Innovative Vienna 2020

Vienna's Research, Technology and Innovation Strategy







Preface



Mayor Michael Häupl



Deputy Mayor Renate Brauner

City Councillor of Finance, Economic Affairs and Vienna Public Utilities

Vienna is a dynamic and modern city in the heart of Europe. Modern cities are innovative and bring their whole potential to bear in coming up with solutions for the urgent social problems of our time. Today, Vienna is not only a city of culture, but also a city of knowledge. It is therefore crucial for us to collaborate with the excellent research institutions and universities we have in this city in charting an innovative course into the future. The Innovative Vienna 2020 strategy makes a major contribution in this context. For a city such as Vienna, innovation is a key factor when it comes to safeguarding and expanding employment opportunities and the high quality of living for everybody in Vienna, an effort from which our children and grandchildren stand to benefit.

Vienna is a city alive with innovation and an excellent place to live, as numerous international rankings demonstrate. But Vienna is also an important and dynamic business location in many forward-looking areas such as ICT and life sciences. Especially when times are hard economically, it is absolutely essential to continue investing in the future. However, innovation does not refer only to technological progress, but also to progress in society. It is with this in mind that this strategy has been developed, a strategy that provides a perfect starting point for our work over the next years. Numerous experts have contributed to this strategy, and I would like to thank them all for their commitment.

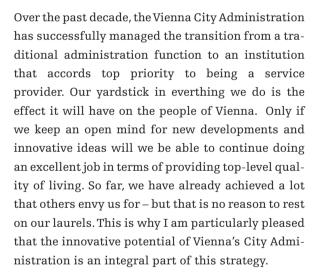
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Innovation for Vienna means finding solutions for the ever more complex challenges of our time. Innovation for Vienna means safeguarding and creating jobs. And innovation for Vienna means being able to maintain the high quality of living. Innovative Vienna 2020 provides a framework for action over the next five years. The city's benchmark is what its citizens need. We want to leverage what is technically feasible in an effort to provide solutions for what society wants. For this reason, Innovative Vienna 2020 relies on a deliberately broad definition of the term innovation, which explicitly includes social, technological, organisational and artistic innovations and has social inclusion defined as one of its objectives.

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Innovation

Innovative Vienna 2020 is a strategy for innovation in the broadest sense of the term. Innovation comprises any and all new approaches in thinking and acting, with due consideration of the context in terms of time, topic and social setting.

A novelty will become an innovation only once it has become effective by providing us with new products, services or processes and once these products, services or processes are being used and accepted by society or by their intended target group.

Innovations within the meaning of this innovation strategy impact economic practice, social interaction, public welfare, education as well as art and culture.

The following comes within the definition of innovation:

Technological developments

Products, services or processes that are based on new technological developments and can be sold at a profit, thus contributing to strengthening the business location or being funded or procured by the public sector.

Public administration services

Improvements, simplifications or better target-group orientation of public administration services.

Artistic and cultural innovations

Artistic and cultural innovations which provide a key impetus to both society and the city as a knowledge and information location.

Systemic innovations

Systemic innovations that help cope with social challenges (such as contributions towards the green energy turnaround, new infrastructures).

Social innovations

Social innovations the benefit of which lies in their being socially relevant and not merely commercially exploitable.

The innovation ecosystem that allows for innovation within the meaning of Innovative Vienna 2020 comprises a broad range of stakeholders. Science, business and politics, along with the education system, public and private investors, the public administration as well as users and citizens, all have a role to play in this context.

All potentials present in the innovation system should be specifically promoted and leveraged. All people – regardless of gender, education, social status and origin – should participate in innovations.

The environment where innovation thrives is characterised by a broad basis of well-educated actors. Planting the seed of innovation at a young age and deliberately leveraging existing diversity will help promote the potential for innovation in Vienna.

Research and development is being practiced as an inter- and transdisciplinary process in Vienna. On a par with excellent scientific research, it is in particular the liberal arts and social and cultural studies that provide opportunities to help shape socially accepted, socially integrated and sustainable innovations.

Emphasising the need for innovations being used and accepted makes it evident that innovation processes should place a stronger focus on including the demand side, i.e. the users of and the people affected by innovations, with public-interest innovations as well as with all other kinds.

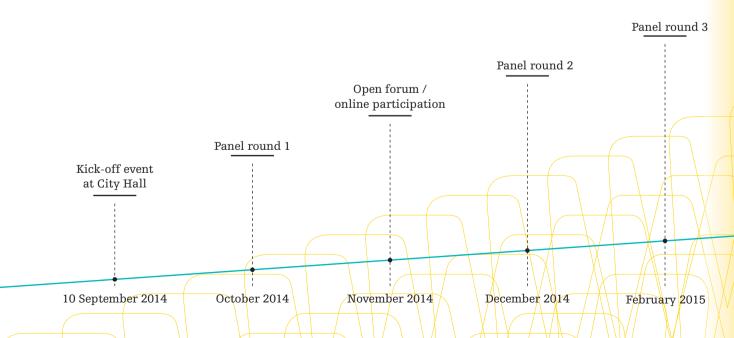
Innovations need to be questioned time and again as to their purpose and usefulness. The fact that this debate is taking place shows that the City of Vienna follows a responsible approach towards innovation.

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Strategy development

Developing the strategy took from mid-2014 to mid-2015, with the Department for Economic Affairs, Labour and Statistics (MA 23) of the Vienna City Administration supervising activities in terms of contents and organisation.

- 80 experts from academia, research, business and government were invited to take part in the process, forming three panels.
- Open forum and online participation for Viennese citizens.
- Talks with leading representatives of Vienna-based universities, research institutions, businesses and advocacy groups supplemented the input provided by the panellists.
- An advisory board was set up for decision-making on content and strategy. Its members include the Deputy Mayor and City Councillor of Finance and Economic Affairs, the Deputy Chief Executive Director, the Director of Urban Planning as well as representatives from the municipal departments for Financial and Cultural Affairs, the Vienna Business Agency, the Vienna Science and Technology Fund (WWTF) and tina vienna urban technologies + strategies GmbH.

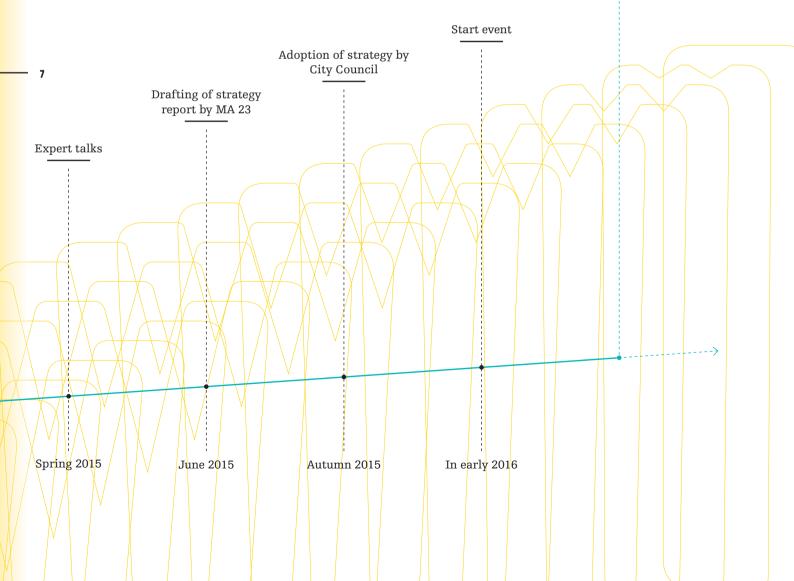


Strategy implementation

MA 23 is monitoring the implementation of the strategy. With a view to ensuring the required consultations and coordination of efforts, the competent City Councillor sets up an advisory board.

Each year, MA 23 submits a work programme to the advisory board, setting out the concrete measures that will be taken to attain the targets set for Innovative Vienna 2020.

Likewise, a report is prepared each year on what measures were implemented in the course of the preceding year. An annual event is organised to present the implemented measures to the public.



The context

The Innovative Vienna 2020 strategy carries forward the contents of Vienna's first RTI strategy, which was called 'Vienna thinks the future', as well as making a major contribution towards achieving the objectives of the Smart City framework strategy.

Innovation within the framework of the Innovative Vienna 2020 strategy

Complementary strategies in Vienna

2006 saw the first steps towards a comprehensive strategic approach to the subject of research and innovation. The result was the City of Vienna's first RTI strategy (Vienna thinks the future), which entered into effect in 2008. Various special-subject strategies, such as the STEP 2025 Urban Development Plan with its specialised programmes, the Vienna Climate Protection Programme, the Vienna Digital Agenda ICT strategy or the Vienna Tourism Strategy are all part of a broad network of strategies and programmes pertaining to the future of the city

It is on this basis that the Smart City Wien Framework Strategy was adopted by the Vienna City Council in 2014 in an effort to provide an aid to orientation for the next generation of specialised strategies and set out the strategic orientation for the respective subject areas covered by them. The innovation objectives laid down in the Smart City Wien Framework Strategy take account of all the major elements and objectives of Vienna's first RTI strategy. For 2050, Vienna has set itself the key objective of offering 'optimum quality of living for all Viennese citizens based on social inclusion, resource preservation and comprehensive innovation'. The projects under the Innovative Vienna 2020 umbrella follow the same approach.

Vienna's economic policy guidelines, which were published in April 2015, set the stage for Vienna's economic policy orientation in the future. There are some key

areas where Innovative Vienna 2020 and the economic policy guidelines overlap: promotion of business and investment in infrastructure, labour market policy and qualification, entrepreneurship and start-ups, structural change in industrial production and knowledge-intensive services.

Digital Agenda Vienna contributes to achieving the goals set out in the Smart City framework by ensuring optimal use of new technologies. Technology-driven innovation is being linked with socially-driven innovation in an effort to focus on what people really need. Digital Agenda Vienna is the City's strategic response to the strong trend towards digitisation in all major areas of life. Its goal is to implement a variety of innovative ICT projects within the City Administration, but also in cooperative ventures with private business and the federal government. This is another area where it links up with Innovative Vienna 2020: ICT is one of the RTI areas of strength that Vienna banks on.

The STEP 2025 Urban Development Plan makes sure that the prerequisites needed for the fundamental strategic orientation towards Vienna being an attractive location for business, science and research are met in terms of spatial planning. The key issues in this field are availability of locations, cooperation with business and academia, as well as preservation of resources.

Vienna and the federal government level

The Austrian federal government's RTI strategy and the Action Plan for a Competitive Research Area (Aktionsplan wettbewerbsfähiger Forschungsraum Österreich) address issues and challenges that come within the federal government's sphere of competence and where solutions need to be found for the whole of Austria. Taking up and addressing certain topics, such as university employee career track models, is fully in line with this strategy.

In Austria, matters of scientific research and academic teaching, in particular where universities, universities of applied sciences, scientific and research institutions are concerned, come within the purview of the federal government and also rely on federal funding. Vienna strives to provide support for projects and institutions from its own budget if the projects and institutions in question prove to be of particular importance for Vienna as a location. For example, Vienna acts as a partner for administrative issues concerning tertiary-education institutions, as a donor through a number of funds, such as the Vienna Science and Technology Fund (Wiener Wissenschafts-, Forschungs- und Technologiefonds, WWTF), LISAVienna, INiTS and the Vienna programme for funding universities of applied science (Wiener Fachhochschulförderung), as an institution commissioning externally funded research projects, as a partner in research projects, and as an employer for university graduates

For this reason, the City of Vienna will seek or continue to interact and cooperate with the federal government in all those areas where synergies can be leveraged and where combined efforts will lead to more widespread effects. Among other things, this includes taking part in the RTI Austria Platform (Plattform FTI Österreich) established by the Austrian Council for Research and Technology Development or the Smart Cities

Memorandum of Understanding concluded between the City of Vienna and the Federal Ministry for Transport, Innovation and Technology (BMVIT). A platform set up jointly with BMVIT and the other federal provinces will help promote cooperation on industry 4.0 matters.

Vienna and the European level

Europe 2020, the European Commission's growth strategy, sets forth the EU's headline targets, such as a research funding rate of 3% of GDP. In recent years, the EU has redefined the debate on locations by making science and research the starting point for its smart specialisation approach to bring structural change and intelligent growth to the regions of Europe. Innovative Vienna 2020 follows this approach by creating opportunities for scientists and entrepreneurs to pursue their activities in the best possible conditions. Representatives of academia, research institutions, business, government and politics all have contributed to developing this strategy, which ensures they will all join forces to implement it.

The targets of Innovative Vienna 2020 largely match the three major sections defined for Horizon 2020: excellent science, industrial leadership and societal challenges. In the current funding programming period of the European Fund for Regional Development (EFRD), Vienna has prioritised investments designated to turn Vienna into a top-level research and innovation location in Europe.

The current situation

Social change originates in urban areas. Cities have always been and will continue to be the places where new ways of communal living are being tried and tested, where new cultural forms of expression come into being and where science and research thrive. Both the densely built-up cityscape and the heterogeneity of city dwellers present challenges for people living together in a confined space. Where solutions can be found for these major challenges, it is possible to provide and safeguard a high quality of living for all inhabitants.

Vienna - a 'knowledge city'

Over the past twenty years, Vienna as a location has undergone profound structural changes, not least in response to the new situation that arose after the fall of the Iron Curtain. As a business location, Vienna has a strong focus on knowledge-based services. In the manufacturing sector, too, technologically mature products that require a corresponding high level of knowledge have gained in importance. On the various markets, Vienna is not competing on low prices and wages, but on the strength of its productivity and the quality of the products and services it offers. Above-average productivity, which is the result of the strong knowledge focus, is a key locational advantage for Vienna.

Long-established businesses, large and small, drive innovation just as much as many young start-ups and social entrepreneurs. Booming innovation is one of the benchmarks for a dynamic location. Young pioneers often take high risks in their efforts to succeed with new products, new processes or social innovations.

As a knowledge-based location, Vienna draws on its universities and research institutions. Within the framework of a regional system of innovation, their roles are not limited to the traditional scope of research and teaching, they also impact the region's economic performance, innovative strength and social development. This is why research institutions and universities are pivotal partners for Vienna's City Administration and for Vienna as a business location. They help shape Vienna's image and identity as a 'knowledge city'. The attractiveness of Vienna as a university location is not least reflected by the fact that Vienna has become the city with the largest university student population in the German-speaking area.

2008 – 2015 'Vienna thinks the future' – first Vienna RTI strategy

Vienna's strong focus on knowledge was the reason why in 2007 the city came up with its first strategy for research, technology and innovation – it was called 'Vienna thinks the future'. From 2008 to 2015, five action areas – human resources, thematic focuses, awareness, enabling new developments, Vienna as an international network hub – provided the framework for further developing Vienna as a knowledge location.

In the meantime, the Smart City Wien Framework Strategy, adopted by the Vienna City Council in 2014, has laid the foundations for addressing social challenges. 'Optimum quality of living for all Viennese citizens combined with highest possible resource preservation' is the key objective in this context. This objective can only be attained through innovation.

Communal responsibility based on innovation

It is often the public sector that orchestrates major technological or social innovations, either through direct action or by way of government funding. This principle holds true in education as much as in infrastructure development, be it roads, railways, water mains or broadband connections. What is more, the public sector also plays a key role in driving innovation in business by acting as a buyer of innovative goods and services.

As the forum where societal interests are balanced, the state is also a crucial stakeholder in developing socially driven innovation. What is important in this context is to arrive at solutions that are valid and acceptable to all and to find new ways of living together based on negotiation. Existing discriminations (be they based on gender or origin) have to be actively eliminated, and only the state is able to see to it that innovation will not just match merely the interests of certain privileged groups.

In Vienna, innovative solutions for social challenges go back a long way. Vienna's deep-rooted socialist tradition can look back on comprehensive public welfare measures – novelties at the time of their introduction – such as social housing projects, public health services or childcare and educational facilities.

Like it did then, the Vienna City Administration still has a major interest in tackling social challenges. The focus here is on responses that make the citizens' needs and requirements their first priority. In identifying and defining the challenges at hand, it is therefore crucial not to exclude any particular groups, regardless of gender, sexual orientation, origin, beliefs, financial standing and income. This also implies that it is the people themselves who look for solutions and drive innovation and that the thrust of innovation is not guided merely by what is technologically feasible.

The City of Vienna wants to offer citizens, businesses, scientists and non-governmental organisations adequate conditions for innovative approaches. In a joint effort, it must be possible to further develop this excellent location and to shape Vienna's path towards becoming a European metropolis.

New paths in times of uncertainty

Innovative Vienna 2020 is not just part of the innovation ecosystem in Vienna, it also links up with political, economic and demographic developments in Europe. Economic development, in particular, is characterised by ruptures and uncertainties. The crises of the past few years as well as profound changes in industrial production and work in general, combined with increasing urbanisation and migration processes have all contributed to this state of affairs.

The financial and economic crisis has left visible traces in Europe. Vienna has not remained unscathed by sluggish economic growth, which has also negatively impacted public spending margins. The crisis has also made itself felt on the labour market.

In addition, there has been upheaval on a massive scale caused by global trends and technological developments, for instance in connection with the Internet. New business models and new forms of production (e.g. online service platforms and industry 4.0) are already in place or in the process of being developed – there is talk of a fourth industrial revolution.

Social, artistic, technological and organisational innovations have the potential to provide answers on how to improve the citizens' quality of living and to avoid social divisions.

Growing city

The fall of the Iron Curtain in the 1990s and the subsequent enlargement of the European Union have moved Vienna from the periphery to the centre of Europe. Vienna is growing at an enormous pace. Having become the seventh largest city in the European Union, it has reacquired an international profile as a metropolis. The high quality of living, the bonus of innovation and social inclusion make Vienna an attractive destination. By 2029, Vienna's population is expected to pass the two-million mark again. To be successful, economic and innovation policy measures in Vienna must therefore be aimed at creating the conditions needed to safeguard the growing city's competitiveness while not letting the social factor fall by the wayside. Targeted investment in infrastructure, in public welfare and in people - through education and training - will help ensure that this will stay this way.

People have become more mobile, not least because of Europe having become more closely united. Vienna currently attracts highly skilled new migrants: 44% of the people who moved here over the past four years (2011–2014) have an academic degree. A third of Vienna's population was born abroad, about a quarter of the people living in Vienna are not Austrian nationals. Vienna has made a clear commitment to being an immigration destination with a pro-active and welcoming approach.

Why we need Innovative Vienna 2020

By developing a specific RTI strategy, Vienna underlines the importance of the excellent work being done at universities and other research institutions and of the large diversity of scientific disciplines being covered. On the other hand, Vienna also highlights the relevance of innovative businesses and start-ups.

What is new about this strategy is that the Vienna City Administration enters the spotlight as an innovation stakeholder. Joint efforts will be made to formulate pertinent questions and to develop cultural, social, technological and organisational innovations.

To produce effects, Innovative Vienna 2020 has to provide certain target groups with guidance on what action to take. These include not only the Vienna City Administration, but also various other institutions under the purview of the City of Vienna that deploy public funds.

Innovative Vienna 2020 places the focus not only on the strategic use of resources. The same emphasis is given to interaction and mutual inspiration between the various levels of the RTI landscape. This is why the large group of people for whom this strategy is to provide guidance with respect to the City of Vienna's RTI approach includes people working at universities and research institutions, in public administration units, in private businesses, in non-governmental entities and European institutions.

The strategy

The City of Vienna's first RTI strategy (Vienna thinks the future) dating from 2007 set objectives for innovation. These objectives were adapted and further developed during the preparation of the Smart City framework strategy. The objectives of the Innovative Vienna 2020 strategy are in turn modelled on those of the Smart City Wien Framework Strategy.

Smart City Wien Framework Strategy

- Here are the overarching objectives:
- In 2050, Vienna is an innovation leader due to top-end research, a strong economy and education.
- In 2050, Vienna is one of the five biggest European research and innovation hubs.
- Further objectives:
- By 2030, Vienna attracts additional research units of international corporations
- In 2030, Vienna is a magnet for international top researchers and students
- By 2030, the innovation triangle Vienna Brno –
 Bratislava is one of the most future-oriented
 cross-border innovation regions of Europe.
- In 2050, Vienna remains one of the ten European regions with the highest purchasing power based on per-capita GDP.
- Vienna further strengthens its position as the preferred company headquarters city in Central/South-eastern Europe.
- 10,000 persons annually set up an enterprise in Vienna, the most attractive start-up location in the region.
- The direct investment flows from and to Vienna have doubled as compared to 2013.
- The share of technology-intensive products in the export volume has increased to 80%* by 2050



^{*}as compared to 60% in 2012



Objectives under Innovative Vienna 2020 in detail

Innovation objective no. 1

City of opportunity:

Vienna provides optimal conditions for innovation potential to develop in the metropolitan region.

Vienna as an attractive location for researchers and businesses

Vienna wants to become a magnet for talented researchers and new entrepreneurs while further raising the share of women in these areas along the way. This calls for adequate career prospects in science and research on the one hand, and for optimal conditions for inno-vative businesses on the other hand. A proactive and welcoming approach underlines Vienna's openminded attitude.

Further development of areas of strength

Vienna's areas of strength, which currently include life sciences, ICT, the creative industry, the liberal arts, cultural and social studies and special fields in mathematics and physics, will be developed further and have to acquire sufficient critical mass to act as beacons with international visibility. Moreover, Vienna invests

specifically in innovative solutions that enable sustainable and socially inclusive further development of the city (smart solutions) and support innovative production and manufacturing processes, thus safeguarding local jobs (smart production). Relying on stable partnerships to position the Vienna metropolitan region both at European and global level is crucial for Vienna to increase its visibility on the international RTI map. Vienna will intensify its cooperation with neighbouring regions, cities and countries in its current areas of strength.

Sustainable financing and effective funding

Vienna's system of grants and subsidies is to be not only transparent and efficient, but also flexible enough to be ready to cope with new challenges. The purpose of providing funding is to strengthen specific areas of research, trigger innovation in business, support new business models and encourage private investors to invest in bright ideas 'made in Vienna'.

Education as a stepping stone towards innovation

From kindergarten to university, all young people in Vienna must have access to opportunities and learn to make innovation part of their culture. This applies as much to what is being taught as to the way it is being taught and under what circumstances, ranging from organisational to architectural considerations.



Innovative City Administration:

Vienna is committed to innovation driven by the public sector and to its role in shaping, buying and using innovations.

Innovation objective no. 3

Vienna as a place where different people meet:

Vienna creates an innovationfriendly climate and relies on cooperation and openmindedness.

Innovative City Administration

The Vienna City Administration will continue striving to improve and further develop the city's public services on an on-going basis. Providing conditions that support private enterprise and showing a proclivity for innovation in public procurement are important elements in this context. As an innovator in its own right, the public sector also plays an active role in this field.

Vienna as a place where different people meet

Innovation often comes about at the boundaries and transition points between subject matters, institutions and areas of responsibility. This is why an open dialogue and cooperation between business, science, art and culture, the City Administration and society at large will help leverage the city's potential for innovation. This includes identifying social trends, aiding and supporting innovation in artistic and cultural settings and ensuring the participation of the Viennese citizens (e.g. Open Science and Citizen Science). As the focus here is on how innovation can benefit society, the Open Innovation approach calls for different views to be incorporated, regardless of gender, sexual orientation, origin, beliefs, financial standing and income. Vienna's international profile as an RTI location will gain increasing recognition.

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Innovation objective no. 1

City of opportunity

Vienna will continue to shape conditions within its purview to support innovation and help the innovation ecosystem to develop as a forum where public and private initiatives complement one another. With a view to strengthening the location and making access to innovation easier, measures will be taken on the following levels:

Action area 1: Attractive location for researchers and businesses

Whoever has a bright idea in Vienna should translate it into reality. Vienna wants to leverage existing potential and draw high potentials from elsewhere. Vienna is to be positioned as a magnet for researchers and people with entrepreneurial drive, acting as a sort of hothouse for new ideas. The share of women in commercial research, which is currently at around 20% in Vienna, is to be raised through adequate measures.

Promote start-ups

The number of start-ups has increased considerably over the past few years. Vienna is taking advantage of this trend in order to establish itself internationally as an excellent start-up hub and to further increase its attractiveness to investors. Start-ups and new entrepreneurs receive support; specific measures are taken to raise Vienna's international profile as a start-up location and to attract new foreign entrepreneurs to come to Vienna. This also applies to so-called social entrepreneurs who aim to tackle social problems and social challenges and frequently have quite different growth and exit scenarios than classic start-ups.

Provide excellent conditions for young scientists and teachers at universities

The City of Vienna will offer targeted and specific support for university-level research and teaching in an effort to obtain even more excellent results and make universities even more competitive internationally. This includes, among other things, providing funding for research infrastructure, professorships and young talent groups on strategically relevant topics and aiding with applications for European co-funding or own funds. In doing so, the City Administration continues to pursue the goal of achieving a gender balance in scientific activities.

Take the 'welcoming approach' further

The City of Vienna takes a critical look at its own actions and checks its internal processes in providing services to new arrivals with a view to optimisation. Vienna will also continue to present itself as a cosmopolitan city and take a clear stance against discrimination of any kind. The City of Vienna wants all the people living in Vienna — no matter how long they have been here — to feel welcome.

Given the division of competences, the federal government is particularly called upon to take action in this context under immigration and alien law regulations. The procedure for obtaining a residence permit under the so-called Red-White-Red Card scheme as well as other procedures for obtaining a residence permit under current legislation are viewed by many as a major obstacle. It has to be ensured that foreign educational achievements are recognised in an adequate manner.

Continue to be proactive in gender mainstreaming and the promotion of women

A location loses talent if it does not put everybody's skills and capabilities to good use, i.e. those of both women and men. It is therefore absolutely necessary to eliminate structural disadvantages, which is why Vienna has committed itself to promoting gender mainstreaming in research, technology and innovation.

This means

- balanced representation of women and men on research teams,
- balanced representation of women and men in decision-making functions, taking account of gender competence when assigning people to the relevant juries, and
- integration of the gender dimension into research topics.

Vienna strives to make innovative jobs visible and tangible, inciting more girls to show an interest in research and technology as a career option. Incentives are being offered to businesses that promote women to leading positions in corporate R&D. When developing new products and services, it is necessary to take account of the needs and requirements of different groups of users.

The City of Vienna avails itself of the leeway it has under procurement legislation to promote equality among those who bid for contracts. Moreover, explicit incentives will continue to be offered in the promotion of business, such as FemPower Calls and broad-based promotion through bonus schemes for women in leading positions, in an effort to improve the position of women.

Action area 2: Further developing areas of strength

Vienna is a high-tech location and an excellent base for doing research and starting new businesses. To raise the international profile of these aspects, it is also necessary to further develop Vienna's areas of strength and to implement so-called lighthouse projects.

Further develop RTI focus areas

In 2007, the Vienna RTI strategy (Vienna thinks the future) set forth the following RTI focus areas that needed to be developed: Life sciences / medicine, information and communication technologies (ICT), and the creative industry / media. The significant potential for development identified in research areas such as mathematics and physics, but also in the liberal arts, social and cultural studies is to be leveraged. The Innovative Vienna 2020 strategy provides for both the RTI focus areas and the above-mentioned research fields to be expanded and strengthened.

Another RTI focus will be placed on areas that are of particular strategic relevance to the location, either because they fulfil a key mission in further developing the city or because they address a known focus area in Vienna's innovation landscape, true to the motto 'Strengthen existing strengths'. The process for finding further focus areas is coordinated between the institutions and takes account not only of evidence-based decision-making criteria, but also of bottom-up approaches. This is meant to ensure that all ideas and suggestions will be taken into consideration when it comes to further developing Vienna as an RTI location.

Expand RTI infrastructure

Making top-of-the-range facilities available to many stakeholders is a key locational advantage in terms of infrastructure. Such availability will entice creative scientists and business people to try out new ideas and come up with innovations in a joint effort.

Improving cooperation between science and business under a shared facilities approach not only allows acquiring research infrastructure for wider use, but also helps promote communication between researchers.

Create international visibility

To score internationally as an attractive location for the brightest minds as well as for businesses, you need lighthouse projects that cater not only to top-level research, but also to potential use and application. The City of Vienna will make every effort to promote such endeavours along with the federal government and relevant stakeholders.

Increase regional cooperation on RTI focus areas

A Greater Vienna Area – which is defined by reachability within 1.5 hours – gives free rein to the imagination when it comes to potential cooperation ventures that rely on personal contacts or shared infrastructure.

One aim is to intensify cooperation with the neighbouring province of Lower Austria.

Vienna is to develop into the hub of such a cross-border region of innovation. The Vienna – Bratislava – Brno triangle with its numerous universities supports projects that help position the region internationally, for instance based on applications under the Horizon 2020 programme or bids for a large-scale research facility co-funded by the EU.

Promote a state-of-the-art manufacturing and services location

The conditions governing the manufacturing of goods are subject to profound and fast-paced change. In goods manufacturing, more and more products are being tailored specifically to customer demands. Production facilities need to be able to efficiently and economically produce even small series. Machines are supposed to determine themselves the amount of resources they need and to know when they are due for maintenance. Products are expected to provide information on their status and indicate the need for an update or even request to be used.

As a location that offers both a highly qualified workforce and highly developed complementary fields of activity (ICT, creative segment), Vienna is optimally prepared for this technological development. Especially in light of the EU strategy to raise industry's share of GDP to around 20% by 2020, Vienna will ramp up its efforts

to position itself as a state-of-the-art manufacturing location that is environmentally friendly to boost.

Vienna promotes interdisciplinary and cross-industry cooperation among innovation drivers because pioneering innovations often occur at the interface between industries and disciplines (e.g. bioinformatics, industry 4.0, technology experience). Innovative solutions for sectors such as energy, environment, mobility and construction (smart solutions) as well as production and manufacturing (smart production) are needed to successfully drive Vienna's further development. This is the reason why Vienna invests specifically in strengthening these areas.

Action area 3: Sustainable financing and effective funding

The aim here is to have a clear and simply structured system of grants and funding that is sufficiently flexible and suitable to encourage more and more private investors to invest in bright ideas in Vienna. What is ultimately needed is a 'hothouse' for ideas that is well-coordinated between the federal and the regional government levels. Support is provided to create a climate for investment where risk-taking is seen as a positive and courageous act and where stakeholders are able to deal with risk in a constructive way. Again, attention is paid to ensuring that women and men will benefit in equal measure from any project funding awarded.

In general, adequate instruments are available for basic research and business-related R&D funding on the federal and regional levels. Such funding has to be guaranteed in a sustainable manner even in times of tight public budgets.

More flexibility in the use of funds

To enable new ideas to be encouraged, funding entities are to be given the discretion to award part of their budgets to initiatives which are not covered at all or only to a small extent under the current funding schemes. These funds are to be used to promote new topics and take or support, in a flexible manner, measures that are

conducive to effecting long-lasting structural improvements for Vienna as a business location and which address a broader base of stakeholders. The awarding of funds is to be linked to compliance with quality criteria that need to be defined for each case.

Private funding

The City of Vienna strives to encourage private investors to invest in bright ideas 'made in Vienna'. Adequate rules and regulations have to be found for instruments such as contributions to existing foundations, crowd-funding and new venture capital concepts.

Public-sector profit-sharing

The public coffers are not bottomless. The City of Vienna places great store by the public sector being able to participate in any profit (co-)funded by it. It needs to be ascertained if and how the public sector can benefit from the success of a project in return for having taken on risks by providing funding for the development of innovative products.

Action area 4: Education as a stepping stone towards innovation

Equal educational opportunities for all children, elimination of access barriers to education and social integration are the tenets underlying Vienna's education policy.

Add to this the awareness that education is an integral and indispensable part of the RTI policy. A culture of innovation needs people who approach issues with curiosity, creativity, responsibility and self-confidence and are able to come up with innovative solutions.

This is why Vienna relies on education that offers opportunities and gives rise to a culture of innovation, at all ages and at all stages of life, from kindergarten to university as well as in further education for adults. Reaching this goal requires joint efforts with the federal government level. Introducing the new comprehensive school model for the 10-14 age bracket throughout the country will ensure social balancing and overcome access barriers. Using funds based on social indexing, i.e. independently of student numbers, taking account

of the percentage of children for whom German is not their first language as well as of the parents' level of education, etc., would lead to more equal opportunities. This approach contributes to making the educational system upwardly mobile, as education is the primary gateway towards more upward mobility in our society.

Vienna's kindergartens prepare the ground for innovation

Vienna is committed to making kindergarten care available for free to children from zero to six years of age. These educational facilities provide the best possible assistance and promotion of skills and talents for all children – regardless of gender, first language or the family's educational background, offering them the chance to succeed in all areas of research and innovation.

Drive innovation in Vienna's schools

It is necessary to offer more state-of-the-art infrastructure while at the same time taking account of modern-day teaching strategies. The Vienna Campus School model unites kindergarten, primary school, and afterschool care under one roof, both in terms of architecture, organisation and teaching theory. Children ranging from infants to 10 years of age get to spend the day together. This model is due for further expansion.

Measures relating to teaching, such as mobility and exchanges of teachers with all walks of life (universities, business, public administration and non-profit organisations) go hand in hand with concurrent research on educational theory and practice. The aim is to have successful projects become regular features of school education, with due attention to the changes needed in federal legislation.

Further education and training

The City of Vienna supports adult further education programmes, for instance within the scope of the WAFF (Vienna Employment Promotion Fund) and at Viennese public education centres. In addition to providing guaranteed professional training, the City of Vienna relies above all on the 2020 Qualification Plan to develop the skills of young people.

Innovation objective no. 2

Innovative City Administration

For a city's administration to continually remain innovative, it needs to have a pervasive 'culture of innovation'. A culture of innovation as a way of thinking and acting is part of organisational culture. It is not something that can be ordained from the top; it needs time to grow.

This is why the City of Vienna strives to provide an innovation-friendly climate. Enthusiastic and innovative projects for the continuous improvement and development of the services the city has to offer deserve support and assistance. Having the courage to experiment and take risks are attitudes the City Administration condones and supports. A culture of innovation will also make sure that people have a chance to learn from their mistakes. An innovative city administration keeps up a constant exchange with the citizens. Optimally designing public services requires joint efforts by citizens, the organised public, politics, research and business.

Using state-of-the-art information and communication technology and handling corresponding data are key aspects of an innovative city. Digital Agenda Vienna promotes up-to-date further development of municipal services based on broad participation.

Action area 5: Embedding a culture of innovation within the City Administration for the long haul

The Vienna City Administration stresses its role as an innovative and creative organisation. Creativity and innovativeness have to become an integral part of organisational culture, so it is necessary to identify supportive framework conditions and make them part of day-to-day work and service provision.

Make innovation within the City Administration visible and tangible

Already existing innovation projects and the benefits they generate have to be made clearly visible both inside and outside the City Administration.

Support a culture of innovation

The City of Vienna aims to embed a culture of innovation for the long haul. In doing so, it can draw on years of experience in the organised handling of suggestions for improvement when it comes to picking the brains of staff members or developing bright ideas in collaboration with them.

Innovation within the City Administration frequently arises from contacts with clients. For this reason, the potential offered by Vienna's citizens is to be leveraged when it comes to finding new ideas, with participation from diverse groups of society. One forum for doing so is the Open Innovation process, which has proved its worth with the Digital Agenda. A key prerequisite for establishing a culture of innovation is to deliberately and specifically create adequate framework conditions in terms of staffing, infrastructure and budgeting.

Living labs, policy labs and proof of concept

A living lab awards top priority to user needs and studies, based on day-to-day behaviour, efficient and intelligent ways to deal with, for example, energy or mobility. Proof of concept projects test the latest technologies under near-real-life conditions, while the purpose of policy labs is to explore the boundaries of legal provisions. Many areas of research need an urban environment to try out new approaches. The City of Vienna is going to take steps to develop innovative technologies in a real-life infrastructure and to allow such technologies to be assessed for citizen acceptance.

Action area 6: Innovation-friendly public procurement

Every year, the City of Vienna procures goods and services to the tune of several billion euro. A survey conducted by Statistics Austria reveals that some 2% to 4% of public spending has an innovative impact. Deliberate decisions taken in favour of innovative products and services can have a major influence on a location's innovative strength. The City of Vienna aims

for a dual innovation effect. On the one hand, innovative solutions help to further develop municipal services and thus also to solve social challenges. On the other hand, there is an impetus for businesses to seek innovative solutions.

Improve framework conditions

Current legislation on public procurement is regarded by many as not conducive to innovation-friendly public procurement. Based on profound legal expertise, the City of Vienna will strive to distinguish between actual and conceived obstacles and use the insights thus gained to improve its operational processes in procurement. As an accompanying measure, it is also necessary to raise awareness for the social and economic significance of innovation-friendly public procurement and to step up the dialogue with the federal government in this field in an effort to leverage synergies. In its procurement activities, Vienna is going to pay attention to promoting the equality of women at contractors and contracting institutions.

Innovation objective no. 3

Vienna as a place where different people meet

Vienna's image for the future is characterised by a cosmopolitan outlook and tolerance, both with respect to people and new ideas. This goes hand in hand with an open mind – demonstrated particularly by the Viennese – for innovations created by universities, business, society at large as well as the art and culture scene.

Innovative solutions often come about at the interfaces between different areas and sectors. This potential for innovation can be leveraged and put to use only through mutual exchange and the crossing of boundaries. More recent technological developments in particular require solutions across disciplines and sectors.

Action area 7: Spaces that promote an innovative climate

Sharing encoded knowledge is relatively easy. However, sharing non-encoded or tacit knowledge as well as complex knowledge, both of which are crucial for innovation, requires personal contact between the people having such knowledge. Transferring such knowledge becomes easier when the persons involved are located close to one another and, what is more, can serve as a low-threshold instrument facilitating more social mobility.

Set up a network of spaces

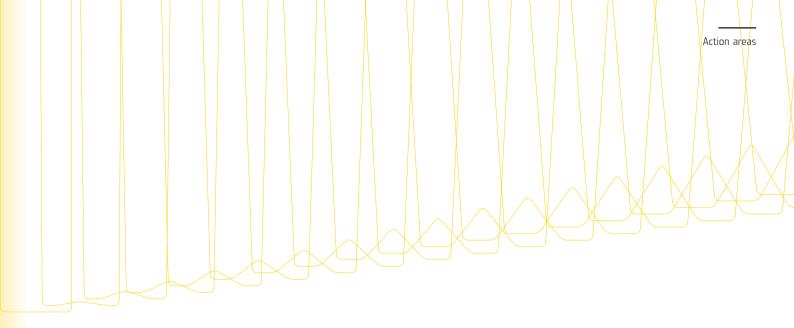
While urban density provides an opportunity for diverse stakeholders to interact, it also means that there is less and less space available that does not already have a designated use. To increase the effectiveness of innovations as social and cultural processes, Vienna has to provide/establish a network of physical and virtual premises that can be used by research institutions, NGOs, the City Administration, start-ups and the art and culture scene to live creativity and innovation.

Set up information and networking platforms

Information and networking platforms help Viennese businesses to network and link up with development partners and pilot customers from the City Administration as well as from the worlds of academia and business. In the future, networking is to be less focused on intra-industry activities, but more and more on crossindustry, intersectoral and transdisciplinary approaches. The purpose of bringing innovation stakeholders together is to pool the competences and capabilities of businesses, research institutions and pilot users. Establishing cooperative relationships based on mutual trust ensures that product developments will not primarily target what is technologically feasible, but what future users really need.

Action area 8: Increasing visibility and arousing interest

To increase the visibility and attractiveness of talents, businesses and research institutions, it is necessary to put more effort into presenting and communicating Vienna as an innovation and research location. The aim



is to ensure that Vienna is perceived internationally not only as a culture and tourism destination, but also as an innovation hub. The citizens of Vienna, too, need to become more aware of their city as a location for innovation with opportunities for them to participate.

Develop and communicate an image of the metropolitan region as an RTI location

The City of Vienna will take steps to increase its international visibility as, for instance, a university hub or as an excellent location for innovation and start-ups.

Awareness and participation

For an innovation location, it is pivotal that society at large has an open mind for new technologies. This is why Vienna promotes initiatives that aim to reduce scepticism towards technology and to raise enthusiasm for research and technology. A key element of such awareness is to provide opportunities for participation in different ways with a view to encouraging public debate. The Vienna Research Festival and workshops for children and young people help increase the visibility of innovation drivers and promote enthusiasm for natural sciences and technology, thus ensuring a supply of young talent for the local labour market.

The data

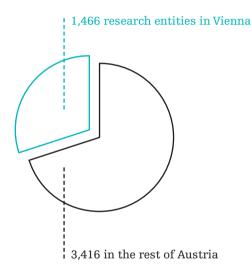
Vienna, a city well known for its art and culture and quality of living, also offers optimal conditions for innovations. The population of the city is multi-faceted and creative and the city boasts excellent education and research institutions and an active start-up scene.

Top innovation location

Vienna features 1,466 research entities Vienna, i.e. universities, businesses or institutions active in research, which accounts for 30% of all research entities in Austria (2011). Among them, 785 businesses together account for more than half of Vienna's R&D spending (EUR 1.75 billion¹).

Every year, up to 9,000 new companies are established in Vienna. What is more, Vienna is one of the cities with the highest purchasing power in the EU.



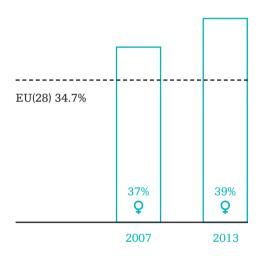


Research funding rate

Vienna is among the top regions to have reached the EU's official 3% target for spending on research (share of R&D spending in the gross regional product). Overall, only 32 of the 266 regions (for which data are available) attain this target. In 2012, Vienna's research funding rate stood at 3.55%, the rate for Austria was 2.97% and that for the EU-28 was 2.0%.²

R&D spending

All in all, Austria spent EUR 9.3 billion³ on R&D in 2011, while Vienna invested some EUR 2.7 billion.⁴ More than half of Vienna's R&D spending (about 54%) came from businesses, some 38% were attributable to universities, and the rest to government funding. This includes some EUR 100 million in funds from Vienna's regional budget.



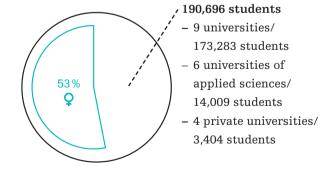
EUR 2.9 billion R&D spending in Vienna EUR 6.7 billion R&D spending in the rest of Austria

People employed in R&D

More than 43.700 people (2013) work in research and development in Vienna: at universities, centres of competence and businesses active in research and innovation. It is a positive development that the share of women rose from 37% in 2007 to 39% in 2013 (EU-28: 34.7%⁵). At 5% emploment in R&D, Vienna ranked third among the regions employment of the EU–28 in 2011.⁶

University hub and students

Vienna looks back on a long tradition as a science and research hub. Vienna is not only the largest university centre within the German-speaking world, but also the oldest (university founded in 1365). Vienna boasts a student population of more than 190,000 (2014 winter semester), nearly 53% of them female. Students thus account for some 10% of the Viennese population. By comparison: Berlin has about 171,000 students, Munich 112,000 (2013) and Zurich about 66,000 students.



 $^{^{1\,2\,3\,5}\,\}text{Statistics}$ Austria, survey on research and experimental development

⁴ Based on corporate R&D locations

⁶ Eurostat regional yearbook

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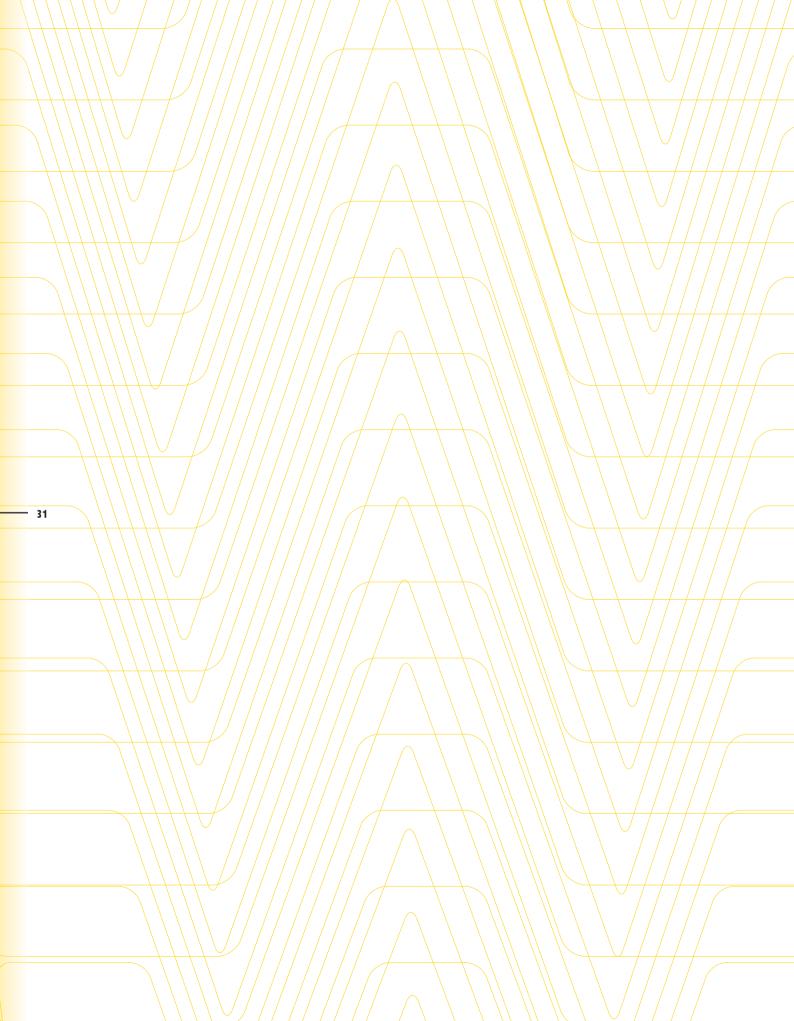
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