

# ETH Zurich Annual Report 2022

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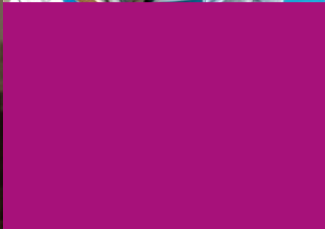
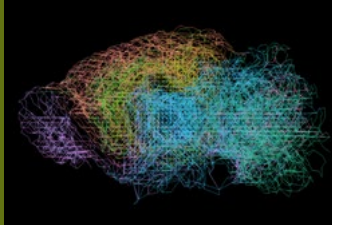
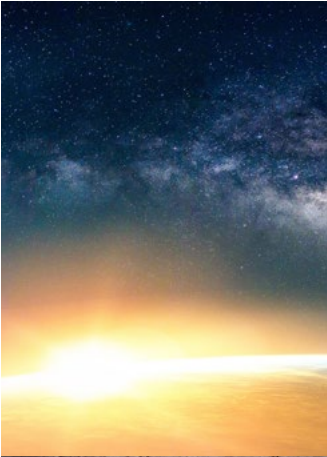
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Zentrum campus

Hönggerberg campus



# A strategy that makes connections

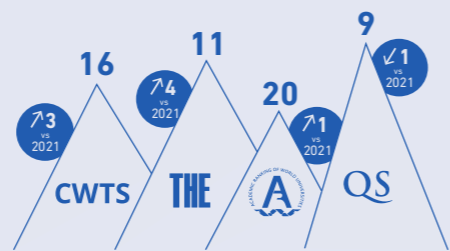
ETH Zurich researchers have developed a model that explains how nerve cells in the brain connect during development. Their model reveals that the crucial factor is progressive cell division. This process leads naturally to the formation of molecular addresses that lets neurons navigate. (photo: ETH Zurich / Stan Kerstjens)

**ETH Zurich serves the common good. It educates the next generation of independent and creative thinkers, while its research generates new knowledge and helps develop technologies that address global challenges.**



ETH Zurich contributes to prosperity and well-being in Switzerland. The scale and complexity of the global challenges facing us require an interdisciplinary approach and the will to cooperate with stakeholders from science, business, politics and society. ETH Zurich's Strategy and Development Plan 2021–2024 sets out how it aims to achieve this and where its institutional priorities lie. The strategy development process is based on broad participation across all academic departments, administration and services staff, and the different university groups.

ETH is renowned and competitive internationally as a centre for excellent teaching and research, as reflected in its position in the World University Rankings:



**“ETH’s mission is simple: we serve the interests of society. Not just today and tomorrow, but over the long term.”**

Joël Mesot, ETH President

## Sustainability

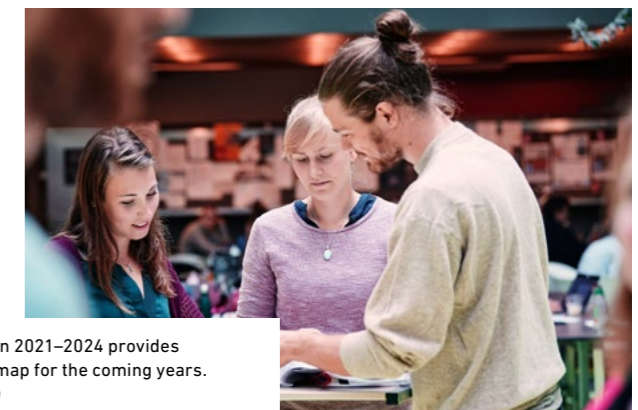


ETH Zurich has been documenting its sustainability performance for more than 20 years. Sustainability is firmly embedded at ETH not only in research and teaching but also in campus life and in our dialogue with society. The university's holistic approach to sustainability encompasses environmental, social and economic dimensions and also plays a key role in its strategic development. By generating knowledge, innovation and science-based solutions, ETH Zurich makes a wide-ranging contribution towards achieving the United Nations Sustainable Development Goals (SDGs).

## Diversity



Addressing diversity has become a central task of university development. ETH Zurich has been working on a diversity strategy that underlines its commitment to diversity and inclusion. The aim is to establish and embrace an open university culture together with all members of the university where staff and students are treated with respect and mistakes are tolerated.



ETH Zurich's Strategy and Development Plan 2021–2024 provides the university and its members with a roadmap for the coming years. (photo: ETH Zurich / Gian Marco Castelberg)



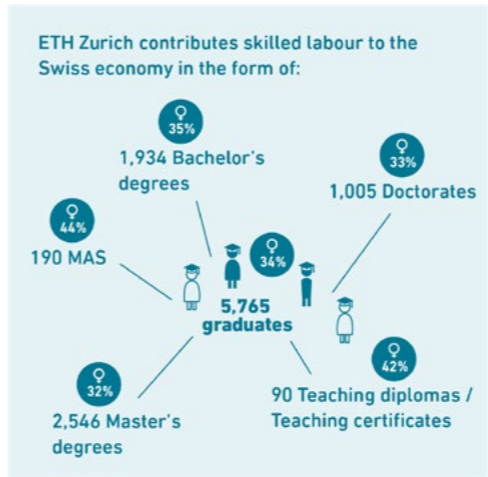


# Teaching that is based on connected thinking

Students from ETH and the Ghanaian university KNUST came up with some creative solutions for sustainable waste management at the Rethinking Waste summer school, where knowledge sharing and intercultural exchange topped the agenda. (photo: ETH Zurich / Daniel Winkler)



**ETH Zurich educates outstanding specialists and leaders, thereby making an important contribution to the sustainable development of science, business and society.**



ETH Zurich believes in the importance of teaching in person and trains its students to become independent and creative thinkers who take responsibility as active members of society and help shape the future. Research-centred, interdisciplinary training and continuing education enable them to identify problems and find solutions in a complex world, which pays off – especially in times of crisis. ETH fosters a culture of independent learning that promotes students' individual strengths and allows for flexible study arrangements. To safeguard quality, ETH continuously develops its teaching methods using state-of-the-art technologies and the latest scientific findings.



## More than knowledge transfer: teaching needs community

For pure knowledge transfer, online teaching works just as well as on-site teaching. But an all-round education means more than that – for example, applying knowledge, working with other students or presenting one's own ideas. In these areas, there is no substitute for a university that teaches "in person".



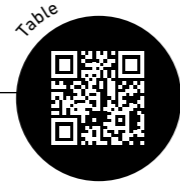
## ETH Zurich joins alliance of European universities

ETH has joined the Enhance Alliance, which was founded as part of the European Universities Initiative and to which ten European technical universities belong. Working together with its partners, ETH aims to offer new educational opportunities in innovative formats and featuring transdisciplinary content, while encouraging exchange with students. In this way ETH is making an active contribution to the further development of the European Education Area.



Together with ETH Zurich, TU Delft and Gdansk University of Technology have joined the Enhance Alliance. (illustration: ETH Zurich)





More than **14,000** academic and industry contacts worldwide



The "e-Sling" focus project involved eight ETH students working on an electric aircraft powered by batteries and hydrogen. For a whole year, Hangar 3 at the Innovation Park in Dübendorf, Zurich, was the centre of their lives. (photo: ETH Zurich / Daniel Winkler)

**Basic research is fundamental to social progress: a long-term investment that pays off.**

Open-ended research forms the basis of university education at ETH Zurich and is the primary source of innovation in knowledge-based societies. Optimal framework conditions are necessary to exploit the great potential of basic research for innovation and inspire excellent performance. These conditions are in place thanks to generous federal funding, competitive research grants and collaboration with the private sector. The university supports the interdisciplinary collaboration of researchers in networks within ETH as well as with other scientific partners and industry. The aim is always to expand the boundaries of knowledge and open up new strategic areas of action and new applications. Research at ETH Zurich is focused on the areas of Health and Medicine, Data and Information, Responsibility and Sustainability, and Materials and Manufacturing.



ETH assistant professor Catherine De Wolf firmly believes that digitalisation can help shift the construction industry towards a more circular economy. This dome is made entirely from reused building materials. (photo: ETH Zurich / Daniel Winkler)

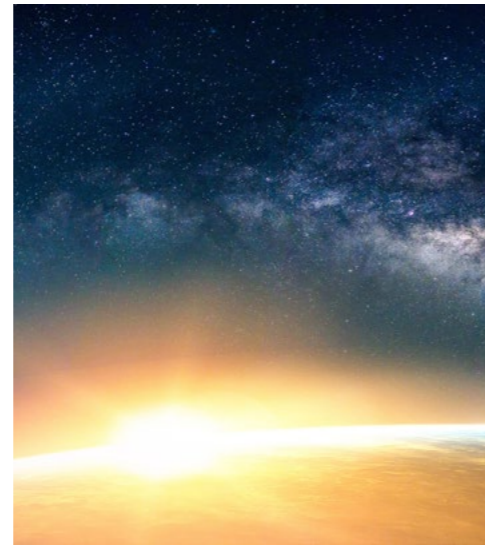
Cutting-edge research that is globally connected





### Global cooperation in climate research

Climate change is the great challenge of our time. As a place of research and knowledge transfer, ETH plays an important role in leading the world towards net zero greenhouse gas emissions.



(photo: Adobe Stock)





### In search of the origin of life

How did life on Earth begin? Is there life on other planets? ETH Zurich launched the "Origin and Prevalence of Life" initiative to investigate the emergence and distribution of life both on and off planet Earth. This led to the opening of an interdisciplinary centre and the creation of new professorships in 2022.



**The Marcel Benoist Prize** (the "Swiss Nobel Prize"), the **Wolf Prize** and many other prizes were awarded to ETH staff in 2022.

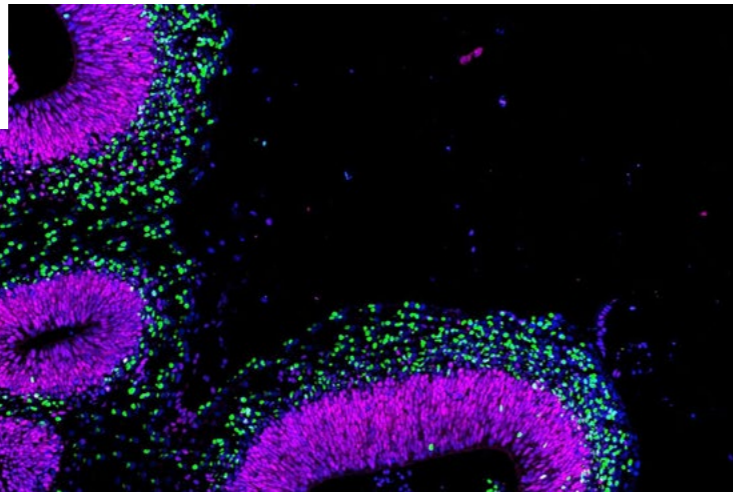
In addition, ETH Zurich counts:

-  **22 Nobel Prizes** - including laureates such as Albert Einstein and Wolfgang Pauli
-  **3 Pritzker Prizes**
-  **1 Turing Award**
-  **2 Fields Medals**

### Award-winning ETH researchers

ETH Zurich offers a superb environment for cultivating academic excellence. This is reflected in the prestigious honours and awards won by its researchers.

Researchers at ETH Zurich are growing human brain-like tissue from stem cells and then mapping the cell types that occur in different brain regions. (photo: ETH Zurich / F. Sanchis Calleja, A. Jain, P. Wahle)



# Knowledge transfer that links research and practice

Elvis Nava is a fellow at ETH Zurich's AI Center as well as a doctoral student at the Institute of Neuroinformatics and in the Soft Robotics Lab. He teaches robots to carry out oral and written commands. To this end, he sends them to "training camps" where they learn to combine image, text and motion data. (photo: ETH Zurich / Daniel Winkler)



**ETH Zurich contributes to Switzerland's innovative strength and prosperity with research findings that benefit the economy, government and society.**



**New employment opportunities** were created through the **26 spin-offs** founded in 2022 (vs 25 in 2021), 19% of which had female (co-)founders. The spin-offs were in the fields of:



ETH Zurich believes that the exchange of knowledge and technology makes an important contribution to the innovative strength and prosperity of society. Besides direct cooperation with partners from industry and government – for example, through joint research projects – ETH's impact on the economy and society through start-ups remains as strong as ever. One of the key ways in which ETH promotes entrepreneurial activities is through the licensing of research results and the establishment of spin-offs. Recognised ETH spin-offs receive support in their early years in the form of professional advice, access to the necessary infrastructure and contact referrals in the business community. More than a 100 spin-offs have been founded in the last four years. What is more, ETH researchers sit on numerous committees that provide backing for evidence-based political decisions.



### Digital transformation of surgical training

A network of Swiss hospitals, universities and companies joined forces in 2022 to transform surgical training using augmented reality. The aim is that training to perform operations should no longer take place on humans, but in an environment where virtual and analogue elements interact.



Augmented reality for realistic surgical training: the Proficiency Project was launched to implement this idea in clinical practice. (photo: ETH Zurich)

### Intelligent sharing of knowledge helps the climate



How can we make construction more climate-friendly? Can I use the surplus solar power that my neighbour produces? What is the most efficient way to charge electric cars? ETH research has answers to many questions. Knowledge transfer succeeds by connecting researchers with stakeholders in the market.



### Climeworks raises 600 million Swiss francs

One factor that demonstrates the success of ETH spin-offs is the amount of venture capital invested in them. In 2022, for example, Climeworks became the fourth ETH spin-off to achieve "unicorn" status with a market valuation of over 1 billion Swiss francs.



Green technologies have great market potential, as the example of ETH spin-off Climeworks shows. (photo: Adobe Stock)

The Venture Awards for young Swiss companies were presented for the 25th time in 2022. In addition to three certified ETH spin-offs, the 15 winners included five other start-ups founded by ETH students and alumni. (photo: Venture Award)





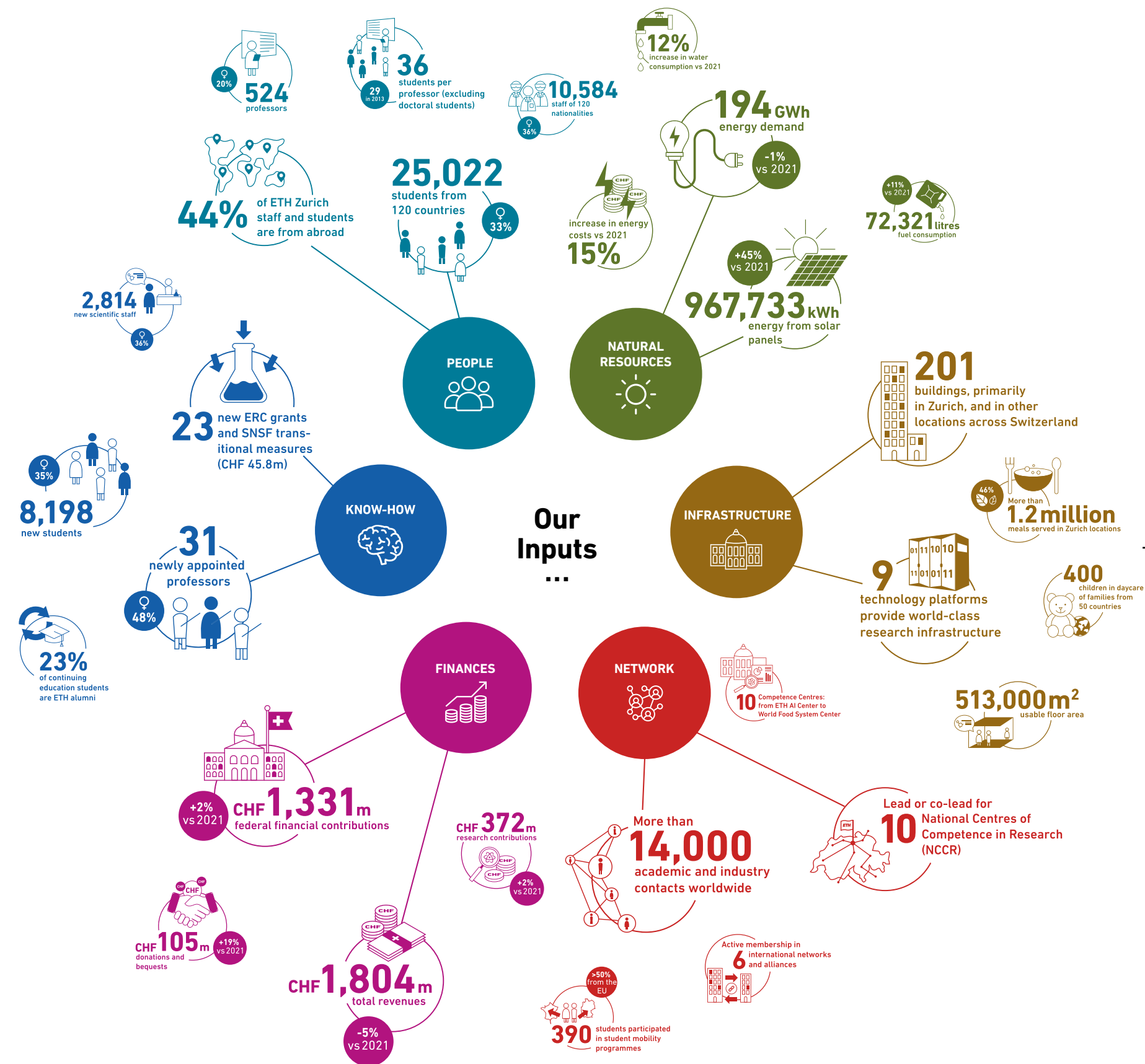
# Connection creates value.

ETH Zurich engages in its core activities of research, teaching and knowledge transfer not only as an end in itself, but in the service of society. This is because research and science are drivers of positive change. The Value Creation Model illustrates the resources that ETH Zurich can draw on, the value it creates for society and the success factors it relies on.

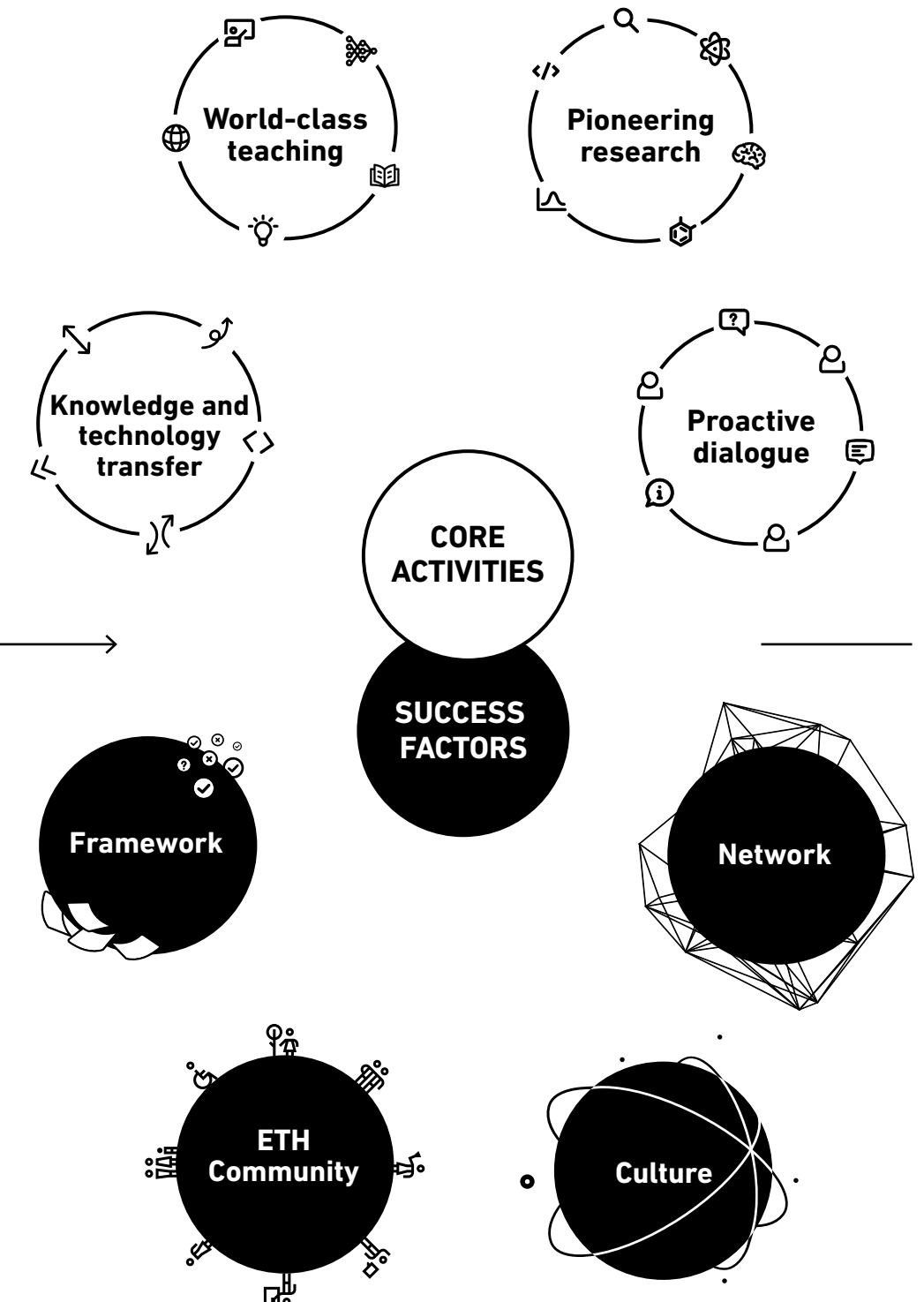


Unfold to see the Value Creation Model →

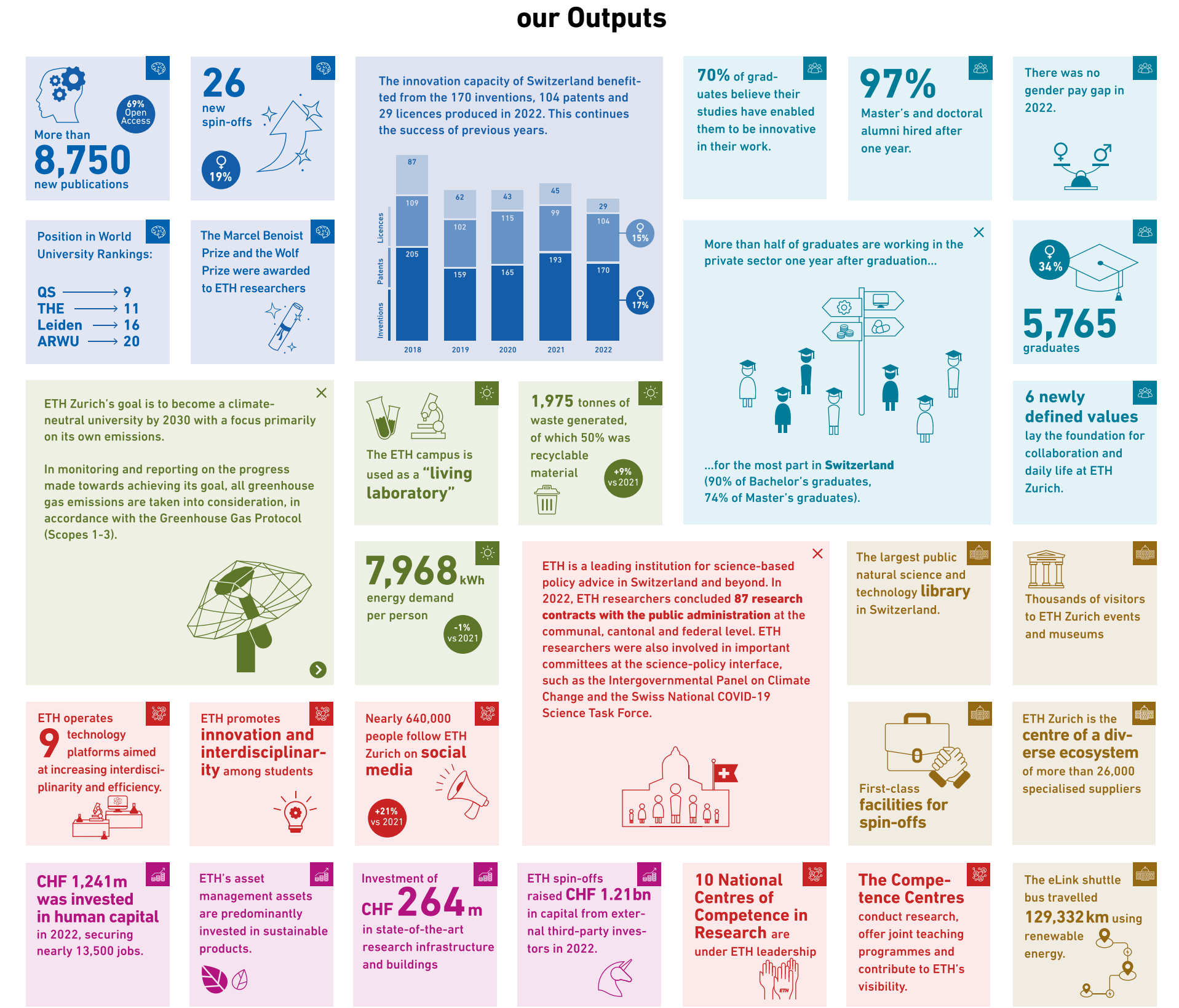




connected with our ...



result in ...







# Dialogue that makes connections

An important visitor to ETH's booth at Olma: Federal President Ignazio Cassis visits the exhibition "Where the future begins – research for sustainable agriculture", where ETH presents exciting spin-offs and provides playful insights into modern agricultural sciences. (photo: ETH Zurich / smith-art)



## ETH Zurich maintains a partnership-based exchange with policymakers, business and society.

ETH Zurich's official social media channels play an important role in transferring knowledge to society with nearly **640,000 followers**. Thanks to a variety of communication efforts, ETH receives a great deal of media coverage. In Swiss media, ETH was among the top five most frequently quoted organisations in 2022. Internationally, ETH Zurich was featured in media outlets in 116 countries.



ETH Zurich is at the service of society and maintains a continuous dialogue with the public, policymakers and business. Scientific progress and far-reaching technological change require open engagement with a range of stakeholders. As a leading scientific and technical university, ETH Zurich offers guidance and a sound basis for decision-making through its researchers and employees, making a key contribution to fact-based, democratic discourse. At the same time, it aims to break new ground in science communication and policy advice, and to engage with society proactively.



### Well connected: ETH in dialogue with society and policymakers

ETH Zurich engages in active dialogue with policymakers and society with the aim of learning first-hand about the needs of different stakeholders, while imparting knowledge and helping solve problems.



### Slovak President at ETH

In May, Slovakia's President Zuzana Čaputová visited ETH Zurich together with President of the Swiss Confederation Ignazio Cassis. ETH President Joël Mesot spoke about the importance of international exchange. He noted how researchers could often continue to develop ideas together even in situations where political dialogue was difficult.



The delegation with the Slovak President in the Student Project House (photo: ETH Zurich / Alessandro Della Bella)

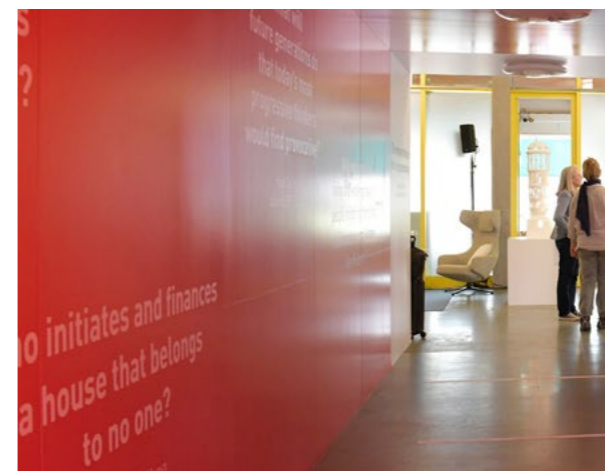


### Sergio Mattarella al Politecnico

During a two-day state visit to Switzerland, Italian President Sergio Mattarella visited ETH Zurich in the company of President of the Swiss Confederation Ignazio Cassis. ETH President Joël Mesot emphasised how much Italy and the university have in common: around 1,100 students and scientific staff as well as 27 professors working at ETH come from Italy. What is more, researchers maintain more than 400 contacts with Italian universities and research institutions at professorship level.



"Since its foundation, ETH Zurich has breathed the spirit of the universitas studiorum europea," said Sergio Mattarella. (photo: ETH Zurich / Nicole Davidson)



ETH Zurich at the World Economic Forum 2022: under the banner "Life, the universe and everything else", words, sentences and books were the theme of ETH's exhibition pavilion. (photo: ETH Zurich / Andreas Eggenberger)





# Staff who engage in collaboration

Svitlana Mykolenko, Viktoriia Dorfman and Oleksandr Kolomiets (from L to R) had to flee their homes to escape the war in Ukraine. Mykolenko is one of 39 researchers who have fled Ukraine and are now working at ETH. Dorfman works as an administrator in the ETH Admissions Office. Along with Kolomiets, 33 other Ukrainian students have joined ETH since the outbreak of the war. (photos: ETH Zurich / Marco Rosasco)

**ETH Zurich's staff play a key role in the university's success. Providing good employment conditions creates a positive environment that produces superb results in research, teaching and knowledge & technology transfer.**



ETH Zurich's international positioning is contingent on its ability to recruit the most talented people from around the globe. With its attractive working environment, culture of mutual respect, state-of-the-art infrastructure and flexible forms of working, ETH is successful in attracting highly professional and committed staff. Particular emphasis is placed on continually developing the social and leadership competencies of all ETH employees – especially those in management roles – as well as promoting equal opportunities and inclusivity. This builds a university community founded upon an open culture enriched by diversity. One that continuously learns and evolves. The different perspectives and experiences of staff and students augment the university's strength and generate added value in a highly competitive global environment.

## Connected: six competencies and a common language



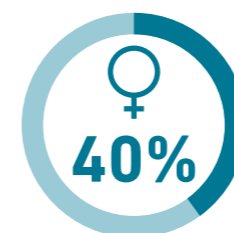
"Acting responsibly", "Driving innovation", "Building bridges" – these are just three of the six new social and leadership competencies at ETH Zurich. In the following interview, Dr Sara van Leeuwen explains how these skills bring together people at and around ETH Zurich and guide the university into the future.



## Successful audit of equal pay at ETH Zurich

ETH Zurich champions diversity and equal opportunity, including equal pay for its employees. The university and other institutions within the ETH Domain have been formally audited using the EQUAL-SALARY method – with positive results.

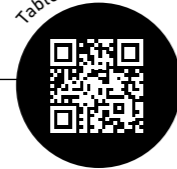
The principle of "equal pay for equal work" is enshrined in the Swiss constitution and in the Federal Act on Gender Equality. (photo: Adobe Stock)



## Target: 40 percent women in new professorships

ETH Zurich has set itself a target of 40 percent females for new professorships. This target was exceeded in 2022: new female appointments to permanent professorships stood at 48 percent in 2022.





Over 4,500 guests attended the university's biggest staff party, togETHer, on the Hönggerberg campus on 26 August 2022. (photo: ETH Zurich / Alessandro Della Bella)



# A campus that encourages networking

Studying and researching close to Zurich's old town. Working with a view of the Alps: ETH Zurich's locations are distinguished by their prominent position and are easily accessible by public transport. The ETH Zurich Zentrum campus with its historic Main Building not only embodies the university's traditional roots but is also a lively centre for socialising and study. (photo: ETH Zurich / Gian Marco Castelberg)

**A sustainable, inclusive campus, combined with state-of-the-art technology platforms, offers excellent teaching and research facilities and provides space for meeting people and exchanging ideas.**



Read more about the campus



# 201 buildings, primarily in Zurich, and in other locations across Switzerland

The university's dynamic growth places ever-changing demands on ETH's infrastructure. The development of new premises is driven by the steady rise in staff and student numbers. Given the more complex requirements in the areas of teaching and research, the long-term development of its buildings and facilities must accommodate new technologies, while providing suitable spaces for teaching, research and study. Moving forward, the university needs versatile buildings that can be readily adapted to new developments and changing requirements. ETH is aiming for net zero by 2030, focusing its efforts on the sustainability aspects of building construction and operation, as well as retaining the quality and preserving the value of the existing infrastructure.



## Sustainable heating and cooling networks – and even greater biodiversity

ETH Zurich is making its infrastructure fit for the future. As well as improving the energy efficiency of its heating and cooling systems, its consistent digitalisation of construction processes promotes sustainability. In addition, specific measures are being taken on the Hönggerberg campus to increase biodiversity.



## Climate-neutral ETH

Responsibility and sustainability is a strategic action area for ETH. The university wants to reach net zero by 2030. To achieve this ambitious goal, an action plan for net zero is being developed as part of a broad consultation process.



Experiments in renewable energy systems, such as this solar mini-refinery, are under way on the roof of ETH Zurich's Machine Laboratory. (photo: ETH Zurich / Alessandro Della Bella)



The new HPQ physics building is being constructed on the Hönggerberg campus between 2022 and 2029. (visualisation: Ilg Santer Architekten)

## HPQ – the physics building of the future

By providing a modern campus with state-of-the-art infrastructure, ETH Zurich aims to support a very high standard of teaching and research. The innovative lab and office facilities in the new HPQ physics building will enable the university to strengthen its position in the field of quantum technologies.

The campus as a living laboratory: the House of Natural Resources, opened in 2015 on the Hönggerberg campus, serves as a research laboratory for sustainable construction methods. (photo: ETH Zurich / Alessandro Della Bella)







# Governance that is a unifying force

Freedom and individual responsibility, entrepreneurial spirit and open-mindedness: ETH Zurich stands on a bedrock of true Swiss values. (photo: ETH Zurich / Gian Marco Castelberg)

Through a high standard of governance, ETH Zurich ensures the smooth running of the university. This guarantees quality assurance while providing it with the necessary flexibility.



## Organisational development: rETHink project

The rETHink project sets out the roadmap for the university's ongoing organisational development so as to ensure that ETH Zurich remains competitive in the future. The aim is to preserve the university's autonomy and creativity, partly through stronger leadership as well as by encouraging greater individual responsibility and broader collaboration.

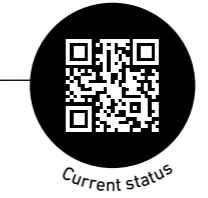


Working together at ETH Zurich should be based on six values: openness, ingenuity, responsibility, empowerment, inclusion and respect. (illustration: ETH Zurich)

“rETHink is making itself increasingly felt in everyday life at ETH”

The project's six workstreams have produced concrete solutions for the future of the university. Smaller projects have already been implemented, and decisions have been made regarding the trajectory of bigger changes. For example, there is now a set of six values that are part of an integrated approach that ties in with the university's vision and mission.

Executive Board and organisation chart



As part of the rETHink project, ETH members gave serious thought to the way the university is organised and how people work together. (photo: ETH Zurich / Alessandro Della Bella)

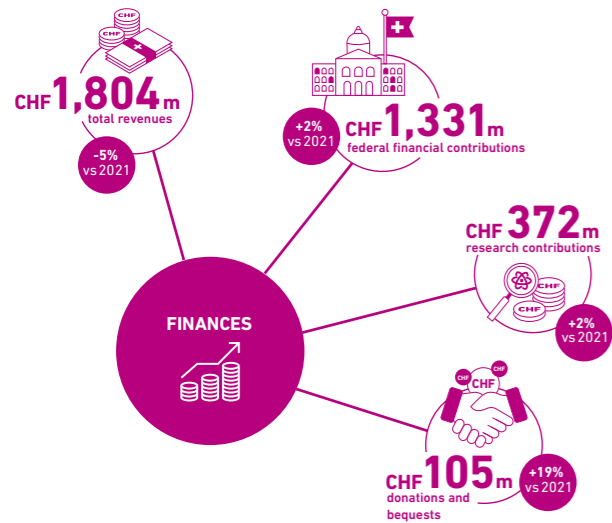
The ETH Act grants the university academic and financial autonomy. This is in addition to a strong sense of individual responsibility, which the Executive Board encourages all ETH employees to embrace. ETH Zurich's leadership structure combines a presidential system with a well-established system of participation and freedom at the academic department level. Within the university, the President has overall accountability for the areas of strategy, appointments and finances. The system of participation ensures broad acceptance of the decisions made. The organisational development project rETHink is a good example of the university's ability to focus its strengths and benefit from the creative drive of its members.

The Executive Board of ETH Zurich (f. r. t. l.): Joël Mesot (President), Katharina Poiger Ruloff (General Secretariat), Julia Dannath (VP for Personnel Development and Leadership), Stefan Spiegel (VP for Finance and Controlling), Vanessa Wood (VP for Knowledge Transfer and Corporate Relations), Günther Dissertori (Rector), Christian Wolfrum (VP for Research) and Ulrich Weidmann (VP for Infrastructure). (photo: ETH Zurich / Markus Bertschi)

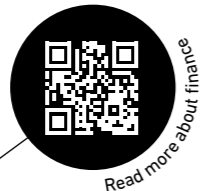




**The total federal contribution provided by the federal government forms the basis for a long-term, sustainable financial policy. Targeted diversification of funding sources increases planning certainty.**



Stable and reliable funding from the Swiss federal government is essential for ETH Zurich to fulfil its basic mandate and to develop strategically. It is only thanks to financial planning certainty that ETH is able to perform its diverse functions as a national university and compete successfully at the international level. The resulting strategic and financial freedom of action, together with autonomy in teaching and research, strengthens ETH's position as a national centre of research and development and makes it one of the world's best and most competitive universities. Selective diversification of funding sources and responsible funding management allow for more reliable planning and help ensure sustainable development.



Read more about finances

The Swiss 200 franc note depicts a particle collision, among other things. "To have basic research so prominently displayed on a banknote is a real testimony to the value placed on scientific research in Switzerland," says ETH Rector Günther Dissertori, who contributed to the design. (photo: Adobe Stock)

**Finances that connect resources with opportunities**

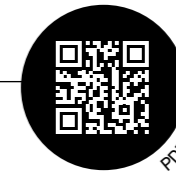


Sabine Keller-Busse, President UBS Switzerland, and Joël Mesot, ETH President (photo: ETH Zurich / Alessandro Della Bella)

**ETH and UBS launch partnership to promote innovation and entrepreneurship**

To promote entrepreneurship and innovation and raise interest in STEM subjects, UBS is investing up to 20 million Swiss francs over ten years in two joint initiatives with ETH. UBS is also making a donation of up to 20 million Swiss francs to support the construction of a new ETH building on the Hönggerberg campus.

Sources and use of funds



PDF



PDF

Consolidated financial statements



Stable and reliable funding from the Swiss federal government allows ETH Zurich to successfully fulfil its diverse functions as a national university competing on the international stage. (photo: ETH Zurich)



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ETH Zurich  
annual report 2022

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