



Elettra Sincrotrone Trieste

Program of the workshop

Day 2: Proprietary Users

Wednesday, January 31st

Trieste - Basovizza, Elettra Sincrotrone Trieste, Seminar room T1 building

Transfer to Elettra

8:00 Meeting in front of the Savoia hotel, 8:15 Bus departure, 8:45 Arrival at Elettra

9:00 Welcome by Alfonso Franciosi, President of Elettra Sincrotrone Trieste

(list of passengers)

9:10 – 11:00

Visit of Elettra and FERMI (TwinMic and XRD1 beamlines, FERMI linac and experimental hall)

11:30 – 12:30

Session 4 - Proprietary user access and engagement
The Elettra Industrial Liaison Office

11:00 – 11:20 Coffee break

12:30 – 14:00

Lunch break: Canteen reserved area

14:00 – 17:00

Session 4' - Proprietary user access and engagement
Team activities

16:00 – 16:20 Coffee break

17:00 – 17:20

Conclusions and farewell

17:30 Transfer to Trieste (Savoia hotel)

Proprietary user access and engagement:

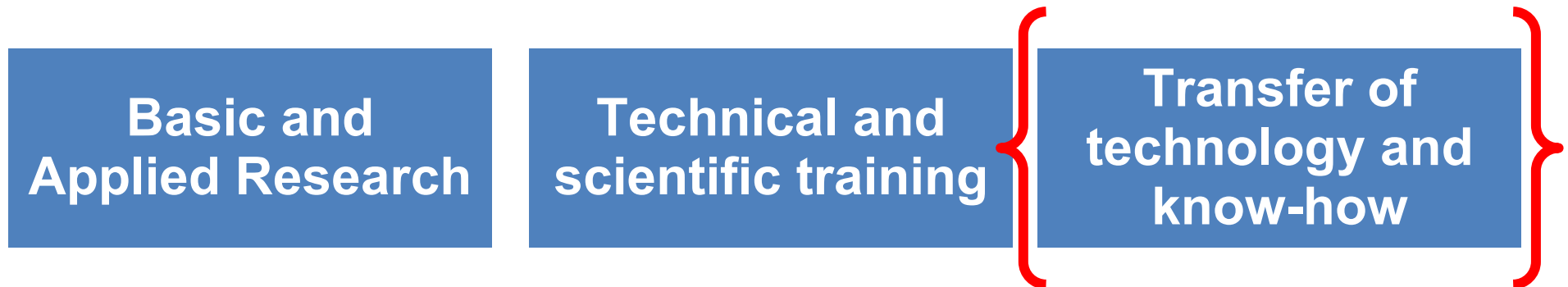
Part 1

Elettra Industrial Liaison Office

Marco Peloi – Head of Industrial Liaison Office

Cristina Modolo – Services for industry Program Manager

Elettra Sincrotrone Trieste is a multidisciplinary international centre of research, specialized in synchrotron and free-electron laser light for materials and life science.



No profit shareholder company recognized of national interest.

Shareholders: Area Science Park, Friuli Venezia Giulia Region, CNR, Invitalia.



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Sincrotrone
Trieste

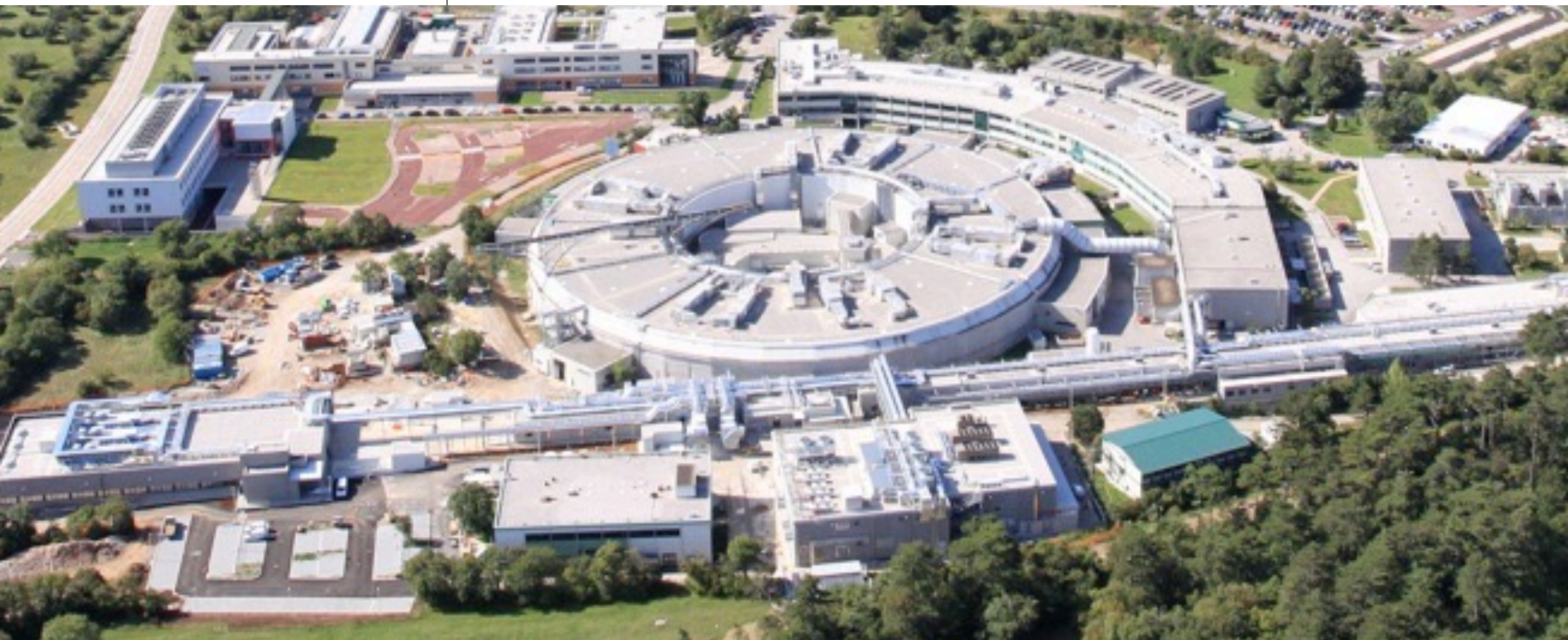
Elettra Sincrotrone Trieste



- 400 employees
- 34 beamlines
- 12 support lab
- 5000 hours /year
- more than 1000 scientists from more than 50 countries



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Sincrotrone
Trieste



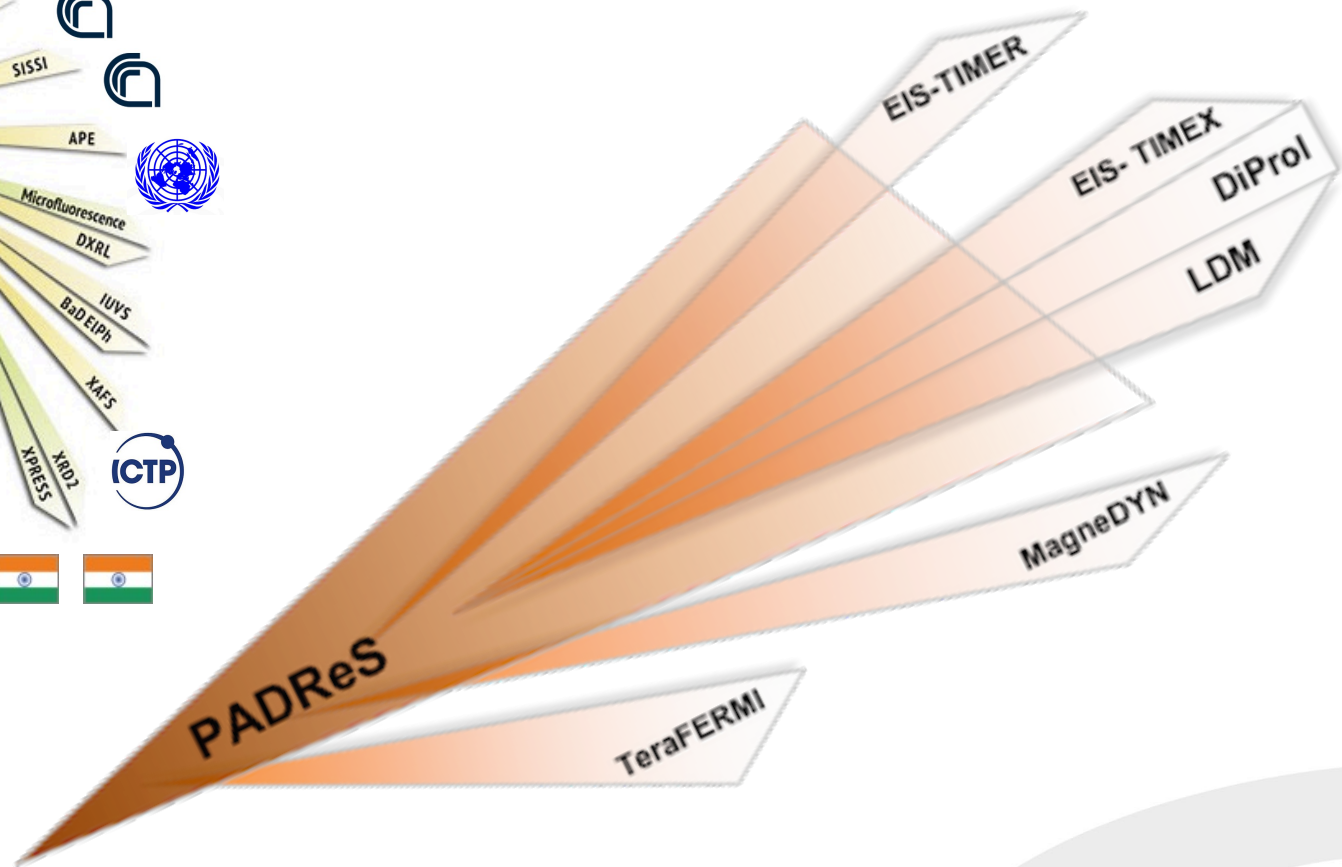
What do we offer?





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Trieste

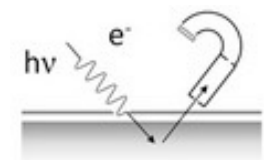
Access to Elettra / Fermi Light Sources and Beamlines





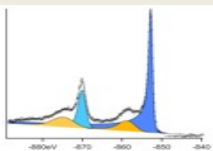
Elettra
Sincrotrone
Trieste

Analytical Techniques available @Elettra

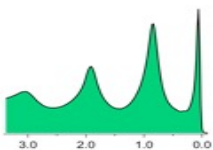


Photoelectron emission

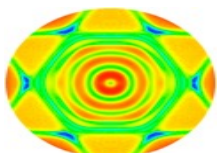
XPS



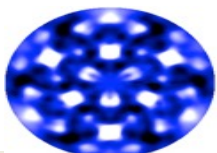
UPS



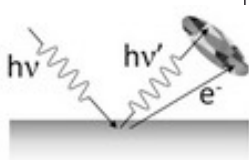
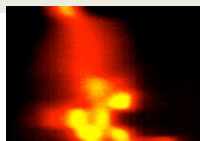
ARPES



XPD

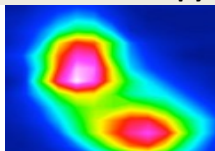


TR



Imaging

IR Microscopy



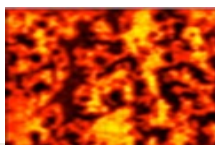
X-Ray Microscopy



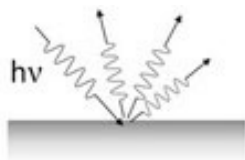
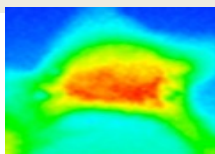
X-Ray Tomography



Photoelectr Microsc

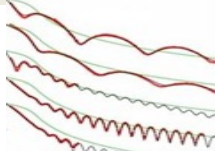


Fluorescent imaging

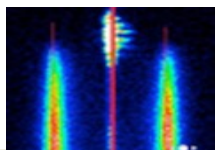


Scattering

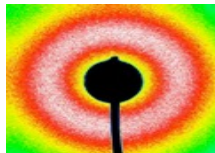
Elastic



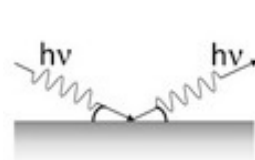
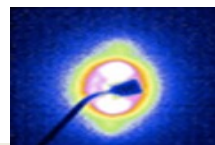
Inelastic



Magnetic

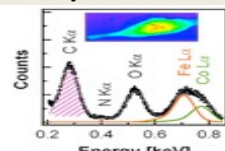


SAXS / WAXS

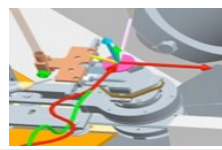


**Reflection/
Emission**

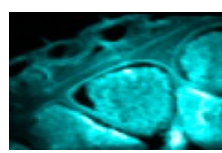
X ray fluorescence



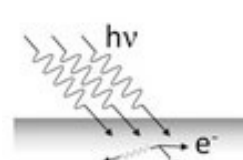
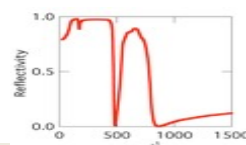
Reflectometry



Micro XRF

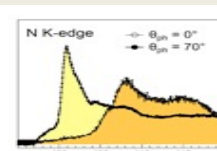


Reflectivity

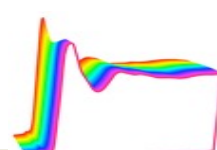


Absorption

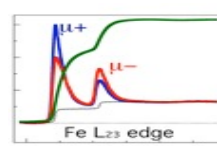
NEXAFS



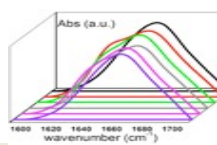
EXAFS



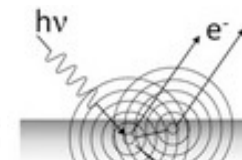
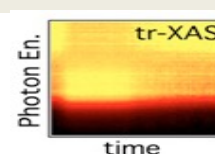
XIVCD



Infrared



Time Resolved

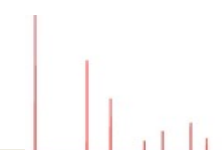


Diffraction

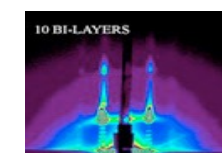
Crystallography



Powder Diffraction



Surface Diffraction



Time Resolved



Access to Research Laboratories

CITIUS



Il nuovo progetto Interreg per lo sviluppo di una sorgente all'avanguardia di impulsi ultracorti nella gamma spettrale UV e raggi X molli.

[Leggi...](#)

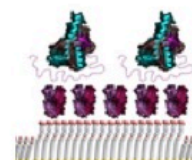
MicroNanoCarbonio



L'attività principale del Laboratorio Micro and Nano Carbon è la preparazione e lo studio di nanotubi di carbonio e di diversi altri materiali basati sul carbonio.

[Leggi...](#)

Nanostrutture



Il laboratorio conduce attività di ricerca utilizzando la microscopia a forza atomica per lo studio di bio-molecole e di monostrati auto-assemblati supportati da superfici.

[Leggi...](#)

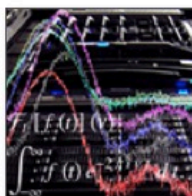
OptoElettronica Organica



Nel laboratorio si indagano le proprietà di semiconduttori organici, sia molecolari che polimerici, insieme alle loro applicazioni.

[Leggi...](#)

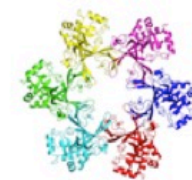
Calcolo Scientifico



Il gruppo di Calcolo Scientifico opera a supporto dell'attività di ricerca fornendo algoritmi avanzati, servizi ICT ed infrastrutture.

[Leggi...](#)

Biologia Strutturale



Studi strutturali e funzionali di proteine e di complessi di proteine coinvolte nei processi di replicazione e di riparazione del DNA, di autofagia e di stabilità del genoma.

[Leggi...](#)

Scienza delle Superfici



L'attività di ricerca del laboratorio è rivolta allo studio delle proprietà strutturali ed elettroniche e alla reattività chimica di una grande varietà di superfici dei solidi.

[Leggi...](#)

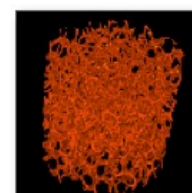
Theory@Elettra



Theory@Elettra è il gruppo teorico finanziato dal CNR-INFM DEMOCRITOS per supportare le attività sperimentali eseguite nel laboratorio.

[Leggi...](#)

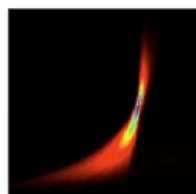
Tomolab



La stazione TomoLab ad Elettra offre un sistema di microtomografia computazionale basato su una sorgente microfocalizzata.

[Leggi...](#)

T-ReX



Il laboratorio T-Rex ospita una serie di strumenti dedicati allo studio dei processi ultra-veloci nella materia condensata e le loro applicazioni tecnologiche.

[Leggi...](#)

Officina e Laboratorio Chimico



Un'officina meccanica ed un laboratorio chimico a supporto delle linee di luce e degli utenti di Elettra.

[Leggi...](#)


Researchers and technical staff

Extremely specialized staff:

- Electronic Engineers
- Software Engineers
- Ultra High Vacuum specialists
- Mechanical Engineers
- Scientists specialized in: chemistry, biology, radiofrequency, X ray optics, material science, surface science, ...

Researchers, engineers and specialized technicians:

- Designed and built the Elettra storage ring more than 20 years ago and upgraded with a number of Beamlines in the experimental hall
- Supported users in the design and implementation of the experiments for more than 25 years
- Designed and built Fermi facility (2007-2010)
- Designed and built Fermi Upgrade (2015-2019)
- Designing and building Elettra 2.0 Upgrade (2017-2025)



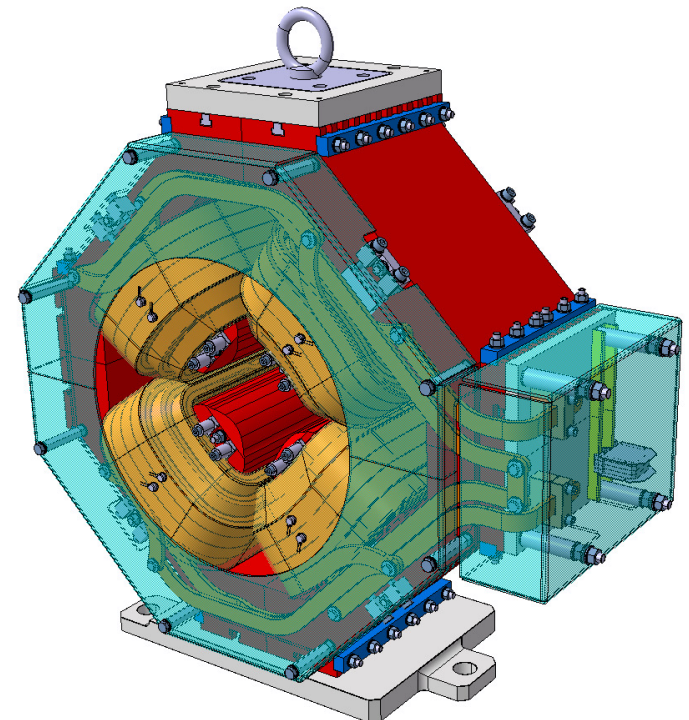
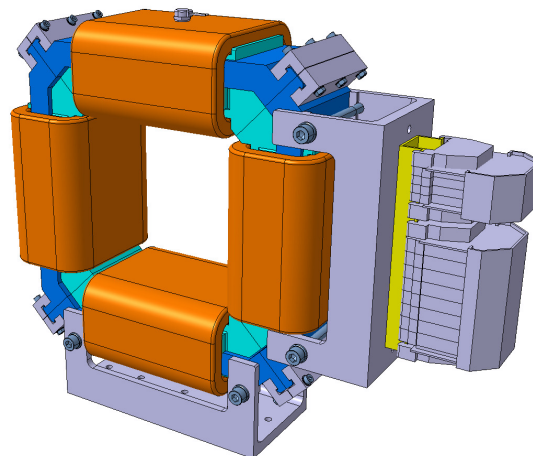
Competences, Know-how, Expertise that can be exploited in industrial activities

Researchers and technical staff

Extremely specialized staff:

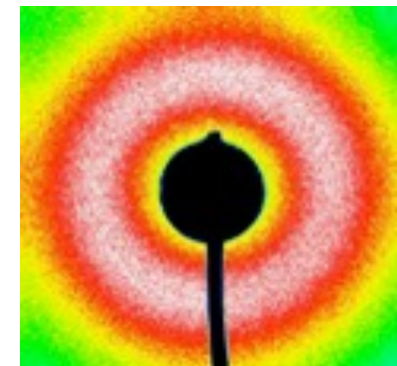
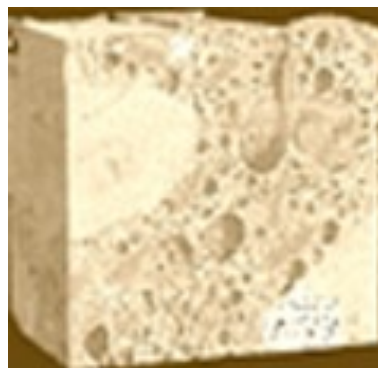
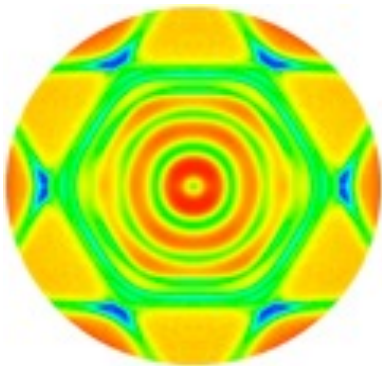
- Electronic Engineers
 - Software Engineers
 - Ultra High Vacuum specialists
 - Mechanical Engineers
-
- Scientists specialized in: chemistry, biology, radiofrequency, X ray optics, material science, surface science, ...

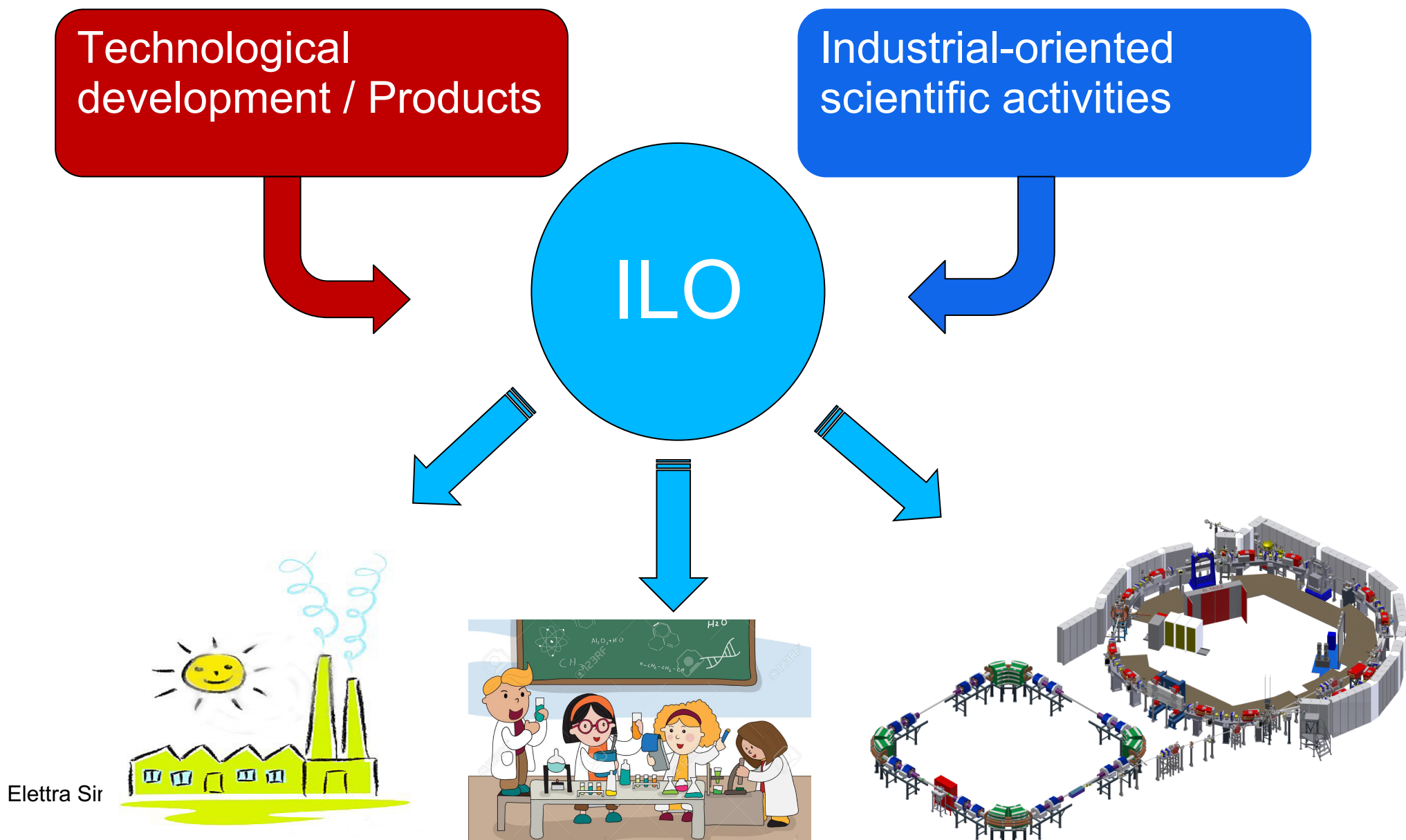
- Instrumentation development
- Detectors design
- Software development of new tools for research
- Fast electronics devices
- System integration



Industrial-oriented scientific activities

- Materials and devices for energy applications:
 - Photovoltaics, Energy storage, Fuel Cells, Hydrogen production
- Atomic and plasma physics radiation effects
- Catalysis and Sensors
- Characterization of Materials
 - chemical, morphological, structural, ...
- Life Science
- Lithography





- Single Entry point for industrial application
- Manage industrial relations, commercial activities and IPR of Elettra Sincrotrone Trieste
- Main objective: Maximize the exploitation of know how for industrial application
- Team of 6 people with scientific and business background
- Active since 2004



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Trieste

Current Industrial Liaison Office Team



Marco Peloi

Head of the Industrial Liaison Office

marco.peloi@elettra.eu

Head of Industrial Liaison Office
20 Years of experience in Industrial and Technology Transfer activities, Program Management, 20 years of research experience in Material Science and Nanotechnologies.
Expert on European Projects (Design and Management, Accounting) Marketing and Sales
Degree in Physics and PhD in Material Science
Fluent in English, Basic French, Italian mother tongue



Mojca Franceskin

Instrument sales

mojca.franceskin@elettra.eu

15 years practice in global marketing and sales management. Hands-on experience in addressing the particle accelerator market - the most advanced large-scale research infrastructures in the world
Lecturer for marketing, sales, rhetoric and negotiations.
Degree in international relations and diplomacy at the University of Trieste,
Fluent in Italian, English and German, Slovenian mother tongue.



Cristina Modolo

Activities and services for industry

cristina.modolo@elettra.eu

13 years of experience in Technology Transfer activities, Intellectual Property Management, 20 years experience in Project Management, Sales Excellence Programs, Process Improvement Program
MBA at the University of Kansas, Degree in International Economics and Finance
Certified Trainer in Problem Solving, Decision Making and Project Management, Six Sigma Black Belt, Fluent English, Basic Spanish and German, Italian mother tongue



Caterina Tabacco

Administrative activities

caterina.tabacco@elettra.eu

35 years of experience in the several departments (HR; Purchasing, Communication) particularly focused in the administrative field . Currently managing managing the accounting of our customers' orders.
Italian mother tongue.

HOWTO ?

A Revolution in internal rules, practices, and attitudes towards business partners

- **Elettra IS ISO Certified**
“Quality Management System” that is conform to the international Standard UNI EN ISO 9001:2008
- **Purchase Procedures in “real time”**
Special purchase procedures
- **From “Experiment” to “Measurement”**
Professional and Reliable
- **Respect Timing !!**
For Businesses Time = money;
- **Confidentiality is a must!**



Business Development

Research and Development Projects with the use of synchrotron and FEL

- ✓ Collaboration of industry for
 - Process improvement
 - Product Development
- ✓ Consultancy:
 - Use of Analytical Tools in products inspections
 - Training on Control Systems
 - Instrumentation Design, Free Electron Laser Applications

Sales and Development of Instrumentation for accelerators and free electron lasers.

- ✓ Sales of Products to research facilities
- ✓ Design and Development of part of facilities under construction
- ✓ Co-development of instrumentation
- ✓ Spin off creation and licensing

Technology Exploitation, Transfer of Knowledge and Expertise

Final Objective: Know - How Exploitation

Products and Services offering (direct exploitation)

- Direct involvement of researchers, engineers and technical staff in providing services and custom products to external companies /research laboratories

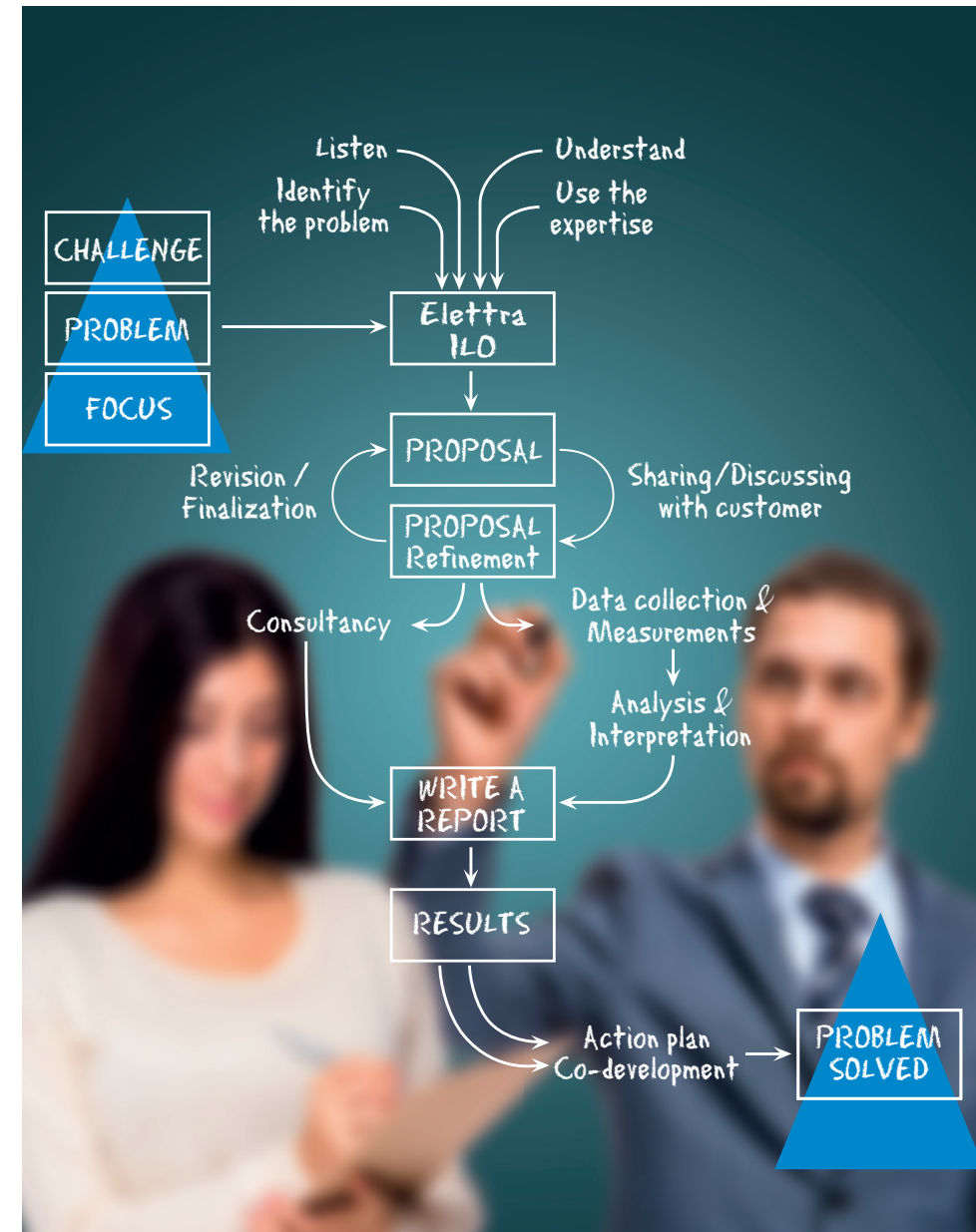
Patenting and Licensing (know-how transfer)

- High-end solutions are patented and licensed to external companies

Spin-off creation (exploitation of the know-how)

- Know-how and patents are used for setting up commercial activities providing technological solutions to research infrastructures and Laboratories worldwide

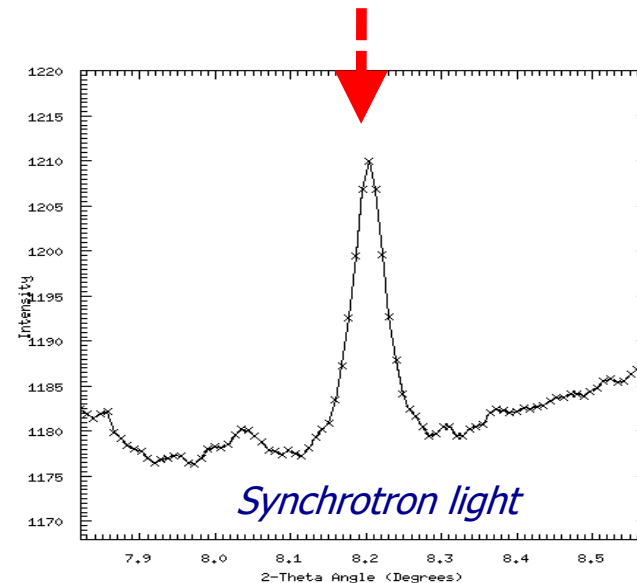
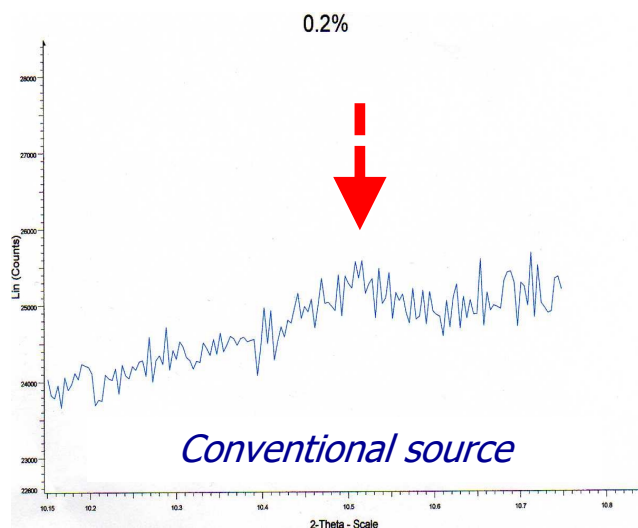
- Searching for the best solutions based on time, cost and performance (Businesses look for solutions, not for science)
- Feasibility study, to start cooperation
- Quotations based on time, cost and performance
- Activities structured as a Project
- Results based on ON/OFF or YES/NO answers



- ✓ Analytical measurements for
 - Process improvement
 - Product Development
- ✓ Co-developments
 - Instrumentation
 - Industrial production protocols and procedures
- ✓ Consultancy:
 - Use of Analytical Tools in products inspections
 - Training on Industrial usage of analytical techniques

A chemical company has a problem in product formulation

- Activity plan:
Analysis of the quality of the product using a technique with greater sensitivity (Synchrotron light – X ray Diffraction)
- Results:
New measuring method with synchrotron light to detect the presence of impurities in the ppm range, patent pending
CGmp Certification of the analysis at Elettra



Quality Control #1

Technique: IR Spectroscopy

- ✓ Analysis of the production process of a textile company
- ✓ Proposal of intervention:
 - Study of the colour and thermofixing process of textile to reduce the energy consumption
 - Analysis of the quality of the incoming textile with infrared techniques to reduce production scraps
- ✓ Research project:
 - Provided technical expertise, the instrumentation, experienced researchers
 - The company involved a graduate employee for the research activity
- ✓ Results:
 - Research results are transferred in the production line
 - The company has an experienced employee that manages the quality control activity

Quality Control #2

Technique: Micro Tomography

- ✓ Tomographic analysis of products to reveal defects
- ✓ Proposal for action:
 - Study of the possible applications of tomography for the of
 - Optimization of the measurement parameters
 - Design of a tomographic device for in-line measurements
- ✓ Results:
 - We designing a tomograph with ad hoc features and we tested critical components
 - The tomograph is now under construction at a manufacturer company.

Products and Services offering (direct exploitation)

- Direct involvement of researchers, engineers and technical staff in providing services and custom products to external companies /research laboratories

Patenting and Licensing (know-how transfer)

- High-end solutions are patented and licensed to external companies

Spin-off creation (exploitation of the know-how)

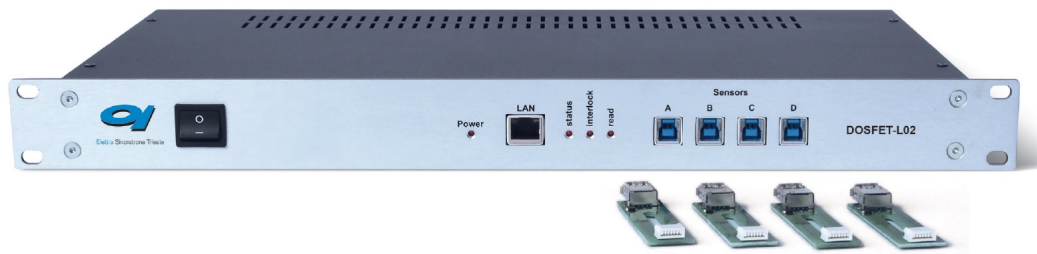
- Know-how and patents are used for setting up commercial activities providing technological solutions to research infrastructures and Laboratories worldwide



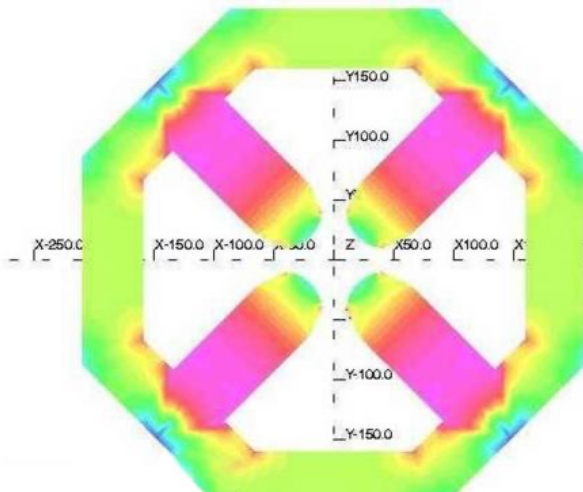
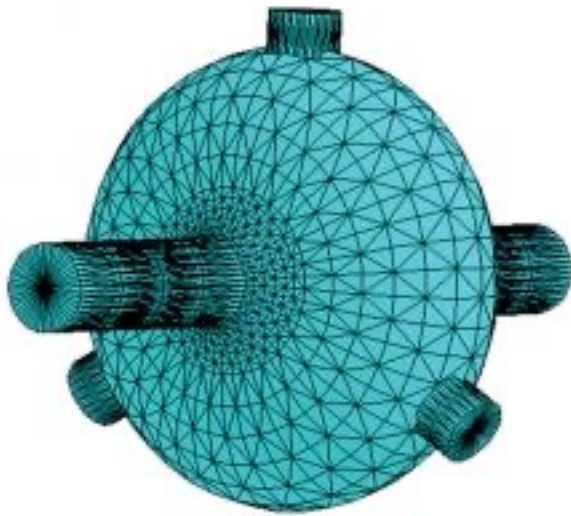
Picoammeters: PSI (CH); Australian Synchrotron, ESRF (FR)
Dectris, ANL (USA), Campinas (BR), Bruker (DE),
EMBL (DE)

Power Supplies: Kyma (I), Soleil (FR), Canadian Light Source,
Diamond (UK), ANL (USA), INFN (I), SESO (FR)

Other instrum. Diamond (UK), ANKA, Changun Insitute of Optics (CN),
Toyota (JP), Campinas (BR), INFN (I)

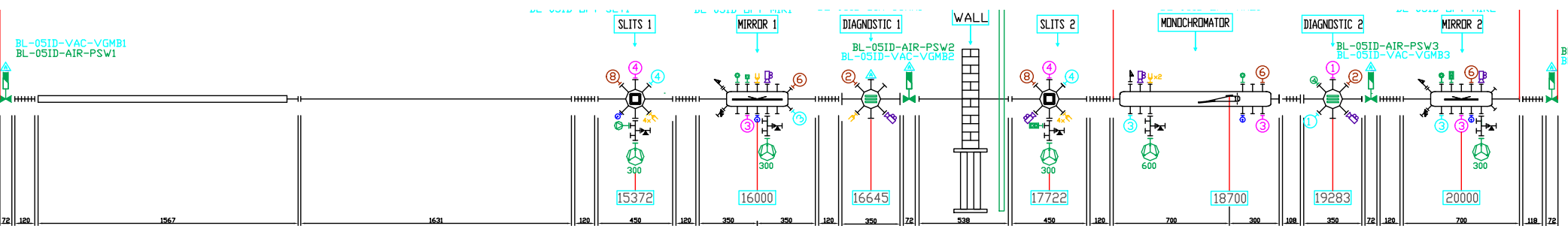


- Design and Study of RF and Microwave structures
- Elettra Type RF Cavities
- Design and Study of 3D Magnetic Structures
- Bunch Length Magnetic Compressor
- Beamlines



Starting from user oriented specifications, conceptual design is provided and discussed with the customer.

All components are designed and realized: from Undulator to Experimental chamber

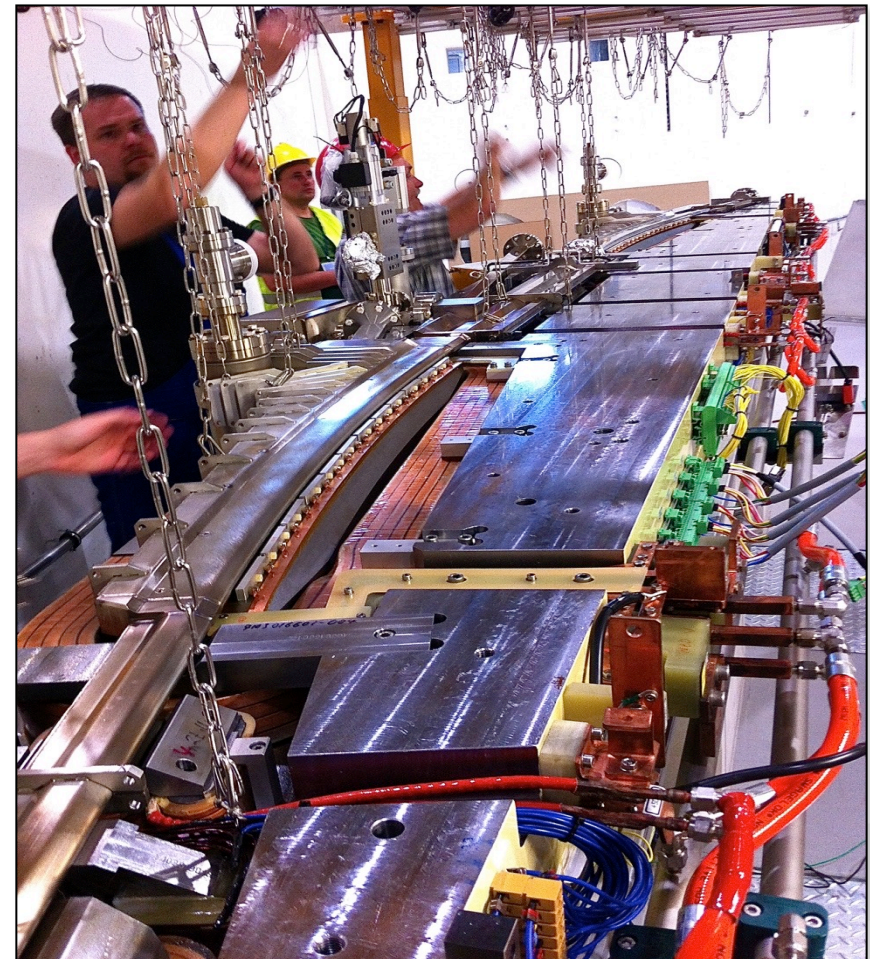


- Design of Soft X-ray Spectroscopy beamline (Solaris, 2013)
- Design and construction of UARPES beamline (Solaris, 2014-2015)
- Design and construction of MATERIA imaging beamline (UniCal, 2015)

SOLARIS: a 1.5 GeV synchrotron in Krakow (PL)

Provide expertise in

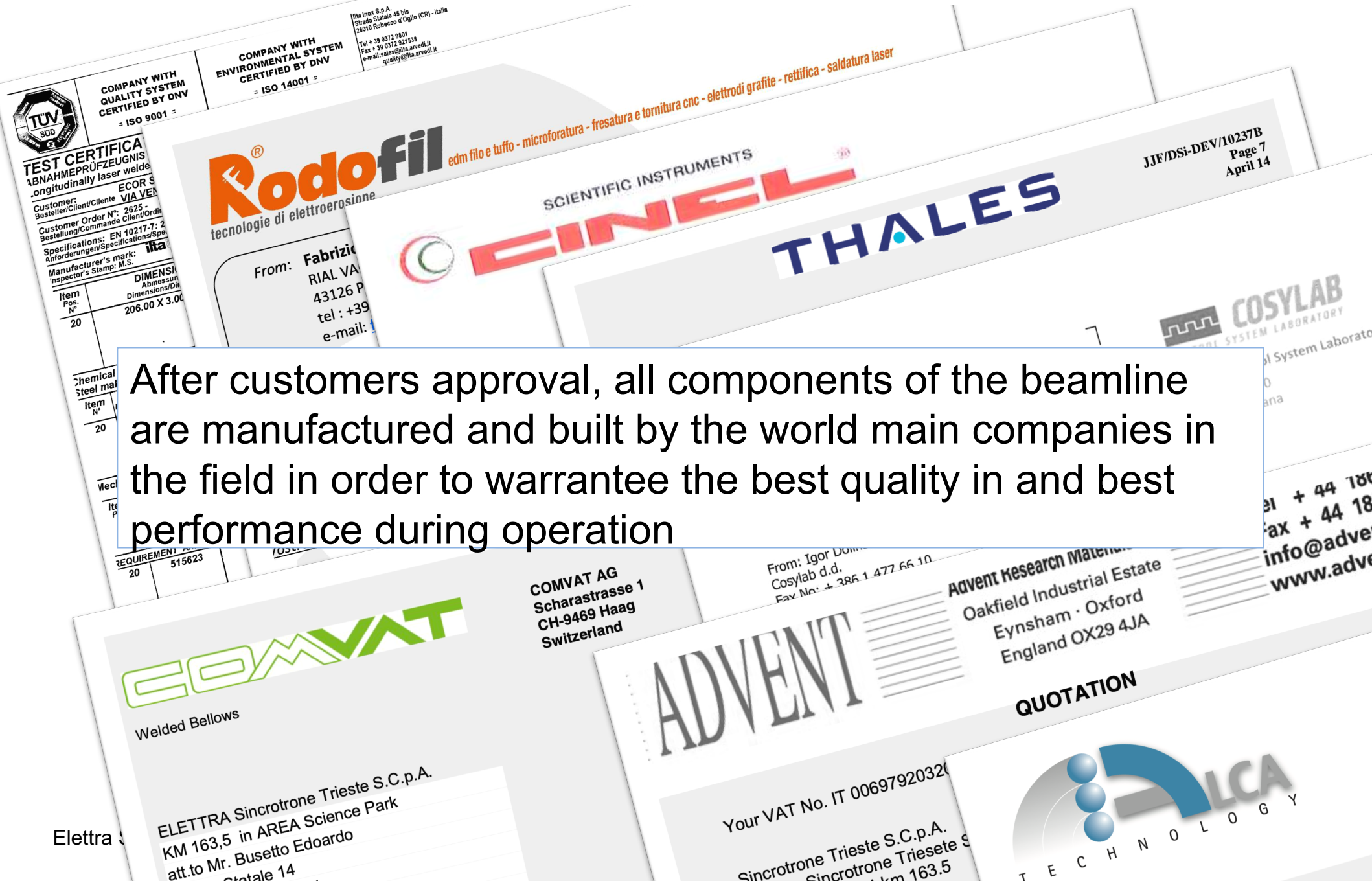
- ✓ Design
- ✓ Building (manage suppliers)
- ✓ Installation
- ✓ Test and commissioning
- ✓ Deliverables as written reports
- ✓ Manuals Available





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Manufacturing companies selection



After customers approval, all components of the beamline are manufactured and built by the world main companies in the field in order to warrantee the best quality in and best performance during operation



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Overall.....

- *Learn to document the work and the results*
- *Improve Time, Costs, Performance attitude*
- *Increase Cultural Awareness*
- *Maximize Teamwork*
- *Exploit all the skills we have!*

A success for all the facility!

Products and Services offering (direct exploitation)

- Direct involvement of researchers, engineers and technical staff in providing services and custom products to external companies /research laboratories

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- Direct involvement of researchers, engineers and technical staff in providing services and custom products to external companies /research laboratories

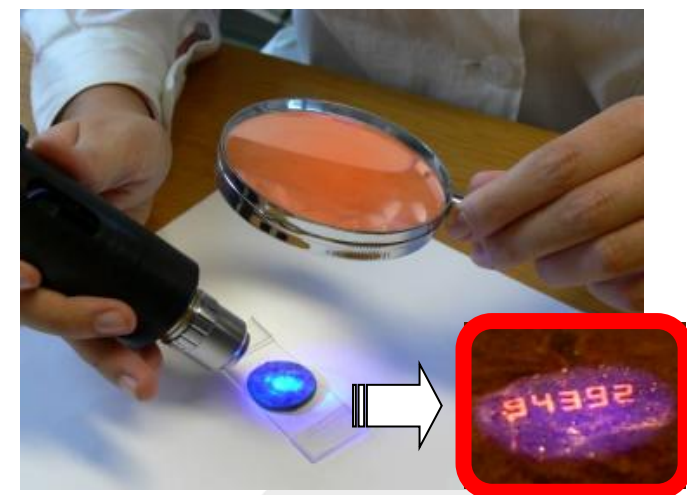
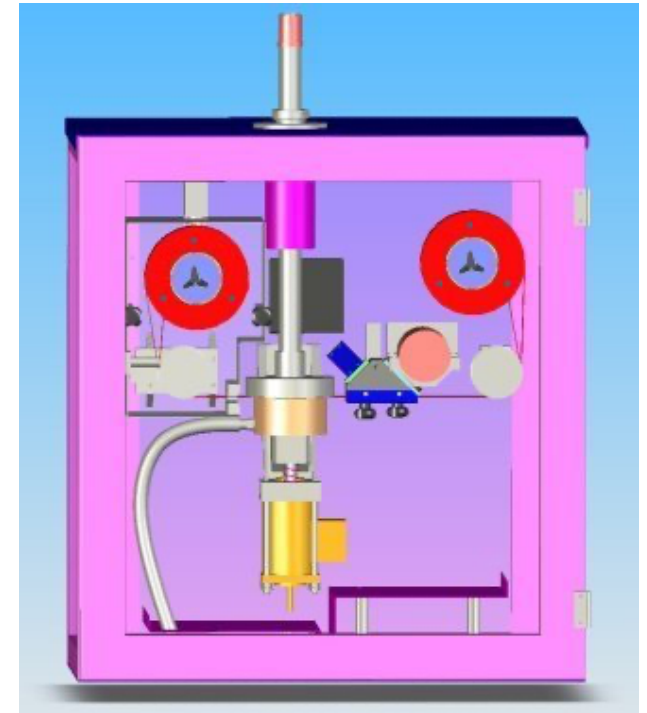
Patenting and Licensing (know-how transfer)

- High-end solutions are patented and licensed to external companies

Spin-off creation (exploitation of the know-how)

- Know-how and patents are used for setting up commercial activities providing technological solutions to research infrastructures and Laboratories worldwide

- 2007 – Undulators
 - Kyma srl
- 2009 – Power supplies / Pico-amperometers
 - CAENels srl
- 2010 – PM10 Monitor Station
 - Too expensive for conventional market
- 2012/14 – Anti - counterfeiting Technology
 - Looking for an industrial partner
- 2016 – Organic Detectors technology
 - Under development...



Peculiar Approach ...

- ✓ Kyma Srl was established by Elettra Sincrotrone Trieste through an open European tender issued by end 2006
 - Potential partners were required to set up a new company, together with Elettra.
 - Elettra had to hold 51 % of the shares of the NewCo
 - The capital of the NewCo was fixed at 600,000 €
 - Industrial partners were requested to invest 294,000 € as initial capital
 - Elettra had to contribute for 306,000 € transferring to the NewCo its know-how on undulators



- More than 40 Undulators and 60 Phase Shifters already supplied in worldwide Synchrotrons/FEL
- New Products
 - (permanent magnets, fixed size Undulators...
- New Partnerships (MAYI, Cornell University, ...)



FERMI@Elettra

- Linear accelerator – FEL (400 meters length)
- about 400 magnets of **5 A** up to **750**
- 24 hours/day – 365 days/year
- Reliability and Efficiency

Internal Development

- Electronics Engineering Team





Proprietary user access and engagement:

Part 2

Marco Peloi – Head of Industrial Liaison Office

Cristina Modolo – Services for industry Program Manager

Academic research vs Industrial research

- Funded by government or non-profit organizations
 - Focus on societal benefit
 - Open access to findings and data
 - Long-term projects with no immediate practical results
 - Often subject to peer review
 - Typical results are scientific discoveries and **inventions**
- Funded by private companies
 - Focus on profitability
 - Proprietary findings and data
 - Emphasis on commercialization and intellectual property protection
 - Short-term **innovation** projects with immediate commercial goals

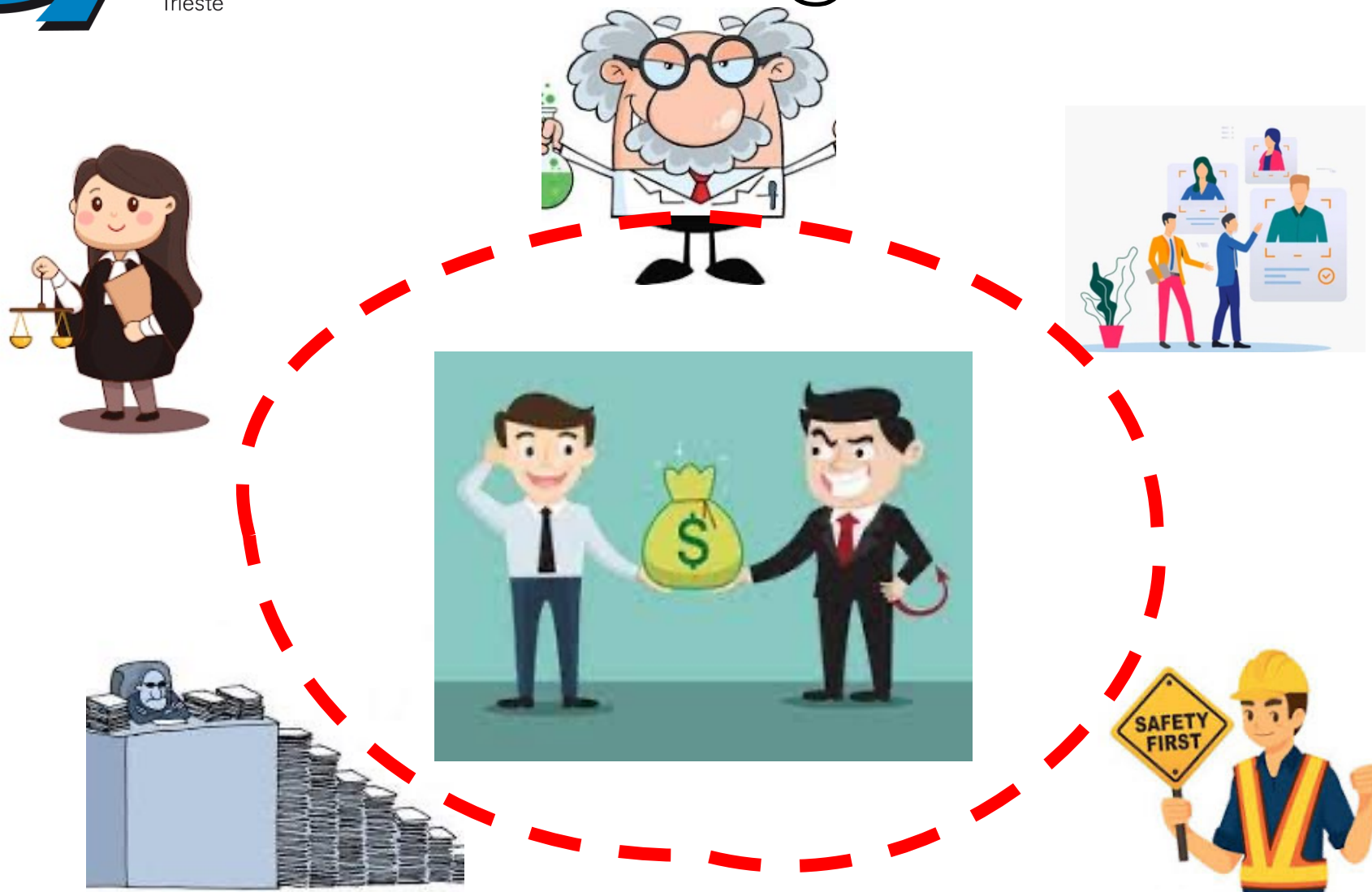
Academic research vs Private research – management at Elettra

Academic Research

- ✓ Access via Peer Review
- ✓ 70% of machine time
- ✓ Scientists who want to use the facility
- ✓ Scheduled quarterly
- ✓ Proposals evaluated by a panel of senior scientists
- ✓ Publication of research results
- ✓ Financed through national and international agreements/funds

Private Research

- ✓ Direct access via Industrial Liaison Office
- ✓ 30% of machine time
- ✓ Companies or Labs want to use the structure/have a consultancy
- ✓ Scheduling flexibility
- ✓ The objective is the development of proprietary know-how
- ✓ Fee Based Activity



Processes/Procedure are defined at a high level

TEAM ACTIVITIES

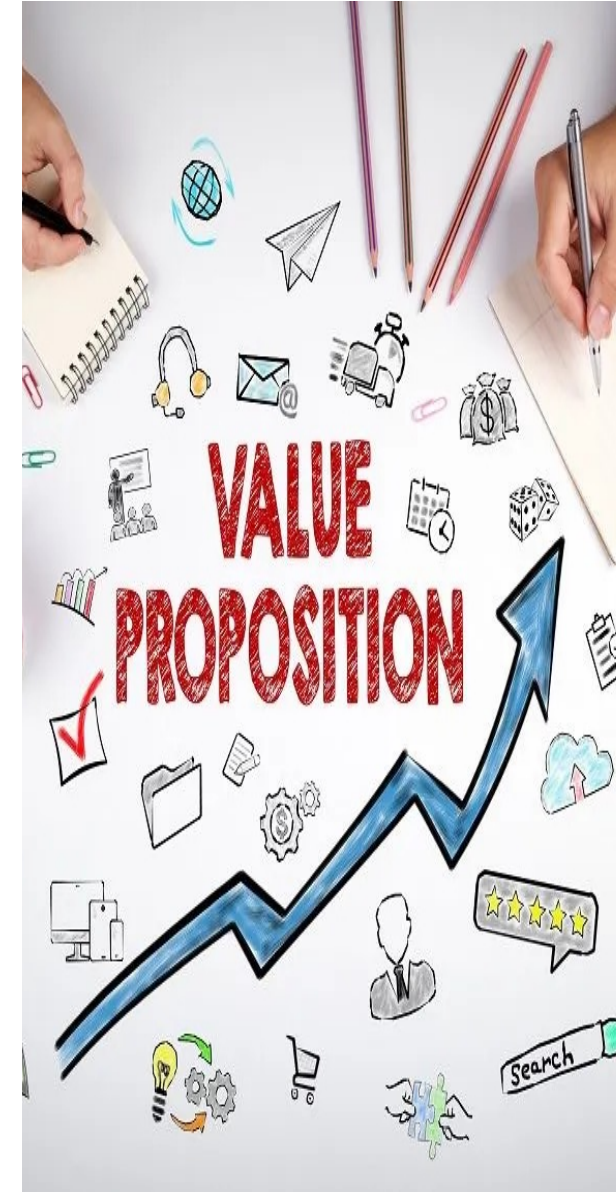
- Searching for the best solutions based on time, cost and performance (Businesses look for solutions, not for science)
- Feasibility study, to start cooperation
- Quotations based on time, cost and performance
- Activities structured as a Project
- Results based on ON/OFF or YES/NO answers



What is a Value Proposition

A value proposition is a statement that explains how your product or service solves customer problems or addresses customer needs and what makes it unique and better than the alternatives in the market.

This applies to any product or service that is industrial, commercial or scientific.



Value Proposition: apple as an “apple”

Apples are a nutrient-dense fruit rich in fiber, antioxidants, and vitamins that can support digestive, heart, immune, and brain health, aid in weight management, and help regulate blood sugar levels.





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Trieste

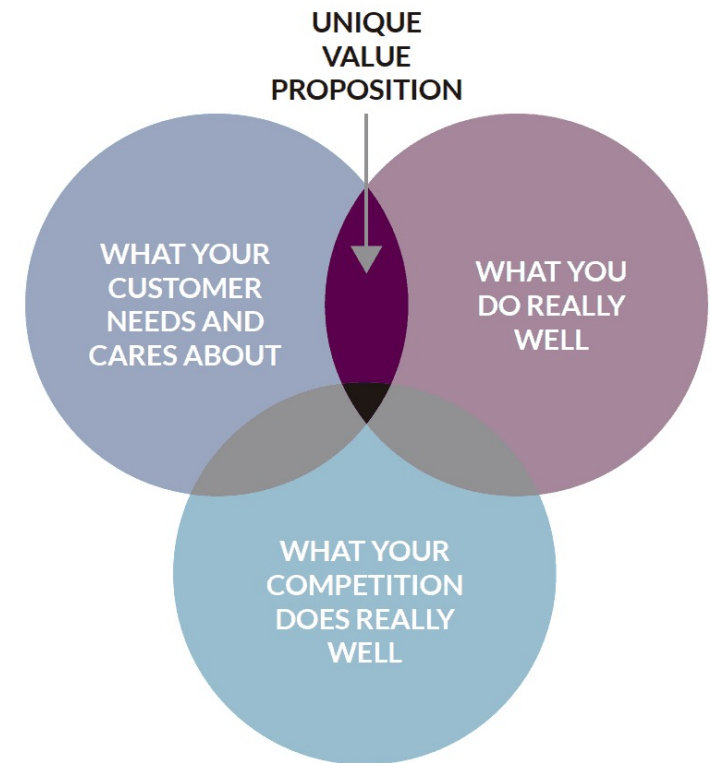
Value Proposition: apple to prepare “marmelade”

Apple marmalade offers a delicious and unique flavor that combines natural sweetness with acidity, providing a versatile spread that can enhance both sweet and savory dishes, while also delivering the health benefits of fiber and antioxidants found in apples.



How to create a valid Value Proposition

- Understand your customer's needs
- Highlight the unique benefits of your product or service
- Communicate the value, and differentiate from your competitors
- Clear, concise and compelling





Elettra
Sincrotrone
Trieste

VP for Elettra Powder Diffraction measurements

We assist pharmaceutical and biotech companies with drug development and production, offering services that include optimization of processes and quality control.

Our clients have access to our expertise, advanced instrumentation, affiliated labs, and a patented innovative protocol for sensitive analysis of active pharmaceutical ingredients and product purity.

Our complete service includes data analysis and interpretation, enabling efficient resolution of any issues you may encounter.





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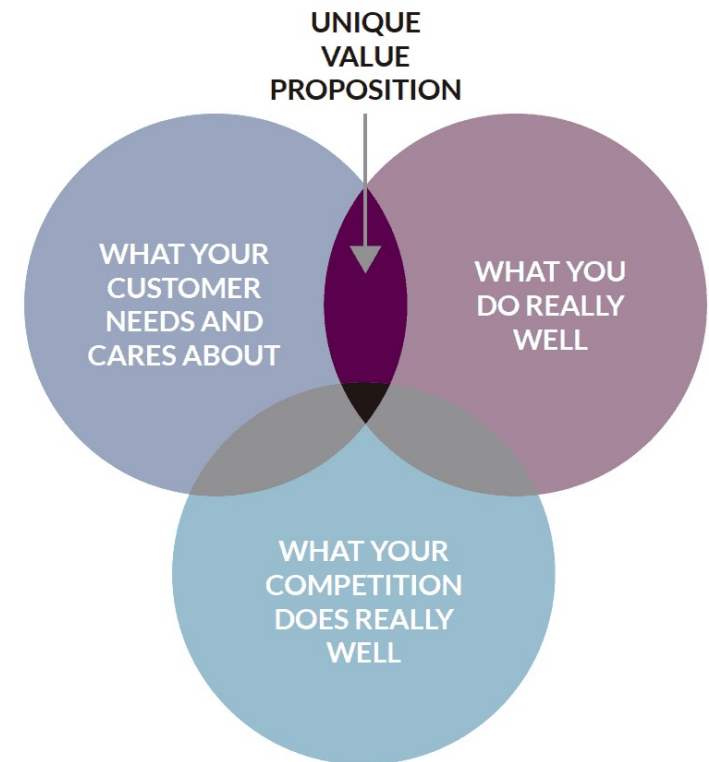
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Customer benefits



Exercise: Write your value proposition

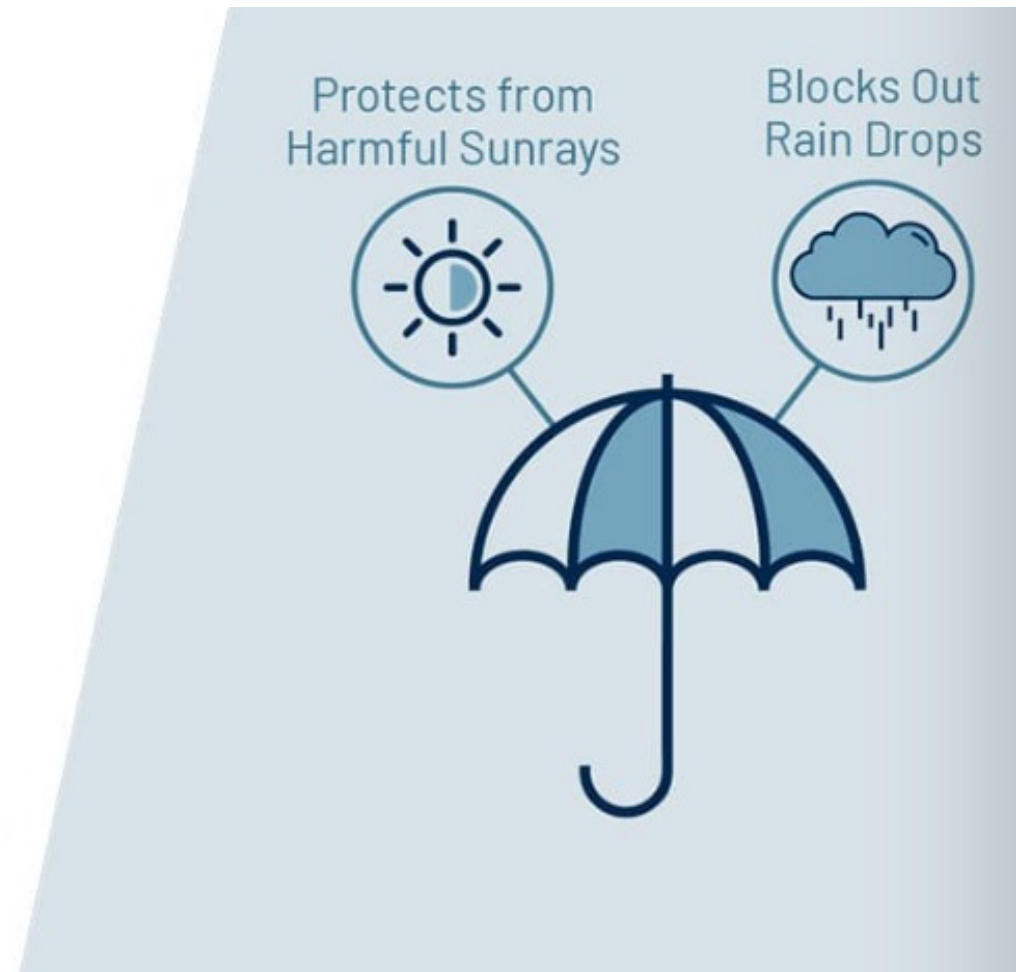
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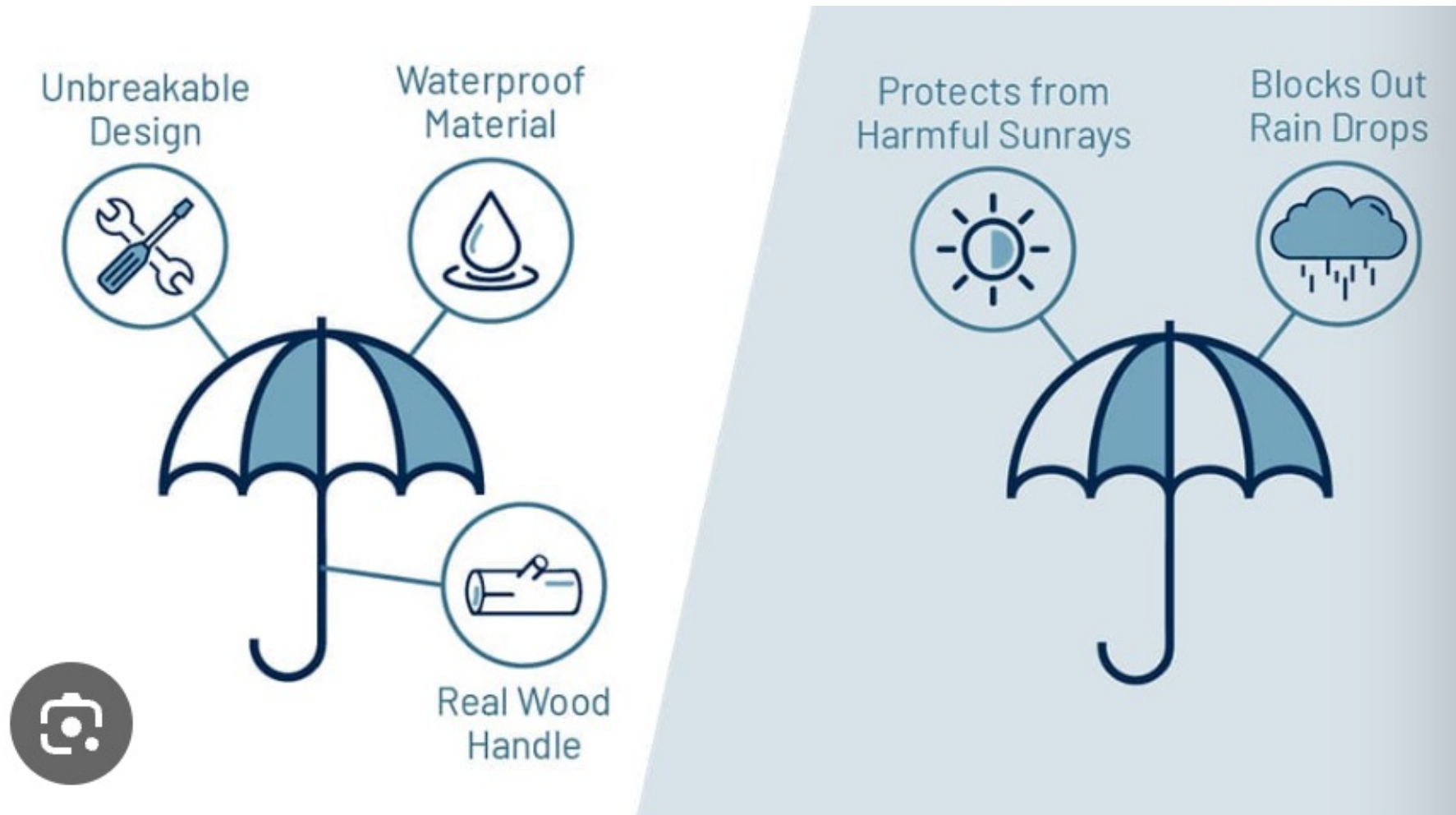
Why do you buy an umbrella?



Why do you buy an umbrella?



Why do you buy an umbrella?



Why do you buy an umbrella?

FEATURES

Unbreakable
Design



Waterproof
Material



Real Wood
Handle



BENEFITS

Protects from
Harmful Sunrays



Blocks Out
Rain Drops



Marketing Tips in selling technological products/services

FEATURE

Simply, a feature is something that your product has or is:

- ✓ functionality offered by a software program that enables users to do something.
- ✓ razors with five-blade heads,
- ✓ power drills with interchangeable bits,
- ✓ fridges that can make crushed ice etc.
- ✓

BENEFIT

Benefits are the outcomes or results that users will (hopefully) experience by using your product or service.

the very reason why a prospective customer becomes an actual customer.

