IAEA-CN301

Best practices in establishing and running facilities to support research, education and commercial use

Aerial : an example of a journey towards innovation in the radiation processing industry

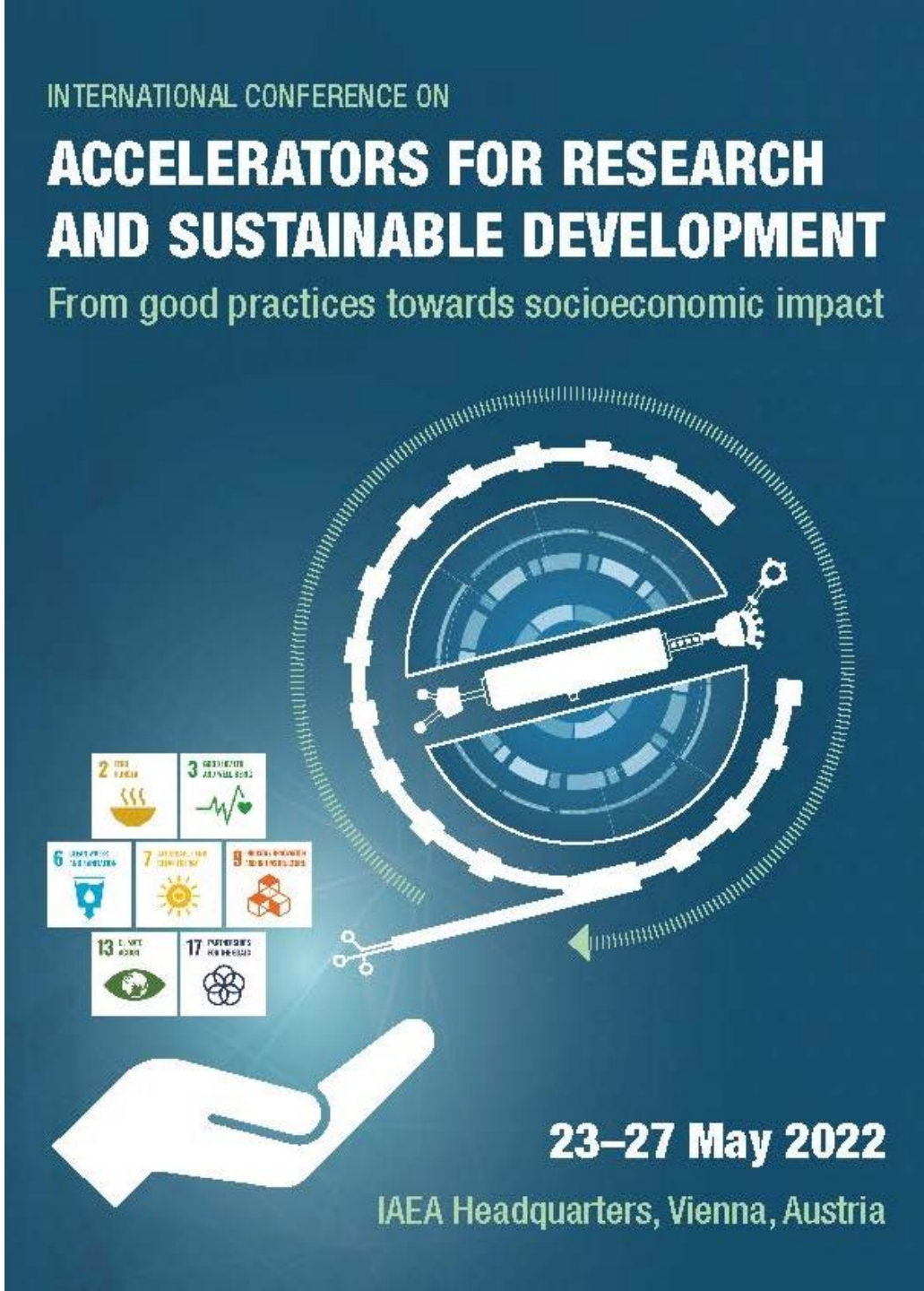
Alain Strasser and Florent Kuntz

.....

Aerial, 250 rue Laurent Fries, 67400 Strasbourg-Illkirch (FRANCE)

.....

(a.strasser@aerial-crt.com)



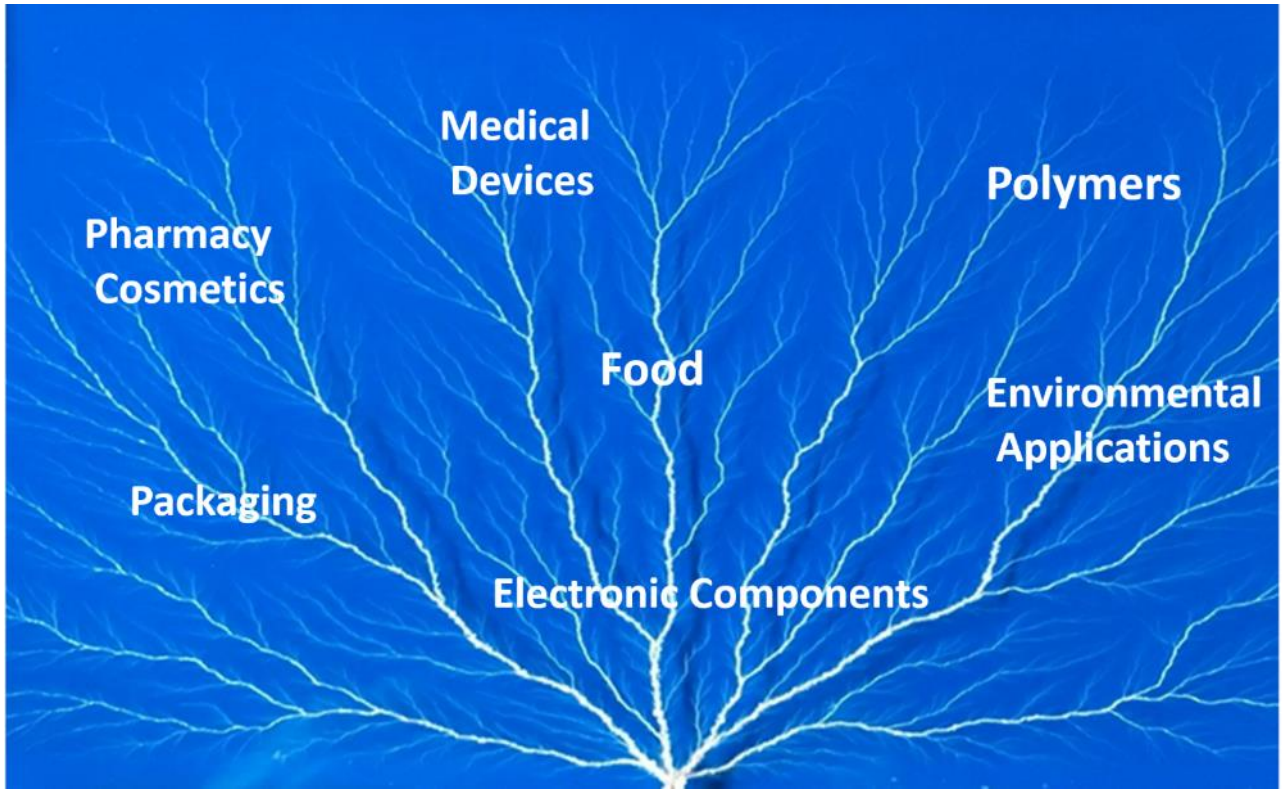
The keys to success

- **Understand the specific needs of the stakeholders (Industry, Research organizations, Training operators, …) in order to design the most appropriate facility**
- **Be very clear on the objectives of the facility in terms of types of services, missions, benefits ...**
- **Find the right financial and technical partners for the project (control the amount of the investment)**
- **Build the suited economic/business model and technical/scientific team to operate the facility (master the operating costs)**
- **Be as efficient as possible to meet the deadlines and timing of the project in relation to well identified strategic events**
- **Have a good dose of luck and know how to provoke it**

An example of a journey towards innovation in the radiation processing industry

Understand the specific needs of the stakeholders (Industry, Research, Training operators, …)

A complex challenge, a multidisciplinary approach



An example of a journey towards innovation in the radiation processing industry

Understand the specific needs of the stakeholders (Industry, Research, Training operators, …)

Adressing a clear current global trend :

Moving from industrial irradiators using of radioactive sources to X ray and electron beam irradiators using accelerators

(trend especially observed in the industry, in the field of sterilization of medical devices)

Innovation and education are clearly needed

What would be the most appropriate tool to support and accelerate this transition ?

An example of a journey towards innovation in the radiation processing industry

Understand the specific needs of the stakeholders (Industry, Research, Training operators, …)

What would be the most appropriate tool to support and accelerate this transition ?

The answer was given by Aerial, confirmed by an extensive feasability study conducted by international experts. The needs were assessed by audits of radiation processing companies, users of the technology, laboratories and universities, on a regional, national and international level

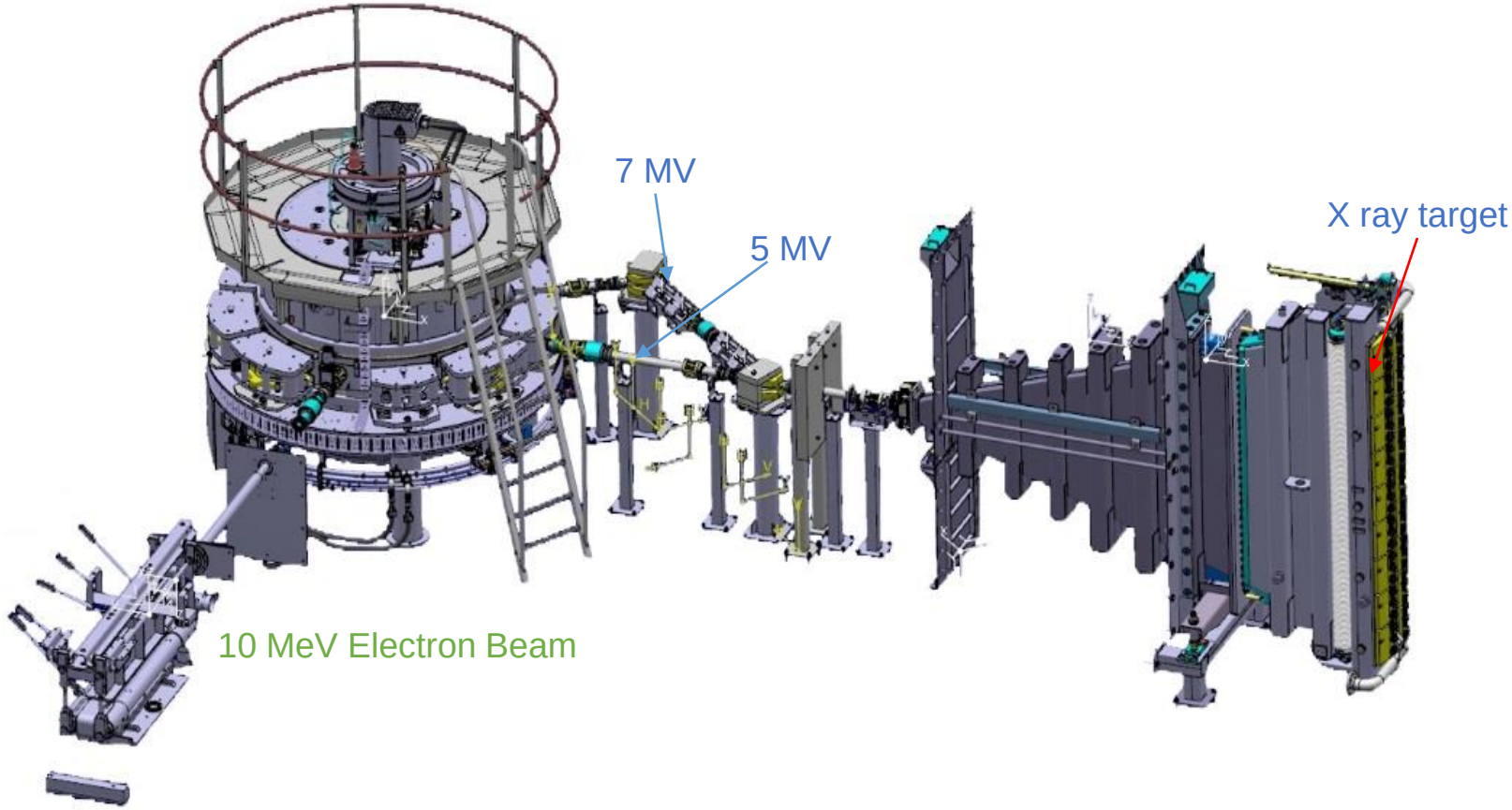
It was concluded that a high energy / high power electron beam and X ray flexible and "industrial – like" irradiation facility, exclusively dedicated to R&D, technology transfer and training, would contribute to answer the main requirements.

Aerial

An example of a journey towards innovation in the radiation processing industry

A striking and relevant brand name for the project :

feerix®



An example of a journey towards innovation in the radiation processing industry

Find the right financial and technical partners for the project (control the amount of the investment)

The equipment and the building (an investment of 10.5 M€) were co-financed within the framework of an international attractiveness program of the city of Strasbourg - France.

Numerous meetings were necessary to convince and collect funds from the European Union, the French State, the Grand-East Region, the City of Strasbourg as well as from our industrial partner IBA.

An example of a journey towards innovation in the radiation processing industry

Build the suited economic/business model and technical/scientific team to operate the facility

Rely on Aerial's success and 35 years of experience

French model of Technology Resource Center, an independent institute with a dual research-enterprise culture (private non-profit research organization), with a clearly stated vocation of research and development and training and not aiming at industrial processing.

An example of a journey towards innovation in the radiation processing industry

Aerial

Build the suited economic/business model and technical/scientific team to operate the facility

IAEA
International Atomic Energy Agency

Aerial

IAEA Collaborating Centre

for

Multidisciplinary Applications of Electron Beam and X Ray Technologies and Related Dosimetry for Radiation Processing and Food Irradiation

2021 – 2025

A multidisciplinary team of 30 people

An Accredited dosimetry laboratory for calibrations and dose measurements

Well-equipped associated laboratories (Freeze Drying, Microbiology, Physical Chemistry, Sensory evaluation

Tools for material modification analysis

An example of a journey towards innovation in the radiation processing industry

Be as efficient as possible in the timing of the project

A long Journey

7 years from the idea to the first beam with some very important milestones :

feasability study, facility design, financial framework, building construction, assembly of the Rhodotron, beam lines and conveyors

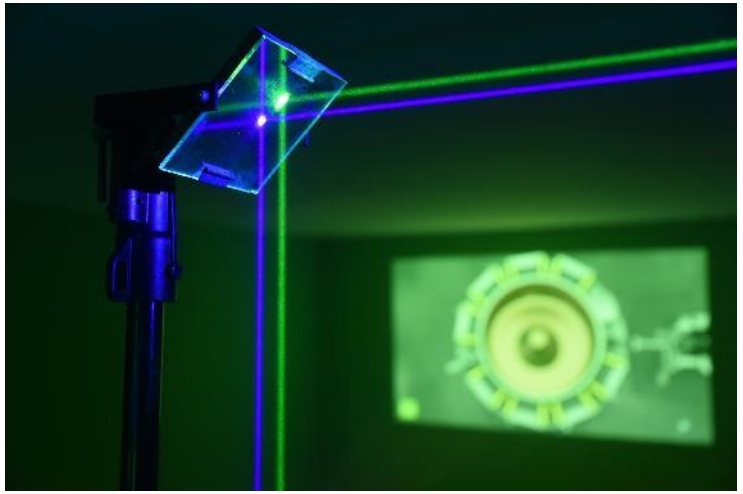
Aerial

An example of a journey towards innovation in the radiation processing industry

Be as efficient as possible in the timing of the project

Importance of communication throughout the project

A launching event for our partners and internal staff after the building is constructed (10/2018)



An example of a journey towards innovation in the radiation processing industry

Be as efficient as possible in the timing of the project

Arrival of the main equipment 8 months after the start of the building construction

April 2018

November 2018

An example of a journey towards innovation in the radiation processing industry

Have a good dose of luck and know how to provoke it

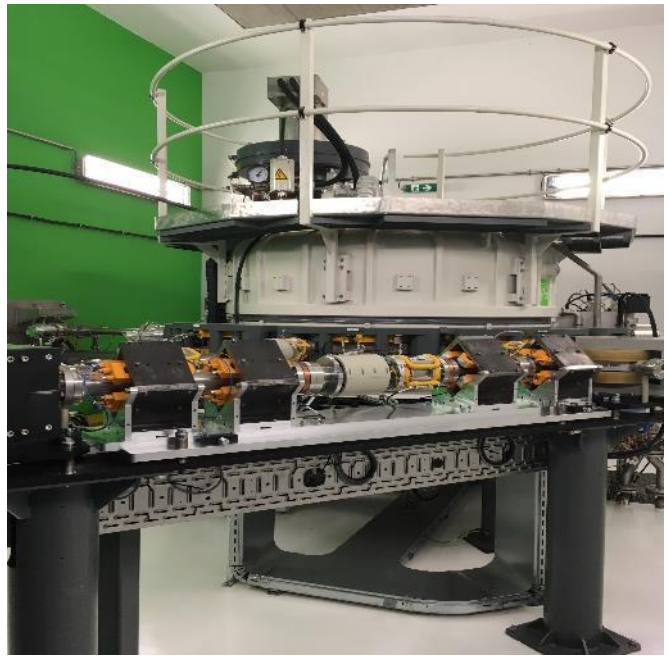
A very good timing for the project in relation with a major international event in the field :
the organization by the International Irradiation Association of the IMRP19 in Strasbourg-France
(1-5 April 2019 – 500 attendees, 40 different countries)

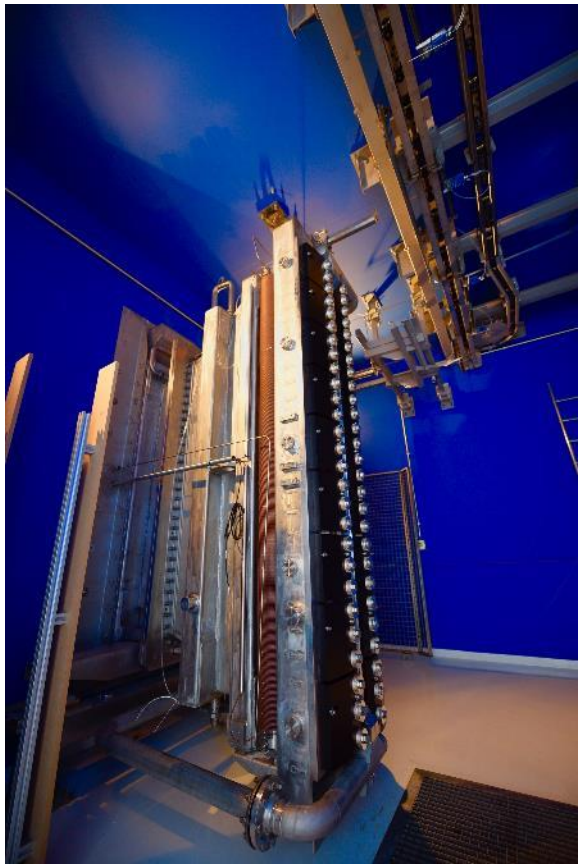
A fantastic opportunity to show this newly built equipment to the entire international community, industrialists and researchers in the field of radiation processing

Aerial

An example of a journey towards innovation in the radiation processing industry

The facility is running since end of 2019

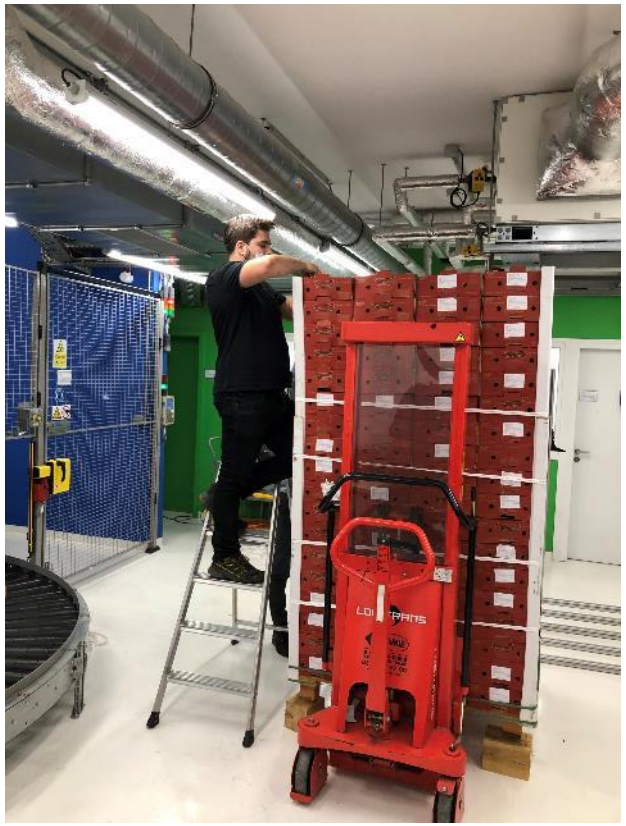




Aerial

An example of a journey towards innovation in the radiation processing industry

The facility is running since end of 2019



Aerial

feerix®

An example of a journey towards innovation in the radiation processing industry

Some numbers after 2.5 years of operation …

did contribute to 12 public research projects, 130 industrial projects, 8 training sessions with around 180 different partners

New beam characteritics available soon:
Fast pulsed Electron beams and X rays : new fields of research (Flash radiotherapy, …)

The first two and a half years of operation of the facility have confirmed its relevance for innovative projects in the field of industrial radiation processing :

The “good idea” quickly turned into a "real good idea"

Thank you for your attention

Acknowledgements

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR, DE LA RECHERCHE ET DE L'INNOVATION

Grand Est
ALSACE CHAMPAGNE-ARDENNE LORRAINE
L'Europe s'invente chez nous

Strasbourg.eu
eurometropole

iba