SISSA Future Perspectives on:

- Valorisation and Innovation
- Knowledge and Technology Transfer
- Industrial and Institutional Cooperation

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International Scientific Advisory Committee
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Our Vision & Mission at SISSA

• Our reference and “source of inspiration” is the Weizmann Institute of Science in Israel with a very strong and developed technology/knowledge transfer established mission

• Our goal is the ethical valorisation of our knowledge and the transfer of our excellence in science to society, to improve the citizens’ quality of life

• This mission wants to open more and more the School to the surrounding Region and Institutions but at the same time to look further and deeper

• SISSA is an International School, an Institute of Science for Advanced Studies, but strongly founded on Italian educational values, Italian culture and Italian tradition
State of the Art: Valorisation of Research and Innovation

• Technology Transfer Office (TTO) at SISSA started its activity in 2007 as a branch of General Affairs Office. Its tasks included support in the submission of patent requests and the exploitation and valorisation of patents and know-how, as well as spin offs.

• ANVUR* underlined and stressed the need of stronger “Third Mission” to be carried out for Italian Universities together with Education and Research. In 2016 SISSA Director appointed a Director’s Delegate for Research Valorization, Innovation, Knowledge and Technology Transfer, Industrial Cooperation.

*National Agency for the Evaluation of Universities and Research Institutes, operating under the Italian Ministry of Education, Universities and Research

• SISSA TTO Enhancement thanks to a funding granted by the Italian Ministry of Economic Development, since 2016 SISSA TTO has an additional technology transfer officer.

• Since 2016 SISSA has a new webpage on Technology and Knowledge Transfer for different users (researchers, companies, ...): http://www.sissa.it/technology-transfer
SISSA Director’s Delegate for Research Valorisation, Innovation, Knowledge and Technology Transfer, Industrial Cooperation
Prof. Gianluigi Rozza

TT Committee: Director, Deputy Director, Delegate Director TT, Research Area Representatives, Secretary-General, Head TT office

Technology and Knowledge Transfer Office
Erica Maran (Head)
Simonetta Vetter
René Buttò
Innovation and Valorisation for stronger regional impact: main joint activities

• UNITY TT FVG → The SISSA TTO has been performing activities together with the TTO of University of Trieste and of the University of Udine.

The three Universities located in the Italian Friuli Venezia Giulia region in 2015 agreed to collaborate to provide some unified services.

Their three TT Offices clustered in the UNITYTT FVG, still remaining part of their own Universities, but working jointly in terms of image and impact inside the University and outside towards Industry.
Innovation and Valorisation for stronger regional impact: main joint activities

**START CUP FVG** ➔ The business plan competition of Friuli Venezia Giulia. Since 2009 Start Cup FVG connected the three Universities of Friuli Venezia Giulia to draw the attention of the Industry on the scientific research carried out in the Region. The competition has taken place every two years, also in 2015 and 2017.

**RE-SEED PROJECT** ➔ SISSA together with the University of Udine and Friuli Innovazione “Parco Scientifico e Tecnologico Luigi Danieli” carried out the project “Re-Seed”, aimed at the creation of entrepreneurial activities and the transfer of academic research to the market.
Innovation and Valorisation for regional impact: joint infrastructures LAMA-FVG (2016)

• **LAMA FVG →** SISSA created with the Universities of Trieste and Udine in the realization and development of an Infrastructure for the Advanced Mechatronics Laboratory – LAMA FVG in Udine, to foster the collaboration with Industry and synergies. LAMA–FVG is centre of excellence for cutting-edge research in frontier technology sectors such as 3D printing of metal objects, advanced robotics and the digital transformation of production systems in the Alpe-Adria Region.
Innovation and Valorisation for regional impact: joint infrastructures and initiatives HPC-FVG

**HIGH PERFORMING COMPUTING LABORATORY** → SISSA (with ICTP) hosts since 2014 one of the largest HPC facilities in Italy, a cluster with more than 220 nodes and 4000 cores based on the newest technology. This allows scientists, MSMEs and Industries to gain direct joint experience and to explore characteristics and configurations of an HPC cluster.

SISSA major leading player in HPC in Italy
- MAX (MAterials at the eXascale) European Centre of Excellence, Quantum Espresso main developing centre, CECAM node
- Numerical simulations in molecular biophysics, astrophysics/cosmology
- MATHLAB: industrial applied mathematics by mathematical modelling and numerical simulation
- Life science: collaborations with AIRC and CRO (cancer research).

Expansion of Ulysses cluster thanks to a FVG regional grant: up to 300 nodes and 7000 cores
Research Projects in collaboration with Industries (MSME and big companies)

• 7 Agreements of Consultancy and Research Contracts signed in the last three years, for a total amount of more than 500.000 Euros

• 12 Projects of Collaborative Research with companies, for a total amount of more than 2.300.000 Euros for the School (Technology Clusters, regional development plans)

• European Projects FET and H2020 ITN ETN M-GATE with strong collaborations with industry
Higher Education Initiatives with Industry and Industrial Parks: looking at Europe and China

• European Industrial Doctorate (H2020 ITN EID): i.e. ROMSOC, coordinated by TU Berlin, SISSA is partner with Danieli Research Centre and Academy;
• Master in High Performance Computing (MHPC) with internships in companies;
• Initiative with Suzhou Industrial Park (SIP) in China supporting up to two PhD grants per year between SISSA and Suzhou Institute of Systems Medicine (ISM);
• Specific Agreements with leading Companies (i.e. IBM & Others)
Innovation and Valorisation: looking at Italy and at the World

• **NETVAL - Italian Network of Technology Transfer Offices of Universities and Public Research Organizations** ➔ Netval is the Italian association for the valorization of results from public research. SISSA is part of Netval since 2007. [http://www.netval.it](http://www.netval.it)

• **Agreement between Friuli Venezia Giulia (FVG) and Massachusetts Institute of Technology (MIT)** ➔ the purpose of the FVG-MIT-Italy Project is to facilitate scientific exchanges and collaboration between MIT and the University of Udine, the University of Trieste, and SISSA (coordination of the project) to foster innovation.

• **Competence Center SMACT (Social, Mobile, Analytics, Cloud and Internet of Things)** ➔ SISSA is directly involved in the implementation of the Plan launched by the Italian Government – Industry 4.0, collaborating with the other 8 North-Eastern Italian Universities (more).
SISSA is directly involved in the creation of the Competence Center SMACT, where SMACT stands for:

- Social network
- Mobile platforms & Apps
- Advanced Analytics and Big Data
- Cloud
- Internet of Things
SISSA “know-how map”: Competences for Technology Transfer

For the first time several applied research fields and technologies have been identified in terms of Technology/Know-how, classified according the main fields of potential application, the possible licensee or buyer with the goal of looking for possible interests in terms of valorisation opportunity and better exploitation.

This activity has been possible thanks to an ongoing activity of internal scouting; the identified technologies which are not confidential can be found at the new SISSA TTO webpage http://www.sissa.it/technology-transfer
Initiatives to valorise Talents and to create «soft skills» related with Innovation and Tech Transfer

• SISSA as Co-organizer of the Italian JOBfair of “Scuole Superiori” → a selected group of leading companies meet, once a year since 2016, students and former students of the six Italian advanced schools: Scuola Superiore Sant’Anna, Scuola Normale Superiore Pisa, Iuss Pavia, IMT Alti Studi Lucca, Gran Sasso Science Institute L’Aquila, Scuola Internazionale Superiore di Studi Avanzati Trieste.

• SISSA as Partner of the “Fiera Regionale del Lavoro” → realized in collaboration with the regional universities and companies.

• SISSA as co-organizer (with TheDoers) of MARS 42 → a Summer School for Scientific Changemakers that provides Master of Science students, PhD students and Post-Docs a deep dive into companies and startups in order to understand the work in science-based corporations, how to manage R&D for business and how to lead - or be part - of a startup project.
Initiatives to valorise Talents and to create «soft skills» related with Innovation and Tech Transfer

• Valorisation of SISSA students’ talent, competences and Know-how also with respect to private sector and Industrial needs;

FUTURE

• Creation of a «SISSA Alumni Network» ...looking at SISSA 40th anniversary;

• Specific collaboration with Confindustria VG for an innovative training project which will involve at the same time SMEs and PhD students.
Conclusions: looking forward and deeper

- We are providing a different way to transfer more “Knowledge” than “Technology”.

- For us “Science for Industry/Society” is possible and this is a new way to transfer knowledge for an institute of excellent science as SISSA in a Knowledge-based Society (Economy).

- We do not replace Institutes of Technology or Regional Universities: our way is different and we complete the cycle in the Knowledge and Technology Transfer, with a different perspective, without forgetting our mission as Institute of Science for Advanced Studies, characterized by consolidated excellence in Research and Education.

- “Contamination” from real world is an added value to create a stronger and more affirmed role for SISSA in the Society, after its already proven consolidation in the worldwide scientific community.
Thanks for Your Attention!

“...ma per seguir virtute e canoscenza”