Core competency deficits in failed startup teams: Towards a startup-specific behavioral competency model

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Abstract

Purpose: There is limited research on the reasons behind startup failure, and none of the available studies use a competency approach. In this study we applied Spencer's competency model to identify the competencies in startups which, according to their CEOs, contributed to failure. *Methodology:* Three coders analyzed the stories of 50 startup failures published online using modified Critical Incident Technique. *Findings*: Two salient competencies were identified playing a fundamental role in startup failures if missing: Information seeking and Customer service orientation. A network pattern of 9 more prevalent competency deficits was created: Technical/professional/managerial expertise, Analytical thinking, Flexibility, Self-control, Concern for order, quality and accuracy, Interpersonal understanding, Self-confidence, Team leadership and Teamwork and cooperation. Besides startup-specific behavior descriptions were added to Spencer's competencies. *Research implications:*

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Competency approach and Critical Incident Technique method proved to be feasible to identify competency deficits in failed startups. *Practical implications:* The identified competency deficits offer relevant focus areas for the assessment and development of startup teams. *Originality:* The study provided research evidence to describe the competency deficits of startup teams that are connected to their failure.

Keywords:

startup failure; competency approach; Critical Incident Technique; Information seeking; Customer service orientation

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1. Introduction

1.1. Startup struggles

A startup is a project consisting of an individual or a team that aims to lead to changes in their environment through the creation of a significant new economic value, usually an innovation (Baregheh, Rowley & Sambrook, 2009), or sometimes a new economic sector. According to Blank (2013) and Bruyat and Julien (2001), a startup is the first stage of an entrepreneurial venture which is still searching for its replicable and scalable business model. Most startups fail in their very early stage of operation (Griffin, 2017), and yet we do not know the specific reasons why. Startup ecosystem is a large and growing industry, with special operational dynamics, which is worthy of a better understanding.

To finance startups usually multiple rounds of high-risk investment are required. During the startup phase the probability of failing is very high (Cambridge Associates, 2017; Griffin, 2017). The Startup Genome Report found from analyzing more than 3200 high-growth startups, 92% of them fail within the first three years (Marmer, Hermann, Dogruttan & Berman, 2012b; Startup Genome LLC, 2018). Therefore, options for raising capital by regular means, such as bank loans and governmental funding, are very limited or not available at all. The size and growth intensity of the startup industry is encapsulated in PricewaterhouseCoopers and CB Insights's MoneyTree Report (2018), which showed that the total annual global funding increased by nearly 50% in 2017, as over $164B was invested across 11,042 deals. Deal activity was up by 11%, with both deal and dollar figures representing annual highs. However, ecosystem participants with higher risk tolerance, such as business angels and venture capitalists, have emerged to fill that void. Their business model is built on taking the high risk into account and still remaining profitable (Fiet, 1995).

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1.2. Startup team characteristics considerations in investment decisions

There is a growing amount of research about entrepreneurial failure reasons (e.g. Artinger & Powell, 2016; Cardon, Stevens, & Potter, 2011), conceptualizing failure on firm level and from subjective perspectives (Jenkins & McKelvie, 2016), although not many of them are focusing on the specific challenges of startups (e. g. Nummela, Saarenketo, & Loane, 2016). Most of the research academic papers approach it from the decision-making perspective of investors, such as business angels and venture capitalists (Lohrke, Holloway, & Woolley, 2009; Shepherd, 2010). They paint a comprehensive picture of how these actors choose the ventures in which to invest (Fried & Hisrich, 1994; Tyebjee & Bruno, 1984; Zacharakis & Meyer, 2000). Even within this approach, analyzing business opportunities at this early stage is challenging. In most of the cases there is no existing business to evaluate, only an idea or a very basic prototype, without evidence of its viability. Due to the lack of business measures, investors themselves – predominantly business angels – tend to focus in the early stage on team-related risks and characteristics (Fiet, 1995).

The due diligence process that precedes the investment decision can be divided into two distinct parts: pre-screening and longitudinal analysis (Carpentier & Suret, 2015), both containing some startup team-related considerations. During the whole evaluation process, the significance ratio of critical factors associated with the founder team varies between 16.7% and 22.7% (Maxwell, Jeffrey & Lévesque, 2011). In the pre-screening process, 4 of the 24 critical factors relate to the members of the founder team, or the team as a whole: (1) industry experience, (2) management ability, (3) team experience and (4) team record (Maxwell et al., 2011). In the longitudinal analysis, 5 of 22 rejection criteria are connected to the members of the team or to the team as a whole: (1) inexperience, (2) reputation/potential dishonesty, (3) lack of confidence/self interest seeking/shirking/game playing, (4) no/incomplete management, (5) asymmetry/distance (Carpentier & Suret, 2015).

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Despite the relatively low ratio of startup team-related evaluation criteria above, these industry participants mention that finding a good team is more important than all other investment factors in early-stage startups (Baum, Calabrese & Silverman, 2000). This assertion is not supported so far by empirical findings. To the best of our knowledge there is no research evidence yet to describe the special features of startup teams that are connected to their future success or failure.

1.3. Business performance measurement challenges of startups

From broader perspective, the applicability of traditional effectiveness and performance measures for startup evaluation, such as business performance or stakeholders' perception (Richard, Devinney, Yip & Johnson, 2009) is very limited due to several factors. First, the extreme dynamism of their environment with the low ratio of long-term success mean that there is little research evidence of effective business performances in the field (Marmer, Hermann, Dogruttan & Berman, 2012a; Startup Genome LLC, 2018). Secondly, because of the early stage of operation, there is no or minimal business performance and a very limited number of relevant stakeholder relationships to measure (Marmer et al., 2012a). Thirdly, the early stage of formation suggests that the startup at this stage typically consists of two or three co-founders, those who are about to create a formal organization from a team of people (Marmer et al., 2012a).

Consequently, instead of classical measurements, special considerations and solutions are needed to estimate the future fitness and performance of startups. The same assessment challenge is well known from a different context: the assessment of the person – job fitness (Caldwell & O'Reilly, 1990; Edwards, 1991). Therefore we can consider to applying a reliable and efficient solution from that context to describe a team – environment fitness in startup context (Van de Ven, 1979). This solution is the assessment of competencies which

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measure individuals' or teams' suitability for a specific job or task (Shippmann et al., 2000). In case of startups the set of specific tasks is the startup development journey, invloving defined assignments and challenges for the team (Marmer et al., 2012a). The team performance throughout these set of tasks will induce the success or failure of the startup.

1.4. Applying Spencer's competency model in startup context

To assess the teams' competencies for the aim above, a framework is needed, that allows to identify the characteristics of high performing and average performing teams (Spencer, McClelland & Spencer, 1994; Spencer & Spencer, 1993). In the context of startups, a suitable concept for that is the core competency (Prahalad & Hamel, 1990; Spencer & Spencer, 1993; Stewart, 2006), that can be defined in this case as a combination of motives, traits, self-concepts, attitudes or values, content knowledge or cognitive behavior skills of a startup team, which enables a distinction to be drawn between superior and average performers. In this case performer units are the startup teams. Due to their size, these units can be considered as 'small teams', where the composition of competencies is regarded as complementary (Katzenbach & Smith, 1993).

Since the vast majority of startups fail in the early stage, this failure could be deemed the typical, 'average performance', and the very few, who survive are the 'superior performers'. To analyze the core competencies which make the difference between these two groups, it is neccesary to identify those competencies which failed startups were lacking. The aspects of choice among competency models, to do the competency identifiaction were that the chosen model: (1) contains relevant competencies for startups, (2) consists of manageable amount of competencies, (3) has a proven track record of application. Since there is no existing startup-specific competency model based on these criteria, the Spencer's competency model

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(Spencer & Spencer, 1993) was chosen a framework for the analyis, considering its expansive application history (Sanghi, 2007).

1.5. Aims of the study

Non-competency based startup research approaches identifying the reasons behind failure (CB Insights, 2018) which have already concluded that there are salient reasons behind a significant proportion of startup failures. The reasons for failure according to the research sample, the top three are (1) no market need (42%), (2) running out of cash (29%), and (3) not having the right team (23%). Due to the significance of the right team among these reasons, we seek to explore and possibly idenify competency deficits, which play a part in the failure of startups. Critical Incident Technique (CIT) (Flanagan, 1954) is a well-known method originally used for identifying job-specific competencies (Butterfield, Borgen, Amundson, & Maglio, 2005) which is applicable for our research focus in a sample size of 50 startup teams. The qualitative approach of CIT may provide relevant results for the research of entrepreneurial ventures (Cope & Watts, 2000), which is dominated by quantitative studies (McDonald, Gan, Fraser, Oke & Anderson, 2015). Based on the above the aims of our study was (i) to assess whether the application of the Critical Incident Technique method is feasible to identify competency deficits in startup teams, and if so, (ii) to identify which competency deficits are salient in startup failure.

2. Methods

2.1. Sources of data

A total of 50 cases of startup failure were analized according to Flanagans' original guidance regarding sample size (Bott & Tourish, 2016; Flanagan, 1954). All the stories of failure were written by the respective CEOs and published online. Stories were found on the internet using search keyword combinations, namely 'startup+fail story' and 'startup+postmortem'. The

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first 50 research results were selected in the sample using the following criteria: (1) the post was a story written by a startup CEO about their own story of failure; (2) the post was more than a brief announcement of startup failure, rather it outlined the process and included the view of the CEO and; (3) the date of the failure was between 2014 and 2017. We did however, include 3 stories in the sample which had earlier failure dates due to their relevance from all other perspectives. Twenty-four stories were found on medium.com, and 10 of them were on other startup-specific online magazines and blogs (8 stories came from different sources and 2 from the same: techcrunch.com), 16 stories were published on the startups' own homepages. Forty-seven stories were written in English, 3 in Hungarian.

2.2. Process of analysis

The modified Critical Incident Technique (Flanagan, 1954) using for startup team-level competencies was applied for the analyses. We identified the top 2 to 6 competencies in each story, which deficiency had a key role in the failure of the startup. We have used the Spencer's competency model (Spencer & Spencer, 1993) as the framework for analysis. The Spencer's competency model contains 20 competencies in total, within the following 6 clusters: (1) achievement and action; (2) helping and human service; (3) impact and influence; (4) managerial; (5) cognitive; and (6) personal effectiveness.

During the analysis process, 3 trained expert coders (the first 3 authors) independently read and coded the stories. Their task was to identify the 2 to 6 Spencer's competencies in each story the lack of which played a key part in failure of the startup. After the independent analysis, coders discussed their individual results and agreed on the top 2 to 6 competency deficits in each of the 50 stories. There were three possible scenarios for agreement: (1) All coders independently identified a specific competency in a given story (37% of the agreement cases); (2) two coders identified the same competency in a given story, and following

discussion, the third coder agreed (45% of the cases) and; (3) one coder identified a specific competency in a given story, and following discussion, the other two coders agreed (18% of the cases). In these latter cases at least one of the two remaining coders identified the evidence but coded it differently.

Coders also agreed on startup-specific behaviour descriptions by utilizing evidences in the stories. As a result, additional startup-specific behaviour descriptions were linked to the original Spencer's behaviour descriptions in case of 13 competencies.

We used SPSS to identify and calculate interactions between demographic and dependent variables and among competency deficits.

3. Results

3.1. Sample characteristics

In most of the cases the CEO was male (88%), although there was one case in which the CEO position was shared between a male and a female, and in 5 cases (10%) the CEO was female. The startups operated in 23 different countries in the following geographical regions: 20% in California, which is highlighted because of its dominant role in the global startup ecosystem, 28% in other US and Canadian states, 26% in Europe, 22% in the Asia-Pacific region, and 2% in Latin-America. In one case it was not possible to determine the region of operation. In total, 56% of the sample operated in the 'business-to-customer' (B2C) domain, 34% in the 'business-to-business' (B2B) domain, and 10% targeted both businesses and customers with their products / services. Two thirds of the ventures in the sample operated in social media (22%), service (18%), media-entertainment (16%) and customer service (10%) industries. For the full industry-specific distribution of the sample see Figure 1.

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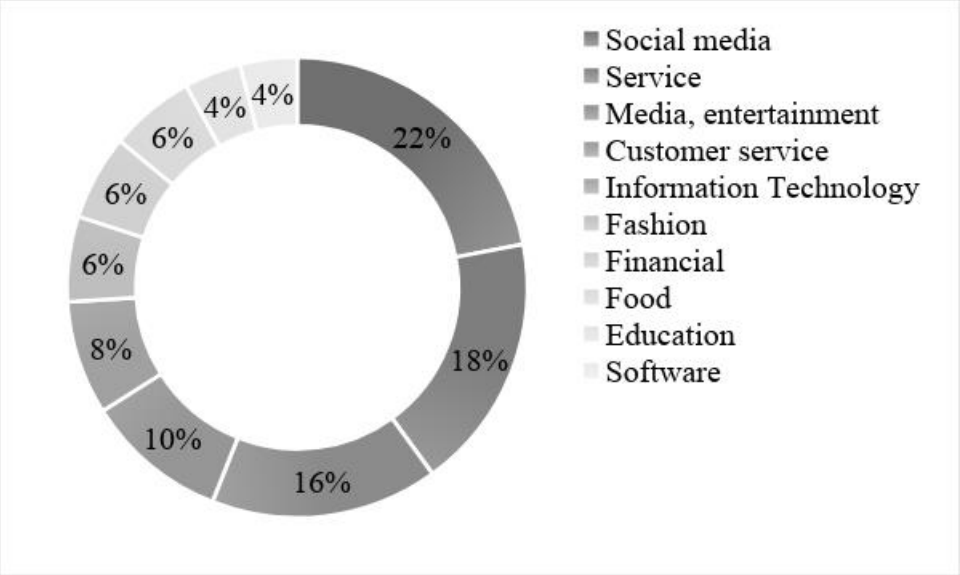

Figure 1: Distribution of startups by industry in the sample (N=50) (source: own data)

Altogether 47 startups in the sample failed between 2014 and 2017, the remaining 3 ceased operations in 2013, 2012 and 2001 respectively. The average length of operation was 34 months, and the standard deviation is 2 months.

3.2. Application of Spencers' competencies for startups

As a result of coders' discussions, startup-specific behavior descriptions were added to those 13 of 15 Spencer's competencies that occurred during the analysis. Teamwork and cooperation (TW) and Team leadership (TL) did not get additional behavior descriptions, since the original Spencer's competency definitions were suitable for startups. See Table 1 for the Spencer's competencies with the additional startup-specific behavior descriptions.

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Table 1: Spencer's competencies with startup-specific behavior descriptions added (source: own edition, Spencer & Spencer, 1993)

Name of competency (abbreviation)	**Short description (Spencer & Spencer, 1993)**	**Added startup-specific behavior descriptions**
Achievement and action cluster		
Achievement orientation (ACH)	Concern for working well or for competing against a standard of excellence.	(did not appear in the sample)
Concern for order, quality and accuracy (CO)	Reflects and underlying drive to reduce uncertainty in the surrounding environment.	Progressing in the right way on startup business development phases. Avoiding perfectionism setbacks. Avoiding superficial and less valid business or technology solutions.
Initiative (INT)	A preference for taking action, doing more than is required or expected in the job.	(did not appear in the sample)
Information seeking (INFO)	Making an effort to get more information, not accepting situations at "face value".	Consciously seeking data and information to establish business decisions. Starting and finishing data collection on time. Choosing right data and information sources and research methods.
Helping and human service cluster		
Interpersonal understanding (IU)	Ability to hear accurately and understand the unspoken or partly expressed thoughts, feelings and concerns of others.	Understanding messages from the customer / validation interview.
Customer service orientation (CSO)	Focusing efforts on discovering and meeting the customer or client's needs.	Prioritizing customer needs and problems over the focus on technological solutions.
The impact and influence cluster		
Impact and influence (IMP)	Intention to persuade, convince, influence or impress others, in order to get them to support the speakers' agenda.	Influencing potential / actual investors.
Organizational awareness (OA)	Ability to understand the power relationships in own organization and the position of the organization in the larger world.	(did not appear in the sample)
Relationship building (RB)	To build or maintain friendly, warm relationships or networks of contacts with people who are, or might someday be, useful in achieving work-related goals.	Building productive and beneficial relationship with investors and significant / B2B customers.
Managerial cluster		
Developing others (DEV)	Intent to teach or to foster the development of one or several other people.	(did not appear in the sample)
Directiveness: assertiveness and use of positional power (DIR)	Intent to make others comply with own wishes.	Effective and constructive conflict management between founders.
Teamwork and cooperation (TW)	Intention to work cooperatively with others, to be part of a team, to work together as opposed to working separately or competitively.	(appeared in the sample, did not get startup-specific additions)
Team leadership (TL)	Intention to take a role as leader of a team or other group.	(appeared in the sample, did not get startup-specific additions)

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Cognitive cluster		
Analytical thinking (AT)	Understanding a situation by breaking it apart into smaller peaces, or tracing the implications of a situation in a step-by-step casual way.	Conscious and critical analysis of data and information. Using effective methods and discipline in data analysis.
Conceptual thinking (CT)	Understanding a situation or problem by putting the peaces together, seeing the large picture.	(did not appear in the sample)
Technical/professional / managerial expertise (EXP)	Mastery of a body of a job-related knowedge.	Including startup-specific knowledge / expertise, e.g. strategic and business planning and management.
Personal effectiveness cluster		
Self-control (SCT)	Ability to keep emotions under control and to restrain negative actions when tempted, when working under the conditions of stress.	Business decision-making based on facts and data instead of emotional impulses, e.g. avoiding overspending, overstaffing.
Self-confidence (SCF)	Belief in own capabiltiy to accomplish a task.	Business decision-making based on conscious evaluation of own startup's knowledge, expertise and activity, e.g. in pricing, contracting.
Flexibility (FLX)	Ability to adapt to and work effectively with a variety of situations, individuals or groups, including change or easily accept changes.	Considering experts' suggestions. Learning from own experiences. Pivoting in appropriate time, frequency and direction.
Organizational commitment (OC)	Ability and willingness to align own behavior with the needs, priorities and goals of the organization.	Dedicating full working time for own startup when it is required from business success perspective, avoiding 'side project' situations.

3.3. Identified competency deficits

A total of 166 competency deficits were identified in the stories. In most of the stories (40 of 50) 2-4 deficits were found and in the remaining 10 stories 5-6 competencies were found, yielding 3.3 competencies per story on average. Based on coders' experience the modified Critical Incident Technique was well applicable for identification of competencies.

Two competency deficits emerged as salient failure factors in the sample: Information seeking and Customer service orientation in 35 and 33 stories respectively. Even more notable is that there were 27 stories (54% of the sample) containing both. This means that the majority of the startups failed partly because they were less consciously seeking data and information to establish business decisions / Starting and finishing data collection on time / Choosing right data and information sources and research methods (INFO), and to some degree missed to prioritize customer needs and problems over the focus on technological

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solutions (CSO). Further, in 19 stories lack of various Technical expertises were identified as failure factors. In 18 stories Analytical thinking contributed to the failure of the startup, and also in 18 stories Flexibility deficits were a key factor. See Table 2 for the prevalence of all Spencer's competencies identified among the top 2-6 failure factors per story.

Table 2: Prevalence of Spencer's competency deficits as top 2-6 factors in a startup failure (N=50) (source: own data)

Spencer's competency deficit identified as key factor in a startup failure	**Prevalence in sample (N=50)**
Information seeking (INFO)	70%
Customer service orientation (CSO)	66%
Technical/professional/managerial expertise (EXP)	38%
Analytical thinking (AT)	36%
Flexibility (FLX)	36%
Self-control (SCT)	14%
Concern for order, quality and accuracy (CO)	12%
Interpersonal understanding (IU)	12%
Self-confidence (SCF)	10%
Team leadership (TL)	10%
Teamwork and cooperation (TW)	10%
Organizational commitment (OC)	6%
Directiveness: assertiveness and use of positional power (DIR)	4%
Impact and influence (IMP)	4%
Relationship building (RB)	4%

There were 5 of Spencer's competencies that did not appear as top failure resasons in any stories: Achievement orientation (ACH); Initiative (INT); Conceptual thinking (CT); Organizational awareness (OA); and Developing others (DEV). The fact that even failed startups did not significantly miss these competencies can be attributed to the specifics of startup industry (ACH, INT, CT) and the early stage of organizational formation (OA, DEV).

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3.4. Interactions between demographic variables and competency deficits

Since the criteria of a chi-square test were not met, Fisher's exact test was applied, and it indicated that the gender of the CEO and 3 Spencer's competency deficits are associated, male CEO predicted higher incidence in case of Customer service orientation ($p = .040$, Fisher's exact test) and Information seeking deficits ($p = .024$, Fisher's exact test). Female CEO predicted a higher incidence of Self-control deficit ($p = .029$, Fisher's exact test). Based on Spearman's correlation calculation, weak negative correlations were found between length of startup operation and 2 competency deficits: Analytical thinking ($r = -.327$; $p<.05$) and Organizatonal commitment ($r = -.297$; $p<.05$).

3.5. Interactions among competency deficits

To identify potential interactions between the occurrence of different competency deficits, we have conducted chi-square tests for each possible pairs of Table 2 competencies. In cases where the chi-square test was not applicable due to low cell count, we applied Fisher's exact test to determine interactions. The following significant interations were found. Among the dependent variables, i.e. Spencer's competency deficits that were represented in 10% or more of the sample, positive interaction was found between Customer service orientation and Information seeking χ^2 (1, N = 50) = 6.455, p = .011. Negative interaction was found between the following competencies i.e these competency deficits occur separately: Information seeking and Flexibility χ^2 (1, N = 50) = 5.357, p = .021; and Flexibility and Self-control (p = .04, Fisher's exact test).

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The aforementioned interactions are presented in Figure 2. which illustrates the network pattern of the occurrence of Spencer's competency deficits' in the sample.

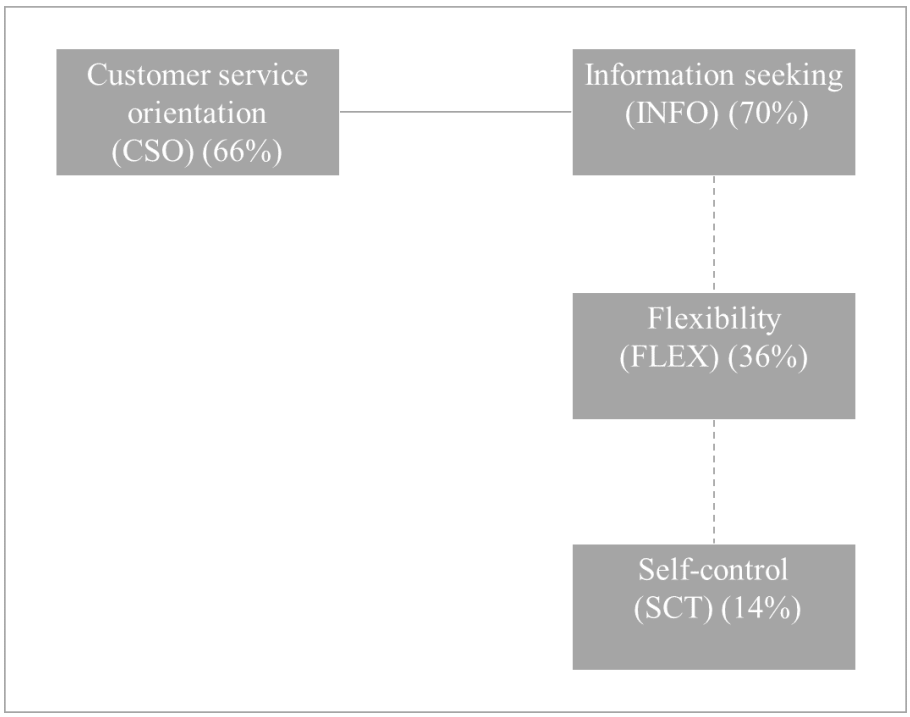

Figure 2: The network pattern of the occurrence of Spencer's competency deficits in the sample. Positive associations are marked with permanent lines, negative associations are marked with dotted lines. Competency prevalence in sample is in brackets. (source: own data)

The CSO – INFO – FLX relationships in Figure 2 suggests, that considering experts' suggestions, learning from own experiences and therefore pivoting in appropriate time, frequency and direction (Flexibility - FLX) might be a protecting factor against Information seeking (INFO) deficiencies.

The SCT-FLX interdependency indicates that business decision-making based on facts and data instead of emotional impulses (Self-control - SCT) is at some level contradictionary with Flexibility (FLX). Further research may reveal the nature of these and all additional associations between competency deficits. The positive and negative associations found

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among the deficits also further suggest that it may be possible and desirable to redefine the startup-specific competencies to shape more independent ones.

4. Discussion

Critical Incident Technique with the applied modifications proved to be feasible in the context of the study, resulting in identification of competency deficits of failed startups and startup-specific behavior description additions to Spencer's competency definitions.

Our findings on some competencies explaining failure are in line with the findings of research by Carpentier & Suret (2015) and Maxwell et al. (2011): Technical/ managerial/ professional expertise (EXP) is partially connected with 'industry experience' (Maxwell et al., 2011) and 'inexperience' and 'team experience' (Carpentier & Suret, 2015). Team leadership (TL) and Teamwork and cooperation (TW) can be associated with 'management ability', 'team experience' and 'team record' (Maxwell et al., 2011) and with 'no/incomplete management' (Carpentier & Suret, 2015). In addition, 'lack of confidence/self interest seeking/shirking/game playing' (Carpentier & Suret, 2015) can be linked to Spencer's Relationship-building (RB) competence in the current sample.

Beyond these, other Spencer's competencies identified in the present study, including the salient Information seeking (INFO) and Customer service orientation (CSO), have not been named in previous empirical research or considered in investment decisions as selection criteria. On the other hand, in the present study we did not find competencies that could be directly associated with Carpentier and Suret's findings about 'reputation/potential dishonesty' and 'asymmetry/distance'.

As there was no association found between industry, B2B/B2C characteristics and any of the competency deficits, it would appear that these factors, at least according to the results of the present study, do not determine the degree to which competencies play a key part in startup

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failure. Therefore we can conclude that the startup-specific additions of this study may be applicable to all industries and sectors. In addition, both of the most salient competency deficits – INFO, CSO – were associated with the gender of the CEO, and the also salient Analytical thinking (AT) was associated with the length of the operation. This indicates that future studies of the effect of these variables on competency deficits may prove valuable.

4.2. Limitations

The sampling technique used in this research has some limitations. Only cases and failure stories published by CEOs were able to make it into our sample. Although those involved in startups have a more positive attitude towards failure (i.e. almost 'proud of failure') than other types of entrepreneurs and leaders (Politis & Gabrielsson, 2007), it is a limitation that the failure story needed to have already been published online by the CEO of the venture.

The time period that had passed prior to the narratives being told or retold differed from case to case, and the stories were published for a specific audience and reason. It may raise the question if the way in which the CEOs recalled and interpreted failure reasons and thus compentencies may have been biased (Fischoff & Beyth, 1975; Tversky & Marsh, 2000). On the other hand, as the stories were not written for the purpose of this research, they are free from response bias (Morgeson, Delaney-Klinger, Mayfield, Ferrara & Campion, 2004). Further research investigating failure stories from multiple angles (e.g. investors, customers, co-founders) and using different types of data (e.g. business performance information) might further refine and provide a more balanced view of the competencies which explain the failure.

Although both qualitative and quantitative methods were used in this research, it is worth noting the limitations of the sample size, especially in the case of non-salient competencies.

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Further research in a larger and stratified sample might help to refine and validate our findings.

4.3. Conclusions for practical applications

On the basis of our findings, we can conclude that Customer service orientation and Information seeking competencies deserve more attention from the perspective of assessing and developing startup teams. This study and the future research suggested above may contribute to more effective investor decisions, personnel selection decisions and mentoring practices. Startup founders and CEOs can benefit from being aware of competencies identified as salient factors in failures, by being more conscious in team composition and more deliberate in progressing on the startup journey (Marmer et al., 2012a).

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5. Declarations

This article does not contain any studies with human participants or animals performed by any of the authors.

All applicable international, national, and institutional ethical guidelines were followed.

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors of this article declare that they have no conflict of interest.

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Figure 2: The network pattern of the occurrence of Spencer's competency deficits in the sample

7. References

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