

**BEST PRACTICES IN ESTABLISHING AND RUNNING
ACCELERATOR FACILITIES TO SUPPORT RESEARCH,
EDUCATION, AND COMMERCIAL USES**

***AERIAL: AN EXAMPLE OF A JOURNEY TOWARDS INNOVATION IN
THE RADIATION PROCESSING INDUSTRY***

Florent KUNTZ and Alain STRASSER

Aerial, 250 Rue Laurent Fries, 67400 ILLKIRCH GRAFFENSTADEN (France)

The radiation processing industry has changed over the past 35 years of Aerial's existence. In order to be better, more efficient, faster, healthier, more environmentally friendly, innovation and education are clearly needed.

Moreover, to cope with the growing market, especially for the sterilization of medical devices and food irradiation including phytosanitary application, even if all irradiation modalities are still needed today, there is currently a clear trend to evolve from industrial irradiators based on radioactive sources (^{60}Co) to X-ray and electron beam irradiators using accelerators.

The relevance of Aerial's model to implement a specific facility dedicated to innovation in the field of radiation processing was confirmed by a feasibility study conducted by international experts. The needs were assessed through audits of radiation processing companies, users of the technology, laboratories and universities on a local, regional, national and international level.

It was concluded that high energy / high power electron beam and X ray flexible and “industrial– like” irradiation facility would contribute to answer the main requirements. This is where the journey began.

After the encouraging results of the feasibility study, the equipment and the building (an investment of about 10 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.

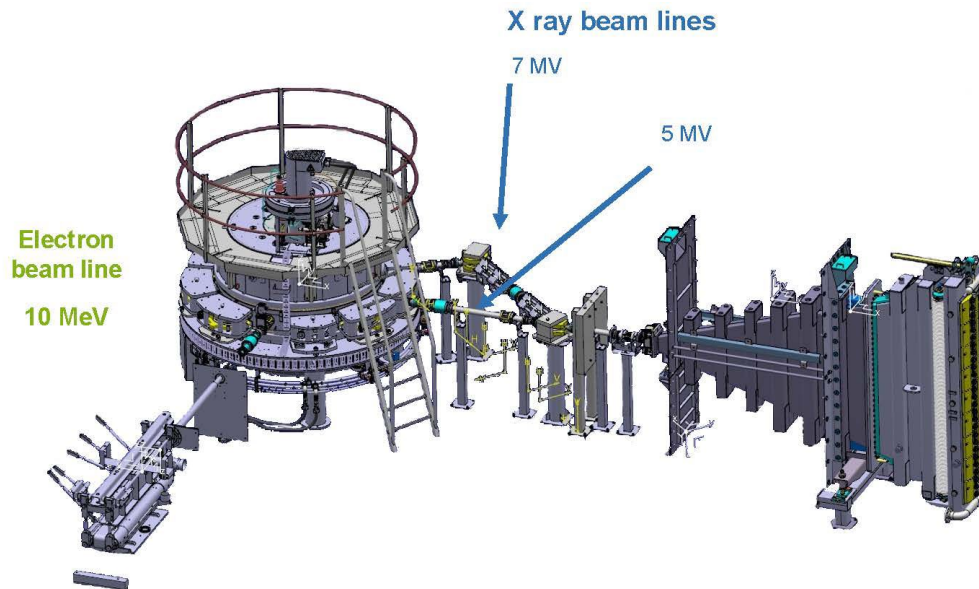
The success of this project is based on 4 inseparable and complementary pillars:

- the originality and success of Aerial, a French model of Technology Resource Center, an independent structure 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.
- the experience of more than 35 years of the Aerial team, its multidisciplinary and the interdisciplinarity necessary to approach the various subjects concerning the industrial applications of radiation treatment with a special focus on dosimetry and process control.
- A very good timing for the project in accordance with a major international event in the field: the organization of the IMRP19 conference in Strasbourg-France.
- The reinforced international recognition of Aerial by its designation since 2016 as an IAEA collaborating center.

Plenary SESSION 5: Accelerators for Neutron Therapy, Cultural Heritage, Innovation and Education
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The “feerix” facility, setup in 2019, is an industrial like, novel and unique high energy and high-power irradiation plant with its multiple beam lines producing 10 MeV electrons and 5 and 7 MV X-rays.

It is a complementary tool to Aerial’s existing laboratories and platform of irradiation facilities based on electron accelerators for tests, R&D and training purposes on radiation applications, innovative approaches of irradiation process control and on high dose dosimetry.



The first two 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".