



# Advanced Oncotherapy – Investment Highlights

**Delivering Affordable Proton Therapy**

*Energy Focused on Saving Lives*



*The following presentation of the AVO's LIGHT Proton Therapy Solution is part of our Development roadmap and is subject to conformity assessment(s) by AVO's Notified Body as well as 510(k) clearance by the USA-FDA*

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## A Personal Story



## A Personal Story (Cont'd)



- **Embryonal tumour with Multilayered Rosettes (ETMR):** aggressive, WHO-grade IV, brain tumour; occurs predominantly in infants under the age of 3 years
- The treatment = proton therapy
- A highly prohibitive treatment
- Our mission = democratise proton therapy
- New accelerators are needed; not the legacy technology used since the 50's
- **LIGHT**, a technology developed over 25 years + at CERN
  - 1<sup>st</sup> machine to be operated in London
  - Significant commercial traction already

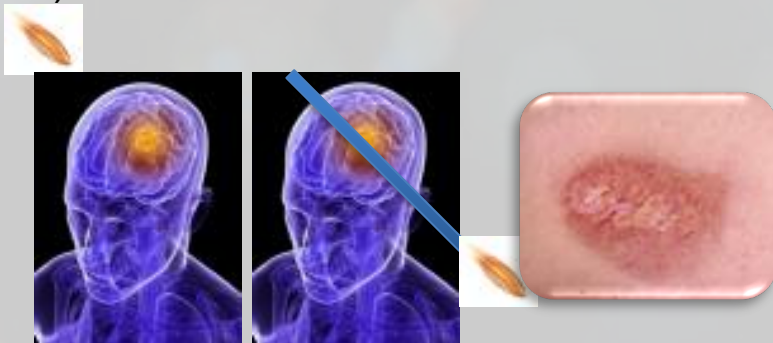
# Fast Growing Needs Massively Unmet Due to Costs

## Radiation

- Used in 2/3 of cancer cases in the US
- High dose of radiation kills by damaging the DNA
- Today, 98%+ of radiation is done through X-Rays

### X-rays

- X-rays = particles (photons)
- Tissues damaged along the path of photons to the tumour (before and after)
- Significant side effects (e.g., secondary tumour, skin burn)



### Proton Therapy (PT)

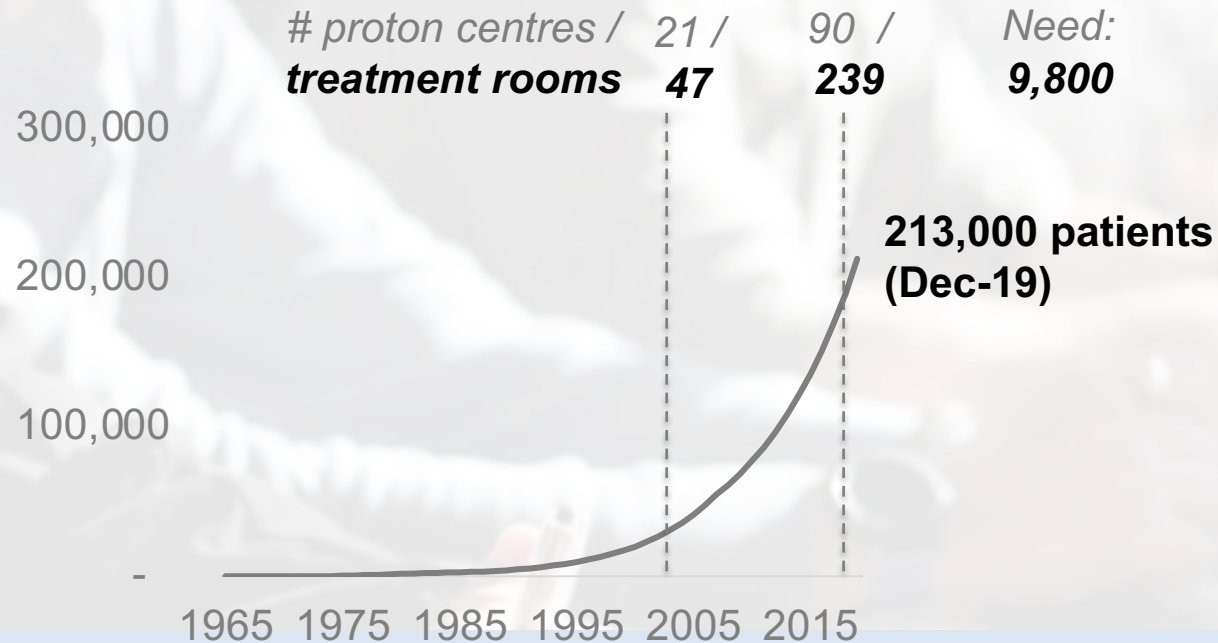
- PT use different particles (protons)
- Protons deposit most of their killing energy on a spot, called the Bragg peak
- Generating 60% less radiation to healthy surrounding tissue



- Deep tumour = 230MeV
- Superficial tumour = 50/70MeV

# Massive and Growing Needs Largely Unmet Due to Costs

Awareness is increasing, significant needs remains



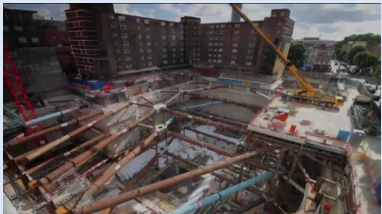
- But treatment cost is too expensive...

- Current average treatment price: £90k
- "If cost was not an issue, proton therapy would be the treatment of choice for most patients with localized tumours."

Prof Jay Loeffler, Harvard Medical School

- Equipment is only a fraction of the project cost

- Direct consequence of using circular accelerators



80,000 m<sup>3</sup> of material excavated



A hole that was 28m deep



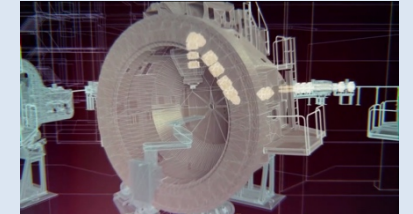
128 tonnes door to the concrete maze



3,000 lorry loads of concrete delivered



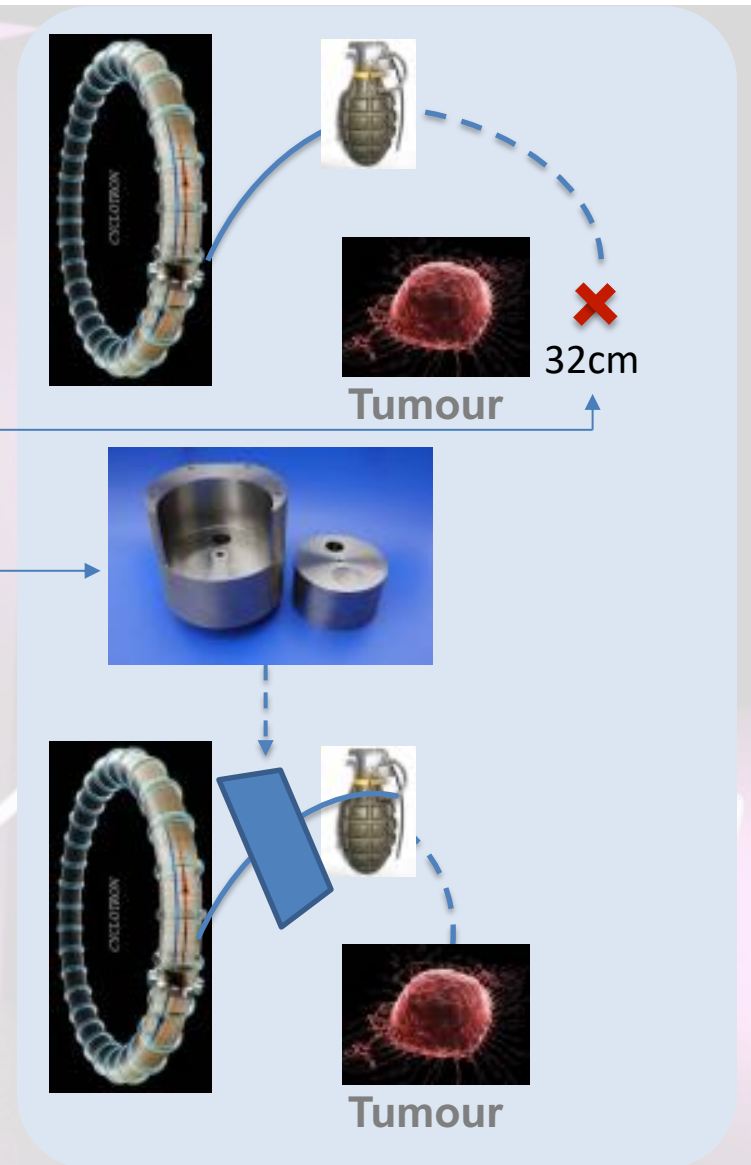
90 tonnes accelerator



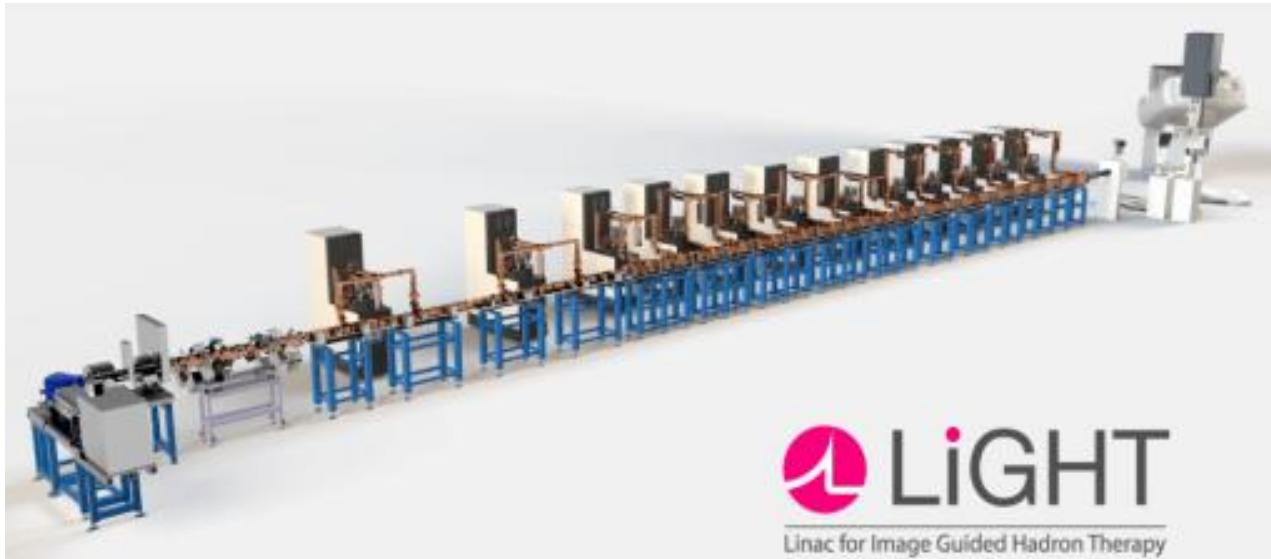
58 tonnes gantry and 300 tonnes of magnets

## Current Shortcomings

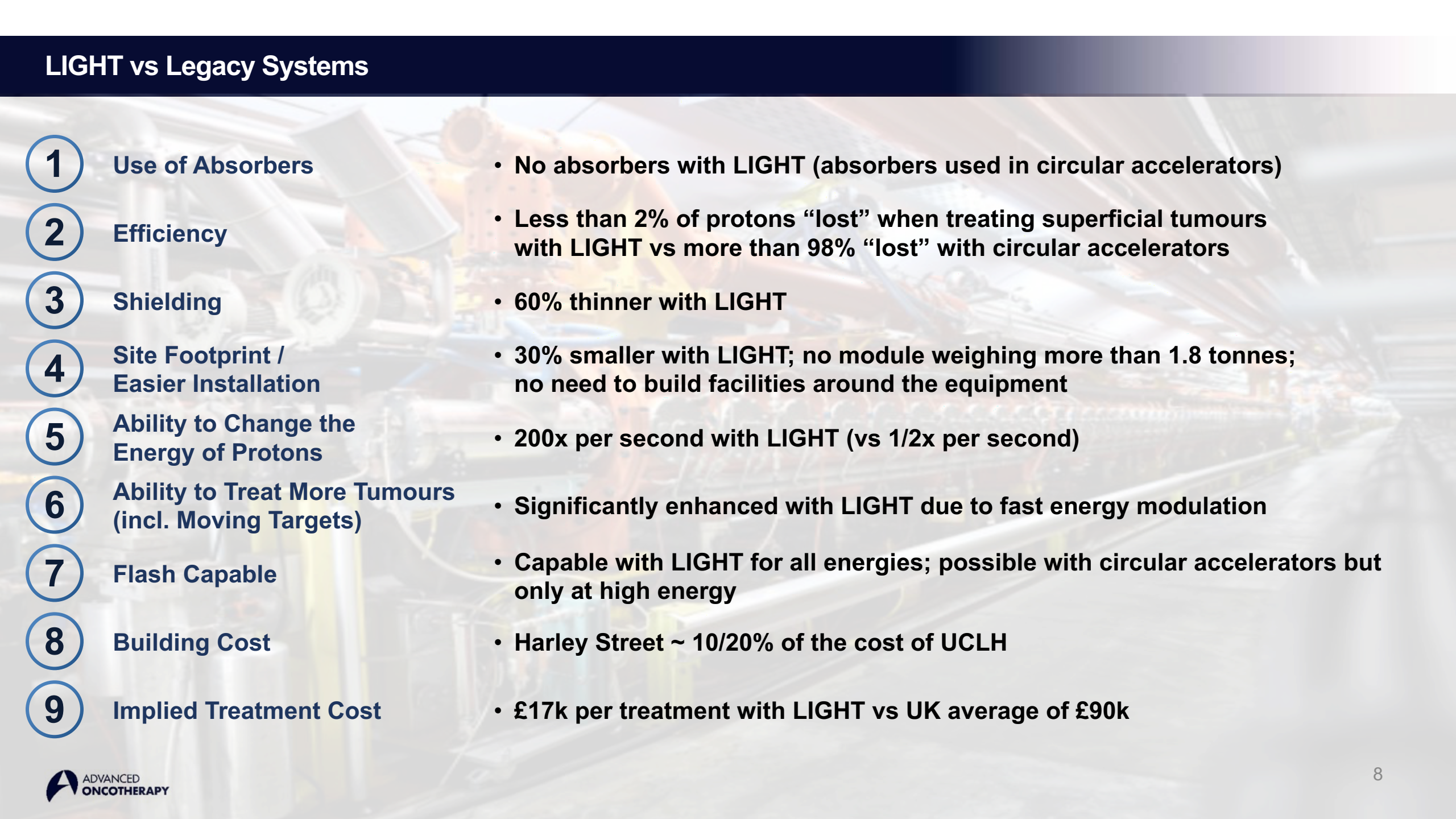
- **Current proton therapy systems = 90-tonne circular accelerators designed 60 years+ ago**
- **Protons from circular accelerators always exit at maximum and fixed energy (damage at a maximal depth of 32cm)**
- **Energy of protons must be reduced by using absorbers at the end of the accelerator**
- **Use of absorbers creates induced radiation in the accelerator hall**
  - 98%+ of protons are “lost” when treating superficial tumours
  - Significant shielding required
- **Absorbers are mechanically rotated, only 1-2x per sec.**
  - Current machines not well suited for treating moving targets



# Revolutionary CERN Technology Protected through Patents and Know-How



# LIGHT vs Legacy Systems

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- 1 Use of Absorbers**
    - No absorbers with LIGHT (absorbers used in circular accelerators)
  - 2 Efficiency**
    - Less than 2% of protons “lost” when treating superficial tumours with LIGHT vs more than 98% “lost” with circular accelerators
  - 3 Shielding**
    - 60% thinner with LIGHT
  - 4 Site Footprint / Easier Installation**
    - 30% smaller with LIGHT; no module weighing more than 1.8 tonnes; no need to build facilities around the equipment
  - 5 Ability to Change the Energy of Protons**
    - 200x per second with LIGHT (vs 1/2x per second)
  - 6 Ability to Treat More Tumours (incl. Moving Targets)**
    - Significantly enhanced with LIGHT due to fast energy modulation
  - 7 Flash Capable**
    - Capable with LIGHT for all energies; possible with circular accelerators but only at high energy
  - 8 Building Cost**
    - Harley Street ~ 10/20% of the cost of UCLH
  - 9 Implied Treatment Cost**
    - £17k per treatment with LIGHT vs UK average of £90k

# Broad Industrialisation Ecosystem in Place

1

## Outsourced Production

- Manufacturing of individual parts of LIGHT is outsourced
- De-risked strategy
- Leaner operation
- Opportunity to reduce cost through optimisation and high-volume production

2

## Network of High Quality World-Class Partners



3

## Assembly Site Located in Daresbury, UK

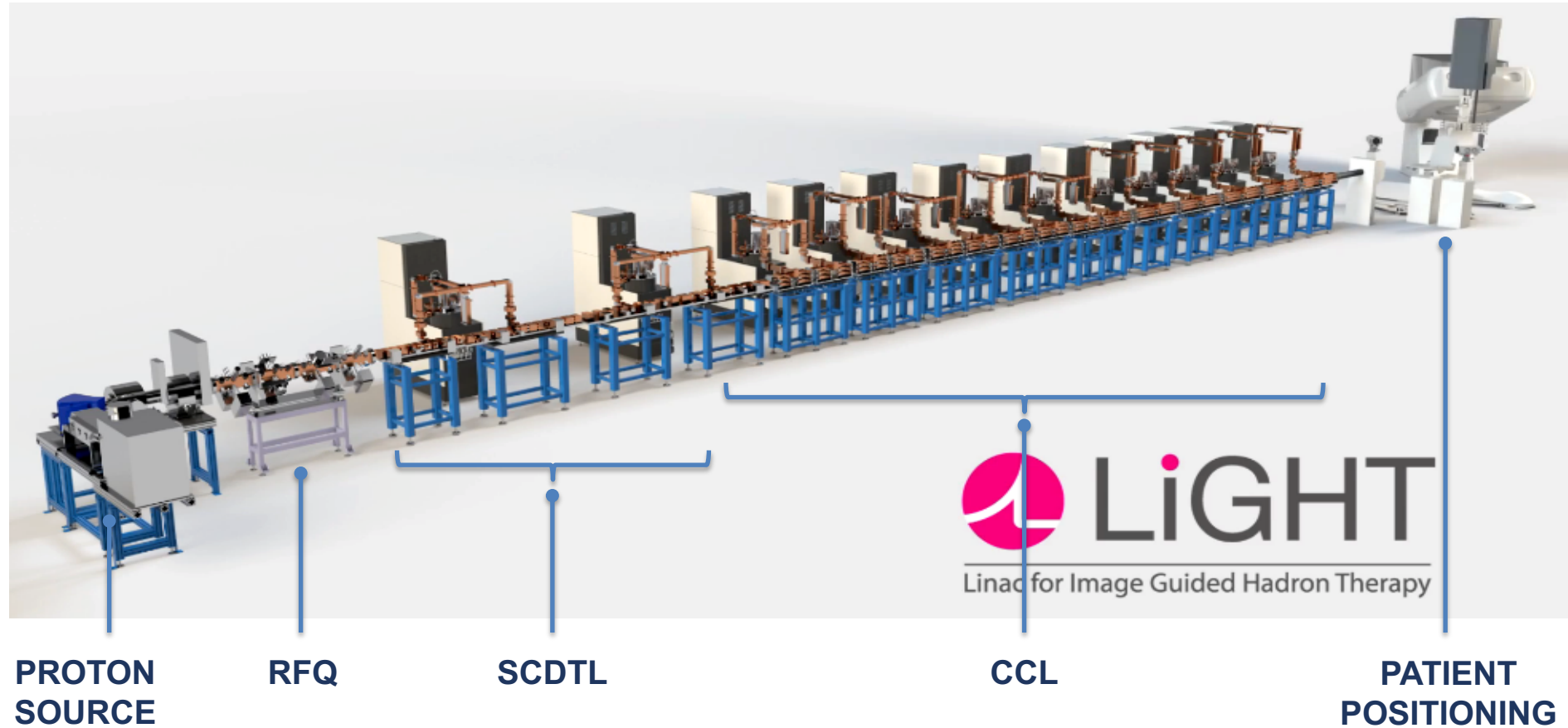
- Site to be capable of assembling 8 machines per year on two assembly lines
- Operated by STFC
- First patient to be treated with medical partner, Queen Elizabeth Hospital at the assembly site

4

## Dual Sourcing Strategy

- Low risk of supply disruption
- Increases leverage

## Project Ready for The Next Phase: Verification and Validation



**All critical hardware manufactured; in the process of assembly and Verification/Validation**

# Complementary and Highly Sustainable Revenue Streams

## *Differentiated Offering Leads to a Differentiated Business Model*

- Four revenue streams: equipment sale, maintenance, technology upgrade and long term revenue sharing / PPP
- Three transactions announced in February with revenue sharing arrangements
- AVO Financial Solutions can offer leasing and financing for proton therapy centres



## Partnership with The London Clinic – Overview of the Operator

*On 11<sup>th</sup> February 2020, AVO and TLC announced a partnership for the site located in Harley Street*

- **Private healthcare organisation and registered charity; opened by the Duchess of York in 1932**
- **234 beds and 10 theatres (including a hybrid theatre); 750 members of clinical staff; About 15% of earnings from overseas patients**



- **Strong rationale for TLC to be associated with AVO**
  - Strong focus on disruptive technologies
  - Adjacent building
- **Recent partnership between TLC and Cleveland Clinic = More patients to benefit from LIGHT**

## Partnership with UHB /Queen Elizabeth – Overview of the Operator

*On 20<sup>th</sup> February 2020, AVO and UHB announced a partnership for installing LIGHT in Birmingham*

- **One of the largest regional centres for non-surgical cancer treatment**
- **More than 2.2 million patients p.a.**
- **Queen Elizabeth =**
  - 1,215 patient beds including 100 critical care beds
  - 6 MRI scanners
  - 5CT scanners
- **Supporting AVO for the Clinical Investigation Plan in Daresbury and clinical partner for the Daresbury site**



## Partnership with the Mediterranean Hospital – Overview of the Operator

*On 17<sup>th</sup> February 2020, AVO and the Mediterranean Hospital (Cyprus) announced a €50m purchase order*

- **Located in Limassol, Cyprus; opened in 2013**
- **One of the largest private hospitals in Cyprus**
- **First health centre integrated with the newly created National Health System (NHS) of Cyprus**
- **Plans to expand the hospital from c. 200 beds to 500 beds**

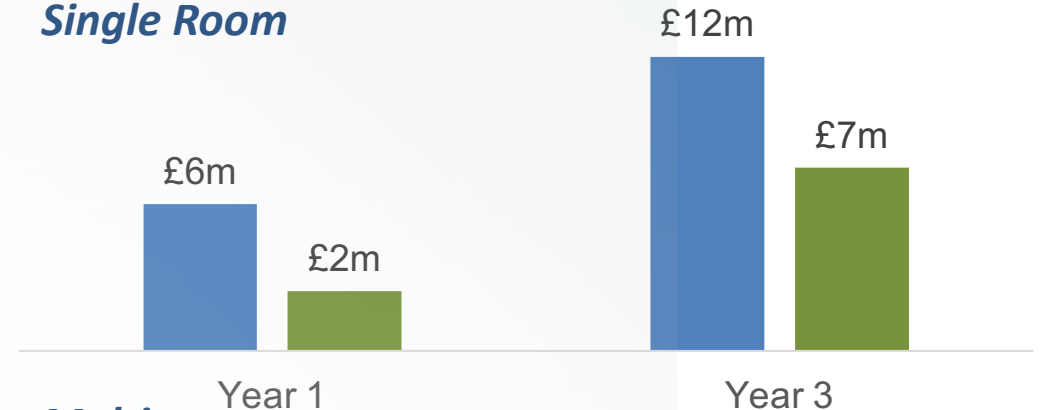


## Illustrative Economics for a Customer

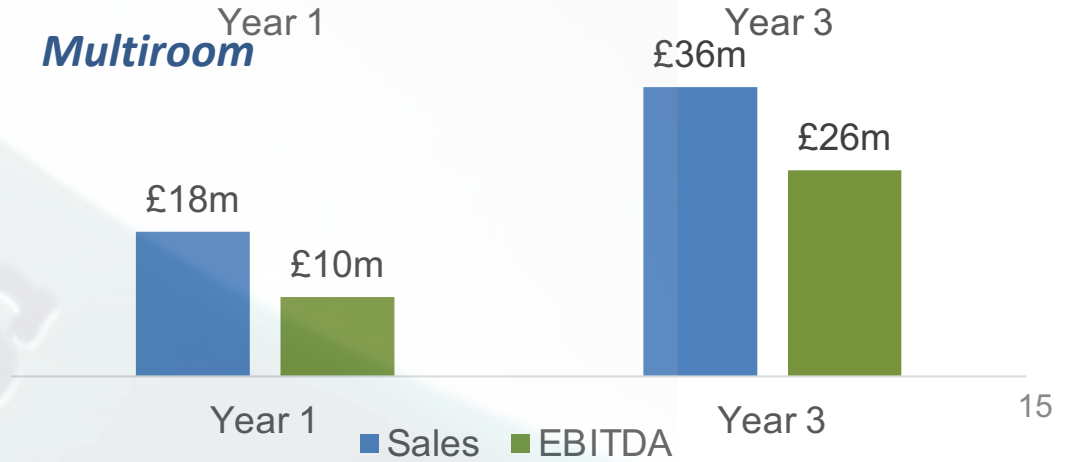
- Price of £40,000 per treatment, which is low in the current market offering, and will go down going forward
- Ample room to add an attractive margin whilst making proton therapy affordable and at a cost close to conventional radiotherapy
- Full capacity set conservatively at 300 patients – before hypofractionation and FLASH
- Assuming margins of 60%+ for single room and 70%+ for multiroom systems
- Question: How to balance returns for AVO vs customers?

### Illustrative Economics of a PBT Centre Equipped with LIGHT

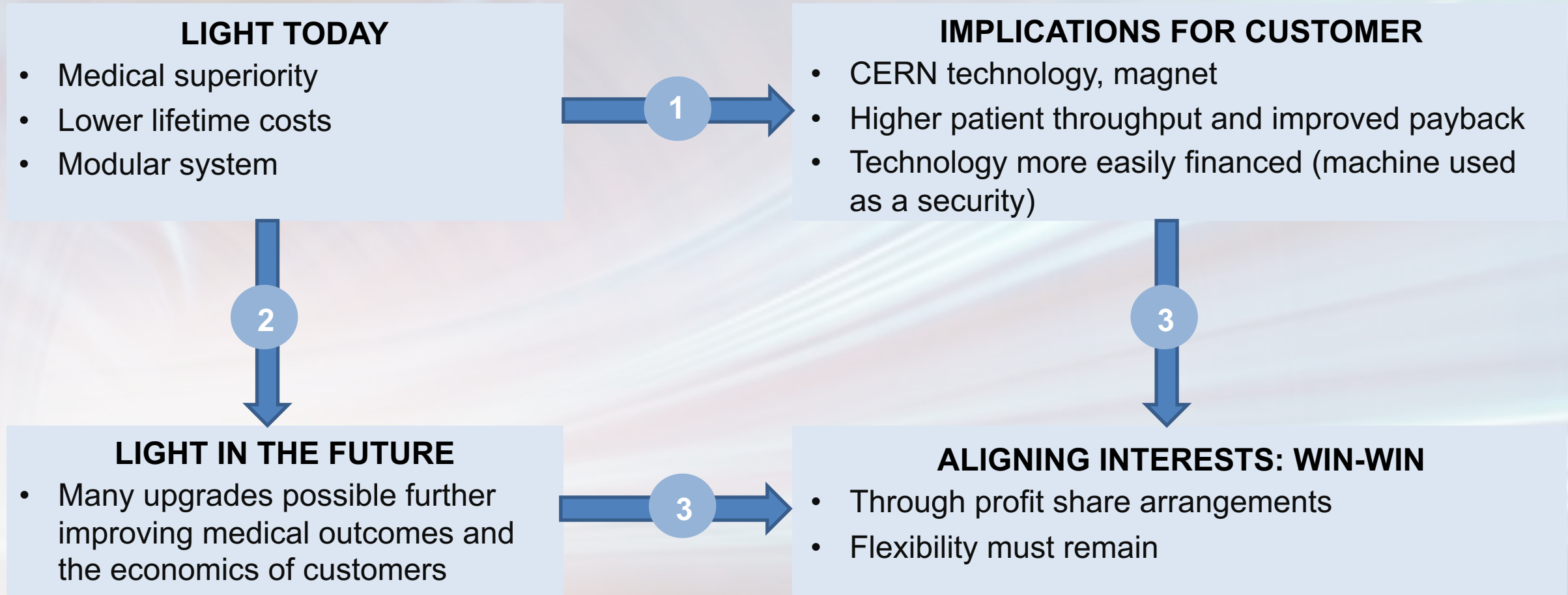
#### Single Room



#### Multiroom

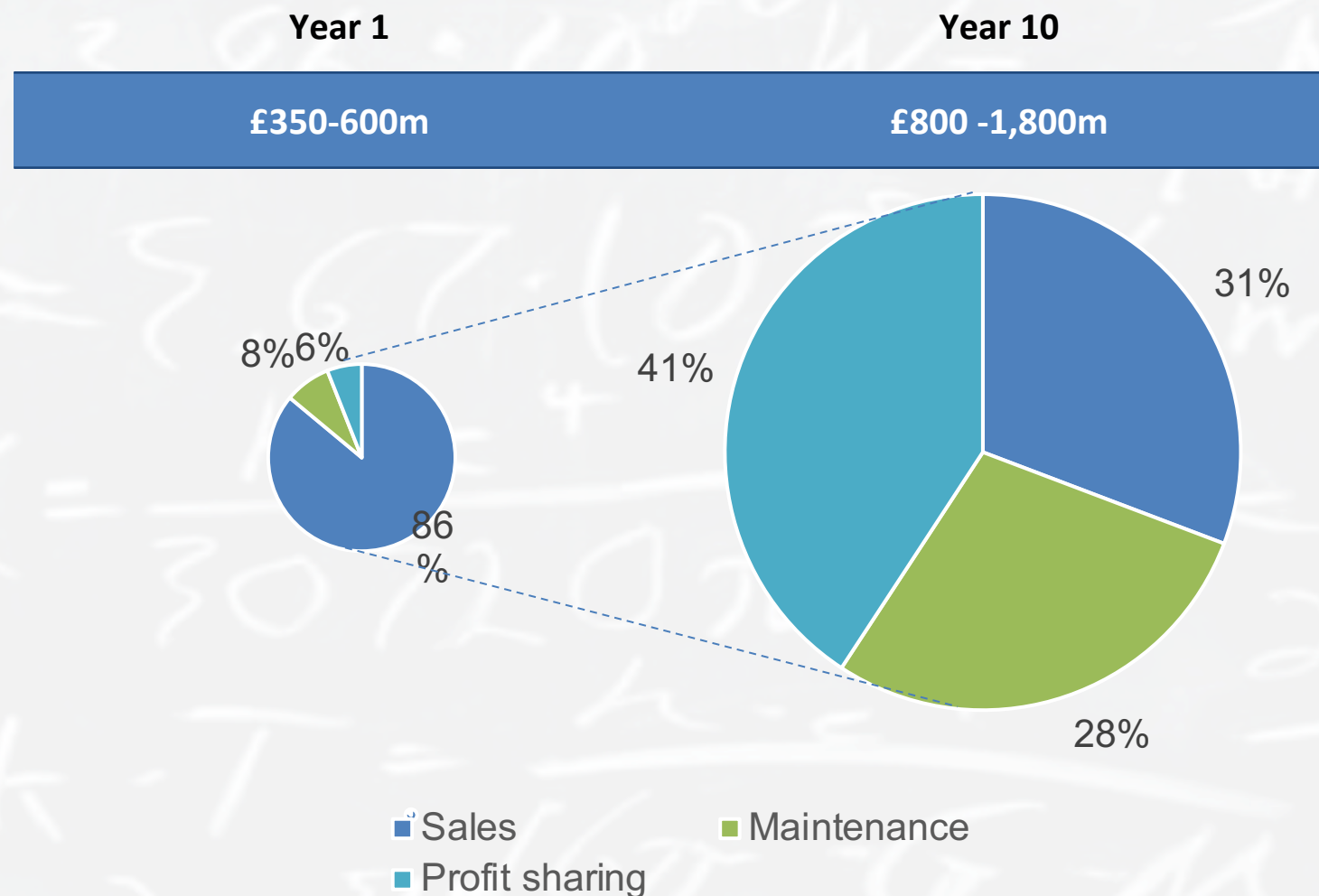


## Aligning Interests is Key to Delivering on our Mission




## How the Maths Work

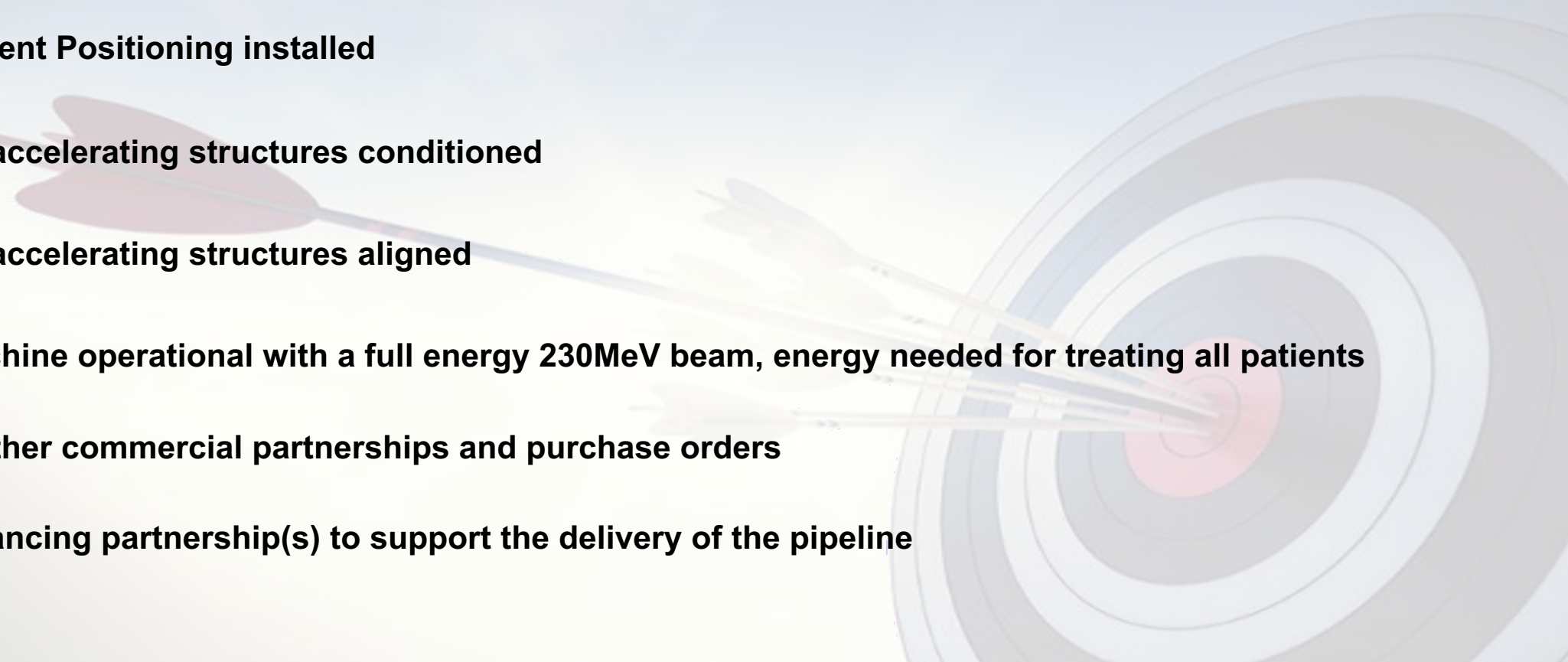
- Assuming 10 multiroom systems sold p.a., over 10 years
- Sales: £30m-£50m each
- Maintenance: 8% to 10% p.a.
- Profit sharing: 20%-50% of the clinic's net profit



## Funding Our Pipeline Through Financing Partnerships

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- **Approx. 14,000 Xray machines vs 90 proton centers**
  - **Modular machine = security**
  - **Funding of the construction of machines and customers**
  - **Proton therapy, the new MRI industry**
    - MRI: from research use to a \$50bn market in the US
    - Smaller machines and easier to finance: keys to unlock the potential

## Key Deliverables for 2021

- **Medical software suite integrated in standalone operation**
  - **Patient Positioning installed**
  - **All accelerating structures conditioned**
  - **All accelerating structures aligned**
  - **Machine operational with a full energy 230MeV beam, energy needed for treating all patients**
  - **Further commercial partnerships and purchase orders**
  - **Financing partnership(s) to support the delivery of the pipeline**
- 

# Best-in-Class Team



## Key Investment Highlights

**A**

**Growing market with massive needs unmet due to treatment costs**

**B**

**Revolutionary CERN technology addressing the current shortcomings in radiation therapy**

**C**

**Complete industrialisation ecosystem in place with high-quality partners**

**D**

**Rigorous process-driven approach allowing the company to deliver on its plan**

**E**

**Business model with strong complementary and sustainable revenue streams; endorsed by highly-prestigious customers**

**F**

**Experienced management team with great track-record and supported by high-profile industry experts**

**G**

**Doing good and well – a story with a clear social purpose and true impact**