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International students as potential future start-ups

Network „Integration through Qualification (IQ)“



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This brochure is an outcome of the Workshop International students as business start-ups for the prospective labour market, during the 2014 International Metropolis Conference Migration: Energy for the planet, Feeding Cultures.

A concise review, that combines the expertise and results by professionals and the organizers of the workshop themselves.



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www.metropolis2014.eu/proposal/workshop_show?id=142

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International students as potential future start-ups

NADINE FÖRSTER & DR. RALF SÄNGER

In the course of the last decade, the debate about international students has gained in intensity and increasingly encompassed new perspectives. These have included: Universities enlarging their English speaking degree programs to attract applicants, the efforts to intensify their international cooperations as well as the promotional programs of the European Union, German Academic Exchange Service and foundations that address international students. Political declarations of intents like the current coalition agreement¹ or the „National Action Plan of Integration“² further stress this development. All of this underlines the view that opinions on temporary migration³ have undergone a significant shift: the question on HOW to work on the positive effects and benefits of international students is inspiring the public, political, and academic discourse.

- 1 Coalition agreement between the governing parties / Koalitionsvertrag zwischen CDU, CSU und SPD: „Deutschlands Zukunft gestalten“, 18. Legislaturperiode, S.22
- 2 National Action Plan of Integration / Nationaler Aktionsplan, http://www.bundesregierung.de/Content/DE/_Anlagen/IB/2012-01-31-nap-gesamt-barrierefrei.pdf;jsessionid=3413AF9A44DB7B859DFEE8E88055C0C3.s3t1?__blob=publicationFile&v=5
Seite 116: „Nutzung der Potenziale ausländischer Studierender in Deutschland“
Abridged press version, http://www.bundesregierung.de/Content/DE/_Anlagen/IB/2012-01-31-nap-kurzfassung-presse-englisch.pdf;jsessionid=3413AF9A44DB7B859DFEE8E88055C0C3.s3t1?__blob=publicationFile&v=1
- 3 Before the political and academical discussion about highly qualified manpower was dominated by concepts based on unlimited stays of immigrants to Germany.

As the competence center for migrant entrepreneurship⁴ in Germany, there are a number of reasons why the Institute for social pedagogical research Mainz puts international students in the spotlight. Statistics highlight that

- a constant number of international students, among them a growing number from non-EU-countries, are coming every year to Germany;
- a worrying number of international students remain in Germany;
- there are 128 professorships specializing in entrepreneurship to support upcoming entrepreneurs;
- a tripling of migrant entrepreneurs since 1990 have appeared in Germany.⁵

4 In the international context the usual term is „ethnic entrepreneurship“.

5 Langhäuser, M./Leicht, R. 2014: Ökonomische Bedeutung und Leistungspotenziale von Migrantenunternehmen in Deutschland, S.9 ff.



According to the „Directive on Highly-qualified persons“, blue card EU⁶

- Germany implemented – in comparison to other OECD-countries – a comparatively liberal right of residence during the last decade. Nevertheless, the recognition of the opportunities for migrants to create their own business remains in its infancy;
- there are special requirements for non-EU students and graduates on their way to become an entrepreneur in Germany.

Taking the wider perspective this is closely connected to

- the competition of university towns for international students and PhDs;
- the competition of promotions of economic development for highly-qualified professionals;
- the debate of regional economic location factors in its context with integration processes, above all in areas with insufficient infrastructure and those with low numbers of migrants.

6 „The Directive on Highly-qualified Persons aims to introduce a common residence title for highly-qualified persons at EU level which is to be organised in a manner that attracts candidates and hence makes easier and promotes the migration of highly-qualified persons.“, <http://www.bamf.de/EN/Migration/Arbeiten/Buerger-Drittstaat/BlaueKarte/blaue-karte.html>

Due to current OECD data, Germany is the second most popular country of destination worldwide. 2013 witnessed the largest immigration and net migration gains since 1993⁷, among them a growing number of international students. In winter term of 2013/14, 301,000 international students were enrolled, 217,000 at universities and 84,000 at universities of applied sciences⁸. More than 218,000 of them acquired their qualifications for university entrance abroad. In 2013, the largest numbers of international students were from China (13%), Russia (5,1%), India (4,3%), Austria (4,3%), and 3,1% each from Turkey and Bulgaria. More than 26% enrolled in engineering, 24% in law, economics, and social sciences, followed by more than 17% in mathematics, natural sciences, cultural and language sciences.⁹

What support services are provided to international graduates?

A 2014 study by the federal office for Migration and Refugees shows that more than half of the non-EU-graduates of German universities (of applied sciences) stay in Germany after the completion of

7 http://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Migrationsberichte/migrationsbericht-2013.pdf;jsessionid=5405EA8E94D837B7B9A-D915AD7578C94.1_cid368?__blob=publicationFile

8 We'll shorten it in the following text: universities mean both universities and universities of applied sciences.

9 Wissenschaft weltoffen 2015, DAAD, http://www.wissenschaftweltoffen.de/kompakt/ww02015_kompakt_de.pdf



their studies. This implies that 99,700 stayed while 84,600 left Germany.¹⁰ You might look at that as a current and growing phenomenon of temporary migration, stimulating the internationalisation of Germany and a potential contribution to its highly-qualified labour force. The campaign for skilled labour of the federal government¹¹ acknowledges and stresses the potential of international students, e.g., through traineeships or establishing connections between students and companies in order to connect them to companies and businesses as early as possible.

The initiative also supports a very high number of networking and information initiatives that guarantee specialists close contact to businesses featured on the website. ‘Networking’ and ‘common initiatives’ stand out as key words to explore this potential. The Expert advisory board of foundations for integration and migration argued that Germany’s management of migration and integration¹² is now among the most progressive, ready for the comparison with other progressive countries such as Canada and Sweden. But in the same breath they contrast this pleasant result with a major challenge: too

few know about these initiatives. We need active and strong marketing to work on the gap between the open legal basis for internationals and the low level of shared knowledge of it, both in the country and abroad.

The experiences of our university networks substantiate these challenges. The legal opportunities for foreign students to stay in Germany aren’t widely known, among other reasons because contact persons in the universities such as in career services, student unions, start-up incubators and offices, international offices and others often lack updated information¹³. Ways to inform and counsel international students about the opportunities offered by Germany’s law of residence in an appropriate way remain under-developed. Supporting international students requires time and resources; now the emphasis is on their arrival and their studies and not on their transition to the German labour market. E.g., the employment agency provides support for only those students who are actively seeking a job rather than educating all graduates of the possibilities of remaining in Germany.

10 Hanganu, Elisa (2014): http://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Broschueren/auswertung-zu-absolventenstudiefb23.pdf?__blob=publicationFile, S.2

11 <http://www.fachkraefte-offensive.de/DE/Die-Offensive/Fakten/fachkraefte-entwicklung-im-ueberblick-info.html>

12 Vgl. http://www.svr-migration.de/wp-content/uploads/2014/11/Kernbotschaften_SVR_JG_2015.pdf

13 Cf. Meschter, D./ Meyer zu Schwabedissen ,F./ Pott, A.(2013): policy brief „Bildungsmigranten in der Region“, http://www.imis.uni-osnabrueck.de/fileadmin/3_Forschung/Policy_Brief_BiReg_Jan2015.pdf



Are incubators and start-up offices ready for the needs of international students?

This project will examine the broad range of university services that can support start-ups by international students. On the one hand, an impressive 128 professorships of entrepreneurship were set up in Germany mostly over the last decade. They are to be *the* specialists to motivate and train upcoming entrepreneurs. Universities are pivotal partners in creating a fostering entrepreneurial climate for start-ups. They receive federal subsidies from the ministry of economy – „EXIST“ is the paramount program. On the other hand, the regulatory framework for founders of start-ups from non-EU-countries (according to new residence titles for specific purposes of 2012) became highly complex and technical, requiring expert knowledge that is barely held by even the professors of entrepreneurship or the start-up counselors at universities. As a result, we are facing an „unpracticed procedure“.

In 2012, according to the „Directive on Highly-qualified persons“ three new residence titles for graduates were implemented:

1. § 18 b: settlement permit for graduates of German universities after two years of work experience
2. § 21 paragraph 2a: residence permit for self-employed workers who were graduated in a German university
3. § 19a: blue card for all graduates

In the wake of this legal development, we examined the complete law of residence from the point of view of which titles allow a foreign graduate to create his or her own company or be self-employed in Germany. Cooperation among the three ministries of labour, economy, and interior made this possible. The result was highly beneficial in principle, but to benefit from the Federal Ministries of Labour, Economy and Interior, one often needs to change one's title of residence, something about which one needs considerable and technical knowledge. Many different stakeholder such as immigration offices, chambers, consultants, employment agencies, and so forth need to be (a) involved, (b) updated about the requirements, and (c) able to become networkers and multipliers. This, we believe, could be a way of converting an „unpracticed procedure“ into a clear and effective fostering entrepreneurial ecosystem for start-ups.

www.wir-gruenden-in-deutschland.de / „we start a business in Germany “

The website www.wir-gruenden-in-deutschland.de/ „we start a business in Germany“ guides international students, academics and qualified employees from EU- and Non-EU-countries step by step through the process of starting up a business and provides all the answers.



And: This challenge could take more effort than to write a business plan! This is why we launched the service platform www.wir-gruenden-in-deutschland.de in different languages. Pursuing our goal of strengthening migrant entrepreneurship, we attended the annual interdisciplinary German speaking conference, “G-Forum”, for a couple of years (<http://www.gforum2014.de/en/>) as well as other European symposiums for entrepreneurship.

While we found target group-related ideas and initiatives on the EU level, we also created workshops for migrants’ start-ups in the academic conference of the G-Forum – and we were quite extraordinary in doing that. Supporting start-ups in this way is not the usual business of these forums, and this motivated us to create these workshops. We were strongly convinced to promote the opportunities available to international students by organizing workshops, placing the topic in international panels such as at the Metropolis conferences, publishing appealing examples, and implementing a platform with all necessary information – so that possibilities could be disseminated widely, information spread, all stimulating a highly skilled labour market.

There is a great opportunity to strengthen cities and their economic outlook by working closely with universities and their start-up counselors on their efforts towards tomorrow’s entrepreneurs from non-EU-countries and providing them with the necessary information. We believe that networking and setting up referral consultancies is

an effective way to increase awareness of the often technical and complex information required to establish successful start-up companies. For two decades, the small and medium sized enterprises have been characterised by a change of structure: the share of immigrant (foreign) new businesses reached more than 46,5%.¹⁴ Small and medium-sized companies thrive in and contribute a great deal to the German economy. Why not to invest more in the exceptional potential of international students?

This is the idea behind this publication. We would like to encourage you to take a look at what we talk about exactly when we speak about entrepreneurs. We want to show you young talents from universities, the professionals behind them and the concepts and ideas they foster. First: Ahmed Abdel, originally from Egypt, graduated in Austria and presents his company “Solabolic. We keep the sun in suspense”. From the start, he negotiated with the Egyptian government to implement his solar technology in this sunny North-African country.

But have a look yourself.

Secondly is Michiel, a triple Dutch founder, who gives us an insight in how it all started, how other students also became a source of inspiration. He sums it up this way: “I truly believe that you should surround yourself with people smarter than yourself.”

14 vgl. Federal Office of Statistics / Statistisches Bundesamt, Unternehmen und Arbeitsstätten – Gewerbeanzeigen, Fachserie 2, Reihe 5, Wiesbaden 2014, März



Finally, we present two articles from the perspective of the enablers: The first one by Robert AI from Eindhoven University of Technology. He emphasizes the importance of entrepreneurship as well as intrapreneurship¹⁵ and how he creates an ecosystem which develops according to changing student demands. Robert and Andrea from the Rhine-Waal university worked together to provide potential start-ups with a transnational outlook from the very beginning. Andrea da Silva

is especially able to inspire students to become successful entre- and intrapreneurs. Furthermore, the Rhine-Waal-university targets international students with their policy guidelines. We want to present it as an example of how attractive this target group can be and how universities can provide ideal conditions for them.

Enjoy reading!

15 The 5th global conference on intrapreneurship will take place in London end of May, <http://www.intrapreneurshipconference.com/>

Interview with Michiel Seerden



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[nl.linkedin.com/
pub/michiel-
seerden/3b/32b/
b96/](https://nl.linkedin.com/pub/michiel-seerden/3b/32b/b96/)

Please introduce your start-up(s) in the beginning.

One of my start-up's is Seerden Design. This company is active in the development of websites that helps students to study and practice for their theoretical exam that is required for their drivers license. Seerden Design now successfully operates several e-learning websites in the Netherlands and in Germany to practice and learn for the theoretical exam.

Currently we are also developing a driving school comparison website.

When did you catch your idea for your start-up? When did you implement first concrete steps?

4 Years ago my driving instructor introduced me that I had to study for my car theory exam. I had to study the curriculum partly from a book, and

partly I had to study online. I needed to pay 65 euro (!) to prepare myself for the car theory exam, and at that time – at the age of 18 - I found this very expensive. That was the main reason I started creating a simple website where people were able to practice and to learn/study for their car theory exam.

Over the months this website was generating more and more traffic. Back then the curriculum of the website consisted of simple photo's of traffic signs and simple traffic situations. The upcoming months the traffic of the website further increased due to Search Engine Optimisation (SEO). During the summer I made appointments with all the leading traffic education businesses in the Netherlands. I argued and presented this upcoming opportunity of the importance of online learning in this very conservative market. At that time these companies were basically old fashioned publishers. Later this online market proved to be an important key for success in the whole publisher market.

Nowadays the e-learning software adapts to the user, e.g. it questions specific questions the user is struggling, e.g. questions about road signs.



In which environment did you develop your idea?

The environment I developed my idea was at my home and on university's campus. By talking to a lot of other students new insights were gained that I tried to directly implement.

Are you in contact with other start-ups? What significance does it have for you?

For three years I was a board member of the Eindhoven Student Business Club / Eindhoven University Business Club. This club promotes entrepreneurship amongst the faculties of the technical university of Eindhoven by organizing inspiring and informative lectures from successful entrepreneurs. These lectures were always followed by an informal drink, which connected me to other interesting students.

Being a student entrepreneur is a challenge. Opportunities, but also problems pop-up. Therefore having a large network can definitely make a change to solve problems or help to generate new ideas regarding existing or new business. "You don't know, what you don't know". Next I believe that it is important to gather people around me that are smarter than me.

How do you go on developing your idea today?

Incorporation with Startup Eindhoven and several other students.

Do you work in international alliances?

Not yet, but that is due to the kind of business I am in. However if further growth can be achieved I am more than willing to create international alliances to stimulate growth.

Could you give an inside in the support structure - based on your personal experience?

Currently I pursue my entrepreneurial and academic activities at the same time, which has brought me many synergetic advantages as a student. As the chairman of the executive board of the Eindhoven University of Technology, Jan Mengelers, once mentioned: "Michiel you use and misuse the University in a positive way". Therefore for the time I can be a student, I will be studying. Nevertheless I will graduate after the summer 2015 to take my company to the next level.

Being entrepreneurial as a student really kick-started my career. Synergy between your own business and education is possible. It really complements each other. Personally I really learned a lot from being in the board of the Eindhoven Student Business Club and really appreciated the help of the Innovation Lab / Start-up Eindhoven at the Technical University of Eindhoven.

Both helped me increasing my network, housing, legal stuff, and other important "side-activities" by being an entrepreneur.



What I still miss is that the university should give some kind of compensation for my entrepreneurial work, e.g. obtain ECTS for entrepreneurial activities. In this way my entrepreneurial activities are not additional, but part of my education at the TU/e. I learned much more from setting-up and developing my company compared to what I learned by simply following courses.

What would you change if you would start again 10 years ago? What would you advise yourself for that?

I would have done some work smarter and more efficient. Leveraging people that are smarter and more intelligent than I am should e.g. have done the more technical work. I learned that I was the bottle neck in my own company. Next I should have focused more on one specific project, and later proceed towards the next one. In the past I worked on several project at the same time, sometimes creating synergy but also the opposite occurred due to personal time constraints regarding my educational activities.



Interview with Ahmed Adel

Please introduce your start-up in the beginning

Solabolic is a technology provider for a new generation of parabolic trough solar collectors, which has the potential to significantly increase the economic efficiency of solar thermal power plants. We have optimized the distribution of forces in massive parabolic trough collectors by borrowing engineering principles from suspension bridge physics. These mega solar collectors can achieve higher efficiency and cheaper energy. We plan to deliver and generate value via licenses to manufacture, market, and sell our patented technologies to our industrial partners.

When did you catch your idea for your start-up? And what was the idea?

I had the idea while working on my master's thesis at the Vienna University of Technology at the end of 2012. At this time I was also working as a research assistant at the University at the Institute of Energy Systems and Thermodynamics. My master's thesis was development and construction of a concentrated photovoltaic pilot plant with subsequent measurement and analysis of the data. In the course of the thesis, I had to order a parabolic trough (our product) for the pilot plant, and I realized that there are just a few manufacturers and suppliers in the world how produce or deliver this kind of solar collectors, and almost all of them are using the same concept: mirror segments mounted on rigid and massive back structures to withstand

the wind loads. The industry has hit a barrier trying to achieve bigger collector sizes with high optical precision while minimizing both material and cost in the back structure. Furthermore, the back structures in the conventional concepts must be manufactured with very high accuracy, to achieve the necessary optical precision of the parabolic shape; this accuracy requires high-tech manufacturing processes, which are not available in many regions in the world with high solar resources. That means, the collectors must be manufactured in USA or Europe, and must be then transported to the point of installation in another country, which causes more costs and delivery problems. You can imagine how difficult to transport big curved mirrors between continents. For example, the parabolic trough, which we have ordered for my thesis, was twice damaged during the transportation, and we had to replace it two times.

Then I had the idea of shifting the paradigm of this industry by changing the main concept. By using a similar construction of cables and main supports as in a suspension bridge, we can realize the industry's largest dimensions with much



© Ahmed Adel

*Solabolic's founder
Ahmed Adel*



less material. The principle of the suspension bridge automatically creates a parabolic mirror shape and therefore allows us to utilize flat flexible mirror segments instead of expensive curved glass segments. This allows lower costs as well as the possibility of maximizing local content in the developing countries, by enabling them to achieve a perfect parabolic shape without any high-tech manufacturing processes. That are the industry first and a tremendous cost savings.

When did you implement first concrete steps?

I think the first and most important step was the patent application in 2012. At this time I decided to write and submit the patent application myself, to save the costs of a patent attorney. After receiving the positive research report from the patent office I have created a business plan based on the technology. The technology and the business plan were selected in 2013 as a start-up to receive government grants and consulting services, through the business incubator INiTS. Of course after receiving the first government grant I have engaged a patent attorney to optimize my Austrian patent's claims and to submit a new international patent (PCT application).

In which environment did you develop your idea?

I was working, while developing the idea, between the Vienna University of Technology and the business incubator INiTS. I think that is the perfect environment of a technology start-up. On the one hand,

the university can be a great technical and scientific partner during the proof-of-concept phase; on the other hand, the business incubator provides the necessary knowledge required to build a successful company, such as business planning, legal structuring, etc.

Are you in contact with other start-ups? What significance does it have for you?

Yes, INiTS organizes many events where the start-ups get together to talk about their experiences. In my point of view this is one of the most important success factors. Entrepreneurs inspire each other in a very natural fashion, and share best practices, while at the same time engaging in friendly competition.

How do you go on developing your idea today?

We are planning to build a demonstration project with our technology in Egypt.

Do you work in international alliances?

We have signed a memorandum of understanding with the Vienna University of Technology and the Egyptian Ministry of Higher Education for the planned demonstration project in Egypt.



Could you give an inside in the support structure - based on your personal experience?

INiTS organizes info-events at the universities to attract students and universities' employees who have innovative ideas, and offers all potential founders free workshops at the beginning, to give the first tips regarding creating a business plan. After creating the business plan, it must be presented in front of a jury of professionals, to decide whether the project is qualified for the business incubation and for receiving the government grants. After qualification, the business incubation begins with the aim to support the founders for the challenges on issues such as prototyping, market access, growth,

strategic partnerships, and internationalization. One-to-one coaching and advice, workshops on topics such as finance and investor relations are included in the incubation phase.

What would you change if you would start again 10 years ago? What would you advise yourself for that?

I believe that we learn from everything we do, especially from the mistakes. So, I wouldn't really change much. Maybe I would advise myself to be less worried about making mistakes.



© Ahmed Adel

Solabolic is using suspension-bridge principles to realize large parabolic trough collectors and to achieve a parabolic shape without any complex high-tech machining, mounting, or assembly processes



Student Support Ecosystem

ROBERT AL

The facilities for students at the Eindhoven University of Technology

The slogan of the Eindhoven University of Technology (TU/e) has been “where innovation starts” for quite some years now. This of course applies to all the scientific results that are produced by the many researchers that work at the TU/e. But this is also very much true for all those young and talented boys and girls who study there. These results however are by far less visible to the outside (and even inside!) world.

Since 2014 the TU/e has therefore put a lot of efforts in realizing a student incubator. In the past several projects had been initiated, but none of them sustained. This had to be done differently! If a student (for whatever reason) has been inspired about entrepreneurship, then there should



© Jan de Graaf, De Graaf Academie

be an ecosystem in which that student can further explore what it means to be (come) an entrepreneur. Not only should he or she gain much more knowledge about the topic of entrepreneurship there, it should also be an inspiring setting where fellow entrepreneurial students can meet, share knowledge, inspire each other and finally co-create even more.

It is for this reason that on September 29, 2014, the TU/e officially launched STARTUP/eindhoven as the student incubator. Along with all the support of the university staff and the collaborating organizations, the ecosystem in the greater Eindhoven region will benefit from these efforts. But even the student incubator itself will evolve over the coming years. Actually, it already has since the official launch.

STARTUP/eindhoven started as a community. A community of people who share the passion for entrepreneurship and especially amongst students.

When it started, the focus was only on students who aspire to be an entrepreneur (or already are so). But soon the so called intrapreneurs were also included. These students want to explore and develop their entrepreneurial skills, but not necessarily aspire their own enterprise. They are offered projects and experience through a program called SURE Innovation.



Given the rapid growth of the student-support-ecosystem, a third focal point (Living Labs) was added, which also led to a strategic discussion about focus, positioning, names and brands. Contrary to what was anticipated, it appeared that the intrapreneurs didn't feel well connected to the STARTUP/eindhoven community. This mostly had to do with the naming. STARTUP/eindhoven appeals to starting a company, something that an intrapreneur will not necessarily do.

So as of January 1, 2015, the Student Support Ecosystem will consist of three pillars:

1. STARTUP/eindhoven: the community for entrepreneurial students
2. SURE Innovation: the program for intrapreneurial students
3. Living Labs: the ecosystem with facilities for students to work on projects

STARTUP/eindhoven

The community for entrepreneurial students and students who want to explore entrepreneurship. Strategically chosen not to be limited to for example technological innovative entrepreneurship. For all of these students, the university offers a range of facilities:

- Especially built flexible office spaces (no cash payments required, students pay with experience) where students can work, meet, interact and co-create. Already a significant usage of the office spaces is measured.
- Support of the staff of TU/e Innovation Lab (the technology transfer office), with experienced professionals in the fields of business development, patents, finance, subsidies and grants, legal and communications.
- Access to funding inside and outside of the TU/e
- Support by collaborating organizations in the greater Eindhoven area. Ranging from finance, tax, legal, product development, marketing & PR, communications etc.
- Eindhoven Student Business Club: the association of students who already have their own enterprise and decided to join forces.
- Coaches: people who offer their personal skills, experience and time to help bring the next generation of entrepreneurs to a higher level.

The program that is offered consists mostly of inspirational events (Pressure Cookers where mixed teams work on real-life challenges in a short period of time and present their business idea/solutions at the end; Summer Schools where the basics of entrepreneurship are



taught in a short period of usually one or two weeks; Business Sessions where lectures of about an hour are followed by drinks, always on the same date, same time, same location).

The reason for allowing any kind of entrepreneurship in STARTUP/eindhoven is that students from the TU/e already possess a high level of technical education. With their extra experience on entrepreneurship, these students might one day qualify to be the new CEO of a University spin-off company!

SURE Innovation

This program offers students the possibility to experience working on a project base, within innovative SMEs and even larger organizations. Students have to qualify to become eligible to work on behalf of SURE Innovation. The projects that are offered to students are real business cases from companies and typically last between 3 and 9 months during which the student can work a limited amount of hours per week. The companies pay SURE Innovation a fee per hour, which is passed on in part to the students. One of the big advantages of this program for a student is that the projects are always related to his or her field of study. Therefore the student has a unique chance of bringing experience into practice and in the meantime earn a competitive salary.

Living Labs

Next to the entrepreneurial and intrapreneurial students, a growing number of students take (on average) a year off and decide to work on a project themselves. These projects are demonstrations of the state of the art, which are often used to participate in a (global) challenge. For example Solar Team Eindhoven started with around 25 FTE and built the worlds' first family car powered solely by solar energy. With this car (carrying an official license plate and authorized to drive the Dutch public roads) the students took part in the Bridgestone World Solar Challenge in 2013 as newcomers and immediately won the Cruiser Class trophy.

The university greatly values these student teams and their project, and also realizes that collaborations between student teams and industry are necessary in order to become successful. On the one hand the TU/e aims to facilitate these teams as much as possible, while on the other hand, the university prefers the bottom-up approach and allows the student to organize as much as possible.

In order to make sure that some essential elements in the collaborations between student-teams and industry are done properly, the TU/e Innovation Lab has taken control over the general facilities in which the teams can work on their own projects. This way they don't have to worry about housing, the use of facilities and the appropriate support when it comes to deal/sponsorship arrangements with industry. They can focus!



For each of the 6 strategic (innovation) areas of the university (health, smart mobility, energy, data sciences, high tech systems, high tech materials), living labs will be setup. Within each of these living labs, facilities will be in place, collaborations between students and industry take place based on the scientific research of the university. Currently automotive is the most developed living lab, but others like energy and high tech systems are in development too.

The future ahead

The coming years will see a further increase in student activities. More and more students will start their own enterprise, will gain relevant experience, and perhaps one day become the CEO of that new brilliant spin-off company. The biggest challenges will be in improving the quality of the network and the services offered to the students. Also a big challenge will be in upgrading the program of SURE

Innovation to allow more SME's to work together with the top 10% of the TU/e students that qualify for SURE Innovation. Finally probably the biggest challenge will be to get the Living Labs to work as planned, without limiting the self-organizing ability of the individual teams.

Other challenges that we will be working on are:

- Aligning the programs and projects to larger local, regional and (inter)national programs to allow students to participate in these programs too.
- Exploring opportunities for offering selected students the chance to go abroad for a certain period (for example Erasmus+) while gaining relevant experience.
- Allowing graduating students the possibility to graduate on a project within the incubator or a living lab.

Germany – Netherlands collaboration

WissensAllianz

The city of Eindhoven is only located about 60 km's from the German border. Given the shared values of industrial entrepreneurship between the greater Eindhoven region (Brainport) and the province of NRW in Germany, it seems obvious that collaborations exist.

For example, the TU/e participates in a large scale Interreg project called WissensAllianz 2020, where cross-border (innovative) entrepreneurship is being stimulated. Together with German partners (University Duisburg-Essen, Hochschule Rhein-Waal and the Industrie und Handelskammer) and similar partners on the Dutch side of the border (Radboud University Nijmegen, Hogeschool Arnhem Nijmegen, Universiteit Wageningen, Kamer van Koophandel), many



events and activities have taken place. During the lifetime of the project (2012-2015), the innovation potential of the Rhein-Waal area has been mapped, students have been stimulated to think about entrepreneurship (for example pressure cookers), iGarages have been organized to help starting entrepreneurs with their business plans and existing SMEs have been helped to realize collaborations with organizations across the border. All of this aimed at stimulating cross-border entrepreneurship. Ultimately 17 companies have also been able to receive a grant of maximum of € 70,000 to further develop their innovative products and to reach the market.

Even though that program has ended, a successor is in preparation (with University of Düsseldorf joining) and will hopefully start by the end of 2015. That project should have a similar approach, with new ingredients, but again all focused on the stimulation of cross-border entrepreneurship. An even larger fund will hopefully be available to help around 100 companies.

EUROTECH

TU/e has formed a strategic partnership with three other Universities of Technology in Europe. The Danish technical university in Copenhagen, EPFL in Lausanne (Switzerland) and the Technical University of Munich (Germany).

Collectively these four universities present themselves as the EURO-TECH Alliance, which is committed to finding technical solutions which address major societal challenges. They collaborate across the areas of research, education and innovation support.

As a result of this alliance, a joint application for Erasmus+ funding has been submitted. This application was granted in late 2014 and should see the project start in 2015. The two-year project will be an intensive study program for entrepreneurial students with many workshops with experts, pitches of business ideas and networking opportunities (e.g. visits to established companies). The main idea is that both in 2015 as well as in 2016, selected students from each of the four universities will sign up. They will then visit each of the four locations (Munich, Eindhoven, Lausanne, Copenhagen) during 4 individual sessions. This offers the students hands-on experience on international entrepreneurship, increases the community feeling among entrepreneurs from different countries, creates an ecosystem in which startups can grow internationally and thereby decreases the barriers to access European markets.



Inspired by the passion of a hundred nations

ANDREA DA SILVA

Rhine-Waal University of Applied Sciences

Rhine-Waal University was given the unique opportunity to establish a new institution that meets the needs of the region, industry and society by using a new approach. Since its founding in May, 2009, it has developed rapidly so that in 2014/2015 more than 5.200 students were enrolled already. Since summer semester 2015, the University offers 25 undergraduate and eight Master's degree programs in the field of natural sciences, engineering as well as health and economic science. With its interdisciplinary degree programs, Rhine-Waal University produces graduates that meet the demands of society and industry on a national and international level.

An International University

Rhine-Waal University of Applied Sciences is both rooted in the local region and connected to the world. Accordingly, 85 percent of its degree programs are exclusively taught in English. Thus, they are an ideal preparation for the international job market. The international orientation is also reflected in the student's origins – about 1.782 Students from 107 different nationalities are studying at the Rhine-Waal University of Applied Sciences. Diversity is a main characteristic of university life.

Nearly 33 percent of all students have an international background. The university attracts students from all over the world, from countries such as Cameroon, China, Pakistan, Turkey, India, Zimbabwe, Russia, USA, Italy, Canada or Mexico, to Lower Rhine Area. These young people from around the world have come to Kleve and Kamp-Lintfort for a myriad of reasons.



IQ Diversity on this page © Hochschule Rhein-Waal



International students have to face many challenges. To make daily life easier, the university provides a wide range of support (e.g. pick-up from the airport, assistance in finding accommodation, mentoring programs that match local people with students to help them settle in) and offers a variety of German courses for students from abroad. The Welcome Centre is a central contact point for all students. New international students, in particular, can get support, assistance and information from qualified tutors, who are happy to help with all questions concerning life in Germany, everyday organization and getting to know the local area. First international students can get ideas and suggestions for making the most of their student

life, are introduced to the cultural and educational offers of the region and, of course, find out about parties and other events.

A touch of adventure, interaction with other cultures, the work mentality abroad – all these aspects are valuable experiences and enhance the personal development of students. They might even decide to live and work in the country they go to know during their studies abroad and might then benefit from the contacts they were able to make. The university also supports German students wishing to spend a semester abroad or add a more international dimension to their internships by offering a global network and cooperation



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arrangements with educational institutions and major companies across the globe. In this environment, students have got a great chance to develop and practice intercultural skills and are enabled to discuss issues from the perspective of other cultures.

Entrepreneurship Education

Rhine-Wall University of Applied Sciences seeks to provide an entrepreneurial setting, where students of all disciplines are encouraged to think and act entrepreneurially. It therefore offers a great variety of interdisciplinary research and education. In all degree programs, students are taught fundamentals of business administration, basics of economic sciences and/or entrepreneurship as well as so-called soft skills, such as presentation and communication skills, project management, social and intercultural skills and conflict management. Numerous study programs combine the skills of general business economics, strategic business planning and funding with knowledge of innovation management and technology.

Sometimes, the theoretical knowledge is simulated and deepened by an IT based business game. In addition, case study seminars enhance problem-solving skills and the creativity of students. They are provided with real-life case studies, written by members of the chair's team. The results are presented in class or to a jury consisting of faculty and company members. This does not only relate to start-ups, but also includes intrapreneurship and encouraging enterprising individuals across all walks of life. Students learn to understand the



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influence of external factors on business decisions, in close coordination with the strategy and objectives of the organisation.

After completing the module(s), students are able to convincingly present a business idea, explain the company's vision and point out in which way it differs from competitors. They can demonstrate fundamental knowledge of generating valid business plans in which the



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business concept always remains the focal point. Students know and understand the fundamental economic relationships of a labour-based, globalised business world and are able to develop elementary solution approaches for economic issues. Furthermore, students are familiar with the basics of business financing. Students know financing types and rules (also including alternative forms of financing). They can also list public incentives for start-ups in Germany and name typical characteristics of successful start-ups.

However, the benefits of that course(s) are not limited to start-ups, innovative ventures and new jobs. Entrepreneurship refers to an individual's ability to turn ideas into action and is therefore a key competence for all. The way to success is to teach students about new

sources of self-employment, to help them to be more creative and self-confident in whatever they undertake and to convince them that being a businessman or woman is one way of entering the labour market.

The biggest challenge

Crossing boundaries between disciplines, and multidisciplinary collaboration, are essential elements in building enterprising abilities. So the real challenge is to build even more and stronger inter-disciplinary and intercultural approaches, making entrepreneurship education easier accessible to all students, creating sooner teams for



the development and exploitation of business ideas at an early stage, mixing stronger students from economic and business studies with students from other faculties and with diverse backgrounds.

Creating an Entrepreneurial Culture

Global Entrepreneurship Week (GEW) is one way to address the biggest challenge. Rhine-Waal is an entrepreneurial University of Applied Sciences. The University organized activities during GEW, which usually takes place in the autumn term, involving countries

across the six continents. During 2014 alone, more than 150 countries supported the world's largest celebration of the innovators and job creators who launch startups that bring ideas to life, drive economic growth and expand human welfare. These massive activities, from large-scale competitions and events to intimate networking gatherings, connect participants to potential collaborators, mentors and even investors introducing them to new possibilities and exciting opportunities. It aims to connect young people everywhere through local, national and global activities, encourage them to explore their potential and inspire them to become the next generation of entrepreneurs.



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In Germany the event is hosted by the Federal Ministry of Economics and Technology and aims at establishing a nationwide network to promote the entrepreneurial spirit all over the country. As one of its partners, Rhine-Waal University offers each year a wide range of interdisciplinary activities, an interdisciplinary competition, business simulations and events to encourage the can-do spirit in the Lower Rhine region. The variety of topics includes entrepreneurship in Germany for international students and improving body language and

self-confidence. The week-long program features a wide variety of seminars, talks and workshops in both German and English.

There were a lot of intercultural events, too, like the “Pressure Cooker Day”, an international workshop held as part of the German-Dutch interregional project Wissensallianz Rhein-Waal 2020 (“Knowledge Alliance 2020”). Students from Rhine-Waal University and the University of Duisburg-Essen as well as students from the Dutch cities Nijmegen, Wageningen, Eindhoven and Arnhem joined in the workshop. Other events from Wissensallianz Rhein-Waal 2020 this week included a master class on branding a professional identity and a workshop on training entrepreneurial behaviour.

GEW is a way for Rhine-Waal University to infuse entrepreneurship throughout campus and in the community to foster partnerships and conversations about entrepreneurship. Furthermore Rhine-Waal and partners will also hold events throughout the year for budding entrepreneurs (see “Knowledge Alliance 2020”). The aim is to encourage students the campus and the regional (cross border) community to foster a culture that is friendlier to entrepreneurship and to the growth of small and medium-sized businesses. Additional details about GEW can be found on the university homepage at www.hochschule-rhein-waal.de, on www.gruenderwoche.de (about the Startup Week Germany) and on www.gew.co (official website GEW).



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social work and social policy**

The IQ Competence Centre for Migrant Entrepreneurship is a module of the Network “Integration through Qualification (IQ)”. The Network IQ works to improve employment opportunities for people with a migration background.

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The website that provides all the answers and assists foreign academics and professionals throughout the process of setting up a business.
www.wir-gruenden-in-deutschland.de

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International students as potential future start-ups

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