## A.1 Profile of the University of Stuttgart

The University of Stuttgart is one of the nine leading Universities of Technology in Germany (TU9) and demonstrates a particularly high degree of interdisciplinary cooperation. The university is a driving force at the center of Europe's leading high-tech region and a magnet for students and researchers from all over the world.

In the past years, the University of Stuttgart has significantly improved its performance in research, education, knowledge and technology transfer, as well as in its cross-sectional areas such as diversity, internationalization, digitalization, campus development, climate neutrality, and more. The university owes its quality and success to its students and employees, who enrich the university through their wealth of ideas, their commitment, their **diverse** backgrounds, experiences, and strengths:

- about 25,000 **students** from 126 countries
- about 5,000 **employees**

Our common goal is to find solutions to major scientific, technological, and social challenges as visionaries for the topics of the future, to identify opportunities and potential for research, and to provide outstanding teaching and continuing education and thus fulfill the responsibility of a university in multiple ways.

Due to their complex and dynamic nature, these challenges can only be overcome **in close cooperation**

- between scientific disciplines as well as disciplinary units (the "Stuttgarter Weg" – Stuttgart Way),
- between partners in science, business, and society – in the city, in the region, in Germany, and worldwide.

We believe that we can only achieve this by working across institutions and by including an emphatic commitment towards sustainability issues.

Together, we aim at outstanding achievements in research, teaching, university studies and continuing education, knowledge and technology transfer, as well as a team culture and an efficient governance that is dedicated to creating a flourishing environment: Recruiting talent at every career stage, promoting the university's strengths and potential, and developing the university further with the highest standards of performance and quality.

**Special features** and **key strengths** of the University of Stuttgart include

- the profile as a technologically-oriented university with strong humanities,
- an institutionally embedded culture of inter- and transdisciplinarity,
- high-quality study programs, which are research-oriented and interdisciplinary,
- comprehensive advice and support services for students,
- well-established transfer activities in a mutually stimulating eco-system with stakeholders in research, industry, culture, and society at the center of a high-tech region
- extraordinary success in acquiring external funding,
- a unique research infrastructure at the highest international level.

The university places great importance in involving and engaging **special interest groups**[1]. They play a significant role in the university's advancement, advocate protection, safety, and equal participation, and contribute significantly to the shaping and culture of the university.

**The profile of the University of Stuttgart**

The profile of the University of Stuttgart is characterized by a **wide range of disciplines** in the engineering and natural sciences, humanities, social, economic and business sciences. The university has **10 faculties** (see Figure 1), which comprise around **150 institutes** and pool the **disciplinary expertise in research and teaching** at the University of Stuttgart. In addition, there are central institutions and cross-faculty centers.

[1]This includes the respective representation of the students (stuvus), the doctoral researchers (DoKUS), the mid-level faculty (AKAM), the professors, the apprentices, the disabled persons (employees / students), the technical and administrative staff (TeVe), and the employees as a whole (Staff Council). Also included are the authorized representatives of the Rectorate, the Chancellor, and the Senate: the Gender Equality Officer, the Equal Opportunities Officer, the Commissioner for Students with Disabilities and Chronic Illnesses, the Ombudsperson for Teaching and Doctoral Degree Studies, the ombudspersons for suspected cases of scientific misconduct, the Liaison Lecturer of the German Research Foundation, as well as the commissioners for biological safety, information security, radiation protection, animal welfare, and environment protection.

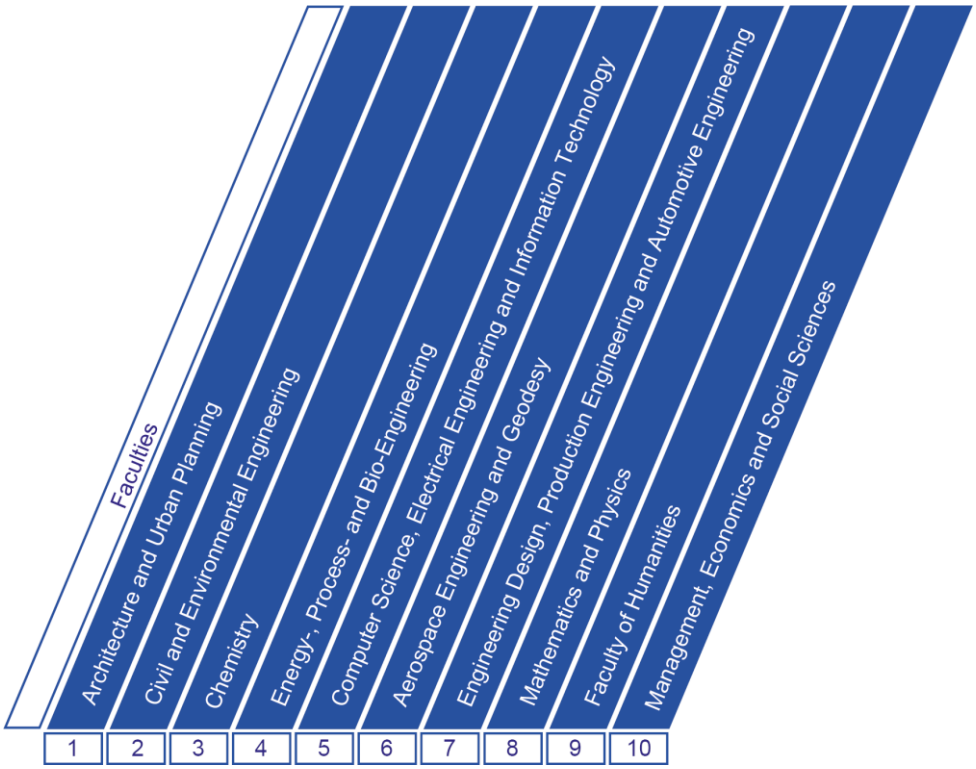


Figure 1: Faculties of the University of Stuttgart

With its vision of **Intelligent Systems for a Sustainable Society**, the University of Stuttgart has embarked on a path that meets the challenges of the 21st century and takes up its unique strengths and responsibility as a research and education institution. The vision provides stimulus for all performance areas and support structures. This includes continually reflecting the interplay between science, technology, and society (see Figure 2).

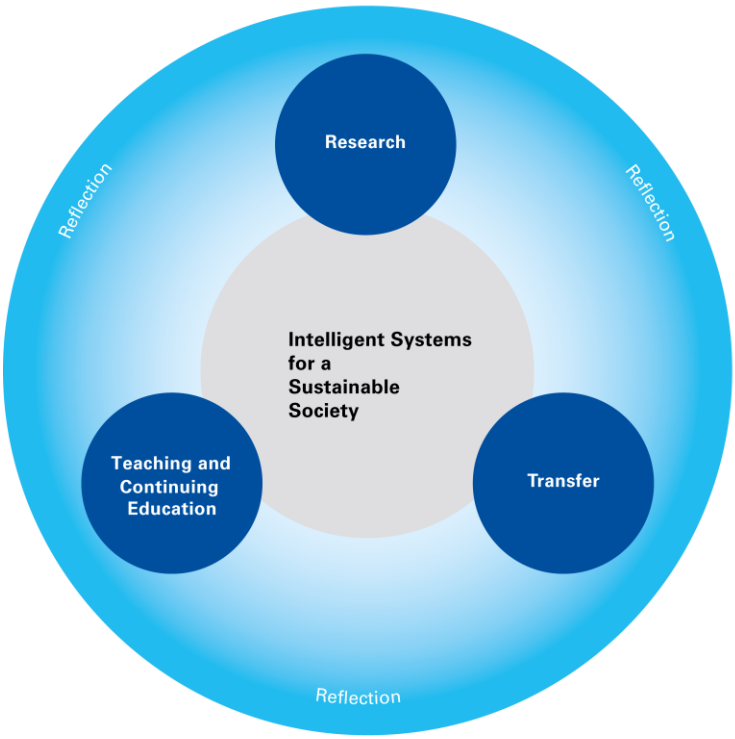


Figure 2: Vision of the University of Stuttgart

The University of Stuttgart is known for **interdisciplinary subject areas** (see Figure 3), which are continuously specified in all dimensions and realized in numerous initiatives in view of current and future **challenges of the society**.

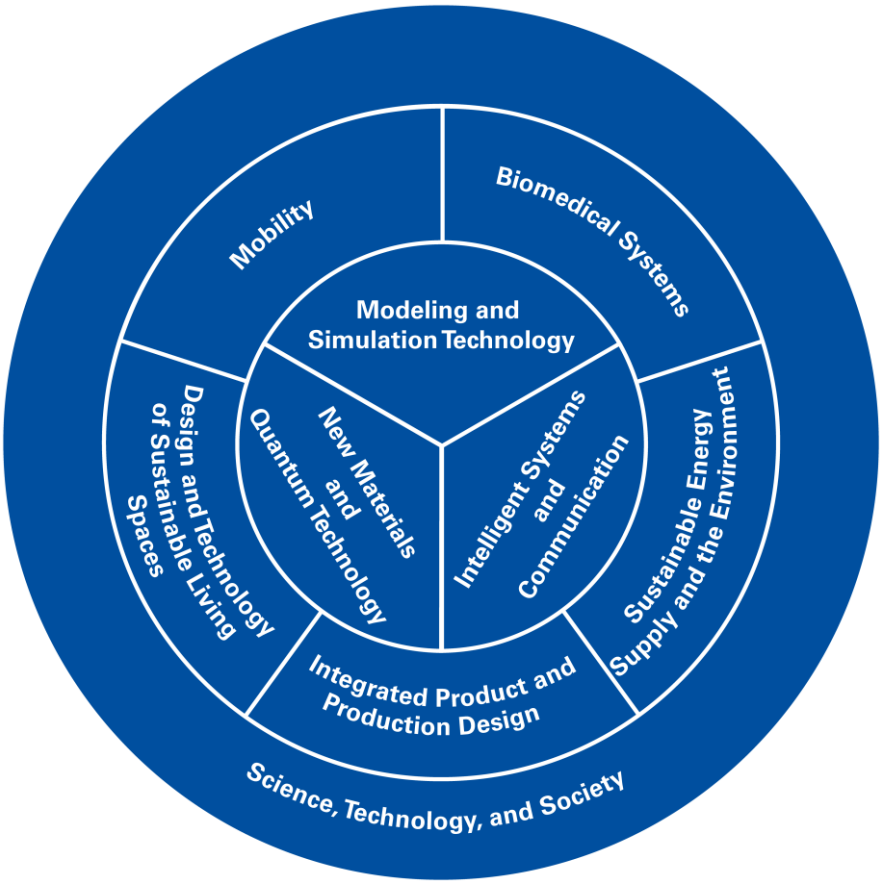


Figure 3: Interdisciplinary subject areas at the University of Stuttgart

The subject areas build bridges between the engineering and natural sciences, humanities, social, economic and business sciences, and they motivate cross-institutional and long-term cooperation in addressing major challenges in research and their social and cultural implications.

The interdisciplinary subject areas are in steady dialog with each other. For example, novel materials are often a driving force for research in energy technology, quantum information technology and mobility research. At the University of Stuttgart, the entire process chain is researched across all groups of materials: from basic research and simulation-based design to the processing and validation of high-performance, cross-dimensional material compounds and composite materials. As an example of the university's long-standing, cross-faculty expertise, materials science and engineering also plays a crucial role in several Profile Areas and Emerging Fields of the University of Stuttgart.

**Profile Areas and Emerging Fields** develop from the interdisciplinary subject areas at the forefront of research:

**Profile Areas** (these are areas with an outstanding research track record):

- **Architecture and Adaptive Building**
- **Digital Humanities**
- **Production Technology**
- **Quantum Technology**
- **Simulation Science**

**Emerging Fields** (these are fields that have the potential to become a Profile Area within a few years):

- **Autonomous Systems**
- **Biomedical Systems**

**Profile Areas and Emerging Fields**

- focus on challenges that are highly relevant to society,
- are organized as collaborative research structures across disciplines and are expected to receive highly competitive external funding,
- achieve synergy effects within the entire university,
- enable innovations in university-wide activities,
- provide optimal conditions for international early career researchers,
- have considerable impact on infrastructure, cooperation, and development.

**Architecture and Adaptive Building (Profile Area):**

Major challenges such as rapid urbanization, a huge demand for new buildings, an immense consumption of energy and resources, and a lack of productivity in conventional construction, clearly show that new approaches for future planning and construction are needed. The Profile Area **Architecture and Adaptive Building** addresses these challenges, and thus the prerequisites for a quality-oriented, livable, socially just, and sustainably built environment. The traditionally close connection between architecture, urban planning, and civil engineering at the University of Stuttgart forms the basis of this Profile Area, which is supplemented by disciplines such as computer science and robotics, geodesy, production and systems engineering as well as the humanities and social sciences. In this way, research traditions can be continued with state-of-the-art methods and interdisciplinary approaches, especially by using computer-aided modeling, simulation technology, and manufacturing. In research and teaching, as well as in cooperation with partner institutions worldwide, the Profile Area is highly international and is one of the university's flagships.

**Digital Humanities (Profile Area):**

Digital Humanities is one of the youngest research disciplines in the humanities. Digital Humanities venture to see topics and methods in the humanities from a new perspective and expand their range – for example in linguistics and literary studies – by using computer science. This Profile Area builds a bridge between modern digital research and documentation methods, digital phenomena, and the **digitally induced transformation of communication and thus the transformation in culture and society**. At the University of Stuttgart, the **Digital Humanities** build on the fact that the humanities as a discipline are widely visible and networked. There is a close cooperation between the humanities and the engineering and natural sciences – which is exceptional compared with other technologically oriented universities in Germany. Top-class partners such as the German Literature Archive Marbach also contribute to advancements in this Profile Area. The successful cooperation at a variety of disciplinary and institutional interfaces manifests itself, among other things, in the special research-oriented study program "Digital Humanities".

**Production Technology (Profile Area):**

In the high-tech region of Stuttgart and beyond, the field of production engineering contributes to future-oriented, integrated solutions in the context of **Industry 4.0**. In numerous fields of production technology – mechanical and systems engineering, automotive engineering, aerospace engineering, materials science, chemistry, process engineering as well as optics and medical engineering – scientists from, currently, six faculties are working with industrial partners in close research collaboration. In so doing, they generate important synergy effects not only for basic research and teaching, but also on the path to industrial applications and thus make important contributions to the optimization of the value chain and the innovation cycle. In view of the major social transformation processes in the fields of digitalization and sustainability, which affect the technology sector significantly, this Profile Area is of great importance for the University of Stuttgart's profile.

**Quantum Technology (Profile Area):**

Quantum Technology is a young and forward-looking research area that combines the basics of quantum physics with practical aspects from the engineering sciences. It has the potential to find important solutions to urgent problems of our time. Examples include the application of quantum sensor technology in the fields of personalized health care and renewable energy, quantum information processing, and quantum computing to solve problems of high complexity. The field of **Quantum Technology** at the University of Stuttgart covers a wide range, from basic research to the development of technological applications. It is characterized by close collaborations with recognized research institutions and industrial partners from all over the world as well as a state-of-the-art research infrastructure. The research,

transfer, and networking activities at top international levels benefit the outstanding environment that the Profile Area is offering to early career researchers and students.

**Simulation Science (Profile Area):**

Using computer-aided, dynamic models to get closer to **complex reality** and thus address scientific challenges that have far-reaching **societal implications**: that is the aim of **simulation**. While modeling and simulation technologies are being used in many areas of the university, the Simulation Science Profile Area is especially dedicated to the development of new and to the enhancement of various existing methods of modeling and simulation as well as to their systematic integration. To this effect, simulation is not only a method, but itself a subject of research. Novel, data-driven approaches contribute to making simulations more efficient, predictions more accurate, and decisions more reliable in many scientific fields, for example in the **environmental or medical engineering sector**. Originally, simulation research at the University of Stuttgart started in mathematics and the engineering sciences. By now, the Profile Area is pooling the expertise of, currently, seven faculties of the university. In this way, it enables the research of simulation techniques in their full range and the combination of different approaches and methods in an integrated simulation science. The first consecutive Bachelor's / Master's degree program in Germany in the field of simulation technology emerged from this Profile Area. The Simulation Science Profile Area has established a new, highly regarded cross-faculty governance model that has been included in the Landeshochschulgesetz (law on higher education institutions in Baden-Wuerttemberg).

**Autonomous Systems (Emerging Field):**

From technological and social challenges in **mobility**, in the **energy sector**, in the **construction sector**, all the way to **production** – autonomous systems that can learn on the basis of data, regulate themselves, and solve complex problems are being investigated and developed for numerous fields of application. By establishing **Autonomous Systems** as an Emerging Field, the University of Stuttgart strengthens its capacity for basic research on intelligent systems and their application to cyber-physical systems and smart devices. For this purpose, the university is using its outstanding expertise in the engineering sciences, mechanical engineering, materials science, chemistry, computer science, control engineering, electrical engineering, aerospace engineering, and simulation science as well as the locational advantage due to the top-level research partnerships in Cyber Valley. The field of Autonomous Systems is in an early stage of development. It has great potential for the establishment of internationally-oriented research and transfer partnerships in Baden-Wuerttemberg and is to be developed further in order to reach top level in the medium-to-long term.

**Biomedical Systems (Emerging Field):**

Health, demographic change, and well-being: many of the most pressing social and scientific challenges are in the medical field. The university will position itself more strongly in the **life and health sciences** by developing further the Biomedical Systems Emerging Field. To this end, the research and development potential in this subject area will be systematically strengthened through closer integration of the natural, engineering, simulation, and quantum sciences. In the process, the disciplines of technical biology, systems biology, sensor technology, and data collection and analysis will play a key role. At the same time, the Emerging Field will support the close integration of the engineering sciences into biomedical research beyond existing collaborations, and facilitate close cooperation at the interfaces between the natural sciences, technology, health science, and medical science. The Emerging Field will be developed further in a targeted and application-oriented manner and in cooperation with the life and medical sciences at the neighboring universities, in particular with the Tuebingen University Hospital and the Robert Bosch Hospital. In the medium term, it will enhance the range of courses offered at the University of Stuttgart, which are oriented towards top-level research.

**Reflection as an overall endeavor**

How can we design intelligent systems so that they contribute to a **sustainable society**? What competencies in dealing critically with complex systems and models can a university teach comprehensively and at an early stage? **Reflecting on intelligent systems**, their principles, mechanisms, and effects as well as on their **social, ecological, ethical, economic, and legal implications** is a key component of the university's vision – Intelligent Systems for a Sustainable Society: both as a socio-political desideratum and as a seminal interdisciplinary field of research and teaching. The University of Stuttgart therefore sees the reflection on intelligent systems as an important overarching topic and strengthens common, transdisciplinary reflection across all disciplines and beyond university boundaries, with the support from its established central institutions and networks as well as new collaborations in this field.

**Collaborative research structures of the university**

Over many years, the University of Stuttgart has been cultivating a high level of **interdisciplinary cooperation**, the so-called **Stuttgart Way ("Stuttgarter Weg")**, which is supported at the organizational level by **the university's own collaborative research structures** (see Figure 4). They guarantee formative and innovative capacity in the organization of research.

In addition to internal research networks that are mainly maintained by institutes and central institutions within the University of Stuttgart, there are also collaborative networks in which external partners, such as other universities, non-university research institutions, and industrial companies, play an equal role. Within each collaborative research group, a distinction is made according to scope and stage of development. New initiatives can apply for internal funding at an early stage, advanced collaborations such as the Stuttgart Research Focus (SRF) and the Stuttgart Research Partnership (SRP) will be established by Senate resolution. In their most comprehensive form, that is the Stuttgart Research Center (SRC), Stuttgart Center (SC), and Research Campus, the collaborative research groups have faculty-like rights and obligations and are supported by external funding that is usually obtained in a highly competitive manner.


Figure 4: Collaborative research structures with mainly internal partners

Establishing and improving the university's own collaborative research structures has been one of the important developments in the past reporting period and resulted in a number of successful acquisitions of funds. At the same time, this development is a prime example of the strategic requirement to intelligently gear the development of the overall institution toward complex challenges – meaning that the institution is capable of adapting, learning, and developing.

In many cases, the university's collaborative research structures were the gateway to the successful acquisition of high-profile collaboration initiatives that are funded externally – for example the Clusters of Excellence (EXC) as well as the large research networks and groups at the University of Stuttgart that are funded by the German Research Foundation: Collaborative Research Centers (SFB), Transregios (SFB-TRR), Research Training Groups (GRK), International Research Training Groups (IGRK) (with the role of speaker):[2]

[2] Additionally, the University of Stuttgart is a partner in a number of research networks, which are hosted and coordinated externally. Further collaborations and networks are currently in the planning phase or in the phase-out period.

| Designation | Duration | Title |
|---|---|---|
| **EXC 2075** | since 2019 | Data-Integrated Simulation Science (SimTech) |
| **EXC 2120** | since 2019 | Integrative Computational Design and Construction for Ar-chitecture (IntCDC) |
| **SFB 1244** | since 2017 | Adaptive Envelopes and Structures for the Constructed Environment of Tomorrow |
| **SFB 1313** | since 2018 | Interface-Driven Multi-Field Processes in Porous Media – Flow, Transport and Deformation |
| **SFB 1333** | since 2018 | Molecular Heterogeneous Catalysis in Confined Geometries |
| **SFB-TRR 75** | since 2010 | Droplet Dynamics Under Extreme Ambient Conditions |
| **SFB-TRR 161** | since 2015 | Quantitative Methods for Visual Computing |
| **GRK 2543** | since 2020 | Intraoperative Multi-Sensor Tissue Identification in Oncology |
| **IGRK 2160** | since 2016 | Droplet Interaction Technologies |
| **IGRK 2198** | since 2017 | Soft Tissue Robotics – Simulation-Driven Concepts and Design for Control and Automation for Robotic Devices Interacting with Soft Tissues |

**Transfer structures of the university**

Knowledge and technology transfer is one of the University of Stuttgart's flagships and is closely linked with its research activities and research networks. Knowledge and technology transfer is regarded as a bi- and multi-directional exchange with society and business. It is promoted by the university's tailored transfer structures and expressed in the leading international role in raising funds from industry. A visionary and direct dovetailing of research and transfer activities in direct cooperation between science and industry takes place in networks and centers such as **ARENA2036**, the **Cyber Valley**, and the **Mobility Innovation Campus**. The special strategic focus of the university on startup-oriented transfer is reflected in the company **Technologie-Transfer-Initiative GmbH**, which was established as early as 1998, and will be supplemented with an **Entrepreneur Center** at the Vaihingen campus, along with increased regional and supra-regional networking. By means of excellent, established as well as freshly thought out structures, such as the **International Center for Cultural and Technological Studies (IZKT), the Center for Interdisciplinary Risk and Innovation Studies (ZIRIUS)**, and the future **Interchange Forum for Reflecting on Intelligent Systems (IRIS)**, the University of Stuttgart assumes responsibility as an actor in society and enables a systematic and participatory knowledge transfer that is oriented toward the common good.

**The university's priorities in teaching, studies, and continuing education**

At the center of a **region that is both an economic powerhouse and has the cultural power to integrate**, the University of Stuttgart sees itself as a guarantor of holistic, **research-oriented teaching**. The guiding principle of **networked disciplines** shapes the university's special profile also in the range of courses offered and in the interdisciplinary orientation of many study programs. The University of Stuttgart attaches great importance to the principle of learning in research contexts and hands-on learning as well as to interdisciplinary modules that enable a view beyond the boundaries of a single subject. The university is setting standards with the newly established School for Talents for top-performing students, as well as with the comprehensive quality assurance system and a variety of advice and support services.

**SEPUS 2021-2025**

This SEPUS builds on the University of Stuttgart's success in this and many other areas. It is based on the **strategy development process** of the University of Stuttgart (since 2014) as well as on the concepts that were developed as part of the Excellence Strategy of the federal government and the federal states. At the same time, it incorporates information and findings from the university-wide system of quality assurance and development, including the reporting system. The aim is to retain the factors that contributed to the University of Stuttgart's **successes to date**, to address **potential**, to specify **strategic priorities** for the reporting period, and to outline the **implementation plan** based on **selected measures** and **success factors**.

## A.2 Mission statement and vision

The university's mission statement, which was established as part of the strategy development process, describes **the self-image and the organizational culture of the university**.

**Mission Statement of the University of Stuttgart**

The University of Stuttgart is one of the leading technical universities in Germany with a global reputation. Located centrally in an economically strong region with vast cultural integration, the university sees itself as a hub for university-based, extramural, and industrial research. Furthermore, it takes a role as a guarantor of research-based teaching, focused on quality and holism. The university is dedicated to researching and strengthening the interfaces between technology, society, and culture in an interdisciplinary manner, defined as the Stuttgart Way ("Stuttgarter Weg"). This means integration of engineering, natural sciences, humanities, and social sciences based on the fundamentals of cutting-edge research at a disciplinary level. The University of Stuttgart is implementing innovative concepts in teaching and research, which contribute toward providing knowledge and strategies for meaningful and sustainable development. It focuses on basic research that is both knowledge oriented as well as application related and is actively part of regional, national, and international research networks.

The University of Stuttgart is committed to the unity of research and teaching. Students are guided toward acquiring knowledge, expertise, and the ability to form their own judgment through the principles of scientific research and learning. The university fosters fascination for the sciences, and supports its students and junior researchers at every stage in their career. It strengthens independent thinking and empowers students to act responsibly. In doing so, the university not only turns students into outstanding experts in their particular field, it also enables them to become globally-thinking and responsible citizens with an inclusive attitude that enriches their future engagement in science, the community, or business.

Founded in 1829 at the beginning of the Age of Industrialization, the University of Stuttgart continues to pave the way for innovation within an economically and scientifically powerful region. The university's teaching and research contribute to the well-being and prosperity of society, sustainable development, and economic success. This requires an early and comprehensive integration of societal concerns into research and management as well as into teaching and continuing education in order to meet the requirements of societal as well as cultural and environmental challenges and changes.

As an employer, the university provides support to all its employees and enables them to reach their full individual potential. The university strives to provide a healthy work-life balance and equal opportunities. It encourages diversity and equality as well as treating one another fairly, regardless of status, age, origin, skin color, religion, health condition, sexual orientientation, or gender. The university is obliged to maintain a collaborative and appreciative management culture, and it aims for the greatest possible transparency in its decisions and administrative procedures. The university also encourages creating tight bonds between alumni, partners, and patrons.

The University of Stuttgart stands for open-mindedness, individuality, and community spirit. It brings together students who are eager to learn, employees who are highly motivated, outstanding teachers, excellent researchers, visionary thinkers and inventors. With this culture of integration, the university creates and imparts knowledge for responsibly shaping the future of our society.

**Vision of the University of Stuttgart**

The vision of the University of Stuttgart influences both **its academic profile as well as its service and support**. It provides a common **orientation** for all activities and commitments of the employees. The vision attempts to address and anticipate current and future scientific, technological, economic, political, cultural, and social challenges.

The vision of **Intelligent Systems for a Sustainable Society** was defined as part of the Excellence Strategy. With this vision, the University of Stuttgart aims to make key contributions to research and reflection on, as well as the implementation of, intelligent systems and design them in such a way that they add to the sustainability of our society. At the same time, the vision is a motivation to conceive the university itself as an intelligent system that is able to adapt to a changing environment, keep in view its overall goal attainment, seek lasting solutions and alternatives for sustainable campus design and for its own operations, and integrate individual interests and perspectives with the help of balancing processes. Overall, our university, as an organization, needs constant reflection on its efficiency and performance, and the willingness to improve, with the demand for an intelligent, sustainable arrangement.

**Intelligent systems – how we understand them at the University of Stuttgart**

The term “intelligent systems” is often used as a generic term for technical systems that use methods of Artificial Intelligence – i.e. systems that make decisions autonomously on the basis of models and data. The University of Stuttgart understands intelligent systems in a broader sense: intelligent systems are active in that they pursue self-defined goals and influence their environment, and they are adaptive in that they, in turn, dynamically modify their behavior according to the environment. They have a certain momentum of their own with which they pursue their goals, and they often act cooperatively in a network and on the basis of communicating with other systems. According to this expanded definition, intelligent systems can be found on different levels and scales – in adaptive materials or nanobots, in adaptive structures, autonomous vehicles and airplanes, smart production systems and medical devices, but also in nature, ranging from protein machines and bioreactors to muscle-driven movement systems and animal groups. One might even construe social systems as intelligent systems, to the extent they are characterized by the complex behavior of individuals and groups and that of society and its cultures in particular.

In addition to research on the behavior and, if applicable, feasibility and use of intelligent systems, the University of Stuttgart also looks into the opportunities and risks associated with them as well as their limits. Fundamental opportunities arise, first and foremost, from the use of Artificial Intelligence approaches in order to develop systems that, due to their complexity, cannot be designed by humans or in which classical methods fail (for example: digital human models, digital cities, production processes with autonomous regulation). However, intelligent systems also involve risks. In their momentum, they affect numerous spheres of life. This can be experienced as negative due to the potential loss of diversity, privacy, competence, and control in essential areas. Limits are therefore resulting not only from the research-dependent technical reach, but also from social, ecological, economic, and ethical considerations. Due to their wide range of disciplines, universities play an important role in the research and development of intelligent systems and the associated reflection of its implications. As a technically-oriented university with excellent engineering and natural sciences, economic and business sciences, social sciences, and humanities as well as a high degree of interdisciplinary cooperation, the University of Stuttgart takes advantage of the good conditions to meet this challenge.

**Sustainability – how we understand the concept at the University of Stuttgart**

A society is sustainable if its freedom and scope of action, its autonomy, integrity, and diversity can be preserved and enriched in the long term both at the individual and at the collective level. In this sense, essential dimensions for securing the sustainability of a society can be: Innovation and transformation to increase environmental and human compatibility with the design of living habitats, energy and water supply, production, consumption and mobility; continuing reflection and adaptation; securing peace within the framework of a democratic constitutional state with cultural leeway, academic freedom, and a strong protection of personal and property rights, including the protection of personal data; political and social acceptance of socio-technical changes on the basis of careful consideration of their benefits and costs in participatory planning processes.

Sustainability is therefore a demand of the highest complexity and at the same time of utmost importance, insofar as it affects all aspects of life and work. The University of Stuttgart takes the **Sustainable Development Goals (SDGs) of the United Nations (UN)** as a basis for its idea of sustainability. In doing so, the university not only sees itself in a pivotal role in the implementation of these goals by covering future-oriented content in the education it provides (SDG 4), but also feels obliged to make a contribution to all SDGs. This is achieved through its excellent research on the causes and management of global challenges, through knowledge and technology transfer in numerous exchange formats with society, through its international partnerships, and by means of ongoing innovations in its operations and campus development – in particular also as a contribution to climate protection. Motivated by its vision and based on its research expertise and performance profile, the University of Stuttgart will pursue sustainability approaches emphatically and resolutely as a cross-cutting issue in the wake of rapid social changes.

A university finds itself amidst a variety of global changes and contributes to shaping and mastering them. Researchers prepare the foundations, develop new ideas, and implement concepts for intelligent systems that have the potential to change the world. From this impact and influence results the responsibility to design intelligent systems in such a way that they do justice to the diversity of users as well as to those directly and indirectly affected, and thus also to future generations. Also, it is necessary that intelligent systems preserve the freedom of choice, that users’ needs be taken into account, and that

their constitutional rights be protected and their autonomy respected. These changes will be accompanied by a continuing process of understanding and reflection, which in turn will lead to new forms of cultural dialog both inside and outside the university. To this end, research findings must be placed in relation to social practice and political decision-making, and new initiatives in research, teaching, and transfer must be developed with a view to pressing social challenges.

This cannot be achieved if research is done exclusively within the individual disciplines and universities. Researching for a sustainable society means to seek dialog with society at an early stage and to give students the opportunity to address and learn about ecological, social, political, economic, cultural, and ethical issues. Future graduates will be characterized by their focus on ever more social aspects and by considering them in their work in all areas of society. Furthermore, the need for making the interconnections and interdependencies between science, politics, culture, society, and the people who constitute them the subject of research results from the requirement of self-reflection. In both cases, it is essential that the university enables interdisciplinary exchange, has the best possible international networks, includes transdisciplinary perspectives in research, and manages conflicts of goals and interests with due diligence.

**The University as an intelligent system**

The University of Stuttgart applies the expectations, hopes, and standards that are attributed to intelligent systems also to its own structures and processes. In terms of topics and subject areas, a university must be able to strengthen promising fields of research, identify scientific, technological, cultural, and social challenges at an early stage and remain in dialog with society, and dynamically adapt its profile. This ability to renew itself needs, for example, leeway for risky projects and a constant, trusting exchange regarding strategic decisions. In terms of methodology, a university must find smart ways to place networking inside the university and with external partners at the center of its sustainable actions. Only in this way can the best minds get together and overcome boundaries between disciplines. For this purpose, the university will expand its dynamic inter- and transdisciplinary organizational structure. A university as an intelligent system detaches itself from historically evolved administrative units and increasingly relies on structures and processes that are also characterized by agility and flexibility. It focuses on the consistent modernization of its infrastructure as well as the continuing optimization and intelligent further development of its internal processes, which are receiving more and more support from digital mechanisms. Digitalization means both things: challenge and opportunity. It comes with fundamental innovation and expands the range of possibilities for location-independent exchange, international networking, and the visibility and availability of services in research and teaching. It can overcome the boundary of inequality in the access to knowledge and scientific information, and support process flows in all areas. A university as an intelligent system does not see digitalization as an end in itself, but as a logical development.

## A.3 Strategic Goals

To achieve its vision, the University of Stuttgart has defined strategic goals while taking into account the university's profile and competitive environment.

### 1. Networked disciplines – the Stuttgart Way

The University of Stuttgart opens up unique opportunities for cooperation between complementary disciplines – the Stuttgart Way ("Stuttgarter Weg") – enabling them to raise new questions and jointly develop answers. The university connects different thematic and methodical approaches in research and teaching, and integrates engineering, natural sciences, humanities, social, economic and business studies.

### 2. Globally renowned research university

The University of Stuttgart is a globally renowned research university at the forefront of scientific and technological progress. It maintains and expands this position through its excellent disciplinary research and interdisciplinary networks, the innovative power of its early career researchers, its outstanding research infrastructure, as well as by cooperating with strong regional, national, and international partners. It is committed to recruiting and promoting outstanding personalities at all stages of their academic career.

### 3. Appealing to students

The University of Stuttgart appeals to talented and motivated students and sparks enthusiasm for science through research-focused learning right from the beginning of their studies. It offers holistic study programs with top-quality expertise, and it guarantees a comprehensive personal development and well-rounded graduates. The University of Stuttgart creates a lifelong connection with its alumni with a varied and engaging program.

### 4. Innovative and valued partner for knowledge and technology transfer

The University of Stuttgart is an innovative, reliable, and internationally valued partner for knowledge and technology transfer in science, business, culture, and society. With its tradition of excellent researchers, visionary thinkers and inventors, the University of Stuttgart pioneers innovations and benefits the region as a whole. As a partner for technological development and knowledge transfer, the university takes on its public responsibility and actively contributes to a free and open society.

### 5. Committed and reliable employer

The University of Stuttgart invites creative and committed individuals at all stages of their career and is a devoted employer. It emphasizes equal opportunities, diversity, and providing a good work-life balance. The university engages and motivates its employees through a respectful and appreciative management culture, and it offers them attractive opportunities for further training and professional development.

### 6. Internationally involved, connected, and active all around the world

The University of Stuttgart attracts students and researchers from all over the world and enriches society with responsible and cross-culturally educated graduates. It values diversity and diverse perspectives as an asset for research, education, as well as for institutional development. The university incorporates international and intercultural perspectives into its programs, methods, contents, and work practices. It systematically cooperates with its international partners and establishes an efficient institutional framework to further enhance international activities.

### 7. Strong commitment to sustainable development

The University of Stuttgart aims for sustainable development in all its operations and makes it an important subject matter to be addressed in research, teaching, and cooperation. The university tackles major concerns of our time and, to this end, works closely together with society to develop sustainable solutions for the needs and challenges of future generations.