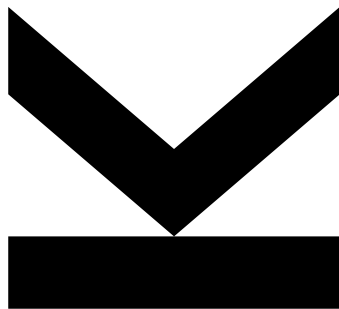


ENTREPRENEURIAL INTENTIONS AND ACTIVITIES OF STUDENTS AT AUSTRIAN UNIVERSITIES

**GLOBAL UNIVERSITY ENTREPRENEURIAL
SPIRIT STUDENTS' SURVEY 2016**

NATIONAL REPORT AUSTRIA



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1 Introduction

Founding an enterprise as well as business succession is of increasingly high importance for the economy. According to the start-up statistics of the Austrian Chamber of Commerce nearly 40,000 people started an enterprise in 2015¹.

The promotion of entrepreneurship is critical in stimulating economic growth and job creation as well as innovation. Studies show that students as well as graduates of universities are increasingly interested in the career option of self-employment². Students without any interest in entrepreneurship are in a distinct minority. A considerable percentage of the students already acquire practical entrepreneurial experience through working in a family firm or as business owners. Without doubt the entrepreneurial potential can be increased through practice-oriented entrepreneurship education at universities including extracurricular activities and intensive cooperation with the support infrastructure of the region³. A large percentage of students in Austria envision to establish their own business within five years after graduating (and thus after gaining working experience and also industry-specific know-how) and a large proportion of alumni actually choose the career option self-employment. Therefore, entrepreneurship education also has to include alumni as an additional target group for their activities, as potential entrepreneurs, as role models and as entrepreneurs-in-residence⁴.

Higher education institutions play an important role in this respect because they can spread the spirit of enterprise through fostering a positive attitude of the students towards entrepreneurship, through competency development in the field of entrepreneurship and through actively supporting (potential) academic start-ups. The development of university-wide concepts for entrepreneurship education is urgently needed to create “entrepreneurial universities”⁵. As an initiative of the European Commission (DG Education and Culture) and the OECD LEED forum a self-assessment tool for entrepreneurial HEI has been developed⁶. International theme-specific networks (e.g. ESU - European University Network on Entrepreneurship, G-Forum, and the IEDF –International Entrepreneurship Development Forum – formerly European Entrepreneurship Colloquium) can support the activities to reach this goal.

¹ See Laspita et al. 2012; WKO 2016

² See Calogirou et al. 2010; Niras et al. 2008, World Economic Forum 2009

³ See also www.sephe.eu

⁴ See European Commission 2008; Kailer/Stockinger 2012; Nathusius 2013

⁵ See also Calogirou et al. 2010; Gibb 2005; Kailer 2005, 2010, 2014

⁶ See www.heinnovate.e

2 The Research Project GUESSS

The Global University Entrepreneurial Spirit Students' Survey (GUESSS) project is an international collaboration to grasp entrepreneurial intentions and activities among students in different countries. The present study is based on previous waves of this survey. The International Survey on Collegiate Entrepreneurship (ISCE) 2006⁷ is the antecessor of the GUESSS surveys⁸. GUESSS is based on cooperation between national representatives. Each representative is responsible for contacting universities and sponsors, for data collection and interpretation as well as for the analysis and report for his country. Since 2016, the GUESSS project is jointly organized by the University of St. Gallen (Switzerland, KMU-HSG/CFB-HSG) and the University of Bern (Switzerland, IMU). GUESSS 2016/17 was supported by the international project partner Ernst & Young. In 2016 50 countries participated in the anonymous web-based survey and the final response included questionnaires of 122,509 students.

Since its beginning, the country study for Austria has been carried out by the Institute for Entrepreneurship and Organizational Development at the Johannes Kepler University Linz. A special word of thanks is extended to the following organizations for their support: The **Business Start-Up Service of the Austrian Chamber of Commerce** and the **Government of Upper Austria** supported this project financially. To increase the response rate, vouchers sponsored by the **Institute of Business Promotion (WIFI) Austria** and the business magazine "**Die Macher**" were raffled among the participants.

2.1 Respondents

A critical success factor of a web-based questionnaire is the general accessibility of students via e-mail as well as the willingness of the universities to inform as many students as possible of the survey. The rectors, the vice rectors of academic affairs of universities and the managing directors and programme directors of the universities of applied science have been contacted by email and/or by telephone and have been asked to encourage the students via round mail to complete the questionnaire. In most cases an e-mail with a short introduction of the project and a link to the online survey was sent to students. Nevertheless in many cases there remains a lack of information to which extent the students have been informed about the study at all and whether the information was given directly via mail or through a newsletter. As in the former surveys marked differences in the return rate of participating countries as well as between universities of each country could be observed. This has to be kept in mind when trying to make any comparisons between countries or universities.

⁷ See Fueglistaller et al. 2006, Kailer 2007

⁸ See Sieger et al. 2016.

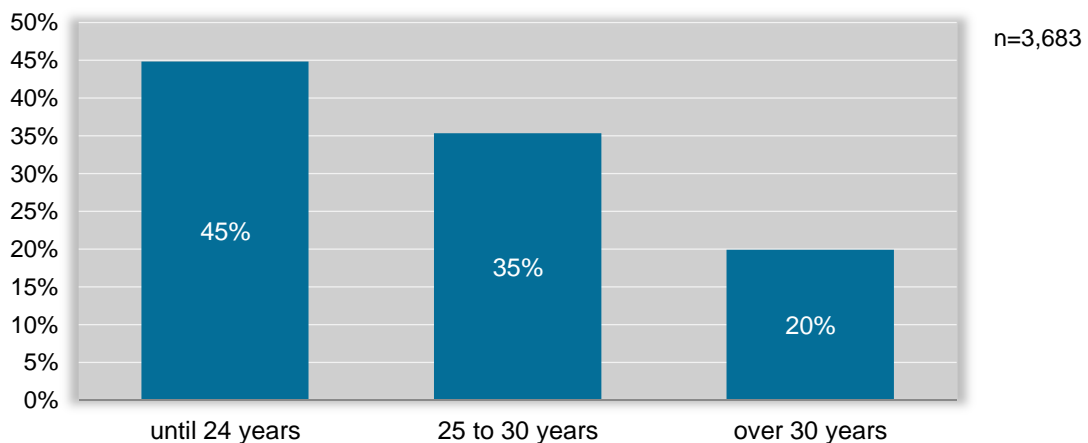
2.2 Sample characteristics

The Austrian report is based on 3,755 questionnaires⁹ from students from 23 Austrian universities and universities of applied sciences. This amount has been nearly the same as in GUESSS 2013. 3% of the students in our sample have stated that they have also participated in GUESSS 2013.

2.2.1 Age

The average student who participated in GUESSS Austria 2016 is 26.3 (mean) years old. The age profile (*Figure 1*) shows, that almost half (45%) of the Austrian respondents can be found in the age category “until 24 years”. 35% are between 25 and 30 years old, and the remaining respondents (20%) are older than 30 years.

Figure 1: Age profile of the sample



2.2.2 Gender

In terms of gender, more female (66%) than male (34%) students participated in the Austrian GUESSS 2016. The higher percentage of women has to be taken into account in country comparisons as the female entrepreneurial intention, generally speaking is lower.

2.2.3 Nationality

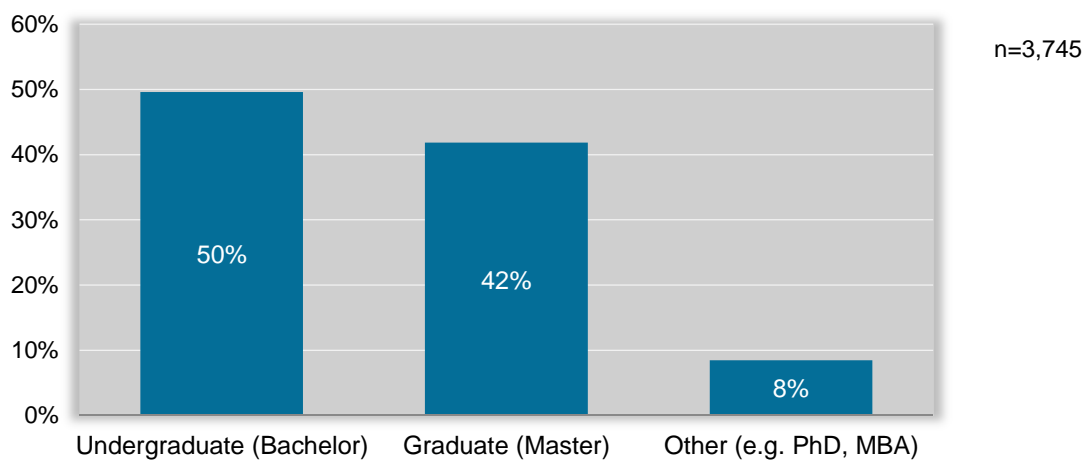
The bulk of the Austrian respondents (81%) were Austrian citizens, followed by Germans (9%) and Italians (1%). Only 1% of the respondents were exchange students.

⁹ Only questionnaires that have been completely filled in have been taken into account for this study.

2.2.4 Level of studies

As illustrated in *Figure 2* the participants in GUESSS Austria 2016 study at different levels. Half of the students were enrolled in a bachelor program (50%), followed by students studying at the master level (42%). 8% of the respondents are enrolled in a MBA or PhD program. The high level of students studying at the graduate or postgraduate level should be seen in the ongoing conversion from diploma programs to the bachelor/master system in Austria.

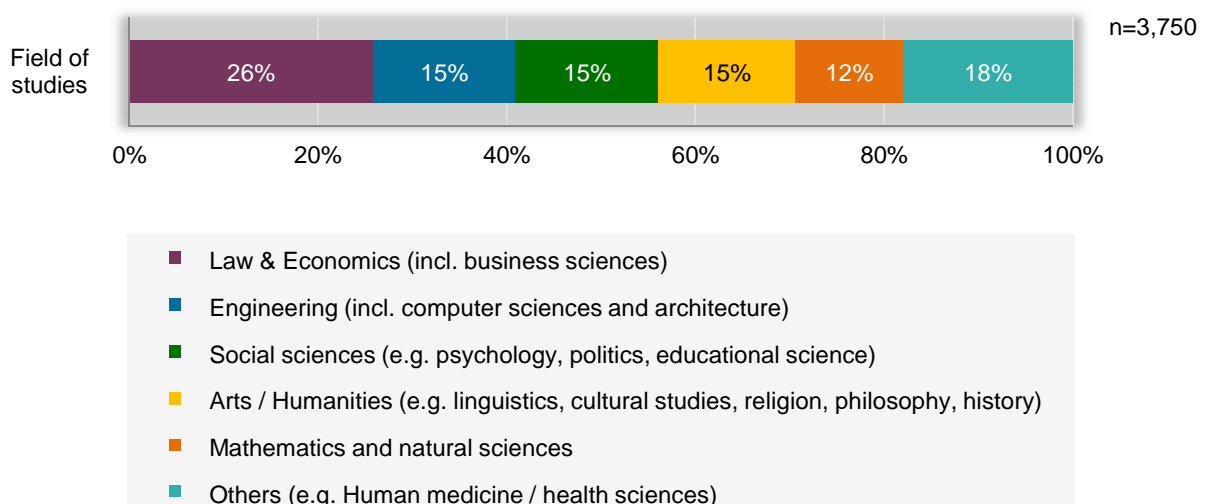
Figure 2: Level of studies



2.2.5 Fields of study

Figure 3 illustrates the distribution of the aggregated fields of study. Most of the students are studying Law, Economics or business sciences (26%), followed by Engineering (15%), Social sciences (15%) or Arts/ Humanities (15%).

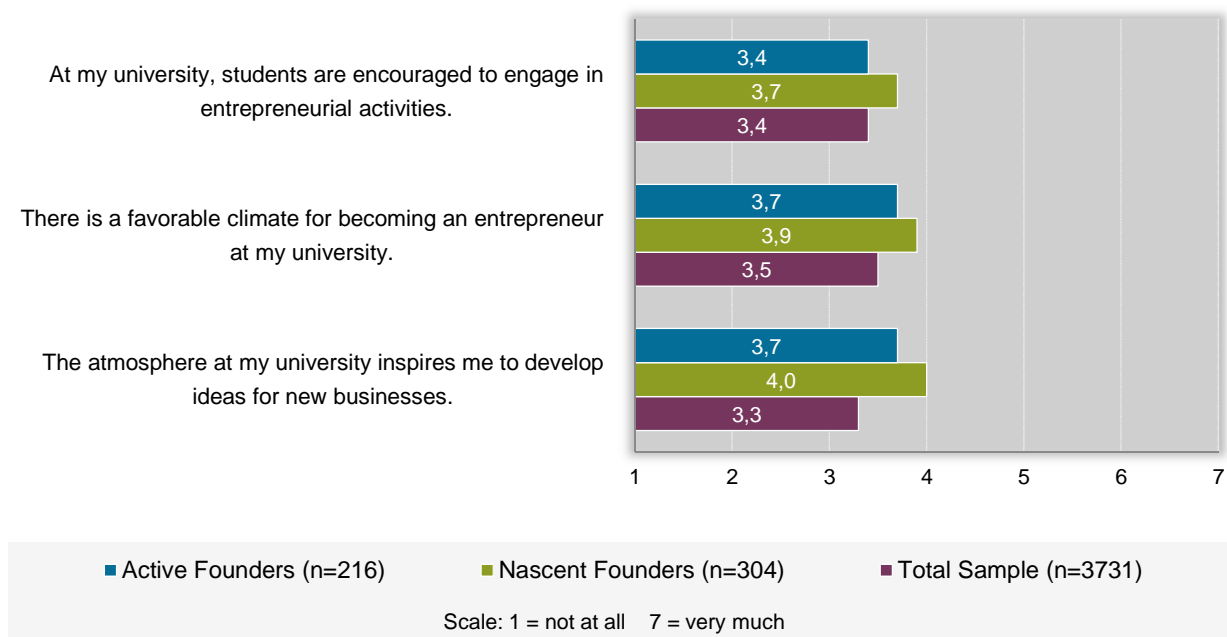
Figure 3: Field of studies



2.2.6 University environment and learning

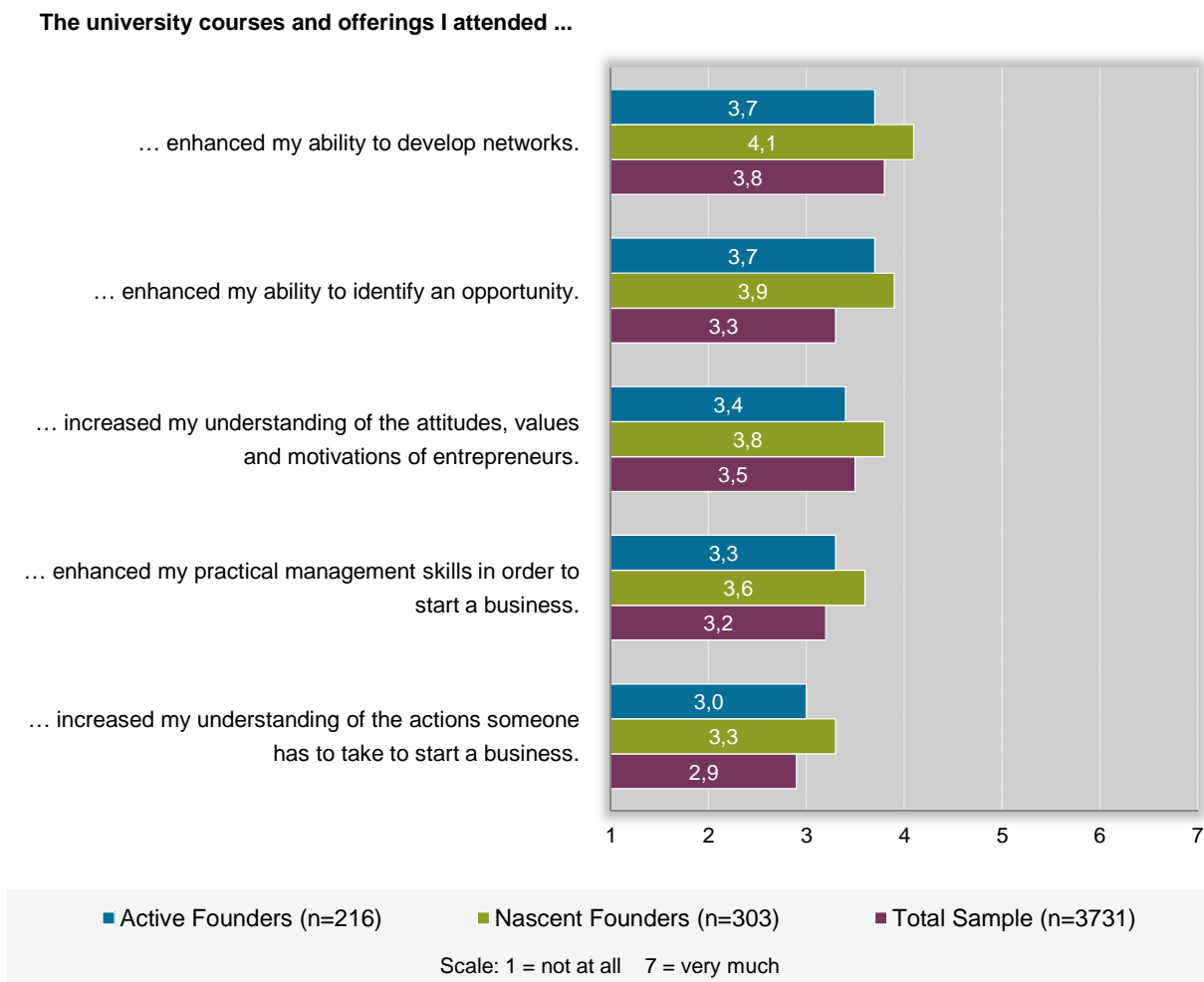
The study analyses students' perceptions of the university environment concerning the encouragement of entrepreneurial intentions and activities. Respondents were asked to assess their level of agreement with statements on a seven-point Likert scale ranging from "not at all" [1] to "very much" [7]. There are only slight differences in perceptions between the total sample of students and the active/nascent founders according to the entrepreneurial university climate.

Figure 4: Assessment of the university environment to foster entrepreneurship



Educational programs and courses at the university level could foster the development of entrepreneurial motivations, intentions and skills. The study surveyed the self-assessment of students' entrepreneurial competency development related to attended university courses and offerings (Figure 5). Active founders – and even more pronounced nascent founders – rated the impact of university offerings on their development of their entrepreneurial competencies higher than the average student. Overall it can be seen that the university context mainly enhanced the “ability to develop networks” and increased the “ability to identify an opportunity“, followed by better “understanding of entrepreneurial attitudes and values”.

Figure 5: Students assessment of the university offerings concerning the development of their competences



3 Career choice intentions

3.1 Career choice intentions directly after and 5 years after graduation

The expressed intention to aspire either self-employment or employment directly after studies respectively five years after graduation can serve as a first indicator for the strength of an individual entrepreneurial attitude. Alumni studies show that the career goals expressed in student surveys are to a considerable extent put into practice¹⁰.

Generally it can be stated that **directly after graduation** 82% intend to start their career as an employee in a firm (38% in an SME, 19% in a large firm). Another 11% of the respondents prefer an employment in the public service. An academic career path is preferred by 9%. The non-profit sector is the most likely career option for 5%. 4% want to found their own business. About 1% aim to take over an already existing company (0.5% successor in parents' / family's firm and 0.3% successor in a firm currently not controlled by the family).

Five years after graduation the picture looks different:

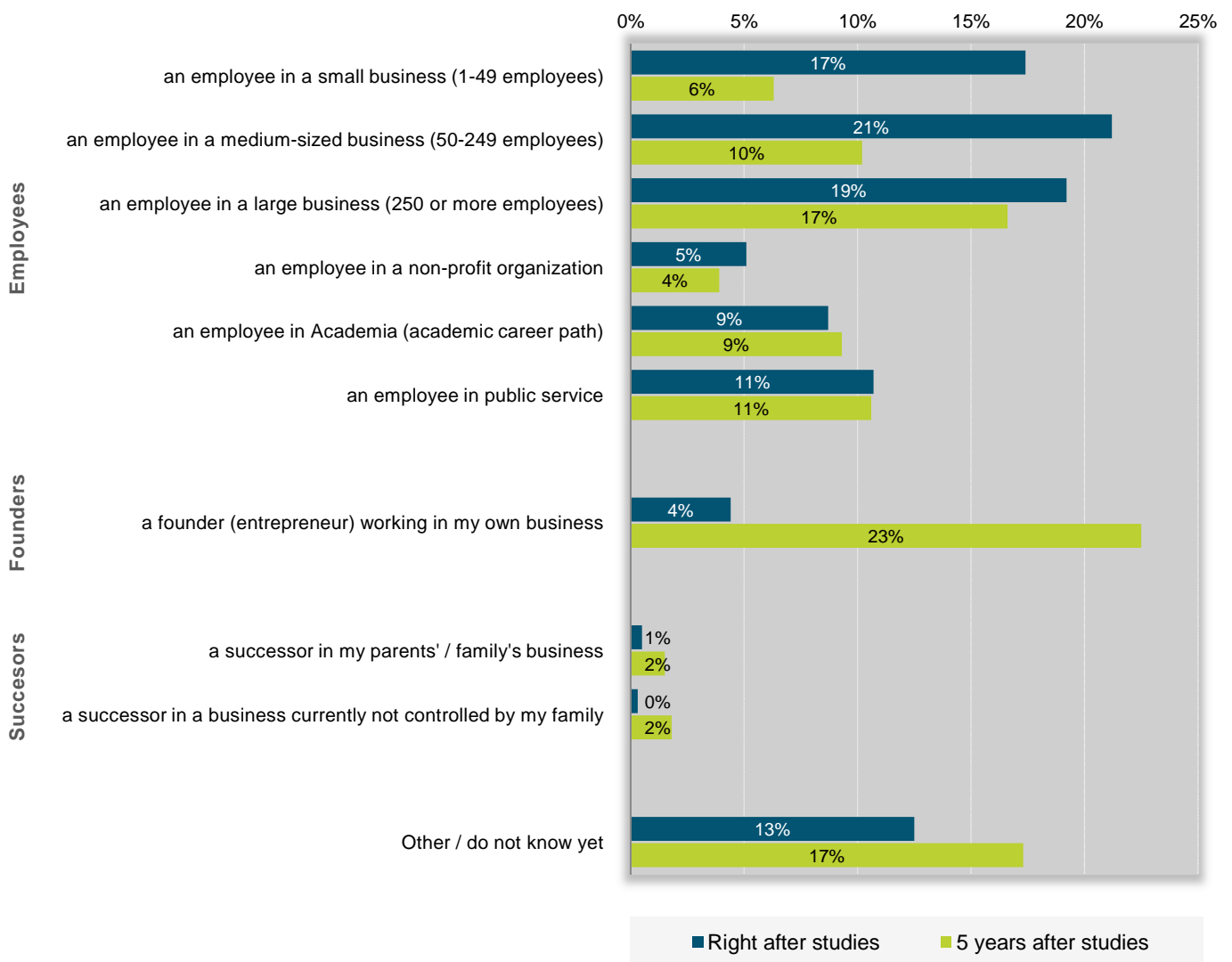
- The percentage of the Austrian students, who tend to be in employment either in the private or public sector drops to under 60% (17% in a large firm, 16% in a SME, 11% in the public sector, 9% in academia and 4% in a non-profit organization).
- 23% of the respondents intend to found their own company 5 years after studies and 4% of the students are interested in taking over an existing company as a career option.

Compared to the previous round of GUESS¹¹ it can be stated that founding intentions are slightly higher (GUESS 2013 – 18%). However, direct comparison between the two studies should be taken cautiously because the composition of the sample is markedly different.

¹⁰ See Kailer 2010; Kailer et al. 2012

¹¹ See for details Kailer et al. 2014

Figure 6: Career choice intentions: directly after studies and 5 years after graduation



To see whether students' preferences for their intended career path remain stable during the first five years after the completion of their studies, the 10 items (*Figure 6*) were grouped in 6 categories (Employees in SME, Large Firms or Public/Non-Profit Organizations; Self-Employed, Successors and Other/Do not know yet). *Table 1* reveals that 70% of the students who want to be self-employed right after studies also intend to stay in this career path 5 years later. In contrast, only 28% of the students who consider starting their career in a small- or medium-sized firm and 40% who intend to start as an employee in a large firm think they will also work there 5 years after their graduation. 25% of this group intends to start their own business. Thus, we can expect a shift taking place from employment in SMEs and in larger enterprises towards self-employment.

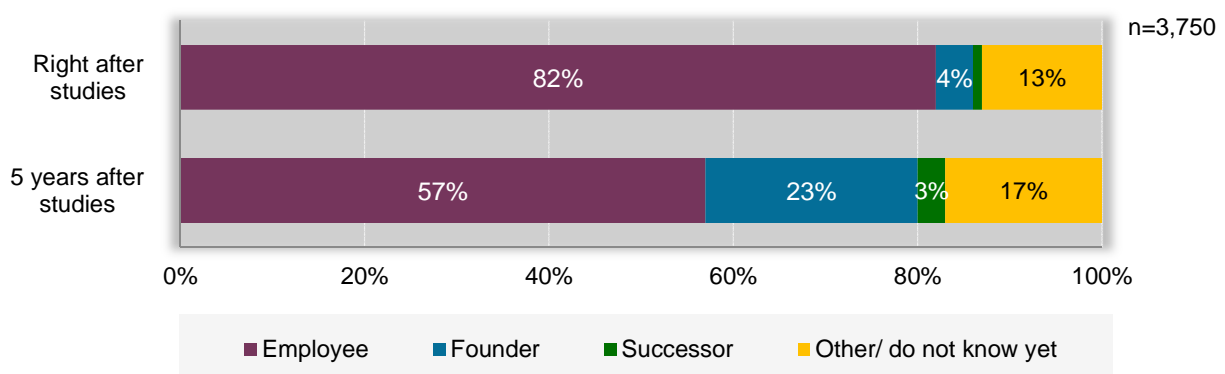
Table 1: Career choice intentions: Expected changes in 5 years

Right after studies	5 years later					
	Employee (SME)	Employee (Large Firm)	Employee (Other)	Self-employed	Successor	Other/do not know yet
Employee (SME) (n=1448)	28%	17%	14%	25%	4%	13%
Employee (Large) (n=720)	9%	40%	11%	25%	5%	10%
Employee (NPO, Public) (n=922)	9%	7%	58%	13%	1%	12%
Self-employed (n=166)	4%	5%	8%	70%	2%	9%
Successor (n=30)	0%	10%	10%	20%	53%	7%
Other/do not know yet (n=469)	13%	4%	16%	11%	1%	55%

3.2 Career choice intentions in detail

Five years after studies for many students dependent employment is distinctively less attractive than right after graduation. This tendency is visible more clearly when we categorize the different career choice intentions into the groups of employees, founders, successors and others (*Figure 7*). In contrast, the career option “self-employment” seems to gain relevance after five years in dependent employment.

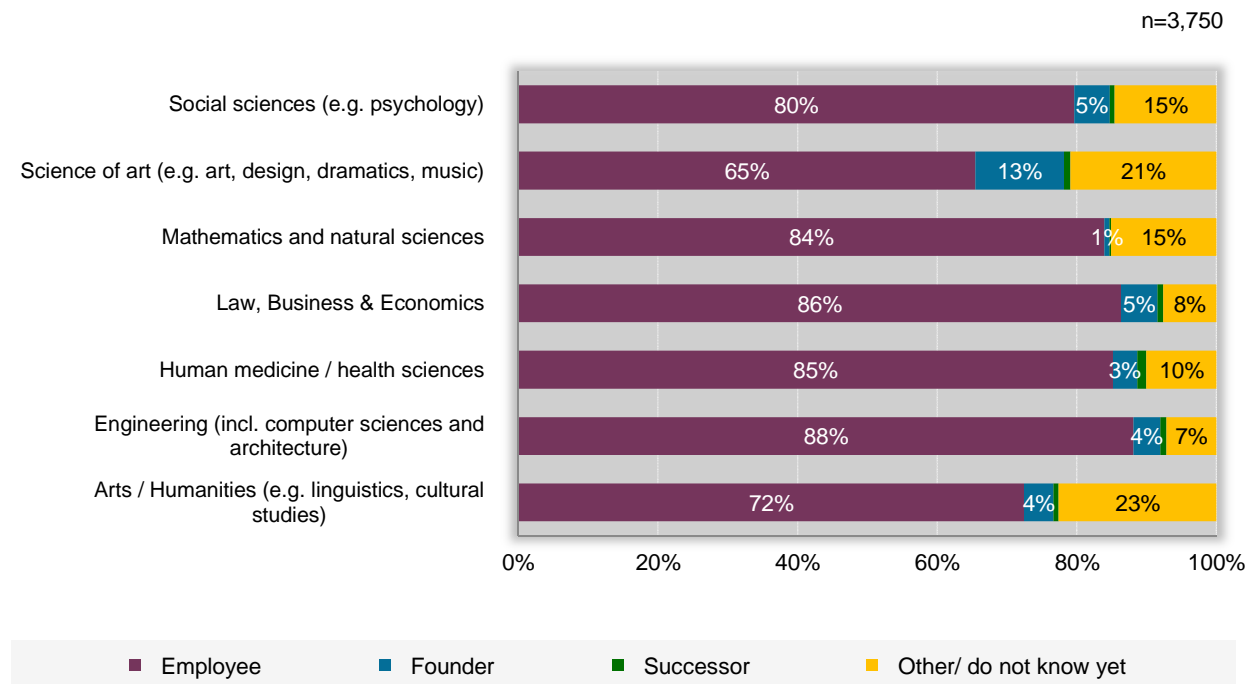
Figure 7: Career intentions right after and 5 years after studies



3.3 Career choice intentions directly after graduation

Figure 8 illustrates the career choice intentions directly after studies depending on the field of study. It can be stated that the intention to found or succeed a company right after studies is more or less the same in all fields of study, except of art students who show a higher rate of founding intention.

Figure 8: Career choice intentions right after graduation by fields of study

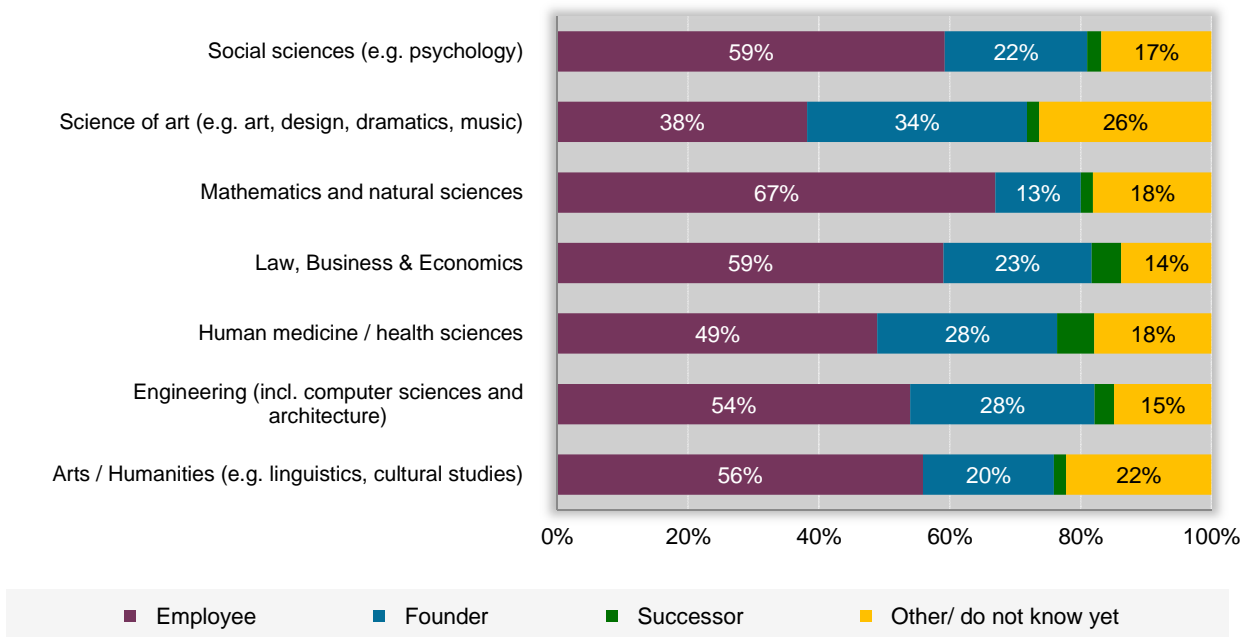


3.4 Career choice intentions five years after graduation

Five years after graduation the career option “self-employment” seems to become more important, compared to career paths in established organizations (mostly small and medium-sized firms). The intention to found one’s own company or to take over an existing business increases markedly in all study fields. 35% of students of art, 31% of engineering students, 27% of students of Business and Economics, 24% of Social Sciences, 23% of Human medicine and health sciences and 15% of students of Natural Sciences perceive self-employment as a desirable career path.

Figure 9: Career choice intentions five years after graduation by fields of study

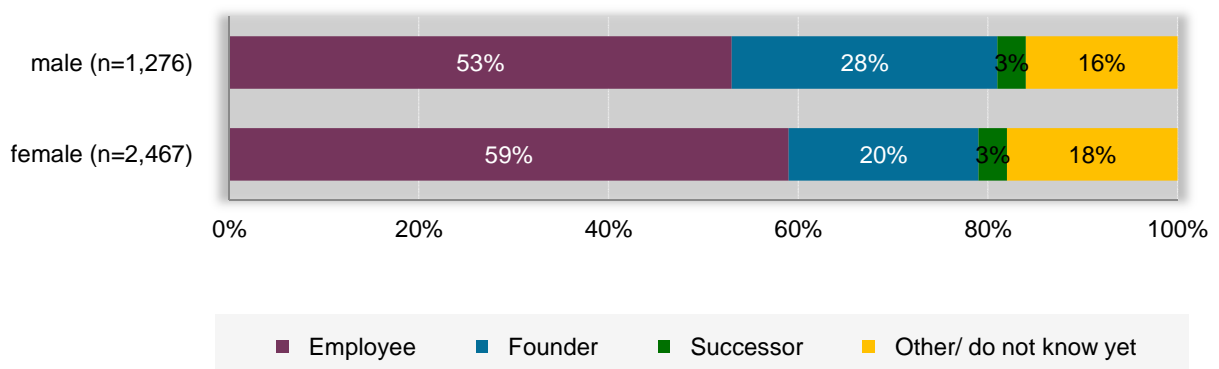
n=3,750



3.5 Career choice intentions by gender

Directly after graduation 8% of the male graduates, but only 4% of the female graduates intend to start an entrepreneurial activity (either as a Founder or Successor). In a five year perspective 31% of the male and 23% of the female respondents plan to pursue an entrepreneurial career. It can be stated that a gender gap still exists, but the gap begins to close after some years of practical experience.

Figure 10: Career choice intentions five years after graduation by gender



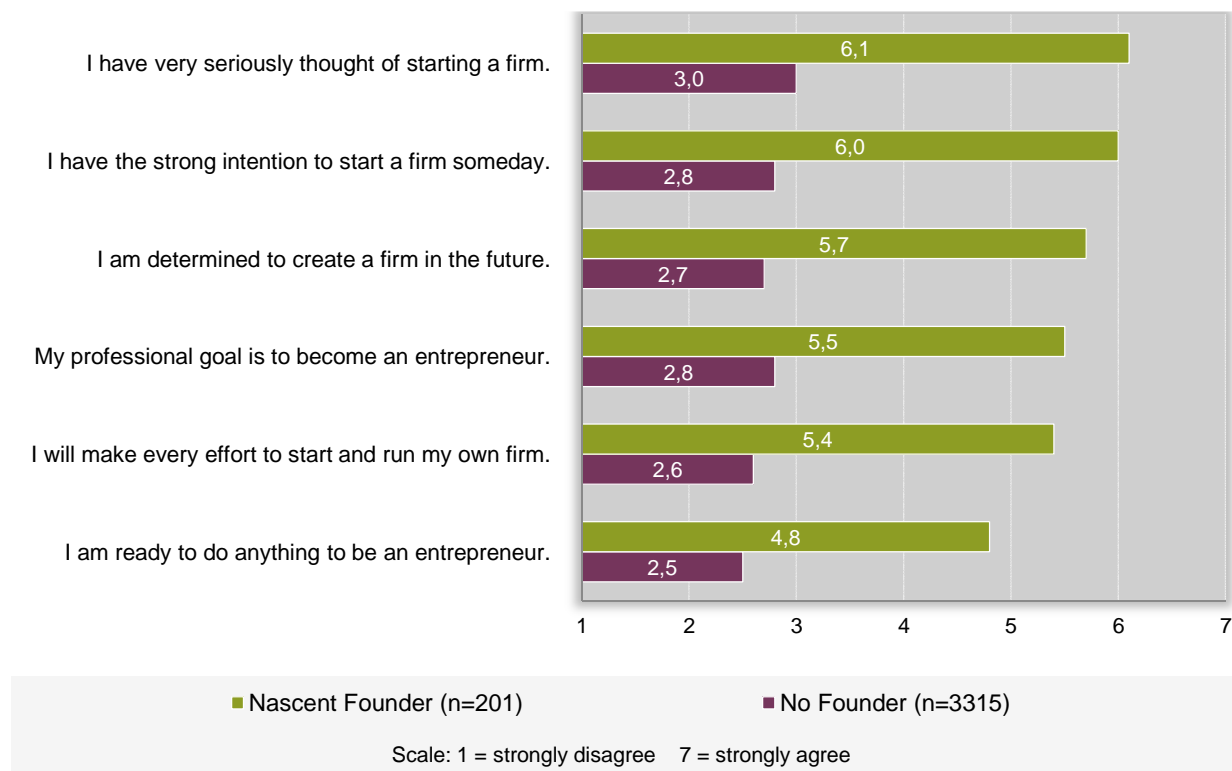
4 Students and Entrepreneurship

This section addresses the entrepreneurial intentions and attitudes of the Austrian students (n=3,315), but excluding active founders (n=191) and nascent founders (n=201), which will be examined in detail in chapter 5 and 6.

4.1 Entrepreneurial intentions and attitudes

The intention to pursue an entrepreneurial career depends upon demographic, social and personality factors as well as on the personal attitude towards entrepreneurship.¹² *Figure 11* shows the items of the entrepreneurial intention construct in a ranking between students who are currently trying to start their own business (nascent founders) and students who are neither trying to start their business nor are already running their own business.

Figure 11: Founding intentions



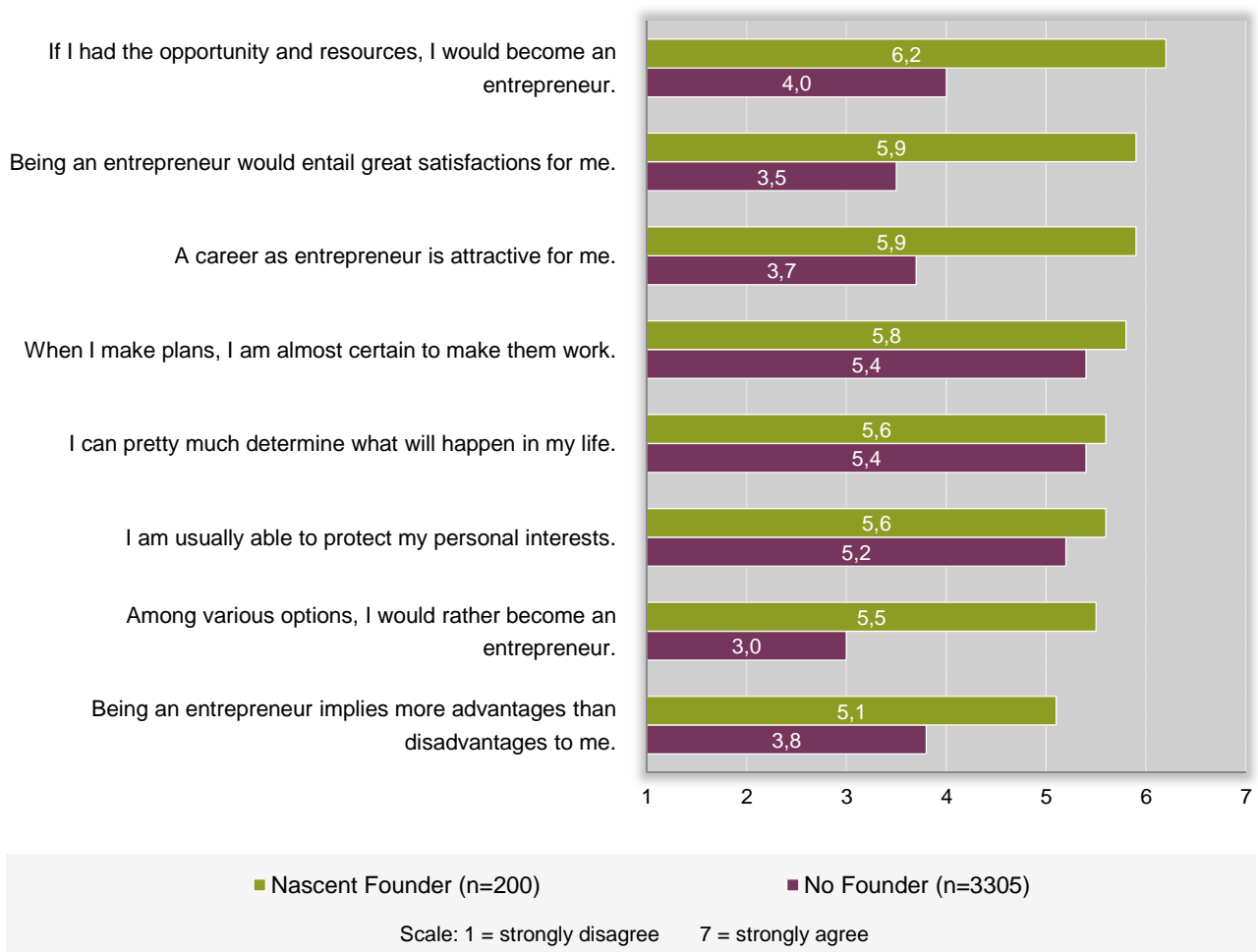
It is obvious that nascent founders have a much higher intention to become entrepreneurs than “non-founders”. The decision to pursue an entrepreneurial career depends on many factors. An important factor is the perception of the desirability of an entrepreneurial career path. The following questions (*Figure 12*) survey the student’s attitudes towards an entrepreneurial career path in comparison to other possible occupations.

¹² See (Liñán/Chen 2009; Schwarz et al. 2009)

4.2 Self-efficacy and perceived behavioural control

Figure 12 plots the average scores for the students who are currently trying to start their business (nascent founders) and the comparison group (currently not starting a business). The items “When I make plans, I am almost certain to make them work”, “I can pretty much determine what will happen in my life” and “I am usually able to protect my personal interests” survey the self-assessment of one’s own internality with regard to work and life in general. We can see that there are no major differences between the two groups. The rest of the items focus more on the internality associated with an entrepreneurial career. It is obvious that the group of nascent founders scores on these items higher than the group of non-founders.

Figure 12: Students self-efficacy and locus of control

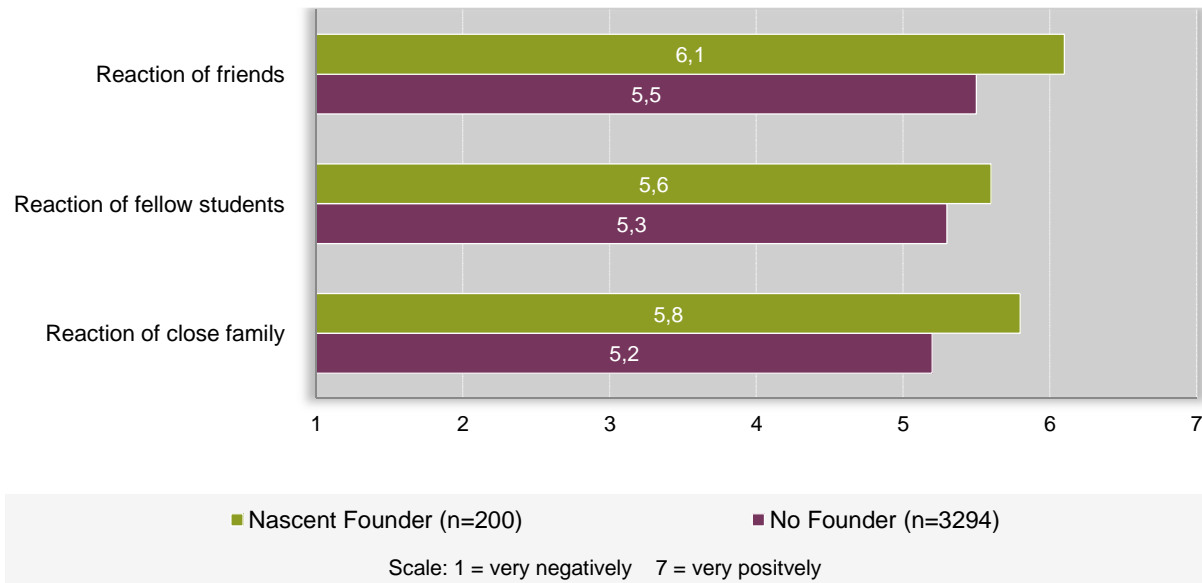


Self-efficacy and perceived behavioral control are two constructs that measure the student’s perception to influence their external environment and to be in control of their own destiny. A high score on these items suggests that the students are oriented more internally than externally. This in turn effects their reaction to obstacles and difficult life situations.

4.3 The reaction of the environment

The external environment can influence the decision to pursue a career as an entrepreneur. Thus, the following questions exhibit the perceived reaction of friends, students and family when the decision is made to found a company.

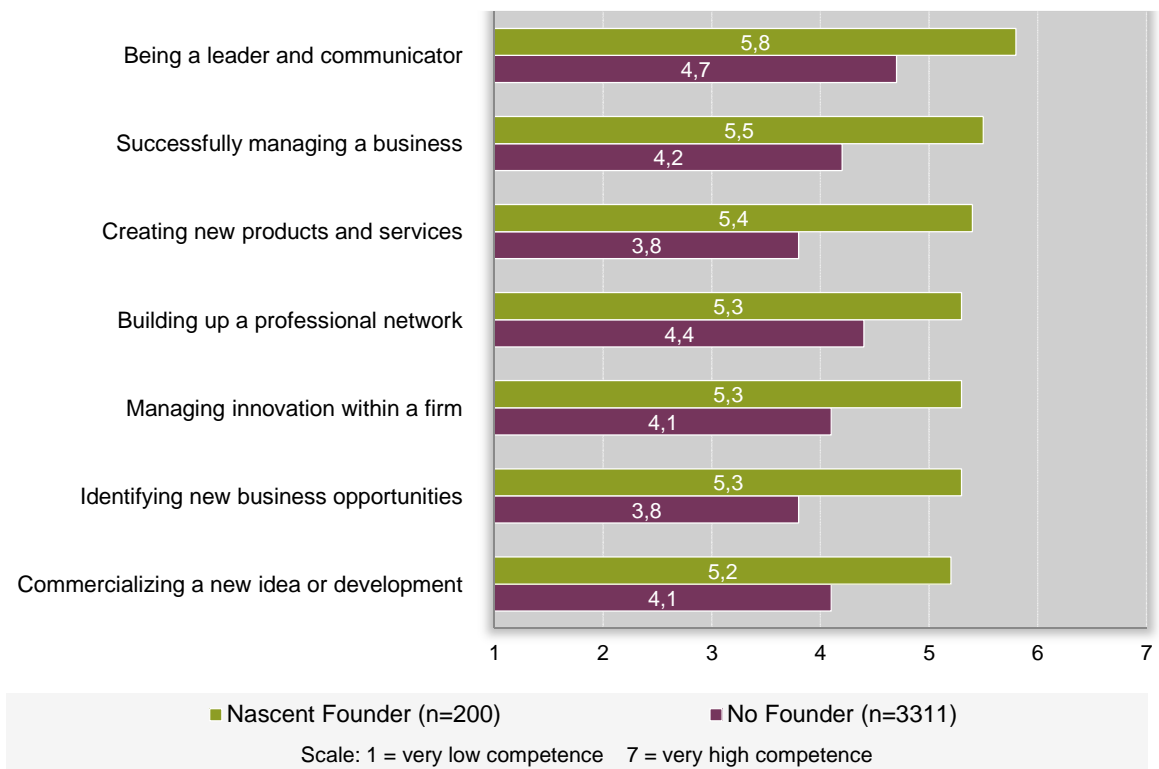
Figure 13: Reaction of the environment toward an entrepreneurial career



4.4 Entrepreneurial competences and skills

Competences and skills play an important role in the successful creation of new ventures. To identify new business opportunities, to communicate effectively with costumers and to build up a professional network are essential competences and skills in the context of start-ups. The following questions evaluate the self-assessed competences of nascent founders in comparison with non-founders. *Figure 14* shows that nascent founders score higher on all competences.

Figure 14: Entrepreneurial competences



5 Nascent founders

8.1% of the Austrian respondents (306 students) are nascent founders, meaning that they are currently trying to start their own business or to become self-employed.

5.1 Characteristics of the nascent founders

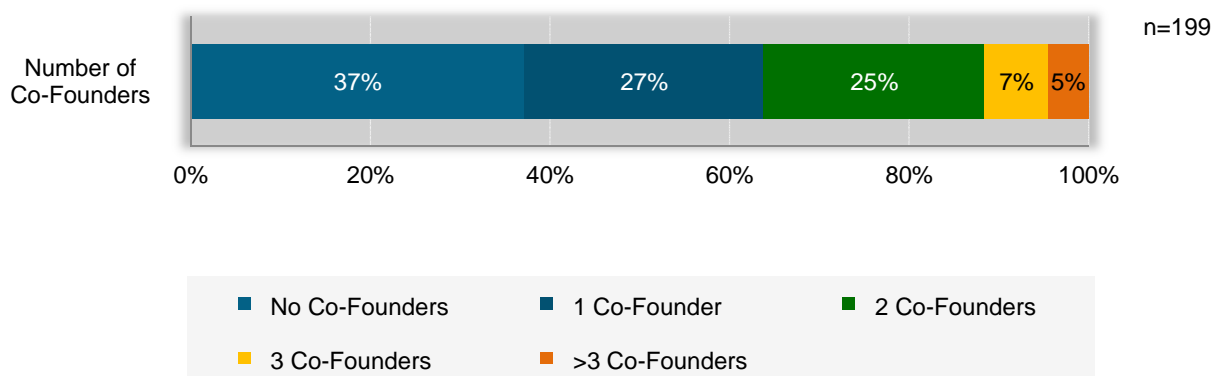
The average age of the nascent founders is 28.4 years. 45% of them are women. About 30% of the nascent founders are studying Law or Economics (incl. business sciences), followed by each 16% who are studying Engineering (incl. computer sciences and architecture) or Social Sciences.

25 % of these nascent founders intend to found their own business within the next 1 to 6 months. 42% see 19 to 24 months as a realistic time span for their business start-up. About 7% of nascent founders have already founded a firm in the past.

5.2 Foundation partners

63% of the nascent founders plan to found their firm with one or more co-partners. Only 37% intend to start their business as a solo entrepreneur.

Figure 15: Number of Co-Founders



The distinction between male and female nascent founders exhibits major differences in the propensity to found their company in a team. *Figure 16* shows that more than the half of the nascent female entrepreneurs (53%) intends to start their business alone, compared to 25% of their male counterparts.

Figure 16: Number of Co-Founders depending on gender

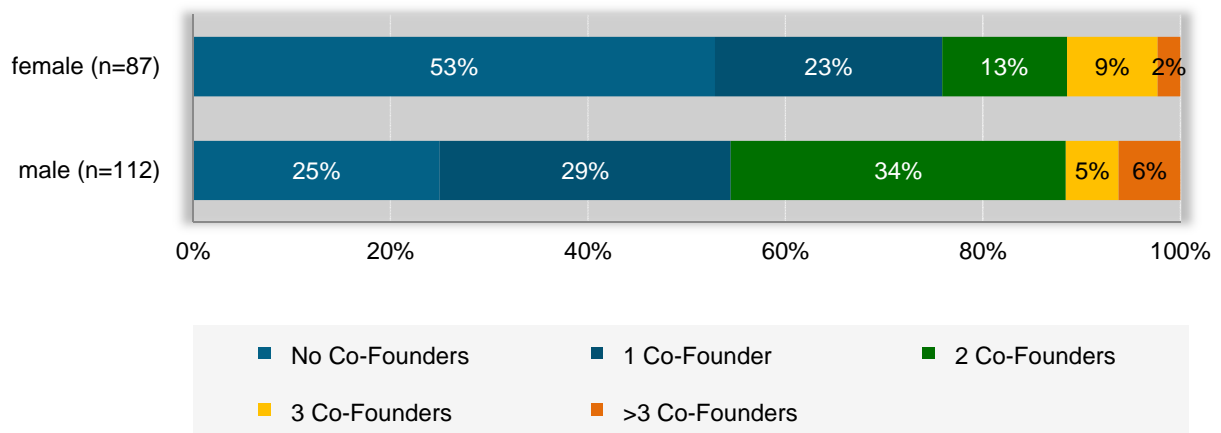
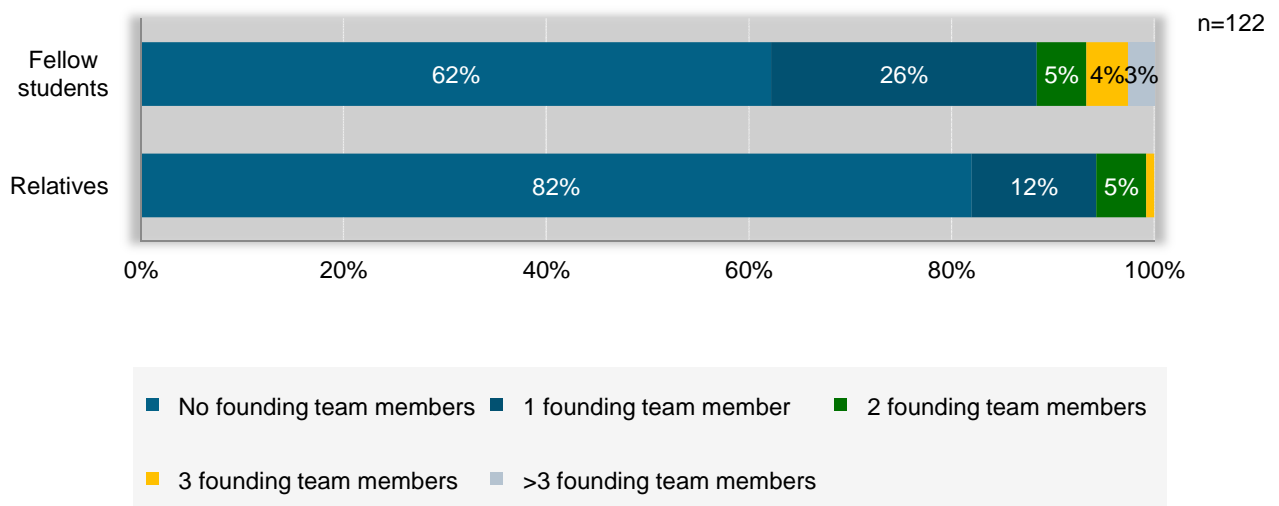


Figure 17 shows that the university context is most important to meet potential start-up partners. 38% of nascent entrepreneurs intend to start their firm together with a fellow student. In comparison only 18% intend to found together with their relatives.

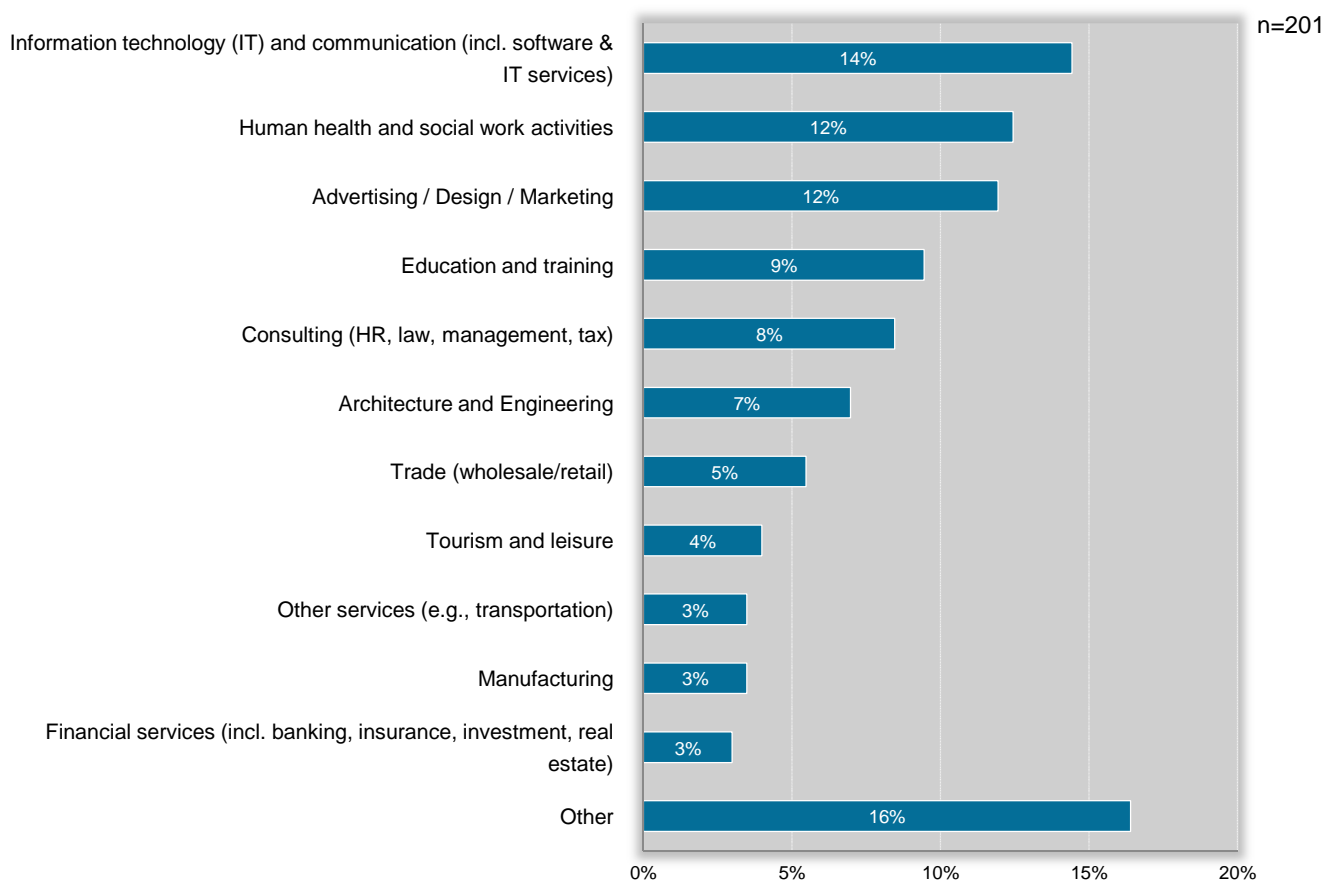
Figure 17: Context for team member recruitment



5.3 Industry sectors

The preferred industry sectors of the nascent founders among students for their start-up are information and communication technology (14%), health services (12%) and the advertising/design/marketing sector (12%). Only 3% of the nascent founders intend to establish their business in the manufacturing sector.

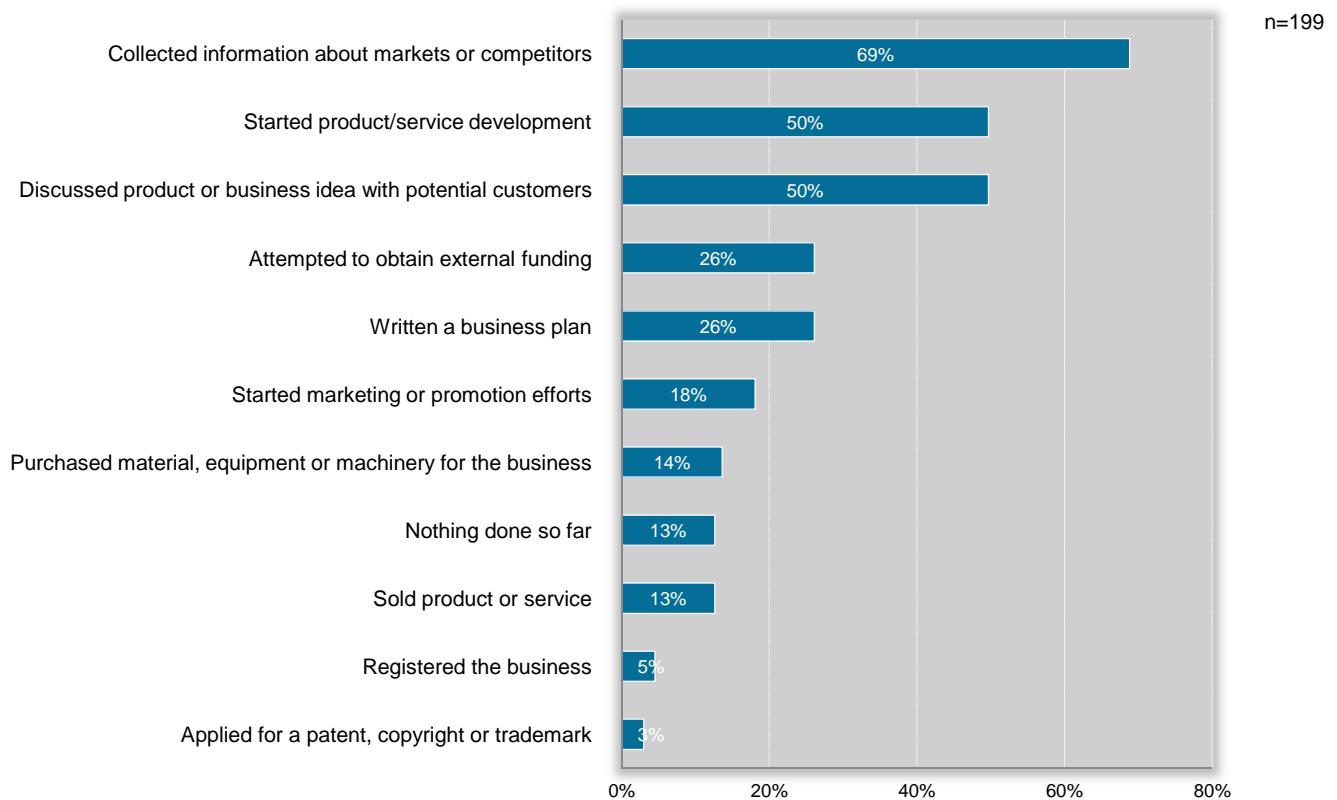
Figure 18: Industry sectors of nascent founders



5.4 Steps taken to found the business

The bulk of nascent entrepreneurs have already collected information about markets or competitors (69%), and started the product/service development (50%) or discussed their business idea with potential customers (50%). At least a quarter (26%) wrote a business plan. Only 13 % of nascent entrepreneurs have stated that they have nothing done so far.

Figure 19: Steps taken to found a business (multiple responses)



6 Active founders

5.8% of the Austrian respondents (217 students) are already active founders, meaning that they are already running their own business or are already self-employed. 6.5% (14 students) of them have declared that they are active as well as nascent founders (currently trying to start their own business or founding an additional business – serial entrepreneurs).

6.1 Characteristics of the active founders

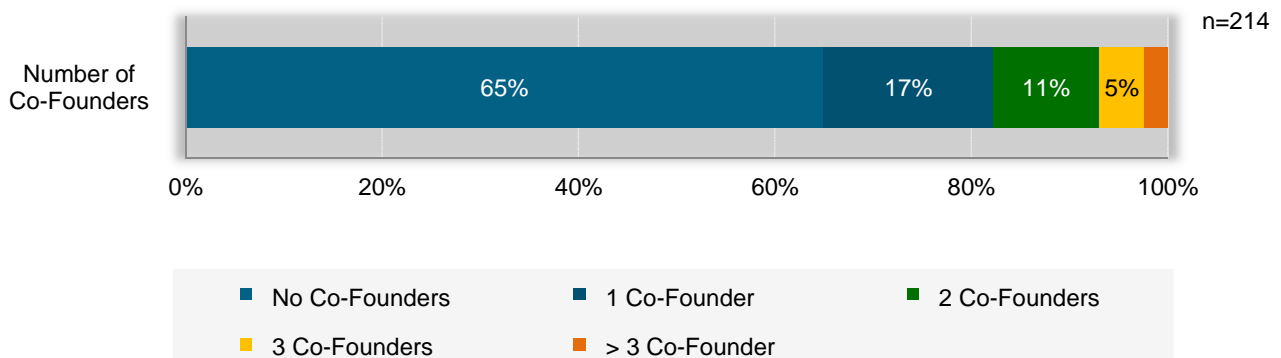
The average age of the active founders is 27 years. 25% of the active founders are studying Law & Economics (incl. business sciences), followed by Arts / Humanities (e.g., linguistics, cultural studies, religion, philosophy, history) (24%) and Social sciences (e.g., psychology, politics, educational science) (20%). The majority of the active entrepreneurs (60%) founded their start-up within the last three years – 13 % of them founded their firm in the current year. 25% founded their business more than 5 years ago, another 15% more than 10 years ago.

The active founders employ two people on average. 62% of the firms in the sample do not have an employee at all, 29% have between 1 and 3 employees.

6.2 Foundation partners

65% of the active founders have set up their business alone. In comparison with nascent founders (see chapter 5) it is interesting to see that the proportion of solo entrepreneurs rises from 37% to 65%. Although the intention to found with partners is prevailing, the results show that in practice there are problems to find suitable partners for the foundation project.

Figure 20: Number of Co-Founders

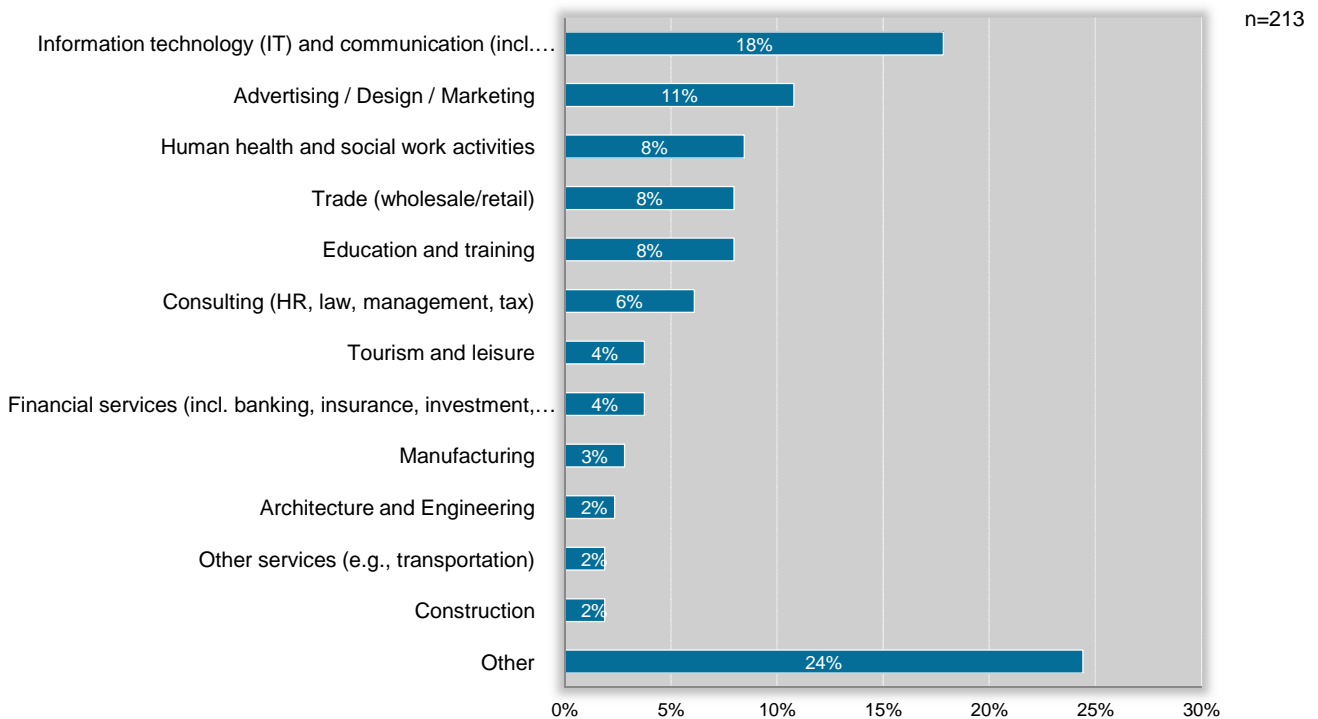


With regard to gender it can be stated that there are no major differences between male and female founders. 64% of the female entrepreneurs and 67% of the male entrepreneurs have founded their company without a business partner.

6.3 Industry sectors

The industry sectors in which most of the active student-founders start their business are in information technology and communication (18%), Advertising/Design/Marketing (11%) and health services (8%). This distribution of industry sectors corresponds with the nascent founders, where 14% of the future entrepreneurs plan to found in the ICT-sector.

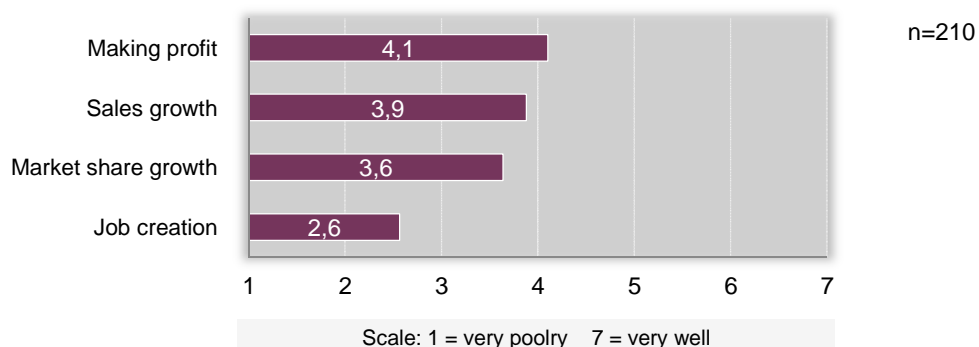
Figure 21: Industry sectors of active founders



6.4 Performance ratings

The active founders were asked to rate the company's' performance compared to their competitors since its establishment. The highest level of agreement (mean score) can be found for making profits and increase sales. Other performance measures like "market share growth" or "job creation" are relatively low rated, which is plausible in the light of the youth of these companies.

Figure 22: Performance ratings compared to competitors



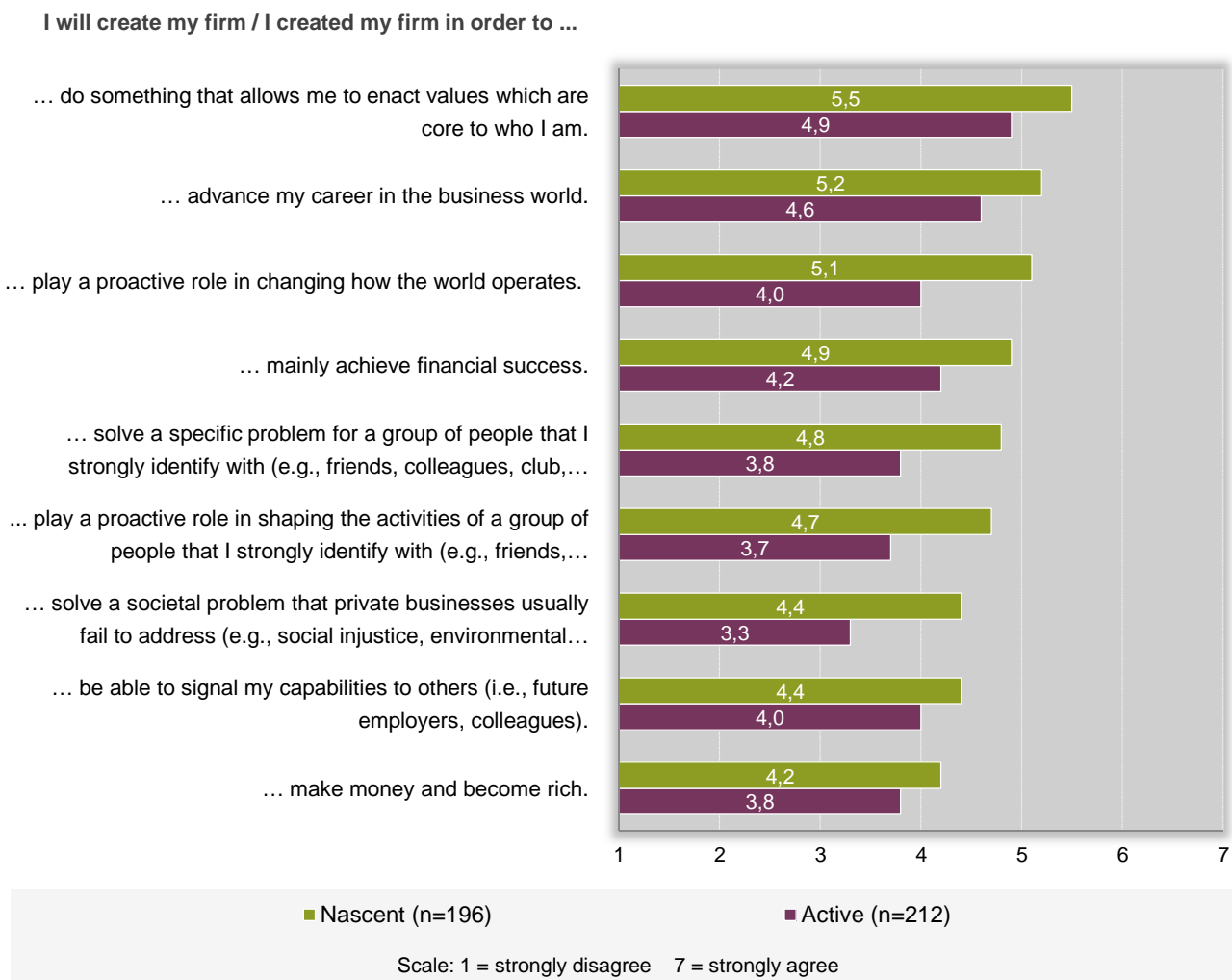
7 Nascent and Active founders – motivations and goals

This section draws attention to the motivations and goals by comparing nascent with active founders to identify possible differences. To secure that the two groups do not get mixed up, we excluded all students who have declared that they are both nascent and active founders (e.g. serial founders).

7.1 Motivations and goals

New firms are created due to different motives and goals. The following statements survey the agreement of active and nascent founders concerning different individual motives and goals. The most important motive to create a firm is for both founder groups “to do something that allows me to enact values which are core to who I am” and “advance the career in the business world”. Other motives (e.g. “making money and becoming rich”) play a minor role for active as well for nascent entrepreneurs.

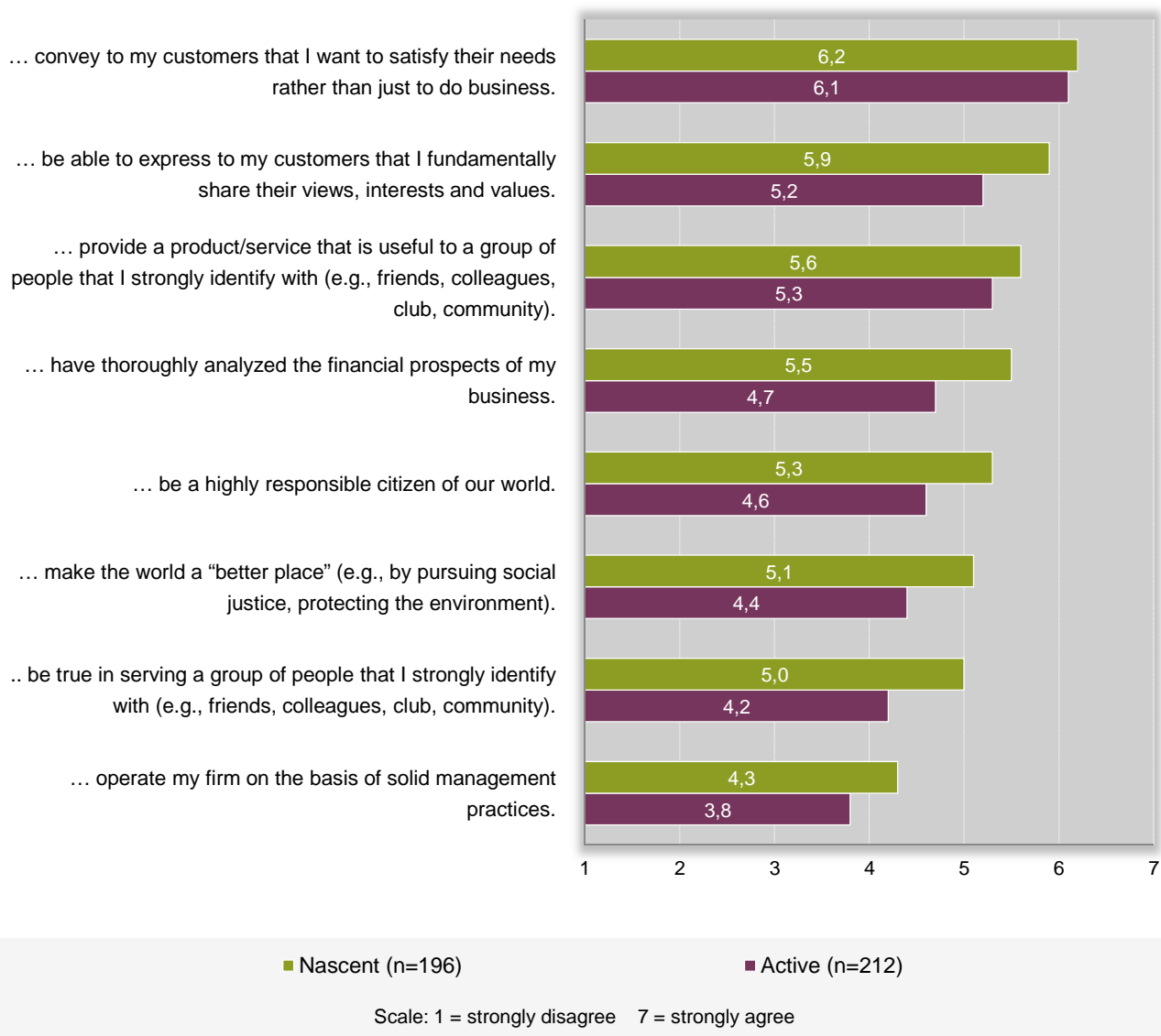
Figure 23: Motivations and goals



The following statements further assess how important active and nascent founders perceive different activities, abilities and attitudes in relation to their start-up and the world in general. For active founders as well as for nascent founders it is important to “satisfy the customers’ needs rather than just doing business” and to “be able to express common views, interests and values with their customers”. The importance of solid management practices is apparently less important for active founders. Nascent founders perceive that – beside the customer perspective – a thorough analysis of their business financial prospects is important.

Figure 24: Practices and attitudes as a firm founder

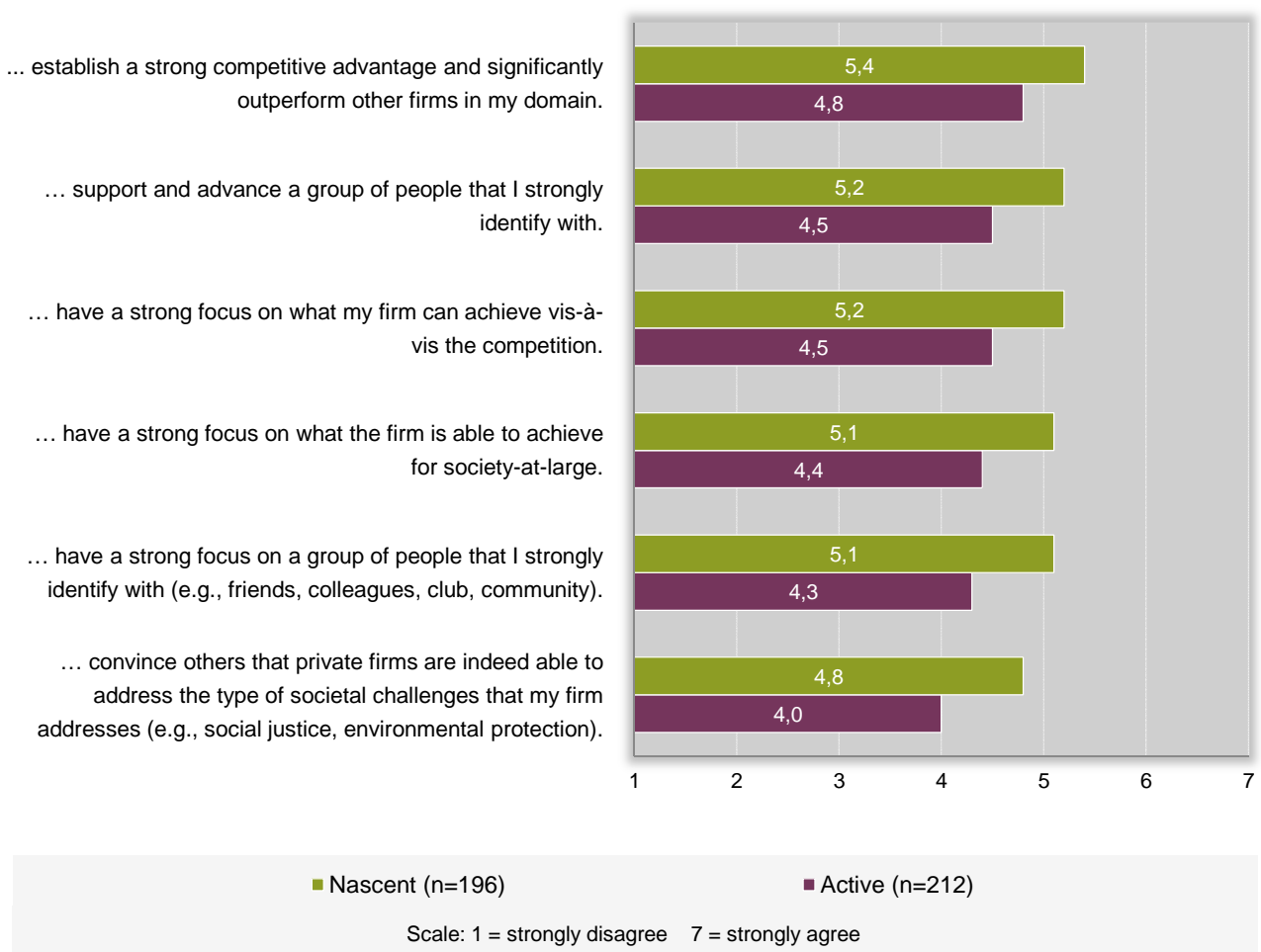
As a firm founder, it will be very important to me to ...



The following statements examined how important nascent and active founders perceive the context of their own business (competitive advantage in competition, role in society). Both nascent founders and active entrepreneurs rather agreed that it is important “to establish a strong competitive advantage”. A less important factor for active entrepreneurs is a “convince others that private firms are able to address the type of societal challenges that my firm addresses” (see *Figure 25*).

Figure 25: Activities concerning different stakeholders

When managing my firm, it will be very important to me to ...



8 Summary of findings

The Global University Entrepreneurial Spirit Students' Survey (GUESSS 2016) includes 50 countries worldwide. More than 120,000 students participated in this online-survey focusing on entrepreneurial intention and start-up activities.

The Institute for Entrepreneurship and Organizational Development at the Johannes Kepler University Linz conducted the survey for Austria with support from the Start-Up Service of the Federal Chamber of Commerce, the Federal Government of Upper Austria, the WIFI Business Promotion Institute Austria and "Die Macher" business magazine.

3,755 students from 23 Austrian universities and universities of applied science filled in the complete online-questionnaire.

The **main results** are:

- Directly after graduation 82% of students intend to work as employees (38% in an SME, 19% in a large enterprise, 9% in academia/research, 5% in a non-profit organization and 11% in the public service). 3% intend to be self-employed.
- In a 5 year perspective after graduation there is a distinct shift towards the career option self-employment: 27% of the students want to be self-employed (23% working in their own firm, 4% as a successor).
- 306 students (8.1%) are currently trying to start their own business (so called nascent founders) and 217 students (5.8%) are already self-employed (active entrepreneurs).
- The industry sectors in which most of the active student entrepreneurs have started their business are in the information technology and communication sector (18%), advertising/design/marketing (11%) and health services (8%).
- 69% of nascent entrepreneurs have already collected information about markets or competitors – about one in two has started with product/service development. A fourth of the nascent entrepreneurs already wrote a business plan. Only 13% have done nothing so far.
- Students plan to start their own business mostly in the following industries: Information technology and communication (14%), Health service (12%), Advertising/Design/Marketing (12%).

- Almost two out of three of the nascent entrepreneurs (63%) intent to found their company in a team (with one or more co-founders). On the other hand, only 35% of the active student entrepreneurs have actually founded with a partner.
- The most important social context to meet potential co-founders seems to be the circle of friends outside university, followed by the family context. The university context – compared to relatives – plays a notably role for nascent founders: 38% stated that they intend to found with one or more fellow students. 18% intend to found with relatives.
- Currently the majority of student entrepreneurs (62%) do not have any employees (expressed as full time equivalents). About one third (29%) employs 1–3 persons.
- The 217 active student entrepreneurs which participated in this study created approximately 648 jobs (including 217 entrepreneurs, 128 co-founders and 303 employees).

9 Conclusions and Implications

Generally speaking the GUESSS study 2016 shows a high interest in entrepreneurship and a marked intent of students at Austrian universities and universities of applied science to found their own company in the near future. A considerable number of students are already active entrepreneurs or are currently trying to found their own company (nascent entrepreneurs). Given the fact that entrepreneurship requires action, these students acquire skills and competences through “learning by doing”, which will be beneficial in either self- or dependent- employment. Entrepreneurship education at the university level should consider these (nascent or active) entrepreneurs as an important group by offering specific courses, coaching and other support measures that meet the specific needs of this target group. Support infrastructure (e.g. co-working spaces, pre-incubators and incubators) and financial support through venture capital funds (also of the university) are particularly important for technology-oriented start-ups. The promotion of these “high potential” start-ups through universities and other public and private institutions is crucial because of the potential economic effects (employment).

To foster entrepreneurial intentions and motivations of students who have not founded yet, it is important to arouse interest in an entrepreneurial career first. Practice-oriented lectures including entrepreneurs as role models should be introduced from the beginning. The opportunity to try one’s hand at entrepreneurship through for example business plan competitions should also be helpful in gaining the first entrepreneurial experiences (f.i. “i2b” at national level or competitions on international level). Cooperation with other student entrepreneurs has a pronounced impact on students’ entrepreneurial intention. Therefore, it should be enhanced f.i. through networking events or project-oriented courses working with real start-ups. A stronger cooperation between different faculties (e.g. technical, business, medicine, arts) is a prerequisite to foster entrepreneurship education at the university level and to develop the entrepreneurial competence-portfolio of founder teams.

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