



Start-up AA

Development of the cross-border Start-up Alpe-Adria-Ecosystem

Analysis of local Startup-Hub Models

Lakeside Science & Technology Park

March 2018

Inhalt

1	Definition of Startup-Hub	3
1.1	Main elements of a Startup-Hub	4
2	Main on-site elements of the Hub at Lakeside Science & Technology Park, Klagenfurt, Austria	5
2.1	Lakeside Science & Technology Park	5
2.1.1	Vision.....	5
2.1.2	Mission, Positioning and Specialization	5
2.1.3	Development Milestones	7
2.1.4	Future Development Goals.....	7
2.1.5	Organization and Business Model	8
2.1.6	Facts and Figures including Resources	8
2.1.7	Facilities	9
2.1.8	Services and Events (provided by STP)	10
2.2	Incubator Accelerator Co-Working.....	11
2.2.1	build! - Business Start-up Center	11
2.3	Academia	13
2.3.1	Alpen-Adria-Universität Klagenfurt	13
2.4	Other Education	15
2.4.1	Educational Lab	15
2.4.2	More.....	16
2.5	Research.....	16
2.5.1	Lakeside Labs.....	16
2.5.2	JOANNEUM RESEARCH	17
2.5.3	AIT	17
2.6	Companies	18
2.6.1	Competence fields.....	18
2.6.2	Number of Companies and Employees	18
2.6.3	Startup related cooperation	18
2.7	Capital	19
3	Network: Main off-site partners	20
3.1	Networks and international Partners	20
3.2	Regional Startup Ecosystem.....	20
3.3	Academia	21
3.3.1	Carinthia University of Applied Sciences (CUAS)	21
3.3.2	Pädagogische Hochschule Kärnten (University College of Teacher Education)	22
3.4	Other Education	22
3.5	Research.....	22
3.5.1	CTR Carinthian Tech Research AG	22
3.6	Co-Working Spaces.....	22
3.7	Companies	23
4	Evaluation of elements and potentials	24
4.1	Main elements' evaluation	24
4.2	SWOT analysis.....	25
4.3	Conclusion and future possibilities	25

1 Definition of Startup-Hub

Science & technology parks

A science park is an organization managed by specialized professionals, whose main aim is to increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions. To enable these goals to be met, a Science Park stimulates and manages the flow of knowledge and technology amongst universities, R&D institutions, companies and markets; it facilitates the creation and growth of innovation-based companies through incubation and spin-off processes; and provides other value-added services together with high quality space and facilities. – IASP¹

Areas of Innovation | Innovation Hubs

Areas of innovation are places designed and curated to attract entrepreneurial-minded people, skilled talent, knowledge-intensive businesses and investments, by developing and combining a set of infrastructural, institutional, scientific, technological, educational and social assets, together with value added service, thus enhancing sustainable economic development and prosperity with and for the community. – IASP²

A study by the University of Oxford³ claims that Innovation hubs have been widely celebrated by practitioners and policymakers for their ability to boost creativity and collaboration. But the precise features that define hub organizations have proven hard to pin down. They nevertheless identified four core features that, in virtually all related discussions, appear to characterize innovation hubs:

1. Hubs build collaborative communities with entrepreneurial individuals at the center.
2. Hubs attract diverse members with heterogeneous knowledge
3. Hubs facilitate creativity and collaboration in physical and digital space
4. Hubs localize global entrepreneurial culture

Startup-Hubs

To clarify the focus of this study, Startup-Hubs combine the principles of science & technology parks with the features of innovation hubs to implement a supporting environment for entrepreneurship and startups.

Therefore, the study analyses science & technology parks including their core services and offerings, their on-site partners and innovation communities. As these hubs achieve their innovation potential only with close relations to surrounding partner organizations these links will also be described.

A fully functional Startup-Hub combines the territorial synergetic benefits of a science & technology park and the potential of an area of innovation to yield startup attraction and support by combining services and assets of adjoining partners.

A startup-hub is a locally focused entrepreneurial ecosystem within the campus of a science & technology park and is closely linked to the regional and transregional entrepreneurial ecosystems.

¹ IASP – definition: <http://www.iasp.ws/Our-industry/Definitions>

² IASP – definition: <http://www.iasp.ws/Our-industry/Definitions>

³ https://ssir.org/articles/entry/time_to_define_what_a_hub_really_is

1.1 Main elements of a Startup-Hub

Science & Technology Park

The Vision & Mission of the STP sets the framework for the potentials and development of a Startup-Hub. Management & Positioning defines the economic and technological focus fields and set the organizational frame.

The available Facilities & Services like Office Space, Seminar Rooms and Technical facilities prescribe the infrastructure of the Startup-Hub, while Support Facilities (like Restaurants, Shops, Social, Sports) enable an attractive environment.

Incubator/Accelerator/Co-Working Space

Dedicated Startup support organizations like Incubators, Accelerators and/or Co-Working Spaces are at the core of a Startup-Hub and can provide infrastructure and support services dedicated to Startups at different development stages. These support organizations are part of the STP-organization or individual organizations.

Academia

The on-site or nearby academic institutions influence the potentials and capabilities of the Hub with their research focus and possibly available support offers like dedicated entrepreneurship lectures. Most important academia acts as a source of talents and ideas (projects, patents, spin-offs).

Other Education

All other educational institutions and offerings which are on-site or closely linked to the Hub can enlarge the pool of talents or can extend the specialized support offers at various stages.

Research

Research organizations linked to the Hub enable or deepen the research focus and are source for specific know-how or ideas and attract talents and companies.

Companies

The companies at the STP represent the economic positioning and technical focus of the STP and are important network partners. Over time the number of companies which originated in the Startup-Hub can become a major success factor.

Capital

Sometimes STPs and respective Startup-Hubs offer subsidies or funding themselves, most of the time there are well established connections or at least good know-how of funding sources for Startups. It is also possible that Startup-Hubs offer consultancy or support services for funding-applications.

Network

All sources and services which are not located at the Hub-campus could be accessed through the Hubs-network. Especially the role and integration in the regional, national and international Startup-Ecosystem has a vital role. Also stakeholders which have a strong influence on the Hub are described.

2 Main on-site elements of the Hub at Lakeside Science & Technology Park, Klagenfurt, Austria

2.1 Lakeside Science & Technology Park

2.1.1 Vision

“One and One is Eleven.” This calculation is becoming a formula for cooperation; a metaphor for everything cooperation can do when each participating partner is accorded the same autonomy and individuality.

As a Carinthia-based innovation center, Lakeside Park is contributing to developments in quality and therefore to an improved range of research and development offers in science and the economy. The ‘Lakeside’ brand is synonymous with cooperation-based R&D projects in the ICT sector both nationally and internationally and is making a significant contribution to the R&D dynamic in Carinthia.

2.1.2 Mission, Positioning and Specialization

The park is a platform for the collaboration between companies and university institutes in the field of information and communication technologies (ICT). A place for interdisciplinary research and development, education, production and services. Focusing on selected issues in information and communication technology and supplementary and additional technology.

Companies and research institutes congregate at Lakeside Park to focus on these issues, all working in synergy with one another with the aim of collaborating on selected R&D projects: an unlimited workshop on operational development and university research by experts from the worlds of finance, technology and cultural science. All with the aim of creating innovative solutions. Bringing new things into the world.

Lakeside Park is a place of communication and encounter which, together with the adjoining University of Klagenfurt, has the potential to become a quality location for research, development, culture and education of national significance. Some 1,100 people are already engaged in research, development, work, teaching, learning and living here. Following completion of all stages of construction in Lakeside Park 2.0 by 2030, this number will increase to 2,500 people. Particular emphasis has always been placed on incorporating the surrounding environment and promoting interaction between old and new, new and existing and work and environment-related requirements (children, food, communications, tranquility, sport, education, culture and living). The architecture and landscape planning incorporate the surrounding natural environment into the design, thereby emphasizing the special location of Lakeside Park on the edge of the Natura 2000 area.

Lakeside Park and its philosophy highlight the fact that it is possible to create a sensitive working and living environment for the next generation which extends beyond economic benefits, incorporating architectural and aesthetical qualities as well as practical and sensible elements: the park is open and accessible to all. The family-friendly public kindergartens of the highest quality and relaxation areas for visitors, including older people, are just as inviting as the friendly restaurants, kunstraum lakeside art space and various events.

The special features of Lakeside Park include its spatial proximity to the University of Klagenfurt and Lake Wörthersee and its links with the faculties of economic sciences, IT and the Carinthia University of Applied Sciences. The aim is to attract Austrian and foreign companies to Lake Wörthersee – one of the best regions in the world in terms of quality of life and personal safety.

Positioning

The focal points and identity of what Lakeside Park stands for are communicated both internally and externally. Strategic positioning is crucial to the goals and means and measures that are to be achieved.

In the accompanying process for the further development of Lakeside Park 2.0, the positioning was also reviewed, sharpened and reformulated.

- Focus on information and communication technologies
- Creation of interdisciplinary development approaches
- Development of an excellent entrepreneur milieu
- Establishment as a preferred educational location
- Creating an attractive working and living environment.



Figure 1: Positioning of Lakeside Park

Information & Communication Technology

Based on the existing focus (information and communication technologies, telematics, complementary and advanced technologies), the future content of Lakeside Park will focus on information and communication technologies.

It is essential that the area combines with the technical faculty of the Alpen-Adria-Universität Klagenfurt and the University of Applied Sciences Kärnten, as well as with the training and research centers and a number of companies in Carinthia. This provides a good basis for establishing or acquiring companies that support the national and international positioning of the Lakeside Park.

Interdisciplinary development approaches

Lakeside Park sees itself as a hub for cooperation and synergy between non-university education and research institutions and companies. Diversity is seen as strength and therefore synergies are in the central field of vision of the park. To bring the new to the world together.

Startup environment

In order to create an outstanding atmosphere for the new, to develop the right ecosystem for young company founders, it requires meeting and play spaces, room for experimentation and a motivating, supportive team. Willingness and motivation in young people to awaken their own ideas and take the step into entrepreneurship needs relationships and support that foster entrepreneurial activity as well as acknowledge possible failure. An outstanding start-up milieu shapes and enables innovation and cooperation.

Education

Training is essential for both the development of people and emerging innovations. In order to be an attractive place for young people and to sustainably increase the quality of the location, the Lakeside Park considers the topic of education to be of central importance and is actively taking steps to expand and round off the training program. In order to create the prerequisite for this premise, education from pre-school to post-university education is the focus of the Lakeside Park.

Attractive working and living environment

Ideally located between the city center and Lake Wörthersee, adjacent to the Natura 2000 area Lendspitz-Maiernigg, right next to the university, the Lakeside Park is optimally connected. Not only the park's exercise and recreation facilities, but also its daily necessities are being constantly expanded, so that the living environment for employees is optimally shaped.

2.1.3 Development Milestones

- 2000 Concept presentation
- 2002 EU wide architecture competition
- 05 | 2003 Groundbreaking ceremony
- 11 | 2004 Infineon as first tenant
- 04 | 2005 Completion of the 1st construction phase and official opening (14 companies)
- 11 | 2006 Completion of the 2nd construction phase
- 12 | 2007 Founding of Lakeside Labs GmbH
- 10 | 2010 Completion of the 3rd construction phase
- 2013 »Lakeside Park 2.0« commencement
- 2015 Completion of the 4th construction phase
- 2017 »Educational Lab« opening

2.1.4 Future Development Goals

- Further development of the Educational Lab
- Strengthened connection to regional, interregional and cross-border Startup-Ecosystem
- Development of a viable and visible Start-up Hub
- Operation and development of High Tech Campus Villach
- Development of comprehensive recruiting services for tenants
- Increased international attraction of high-tech companies
- Commencement of next construction phases

2.1.5 Organization and Business Model

Lakeside Science & Technology Park is organized as Limited Liability Corporation. Its business model consists of renting property in form of high quality office spaces focusing on enterprises in the ICT field comprising any connected activity in developing an attractive location for collaborative enterprises. Thus, involvement in projects of a collaborative nature especially in the area of Slovenia and Northern Italy, such as INTERREG, is included.

The *ownership* consists of three parts equaling the republic of Austria, the country of Carinthia and the capital city of Klagenfurt. Mister Hans Schönegger as general manager is put aside a board of 6 members with one chairman.

More than 1.100 people work and develop at Lakeside Park in more than 60 enterprises. The rental agreements with tenant enterprises *finance* Lakeside Park's development.

2.1.6 Facts and Figures including Resources

Founded in 2003 with the completion of 12 buildings by 2015 and a total investment of €75,5 Million Lakeside Science & Technology Park was built in 4 construction phases and comprises an area for rental lease of 34.000 m² entirely. Currently the occupation rate is around 90%. The project emphasizes a total completion of additional 32.000 m² within a time scope of 2030.

The three-story buildings of concrete, wood and glass are of a high architectural and construction-biological quality and permit flexible adjustment to different space and usage requirements. The modular building system with the paths and squares in-between provides a Mediterranean, open feeling of life. Together with the Alpen-Adria-University Klagenfurt in the north, the "Lakeside Campus" is directly adjacent to the »Natura 2000« premises. With a water landscape, sports facility, street basketball court and running track, it is a place to work, do sports, and recuperate at the same time.

Lakeside B01-B10		Lakeside B11	
Start of construction	2003	First construction stage:	
Completion	2010	Start of construction	04 2014
Construction stages	3	Completion	10 2015
Total area	220,000 m ²	Number of buildings	1
Number of buildings	10	Building surface	8,000 m ²
Buildings surface	26,000 m ²	Total investment	€ 21,5 Mio.
Total investment	€ 54 Mio.		
<hr/>		Total:	
Capacity utilization	96% (update 04 2014)	Start of construction	04 2014
Companies	61 (update 04 2014)	Completion	2030 (projected)
Employees	ca. 1,000 (update 04 2014)	Construction stages	6
		Total area	246,000 m ²
		Number of buildings	1
		Buildings surface	32,000 m ²
		Total investment	€ 80 - 100 Mio.

Figure 2: Facts about Lakeside Park infrastructure

Team-Resources

The team around Mr Schönegger considers itself a pivot point for synergy effects between companies, the Alpen-Adria-Universität Klagenfurt, the Carinthia University of Applied Sciences, and the environment in Carinthia. Its main concern is to offer tenants customized solutions where possible: to support, establish contacts with, or otherwise ensure simple but important everyday things like information on schools and kindergartens, car registrations, finding apartments, dealing with authorities, finding staff, or promotional and financing questions. The staff consists of 15 people in park- and project-management, marketing, facilities and construction, as well as finance and accounting.



Figure 3: Functions within Lakeside Park

2.1.7 Facilities

Office Space

Office premises from 50 square meters upwards can be designed flexibly in the buildings B01 to B10. Some of the bright units have terraces and large glass walls with sliding windows or doors. Full-height opening wooden windows are partially equipped with fixed computer-controlled outer aluminum blinds as sun and glare protection. The hot water central heating and the central cooling by concrete core activation ensure perfect room climate control.

Temporary Offices

The »temporary« office is a furnished room, designed for two or three persons and includes rent, operating costs, cleaning, heating, power and internet access. Temporary offices are rented out limited to a period of six months; one extension for another six months is possible. »Temporary« offices are ideal for enterprises where headquarters are a significant distance away or which want to test the opportunities in the park or a collaboration with university institutes in a specific project.

Conference & Events

The innovative and inspiring environment at Lakeside Park forms the ideal framework for congresses, conventions, workshops, meetings and celebrations. »Lakeside Spitz« offers a total of six flexible air-conditioned rooms with high quality technical equipment and variable sizes between 30 and 420 square meters for up to 400 persons. A media room on the latest technical state of the art invites visitors to look at individual information about the park, contributions from the "educational lab" or scientific inputs. All rooms can be rented for half or full days (also on weekends) and booked online. Our catering service offers a rich culinary selection to match both purpose and size of the event. (www.lakeside-scitec.com/lakeside-spitz)

Technical facilities and Laboratories

Several labs are accessible via the AAU and the research organization run some specialized labs with limited access. Within the Educational Lab open laboratories like the Smart Lab (digital fabrication laboratory) and the inspire Lab (Innovation laboratory) are currently developed and will be available within 2018.

General Facilities (Restaurants, Shops, Social, Sports)

Being an ideal place for work research and development a science & technology park has to cope with the major demands for everyday life. Given the number of more than 1.100 people on site the necessity of an own restaurant pays off, topped up with a café bistro and service center where small supplies can be purchased in the post-office therein. Vast parking facilities embrace four power plants for electronic cars.

A long term partnership existing with the adjacent University Sports Institute enables special conditions for employees within the campus and since short time the park hosts a physio therapist and a training studio working with electromagnetic stimuli devices. For errands or a quick trip to the lake rental bikes or offered additionally to a bike service station for fast repairs. Being well acquainted the offer of a regular occupational medicine support was launched successfully some five years ago. Currently an electrical purchase cooperation with a local pharmacy was introduced.

As for classic social events such as summer parties or carnival taking place in the restaurant or the Café the annual company triathlon shall be mentioned at this point. More than two dozens of interdisciplinary teams from enterprises and research institutes of the park formed to the event of a cooperative short-distance race at the nearby lake Wörthersee.

One of the most important services for employees in the park is offered by the five child care institutions. From English speaking- to Montessori kindergarten and child-cradle great care is taken for the youngest. Beyond the service the 300 children vitalize the campus life and curious participants of many modules of the Educational Lab.

2.1.8 Services and Events (provided by STP)

In order to inform employees and tenants about latest news and happenings an »Info-breakfast« which regularly takes place in the park's restaurant was installed. At this event new tenants or services are announced in a convenient setting and participants are mingled. Topped up with the updated website and newsletter the park enables up-to-date information.

Annual network events like the »Walking together« are initiatives for the meeting between representatives of companies at Lakeside Park and our national and international partners. Every first Friday in May, we invite you to a guided walk together through our beautiful region.

»Lakeside Recruiting« is a special personnel service for our enterprises which covers everything from a job portal to joint presentations at national and international careers fairs.

The *Long Night of Research* is Austria's biggest research event. It aims to provide the public with free access to the universities, educational colleges, universities of applied sciences, external institutions and companies across Austria. Every two years, the Lakeside Science & Technology Park and University of Klagenfurt in Carinthia invite guests to an interesting foray through the world of research in Carinthia. The last event took place in 2016 and attracted a total of 8000 people with its 74 different booths and 12 specials.

The »Kunstraum Lakeside« is a place of critical consideration that places the conditions of work, economy, knowledge production and communication in a tension field with local and global real and virtual spaces and that targets its potentials as well as its downsides with the expanded methods and media of contemporary art. The Kunstraum program, supported by a curator, offers changing exhibitions, lectures and films as well as permanent designs such as the works by Alice Creischer|Andreas Siekmann, Dorit Margreiter, Andreas Fogarasi, Gülsün Karamustafa and Iris Andraschek|Hubert Lobnig.

The latest and one of the most innovative developments in the ecosystem of Lakeside Park is the newly set-up »Educational Lab«. The »Educational Lab« is a place for new forms of training and education in STEM fields, entrepreneurship and culture. Imbedded in LSTPs ecosystem laboratories and experimental areas invite curious people of all ages (0-100) to cooperatively discover, experiment, learn, teach, train and innovate: modernizing education to empower the next innovative generation.

2.2 Incubator | Accelerator | Co-Working

2.2.1 build! - Business Start-up Center

build! Gründerzentrum Kärnten GmbH is the key contact point for people who want to become entrepreneurs with an innovative business idea. build! supports founders on their way to self-employment. The build! consultants serve as additional team members and are on hand to provide support, advice and access to an extensive industry network. The young entrepreneurs are supported by a comprehensive range of coaching and advice offers, further education and mentoring programs, an extensive network, financial assistance and infrastructure. The build!ING LEAN Startup Accelerator enables young people to drive forward their ideas and motivates them to brave the step towards self-employment. The close collaboration with the Alpen-Adria-Universität Klagenfurt and Lakeside Park provides entrepreneurs with access to a strong network in the field of research & development.

The build! startup incubator roots its strategy along with the research and development strategy of the country of Carinthia in order to yield direct benefits of the strengths of the location for startups. It is about fostering the profile of the incubator in order to develop a significant and attractive USP. Therefore it is the hub for startup network and activity and maximizes the impact of its actors in the startup ecosystem. This can only be achieved in focusing on the dynamics of university, research and enterprises.

Focus areas

build! Gründerzentrum Kärnten focuses on innovative academic ideas with technological focus, especially on ICT. Strong ties to local high educational institutions and research institutes reveal potential for future market solutions.

Infrastructure

The infrastructure of the park's incubator consists of 1400 m² dedicated to flexible office spaces and meeting areas. This is the heart of the entrepreneurship culture on the Lakeside Campus.

Services

Having surpassed the entry barrier of presenting an initial idea and business model to the board member of the incubator the incubee can use free office space for 18 months and gets basic support in business modelling. In case, initial loans are provided for good conditions.

Events range from awareness at regional schools and career fairs informing young potentials about the possibility to business brunch and networking evenings.

The build! startup incubator roots its strategy along with the research and development strategy of the country of Carinthia in order to yield direct benefits of the strengths of the location for startups. It is about fostering the profile of the incubator in order to develop a significant and attractive USP. Therefore it is the hub for startup network and activity and maximizes the impact of its actors in the startup ecosystem. This can only be achieved in focusing on the dynamics of university, research and enterprises.

Along these strategic headlines the following service is being created around.

Awareness stage

As for awareness manifold events are organized by the build! startup incubator as well as the Alpen-Adria-Universität Klagenfurt and the Carinthian University of Applied Science.

The Educational Lab is an open research laboratory for new ways of education and training focusing on STEM fields, entrepreneurship and interculturality. Especially the module INSPIRE Lab fosters entrepreneurship with its offers, matching startups with students and pupils.

Idea stage

The service model of the build! startup incubator is divided in different service stages. As soon as there is the first idea of a business model projects are already provided with a basic service, such as an orientation talk in a four hour counseling interview. Goals, means, channels and financing are tackled to consider the project for its potential. Furthermore this first survival package provides all necessary contacts and other helpful information.

Launch stage

The build! startup incubator provides projects in launch stage having surpassed a qualification interview coaching and pre-acceleration. This goes along with the access to network, academia and the surrounding and embedding community for four months, with the focus lying on proof-of-concept.

For those projects succeeding the proof-of-concept phase the advanced incubation product the coaching will proceed for eight months in total accompanied with further assessment. These projects can get financial support for yielding growth and sustainability.

Growth stage

Reaching the premium product of the build! startup incubator's service the project can take advantage of external assessment by experts and investors being aligned with the projects focus and branch. Furthermore the coaching is extended this special can also reach out to an extra team-member for the project. At this stage of support the project will be provided with spatial infrastructure in a small and premium ecosystem. Being amongst the premium projects which are rare in number high visibility is given also due to increased network and community connection. This service aims for market penetration and growth.

The premium projects shall be provided with custom service and support and therefore easily connect with surrounding community such as technology parks, research institutes, clusters as well as industry, tenant enterprises and other aiding institutions in the region and beyond.

2.3 Academia

2.3.1 Alpen-Adria-Universität Klagenfurt

Facts and Figures

Alpen-Adria-Universität (AAU) has three sites, of which the Klagenfurt campus is the largest. Almost all of the university's Bachelor's and Master's degree programs are offered at this campus. The Master's in Social and Human Ecology is offered at the university's Vienna site, however. AAU offers 18 Bachelor's degree programs and 24 Master's degree programs, as well as four Doctoral programs with a staff of 1500 people.

AAU is recognized for their exceptional teaching quality and wide range of degree and continuing education programs. There are over 11,500 students studying and researching at AAU. Each year, 1300 programs of study and 400 continuing education programs are completed.

AAU currently offers around 50 continuing education programs, making it one of the largest academic institutions to offer continuing education in Austria. As an international university around 20% of our students come from overseas, from a total of 86 countries worldwide.

Study branches

Alpen-Adria-Universität Klagenfurt is divided into four faculties, 35 departments (<https://www.aau.at/en/university/organisation/faculties-departments-centres/>) and a number of different centers that offer teaching and engage in research. The university's average size ensures that the administration of the university is unbureaucratic and service-oriented.

Considering the focus of this project we only highlight the most relating departments:

Faculty of Interdisciplinary Studies

- Department of Teaching and Schools Development
- Department of Science Communication and Higher Education Research

Faculty of Humanities

- Department of Educational Studies and Educational Research

Faculty of Technical Sciences

- Department of Applied Informatics
- Department of Informatics Didactic
- Department of Informatics Systems
- Department of Information Technology
- Department of Smart Systems Technologies
- Department of Mathematics
- Department of Didactic of Mathematics AECC-M
- Department of Statistics
- Department of Networked and Embedded Systems

Faculty of Management and Economics

- Department of Innovation Management and Entrepreneurship
- Department of Production, Energy and Environmental Management

Research focus

Continued enhancements have been made to AAU’s research quality strategy since the 2010/11 Strategic Planning Process. As such, this is reflected in the development plans and performance agreements devised since that time. In terms of research quality, AAU has the following aim in mind:

»AAU’s research should be internationally visible and competitive, and our researchers and young researchers should be enabled to compete internationally for research positions and funding. Particular attention should be given to our competitiveness within the relevant research communities.«

The research focus of the AAU is organized in three categories:

- “Networked and Autonomous Systems” and “Social Ecology” are two of AAU’s key research strengths and have been identified as areas of excellence.
- Research clusters in the following areas play a key role in enhancing AAU’s research profile: Energy Management & Energy Technology, Sustainability, Self-organizing Systems and Visual Culture.
- Other research focuses, such as Educational Research, Public Health and Entrepreneurship, also have the potential to enhance the university’s profile in future.

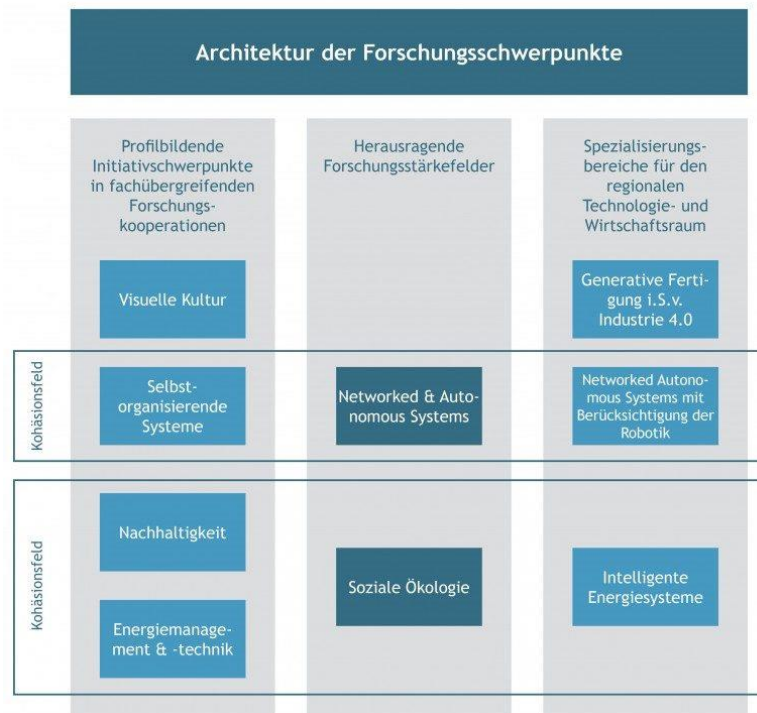


Figure 4: AAU architecture of research focus

The university’s strategic research aim is divided into three key areas: the generation of researchers, undertaking third-party-projects and launching publications.

Startup support offers

AAU is shareholder of the build! Gründerzentrum and therefore closely cooperates. The newly established inspire! Lab (see other Education) extends the specialized entrepreneurship offers of the Department of Innovation Management and Entrepreneurship like the build! Entrepreneurship Certificate (lecture series).

2.4 Other Education

2.4.1 Educational Lab

The latest and one of the most innovative developments in the ecosystem of Lakeside Park is the newly set-up »Educational Lab«. The »Educational Lab« is a place for new forms of training and education in STEM fields, entrepreneurship and culture. Imbedded in LSTPs ecosystem laboratories and experimental areas invite curious people of all ages (0-100) to cooperatively discover, experiment, learn, teach, train and innovate: modernizing education to empower the next innovative generation.

The main target of the »Educational Lab« is stimulation of innovation in education and training forms. This is achieved throughout gathering education and training programs for natural sciences and entrepreneurship in a cooperative and self-organizing yet self-inventing way, leveraged through a participative research of the Alpen-Adria-University Klagenfurt. Establishing a creative and innovative learning environment involves facilities, gadgets, programs and culture. Thus the corporate culture presupposes openness and curiosity, tolerance for failure, being incarnated by the modules, mentors and visitors.

In the 3000 square meters of the »Educational Lab« space to experiment is provided, equipped with latest gadgets and technology. Programs are reaching from training for teaching staff in natural sciences, to entrepreneurship courses with pupils mentored by Startups and university students, to workshops in a SmartLab. One module, being an outer-school-laboratory, offers well equipped experimenting halls for Biology, Chemistry and Physics inviting classes from pilot schools.

Throughout the »Educational Lab« fostering of talents in early ages, yielding synergy between enterprises and young potentials is enabled followed by first experiences within internships, projects and junior positions, easing up employment for students. At the same time it is absolutely beneficial for enterprises opening up their cooperation and innovation cycle for young and well trained people of the forefront of research and education. The concept of the »Educational Lab« might yield an international archetype role-model for new forms of education, however not necessarily only in an STP.

Specialized entrepreneurship modules are currently in development. The SmartLab is designed as an open fabrication laboratory with the focus on prototype development, a sustainable entrepreneurship education module focuses on problem solving for the sustainable development goals and the transport school lab will impart logistics.

The inspire! Lab (Innovation Spirit and Entrepreneurship Lab) is a joint initiative of Alpen-Adria-Universität Klagenfurt, Institut für Innovationsmanagement und Unternehmensgründung and Landes-schulrat für Kärnten. It provides school pupils, students and start-ups with scope to develop product, process and business model innovations and to implement planned start-ups. The lab, a space equipped with innovative materials, »thrives« on and with the projects and activities created here in several workshop formats or even junior companies.

2.4.2 More

The Carinthia University of Applied Sciences and University College of Teacher Education Carinthia are important partners in direct proximity for the education and training of young people.

In autumn 2015, the "Akademie der Wirtschaftstrehänder" established the Training Academy South at Lakeside Park. www.wt-akademie.at

In December 2016, the bfi Carinthia IT-L@B began training over 30 apprentices in IT careers at Lakeside Park. www.it-lab.ktn.at

The training academy for maintenance and production offers unique and continuous further education (partially at Lakeside Park) for maintenance staff until they complete their academic education.

www.trainingsakademie.eu

2.5 Research

2.5.1 Lakeside Labs

Being one of the major research institutions at Lakeside Park Lakeside Labs is a hub for science and innovation in self-organizing networked systems. It is a space for inspiration, creativity and multi-disciplinarity to develop building blocks for self-organization in networked systems with applications in communications, robotics and transport. The Limited Liability Corporation was founded in 2008 and focuses on design methods for self-organizing systems, distributed sensor networks and autonomous multi-drone systems. Lakeside Labs GmbH acts as a link between universities, research institutes and enterprises.

Facts and Figures

A dozen of people work within the staff of Lakeside Labs, as well as 2 dozens of researchers connected at the Alpen-Adria-Universität Klagenfurt Lakeside Labs has put forward more than 20 projects in technology transfer. The relations to industry and other research institutes as well as academia map Lakeside Park internationally in the fields of embedded systems and self-organization.

Research focus

Embedded systems and self-organization

Startup related activities

Several events with university, close connection to the incubator, spotting pre-seed projects in-house

2.5.2 JOANNEUM RESEARCH

One of Austria's biggest outer-universitarian research institutes JOANNEUM RESEARCH is a business-oriented innovation and technology provider that has been operating top research on an international level for thirty years. Focusing on applied research and technology development, it holds a key function in the technical and knowledge transfer field as an »innovation company«. ROBOTICS –The Institute for Robotics and Mechatronics – focuses on innovation-driven technologies for manufacturing enterprises and service providers. Intelligent and flexible automation of production processes based on the latest robotics techniques are at the heart of the research activities. ROBOTICS also implements individual, comprehensive and secure system solutions for stationary and mobile manipulators.

Facts and Figures

Robotics grew from a 4 person entity to a serious 20 researchers institute within the first 2 years and has already reached European standards. With the current 200 square meter laboratory being expanded to cutting-edge laboratory building with 3000 square meters and 6 meter room heights, JR provide intelligent and flexible automation of production processes.

Research focus

Human robotic interaction, mobile manipulation

Startup related activities

Robot Café, events for public, pupils and students

2.5.3 AIT

Austrian Institute of Technology is the Austrian research institution in a European format, focusing on the central infrastructure subjects of the future. AIT closely cooperates with the subject-focused industry and public institutions to create essential added value with innovations and new technologies. The Digital Safety & Security Department at Lakeside Park makes a profound contribution in the ICT context, focusing mainly on ensuring operative efficiency and reliability of critical infrastructures. It is committed to the development of leading-edge technologies in the areas of public administration (E-Government, E-Environment), power supply, health (E-Health, AAL), transmission networks, payment systems, and telecommunications. www.ait.ac.at

2.6 Companies

The very first business partners continue to play a considerable role in the success of Lakeside Park such as CISC Semiconductor GmbH, Infineon Technologies AG and Kapsch AG. These multinational enterprises value the park's cooperation opportunities and for this reason, sectors such as research & development have become established here. This gives rise to new fields of activity for companies and often new enterprises. The international enterprise SKIDATA AG recently launched a spinoff with its research department in addition to its new access management solutions.

The numerous small and medium-sized enterprises in the park predominantly focus on the e-business, datamining, data warehouse and information provision fields of expertise. Remarkably about one-third of the settled companies originated in the build!-incubator.

2.6.1 Competence fields

- E-Business & Business Processes
- E-Health
- E-Marketing
- eMedia
- Engineering
- Environment & Energy
- Information Systems
- Mobility & Transport
- Services & Consulting

2.6.2 Number of Companies and Employees

With beginning of 2018 there are 65 companies settled in the Park, which could be roughly categorized:

- 4 pre-seed projects
- 17 Startups
- 13 Small size companies
- 26 Medium size companies
- 5 Large size companies

This sums up to about 1.100 people employed in these companies.

2.6.3 Startup related cooperation

Having one-third of the companies originating in the local incubator results in a vital Startup-Alumni-Network. Especially these companies join related events and support Startups even in an informal way. Mature companies cooperate with Startups mainly in specific projects and sponsor events or competitions with money and ideas. In some cases internal research projects or business-ideas result in the creation of spin-offs.

2.7 Capital

Lakeside Park does not offer access to capital, but forwards to the relevant institutions. While the Startup package of incubator build! includes grants and loans for selected Startups. The most important funding agency in Carinthia is the Carinthian Economic Development Fund (KWF). As a regional partner in Carinthia, he advises a large part of the funding offered by the federal funding agencies.

Business angels and venture capital can take you and your project further. There are various Business angel and venture capital platforms in Carinthia that can be addressed: BABEG Venture Funds, Carinthians Invest in the Best, Carinthian Investment Club and Gasser & Partner.

3 Network: Main off-site partners

3.1 Networks and international Partners

Lakeside Park is member in the following associations:

- VTÖ Vereinigung der Technologiezentren Österreichs; where Ms. Maria Mack is also a board member
- IASP International Association of Science Parks; where Lakeside Park is a two times nominee for most the inspiring solutions award

Lakeside Park keeps close relations to the Silicon Alps cluster and also to the upcoming Silicon Austria initiative. Lakeside Park is active in several international and cross-border projects. The current focus is on the development of the Alpe Adria Startup Ecosystem and the development of educational offers for young talents. Main partners include:

- Slovenia
 - Tehnološki Park Ljubljana d.o.o.
 - Pomurski Tehnološki Park
 - Univerza v Ljubljani
 - Tovarna podjetmov (zavod IRP)
 - Slovenska gospodarska zveza v Celovcu (SGZ)
 - Center odličnosti nizkoogljične tehnologije (CONOT)
- Italy
 - Università degli studi di Udine
 - Friuli Innovazione
 - T2I - Transferimento Tecnologico e Innovazione s.c.a.r.l.

3.2 Regional Startup Ecosystem

Lakeside Park is founding member of the initiative StartNet Carinthia (<https://www.startnet.at/>), which brings together main stakeholders of the Carinthian Ecosystem. The mission of StartNet is to act as a collaborative founder platform, leveraging the synergies of the partners and supporting entrepreneurs on their way to becoming Startups.

Partners of StartNet Carinthia:

- Arbeitsmarktservice Kärnten (labor market service)
- Alpen-Adria-Universität Klagenfurt (University of Klagenfurt)
- build! Gründerzentrum GmbH (Incubator)
- BABEG (Business Location & Public Investments)
- Fachhochschule Kärnten (Carinthia University of Applied Sciences)
- Gründerservice der Wirtschaftskammer Kärnten (Chamber of Commerce)
- Industriellenvereinigung Kärnten (Federation of Carinthian Industry)
- Kärntner Wirtschaftsförderung Fonds (Economic Promotion Fund)
- Lakeside Science & Technology Park
- High Tech Campus Villach

3.3 Academia

3.3.1 Carinthia University of Applied Sciences (CUAS)

Facts and Figures

Since its foundation in 1995, CUAS has made history. Back then CUAS started with 2 programs and about 70 students; currently it offers 30 study programs that educate almost 2000 full- and part-time students. About the same number of CUAS graduates is impressive proof of the necessity and importance of this academic institution. Through ever growing acceptance of the programs as well as the high demand for the graduates in industry, the programs will be further developed in the coming years.

CUAS has developed into a unique educational institution in Carinthia. Through constant further development of the degree programs at CUAS and intensive cooperation with the worlds of business and science, those studying at the university can be certain of a progressive education with its finger on the pulse of time. CUAS lives the vision of direct practical experience. Full- and part-time lecturers, as well as guest speakers from industry and business ensure an interdisciplinary, internationally oriented education. Degree programs are offered in the fields of civil engineering and architecture, engineering, as well as management, healthcare and social issues.

The quality of our education is emphasized through the development of innovative teaching and learning methods, such as, blended learning, which offers students and professors greater flexibility in the creation of a suitable learning environment. Furthermore, the CUAS library offers educational support through state of the art facilities. On all sites CUAS libraries administrate 33,000 media.

Study branches

CUAS offers 23 Bachelor and 16 Master Degree Programs as well as 20 Further Educational Programs:

- Civil Engineering & Architecture
- Engineering & IT
- Health Sciences & Social Work
- Management

Research focus

Applied science and development is one core activity of CUAS. On the one hand this encompasses the successful completion of research activities in the areas technology, management as well as health sciences & social work. On the other hand research and development is a significant quality marker that plays a vital role in the competition with other universities. The successful completion of Research & Development projects is one of the major tasks of teaching and research staff.

Based on the central scientific fields of expertise of CUAS in technology, management, health sciences, and social work, the core research competencies of CUAS are as follows:

- Analysis, Modeling, and Visualization of Geographic Information
- Embedded Systems and Mechatronic Systems
- Mechanical Engineering
- Materials, Design, and Construction
- Medical Systems Engineering and Medical Informatics
- Modernization of Health Systems
- Network and Communication Engineering
- Modernization of Social Services and Social Systems
- Future Management of Public and Private Sector

Startup support offers

CUAS is shareholder of the build! Gründerzentrum and has its own Startup support program called »Start UP«. Technically oriented founders get access to coaching, workshops, events, project resources, infrastructure (like the Smart Lab or a founder's garage) and network.

Lakeside Park cooperates with CUAS in several projects and the SmartLab within the Educational Lab will be operated by CUAS.

3.3.2 Pädagogische Hochschule Kärnten (University College of Teacher Education)

At the University College of Teacher Education – Viktor Frankl UC, students and teachers are motivated, enabled and supported in their training and further development respectively to apply exploratory and action-oriented learning in their own lessons. Within the NAWImix in the Educational Lab the focus is on the practical implementation of sustainable education in the natural sciences.

3.4 Other Education

In the framework of the Educational Lab a growing number of school cooperation is established. The Park therefore hosts several events like the »SEMI HighTech University«, the »Lange Nacht der Forschung« or several fairs dedicated to job and education orientation. All these activities aim at the motivation of young people to get interested in technology and entrepreneurship and therefore to attract entrepreneurship talents.

3.5 Research**3.5.1 CTR Carinthian Tech Research AG**

CTR is founded on a vision shared by the federal state of Carinthia, the City of Villach and the Federation of Carinthian Industry with the assignment to create a regional contact partner for research, development, technology and innovation in Carinthia. Today, CTR counts among the leading research institutions in Austria and Europe as a research center for intelligent sensor control and system integration and also in connection with the COMET Competence Centre ASSIC. Research and development activities at CTR are aimed at technological innovations for all segments in the field of Smart Systems Integration. The objective is to bring newly generated R&D knowledge into alignment with customer-specific applications and to make them utilizable for enterprises. CTR is situated at the High Tech Campus Villach and currently employs more than 60 researchers. The CTR laboratories include metrology, packaging & assembly, electronics and engineering labs and cleanroom facilities.

3.6 Co-Working Spaces

Co-working spaces are spread over Carinthia with a focus on the two major cities Klagenfurt and Villach. They offer flexible work environment, access to infrastructure, interesting contacts and exchange with other coworkers: [Anlegestelle](#), [Bizfarm](#), [CO-Quartier Villach](#), [Hafen 11](#), [Leuchtturm.One](#), [Gründerhaus, Schallar2](#), [Leuchtturm Coworking](#) und [LAIS Businesscenter](#).

3.7 Companies

Especially larger scale companies and former Startups are active in Startup support. Just to mention a view, Philips cooperates within a regional industry incubation program, Kelag hosts the Clean Energy Challenge and a large number of spin-offs originate from Infineon.

4 Evaluation of elements and potentials

4.1 Main elements' evaluation

Element	Rating	Comments
Science & Technology Park		
Positioning		
Facilities		
Services		
Incubator		
Accelerator		
Co-Working Space		
Academia		
Other Education		
Research		
Companies		
Capital		
Network		

- ++ Strong**
- O Moderate**
- Weak**
- x not available**

4.2 SWOT analysis

Strengths/assets	Weakness/barriers
Opportunities	Threats

4.3 Conclusion and future possibilities