



**MASTER IN
CORPORATE SCIENCES**

**MASTER FINAL WORK
DISSERTATION**

**ESTABLISHING COMPETENCIES NEEDS FOR STARTUP
COMPANIES: A STUDY OF MANAGERS AND EMPLOYEES'
PERCEIVED REQUIREMENTS**

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ABSTRACT

In businesses, the corporations' superior performance is attained by gathering the appropriate set of competencies the labor force has to offer. The managers need to be clear about their needs and priorities and establish clear expectations.

The goal of this research was to establish competencies needs for startup companies by gauging the managers and employees` perceived requirements at their place of business.

The research rests upon the work developed by Bartel-Radic et al (2017) and Spencer and Spencer (1993).

This study analyses the managers and employees` perceived requirements for the essential competencies for startup companies.

The survey results demonstrate the existence of a gap between the importance attributed by the managers to the surveyed competencies they believe to be critical for their business and the importance attributed by the employees to the same competencies.

Additionally, the survey results demonstrate that the importance startup employees attribute to the startup companies` identified competencies depends on their professional experience. Finally, the survey results demonstrate that the importance startup employees attribute to the startup companies` identified competencies depends on the startup managers` accompaniment of their work.

KEYWORDS: Competencies; Startups; Entrepreneurship; Competency-based management; Lisbon; Portugal.

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Table of Contents

Introduction	6
1. Literature review	8
1.1 Definitions and organizational approaches of competencies	8
1.1.1 Historical background	8
1.1.2 What is competence	8
1.1.3 Relevance of competencies for startups	8
1.1.4 Competencies gaps	9
1.2 Entrepreneurship, the structure of startups and competencies	10
1.2.1 Entrepreneurship and young business ventures	10
1.2.2 Unconventional organizational structure and management.....	10
1.2.3 What is a startup	11
1.2.4 The Portuguese startup scene	12
1.2.5 Identifying competencies for startups	12
2. Methodology	13
2.1 Methodology and research questions	13
2.2 Data collection	13
2.3 Global sample	13
2.4 Research instrument	14
3. Results and discussion	16
3.1 Demographic information	16
3.2 Scale reliability and internal consistency	16
3.3 Analysis of hypotheses	21
4. Conclusions	30
4.1 Discussion of results	30
4.2 Conclusions	32
4.2 Limitations and future research directions	33
References	33
Appendixes	I

List of Tables

Table I - Startups: key figures	12
Table II - Table Startup companies` ID (A to H).....	14
Table III - Questions and associated dimensions.....	15
Table IV - Demographic information.....	16
Table V - Startups A to H – Managers	17
Table VI - Startups A to H – Employees	17
Table VII - Items and respective methodological treatment	19
Table VIII - Indexes and items for different competencies	21
Table IX - Competencies and respective gaps.....	24
Table X - Pearson Correlation coefficient	25
Table XI - Spearman Correlation coefficient	28
Table XII - Guide for interpreting Spearman`s strength of the correlation	29

Introduction

Global demand for talent is becoming increasingly competitive (Wildavsky, 2010) due to changing markets, changing demographics, and the demand for highly skilled employees (Schuler et al, 2011). Organizational competitiveness is dependent on how human capital and competencies are managed (Teixeira and Tavares-Lehmann, 2014).

McClelland (1973) established a separation among aptitudes (a person's natural talents which may be perfected), abilities (specific expressed practical talents) and knowledge (what is required of someone to perform a task). Competences entail individual characteristics (the collective of knowledge, skills, traits, attitudes, self-concepts, values or motives) that can and must be assessed, evaluated and measured up against a criteria or standard, in the pursuit of human capital development and performance enhancement. Their main purpose is to draw a reliable comparison among employees and separate between superior from average performers, or between effective and ineffective performers (Hooghiemstra, 1992).

Building and maintaining a competency framework is instrumental to the high performance of all businesses (Cheese et al, 2007, p.91) including startup companies, one of the tenants of this study.

“Startup” is a term that has been thrown around loosely for some time now. It commonly characterizes young and highly driven business initiatives (Informa D&B, 2017) without a conventional structure (Picken, 2017, p.587). Uncovering startup companies` needed competencies is a challenge given the dearth of literature on the subject.

The first hypothesis of this study was to test a hypothetical gap pertaining to the importance attributed by the managers to the surveyed competencies they believe to be critical for their business and the importance attributed by the employees to the same

competencies. Additionally, this research tested the correlation between the importance that startup employees attribute to the startup companies` identified competencies and their professional experience, and the correlation between the importance that startup employees attribute to the startup companies` identified competencies and the startup managers` accompaniment of their work.

This study is divided into four sections.

The first section encompasses the review of literature. It begins defining competencies and their relevance for organizations with emphasis on startup companies. Said competencies are subsequently defined and expanded in later stages of this section as our three-research hypothesis are presented. This section closes with the identification of competencies for startup companies.

The second section focuses on the methodology and research questions, where the data collection process, sampling process and research instrument are thoroughly described.

The third section brings forward the research results, tested for reliability and consistency, culminating in the hypothesis analyses.

The discussion of results, the relevant conclusions for this study and limitations and future research directions are presented in the fourth and last section.

1. Literature review

1.1 Definitions and organizational approaches of competencies

1.1.1 Historical background

The concept of competence within the organizational context was incepted under the perspective of the individual, particularly when in 1973 McClelland jumpstarted the debate around competence among psychologists and executives across the United States of America (Spencer and Spencer, 1993). The author then contributed in shaping competencies to become an underlying characteristic of a person which can be connected to superior performance at a given task or situation (McClelland, 1973).

1.1.2 What is competence

For Spencer and Spencer (1993, pp. 9-11) competence is “the underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation”. The Haygroup believed those individual characteristics to be like an iceberg, with skills and knowledge at the summit and more complex traits laying underneath influencing surface behavior (Haygroup, 2003).

1.1.3 Relevance of competencies for startups

An effective management practice for startups should be one centered around continuity and knowledge preservation and improvement (Dalmarco et al, 2017, p. 232). In businesses the corporations' superior performance is achieved by gathering the appropriate set of competencies the labor force has to offer, lining them up and mobilizing them in an effective manner to specific job-related functions. “Understanding of competencies required should form the basis for linkage across all the talent management and development processes, from recruitment, through learning and development, to performance management” (Cheese, 2007, pp.91).

These new elements of organizational change warn us then that to ensure an organization's survival and competitive edge managers must pay close attention to their human capital, understood as "assets which produce monetary value for an organization the same way as physical assets do" (McCracken et al, 2018, p.131) and what competencies they need to be looking out for (Teixeira and Tavares-Lehmann, 2014).

1.1.4 Competencies gaps

The literature shows that the focus has been to tackle competence as a business generator, a tool to achieve better results and organizational goals, not so much competence within the context of isolated individual competencies (Laakso-Manninen, 2007). In Human Resources Management identifying competencies for matching with job requirements has become a key issue. Competences needs are often identified in terms of gaps (Colomo-Palacios et al, 2013, p. 458). Its processes revolve around identifying the competencies needed for a future scenario set by the organization, communicating it internally and striving to bolster those competencies based on its strategy with the purpose of gaining competitiveness and operating capabilities (Laakso-Manninen, 2007). Said gaps are important for organizations considering that, for example, about 50% of employees polled by Gallup (2015) don't know what's expected of them at work. Yielding high performance becomes then very challenging. The managers need to be clear about their needs and priorities and establish clear expectations. Identifying competencies in terms of gaps can generate different ways in which the importance attributed to competencies, whether we are considering the perspective of the startup companies` managers or the perspective of startup companies` employees. As such the first hypothesis to be tested is:

Hypothesis 1: There is a gap between the importance attributed by the managers to the surveyed competencies they believe to be critical for their business and the importance attributed by the employees to the same competencies.

1.2 Entrepreneurship, the structure of startups and competencies

1.2.1 Entrepreneurship and young business ventures

The term entrepreneurial is often used to describe commercially innovative and creative individuals (McMullen and Kier, 2017, p.456). Entrepreneurship has come to be perceived as an engine of economic and social development throughout the world (Zoltan, 2005), a dominant engine of innovation and durable new job creation and economic growth (Mayer-Haug et al., 2013, p.1251). “The entrepreneur is the single most important player in a modern economy” (Lazear, 2002, p.1). Entrepreneurs “use innovation to exploit or create change and opportunity for making profit. They do this by shifting economic resources from an area of lower productivity into an area of higher productivity and greater yield” (Burns, 2011, p.13). It thus makes sense for managers to find a positive relationship between competencies and performance among the more experienced staff (Hashim and Wok, 2014) as competencies are considered to be the principle drivers for a company's performance (Čižiūnienė et al, 2016). It is then understandable why entrepreneurs may wish to be surrounded by a staff with a certain degree of professional experience, familiar with the ins and outs of the startup company they work at. As such, the second hypothesis to be tested is:

Hypothesis 2: The importance that startup employees attribute to the startup companies' identified competencies depends on their professional experience.

1.2.2 Unconventional organizational structure and management

In a startup, it is the entrepreneur's job to define and validate the business concept: the market opportunity, the supply, the business model, and the go-to-market strategy

essential for a reliable delivery to his customers. Its organization is typically informal, loosely structured, and fluid (Picken, 2017, p.588).

This type of structure requires a particular manager, but not just any ordinary conventional manager. “Entrepreneurial management is characterized by its whole organization scope, its objective of creating change and focus on exploiting opportunity” (Wickham, 2006, p.17). The fluid structure of startup companies has implications on the management style. As is the case of other organizational structures which require “a supportive and open feedback relationship between managers and their subordinates to function well” (Dahling et al, 2017, p. 133). It is clear how repeated feedback “may enhance the perceived importance of the behaviors or skills for which feedback is being provided” (Seifert and Yukl, 2010, p.857). In addition, findings from a Gallup (2017) research revealed that only one in four employees "strongly agree" that their manager provides meaningful feedback to them, with a real impact on job performance and that only 21% of employees strongly agree that their performance is accompanied and managed in a way that motivates them to do outstanding work. Thus, the third hypothesis to be tested is:

Hypothesis 3: The importance that startup employees attribute to the startup companies` identified competencies depends on the startup managers` accompaniment of their work

1.2.3 What is a startup

StartupLisboa (2018) defines startup as “a new company, even embryonic or still in seed stage, which promotes a promising project, related to the development of an innovative business idea. Usually, it is technology based, but not necessarily, and it is based on an entrepreneurial spirit”.

The European Startup Monitor (2016, p.15) includes all entrepreneurial ventures as startups “if they are younger than 10 years, feature highly innovative technologies and/or business models and strive for significant employee and/or sales growth”.

One aspect that these definitions seem to have in common is that all startups are relatively young, based on growth, and their goal may vary considerably.

1.2.4 The Portuguese startup scene

According to Informa D&B (2017) Portugal experienced the creation of 347,272 companies and other organizations between 2007 and 2016, representing an average of nearly 35,000/year (see Table I for key figures).

Table I
Startups: key figures

Capital structure	94% strictly entrepreneurs 2% entrepreneurs and investment companies 4% strictly investment companies
Entrepreneurs	47,000 entrepreneurs/year 75% are managers 64% are first time entrepreneurs
Startups – Year 1	65,000€ average turnover 2,3 average employees 11,6% export
Survival	53% on the 3rd year 42% on the 5th year
Start-up rate	74% begun their activity

Source: adapted from Informa D&B (2017, p. 2).

1.2.5 Identifying competencies for startups

Bartel-Radic et al (2017) was found to be particularly useful in this context. Appendix 1 illustrates the authors` work enumerating the important cross-cultural, which individuals carry into their professionals` life.

Spencer and Spencer (1993) established competency models for professionals, technicians and salespeople which are presented in appendix 2. Such competencies were selected from the ones the author considered to carry the most weight of importance.

2. Methodology

2.1 Methodology and research questions

For this research purposes competencies were gathered from the relevant literature and the startup companies' managers were asked to rate its importance. Afterwards the employees were also prompted to rate those competencies. Additionally, to establishing the gaps, this research tested the correlations between the importance that startup employees attribute to the startup companies' identified competencies and their professional experience, and the correlation between the importance that startup employees attribute to the startup companies' identified competencies and the startup managers' accompaniment of their work.

2.2 Data collection

The fieldwork for each wave of research took place between January 2018 and May 2018. The company details were gathered online, in startup university summits as well as in person at five startup incubators (DNA Cascais, Fábrica de Startups, Lisbon Labs, Startup Lisboa, and Tec Labs). During the first wave, 195 startup companies' founders/managers and respective employees were contacted. During the second wave, an additional 146 startup companies were contacted.

2.3 Global sample

Data collection was doubly carried out, via an online and in person questionnaire to which the startup managers and the employees accepted to participate. During the aforementioned five-month period, 341 startup companies were contacted of which eight agreed to participate in this study. The outcome of these efforts resulted in a participation rate of 2.34%, said companies are located in the Great Lisbon area, Portugal, and will be named startup A, B, C, D, E, F, G and H (see table II).

Table II

Table Startup companies` ID (A to H)

Companies	Area of activity	Total Employees	Inquired Employees	Percentage (%)
Startup A	Consultancy and used vehicles evaluation	6	3	50%
Startup B	Training in programming and code	27	15	56%
Startup C	3D printers` production, training and consultancy	13	10	77%
Startup D	Family oriented cultural and educational initiatives	5	4	80%
Startup E	Online sustainable and ecological solutions	12	6	50%
Startup F	Laboratory products	5	4	80%
Startup G	Events and retail	10	7	70%
Startup H	Software for 3D imaging	9	5	56%
		87	54	62%

2.4 Research instrument

Data was collected through a survey instrument, using a quantitative methodology. Two different questionnaires were developed and used as testing instruments to 2 startup company managers and 20 startup company employees. The questionnaires were then revised, and some minor changes were implemented. The “Questionnaire on employee competencies in startup companies” was administered to two different samples.

The startup managers` version of the survey, entitled “Questionnaire on employee competencies in startup companies” (appendix 3) was administered to 8 Portuguese startup managers. After being asked about their startup company name the managers were encouraged to respond to two additional questions, the first concerned the number of employees working at their companies, and a second question with the purpose of evaluating the importance the managers attributed to the competencies they believe to be critical for their business as developed by Bartel-Radic et al (2017) and Spencer and Spencer (1993). The startup employees` version of the survey, entitled “Questionnaire on employee competencies in startup companies” (appendix 4) was administered to 54 Portuguese startup employees. Employees were encouraged to respond to six questions.

After being asked to identify the name of the startup company, the second question of the startup employee version pertained to the startup employees professional experience. The third question had the purpose of evaluating the importance attributed by the employees to the competencies believed to be critical for the business by their managers. The scale of measurement for the 42 items included a 1-to-7 Likert-type scale (from 1-strongly disagree to 7- strongly agree). The fourth question concerned the type of accompaniment the startup employees are subjected daily by their managers. The fifth, sixth and seventh questions pertained to demographic information, such as age, maximum level of education attained, and gender respectively.

The survey questions and associated dimensions used to evaluate the gap between the required and actual startup competencies are the ones included in Table III. The responses gathered were then analyzed in SPSS version 24.

Table III
Questions and associated dimensions

Dimensions	Questions	Based on
Open-mindedness	3.1, 3.2, 3.3	Bartel-Radic et al (2017)
Self-confidence	3.4, 3.5, 3.6, 3.7	Bartel-Radic et al (2017)
Communication skills (sociability)	3.8, 3.9	Bartel-Radic et al (2017)
Empathy	3.10, 3.11, 3.12, 3.13	Bartel-Radic et al (2017)
Achievement orientation	3.14, 3.15, 3.16, 3.17	Spencer and Spencer (1993)
Impact and influence	3.18, 3.19, 3.20	Spencer and Spencer (1993)
Conceptual thinking	3.21, 3.22	Spencer and Spencer (1993)
Analytical thinking	3.23, 3.24, 3.25, 3.26	Spencer and Spencer (1993)
Initiative	3.27, 3.28	Spencer and Spencer (1993)
Autonomy	3.29, 3.30	Spencer and Spencer (1993)
Interpersonal understanding	3.31	Spencer and Spencer (1993)
Concern for order	3.32, 3.33, 3.34	Spencer and Spencer (1993)
Information-seeking	3.35, 3.36	Spencer and Spencer (1993)
Teamwork and cooperation	3.37, 3.38	Spencer and Spencer (1993)
Expertise	3.39, 3.40, 3.41	Spencer and Spencer (1993)
Customer service orientation	3.42	Spencer and Spencer (1993)

3. Results and discussion

3.1 Demographic information

Table IV provides a summary of the demographic information about the sample.

Table IV
Demographic information

Demographic Profile	Frequency (N)	Percentage (%)
Gender		
Female	19	35.2
Male	35	64.8
Total	54	100
Age		
21 - 25	18	33.3
26 - 35	27	50
>36	9	16.7
Total	54	100
Level of Literacy		
No High-School degree	1	1.9
High-School degree	10	18.5
Undergraduate degree	27	50.0
Master degree	13	24.1
PhD	3	5.6
Total	54	100
Professional Experience (recoded from time spent working at the startup in months)		
1 to 6 months	21	33.9
7 to 12 months	12	19.4
13 to 18 months	7	11.3
19 to 24 months	12	19.4
> 24 months	10	16.1
Total	54	100

3.2 Scale reliability and internal consistency

A 1 to 7 Likert scale was used in this study. The mean and standard deviation were calculated for all the initial 16 competencies. Their importance was measured by the 42 items presented in the questionnaires.

In order to identify significant differences between responses, indicators of descriptive analysis are presented in Tables V and VI.

Table V
Startups A to H – Managers

Competencies	Minimum	Maximum	Mean	Std. Deviation	α Managers
Open Mindedness	6.00	7.00	6.3750	.51755	0.844
Self Confidence	5.00	6.50	5.9688	.50775	0.508
Communication Skills	5.00	6.50	5.8750	.58248	0.842
Empathy	4.75	7.00	5.9063	.75519	0.684
Achievement Orientation	5.50	7.00	6.2813	.50775	0.416
Impact and Influence	5.67	7.00	6.6250	.48591	0.630
Conceptual Thinking	5.50	7.00	6.3750	.51755	0
Analytical Thinking	5.50	7.00	6.2188	.45193	0.525
Initiative	5.00	7.00	6.2500	.75593	0.906
Autonomy	5.00	7.00	6.2500	.84515	0.900
Interpersonal Understanding	5.00	7.00	6.1250	.64087	-
Concern for Order	5.00	7.00	6.2083	.64087	0.754
Information Seeking	5.50	7.00	6.3750	.69437	0.889
Teamwork and Cooperation	5.50	7.00	6.1875	.53033	0.381
Expertise	5.33	7.00	6.0000	.50395	0.070
Customer Service Orientation	5.00	7.00	6.1250	.83452	-

Table VI
Startups A to H – Employees

Competencies	Minimum	Maximum	Mean	Std. Deviation	α Employees
Open Mindedness	2.67	7.00	6.0617	.92275	0.887
Self Confidence	3.00	7.00	5.0139	.93594	0.711
Communication Skills	3.00	6.50	4.9815	.79481	0.348
Empathy	1.50	7.00	5.5755	1.09147	0.894
Achievement Orientation	4.25	7.00	5.7407	.73002	0.697
Impact and Influence	4.67	7.00	5.8457	.65944	0.529
Conceptual Thinking	4.00	7.00	5.8611	.79156	0.693
Analytical Thinking	4.00	7.00	5.7917	.72806	0.864
Initiative	4.00	7.00	5.7222	.75652	0.687
Autonomy	3.00	7.00	5.5000	.90596	0.636
Interpersonal Understanding	2.00	7.00	5.7222	1.12295	-
Concern for Order	4.00	7.00	5.8805	.77651	0.494
Information Seeking	4.00	7.00	5.8519	.78084	0.464
Teamwork and Cooperation	4.00	7.00	6.2407	.79941	0.887
Expertise	4.00	7.00	5.9938	.89135	0.823
Customer Service Orientation	3.00	7.00	5.5185	1.11153	-

Reliability of an instrument relates to its ability of being consistent (Maroco, 2007). It was found relevant to measure it, using the Cronbach`s Alpha as a measure of internal consistency.

Cronbach's alpha is considered a measure of scale reliability and a value of 0.9 or above is considered to be excellent in terms of a scale's internal consistency. For a value of 0.8 the scale's internal consistency is considered to be good, for a value of 0.7 it is considered to be acceptable, for a value of 0.6 it is considered to be questionable, 0.5 it is considered to be poor, and results lower than 0.5 are considered to be unacceptable (George and Mallery, 2000).

The Cronbach's alpha was calculated for each set of variables which represent the importance of said competencies attributed by the startup company's managers (see table V) and by the startup company's employees (see table VI).

The methodological reasoning for renaming and treating some items as a separate variable was an important analysis step. It allowed for the inclusion of some items in the analysis of the final results and still maintain the scales internal consistency. Table VII contains all the items, including the ones for which the Cronbach's alpha value is inferior to 0.6 and that were thus excluded from the analysis or given a new variable name.

It was decided not to exclude from the analysis some items with values inferior to 0.6, rather those items were already a part of a specific measurement scale derived from the methodic collection and analysis of data, which was developed in a quasi-inspired grounded theory - discovery of theory from the data (Gynnild, 2017) approach to research on the grounds that it was opted to rename the items to avoid confusion when analyzing the data or reading the research.

Table VII
Items and respective methodological treatment

Items	α Managers	α Employees	Treated as
3.1 OpenMindedness	0.844	0.887	3.1 Open-mindedness
3.2 OpenMindedness	0.844	0.887	3.2 Open-mindedness
3.3 OpenMindedness	0.844	0.887	3.3 Open-mindedness
3.4 SelfConfidence	0.508 [0.138]	0.711	3.4 Self-confidence
3.5 SelfConfidence	0.508 [0.619]	0.711	3.5 Personal independence
3.6 SelfConfidence	0.508 [0.477]	0.711	3.6 Self-confidence
3.7 SelfConfidence	0.508 [0.252]	0.711	3.7 Self-confidence
3.8 CommunicationSkills	0.842	0.348	3.8 Communication skills
3.9 CommunicationSkills	0.842	0.348	3.9 Sociability
3.10 Empathy	0.684	0.894	3.10 Empathy
3.11 Empathy	0.684	0.894	3.11 Empathy
3.12 Empathy	0.684	0.894	3.12 Empathy
3.13 Empathy	0.684	0.894	3.13 Empathy
3.14 AchievementOrientation	0.416 [0.848]	0.697	3.14 Self-evaluation
3.15 AchievementOrientation	0.416 [-0.107]	0.697	3.15 Achievement orientation
3.16 AchievementOrientation	0.416 [0.240]	0.697	3.16 Achievement orientation
3.17 AchievementOrientation	0.416 [0.168]	0.697	3.17 Achievement orientation
3.18 ImpactandInfluence	0.630	0.529 [0.117]	3.18 Impact and influence
3.19 ImpactandInfluence	0.630	0.529 [0.253]	3.19 Impact and influence
3.20 ImpactandInfluence	0.630	0.529 [0.680]	*
3.21 ConceptualThinking	0	0.693	3.21 Problem solving
3.22 ConceptualThinking	0	0.693	3.22 Conceptual thinking
3.23 AnalyticalThinking	0.525 [0.647]	0.864	3.23 Obstacle anticipation
3.24 AnalyticalThinking	0.525 [-6.668]	0.864	3.24 Analytical thinking
3.25 AnalyticalThinking	0.525 [0.253]	0.864	3.25 Analytical thinking
3.26 AnalyticalThinking	0.525 [.622]	0.864	3.26 Analytical thinking
3.27 Initiative	0.906	0.687	3.27 Initiative
3.28 Initiative	0.906	0.687	3.28 Initiative
3.29 Autonomy	0.900	0.636	3.29 Autonomy
3.30 Autonomy	0.900	0.636	3.30 Autonomy
3.31 InterpersonalUnderstanding	-	-	3.31 Interpersonal understanding
3.32 ConcernforOrder	0.754	0.494 [0.496]	3.32 Concern for order
3.33 ConcernforOrder	0.754	0.494 [0.1]	3.33 Concern for order
3.34 ConcernforOrder	0.754	0.494 [0.6]	*
3.35 InformationSeeking	0.889	0.464	3.35 Pluridisciplinary research
3.36 InformationSeeking	0.889	0.464	3.36 Multi-sourced information-seeking
3.37 TeamworkandCooperation	0.381	0.887	3.37 Cooperation
3.38 TeamworkandCooperation	0.381	0.887	3.38 Intellectual receptiveness
3.39 Expertise	0.070 [0.072]	0.823	3.39 Expertise mastery sharing
3.40 Expertise	0.070 [0.636]	0.823	3.40 Expertise stimulation
3.41 Expertise	0.070 [-0.253]	0.823	3.41 Expertise mastery sharing
3.42 CustomerServiceOrient	-	-	3.42 Customer service orientation

*, Removed from the analysis.

The Cronbach's alpha was calculated for each set of variables which represent the importance of said competencies attributed by the startup company's managers (see table V) and the employees (see table VI). For Cronbach's alpha values inferior to 0.6 the questions were separated from their respective variable scale and treated independently (see table VI). A data parse led to the conclusion that for those questions the managers and employees interpreted them as different competencies, they were then treated as separate items in this study. For the managers the following competencies were separated and treated as new competencies: 3.5, 3.14, 3.21, 3.22, 3.23, 3.37, 3.38, 3.39, 3.40, 3.41. The same reasoning was applied to the employees for the following questions: 3.8, 3.9, 3.35, 3.36. Questions 3.20 and 3.34 were removed from the final analysis. For question 3.20 the mean for these answers was 6.54, which tell us that the surveyed employees seem overwhelmingly to show a concern for the startup company's professional reputation making it of little use as the formulation of the question skewed their answers. For question 3.34 the vast majority of the questions answered by the employees point to the fact that they keep a detailed record of their daily activities. It can thus be concluded that they understood the question as a measurement of a routinely activity and not of a specific competence.

3.3 Analysis of hypotheses

Research hypotheses were tested by a statistical analysis and results will now be described.

Table VIII

Indexes and items for different competencies

Competencies	Questions
Open-mindedness	3.1, 3.2, 3.3
Self-confidence	3.4, 3.6, 3.7
Personal independence	3.5
Communication skills	3.8
Sociability	3.9
Empathy	3.10, 3.11, 3.12, 3.13
Self-evaluation	3.14
Achievement orientation	3.15, 3.16, 3.17
Impact and influence	3.18, 3.19
Problem solving	3.21
Conceptual thinking	3.22
Obstacle anticipation	3.23
Analytical thinking	3.24, 3.25, 3.26
Initiative	3.27, 3.28
Autonomy	3.29, 3.30
Interpersonal understanding	3.31
Concern for order	3.32, 3.33
Pluridisciplinary research	3.35
Multi-sourced information-seeking	3.36
Cooperation	3.37
Intellectual Receptiveness	3.38
Expertise mastery sharing	3.39, 3.41
Expertise stimulation	3.40
Customer service orientation	3.42

Considering that more than one Likert scale type question was used to measure the importance of a single competence, indexes were then constructed. An index is a composite measure made up of multiple indicators of a single concept (Logio et al, 2008). Measurements were created for the rated competencies present in the questionnaire via more than a single Likert scale. In order to allow the comparison and the startup competencies' gaps, indexes were created along with items (see table VIII above). According to Cronbach's alpha values, in cases where sets of variables presented a lower consistency some items were not used or treated separately, as mentioned in the previous

section (table VII). The next paragraphs detail how the different variables were treated in our analysis as summarized in table VIII.

Questions 3.1, 3.2 and 3.3 were treated as the index for the competence “open-mindedness”. Questions 3.4, 3.6 and 3.7 were treated as the index for the competence “self-confidence”. For question 3.5, considering that the startup company`s managers misinterpreted it as a reference to the degree of independence, it was treated as an item to measure the competence “personal independence”. Questions 3.8 and 3.9 were treated separately. Question 3.8 was treated as an item to measure the competence “communication skills”, question 3.9 was treated as an item to measure the competence “sociability”. Questions 3.10, 3.11, 3.12 and 3.13 were treated as the index for the competence “empathy”. Question 3.14 was treated as a separate item to measure the competence “self-evaluation”. Questions 3.15, 3.16 and 3.17 were treated as the index for the competence “achievement orientation”. Questions 3.18 and 3.19 were treated as the index for the competence “impact and influence”. For the creation of this index question 3.20 was removed from the analysis when the value of the Cronbach`s alpha was considered. Questions 3.21 and 3.22 were treated separately. Question 3.21 was treated as an item to measure the competence “problem solving” and question 3.22 as an item to measure the competence “conceptual thinking”. Questions 3.24, 3.25 and 3.26 were treated as the index for the competence “analytical thinking”. Question 3.23 was treated in separate as an item to measure the competence “obstacle anticipation”. Questions 3.27 and 3.28 were treated as the index for the competence “initiative”. Questions 3.29 and 3.30 were treated as the index for the competence “autonomy”. Question 3.31 was treated as an item to measure the competence “interpersonal understanding”. Questions 3.32 and 3.33 were treated as the index for the competence “concern for order” and question 3.34

was removed from the analysis when the Cronbach`s alpha value was considered. Questions 3.35 and 3.36 were treated separately, question 3.35 was treated as an item to measure the competence “pluridisciplinary research” and question 3.36 equally treated as an item to measure the competence “multi-sourced information seeking”. Questions 3.37 and 3.38 were treated separately, 3.37 was treated as an item to measure the competence “cooperation” and 3.38 was also treated as an item to measure the competence “intellectual receptiveness”. Questions 3.39 and 3.41 were treated as the index for the competence “expertise mastery sharing”. Question 3.40 was treated as an item for the competence “expertise stimulation”. Question 3.42 was treated as an item to measure the competence “customer service orientation”.

The hypothesis 1 “there is a gap between the importance attributed by the managers to the surveyed competencies they believe to be critical for their business and the importance attributed by the employees to the same competencies”, was tested through the indexes created (see table IX) and confirmed, when considering all the twenty-four competencies.

Table IX
Competencies and respective gaps

	Competencies	Managers	Employees	Gap
1	Personal independence	6.25	4.89	1.36
2	Sociability	6.00	4.87	1.13
3	Impact and influence	6.50	5.50	1
4	Self-confidence	5.88	5.06	0.82
5	Autonomy	6.25	5.50	0.75
6	Communication skills	5.75	5.09	0.66
7	Achievement orientation	6.46	5.84	0.62
8	Problem solving	6.50	5.89	0.61
9	Customer service orientation	6.13	5.52	0.61
10	Pluridisciplinary research	6.50	5.91	0.59
11	Initiative	6.25	5.72	0.53
12	Analytical thinking	6.29	5.82	0.47
13	Multi-sourced information-seeking	6.25	5.80	0.45
14	Conceptual thinking	6.25	5.83	0.42
15	Interpersonal understanding	6.13	5.72	0.41
16	Concern for order	6.50	6.10	0.4
17	Empathy	5.91	5.58	0.33
18	Open-mindedness	6.38	6.06	0.32
19	Self-evaluation	5.75	5.44	0.31
20	Expertise mastery sharing	6.38	6.07	0.31
21	Obstacle anticipation	6.00	5.70	0.3
22	Intellectual Receptiveness	6.25	6.30	-0.05
23	Cooperation	6.13	6.19	-0.06
24	Expertise stimulation	5.25	5.83	-0.58

There are 21 competencies with a gap with a positive value (numbered 1 to 21 in table IX). Meaning that the importance attributed by the managers to the surveyed competencies believed to be critical for their business is superior to the importance attributed by the employees to the same competencies.

There are 3 competencies with a gap with a negative value (numbered 22 to 24 in table IX). Meaning that the importance attributed by the employees to the surveyed competencies believed to be critical for their business is superior to the importance attributed by the managers to the same competencies.

The hypothesis 2 “the importance that startup employees attribute to the startup companies` identified competencies depends on their professional experience”, was

tested with a Pearson Correlation (see table X) and was confirmed, with the competency “open-mindedness”.

Table X
Pearson Correlation coefficient

Competencies	r (Pearson Correlation) / Sig. (2-tailed)	Professional experience (in months)
Open-mindedness	Pearson's r	-0.346*
	Sig. (2-tailed)	0.010
Self-confidence	Pearson's r	0.091
	Sig. (2-tailed)	0.512
Personal independence	Pearson's r	0.207
	Sig. (2-tailed)	0.132
Communication skills	Pearson's r	-0.150
	Sig. (2-tailed)	0.278
Sociability	Pearson's r	-0.129
	Sig. (2-tailed)	0.352
Empathy	Pearson's r	-0.218
	Sig. (2-tailed)	0.117
Self-evaluation	Pearson's r	0.163
	Sig. (2-tailed)	0.238
Achievement orientation	Pearson's r	-0.076
	Sig. (2-tailed)	0.582
Impact and influence	Pearson's r	-0.131
	Sig. (2-tailed)	0.346
Problem solving	Pearson's r	-0.114
	Sig. (2-tailed)	0.411
Conceptual thinking	Pearson's r	-0.164
	Sig. (2-tailed)	0.236
Obstacle anticipation	Pearson's r	-0.076
	Sig. (2-tailed)	0.585
Analytical thinking	Pearson's r	0.043
	Sig. (2-tailed)	0.758
Initiative	Pearson's r	-0.011
	Sig. (2-tailed)	0.939
Autonomy	Pearson's r	-0.128
	Sig. (2-tailed)	0.355
Interpersonal understanding	Pearson's r	-0.214
	Sig. (2-tailed)	0.120
Concern for order	Pearson's r	0.198
	Sig. (2-tailed)	0.156
Pluridisciplinary research	Pearson's r	0.067
	Sig. (2-tailed)	0.632
Multi-sourced information-seeking	Pearson's r	0.095
	Sig. (2-tailed)	0.495
Cooperation	Pearson's r	-0.200
	Sig. (2-tailed)	0.147
Intellectual Receptiveness	Pearson's r	-0.138
	Sig. (2-tailed)	0.320
Expertise mastery sharing	Pearson's r	0.039
	Sig. (2-tailed)	0.779
Expertise stimulation	Pearson's r	0.068
	Sig. (2-tailed)	0.624
Customer service orientation	Pearson's r	-0.056
	Sig. (2-tailed)	0.686

*. Correlation is significant at the 0.05 level (2-tailed).

A correlation was used to address the question of the relationship or association between two variables. Pearson's correlation was used as a measure of the strength and direction of association that exists between two continuous variables. Its value can range from -1 for a perfect negative linear relationship to +1 for a perfect positive linear relationship. A value of 0 (zero) indicates no relationship between two variables. If the correlation is positive it means that higher scores on the independent axis are associated with higher scores on the dependent axis. A positive correlation means there is a positive relationship between the variables; as one variable increases or decreases, the other tends to increase or decrease with it. If the correlation is negative it means that higher scores on the independent axis are associated with lower scores on the dependent axis. A negative correlation means that as one of the variables increases, the other tends to decrease, and vice versa. Finally, a third relationship option is that there is no predictable relationship between the independent and dependent variables (Evans, 1995).

To note that a positive or negative correlation is not sufficient to interpret the data. It is also necessary to interpret the Sig. (statistical significance) of data.

Statistical significance is often referred to as the "p-value" (short for "probability value") or simply "p" in research papers. A small p-value basically means that your data are unlikely under some null hypothesis. A somewhat arbitrary convention is to reject the null hypothesis if $p < 0.05$ (Evans, 1995). The research results show that there is a negative correlation between the importance attributed to the competence "open-mindedness" by the startup companies' employees and their professional experience. This is the only case where the sig. (2-tailed) value is inferior to 0.05. For this reason, out of the 24 competencies considered in the research this is the only case in which there is a statistically significant correlation between the two variables. Even though there are other

positive and negative correlations between the remaining 23 competencies and the startup companies' employees' professional experience, they are not statistically significant ($p \geq 0.05$ for all other 23 cases).

Hypothesis 3 “the importance that startup employees attribute to the startup companies' identified competencies depends on the startup managers accompaniment of their employees” was tested taking in consideration the managerial type of supervision via a Spearman correlation (table XI) and was confirmed, with ten of the twenty-four competencies. A correlation was used to address the question of the relationship or association between two variables. Spearman's correlation was used as a measure of the strength and direction of association that exists between two continuous variables. It was chosen instead of Person's which is used exclusively for continuous interval or ratio, linearity and multivariate normal distribution of variables for significance testing. Moreover, Spearman does not require the use of a continuous level data. Spearman's correlation uses ranks of distributions making it possible to analyze associations between variables of ordinal measurement levels (Evans, 1995). To note that a positive or negative correlation is not sufficient to interpret the data. It is also necessary to interpret the Sig. (statistical significance) of data. As mentioned, statistical significance is often referred to as the “p-value” (short for “probability value”) or simply “p”. A small p-value basically means that data have statistical significance and a null hypothesis is rejected. A somewhat arbitrary convention is to reject the null hypothesis if $p < 0.05$ (Evans, 1995).

Table XI
Spearman Correlation coefficient

Competencies	r_s (Spearman Correlation) / Sig. (2-tailed)	Type of supervision
Open-mindedness	Spearman's r_s	-0.296*
	Sig. (2-tailed)	0.030
Self-confidence	Spearman's r_s	0.278*
	Sig. (2-tailed)	0.042
Personal independence	Spearman's r_s	0.447**
	Sig. (2-tailed)	0.001
Communication skills	Spearman's r_s	0.073
	Sig. (2-tailed)	0.598
Sociability	Spearman's r_s	-0.047
	Sig. (2-tailed)	0.736
Empathy	Spearman's r_s	-0.113
	Sig. (2-tailed)	0.420
Self-evaluation	Spearman's r_s	0.135
	Sig. (2-tailed)	0.329
Achievement orientation	Spearman's r_s	0.305*
	Sig. (2-tailed)	0.025
Impact and influence	Spearman's r_s	0.246
	Sig. (2-tailed)	0.073
Problem solving	Spearman's r_s	0.109
	Sig. (2-tailed)	0.434
Conceptual thinking	Spearman's r_s	0.140
	Sig. (2-tailed)	0.314
Obstacle anticipation	Spearman's r_s	0.360**
	Sig. (2-tailed)	0.008
Analytical thinking	Spearman's r_s	0.412**
	Sig. (2-tailed)	0.002
Initiative	Spearman's r_s	0.313*
	Sig. (2-tailed)	0.021
Autonomy	Spearman's r_s	0.500**
	Sig. (2-tailed)	0.000
Interpersonal understanding	Spearman's r_s	-0.056
	Sig. (2-tailed)	0.689
Concern for order	Spearman's r_s	0.420**
	Sig. (2-tailed)	0.002
Pluridisciplinary research	Spearman's r_s	-0.033
	Sig. (2-tailed)	0.810
Multi-sourced information-seeking	Spearman's r_s	0.046
	Sig. (2-tailed)	0.742
Cooperation	Spearman's r_s	0.023
	Sig. (2-tailed)	0.869
Intellectual Receptiveness	Spearman's r_s	-0.037
	Sig. (2-tailed)	0.788
Expertise mastery sharing	Spearman's r_s	0.147
	Sig. (2-tailed)	0.289
Expertise stimulation	Spearman's r_s	0.020
	Sig. (2-tailed)	0.886
Customer service orientation	Spearman's r_s	0.354**
	Sig. (2-tailed)	0.009

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

To interpret the research results, the correlation strengths were based on table XII.

Table XII

Guide for interpreting Spearman's strength of the correlation

r_s value	Type of correlation
0.00 – 0.19	“very weak correlation”
0.20 – 0.39	“weak correlation”
0.40 – 0.59	“moderate correlation”
0.60 – 0.79	“strong correlation”
0.80 – 1.0	“very strong correlation”

Source: adapted from Evans (1995).

The results show a moderate correlation between the type of supervision of the startup companies' employees undertaken by the startup companies' managers for the following four competencies: “personal independence” (Sig=0.001) with Spearman's correlation of 0.447, “analytical thinking” (Sig=0.002) with a Spearman's correlation of 0.412, “autonomy” (Sig=0.000) with a Spearman's correlation of 0.500 and “concern for order” (Sig=0.002) with a Spearman's correlation of 0.420.

There is a weak correlation between the type of supervision of the startup companies' employees undertaken by the startup companies' managers for the following six competencies: “open-mindedness” (Sig=0.030) with Spearman's correlation of – 0.296 in this case the correlation is negative which means that as one variable increases the other variable will decrease, “self-confidence” (Sig=0.042) with a Spearman's correlation of 0.278, “achievement orientation” (Sig=0.025) with a Spearman's correlation of 0.305, “obstacle anticipation” (Sig=0.008) with a Spearman's correlation of 0.360, “initiative” (Sig=0.021) with a Spearman's correlation of 0.313 and “customer service orientation” (Sig=0.009) with a Spearman's correlation of 0.354.

4. Conclusions

4.1 Discussion of results

The goal of this research was to establish competencies needs for startup companies by gauging the managers and employees` perceived requirements at their place of business.

The research rests upon the work developed by Bartel-Radic et al (2017) and Spencer and Spencer and Spencer (1993). After shaping and re-purposing their competencies for field work and analyzing the research results the three hypotheses were confirmed.

For Hypothesis 1: there is a gap between the importance attributed by the managers to the surveyed competencies they believe to be critical for their business and the importance attributed by the employees to the same competencies, the analyses confirmed the hypothesis. The employees are not attributing the same importance as the managers have to the same competencies. Be it by overstating or deprecating their importance, they are never concordant throughout the 24 competencies.

The literature shows how it is sensible for managers to find a positive relationship between competencies and performance among the more experienced staff (Hashim and Wok, 2014) as competencies are considered to be the main drivers for a company`s performance (Čižiūnienė et al, 2016). It is understandable why entrepreneurs may wish to be surrounded by a staff with a certain degree of professional experience, familiar with the ins and outs of the startup company they work at. In fact, it seems that the importance attributed to the startup companies` identified competencies by the startup employees depends on their professional experience, however in this study this was confirmed only with the competency “open-mindedness”. For Hypothesis 2: the importance that startup employees attribute to the startup companies` identified competencies depends on their professional experience, the analyses confirmed the hypothesis. The research results show

that there is a negative correlation between the importance attributed to the competence “open-mindedness” by the startup companies` employees and their professional experience. The less professional experience the sampled employees have the more importance they attribute to this competence. This was the only item with a statistical significant correlation, which did nonetheless confirm hypothesis 2.

Finally, findings from a Gallup (2017) research revealed that only one in four employees "strongly agree" that their manager provides meaningful feedback to them, with a real impact on job performance and that only 21% of employees strongly agree that their performance is accompanied and managed in a way that motivates them to do outstanding work. It is clear then how repeated feedback “may enhance the perceived importance of the behaviors or skills for which feedback is being provided” (Seifert and Yukl, 2010, p. 857). For 42% of the selected competencies the importance attributed to the competencies depends on the type of accompaniment they are subjected to: the more accompaniment their manager subjects them to, the more importance they attribute to these competencies, with the exception of “open-mindedness” for which the importance attributed to the competency by the employees decreases as the accompaniment by the managers increases. For Hypothesis 3: the importance that startup employees attribute to the startup companies` identified competencies depends on the startup managers` accompaniment of their work. The analyses confirmed the hypothesis. With ten out of twenty-four competencies ranging from moderate correlation - “personal independence”, “analytical thinking”, “autonomy” and “concern for order”; to weak correlation - “open-mindedness”, “self-confidence”, “achievement orientation”, “obstacle anticipation”, “initiative” and “customer service orientation”.

4.2 Conclusions

Broadly speaking, in the analyzed startup company scene there is margin for improvement concerning competency-based management, considering not only the existing gaps detected in this study but also the weak correlation between the competencies deemed as essential by the startup companies' managers and their professional experience or employees' supervision.

The managers establish what is considered paramount for the startup company in terms of competences. As such, the positive gaps analyzed show a potential inefficiency that could bleed into productivity and competitiveness. This tells us that the employees may beg additional training and the deepening of two-way organizational communication. When choosing which of the 24 competencies ought to be developed, the negative gaps ought to be ignored, as it is the managers that set the vital aspects or standards for their businesses and not their employees.

Through the identification of competency gaps, managers can better recognize and comprehend the areas of which they should invest in order to thrive. The competency gaps allow for a clearer visual identification of behaviours that may need to be improved. To fill said gaps helps to clarify the description of what is a competent on-the-job employee and simplify performance in a less ambiguous way. Discussions about performance are then more objective and any performance shortcomings may be clearly acknowledge by managers and employees.

To improve the understanding of the use of behavioural competencies, adequately identifying their relationship with the employees' professional experience may help increase the transparency and accessibility of the competency-based performance assessment process. Understanding more clearly the relationship between the importance

of the competencies identified as important by the managers and the employees' professional experience might help each employee to, according to their professional experience, establish the required competencies for their development and the most effective manner to improve that performance.

The degree of accompaniment undertaken by the managers may increase the importance, from the employees' point of view, of the competency-based management processes and help improve the performance of the *startup* company.

It would then be important for managers to know the leadership scope of their current team has and to develop a benchmark for employees, fostering a learning centered environment.

4.3 Limitations and future research directions

The dearth of literature on the subject of startup companies as well as literature addressing the subject of competencies in startup companies proved to be quite a challenge. In addition to a business culture that is not very keen on participating or sharing time and energy on subjects that are exterior to their core business.

The sample studied was collected from eight startup companies based in Lisbon, Portugal. Generalizing the results to other cultural contexts may skew results. It is suggested for researchers of future studies to focus on their targeted universes and avoid a direct clean-cut transfer of knowledge.

It would be valuable to apply the research instrument to other startup companies, domestic and foreign to not only broaden the scope and obtain more data but to raise awareness of the importance of competency-based management in startup companies.

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Appendixes

Appendix 1 - Cross-cultural competencies

Open-mindedness	I am tolerant toward people whose opinions are different from mine. I like talking with people whose opinions are different from mine. I think that I am an open-minded person.
Self-confidence	I think I have more self-confidence than most people. I am more independent than most people. I think I have a lot of personal ability. I like to be considered a leader.
Communication skills (sociability)	In general, when I meet new people, they quickly appreciate me. I can easily express my thoughts and feelings.
Empathy	I believe that there are two sides to every question and try to look at both. I try to look at everybody's side of a disagreement before I make a decision. When I am upset at someone, I usually try to "put myself in his or her shoes" for a while. I sometimes try to understand my friends better by imagining how this looks from their perspective.

Source: adapted from Bartel-Radic et al (2017, p. 642).

Appendix 2 - Competency models of professionals, technicians and salespeople

Achievement orientation	Measures performance. Improves outcome. Sets challenging goals. Innovates.
Impact and influence	Uses direct persuasion, facts, and figures. Gives presentations tailored to audience. Shows concern with professional reputation.
Conceptual thinking	Recognizes key actions, underlying problems. Makes connections and patterns.
Analytical thinking	Anticipates obstacles. Breaks problem apart systematically. Makes logical conclusions. Sees consequences, implications.
Initiative	Persists in problem solving. Addresses problems before asked to.
Autonomy	Expresses confidence in own judgment. Seeks challenge and independence.
Interpersonal understanding	Understands attitudes, interests, needs of others.
Concern for order	Seeks clarity of roles and information. Checks quality of work or information. Keeps records.
Information-seeking	Contacts many different sources. Reads journals, etc.
Teamwork and cooperation	Brainstorms, solicits input. Credits others.
Expertise	Expands and uses technical knowledge. Enjoys technical work. Shares expertise.
Customer service orientation	Discovers and meets underlying needs.

Source: Spencer and Spencer (1993, pp. 163-173).

Appendix 3 - Questionnaire on employee competencies in startup companies (Managers version)



Questionnaire on employee competencies in Startup companies

The purpose of this questionnaire is to improve the management of the Portuguese Startup employees' competencies. The anonymity of the answers provided is fully guaranteed, so we urge respondents to pay close attention and answer sincerely.

The average completion time for the «Questionnaire on employee competencies in Startup companies» is **10 minutes**.

Thank you
André Francisco Pereira

1. Name of the startup (totally anonymous -only for internal organization purposes or future contact to convey results):

2. Please indicate the total number of employees in your company:

3. Given the competencies you believe to be critical for your startup, please indicate how much you disagree or agree with each of the following statements:

	Strongly disagree	I disagree most of the time	I disagree	Neutral	I agree most of the time	I agree	Strongly Agree
Mark	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 3.1. I am tolerant towards people whose opinions differ from mine.
- 3.2. I like to talk to people whose opinions are different from mine.
- 3.3. I believe to be a tolerant and open-minded person.
- 3.4. I believe to be more self-confident than most people.
- 3.5. I am more independent than most people.
- 3.6. I believe I have plenty of personal abilities.
- 3.7. I like to be considered a leader.
- 3.8. In general, when I meet new people they tend to value me.
- 3.9. I can easily express my thoughts and feelings.
- 3.10. I believe there are two sides to each question and I try to consider them both.

- 3.11. I try to weigh all dissenting points before making a decision.
- 3.12. When I am upset with someone, I try to "put myself in their shoes".
- 3.13. Sometimes I try to understand my friends better by imagining a certain question or scenario from their perspective.
- 3.14. I have mechanisms for measuring my own performance.
- 3.15. I am able to look at the results of my work and improve them.
- 3.16. I am able to set ambitious goals.
- 3.17. I am able to innovate with the goal of improving the company's results.
- 3.18. I turn to objective facts and figures in an argument as tools of persuasion.
- 3.19. I adapt my presentations to different target audiences of the business.
- 3.20. I care about the company's professional reputation.
- 3.21. I am able to identify critical actions for problem solving.
- 3.22. I can identify patterns and establish relationships between ideas.
- 3.23. I can anticipate any obstacles to the good performance of the company.
- 3.24. I can disassemble and systematize a problem.
- 3.25. I have the ability to draw logical conclusions.
- 3.26. I can determine the consequences and implications of my actions and behaviors at work.
- 3.27. I am diligent in solving problems.
- 3.28. I take the initiative to solve problems before being asked.
- 3.29. I firmly uphold the assessments I make of situations.
- 3.30. Outside my comfort zone I can face challenges independently.
- 3.31. I can understand the needs, attitudes, and interests of others to cultivate and maintain healthy interpersonal relationships.
- 3.32. I am aware of the duties and obligations inherent in my role.
- 3.33. I check the accuracy of the relevant information of my work so that the results meet the company's operational standards.
- 3.34. I keep clear and detailed records of my work activities.
- 3.35. I actively seek opinions and ideas from people with a diverse background and experience.
- 3.37. When I need help I turn to my colleagues, either individually or in groups.
- 3.38. I value the suggestions and ideas of others.
- 3.39. I adapt and apply my technical knowledge to my work activities.
- 3.40. Technical work is something that stimulates me.
- 3.41. I can share my technical knowledge with my colleagues.
- 3.42. I discover and anticipate the needs of customers.

The questionnaire is over. Thank you very much for your time.

Appendix 4 - Questionnaire on employee competencies in startup companies (Employees version)



Questionnaire on employee competencies in Startup companies

The purpose of this questionnaire is to improve the management of the Portuguese Startup employees' competencies. The anonymity of the answers provided is fully guaranteed, so we urge respondents to pay close attention and answer sincerely.

The average completion time for the «Questionnaire on employee competencies in Startup companies» is **15 minutes**.

Thank you
André Francisco Pereira

1. Name of the startup (totally anonymous -only for internal organization purposes or future contact to convey results):

2. For how long have you been working in this startup (in months):

3. Consider the following list of affirmations about your daily life, indicate your degree of disagreement or degree of agreement for each one of them:

	Strongly disagree	I disagree most of the time	I disagree	Neutral	I agree most of the time	I agree	Strongly Agree
Mark	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 3.1. I am tolerant towards people whose opinions differ from mine.
- 3.2. I like to talk to people whose opinions are different from mine.
- 3.3. I believe to be a tolerant and open-minded person.
- 3.4. I believe to be more self-confident than most people.
- 3.5. I am more independent than most people.
- 3.6. I believe I have plenty of personal abilities.
- 3.7. I like to be considered a leader.
- 3.8. In general, when I meet new people they tend to value me.
- 3.9. I can easily express my thoughts and feelings.
- 3.10. I believe there are two sides to each question and I try to consider them both.

- 3.11. I try to weigh all dissenting points before making a decision.
- 3.12. When I am upset with someone, I try to "put myself in their shoes".
- 3.13. Sometimes I try to understand my friends better by imagining a certain question or scenario from their perspective.
- 3.14. I have mechanisms for measuring my own performance.
- 3.15. I am able to look at the results of my work and improve them.
- 3.16. I am able to set ambitious goals.
- 3.17. I am able to innovate with the goal of improving the company's results.
- 3.18. I turn to objective facts and figures in an argument as tools of persuasion.
- 3.19. I adapt my presentations to different target audiences of the business.
- 3.20. I care about the company's professional reputation.
- 3.21. I am able to identify critical actions for problem solving.
- 3.22. I can identify patterns and establish relationships between ideas.
- 3.23. I can anticipate any obstacles to the good performance of the company.
- 3.24. I can disassemble and systematize a problem.
- 3.25. I have the ability to draw logical conclusions.
- 3.26. I can determine the consequences and implications of my actions and behaviors at work.
- 3.27. I am diligent in solving problems.
- 3.28. I take the initiative to solve problems before being asked.
- 3.29. I firmly uphold the assessments I make of situations.
- 3.30. Outside my comfort zone I can face challenges independently.
- 3.31. I can understand the needs, attitudes, and interests of others to cultivate and maintain healthy interpersonal relationships.
- 3.32. I am aware of the duties and obligations inherent in my role.
- 3.33. I check the accuracy of the relevant information of my work so that the results meet the company's operational standards.
- 3.34. I keep clear and detailed records of my work activities.
- 3.35. I actively seek opinions and ideas from people with a diverse background and experience.
- 3.37. When I need help I turn to my colleagues, either individually or in groups.
- 3.38. I value the suggestions and ideas of others.
- 3.39. I adapt and apply my technical knowledge to my work activities.
- 3.40. Technical work is something that stimulates me.
- 3.41. I can share my technical knowledge with my colleagues.
- 3.42. I discover and anticipate the needs of customers.

4. In your daily work activity, indicate the type of supervision you receive from your manager:

It is a daily follow-up

It is an occasional follow-up

I have almost full autonomy

5. Please state your age in years:

6. Please indicate your maximum level of literacy:

No High School degree

High School degree

Undergraduate degree

Master degree

PhD

7. Gender:

Female

Male

The questionnaire is over. Thank you very much for your time.