







**VUB TechTransfer** is the multidisciplinary operational team of the **Vice-rectorate Innovation & Industry Relations**. We take care of knowledge and technology transfer and exchange. Together with **VUB Foundation**, philanthropic fundraising, and **Crosstalks**, the transdisciplinary exchange platform of the VUB, we constitute the Vice-rectorate.

#### **OUR MISSION:**

CREATING POSITIVE IMPACT BY CONNECTING INNOVATIVE VUB RESEARCH WITH INDUSTRY AND SOCIETY

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Facts & Figures 2021	4
Our mission: creating impact on society with innovative research	5
Government funding for strategic & applied research	7
Flanders project funding	8
Brussels project funding	10
EU funding support for projects with economic and social purpose	12
EUTOPIA	14
Revenue from valorisation and contract research with industry	14
Intellectual Property (IP) management & licensing	15
Entrepreneurship education	15
University spin-offs	16
Research park & incubators	18
TechTransfer communication & events	19
VUB Foundation	20
The Fellowship Programme	21
VUB Crosstalks	22
VUB TechTransfer, Foundation & Crosstalks team	24

## **FACTS & FIGURES 2021**



### CAMPUSES

- Brussels Humanities, Sciences and Engineering Campus
- Brussels Health Campus
- · Brussels Photonics Campus
- · usquare.brussels
- Brussels City campus

8 FACULTIES

**4,261** \*\*\*\* EMPLOYEES

20,451 .... STUDENTS .....

3,971 EMPLOYEES UZ BRUSSEL

1,977

\*\*DOCTORANDI
\*\*3

\*\*DOCTORAL SCHOOLS



## EUR 138 M RESEARCH BUDGET

EUR 14 M
REVENUE FROM CONTRACT RESEARCH WITH
INDUSTRY AND VALORISATION OF RESEARCH





"What does wonder do? It breaks through the predictability of what we expect. With wonder begins the questioning, the searching, the trial and error, the finding of what you didn't even know you were looking for."

Caroline Pauwels, prorector - Ode to Wonderment



## OUR MISSION: CREATING IMPACT ON SOCIETY WITH INNOVATIVE RESEARCH

COVID-19 did not disappear from the agenda in 2021 and its impact on the university remained significant. Already in 2020, we observed that applied research and valorisation activities proved to be quite resilient to the many restrictive measures that the government had to impose to control the pandemic.

This was no different in 2021 as VUB researchers were able to work very actively on high quality project applications and valorisation files, as can be seen from the results further in this report. Once again, **VUB TechTransfer**, the multidisciplinary operational team of the **Vice-rectorate Innovation & Industry Relations**, was able to support and process more dossiers and thus further develop and strategically implement knowledge and technology in Flanders, Brussels, and Europe. The commitment and flexibility shown by researchers and the support staff have been translated into an increase in revenue in almost all the items covered by this Annual Report.

This increase in revenue generates more resources that can be reinvested in research and valorisation, contributing to the growth of the university as a whole. But above all, the VUB continues to strive for real impact creation with its industrial and societal oriented research. Cooperation with companies with special attention to their requirements, and the creation of new economic activities in the form of spin-offs remain the obvious ways to valorise research, but other forms of societal valorisation are also explored and encouraged.

In partnership with other universities and research institutions, the VUB will also continue to profile itself internationally as an institution where innovation and valorisation are embedded in its DNA.

Meanwhile, new challenges surfaced. But together with our partners at the Vice-rectorate Innovation & Industry Relations, the philanthropic fundraising team **VUB Foundation** and VUB's transdisciplinary exchange platform **Crosstalks**, we continue to work towards a better future.

We invite you to discover our accomplishments of 2021,

"Cooperation with companies with special attention to their requirements, and the creation of new economic activities in the form of spin-offs remain the obvious ways to valorise research, but other forms of societal valorisation are also explored and encouraged."

Sonja Haesen, Director VUB TechTransfer





Hugo Thienpont, Vice-rector Innovation & Industry Relations

# GROUPS OF EXCELLENCE IN APPLIED RESEARCH (GEARS)

#### **ADVANCED GEARs:**



**Photonics** 



Media, Innovation & Technology



Sustainable Mobility, Logistics & Automotive



**Human Robotics** 



Regenerate

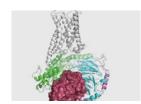
#### **CONSOLIDATOR GEARs:**



Artificial Intelligence



Sustainable Chemistry



Structural Biology



Sustainable Material Technologies



Tech4Health



Accoustics & Vibration



INTEGRAL -Immunotherapy

#### **STARTER GEARs:**



Peptidomimetic TheranOstics



Imaging with nanobodybased tracers



Industrial Microbiology & Food Biotechnology



Microfluidics



B-Liver



NEUR-o-AIMS



Software Systems

# GOVERNMENT FUNDING FOR STRATEGIC & APPLIED RESEARCH

#### FROM FLANDERS, BRUSSELS, EUROPE

The strategic and applied research output of the universities influences the regional innovation degree and reinforces the economic landscape. On the other hand it generates revenue for the university which can be reinvested in research. Government funding from Flanders, Brussels and Europe is crucial to support this valorisation of research. In 2021 **governmental funding for strategic and applied research** received by VUB amounted to €73,200,848. A positive trend is the fact that, besides Science, Technology, Engineering and Mathematics or STEM-oriented projects, more and more projects from the Social Sciences, Humanities and the Arts (SSHA) are introduced.

#### VUB TechTransfer offers assistance and support to researchers for:

- · Projects financed by the Industrial Research Fund of the VUB (Flemish government funding)
- Flanders VLAIO & FWO calls
- · Brussels-Capital Region funding through Innoviris
- · Projects with SOCs and spearhead clusters
- EU-projects with economic purpose
- · Financing for applied projects with valorization potential by other (international) organisations or administrations

## VUB INDUSTRIAL RESEARCH FUND FOR RESEARCH GROUPS THAT EXCEL IN STRATEGIC AND APPLIED RESEARCH

VUB TechTransfer supports projects financed by the Industrial Research Fund (IOF – Industrieel OnderzoeksFonds). Since 2004 universities receive this Flemish government funding according to their valorisation output performance: contracts with industry, the number of patents and spin-offs, share in the European Framework Programme for R&D and publications and citations. The VUB invests IOF funding in knowledge centers that exceed the average scale of a standard university's research unit, the 'Groups of Excellence in Applied Research' or GEARs. They have to elaborate a long term strategic research strategy, demonstrate leadership, and develop new application-oriented inventions with economic potential.

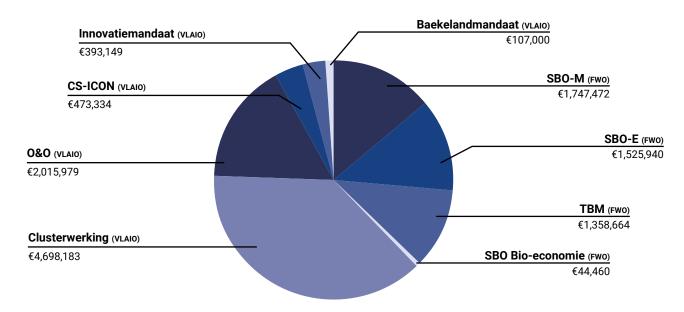
**In 2021, 3 new GEAR programmes** (Groups of Expertise of Applied Research) were selected for financing, for 1 of them this included a Bonus. An **upgrade towards Advanced GEAR** was granted to 1 existing GEAR and **7 Proof-of-Concept projects** were supported.

In 2022, a total of 19 GEAR groups receive funding from the Industrial Research Fund. The overview can be found on the left-hand page.



#### FLANDERS PROJECT FUNDING

## 2021: VUB received €12.4 million funding from FWO and VLAIO for strategic basic research



In 2021 the Vrije Universiteit Brussel obtained funding for strategic basic research from the Research Foundation - Flanders (FWO) and Flanders Innovation & Entrepreneurship (VLAIO) for a total budget of €12,4M which is an increase over last year.

#### Research Foundation - Flanders (FWO)

The **Strategic Basic Research programme (SBO)** concerns innovative research that offers prospects for later economic or social applications. In 2021 this resulted in:

- SBO-E (economic finality): 1 approved project:
  - · NLITE Surgery Tony Lahoutte, Sophie Hernot, Philippe De Sutter, Hans Ingelberts, Maarten Kuijk
- SBO-M (societal finality): 2 approved projects:
  - TESTEREP: The Evolution of the Flemish Seascape (5000 BP present) TEsterep REconstructed for Policy making and Public engagement - Marc De Bie
  - · HOUSE. Innovating housing for older adults and subjective wellbeing Liesbeth De Donder, An-Sofie Smetcoren
- · A new SBO-call was organised in 2021 on bio-economics: 1 project with VUB as partner was approved:
  - · PROMIPOL: Novel microbial protein-based polymers produced from CO2 and CO derivatives Joost Brancart

The **Applied Biomedical Research programme (TBM)** wants to contribute to the long term implementation of new therapies, diagnostics and prevention methods for which there is not sufficient interest from industry. VUB TechTransfer intensively supports these project applications to increase the chances of success. 4 projects were approved in 2021, 2 with VUB as coordinator and 2 as partner:

- Towards PREcision MEdicine for Osteoarthritis: added value of cognitive behavioural therapy for insomnia (the PREMEO trial) Jo Nijs, Olivier Mairesse, Anneleen Malfliet, Liesbet De Baets
- OPERA: Objectifying performance assessments and personalized rehabilitation trajectories to improve return to work in failed back surgery patients - Maarten Moens, Ann De Smedt, Lieven Annemans, Lisa Goudman
- LATFIA-trial: Laser Assisted Treatment of Fistula In Ano Daniel Jacobs-Tulleneers-Thevissen, Marc Duinslaeger
- FEBRIS: Flemish joint Effort for Biomarker pRofiling in Inflammatory Systemic diseases Jutte Van Der Werff Ten Bosch

#### Flanders Innovation & Entrepreneurship (VLAIO)

VLAIO stimulates innovation in companies, which is important for economic growth in Flanders. Cooperation with the academic world is crucial for this. Much attention is paid to the needs of the companies.

#### Research and Development projects with industry (R&D)

In 2021, 6 VLAIO R&D projects were approved with VUB as research partner.

#### **Baekeland mandates**

With Baekeland mandates, aimed at a doctorate, VLAIO wants to support research that has an economic finality and offers added value for the company involved. In 2021, **1 Baekeland mandate was approved**:

AMUSE: A material-focused multi-physics simulation approach for ageing prediction of solid-state batteries - Maitane Berecibar

#### Innovation mandates

An Innovation mandate is specifically intended to allow postdoctoral researchers to carry out a project in close collaboration with the business world, either with an existing company or with a view to establish a new company. 3 Innovation mandates were requested, of **which 1 phase 1 mandate and 1 mandate with spin-off finality** were granted:

- Personalized digital signage communication in physical retail Kim Willems, Malaika Brengman
- PoweRing: A gearbox for the next generation robots Tom Verstraten, Dirk Lefeber

#### **Tetra projects**

TETRA is a programme for practice-oriented research. A special Tetra Health and Care call was launched in 2021. The VUB submitted 2 projects as a partner. The results for this call will be announced in early 2022.

#### **ICON - Cybersecurity**

The ICON call is aimed at translating innovative research results into implementable use cases for the industry. In 2021, 1 project for the call ICON-Cybersecurity was approved with VUB as a partner.

• APAX: Automated Posture Analysis that Scales - Coen De Roover

#### **Financing from Spearhead Clusters**

Spearhead Clusters facilitate a network of companies active in a specific domain, and develop an ambitious long-term strategy and competitiveness program for Flanders' strategic domains, in collaboration with knowledge centers and the government. The focus of the Flemish cluster policy lies on a limited number of large-scale and ambitious Spearhead Clusters: Catalisti (sustainable chemistry and synthetics), SIM (materials, circular economy), FLUX50 (green energy, mobility), VIL (logistics and transport), Flanders Food (agrofood), Blue Cluster (wind energy, aquaculture) and the most recent one MEDVIA, previously flanders.healthTech (healthcare innovation).

6 Cluster projects were approved for VUB in 2021:

- Flux50 OPTIMESH Svend Bram, Maarten Messagie, Ann Nowé, Francis Berghmans
- Flux50 BELLA Autonomous robotic and efficient vehicle charging systems for smart buildings and parking lots Omar Hegazy, Bram Vanderborght
- · Catalisti-Moonshot: Intensification of CO2 capture processes (CAPTIN-2) Joeri Denayer
- Catalisti-Moonshot: Artificial clathrates for safe storage, transport and delivery of hydrogen II (ARCLATH II) Joeri Denayer
- Catalisti-Moonshot: Integrated CO2 Capture and Hydrogen production (ICO2CH) Tom Van Assche
- SIM: LifeSBat Methodology for the prediction of performance and lifetime of all solid state battery composite cathodes Annick Hubin

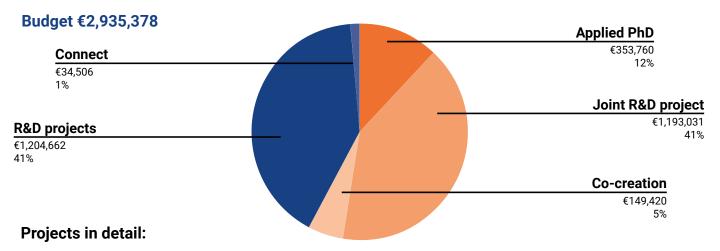
#### Strategic Research Centers (SOCs)

SOCs have been created as a result of excellent scientific research in broad domains such as nanoelectronics and digital technologies (imec), biotechnology (VIB), cleantech and sustainable development (VITO) and the manufacturing industry (Flanders Make). They build bridges between fundamental and applied research and are important for Flanders' economy. VUB participates in these Strategic Research Centers.

#### **BRUSSELS PROJECT FUNDING**

VUB TechTransfer supports researchers applying for funding for strategic research with valorisation perspectives from the Brussels-Capital Region. For 2021, 9 projects were approved through Innoviris for a budget of €2,935,378.

#### **Budget approved Innoviris projects in 2021**



#### **Applied PhD**

The Applied PhD-programme finances doctoral projects in applied research in collaboration with an industrial partner or governmental institute. One project with a STEM angle was accepted for funding by Innoviris. One Applied PhD was renewed.

- · Van sloop naar behoud. Een paradigmawijziging voor bouwen in Brussel Ine Wouters and Stephanie Van de Voorde (new)
- · Multi-source trend analytics for intelligent transportation system Adrian Munteanu and Tias Guns (renewal)

#### **Research Platforms**

The Research Platforms program is primarily focused on research projects conducted through interuniversity collaborations. A consortium is composed of at least two research units from universities and/or colleges of higher education mainly from the Brussels Capital Region and with relevant complementary competencies. And there must be interest in the proposal from the business community. This call was launched after the summer in 2021 with the theme "New approaches of testing". There was a huge interest, 6 projects were submitted of which 3 with VUB as coordinator. The results will be announced in 2022.

#### Joint R&D project

The goal of the Joint R&D project call is to encourage collaboration between academics and entrepreneurs in the Brussels-Capital Region. In 2020 a call was launched with the theme "The Industry of Tomorrow: Green, Human and Smart". In 2021, 3 projects were approved, which is an excellent result.

- Al43D: Al-based processing for 3D Adrian Munteanu
- RECONCILE: SmaRt stEel produCtiON sCheduling by Learning from Experts Tias Guns and Vincent Ginnis
- SWAMP: A Smart Water Management Platform for the Brussels-Capital Region Jens Nicolay and Wolfgang De Meuter

#### **Co-Creation**

Through the Co-Creation action, Innoviris supports research and development for urban resilience with various research institutions, associations, businesses and administrative authorities in Brussels. The objective is to experiment and search, together with the inhabitants of Brussels, for innovative solutions to meet the social challenges faced by the Region.

For the call, launched in 2020, the renewal of an existing project, with VUB as a new partner was approved. For the 2021 call, one project was accepted to actually submit a full proposal; this project will be defended before a jury in the course of 2022.

• ADZHIS: Aide à Domicile Zorg aan Huis Inclusi'(e)ve à Schaerbeek - Sarah Dury

#### **R&D** projects

With this action Innoviris finances industrial research projects. The results can be used to fine-tune a product, process or service. 3 projects were submitted in 2021 and approved.

- The ethical and inclusive AI insurance Ann Nowé and Vincent Ginnis
- Development of Solid State Cathodes for sulfide based Batteries Annick Hubin and Xinhua Zhu
- · Stamping-overmoulding of thermoplastic composites Danny Van Hemelrijck

#### **Connect**

For above projects financing can be applied for to cover the costs of writing a full proposal.

#### Innoviris' International projects set-up (IPSU)

This program provides funding for the preparation and development of an EU proposal. The support focuses on impact-driven programs such as H2020-Pillar II; H2020-Pillar III, JPIs and ERANETs and umbrella programs such as the Joint Technology Undertakings, INTERREG and EUREKA. The ERIS team of VUB TechTransfer supported ... IPSU applications of which ... were approved for a budget of € ... .



#### **FARI - AI for the Common Good Institute Brussels**

The Brussels government allocated a budget of approximately 9.9 million euros from the Relance funds (via Innoviris and CIRB) in 2021 to the FARI institute, an initiative of VUB and ULB research groups active in Artificial Intelligence.

This initiative will aim at helping citizens, politicians and companies as well as not-for-profit organizations to address local, every day or long-term challenges

in the Brussels-Capital Region, Belgium and Europe. It brings world-leading and future researchers to the service of the city. It reinforces a virtuous circle: the city encounters problems which FARI can help address with projects, which in their turn can lead to major scientific advances, especially in the field of AI (Explainable and Trustworthy), Data (Open) and Robotics (human-centric).

A first office at a central location in Brussels (BeCentral) has been realized and currently the institute is investigating how to grow further from there. TechTransfer is closely following up this project.

fari.brussels



lcity.brussels is a technology hub focused on research, development, innovation and valorisation. They help Brussels emerge as the ICT Heart of Europe. Funded by the ERDF and Innoviris and as a joint initiative of ULB, VUB and SIRRIS, icity.brussels has already launched R&D ICT projects in several key domains like education, e-Health, mobility, Internet of Things or 5G. Icity.brussels represents 25 research labs and can help companies focus on new innovation projects.

icity.brussels

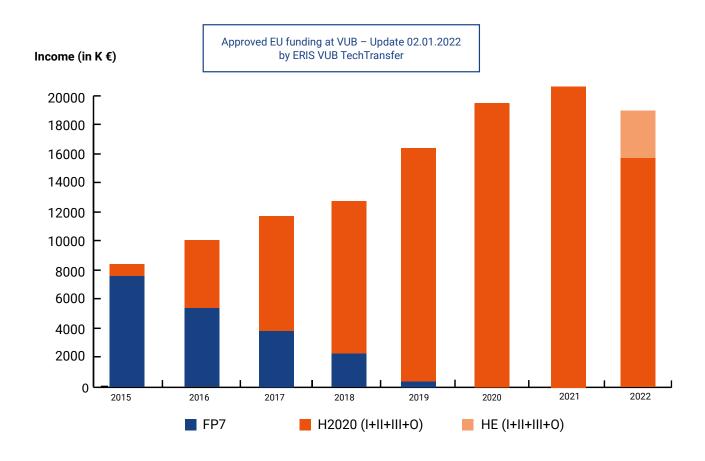


## EU FUNDING SUPPORT FOR PROJECTS WITH ECONOMIC AND SOCIAL PURPOSE

The European Research & Innovation Support or ERIS team of VUB TechTransfer focuses on European programmes and calls in strategic and applied research. The ERIS team stimulates researchers to apply for funding, and intensely supports them throughout the pre- and post-award trajectory. In view of the launch of the HORIZON EUROPE (HE) framework programme in May 2021, the ERIS team was thoroughly expanded. This allowed the establishment of priorities with a dedicated person for Science & Engineering, Social Sciences & Humanities and Life Sciences and a dedicated support in the back office.

HORIZON EUROPE was launched with 8 months delay and at the same time the first effects of the corona crisis also became visible with an impact on EU funding. Thanks to the i-ISO concept that has been implemented by ERIS since 2015 to intensively support VUB research teams in applying for EU funding, this evolution could largely be "turned around": the first successes in HORIZON EUROPE were noted in which VUB has already realized €12.9 million in funds, acquired in HE-Pillar II and HE-Pillar III. Consequently, in 2021, the VUB has acquired a positive overall result for the income in the field of European subsidies.

The **figure below** shows the growth in EU funding for strategic and applied research to VUB from 2015 until the beginning of 2022. The figure is constructed by including all budgets of approved projects, spread over their duration.



#### **SUCCESS CASES 2021**

Prof. Paul Quinn receives funding from the Green Deal call under Horizon2020 on studying and implementing drone technology for environment monitoring and climate change studies

Citizens and their communities, particularly those that are vulnerable to the impacts of climate change, can play an important role in achieving climate neutrality.

Scientists are developing social innovation tools to empower communities to adopt pro-environment actions and sustainable behaviours aligned with environmental policy. Inspired by the bee metaphor (worker and drone bees as main 'citizen science actors'), EUfunded SOCIO-BEE will study the facilitation of structures to increase citizen engagement and awareness of climate change through experimentation and monitoring of the environment.

VUB is partner | Law, Science, Technology and Society Research Group - LSTS | Studies in Media, Innovation and Technology - SMIT | Budget: €723,965



Prof. Bram Vanderborght and Prof. Guy Van Assche receive funding from the European Innovation Council (EIC) under Horizon Europe-Pillar III to bring their unique expertise in Self-Healing materials and Robotics closer to the market with an EIC-TRANSITION project

The **SHINTO** project aims to disrupt the soft robotics market by creating a new market for self-healing structural components, introducing autonomous damage detection and healing in intelligent soft robots. The current field is driven by a high adoption of soft grippers that ensure safe operation for collaborative robots in manufacturing and delicate manipulation in agrifood and warehousing. However, these expensive and mostly non-recyclable soft robots have limited lifetimes due to their vulnerability to damage. In symbiosis, VUB-research groups FYSC and Brubotics have been building soft robots out of self-healing materials that fully recover functional material properties and resulting performances after healing incurred damage. This extends the robots service lifetime and raises their reliability and sustainability, which in combination with their inherent recyclability contributes to economic benefits and the EU Green Deal.

VUB is coordinator | Human Robotics Research Center - BruBotics | Physical Chemistry and Polymer Science - FYSC | Budget: €2,488,500

Prof. Lieve Van Den Block receives a grant from the Health cluster under Horizon Europe-Pillar II to implement a unique support platform in end-of-life-care in Europe

Most people who have cancer are older people, affecting millions of Europeans each year. Providing high-quality, equitable, and cost-effective care across the continuum of supportive, palliative, end-of-life, and survivorship care for both patients and their frequently overburdened family caregivers is highly relevant

from an economic, a healthcare and a prevention perspective. The **EU NAVIGATE** project is an interdisciplinary, cross-country and intersectoral project aiming to evaluate the effectiveness and cost-effectiveness of a Navigation Intervention (NavCare-EU) for older people with cancer and their family caregivers in different health care systems in Europe. NavCare-EU is based on the existing and successfully tested NavCare intervention from Canada.

EU NAVIGATE will advance the state of the art by providing innovative solutions. User and stakeholder involvement methods are integrated throughout the whole project.

VUB is coordinator | End of Life Care Research Group | Budget: €1,082,937



## **EUTOPIA**

Since 2019, VUB TechTransfer has been involved in the ambitious **EUTOPIA project**, which is carried out by an alliance of 10 like-minded universities willing to reinvent themselves and shape the university of the future: Babeş-Bolyai University in Cluj-Napoca (Romenia), Vrije Universiteit Brussel (Belgium), CY Cergy Paris Université (France), de Ca'Foscari University in Venetië (Italy), de Technical Universität Dresden (Germany), the Göteborg University (Sweden), de University of Ljubljana (Slovenia), the NOVA-university in Lissabon (Portugal), the University Pompeu-Fabra in Barcelona (Spain) and the University of Warwick (United Kingdom).

In 2020, the **EUTOPIA-TRAIN (Transformation of Research And Innovation)** project was approved within the framework of the EU Research and Innovation Programme Horizon 2020. In the category Science with and for Society (Swafs), this project was awarded EUR 2 million in project funding.

With EUTOPIA-TRAIN, cross-border research and education will be embedded in the full EUTOPIA academic environment. The project has two objectives: to create pan-EUTOPIA research and innovation communities and to open them up to businesses, students, policy-makers and the wider community. It includes an Open Access metadata portal, a common HR strategy, and the creation of an EUTOPIA office for grants, innovation and legal affairs.

In **September 2021, a part-time valorisation project manager, Tuur Roels**, was appointed to coordinate the EUTOPIA-TRAIN project for the TechTranfer service. There is a close collaboration with other services at the VUB (R&D, M&O, Buda, Eutopia Core Group) and with the Innovation Services of the different Eutopia partners.

As part of these collaborations, The Eutopia TRAIN project produced its first results at the end of 2021: the creation of an international database with external partners of the different research groups within the EUTOPIA consortium, which runs until 2023. The goal of the database is to facilitate cross-border cooperation with external partners and is currently being developed by Warwick University. VUB TechTransfer is also involved in preparing the **new EUTOPIA 2.0 call**, specifically in **Knowledge Empowerment** work package. This includes Creating Knowledge, Sharing Knowledge (Open Science) and Implementing Knowledge (Supporting early career staff).

# REVENUE FROM VALORISATION AND CONTRACT RESEARCH WITH INDUSTRY

Through contract research and licensing of technologies with industry and other third parties (profit/non profit), the university can develop and maintain long-term cooperations and implement its knowledge in society. In some cases contract research is supported by governmental financing. As in 2020, **growth is again realized in 2021**, contrary to what was expected due to the COVID crisis, which forced companies to restructure and refocus on core business that unfortunately often does not include innovation and research. **The total funds from collaborations with the private sector amounted to approximately €14 million in 2021**. These funds can be reinvested in university research. Important to note is that not all revenue from VUB research in cooperation with spearhead clusters and strategic research centers is included in this amount.

## INTELLECTUAL PROPERTY (IP) MANAGEMENT & LICENSING

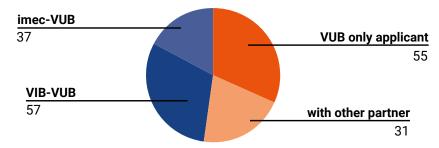
Licensing of research results facilitated by VUB TechTransfer, generates income for the university, creates structural collaborations with companies and gives tangible impact to VUB R&I. At the basis of this licensing lies a strong portfolio of intellectual property (patents and patent applications, software, confidential know-how, design rights, trademarks, etc.). In case of a VUB spin-off company a privileged relationship with a lab is beneficial to the growth of the company, in particular in its early development stages. VUB technologies available for licensing or for R&D partnerships are communicated through bilateral contacts with industry, networking and matchmaking events, the VUB TechTransfer website and weekly newsletter, conferences such as knowledge for growth, and other specific channels.

In 2021 the numbers were again impressive: 41 inventions were disclosed an 22 new patent applications were filed with VUB as (co-) applicant. The total VUB-portfolio included 180 active patent families, of which 55 are owned exclusively by VUB. 57 active families are co-owned with VIB, 37 with imec and the rest with other research institutes and companies, illustrating the substantial amount of R&D collaboration with third parties.

#### Reuters TOP 100 - VUB ranks 59 in Europe's Most Innovative Universities

Reuters Top 100 institutions all produce original research, create useful technology and stimulate the global economy. More than 600 universities were screened. In this ranking not only the number of patents is taken into account but also their 'value'. VUB Ranks 59 which is an excellent result considering the size of the university.

#### # Active patent families: 180



#### ENTREPRENEURSHIP EDUCATION

More than 25 years Starter Seminars by VUB TechTransfer



To raise more awareness of (technological) entrepreneurship among master and doctoral students, researchers and young professionals, VUB TechTransfer yearly organizes 2 evening courses. The **Starter Seminars** provide a short but intensive introduction to entrepreneurship and business. A variety of topics is covered such as developing a business plan, finance, marketing and the complex issues surrounding patenting. The **Advanced Starter Seminars** are a follow-up course where business aspects and starting up a company are treated more in-depth. Marc Goldchstein, Officer Entrepreneurship Education at VUB TechTransfer, is the main lecturer and content coordinator. Expert-speakers from the VUB or the business world are also involved. Entrepreneurs from VUB spinoffs testify on the startup phase and their experience at several seminars.

#### In 2021

- · Hybrid format: live, streaming and recording
- · Launch Event and info session October 22
- Advanced Seminars postponed to 2nd semester 2020-21 due to Corona measures
- Seminar 'Academic entrepreneurship in practice' with testimonials about start-up phase by VUB spin-offs PRECIRIX, Collibra and hbits Open to participants of both series and external parties
- 27 participants for Advanced and 37 for Starter Seminars
- LinkedIn VUB TechTransfer Entrepreneurship Community with recent posts on entrepreneurships issues and workshops:
   265 members end of 2021

## **UNIVERSITY SPIN-OFFS**

Through the creation of spin-off companies, the VUB can valorise research results socially and economically and realise a return to the VUB and its research groups.

VUB TechTransfer plays a crucial role in identifying, supporting and evaluating VUB spin-off projects. To maximise the survival of a start-up, a lot of attention is paid to other factors than the innovative technology, such as market strategy, value proposition and a complementary team.

In 2021, 2 spin-off companies were launched from the VUB: Abscint and Weave.ly bringing the number of active VUB spin-offs to 43.

#### New spin-offs in 2021:



## Molecular imaging to tackle oncological, cardiovascular and immunological diseases

ABSCINT is a clinical stage molecular imaging company that develops diagnostics based on single domain antibodies. Single domain antibodies are unique molecules that were originally discovered at VUB and have been the basis of a number of successful biotech companies. ABSCINT focuses on the development of radiolabeled single domain antibodies for whole body molecular imaging applications. Molecular imaging is used for the diagnosis of disease, for treatment selection, and monitoring treatment response based on specific molecular markers that can be visualised over the entire body by a short scan. The company has two clinical stage products: one in oncology and one in cardiovascular disease.

The spin-off is based on technology developed by the joint research efforts of the teams of **Prof. Dr. Tony Lahoutte and Prof. Dr. Jo Van Ginderachter at VUB and VIB** in Brussels. ABSCINT has set up its operations in Liège, Belgium and appointed **Karine Clauwaert as CEO** together with Tony Lahoutte as Medical Director. The management team holds strong industry experience and expertise in the production of single domain antibodies, radiopharmaceuticals, and clinical translation of radiolabelled molecules.

#### abscint.com



# Turn your designs into prototypes that are fully functional, deployable in the field and gather usability data for you ... without writing a single line of code!

The founders of weave.ly, **Jesse Zaman and Florian Myter**, both performed their Phd in computer science at the **VUB Software Languages Lab**. Jesse obtained his PhD with a thesis on visual flow based programming. He develops weave.ly's prototyping platform. Florian obtained his PhD with a thesis on data replication in distributed systems. He develops weave.ly's business.

The technology behind weave.ly originates from an Innovris Anticipate project. This project resulted in the creation of DISCOPAR, an accessible visual programming language which enables citizens to set up their own so-called "citizen observatories" to collect, process, analyze and evaluate specific types of data. During this project, the technology was deployed to gather data and map mobility parameters on pedestrians in the Brussels Capital Region.

FLAMENCO, the successor to DISCOPAR, was a platform developed during a project funded by Agentschap Innoveren & Ondernemen (predecessor of VLAIO) and that aimed to deliver an open cloud-based software platform, designed for citizens to create and participate in citizen science campaigns.

To confront major challenges of today, our society requires fundamental transitions in the way we deal with energy, buildings, mobility, environment and health. The FLAMENCO project was the first step to unlock the potential for collecting enormous volumes of highly localised, person-centric data, which can support policy makers to assess urban processes in a way that was hitherto impossible.

Despite earlier projects' focus on the domain of citizen science, the underlying technology can be generalised into a cloud-based software component toolbox to rapidly develop so-called **Minimum Viable Products (MVPs)**. The early phases of digital product development require a lot of agility to rapidly design, develop, deploy and test novel ideas and features. This need for agility contrasts with current software development methods which still rely on textual programming by expensive and hard-to-find developers. **Weave.ly alleviates this need for developers while developing and validating new digital products and enables non-technical users to build, deploy and validate MVPs by using its pre-defined software components.** 

#### weave.lv

#### **VUB SPIN-OFF HEADLINES IN THE PRESS 2021-22**

Confo Therapeutics doses first subjects in Phase 1 clinical trial

March 2022 - Source flanders.bio

Confo Therapeutics enters clinical stage with drug for neuropathic pain

November 2021 - Source Biovox

VUB spin-off Lavima develops new fertility treatment CAPA-IVM allowing a mild and low-burden fertility treatment March 2022 - Sources BRUZZ - HLN - EOS - RTBF - DHNET - Le Soir

Precirix raises €80M in Series
B to advance its pipeline of
precision radiopharmaceuticals

March 2022 - Source De Tijd

PharmaFluidics acquired by Thermo Fisher Scientific

**November 2021 - Source Thermo Fisher Scientific** 

'Koningskoppel van de Belgische biotech' dicht bij verkoop PharmaFluidics September 2021 - Source De Tijd

Get more out of your designs with new VUB spin-off weave.ly

February 2022 - Source VUB Today

Cancer diagnosis and therapy in one: Precirix tackles tumors with camelid antibodies

August 2021 - Source Biovox

New capital round values Collibra at \$5 billion

October 2021 - Source De Tijd

VUB spin-off Axiles Bionics wins the Innovative Starters Award 2021

February 2022 - Source Innoviris

eTheRNA announces research agreement with Merck to access mRNA technologies

February 2022 - Source De Tijd

Fertiga technology doubles the chance of pregnancy via IVF

May 2021 - Source De Tijd

Biotech company eTheRNA Immunotherapies expands collaboration with VUB to develop next generation mRNA-therapies for cancer and infectious diseases

June 2021 - Source De Tijd

24Sea to Provide Structural Health Monitoring Systems for Arcadis Ost 1

June 2021 - Source offshoreWIND.biz

VIB/VUB spin-off Biotalys, specialized in the biological control of plant fungi and insects, takes step to Brussels stock exchange June 2021 – Source De Tijd

Proteomics PharmaFluidics Launches Next Generation µPAC™ Technology for Routine Proteomics

April 2021 - Source Biovox



## **RESEARCH PARK & INCUBATORS**

companies committed to supporting research and collaboration with the VUB can find space, appropriate facilities or infrastructure in the research park or one of the incubation centers.

• The **Researchpark Zellik** is an area for high-tech or research-based companies near the Brussels Ring, not far from the university Health Campus and the UZ Brussel, and managed by the Flemish Government. VUB co-manages the researchpark and was involved from the beginning to monitor the research character of the companies that apply for establishment. In 2021, work continued on new collaborations with the companies on the park, as the purchase of the land by the companies is now possible and a research activity or collaboration is a prerequisite for this.

VUB TechTransfer supports the 'Green Energy Park' project located at the Researchpark Zellik, created in 2019 by UZ Brussel, several VUB research groups and Flux50. Green Energy Park is a large-scale living lab, expertise and training centre. Its mission is to collaborate today on tomorrow's solutions, while bridging the gap between research, innovation, realisation and exploitation. In November 2021 a first innovative testing ground Smart Village Lab was officially opened, to help accelerate the energy transition in Flanders and Europe.

www.researchparkzellik.be - www.greenenergypark.be

- The Researchpark Zellik also houses the Innovation & Incubation Center Brussels (IICB) that offers high quality services to starting and young enterprises to enter the market of high-tech products or services. In 2021 the IICB again knew a maximum occupancy rate. <a href="https://www.iicb.be">www.iicb.be</a>
- Situated near the Brussels Humanities, Sciences & Engineering Campus, **ICAB Business and Technology Incubator** offers an ideal work environment for innovative start-ups in the ICT and engineering sectors. <a href="www.icabrussel.be">www.icabrussel.be</a>
- Usquare.brussels Bringing people, city and knowledge together
   The Usquare project combines the ambitions of VUB, ULB and the Brussels-Capital Region to bring people, city and knowledge together in an innovative interuniversity cluster for sustainable development research, knowledge dissemination, entrepreneurship and innovation. Start.VUB, the incubator for entrepreneurial students of the VUB, and Fablab Brussels, VUB's fast prototyping for engineers and makers, are also located on the site. <a href="usquare.brussels-start.vub.be-www.fablab-brussels.be">usquare.brussels-brussels-brussels-brussels.be</a>
- The Vrije Universiteit Brussel (VUB) is building a bio-incubator on the Brussels Humanities, Sciences and Engineering campus, together with its partner Vlaams Instituut voor Biotechnologie (VIB): **Bio Incubator Brussels bv.** VIB supports VUB by not only providing starting capital, but also by sharing its experience and expertise in building incubators. An incubator manager, David Moreels, was recruited in October 2021 to manage this project. The red Willy Van der Meeren unit, centrally located on the campus will be converted for this purpose. The first phase of the renovation started in February 2022 and the bio-incubator will be completed by the end of 2023. It will provide intellectual, strategic, operational or logistic services, including facilities and infrastructure in the form of office and laboratory space in the immediate vicinity of research groups, to innovative companies and institutions, resulting from research at the VUB and/or VIB, preferably active in biotechnology.

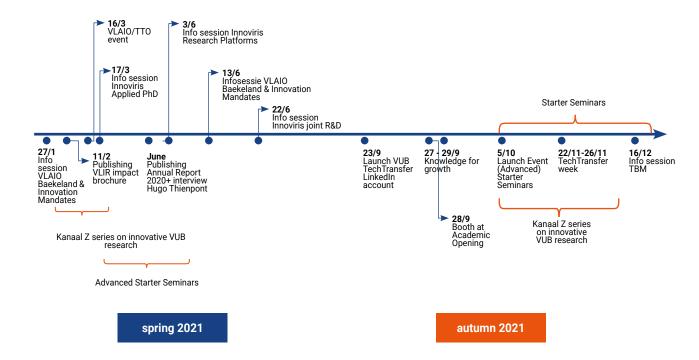


# TECHTRANSFER COMMUNICATION & EVENTS

'Together we connect Science and Society' was again VUB TechTransfer's mission in 2021. Innovation can only be done through interaction between research groups, companies, knowledge centers and other stakeholders. The TechTransfer Communication & Events cell informs the VUB research community of all support and other aspects concerning the valorisation of their research and promotes the university's knowledge and expertise with the outside world through its communication channels. We also take care of connecting parties through the organisation of (digital/hybrid) events. With the final purpose to create a positive impact on society.

In 2021 the Covid-19 crisis continued and we had to switch flexibly between digital, hybrid and live.

The following timeline shows the publications, events and other activities of the communication cell.



- 16.000 people visited our website and a total of 46.000 pages were viewed
- 48 newsletters (TechTransfer News) were sent to more than 4000 subscribers with an average open rate of 34% and a click rate of 3,2%. About 400
  people received our monthly external newsletter with an open rate of 38% and 8,9% click rate
- VUB TechTransfer reached 466 followers on Twitter, about 100 more than the year before
- Since the launch in September 2021 our LinkedIn page has 360 followers

VUBTECHTRANSFER.BE
TTOFLANDERS.BE

## VUB FOUNDATION

#### **VUB. EVERY DONATION RETURNS.**

The **VUB Foundation** is the philanthropic department of the VUB and raises funds from companies, organisations, institutions and individuals. It operates within the framework of the TechTransfer department of the Vicerectorate of Innovation & Industry Relations. The VUB Foundation coordinates all fundraising at the VUB under the supervision of the Innovation and Valorisation Board.

For each philanthropic donation, there is a societal return. This is the conviction whereon the policy of the VUB Foundation is based. The contributions support education, research, innovation or the heritage of the VUB. The knowledge and insights that arise from each contribution, eventually flows back into our society.

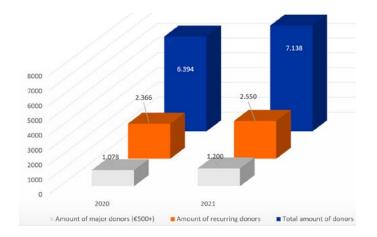
Chairs are an excellent means to financially support education, research, innovation and internationalization and to develop a long-term relationship with companies and other partners. In 2021 VUB counted 25 active chairs among which three newly created: the Luxembourg Chair for Translational Research in Human Motion, Sports Injury Prevention and Health with partner Luxembourg Institute of Research in Orthopedics, Sports Medicine and Science (LIROMS), the Chair in Digital Sovereignty in cooperation with Microsoft and finally the Chair for Digital Inclusion in collaboration with BNP Paribas Fortis.



The VUB Foundation launched several successful fundraising initiatives last year. Among those was the campaign for the research of prof. dr. Vandendriessche and prof. dr. Chuah on gene therapy as a treatment of Duchenne muscular dystrophy, where a total of €105.040 was raised. The campaigns for cancer

research were equally successful and could count on the financial support of alumni, staff members and VUB-sympathizers. On October 3rd Zoniëntrail was organized by the Zoniën Athletics Team, where €10.803 was raised for the pancreas cancer research of prof. dr. Rooman. Additionally, total sums of €109.343 and €63.353 were raised for the Paul De Knop Fund for immunotherapy and Yamina Krossa Fund for breast cancer research.

The end-of-year campaign of 2021 was dedicated to the Caroline Pauwels Relief Fund for students. The VUB could once again count on the generosity of its numerous alumni, Fellows, staff members, organizations and sympathizers. Together, their collective efforts raised a total of €141.925 in 2021, which brings the total amount raised since the Relief Fund's establishment in 2020 to €320.646. This amount will help the VUB to stand by its students who are facing urgent financial, material, social or psychological needs.



A **new online fundraising platform** was launched in the context of the campaign's strategy to

convert one-off donors into monthly donors and, additionally, to raise new donors. The total amount of donors at the VUB rised from 6.394 in 2020 to **7.138 in 2021**. Accordingly, the amount of

recurring donors (donors with more than 1 donation) has also risen from 2.366 in 2020 to **2.550 in 2021**. And finally, the total amount of major donors (donors with a donation amount of €500 and more) also rised from 1.078 in 2020 to **1.200 in 2021**.

Last but not least, the new Fund for End-of-Life Care Research was founded with the End-of-Life Care Research Group, led by professors Luc Deliens (VUB) and Freddy Mortier (UGent). A realization with the financial support of the UZ Gent and deMens.nu. With a first two-year project the Fund aims to finance the research of Stijn Vissers, who wishes to develop a scientific practice guide about euthanasia for attending

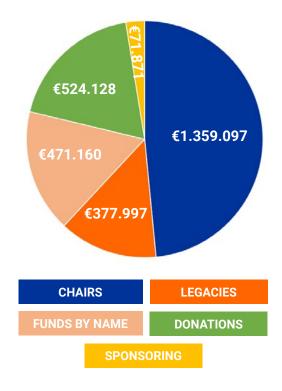
physicians. By doing so, he wants to improve the quality of end-of-life practices such as euthanasia. This scientifically grounded practice guide will be based on the needs of clients, their relatives and professional caregivers, including physicians.

The VUB now counts 9 Funds by name: Caroline Pauwels Relief Fund, Paul De Knop Fund, Yamina Krossa Fund, Fund for End-of-Life Care Research, Scientific Support Fund, Casman & Michielsens Fund, Andrée & Franz Bingen Fund, Luc Bucquoye Fund and finally the Fund for Natural Sciences in Society.

End 2021 the bequest portfolio of the Vrije Universiteit Brussel amounted to €11.970.725.

#### THE NUMBERS

In 2021 the VUB Foundation had a total income of €2.804.253, in-kind sponsorships not included.





WWW.VUBFOUNDATION.BE

## THE FELLOWSHIP PROGRAMME

#### **ACADEMIA MEETS SOCIETY**



The Vrije Universiteit Brussel currently has a network of **76 Fellows and 153 Honorary Fellows**. The VUB Fellows are a diverse network of top-level business people, visionary decision makers, academics, journalists and socially relevant personalities. They are dedicated experts and leaders in their field who commit selflessly to the university and UZ Brussel. Thanks to their commitment, VUB can continue to evolve as an open institution connected with society and the business community.

WWW.VUB.BE/FELLOWSHIP

## **VUB CROSSTALKS**

#### **OPEN AND CONSTRUCTIVE KNOWLEDGE EXCHANGE**

Crosstalks is a transdisciplinary and intersectoral platform for an **open and constructive exchange of knowledge** between academic and corporate researchers, philosophers, artists, designers, policy makers and citizens. Since 2003 Crosstalks has been an original player at the crossroads of science, arts and culture.

Both inside and outside the VUB, Crosstalks is a valued and much sought-after partner for collaborations around societal challenges. Due to its interdisciplinary approach, Crosstalks is a particularly suitable platform for VUB researchers to meet stakeholders around themes such as sustainability, social inequality and placemaking. In the coming years, Crosstalks will focus even more on the aftermath of these meetings, with the aim of stimulating inter- and transdisciplinary research projects.

#### **PROJECTS 2021**



#### **More-Than-Human Encounters**

- · hybrid series
- · in collaboration with Kaaitheater
- topic: living together in a multispecies world
- 9 events in 2021
- live activities at Kaaistudio's were mostly sold out (+- 100 participants/ activity) and online also an average of 100 people attended

#### **Shake the Disease**

- 1 online and 1 offline workshop for healthcare professionals
- series set up in close dialogue with Pfizer, GSK, Janssen Pharmaceuticals and AstraZeneca
- topic: the future of healthcare, with a focus on national health objectives
- an average of 25 participants/ workshop

#### **VUB Gender Week**

- $\cdot\,$  annual lecture organized on International Women's Day, online in 2021
- · in collaboration with VUB RHEA and Kaaitheater
- topic: Anita Allen (University of Pennsylvania) on the influence of gender and origin on (the lack of) privacy. Followed by a discussion with Gloria Gonzalez Fuster (VUB) and Sabrine Ingabire.
- · 191 participants online, mostly students

#### AflamNa

- 3 live activities were organized together with Brussels partners such as De Kriekelaar, Avansa Citizenne and Cinema Palace
- · in the frame of the Fatima Mernissi Chair
- topic: through films from the Maghreb and Middle East themes such as gender and power were discussed
- events were attended by a public of mostly (film)students and women



#### **Critical Thinking within Islam**

- · online lecture series
- · in collaboration with Moussem Nomadic Arts Centre
- · topic: the rich philosophical tradition in Islam
- · 5 lectures and accompanying texts by international speakers
- · videos on YouTube are in total viewed over 26,000 times

#### **HIGHLIGHTS 2021**



## The Female Gaze

With 'AflamNa' ('Our Films'), the Fatima Mernissi Chair and Crosstalks focused on women and film. During the first evening female filmmakers and programmers delved into their film archives. Using excerpts from films from North Africa and the Middle East, they discussed gender stereotyping, cultural taboos and their own experiences as directors or programmers.



#### The Fungi Paradigm A Series of More-Than-Human Encounters

In 2021 we continued our collaboration with Kaaitheater. This second Series of More-Than-Human Encounters invited us to reconsider the artificial distinction between the human and the non-human and the idea of humans as autonomous and self-determined beings.

More and more fungi enthusiasts and scientists are seeking to retell our western scientific story of the origins of life in a way that does justice to the crucial role fungi play in the life on our planet. Speakers Merlin Sheldrake, Eveline Peeters and Camille Barton uncovered recent and ancient scientific and philosophical scholarship on the roles, functions and wisdom of fungi.



## Critical Thinking within Islam Online series

Arabic philosophy has had a great influence on Western thought, but research at the VUB shows that this influence is still barely reflected in the contemporary European history of philosophy. Together with Moussem Nomadic Arts Centre, Crosstalks set up an online series which demonstrates that, contrary to popular perception, Islam has been nurtured and questioned throughout history by philosophers and dissidents, and that the culture of debate has been alive until today. International researchers offered access to this rich philosophical and intellectual tradition through online lectures and publications.

Date: 14.09.2021 @ Kaaistudio's

#### Speakers:

- Rachida El-Garani (filmmaker)
- Maryam Kamal Hedayat (filmmaker)
- Mahdieh Fahimi (film programmer)
- · Habiba Boumaâza (moderator)

Crosstalks aims to develop themes and projects through a bottom-up and long-term approach. During this series the foundations were laid for further collaborations with and on female filmmakers.

Date: 09.11.2021 @ Kaaistudio's

#### Speakers:

- Merlin Sheldrake (author of 'Entangled Life')
- Eveline Peeters (microbiologist at the VUB)
- Erika Sprey (Kaaitheater)
- Camille Barton (artist and embodiment researcher)

Crosstalks strives for an inclusive approach in all its projects. To be accessible to the hearing impaired and non-native English people, the recordings of all More-Than-Human Encounters are put online with transcriptions.

Date: the series was launched between January and June 2021

#### Speakers:

- · Hela Ouardi
- · Michiel Leezenberg
- Leïla Tauil
- · Silvia Naef
- · Ali Benmakhlouf

With the Casterman-Hamers Chair Crosstalks answers the need for a cross-disciplinary and university-wide education and research in the History and Philosophy of Sciences by means of lectures, workshops and residencies.

WWW.CROSSTALKS.NET

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This photograph was taken after reduction of preventive COVID-19 measures.

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