

PTC Slovenia

Center za protonsko terapijo za
zdravljenje raka in
izzivi izgradnje v Sloveniji

Speed uPPP

Bled 28. 11. 2017

mag. Janko Bugar





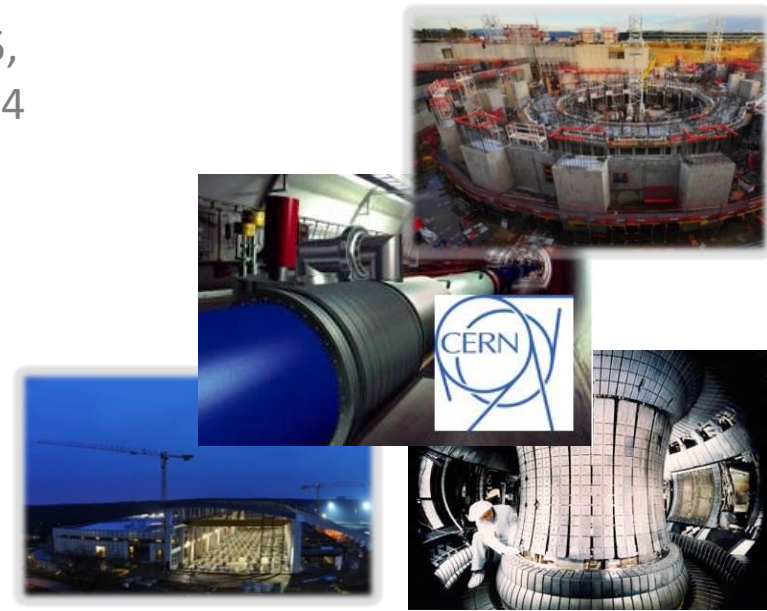
- ❑ From Institute „Josef Stefan“...
- ❑ ...to the World leading Systems Integrator for Particle Accelerator Control Systems
- ❑ Engineering and Integration Services for Particle Therapy Systems



- ❑ Founded in 2001, >20% CAGR
- ❑ 150+ employees worldwide, local branches in USA, Japan, China, Switzerland, Sweden
- ❑ ISO9001, ISO13485, ISO14971, IEC62304

- ❑ Largest international Big Physics projects as customers (ITER, ESS, FAIR, SwissFEL, SLAC, ALMA, CERN...) as well as over 15 PT projects, such as MedAustron, HIMM (China), etc.

Your **TRUSTED** Control System Partner



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

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 **therapy and science are combining** for the optimum contribution to the society.

The **consortium** for building the PTC will consist of the most advanced **national and foreign partners** that will introduce the **existing solutions** as well provide **new ones** and thus develop new **competencies and references** in proton therapy

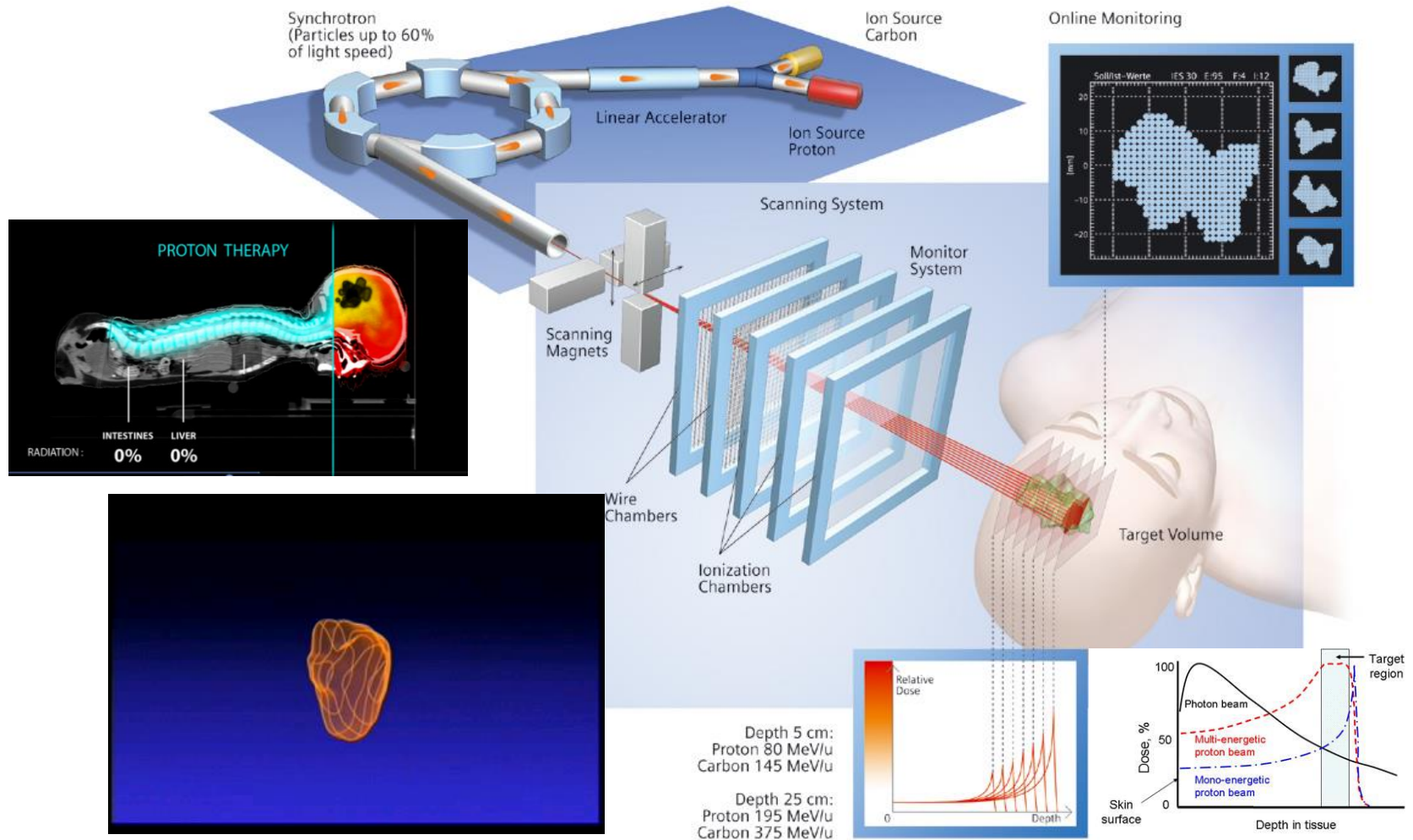
Centre will have some **unique functionalities**, developed together with our research partners worldwide, therefore the SI PTC will have **no competition in these areas**.

Also **financing** is taken into consideration, so it will be the **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**.

Proton Therapy (Abbreviated PT)



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

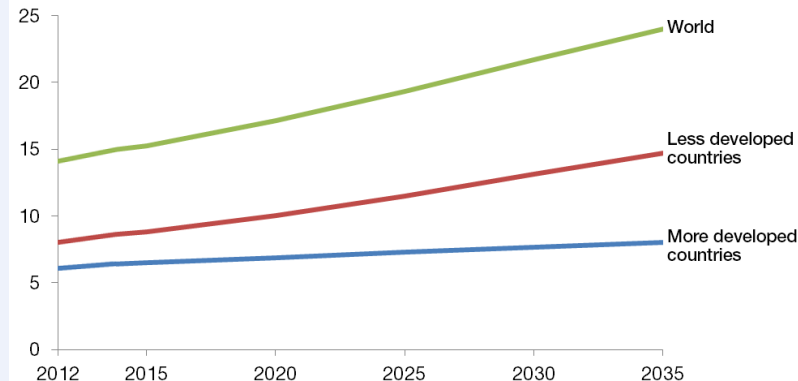


Your **TRUSTED** Control System Partner

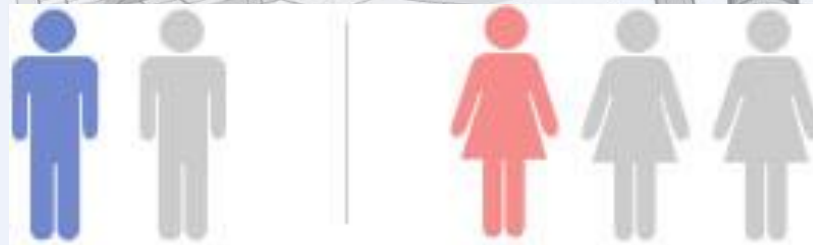
Cancer is the leading cause of death worldwide.

Predicted global cancer cases, 2012-2035

Cases (millions)



Source: WHO GloboCan, BBC



1 in 2 men and **1 in 3 women** will be diagnosed with cancer.

Why Proton Therapy?

20% of radiation therapy patients could benefit from proton therapy.

Proton therapy is **the growing treatment of choice**, especially when other treatment options are limited and present unacceptable risks to the patient.

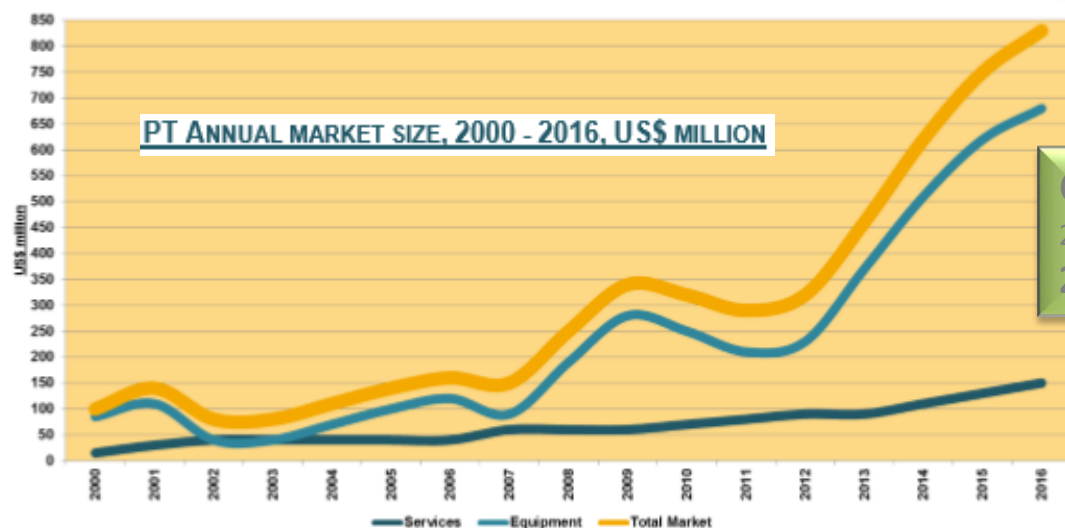
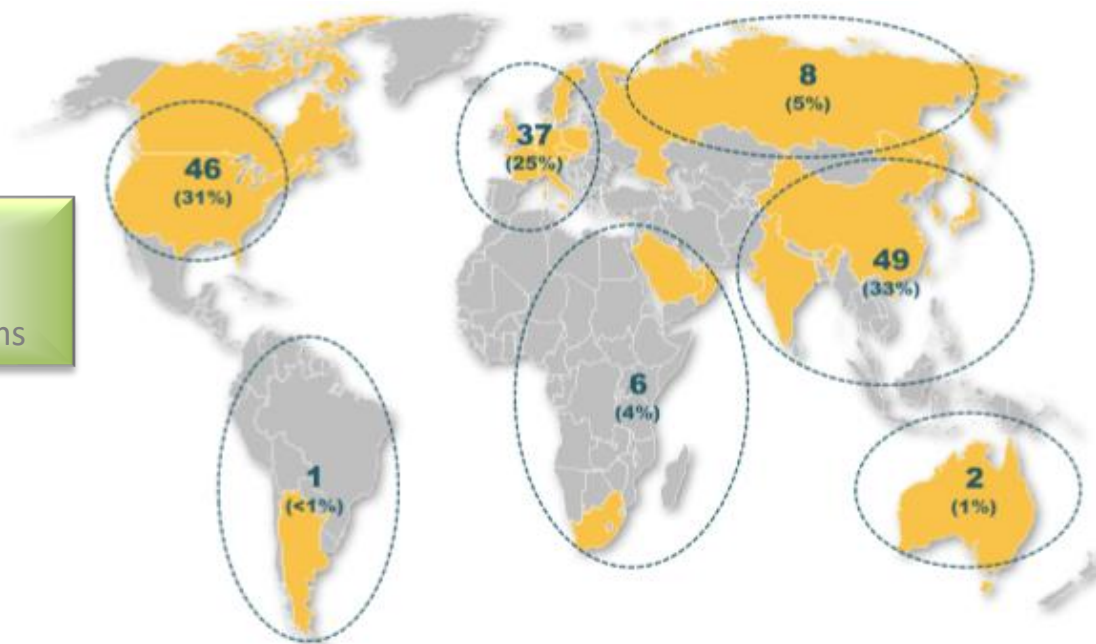
Proton therapy – global perspective

Until 2021

- 149 Centres worldwide
- 357 Treatment rooms

Until 2030

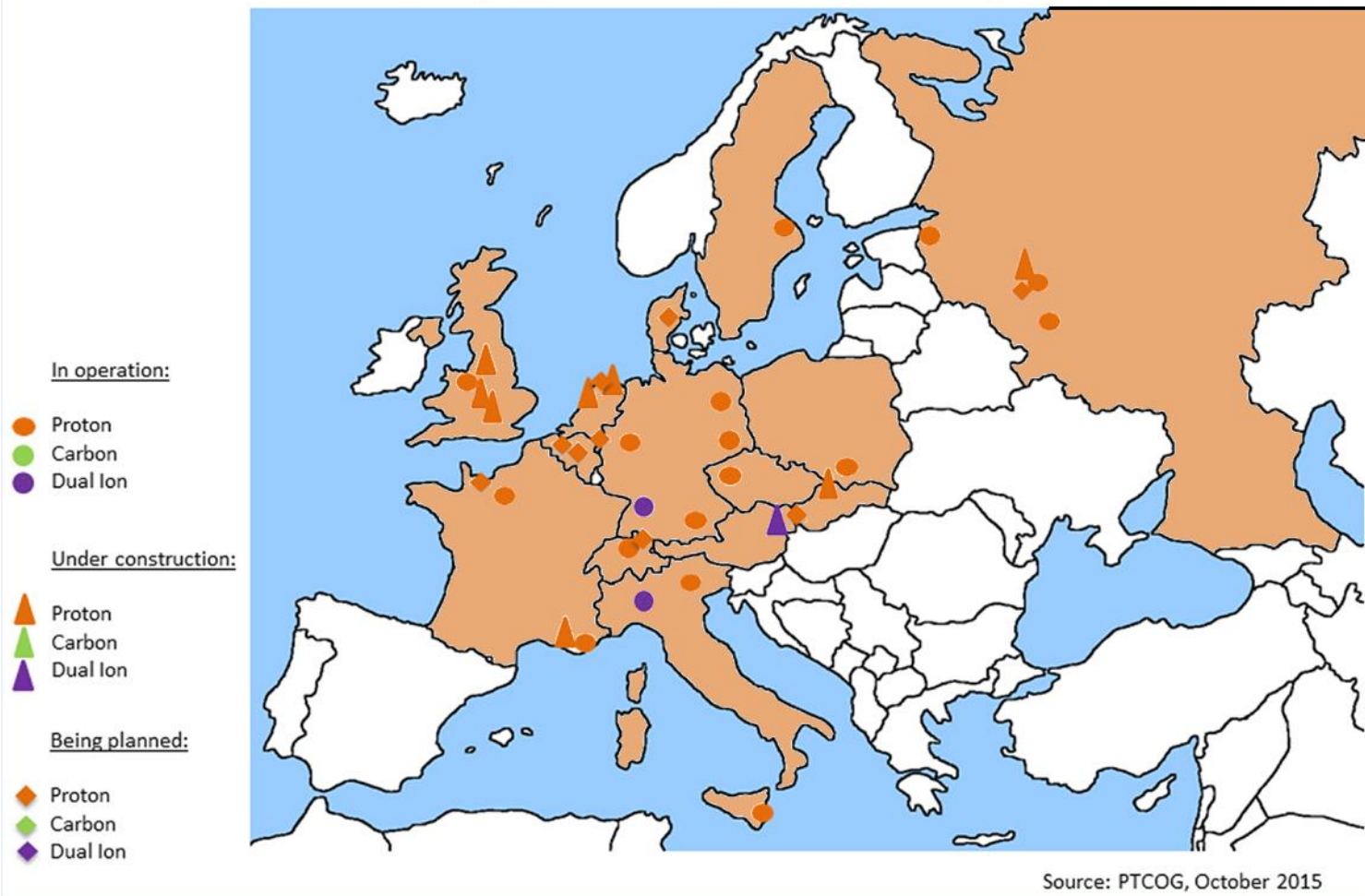
- 1.800 Treatment rooms



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

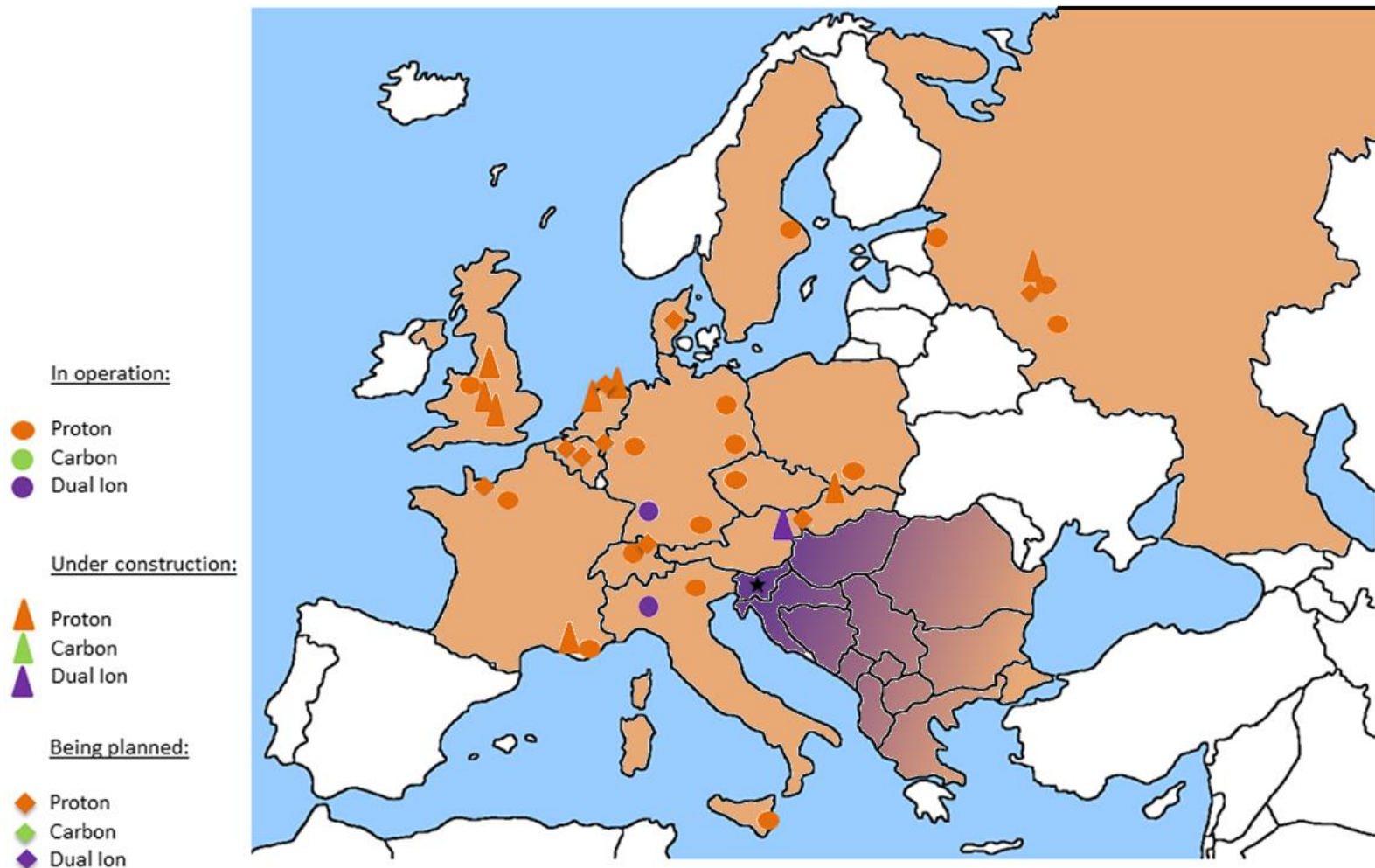
Proton therapy – EU perspective

Particle therapy centres in Europe - 2015



Proton therapy – SI in EU perspective

Potential Slo PT Influence



Source: PTCOG, October 2015

Proton Therapy in Numbers*

- 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

* DPOR 2017/2012 - <http://www.dpor.si/> & Borras 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>

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.
- The state of the art facility and of utmost skilled oncologists in the world – at home
- Oncology patients get the best care at home and thus...
- ...the extraordinary quality of living and the possibility of successful treatment.
- The spill over effect within the IOL for the whole oncology programme and indications

INSTITUTE OF ONCOLOGY LJUBLJANA

- Already the regional radiotherapy center and the largest radiotherapy center in Europe with an outstanding international reputation.
- IOL will consolidate their position in the region.
- IOL is already fully committed to the introduction of Proton Therapy in Slovenia.
- Introducing the open model for foreign patients will open space to attract talents...and thus build new competencies.

HEALTH CARE SYSTEM:

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

SCIENCE:

- Institute Josef Stefan is the largest institute in the region with a specialization in medical physics.
- Medical Faculty and the FMF for the breakthrough in education and to mitigate the brain drain.
- The outstanding facility in the vicinity of the largest radiotherapy center in the region (IOL) and at the same time on the location of radiology science hub – poss. The Reactor Center Podgorica (IJS).

SLOVENIAN BUSINESS:

- An outstanding companies with the references in the „PT World“
- 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.

Proton therapy – SWOT (Slovenia) COSYLAB

Strength

- Excellent Core Medical and Science competences
- Huge regional potential for implementing advanced therapy for the most deadly disease
- The Best radiotherapy treatment for specific cancers and children
- IOL - The largest radiotherapy center in region
- IJS – An Advanced solution with regional dimension
- Geographical position & Stable political system
- Ready-To-Go Project
- Public Private Partnership using EFSI

Weakness

- Controlled clinical trials still under process
 - More expensive than Radiotherapy
 - Large capital investment
- Competition from established therapies
- The patient workflow to be improved
 - Need for precise positioning
 - Need for advanced imaging

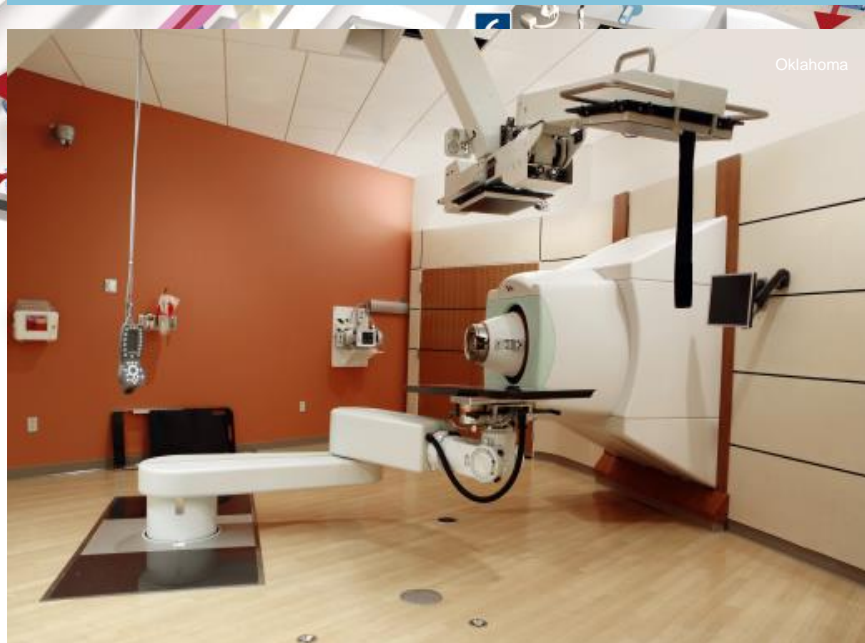
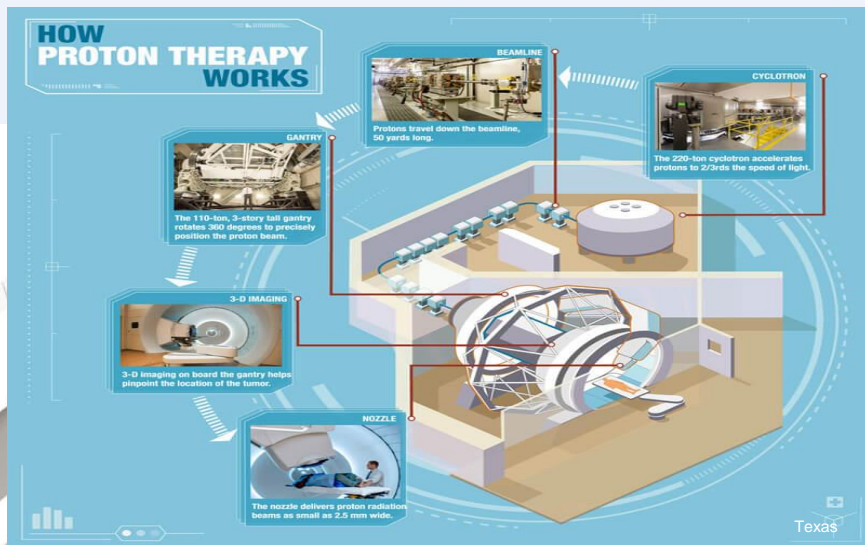
- Flag-ship reference medical – science project
- Answer for the needs in cancer treatment
- Advanced domestic R&D and business development
- The regional dimension with large multiplier effect
- Modern business model in health care
- Modern spa tourism – pre&after care
- Smart investment in the most advanced science
- Attracting experts in the region and for the region stop brain drain
- Challenge for highly educated Oncologists and MedPhysicists

Opportunities

Threats

- New universal medicine
- New extra efficient therapy
- Competitive center in surrounding area
 - Lack of financial support
- Brain drain – lack of doctors and other experts

HOW Proton Therapy Works?



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

Project Overview

- Construction of a **Regional** Proton Therapy Center for Cancer Treatment
- 3 Room Facility and ancillary services **added to the Institute of Oncology Ljubljana (IOL)**
- Potential for the region and **additional** projects e.g. Medical Traveling
- Project Inception
 - Needs** of the medical care system
 - Owner **The Ministry of Health (moH) operated by IOL**
 - Looking for the modern **PPP** model
- Project cost estimated at € **130million** (construction, equipment and fit-out per IOL requirements)
- SI PTC plan will be developed in full consultation and collaboration **with the MoH and IOL**
- Strategically located **in the vicinity of IOL** (Ljubljana)

Slovenia My Future

Green Reference
Country in Digital Europe

The MAIN ENABLERS & Challenges

Financing SIPTC within the PPP

WHO Private + EIB + SI Government

I FEEL
SLOVENIA

I feel
innovation

I FEEL
SLOVENIA

I feel
credibility

I FEEL
SLOVENIA

I feel
excellence

I FEEL
SLOVENIA

I feel
cooperation

I FEEL
SLOVENIA

I feel
engagement

GOAL (i) To balance investments in Health and research and
(ii) to fulfill budgetary expectations

HOW: **PPP** - Public Private Partnership – see the list of EFSI Health project
<http://www.eib.org/efsi/efsi-projects/index.htm?c=&se=7>
Owner The Ministry of Health (moH) operated by IOL
Developed in **full consultation and collaboration** with the MoH and IOL
MoH and IOL will **leaseback** therapy center/services on a **long term** lease agreement over **pre-agreed** period

The MAIN ENABLERS & Challenges

Financing SIPTC within the PPP

- ❑ Construction and fit-out **may be 100% financed** through **private funding** with several **variations**:
 - No cost to government during construction and fit-out stage
 - Co-financed by the government using Structural funds + Backed up by EIB using EFSI
 - Option: 60-80% Private + 20-40 EIB + up to 20% SI Gov
- ❑ 100% finance may be achieved through inward investment
- ❑ Cost of SI PTC estimated at **€ 130million**
- ❑ **PPP based** on government commitment to utilize center/services upon construction completion with different possible scenarios for leaseback (DBTO vs DBOT vs DBOOT)

The MAIN ENABLERS & Challenges

Business model & Regional dimension

WHO: OIL, Ministry of Health, Ministry of Foreign Affairs

GOAL: SI PTC and OIL to become the **regional** radiotherapy competence and therapy center

HOW: **Open business model** of OIL – open for foreign patients however in „non-for-profit“ mode

2/3 Si patients + 1/3 from abroad
Long term cooperation among regional oncology centers for SI PTC - intergovernmental agreement



Strength	Weakness
<ul style="list-style-type: none">• Advanced therapy for the most deadly disease• Best treatment for specific cancers• Best for children• Pencil beam precision• Minimum damage of surrounded tissue• Dose delivery system - appropriate energy• The „last hope resort“ for critical patients• Less complications caused by treatment• Faster recovery – shorter/simpler after care	<ul style="list-style-type: none">• Controlled clinical trials still under process• More expensive than Radiotherapy• Large capital investment• Competition from established therapies• The patient workflow to be improved• Need for precise positioning• Need for advanced imaging
Opportunities	Threats
<ul style="list-style-type: none">• Flag-ship reference R&D project in Slovenia• Answer for the needs in cancer treatment• Advanced domestic R&D and business development• The regional radiotherapy treatment center• Introducing the modern business model in health care• Modern spa tourism – pre&after care• FDI & PPP• A magnet for experts – to stop brain drain• Challenge for highly educated Oncologists and MedPhysicists• Geographical position & Stable political system	<ul style="list-style-type: none">• New universal medicine• New extra efficient therapy• Competitive center in surrounding area• Lack of financial support• Brain drain – lack of doctors and other experts

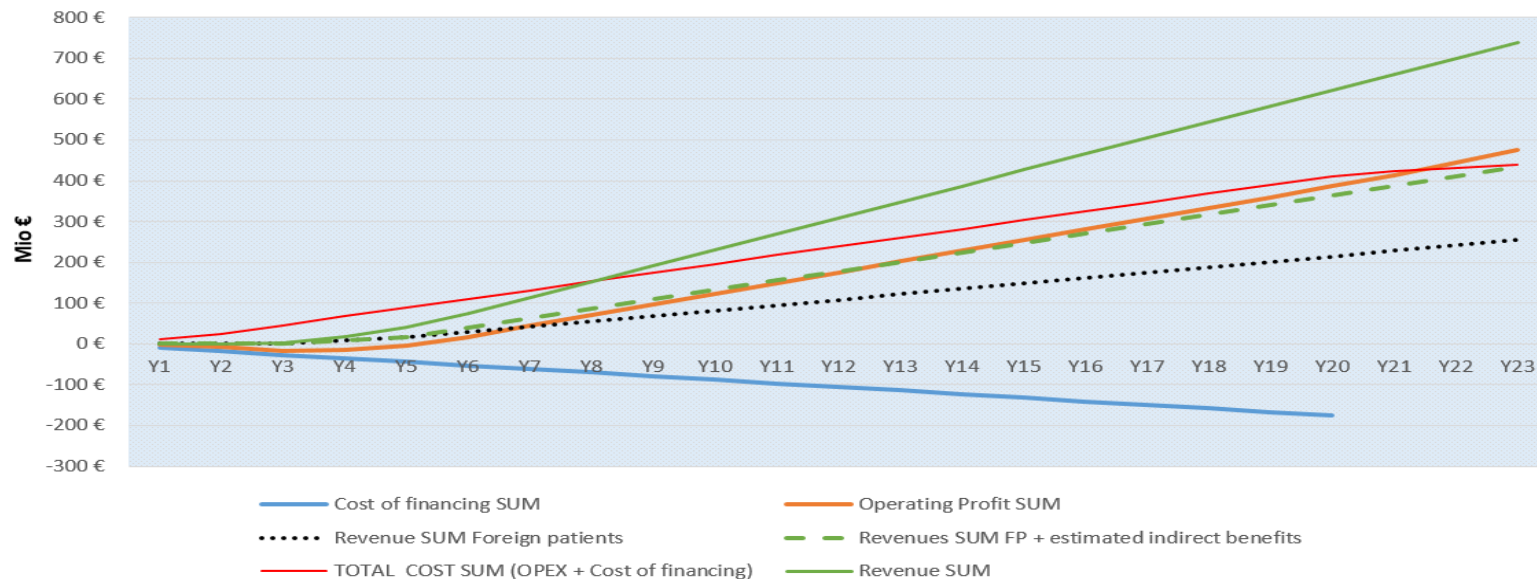
- ☐ SE Europe has no facilities and low competencies at both – Medical & Science level
- ☐ A plenty of **opportunities** in the regions
- ☐ **Right size** Country
- ☐ **Excellent links** with advanced centers; CERN, CNAO, MedAustron...
- ☐ High competencies, pool of **experts**: Oncologists, Radiologists & Medical Physicists

The MAIN ENABLERS & Challenges

Business model & Regional dimension

EUR 000	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
Investment									
Proton Therapy System	15.400 €	30.800 €	30.800 €						
Land & Building	25.000 €	8.000 €							
Total Investment	40.400 €	38.800 €	30.800 €						
Number of Patients treated per year (total)	0	0	75	350	600	900	1000	1000	1000
Number of Patients treated per year (foreign)	0	0	40	150	250	300	340	340	340
Revenues			2.925 €	13.650 €	23.400 €	35.100 €	39.000 €	39.000 €	39.000 €
Revenues generated by foreign patients			1.560 €	5.850 €	9.750 €	11.700 €	13.260 €	13.260 €	13.260 €
Operating costs									
Personnel	160 €	400 €	850 €	1.700 €	1.700 €	1.700 €	1.700 €	1.700 €	1.700 €
Services& Maintenance			2.500 €	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €	3.000 €
G&A and Others	510 €	850 €	2.500 €	2.500 €	2.500 €	2.500 €	2.500 €	2.500 €	2.500 €
Depreciation	2.020 €	3.960 €	5.500 €	5.500 €	5.500 €	5.500 €	5.500 €	5.500 €	5.500 €
Total OPEX	2.690 €	5.210 €	11.350 €	12.700 €	12.700 €	12.700 €	12.700 €	12.700 €	12.700 €
Operating profit	-2.690 €	-5.210 €	-8.425 €	950 €	10.700 €	22.400 €	26.300 €	26.300 €	26.300 €
Operating margin			-288%	7%	46%	64%	67%	67%	67%
Cost of financing	8.800 €	8.800 €	8.800 €	8.800 €	8.800 €	8.800 €	8.800 €	8.800 €	8.800 €
Cost of financing SUM	-8.800 €	-17.600 €	-26.400 €	-35.200 €	-44.000 €	-52.800 €	-61.600 €	-70.400 €	-79.200 €
Operating Profit SUM	-2.690 €	-7.900 €	-16.325 €	-15.375 €	-4.675 €	17.725 €	44.025 €	70.325 €	96.625 €
Profit SUM (Operating margin - Cost of financing)	-11.490 €	-25.500 €	-42.725 €	-50.575 €	-48.675 €	-35.075 €	-17.575 €	-75 €	17.425 €

SI PTC Profitability



EUR 000
Investment
Proton Therapy System
Land & Building
Total Investment
Number of Patients treated per year (total)
Number of Patients treated per year (foreign)
Revenues
Revenues generated by foreign patients
Operating costs
Personnel
Services& Maintenance
G&A and Others
Depreciation
Total OPEX
Operating profit
Operating margin
Cost of financing
Cost of financing SUM
Operating Profit SUM
Profit SUM (Operating margin - Cost of financing)
Revenue SUM
Revenue SUM Foreign patients
Profit SUM estimated indirect benefits
Revenues SUM FP + estimated indirect benefits
Revenues SUM + estimated indirect benefits
Profit SUM TOTAL (Profit SUM + Estimated indirect benefits)
TOTAL OPEX
TOTAL COST SUM (OPEX + Cost of financing)

The MAIN ENABLERS & Challenges

Optimum for the patients & Stop Brain drain



WHO: Ministry of Health, Chamber of Health, Faculty of Medicine, International dimension

GOAL: to fulfill the patients needs and for fully operating facility within the open „non-for-profit“ business model

HOW: starting timely to educate and to gain the competecies

- 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.
- The state of the art facility and of utmost skilled oncologists in the world – at home
- Oncology patients get the best care at home and thus...
- ...the extraordinary quality of living and the possibility of successful treatment.
- The spill over effect within the IOL for the whole oncology programme and indications

Key Factors for Slovenian PTC

- ❑ **Location:** we already confirmed two possible locations:
 - ❑ (i) MOL – near the TPL, (ii) IJS near the Reactor center Podgorica - Brinje
- ❑ **Clinical partnership:** 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:** responsible Ministers supports the initiative – in the discussion with the PMK; in a process to get an owner in the Ministry of Health (PMK)
 - ❑ **Business & Science Partners** – Consortium (Cosylab, Kolektor, IJS, MOL, Yaskawa, Gorenje, Riko, FMF, Medical Faculty...) on the run to sign the Lol
- ❑ **Technology partnership:** in defining the best possible option
- ❑ **Financial partnership:** PPP under EFSI using EIB backup for the government; in the process to list and to confirm the private investor
- ❑ **Project Management Team:** Cosylab, OIL, IJS are on board; in the process to get an owner on the Governmental side

Project (SI PTC) Benefits

- ❑ SI PTC proposed to ease congestions and to introduce **the most advanced radiotherapy treatment** for the oncology patients
- ❑ **Attractive ROI** and **reliable partner** - Slovenian Government
- ❑ Advanced State-of-the-art Proton Therapy Center **in the region & for the region**
- ❑ Introducing the **modern business model** for Institute of Oncology Ljubljana for operating SI PTC also at the regional level
- ❑ **High Value Added** infrastructure with **strong contribution** of SI businesses
- ❑ **Active** infrastructure with extraordinary market potential
- ❑ Private funding delivers at **No Cost to the Government**
- ❑ **Of outmost impact to the society**

...so Speed uPPP....

Janko Burgar, M.Sc

Senior Business Developer
&
President of the ScienceTech
Management Board at CCIS

Cosylab d.d.
www.cosylab.com

m: +386 (0)31 325 604
e: janko.burgar@cosylab.com
Skype: jankob67

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ROOM
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IMPROVEMENT**

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