

Start SIPTC & Add SEEIIST

AN OUSTANDING OPPORTUNITY FOR SLOVENIA and THE REGION

Sciencetech – Zbor članov
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SIPTC – Slovenian Proton Therapy Center for Cancer Treatment

- The SIPTC **Mission statement**.
- **What?** An Introduction to the Proton Therapy for Cancer Treatment.
- **Why** Slovenia?
- **How?** By Introducing the SIPTC in Slovenia for the Region?
- **State of play** and **factors of SIPTC success**.

SEEIIST – South Eastern Europe International Institute for Sustainable Technologies

- **What** is the SEEIIST?

Start SIPTC & Add SEEIIST

- **Why** and **How to?**

**SLOVENIA IS READY FOR
REGIONAL PROTON THERAPY CENTRE
FOR CANCER TREATMENT**

The SIPTC Mission

Slovenia My Future

Green Reference
Country in Digital Europe

SI PTC – SLOVENIAN PROTON THERAPY

centre is to be recognized as the **regional patient focused** facility where the **health care and science are combining** for the optimum contribution to the society.

To promote **collaboration between science, health care and industry** the **consortium** for building the PTC will consists of the most advanced **national and foreign partners** that will introduce the **cutting edge solutions** and thus develop new **competencies and references** in proton therapy.

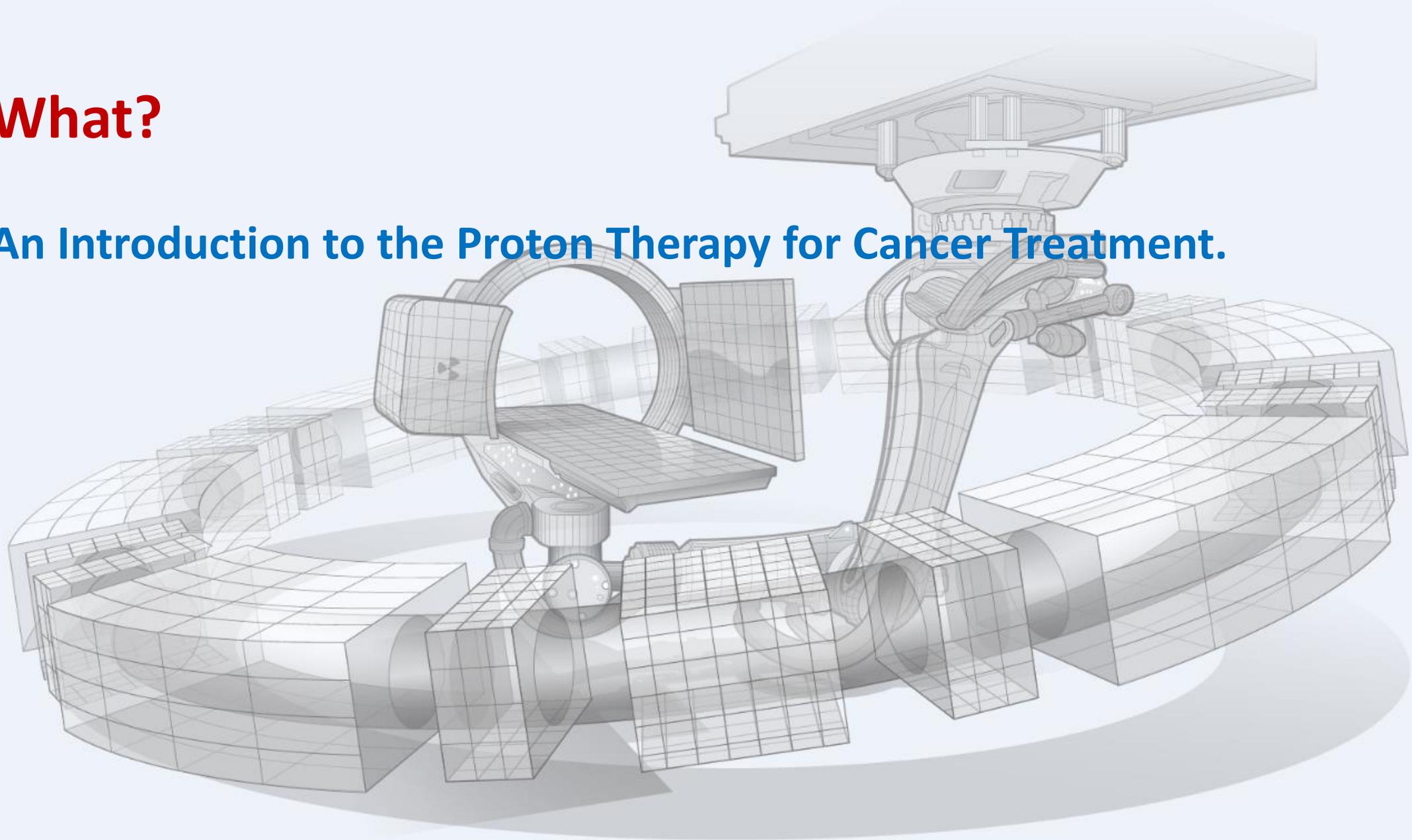
By introducing the training programs and a platform for education and to attract experts from the region and for the region the SIPTC shall **stop brain drain or even to revert it**.

Centre will have some **unique functionalities**, developed together with our research partners worldwide, therefore the SIPTC will have **no competition in these areas**.

Optimum value for money using public private partnership - **PPP and EFSI** mechanism and thus a flag ship project for the government, the patients and the whole health care system, research, and businesses in the **region**.

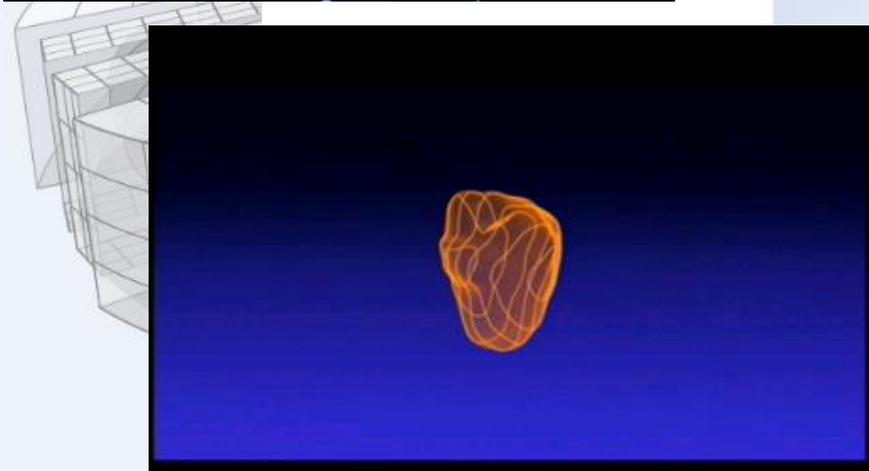
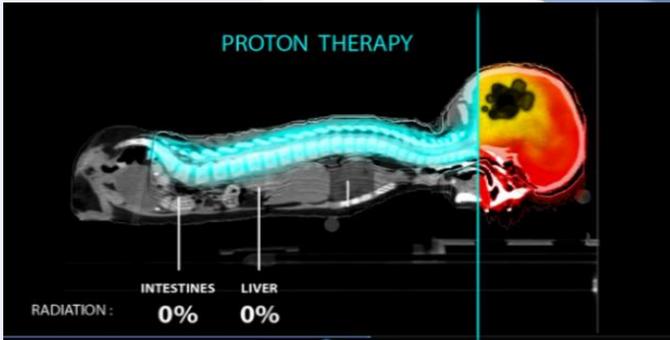
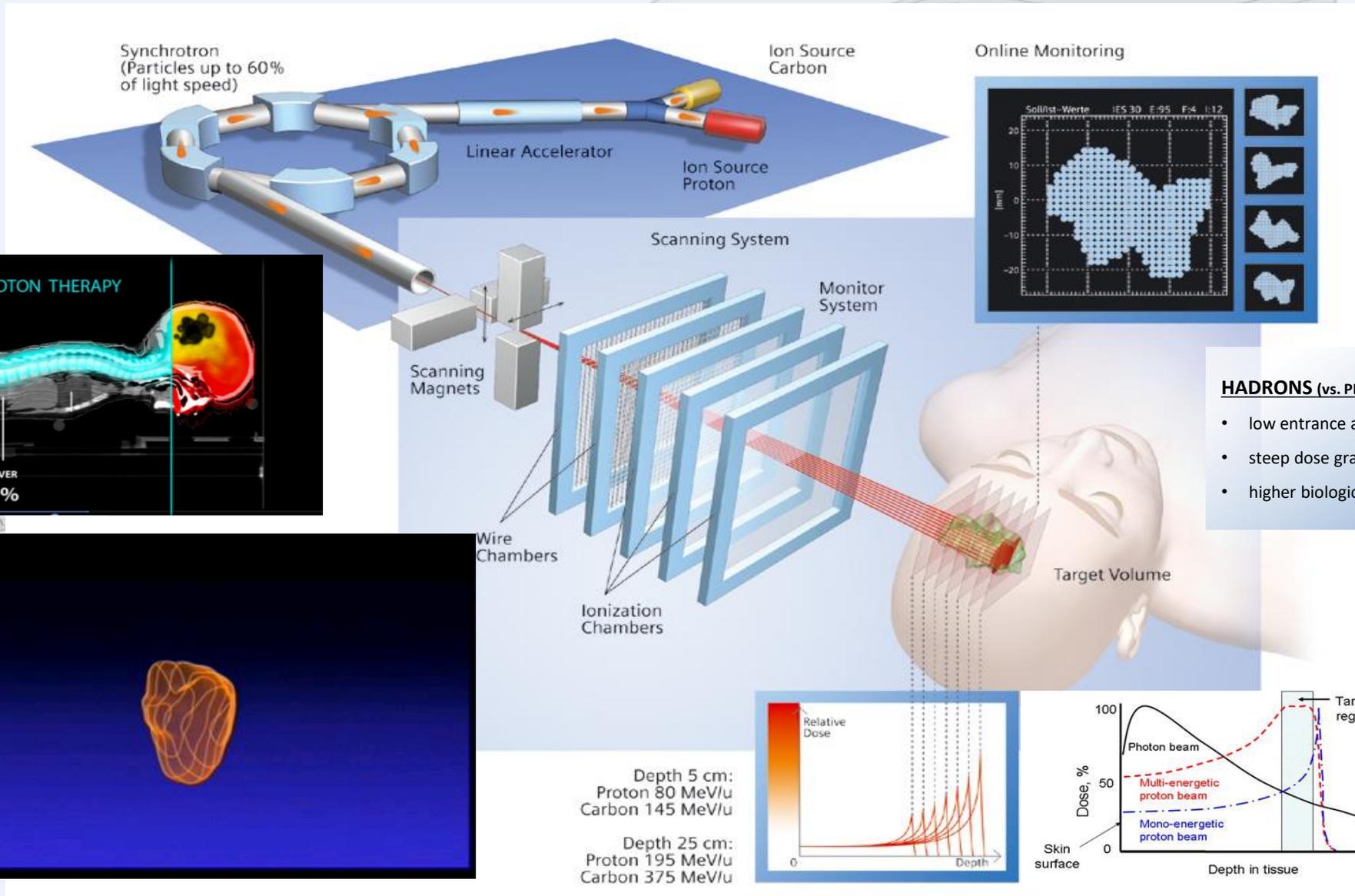
What?

An Introduction to the Proton Therapy for Cancer Treatment.



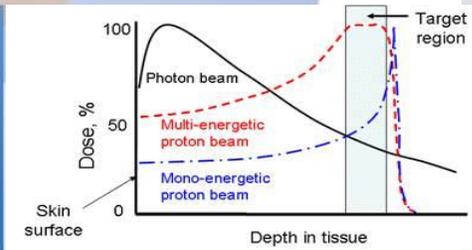
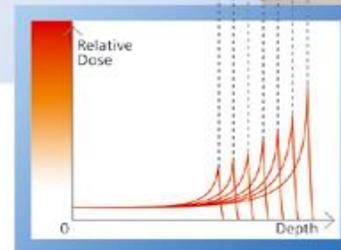
Proton Therapy

An Advanced Method to Cure Cancer, Already Proven, Reliable and Efficient



HADRONS (vs. PHOTONS)

- low entrance and exit doses
- steep dose gradients
- higher biological effectiveness



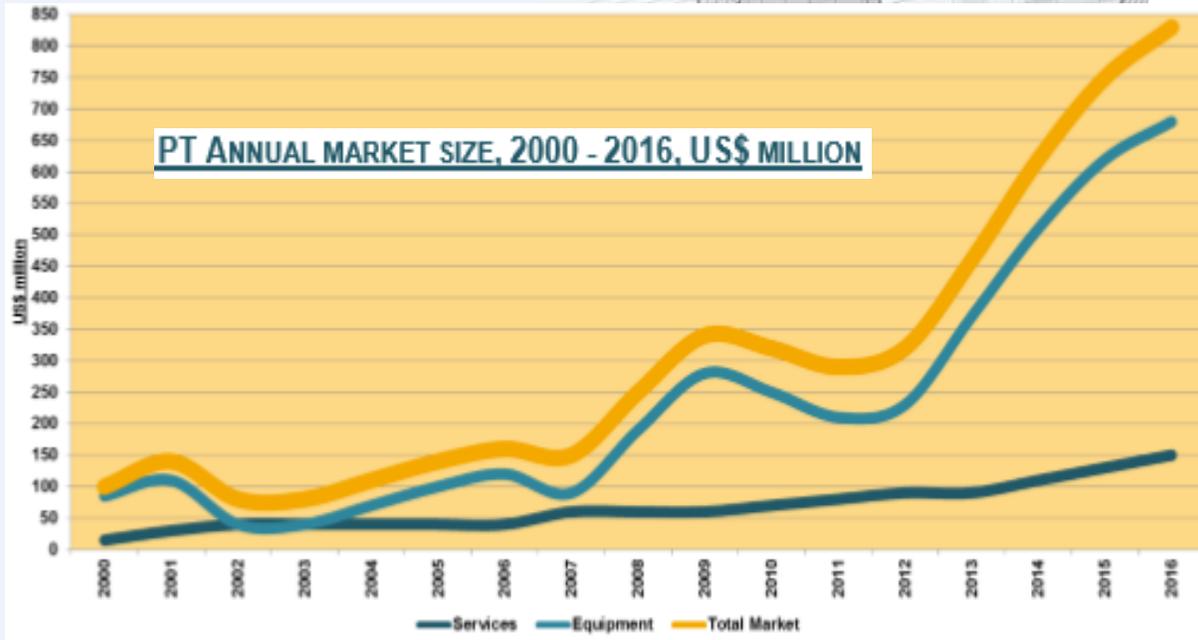
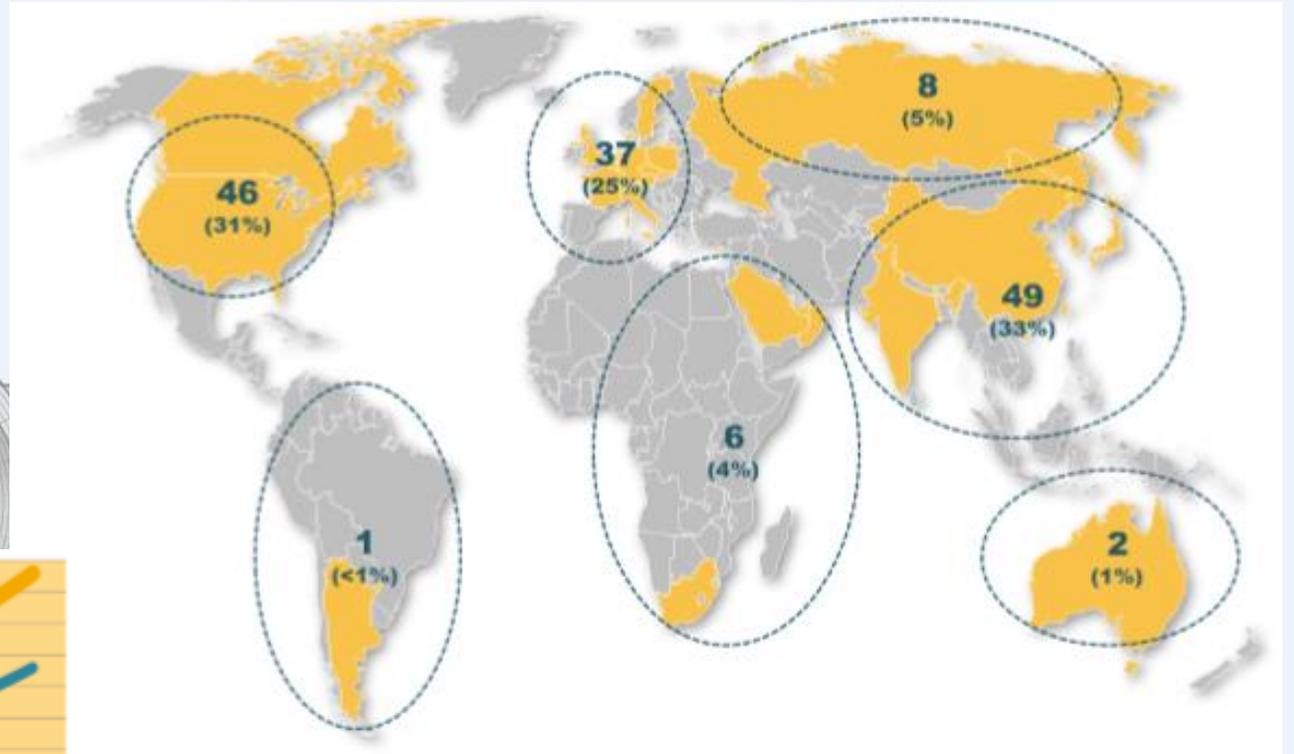
PROTON THERAPY – GLOBAL PERSPECTIVE

Until 2021

- 149 Centres worldwide
- 357 Treatment rooms

Until 2030

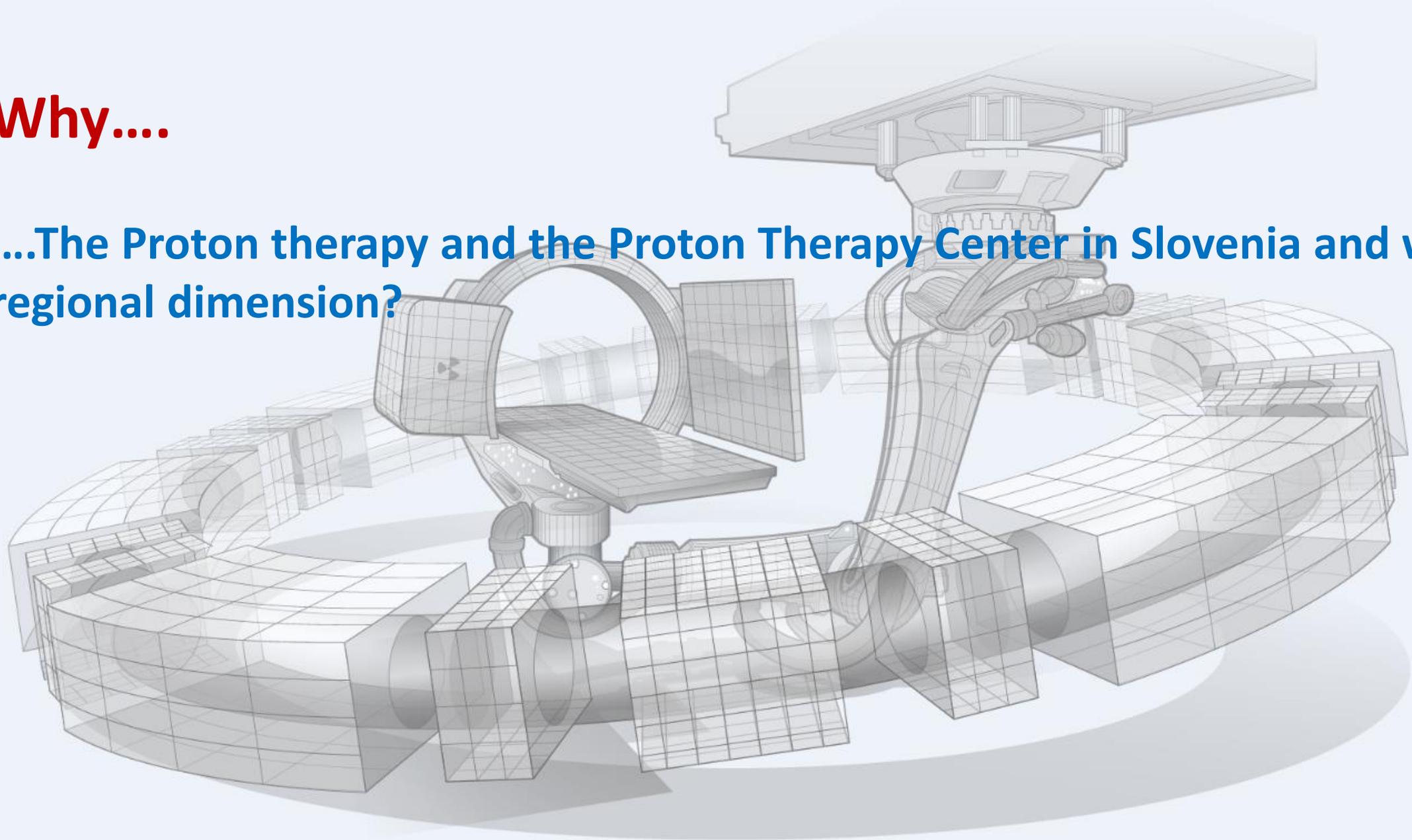
- 1.800 Treatment rooms



Growth of global PT market 2000-2015: 15% pa
2010-2015: 19% pa

Why....

...The Proton therapy and the Proton Therapy Center in Slovenia and why a regional dimension?



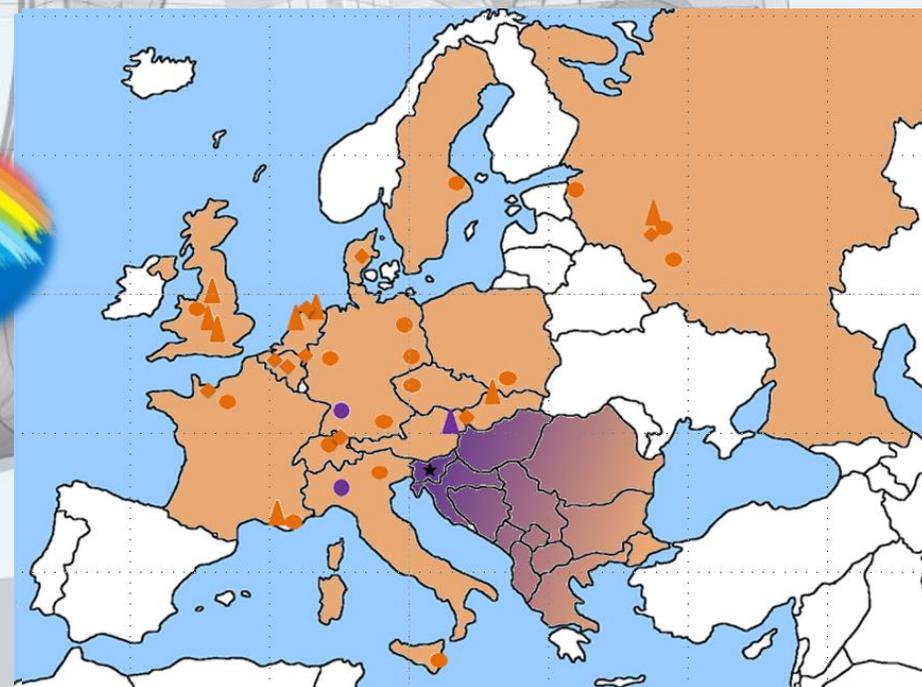
Why proton therapy in Slovenia?

LOCAL NEEDS & OBLIGATION TO OUR PATIENTS AND COMMUNITY

- 14.000 Oncology patients in 2016 and growing.
- 31% of all patients were treated with radiotherapy in 2013
- 50% patients need radiotherapy treatment (7.000)
- 15-20% of those patients shall be treated by PT ... that means...
- 1.000 ...oncology patients/year need PT.
- 1.000 employees in the IOL and more than
- 740 researchers in the IJS - potential for the region
- 126 mrd €, economic burden of cancer in EU (2009).
- 200 mio €, economic burden of cancer in SI** (2006 – 157mio€).
- 10 mio €, potential benefit for SI at yearly basis

REGIONAL IMPACT & IMPROVEMENT OF HEALTH SERVICE IN SE EUROPE

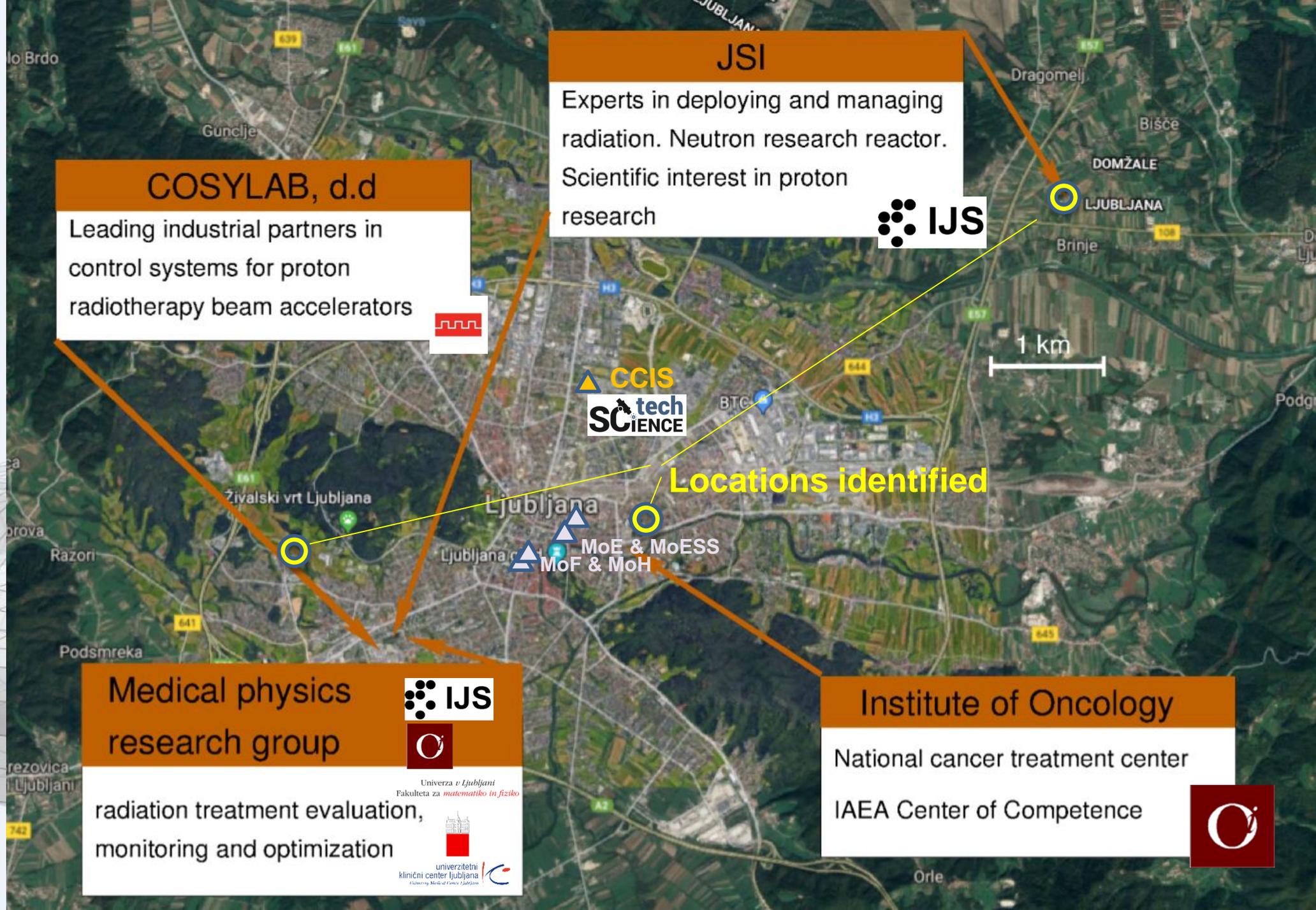
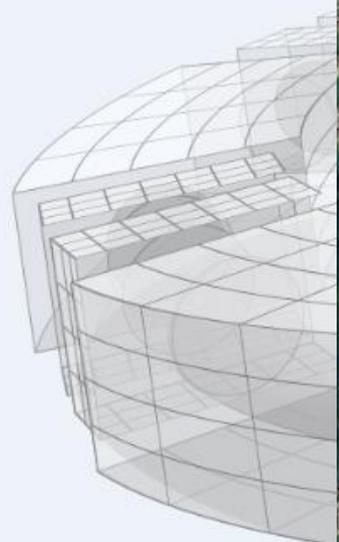
- Great potential for Slovenia and for the region!
- No PT centre in SE Europe!



• DPOR 2017/2012 - <http://www.dpor.si/> & Borrás JMetal.The optimal utilization proportion of external beam radiotherapy in European countries: An ESTRO-HERO analysis. Radiother Oncol (2015), <http://dx.doi.org/10.1016/j.radonc.2015.04.018>

** Economic burden of cancer across the European Union: a population-based cost analysis. Oxford University and London's King's College; 2013 <http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2813%2970442-X/abstract>

Main Stakeholders for SIPTC



COSYLAB, d.d
Leading industrial partners in control systems for proton radiotherapy beam accelerators



JSI
Experts in deploying and managing radiation. Neutron research reactor. Scientific interest in proton research



CCIS
SCIENCE

Locations identified

MoE & MoESS
MoF & MoH

Medical physics research group
radiation treatment evaluation, monitoring and optimization



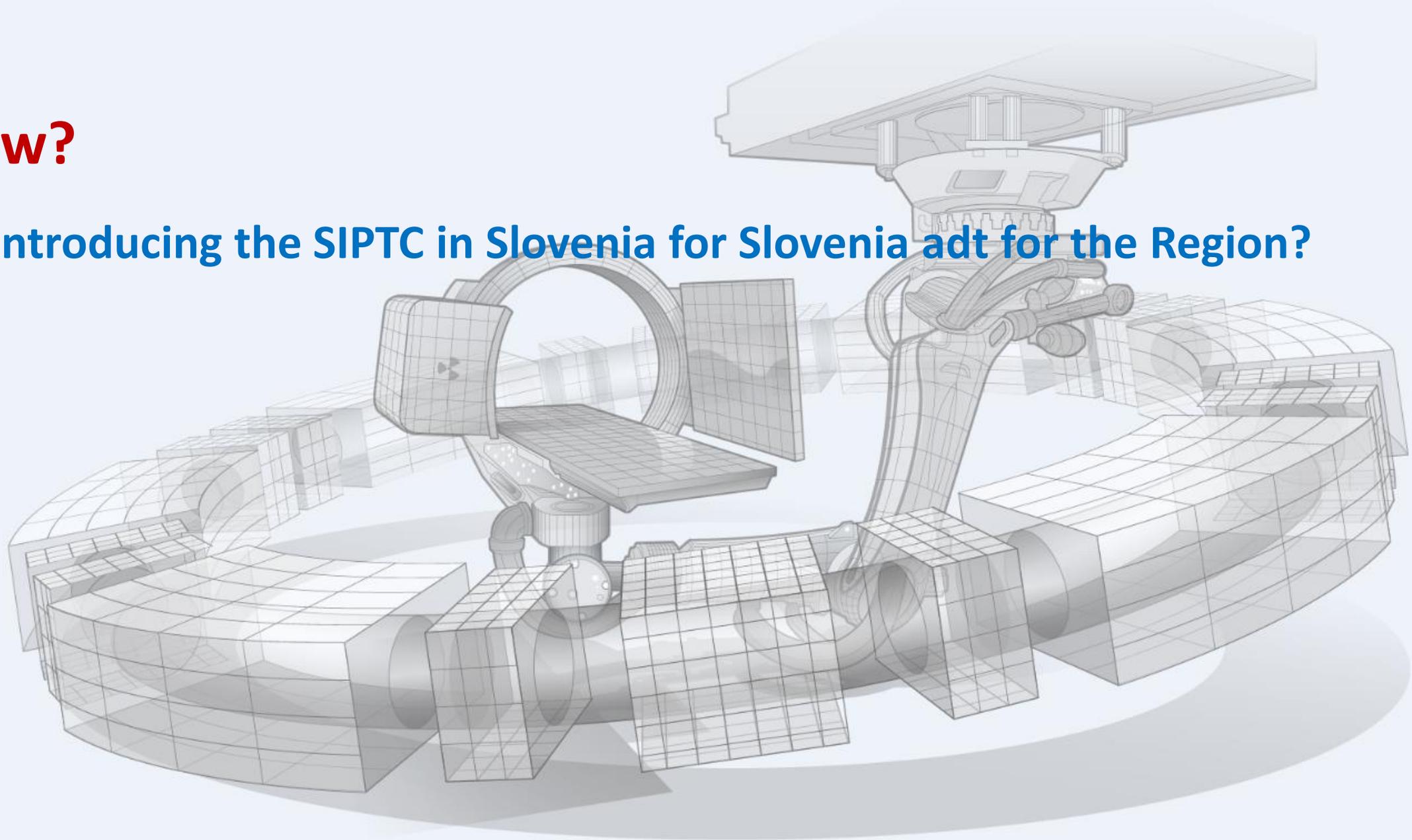
Univerza v Ljubljani
Fakulteta za matematiko in fiziko
univerzitetni klinični center Ljubljana
Faculty of Mathematics and Physics
University Medical Center Ljubljana

Institute of Oncology
National cancer treatment center
IAEA Center of Competence



How?

By Introducing the SIPTC in Slovenia for Slovenia and for the Region?



REGIONAL **PROTON THERAPY CENTRE** FOR CANCER
TREATMENT IN **SLOVENIA**

Slovenian Proton Therapy Centre - SI PTC

Project overview

- Construction of **Slovenian Proton Therapy Centre** with regional dimension and potential – first patient treated in 2022/23
- Optimum: 3 Room Facility (2 treatment rooms + one experimental room) and ancillary services added to the **Institute of Oncology Ljubljana** (IOL); other options are considered for optimum service
- **patient focused medical-science** facility where the **therapy and science are combining** for the optimum contribution to the society
- Strategically located **near the IOL (in Ljubljana)** – operational request

Slovenia My Future

Green Reference
Country

in Digital Europe

BELIEVE IN SLOVENIA
A GREEN REFERENCE COUNTRY
IN DIGITAL EUROPE

REGIONAL **PROTON THERAPY**
FOR CANCER TREATMENT IN SLOVENIA

Initial stage of the project

Some possible scenarios (the realisation is not limited to those):

- a) **2 rooms** facility only as a **medical** center - as a minimal scenario;
- b) **3 rooms** facility only as a **medical** center – when open to the foreign patients;
- c) **3 medical rooms +1 science room** facility as a **medical science** centre which would be more profitable in a long term and to provide spill-over effect to the economy and to the long term development of the SIPTC.

Estimated value **up to 130mio€** - depending on the scenario.

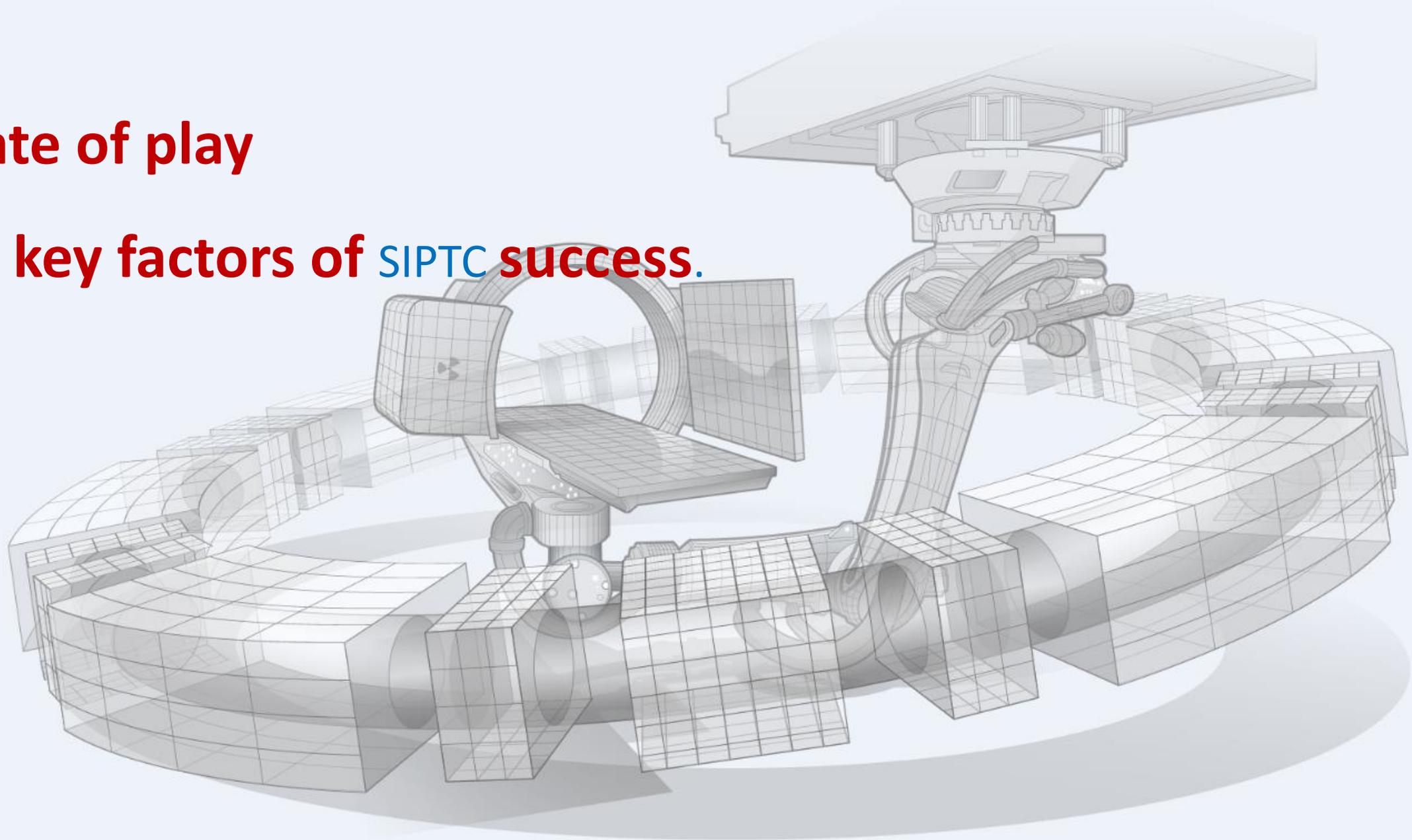
- At this stage the **contractual form of PPP, i.e. DFBOOT** model seems optional
- SIPTC as **a part of Institute of Oncology Ljubljana** (IOL) operating within the **public health care system** on the „non-for-profit“ principle.
- Potential for the region and **additional** projects e.g. Medical Traveling
- SI PTC plan will be developed in full consultation and collaboration **with the MoH and IOL**

Analysis of the operational cash flow in its operating period, which was envisaged for 25 years, the estimated price to 39k EUR excluding VAT per treatment, This amount represent a financial threshold that, in the context of the current conceptual plan, enables the feasibility of a project for a private & public partner.

Adjustments of the project are required.

State of play

and **key factors of SIPTC success.**



Key Factors for the Slovenian Proton Therapy Center for Cancer Treatment

- ❑ **Location:** three possible locations already recognized:
 - ❑ (i) MOL: Šmartinska Partnership, (ii) MOL: TPL, (iii) IJS near the Reactor center Podgorica – Brinje
- ❑ **Clinical partnership:**
 - ❑ The PT WG at OIL was appointed at the end of 2016 with the mandate to prepare (i) initial market analyses, (ii) the potential and the framework for business plan (iii) with the special focus in the financial aspects and for the business model
 - ❑ The OIL Council confirmed the full OIL commitment and support for all the necessary activities in introducing PT in Slovenia through the SI PTC (12.10.2017)
- ❑ **Institutional partnership**
 - ❑ **Government & Institutions:**
 - ❑ SIPTC initiative presented to the Ministry of Health, MoF, MoE, MoES&S and the Prime Minister Cabinet, and has got the support to proceed with the process. Governmental decision (August 2018)
 - ❑ Health Insurance Institute of Slovenia, Radiation Protection Administration, City of Ljubljana,
 - ❑ **Business & Science Partners:**
 - ❑ Strong support and the interest from Business – CCIS and Science - Institute Josef Stefan, Faculty of Medicine; Faculty of Math&Physics
 - ❑ Prioritized and the part of SPS (S3) and Strategic Research & Innovation Partnership (SRIP),
- ❑ **Technology partnership:** in defining the best possible option also by introducing an advanced SI-JP partnership
- ❑ **Financial partnership:**
 - ❑ PPP under EFSI using EIB backup; in the process to list and to confirm the private investor And with the request to get EIB/EIAH support
 - ❑ For SI-JP partnership also in contact with JBIC

SEEIIST

- **What** is the SEEIIST

Start SIPTC & Add SEEIIST

- **Why** and **How** to?



South East European International Institute for Sustainable Technologies (SEEIIST)

<http://seeiist.eu>

SEEIIST

No matter where SEEIIST will be located
– National Benefits across the whole Region –

Treatment of patients: all participating countries will have their share for treatment of patients

Involving the local industry: the construction of the Facility would require more than 200 companies. The production of many different components can preferentially be assigned to our local industry.

Powerful digital networks and big data handling - to reach the clinical and scientific goals two Networks will be set up, a **Clinical Network** and a **Scientific Network**, to be located in different parts of the region.

Training for building human resource capacities in many European renown institutions – all countries involved (funding from IAEA; EU H2020: COST, MC ITN; IPA2019 - financing volume 0.5/0.3/4.5/2 MEUR)

FORUM on New International Research Facilities in South East Europe

develop a research excellence nucleus in SEE
benefit for science and technology, training, investment in young people,
job creation, reverse of brain drain, knowledge based economy

Two options for the Institute:

- **4th Generation Synchrotron Light Source**
- **Facility for Tumour Therapy and Biomedical Research with protons and heavier ions**

SCIENCE FOR SOCIETY

Organizing Committee:

Herwig Schopper (Chairman, former DG of CERN)
Fernando Ferroni (President of INFN)
Christoph Quitmann (Director of MAXIV, Sweden)
Nicholas Sammut (Deputy Dean, University of Malta)
Hans J. Specht (Heidelberg Univ., former DG of GSI)
Ruediger Voss (President of EPS)

Local Organizers:

Nadia Binggeli (ICTP)
Saša Ivanović (MNA)

ICTP and Ministry of Science Montenegro



25 & 26 January 2018,
ICTP, Trieste, Italy



Registration to the Forum is free. For a restricted number of participants from the region travel subsistence would be possible. Please register at <http://indico.ictp.it/event/8408/>

Start SIPTC & Add SEEIIST

Sharing the same mission and upscale the Slovenian ambitions



PATIENTS:

- There are 14,000 registered cancer patients in Slovenia and growing.
- 50% of all patients shall be treated by radiotherapy and for a large part proton therapy is an additional advantage.
- Oncology patients get the best care at home and thus the extraordinary quality of living and the possibility of successful treatment.

INSTITUTE OF ONCOLOGY LJUBLJANA

- Is the regional radiotherapy center and the largest radiotherapy center in Europe with an outstanding international reputation.
- IOL is already fully committed to the introduction of Proton Therapy in Slovenia.

HEALTH SYSTEM:

- Get an advanced therapy on the PPP bases and upon an open model for foreign patients so an active investment for health financing

SCIENCE:

- Institute Josef Stefan is the largest institute in the region with a specialization in medical physics.
- FMF and the Medical Faculty for the breakthrough in education and mitigate the brain drain.

SLOVENIAN BUSINESS:

- Potential for participation of the businesses and enhancing the highest added value competences.

REFERENCE :

- Reference regional center, which put Slovenia on the map of the most advanced countries in the region for medicine and science and affirmation of the economy.

SIPTC

The Mission of the SIPTC (=similar to the SEEIIST Mission)

- Create a regional patient focused centre where the health care and science are combining for the optimum contribution to the society.
- To promote collaboration between science, health care and industry - the consortium will consists of the most advanced national and foreign partners that will introduce the cutting edge solutions
- Optimum value for money using - PPP and EFSI mechanism and thus a flag ship project for the government, the patients and the whole health care system, research, and businesses in the region.
- To introduce the training programs and a platform for education and to attract experts from the region and for the region – to stop brain drain or even to revert it.

Time line of the SEEIIST Project?

SIPTC is already in an advanced phase – **ready to Start**

SEEIIST time line enables Slovenia to use and to promote **SIPTC** as a **starting point** and as a base line where **SEEIIST** is a **natural upgrade** and **add-on** of the **SIPTC**.

Time line of the SEEIIST Project



2017-2018:
Concept Studies

2019:

- Start of the Design Study Phase at CERN
- Set-up of a legal entity

2020:

- Selection of the site
- Application for the ESFRI Road Map

2022:

Start construction of the Facility

2027:

First patient treatments



For SEEIIST up to 200 MEUR required, guaranteeing competitiveness in Europe. Multiple sources of financing necessary: EU Structural and cohesion funds, IPA funds, some contributions from member-states, other funds
We also hope for the support by the Berlin Process

Key Factors for SIPTC as a start & SEEIST as an add-on

- **Location:** three possible locations already recognized:
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- **Leadership:** Slovenia an active player in SEEIST with the leading role of MES&S: Dr. Tomaž Boh with the full Support of the MES&S
- **Collaboration at the national level:** With the full engagement of MoFA, MoH, MoE, MoF – so the project at the Governmental level with the leading role of MES&S.
- **Engagement of all stakeholders at the national level:** that already follow and participate in the project development with the initial partners within the SIPTC WG: IJS – Science, OIL – Oncology, Cosylab – Industry.
- **Activate the SI international network** to act in a way to support Slovenia as a location for the SIPTC.
- ...and the most important... **Slovenia has to start NOW.**

Thank you for your attention

Questions?



Univerza v Ljubljani
Fakulteta za *matematiko in fiziko*



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