner-managers leads only a small group of employees. Moreover, both service- and technology-based firms face the need to delegate power first to a small management team, then later to experienced professional executives, as complexity and competition proliferate in a growing firm and in its business environment. In a growing service business, the company moves from owner-centric decision-making to gradual delegation of power and responsibilities. First, power is delegated to a small management team, then professional executives are brought in, and they may replace the owner, as service businesses need to focus on efficiency, rules, procedures and control in a saturating market. However, a newly established technology-based firm is dependent on the owner and/or a small number of partners, as it first focuses on conception and development, then commercialisation. As market acceptance is reached, the owner and/or partners remain central, but delegate responsibilities to a small management team. In a saturating market, competition increases and the owner-manager(s) is supported by or replaced by a professional executive or team of executives.

Management priority: Structure

Table 8 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *organisational structure*. The term structure here refers to how the organisational framework changes during the early stages of business growth.

Table 4
The relationship between the original stages described in the models and the two syntheses

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	The focus is on development and delivery of services and building market identity to survive.	The objective is product and/or technology development and the establishment of an early customer base.	1
		The objective is the creation of a business and the commercialisation of the product. Resource generation and survival are key issues.	2
2	The focus is on growth management as market acceptance leads to rapid growth and constant change.	Technical feasibility and market acceptance lead to high growth. The main objective is to manage the company toward growth and increase market share by marketing and manufacturing the product efficiently in high volume.	3
3	The focus is on efficiency by formalising rules, procedures and financial controls in a saturated market.	The company faces a slowing growth rate and intense competition in a maturing product market. The main objectives are to develop a second generation of the product and improve the first generation's efficacy and efficiency.	4

Table 5
The central characteristics of the early stages of service-based firms

Management priority area	Stage 1: Start-up	Stage 2: Takeoff	Stage 3: Resource Maturity
Focus	The focus is on development and delivery of services and building market identity to survive.	The focus is on growth management as market acceptance leads to rapid growth and constant change.	The focus is on efficiency by formalising rules, procedures and financial controls in a saturated market.
Power	Decision-making is owner-dependent as owner-manager(s) lead a small group of employees.	Owner-manager(s) maintain control, but delegate responsibilities to a small management team.	Original owner-manager(s) and the management team are supported by professional executives.
Structure	The structure is simple, informal and owner-centred.	The structure is formalised gradually through task specialisation.	A formal structure with defined roles and responsibilities is introduced.
Decision-making systems	Formal decision-making systems and procedures are almost non-existent.	The firm moves rapidly from basic decision-making systems to scalable systems compatible with a growing business.	Enterprise strategies, rules and policies become written and supported by extensive operational systems.
Strategic management	Owner-manager(s) lack time for strategic planning.	Strategic planning focuses on maintaining continuous growth.	Strategic management is both formalised and supported by financial resources.
Service development and delivery	Development and delivery of innovative services are everyone's job.	The firm delivers and scales services efficiently to meet increasing market demand.	Fresh and continuous innovation methods are implemented to avoid stagnation.
Marketing	New businesses focus on attracting early customers.	Sectors, activities and client types increase rapidly.	New ideas are needed to maintain market position, expand and/or renew.
Human resources	Everyone is involved in everything in a small start-up.	Hierarchy and decreased involvement coincide with fast-track career opportunities.	The firm takes an organisational approach to employee efficiency and efficacy.
Growth	Moves from facing challenges to meet cash demands to a cash flow that breaks even, thanks to early customers.	Market acceptance leads to fast growth and positive cash flow; cash flow and/or debt is used to finance growth.	The growth of cash flow decreases in a highly competitive and saturated market.

The models agreed that the firms start with a simple, owner-centric structure, but along with commercialisation and growth, the structure gradually is formalised and defined, and specialised roles, functions and processes are added. As the market saturates,

efficiency and efficacy are improved through structures and processes. Early on, in the service business, the structure is simple, informal and owner-centred, as the company focuses on the simultaneous development of service and market identity. As the com-

Table 6
The central characteristics of the early stages of technology-based firms

Management priority area	Stage 1: Conception and development	Stage 2: Commercialisation	Stage 3: Expansion	Stage 4: Stability/renewal
Focus	The stage begins with the establishment of the company. The objective is product and/or technology development and the establishment of an early customer base.	The stage begins with early reference customers. The objective is the creation of a business and the commercialisation of the product. Resource generation and survival are key issues.	Technical feasibility and market acceptance lead to high growth. The main objective is to manage the company toward growth and increase market share by marketing and manufacturing the product efficiently in high volume.	The company faces a slowing growth rate and intense competition in a maturing product market. The main objectives are to develop a second generation of the product and improve the first generation's efficacy and efficiency.
Power	The newly established firm is owner-dependent.	The firm is dependent on the owner and/or a small number of partners.	The owner and/or partners remain central, but delegate responsibilities to a small management team.	The owner-manager(s) is supported by or replaced by a professional executive or team of executives.
Structure	The organisation functions as a product-development team.	The owner and/or a small number of partners form the administrative system's nucleus.	Specialised functions are considered and added. Efficiency and efficacy are improved through structures and processes.	A formal structure with defined roles is introduced, and more specialised functions and processes are added.
Decision-making systems	Formal decision-making systems and procedures are almost non-existent	Development of decision-making systems and procedures begins.	The firm moves rapidly from basic decision-making systems to scalable systems.	Strategies, rules and policies are written and supported by professional management systems.
Strategic management	The owner makes the strategic decisions.	The owner and/or a small number of partners makes the strategic decisions.	Strategic planning is gradually formalised by the owner and/or a small number of partners.	Strategies, rules, regulations and procedures are standardised and formalised.
Product and/or technology development and delivery	Development begins on a working technology and/or a prototype.	The stage is characterised by early manufacturing and initial technical challenges. The company learns to make and produce the product.	The company must produce and distribute the product at an increasing volume.	New product generation(s) and profitability improvements help maintain growth and reasonable market share.
Marketing	The main activities relate to the business idea, market identification and resource mobilisation.	The stage is characterised by early marketing activities.	The company must sell the product at an increasing volume. New customers and new market channels require constant attention.	The identification of new markets is essential for company renewal.
Human resources	The management style is informal, flexible and creative. Communication is face-to-face.	The management style is participatory and coordinative.	A sense of hierarchy increases. High growth leads to personnel problems.	Employees become specialised and non-risk-takers.
Growth management	The cash flow falls into the red due to lack of products.	The amount of negative cash flow decreases.	Positive cash flow increases rapidly.	The growth of cash flow decreases.

pany moves through market acceptance to growth and change, the structure is formalised through unavoidable task specialisation. As the market saturates, a formal structure with defined roles and responsibilities is introduced. Early on, the organisation in a technology-based firm functions as a product development team, as the company first focuses on product and/or technology development. When a product and/or technology is ready for commercialisation, a gradual formalisation of structure begins with role specialisation. However, the owner and/or a small number of partners forms the nucleus of the administrative system. As the market saturates, efficiency and efficacy are improved through structures and pro-

cesses. A formal structure with defined roles is introduced, and more specialised functions and processes are added.

Management priority: Decision-making system

Table 9 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of a *decision-making system*. The term *decision-making system* refers to the digital decision support systems needed to manage growing businesses efficiently and effectively.

Table 7
The relationship between the original stages described in the models and the two syntheses

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Decision-making is owner-dependent, as owner-manager(s) lead a small group of employees.	The newly established firm is owner-dependent.	1
		The firm depends on the owner and/or a small number of partners.	2
2	Owner-manager(s) maintain control, but delegate responsibilities to a small management team.	The owner and/or partners remain central, but delegate responsibilities to a small management team.	3
3	Original owner-manager(s) and the management team are supported by professional executives.	The owner-manager(s) is supported by or replaced by a professional executive or team of executives.	4

Table 8
The central characteristics related to the early stages of growth from the perspective of organisational structure

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	The structure is simple, informal and owner-centred.	The organisation functions as a product-development team.	1
		The owner and/or a small number of partners form the nucleus of the administrative system.	2
2	The structure is formalised gradually through task specialisation.	Specialised functions are considered and added. Efficiency and efficacy are improved through structures and processes.	3
3	A formal structure with defined roles and responsibilities is introduced.	A formal structure with defined roles is introduced, and more specialised functions and processes are added.	4

Table 9
The central characteristics related to the early stages of growth from the perspective of a decision-making system

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Formal decision-making systems and procedures are almost non-existent.	Formal decision-making systems and procedures are almost non-existent.	1
		Development of decision-making systems and procedures begins.	2
2	The firm moves rapidly from basic decision-making systems to scalable systems compatible with a growing business.	The firm moves rapidly from basic decision-making systems to scalable systems.	3
3	Enterprise strategies, rules and policies become written and supported by extensive operational systems.	Strategies, rules and policies become written and supported by professional management systems.	4

The models agreed that in the beginning, the formal decision-making systems and procedures are almost non-existent and that scaling the business requires rapid development from basic decision-making sys-

tems to scalable systems that are compatible with the growing business. In a service-based business, which focuses first on parallel service and market identity development, formal decision-making systems and pro-

cedures are almost non-existent. Through market acceptance at the beginning of the second sequence, the firm moves rapidly from basic decision-making systems to scalable systems that are compatible with the growing business. In the third sequence, in a saturated and highly competitive market, the service business seeks to maintain its market share and profitability through written strategies and rules, and by policies supported by comprehensive operational systems. As a technology-based firm sequentially moves from product/technology development to commercialisation, it already starts to develop digital decision-making systems to build a scalable business. As market acceptance is reached, the firm moves rapidly from basic decision-making systems to scaling systems. As the market becomes saturated, strategies, rules and policies are written and supported by professional-management systems.

Management priority: Strategic management

Table 10 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *strategic management*. The term strategic management refers here to the changing characteristics of long-term planning, patterns and/or ‘ploy’, as the technology and service businesses grow.

The models agreed that in the early part of development, the strategic management is dependent on owners’ orientation toward long-term planning and that, through the process of market acceptance, growth and market saturation, the strategies need to be shared, formalised and supported by financial and/or human resources. In a service start-up, owner-managers tend not to have enough time for strategic planning due to a handful of parallel tasks related to the development of services and market identity. In the second sequence, as the company faces market acceptance and

rapid growth, strategic planning focuses on maintaining continuous growth. According to the models, as the company reaches resource maturity in the third sequence, strategic management becomes both formalised and supported by financial resources. Within the product/technology development team of a newly established technology business, the owner(s) makes the strategic decisions. As the company broadens its focus to commercialisation of the product/technology, strategic decisions are made through collaborations between the owner(s) and/or a small number of partners. As the company scales its product/technology, strategic planning (strategies, rules, regulations and procedures) is both formalised and standardised.

Management priority: Product/technology development and delivery and/or service development and delivery

Table 11 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *product/service development and delivery*. This theme refers to how services or products/technology are developed and delivered during the early growth of service-based firms.

The biggest structural difference between service and technology businesses is rooted in the different nature of a service and product. On one hand, a product can be produced in one time and place, and consumed in another, so service production and delivery are parallel processes. However, according to the models, in technology businesses, conception, development and commercialisation are sequential stages, while in service businesses, they are parallel processes during one start-up stage. It takes time and resources before a company has something to sell. In the service-business models, development and delivery of innovative services are the primary focus and, therefore, part of ev-

Table 10
The central characteristics related to the early stages of growth from the perspective of strategic management

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Owner-manager(s) lack time for strategic planning.	The owner makes the strategic decisions.	1
		The owner and/or a small number of partners makes the strategic decisions.	2
2	Strategic planning focuses on maintaining continuous growth.	Strategic planning is gradually formalised by the owner and/or a small number of partners.	3
3	Strategic management is both formalised and supported by financial resources.	Strategies, rules, regulations and procedures are standardised and formalised.	4

Table 11

The central characteristics related to the early stages of growth from the perspective of product/technology development and delivery and/or service development and delivery

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Development and delivery of innovative services are everyone's job.	Development is begun on a working technology and/or a prototype.	1
		This stage is characterised by early manufacturing and initial technical challenges. The company learns to make and produce the product.	2
2	The firm delivers and scales services efficiently to meet increasing market demand.	The company must produce and distribute the product at an increasing volume.	3
3	Fresh and continuous service innovation methods are implemented to avoid stagnation.	New product generation(s) and profitability improvements help maintain growth and reasonable market share.	4

everyone's job in a newly established service-based business. As the company moves to the next stage through market acceptance, the focus moves from development to efficient delivery and scaling of the services. According to the models, as the resource-mature company faces saturated market conditions in the third growth sequence, fresh and continuous innovation methods are implemented to avoid stagnation. In a technology-based firm, the conception and development begins on a working technology and/or a prototype. The following commercialisation stage is characterised by early manufacturing and initial technical challenges as the company sells the new product/technology to its customers. As market acceptance is reached, the company learns how to make, produce and scale the product. As the market saturates, the company must produce and distribute the product at an increasing volume. New product generation(s) and profitability improvements help maintain growth and reasonable market share.

Management priority: Marketing

Table 12 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *marketing*. The term marketing refers here to the changes related to the sales and marketing activities of a growing business.

The models agreed that marketing needs to be scaled with the business. As market acceptance is reached, new customers and new market channels require constant attention. Moreover, both in the service and technology businesses, since the first growth market saturates, identification of new markets is one vital option for company renewal. In a service start-up, the marketing activities in a new service business are focused on attracting early customers. As the company reaches market acceptance and growth, the sectors, activities and client types at the focal point of marketing activities increase rapidly, as does the mar-

Table 12

The central characteristics related to the early stages of growth from the perspective of marketing

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	The new business focuses on attracting early customers.	The main activities relate to the business idea, market identification and resource mobilisation.	1
		The stage is characterised by early marketing activities.	2
2	Sectors, activities and client types increase rapidly.	The company must sell the product at an increasing volume. New customers and new market channels require constant attention.	3
3	New ideas are needed to maintain market position, expand and/or renew.	The identification of new markets is essential for company renewal.	4

keting workload. Finally, as the company reaches resource maturity in a saturating market, new ideas are required in marketing to maintain current market position, renew market position and/or expand into new markets. In technology start-ups, the focal point of the marketing activities moves in somewhat sequential order from business-idea development, market identification and resource mobilisation (fit to the conception and development) to early marketing activities (fit to the commercialisation of the product). As market acceptance is reached, the company must sell the product at an increasing volume, and new customers and new market channels require attention. As the market saturates, identification of new markets is essential for company renewal.

Management priority: Human resources

Table 13 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *human resources*. The term human resources refers here to how the characteristics of human-resources management change as the service business proceeds through the early growth process.

The models agree that in both service and technology businesses, hierarchy increases, leading to a decreased sense of involvement, which may cause personnel problems. In a new service-based start-up, everyone is involved in all activities and tasks as the company focuses on the development and delivery of services and early market identity. After market acceptance, during the second sequence, hierarchy and decreased involvement coincide with fast-track career opportunities in the rapidly growing service business. In the third sequence, as the resource-mature service business faces a saturated market, it needs to take an organisational approach to improving employee efficiency and efficacy. In a new technology-based

firm, the organisation functions as a tech-development team in which the management style is informal, flexible and creative, and communication is easy to manage face-to-face. As the company moves to commercialisation of the product/technology, the management style remains participatory and coordinative. However, as market acceptance leads to scaling of the business, a sense of hierarchy increases. High growth also may lead to multiple types of personnel problems. In a mature market, efficiency and efficacy challenges lead to task specialisation as employees become more specialised and more reluctant to take personal risks.

Management priority: Growth management

Table 14 presents, in condensed form, the central characteristics of growth in technology- and service-based companies from the perspective of *growth management*. The term growth management refers to how the models describe changes in terms of measurable growth indicators and related growth characteristics.

One of the central differences between service- and technology-based firms is that while technology-based firms typically have nothing to sell in the beginning, service-based firms can start revenue generation from Day 1 and develop services simultaneously. Therefore, the early debt load typically is deeper in technology-based firms. However, the service- and technology-based business models agreed that as the company faces the cash-flow break-even point and scales the business, cash flow increases rapidly. Moreover, as the market saturates, positive cash flow starts to decrease, both in service- and technology-based firms. According to the meta-analysis, a new service start-up moves from challenges in meeting cash demands to a cash flow break-even point, thanks to early customers. During takeoff, market acceptance leads to fast growth and positive cash flow, which can be used to speed up growth. The growth in the cash flow of a resource-

Table 13
The central characteristics related to the early stages of growth from the perspective of human resources

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Everyone is involved in everything in a small start-up.	The management style is informal, flexible and creative. Communication is face-to-face.	1
		The management style is participatory and coordinative.	2
2	Hierarchy and decreased involvement coincide with fast-track career opportunities.	A sense of hierarchy increases. High growth leads to personnel problems.	3
3	The firm takes an organisational approach to employee efficiency and efficacy.	Employees become specialised, non-risk-takers.	4

Table 14
The central characteristics related to the early stages of growth from the perspective of growth management

Focal management characteristics of a service business; stages		Focal management characteristics of a technology business; stages	
1	Moves from challenges to meet cash demands to a cash flow that breaks even, thanks to early customers.	The cash flow falls into the red due to a lack of products.	1
		The amount of negative cash flow decreases.	2
2	Market acceptance leads to fast growth and positive cash flow; cash flow and/or debt is used to finance growth.	Positive cash flow increases rapidly.	3
3	The growth of cash flow decreases in a highly competitive and saturated market.	The growth of cash flow decreases.	4

mature company starts to decrease in a highly competitive and saturated market. In a technology-based firm, during the conception and development stages, cash flow falls into the red due to a lack of a product or market-ready technology. As the company has a market ready product or technology to commercialise, the amount of negative cash flow starts to decrease. As market acceptance is reached, the cash flow break-even point is reached, and positive cash flow increases rapidly. Finally, in a maturing market, the growth of cash flow decreases, and the company must focus on efficiency and efficacy by optimising its operations to remain competitive.

Discussion

The starting point for this study is the fact that, even though many stages of growth models have been introduced to clarify management priorities during the early stages of business growth, many of these models remain overly conceptual and universal, providing only limited benefits to specific industries and business contexts. The early stages of technology-based ventures earlier have attracted broad interest, while less attention has been paid to the early stages of service-based firms. The interest in service-based businesses, as well as servitisation, has increased in recent years. This literature-based study explores and compares the early stages of growth in service-based and technology-based firms by conducting a meta-analysis of previous studies to compare and integrate some of their findings.

The following research questions were posed: What are the basic characteristics of recent empirical studies on the early stages of technology and service-based firms? What are the central themes, sequential pat-

terns and central differences in the early stages of service- and technology-based firms as revealed in recent empirical literature?

To answer these questions, this study conducted a meta-analysis of nine recent empirically based configuration (stages of growth) studies that focused on service-business growth and meta-analyses of 14 recent empirically based configuration studies that focused on technology-business growth. The answer to the research questions is provided in this study's third section (Results).

The first research question is answered in Results section in Tables 3, 4 and 5, which clarified the central characteristics of the early stages of service- and technology-based firms through nine central management priority areas. Yes, context matters. Both are presented in the form of a grid-type configuration framework, which is a condensed synthesis of the findings derived from the recent, empirically based configuration (stages of growth) studies that were selected. The synthesis of the early stages of service-based companies comprises three sequences: Start-Up (Stage 1); Takeoff (Stage 2); and Resource Maturity (Stage 3). The synthesis of the early stages of technology-based companies comprises four sequences: Conception and Development (Stage 1); Commercialisation (Stage 2); Expansion (Stage 3); and Stability/Renewal (Stage 4). The stages' central characteristics are presented in the aforementioned tables in detail.

The second research question is answered in Results section, Tables 6–14. Results clarified and compared the central characteristics, sequential patterns and central differences in the early stages of service- and technology-based firms from the perspectives of nine central-management priority areas: (1) Focus; (2) Power; (3) Structure; (4) Decision-Making Systems; (5) Strategic Management; (6) Product and/or

Technology Development and Delivery/Service Development and Delivery; (7) Marketing; (8) Human Resources; and (9) Growth Management.

This study presented probabilistic frameworks (e.g. Garengo and Bernardi, 2007; Eggers et al. 1994; Filley and Aldag, 1980; Hasenfeld and Schmid, 1989), which are not intended to determine inevitable linear sequences of stages in organisational development that parallel biological life cycles.

There are several important practical implications of this study. The stage framework can be an effective tool to the owner-managers for reflecting on and predicting the challenges encountered during a company's early development (Phelps et al., 2007), as well as to potential entrepreneurs. The frameworks presented in this study function as a self-evaluation framework of growth in the early stages of technology- and service-based firms, for which universal growth models provide limited assistance. Focussed approaches, such as those presented in this study, can lead to the development of better tools to support growth management in firms (Saarela, 2020). Furthermore, as these frameworks provide more in-depth understanding of the early stages of service- and technology-based firms, they can be useful for public and private business development organisations seeking to provide effective support services (Saarela et al., 2015). By using these frameworks, such actors can provide accurate support for their customers.

Business growth is a multidimensional and heterogeneous phenomenon, and the present meta-analytical study's results could encourage the academic community to develop a context-specific understanding of the early stages of business growth instead of seeking a universal solution. Universal frameworks are simply not adequate. The meta-analysis presented here is a starting point, rather than an end. The self-evaluation frameworks provide a useful reference for future research. Furthermore, the frameworks may be tested later to provide greater understanding of the early stages by using empirical evidence. By using the self-evaluation framework as a reference, it could be possible to analyse the special characteristics of growth in different sectors of the service industry and in different cultural contexts.

Conclusion and outlook

This literature-based study explored the early stages of growth in service-based and technology-based firms by conducting a meta-analysis of previous, empirically based studies to compare and integrate some of their findings.

As pointed out in the beginning of this paper, several stages of growth models have been introduced to clarify management priorities during the early stages of business growth. However, many of these models are conceptual and universal, providing only limited benefits to specific industries and business contexts. The early stages of technology-based ventures have attracted broad interest, while less attention has been paid to the early stages of service-based firms. However, in recent years, interest in service-based businesses as well as servitisation has grown. This literature-based study explored and compared the early stages of growth in service-based and technology-based firms focusing on the selected empirically based studies.

The meta-analysis here opened a new potential research path. Interest towards service-based businesses as well as servitisation has increased in recent years. It seems that extant configuration literature (studied here) does not discuss the technology service hybrids. From the perspective of future research, it is interesting to ask, whether there is room and need for analysis of the early stages of growth in technology-service hybrids? Meta-analyses of extant servitisation literature and case studies of the companies at different levels of servitisation may provide, in the future, a promising starting point for analyzing the early stages of product/service hybrids. Current literature, focusing on product or service firms, fails to address the hybrids, so there is a clear gap in literature related to this area.

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