



Cancer research funding—Navigating a competitive environment The role of collaboration and innovation

4 April 2019

Chair Miranda Brawn, Senior Business, Legal and Diversity Executive and Founder of The Miranda Brawn Diversity Leadership Foundation

Panel Jonathan Tobin, Investment Director, Arix Biosciences

Tony Hickson, Chief Business Officer, Cancer Research UK

Dr Maximilian Martin, Global Head of Philanthropy, Bank Lombard Odier & Co Lt

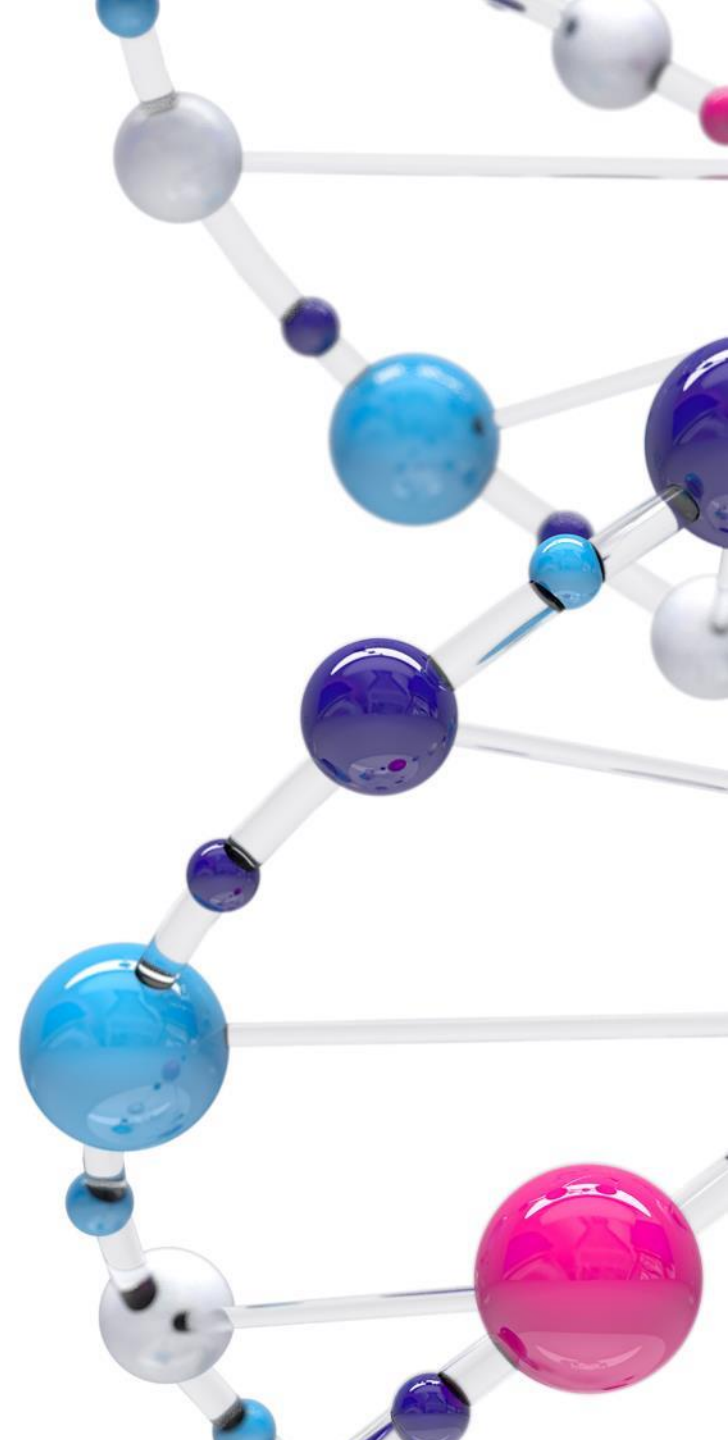


Rules of Engagement

- Chatham House rules
- No solicitation or pitches

Cancer Research UK

April 2019



CANCER RESEARCH UK IN NUMBERS

WE ARE THE LARGEST NON-GOVERNMENT FUNDER OF CANCER RESEARCH IN THE WORLD

We work with

42

NHS hospital trusts across our portfolio of trials

We support research in over

70

institutions

In 2017/2018 we enrolled

12,000

patients in clinical trials around the UK

Since the early 1980s, we have taken

160

new drugs into early clinical trials leading to 5 new medicines

We support over

500

Principal Investigators

We support more than

4,000

researchers, doctors and nurses

Since 1995 more than

100,000

patients have taken part in our treatment trials

In 2017/2018 we made funding decisions worth

£423M

TRANSLATION (DRUGS): IMPACT ON PATIENTS



- Cisplatin and carboplatin – CRUK funded researchers in London developed these widely used cytotoxic chemotherapy drugs that are on the WHO’s list of essential medicines
- Dexrazoxane – a drug developed by ICRF scientists that protects your heart from the effects of chemotherapy in breast cancer
- Vismodegib – a drug developed by CRUK researchers in Oxford that targets the hedgehog pathway and was developed to market by Genentech for skin cancer
- Abiraterone - a prostate cancer drug used in advanced disease was discovered at the Institute of Cancer Research
- Temozolomide - frontline treatment for glioblastoma, discovered by CRUK scientists at the University of Aston
- Rucaparib - a “first-in-class” drug discovered by CRUK scientists at the Northern Institute for Cancer Research in Newcastle
- Olaparib - a PARP inhibitor developed at ICR and commercialised as Lynparza® via AstraZeneca

MULTIPLE COMMERCIALISATION APPROACHES

Alliances

6 major partner alliances in our Therapeutic Discovery Labs

Licences

120 existing licences

Collaborations

21 collaborations completed as of 2018

Spin-outs

We have been involved in the formation and development of over 30 spin-out companies

MERCK



LifeArc



TUSK
THERAPEUTICS

glythera

artios



ionctura

NIH NATIONAL CANCER INSTITUTE



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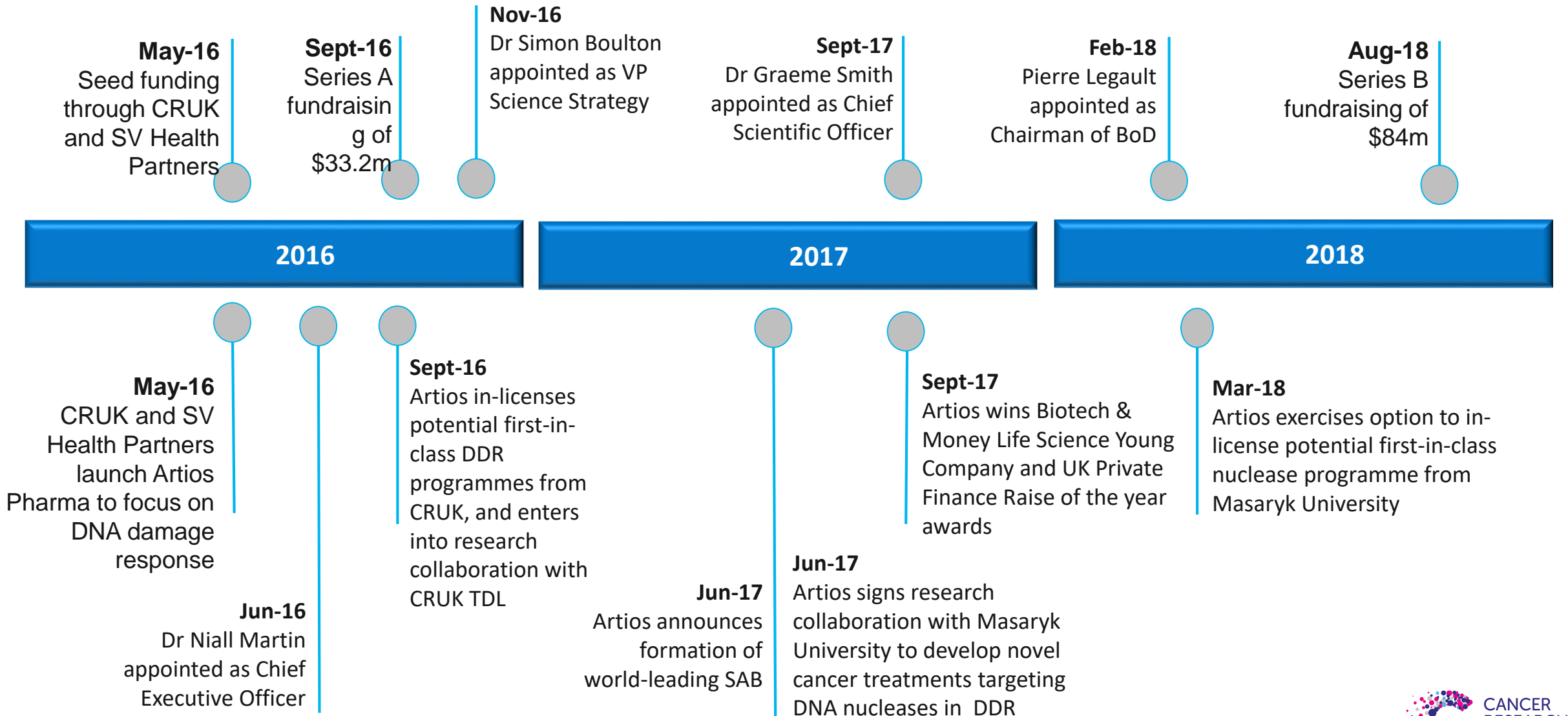


ionctura

NIH NATIONAL CANCER INSTITUTE

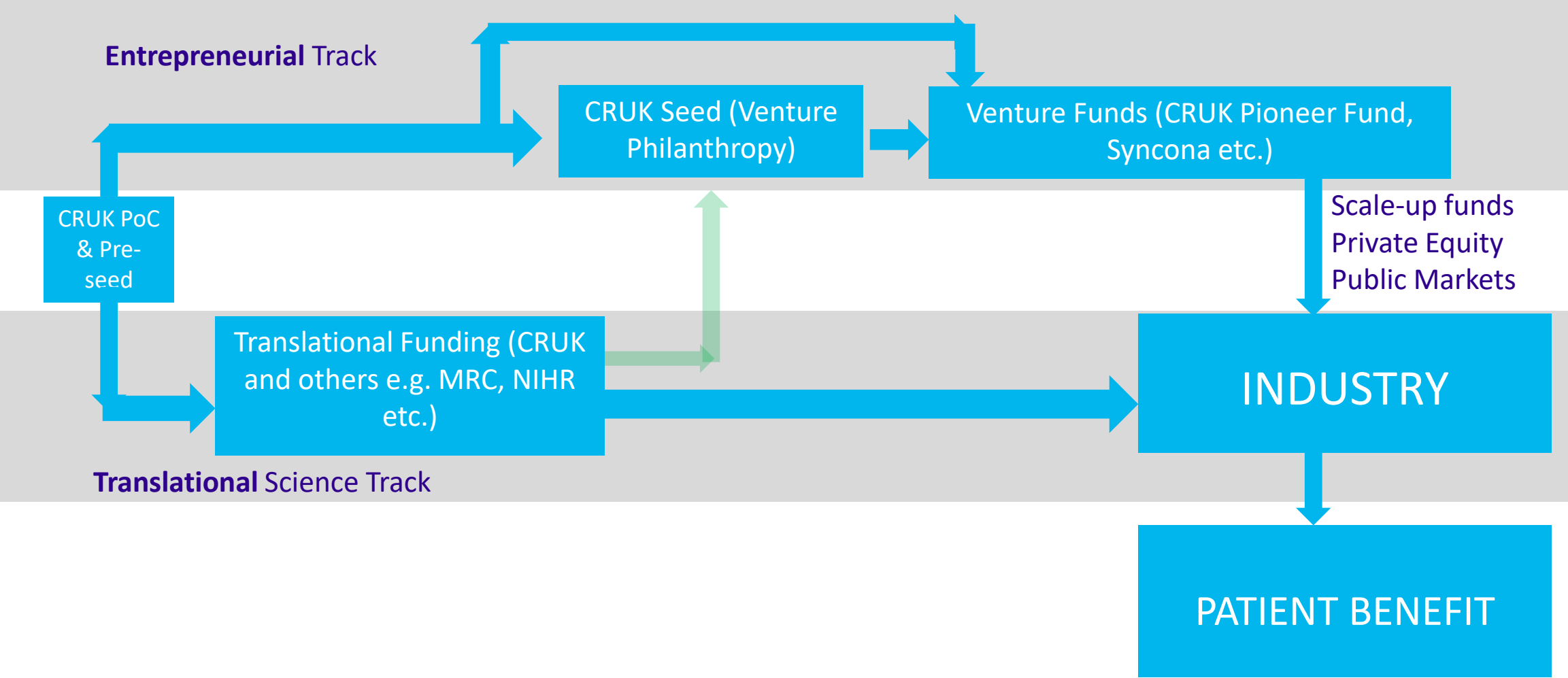


THE ARTIOS DEVELOPMENT STORY



DEVELOPING EARLY STAGE IDEAS TO MARKET

'DUAL TRACK OPTION'



INVESTMENT-RETURN CONTINUUM

Grant giving & funding research

Investing in IP, alliances, start-ups, seed & venture funds

Endowment (acting ethically)

SOCIETAL IMPACT MISSION RELATED INVESTMENT CONTINUUM

FOCUS	Achieving impact primarily through grant (some loan) funding		Measurable high impact solutions to societal problems Seeking positive outcomes		Sustainable investment, pursuing ESG practices/ positive outcome		Responsible investment, avoid harm/negative outcomes					
	PHILANTHROPY		VENTURE PHILANTHROPY		SOCIAL INVESTMENT		THE MIDDLE GROUND*		IMPACT - SRI - ESG INVESTMENT		TRADITIONAL CONVENTIONAL INVESTMENT	
FOCUS	Societal returns/ impact Generally no financial returns to the social investor/ philanthropist		Matching the soul of philanthropy with the spirit of investment, resulting in high engagement and a long term approach to creating social impact Generally no financial returns to the social investor/ philanthropist		Societal return SECONDARY FOCUS: Below market financial Return to the social investor - or returns not proven		Relatively even balance on achieving a societal return as well as a competitive financial return Tolerate higher risk		Maximimising financial returns to investor Delivering competitive financial returns SECONDARY FOCUS: Creating societal returns		Maximising Financial Returns to Investor, No regard for ESG Delivering: Competitive Financial Returns	

*The middle ground rests at the mid point of the continuum between social investment in social enterprises (whose primary purpose is a societal return of some type; and only secondarily with some modified form financial return) and impact/ SRI/ESG investing (whose primary purpose is to maximise financial returns to

investors whilst achieving some social good which is secondary). The middle ground is where there is an equal emphasis and balance between societal and financial returns on investment.

IMPACT DRIVEN



MIXED MODE IMPACT & RETURNS DRIVEN



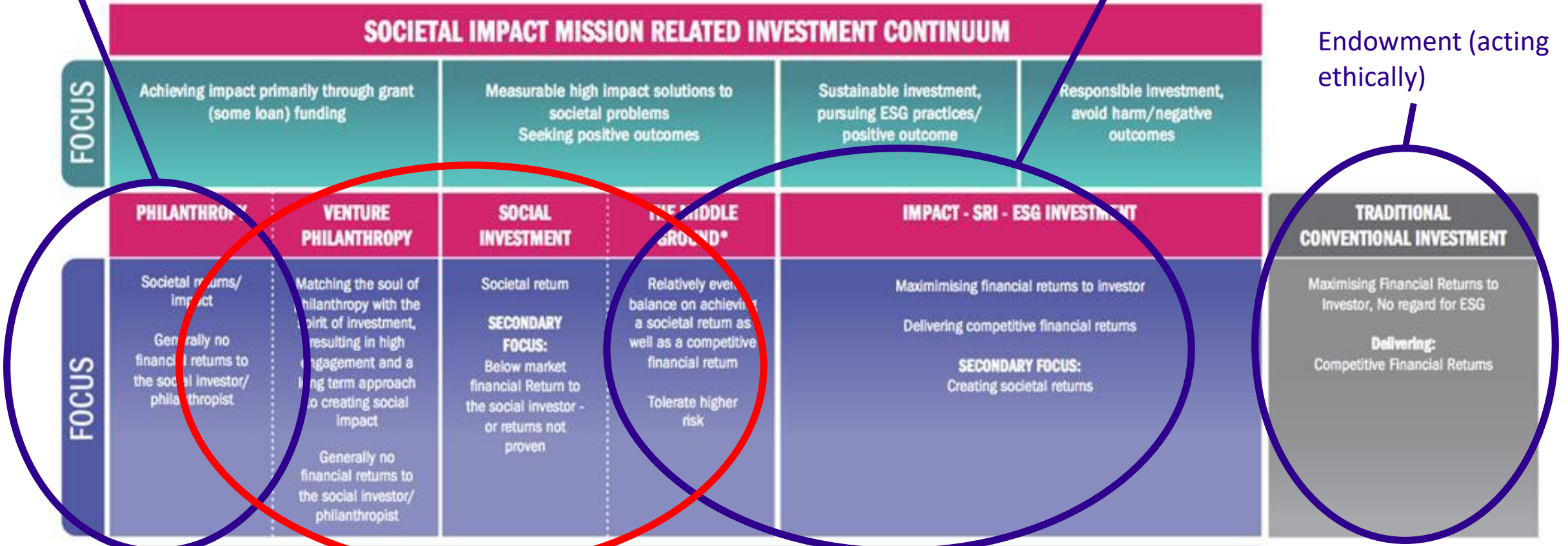
RETURNS DRIVEN

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IMPACT DRIVEN



MIXED MODE IMPACT & RETURNS DRIVEN



RETURNS DRIVEN

An opportunity?

INTERNATIONAL REACH OF CRUK GRAND CHALLENGE

UK INSTITUTIONS

- BUNCH**
National Physical Laboratory
Imperial College London
The Francis Crick Institute
Institute of Cancer Research
Barts Cancer Institute
CRUK Cambridge Institute
AstraZeneca
CRUK Beatson Institute

- HANNON**
CRUK Cambridge Institute
University of Cambridge

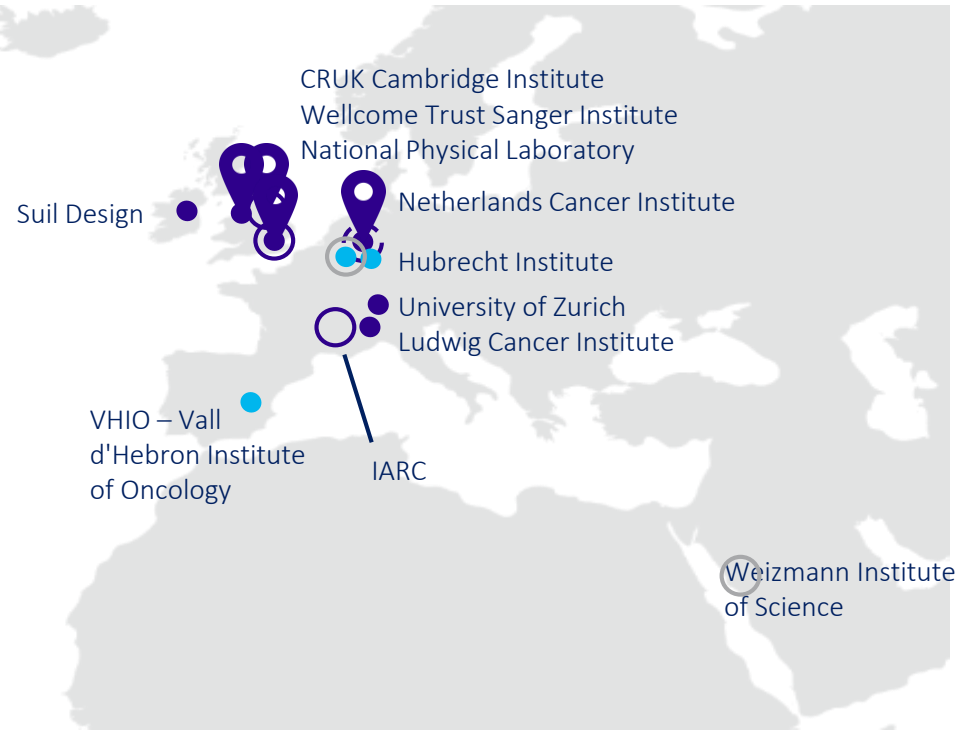
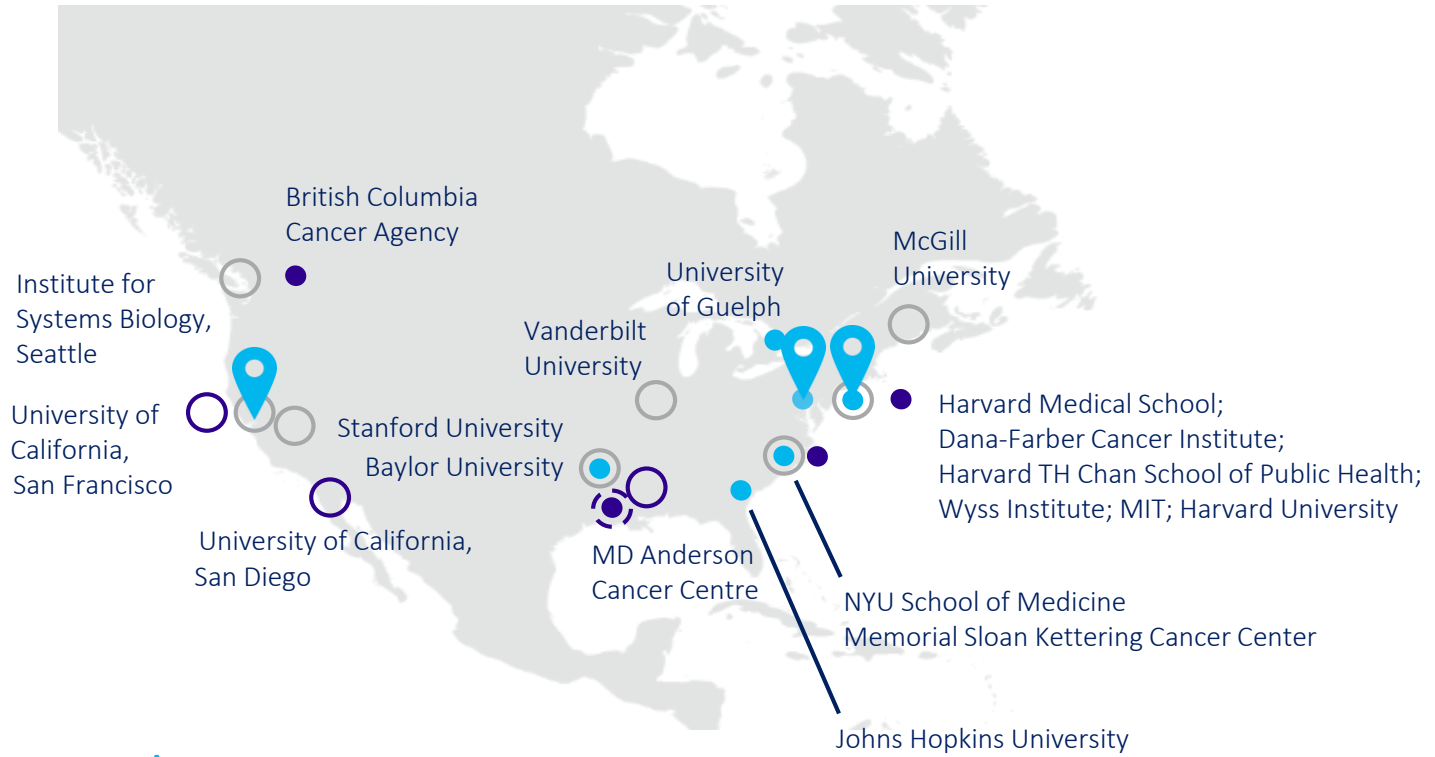
- STRATTON**
Wellcome Trust Sanger Institute
King's College London

- MEYERSON/GARRETT**
University of Oxford
University of Leeds

- WESSELING**
Wellcome Trust Sanger Institute
King's College London
University of Birmingham

- ELLEDDGE**
CRUK Manchester Institute
CRUK Beatson Institute

- TLSTY**
Queen Mary University of London
CRUK Cambridge Institute



Round 1

- BUNCH**
- HANNON**
- STRATTON**
- WESSELING**
- PIs**

Round 2

- ELLEDDGE**
- MEYERSON/GARRETT**
- TLSTY**
- PIs**

NEW STRATEGIES FOR FUNDING & COLLABORATION PARTNERSHIPS WITH CORPORATES FOR HEALTH & WELLBEING

Tesco

Health Partnership & Race for Life

OBJECTIVES

RACE FOR LIFE

- Employee and customer engagement
- Encouraging healthier lifestyle choices
- Drive brand awareness and affinity for Tesco

HEALTH PARTNERSHIP

- A four-way strategic partnership with BHF, Diabetes UK and Tesco to transform the health of the nation, raise vital funds and educate and empower Tesco pharmacists

ACTIVITY

RACE FOR LIFE

'TESCO TURNS PINK' FLAGSHIP FUNDRAISER IN APRIL 2018 RAISED OVER £400,000

SINCE 2002, 300,000 TESCO EMPLOYEES HAVE TAKEN PART IN A RACE FOR LIFE EVENT, RAISING OVER £23.5M

A BESPOKE TESCO RACE FOR LIFE EVENT AT WELWYN GARDEN CITY

HEALTH PARTNERSHIP

DEVELOPING THE UK'S LEADING WORKPLACE HEALTH PROGRAMME FOR TESCO'S 300,000 EMPLOYEES



Increased brand affinity
through R4L partnership

82% 34%

Race for Life
participants surveyed
aware that Tesco are a
sponsor

Race for Life
participants surveyed
feel more positive
about Tesco because
they support the event

Race for Life is **Tesco's most
recognised community activity**

A baseline survey of
9,000 Tesco employees

In summer 2018 to benchmark employee
health. This data will guide our health
interventions.

Tesco is funding our **London and North East
Cancer Awareness**

Roadshows

Which reach a total of **60,000 people** each
year across **four units**

Since 2002 our longstanding
partnership with Tesco has raised

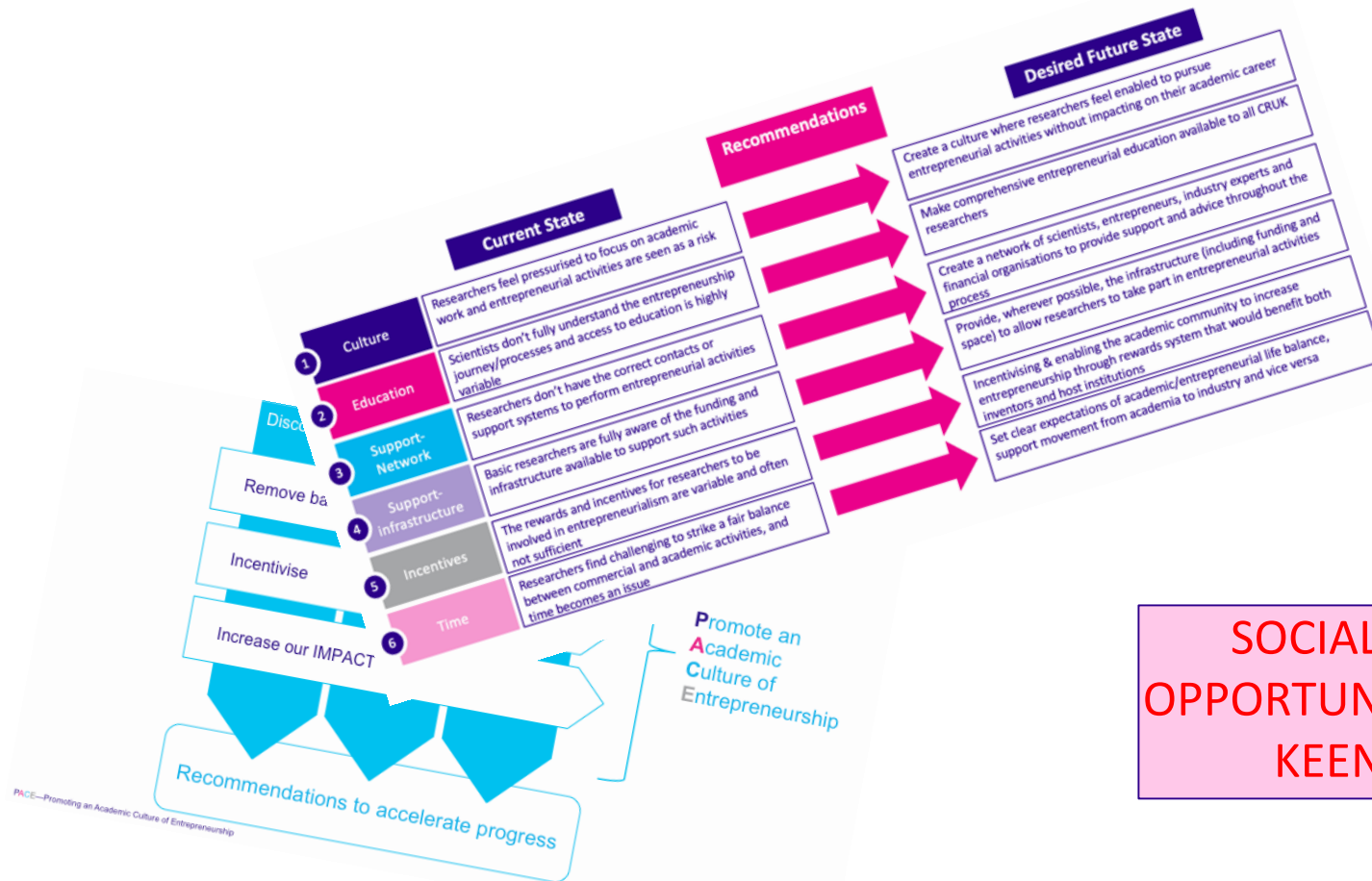
£45m

through fantastic support from colleagues and
customers



NEW STRATEGIES FOR FUNDING & COLLABORATION

- ENCOURAGING ENTREPRENEURSHIP IN EARLY CAREER RESEARCHERS



- Mentorship Programmes
- Accelerators
- Pitching competitions
- Innovation summits
- Customer Discovery Journeys
- Enterprise Fellows
- Prizes

SOCIAL IMPACT & CULTURE CHANGE
 OPPORTUNITY TO FUND AND GET INVOLVED
 KEEN TO LOOK AT NEW MODELS

NEW STRATEGIES FOR FUNDING & COLLABORATION

PHILANTHROPIC CONSORTIA (VENTURE PHILANTHROPY) FOCUSED ON:

Areas of unmet need or market failure in oncology

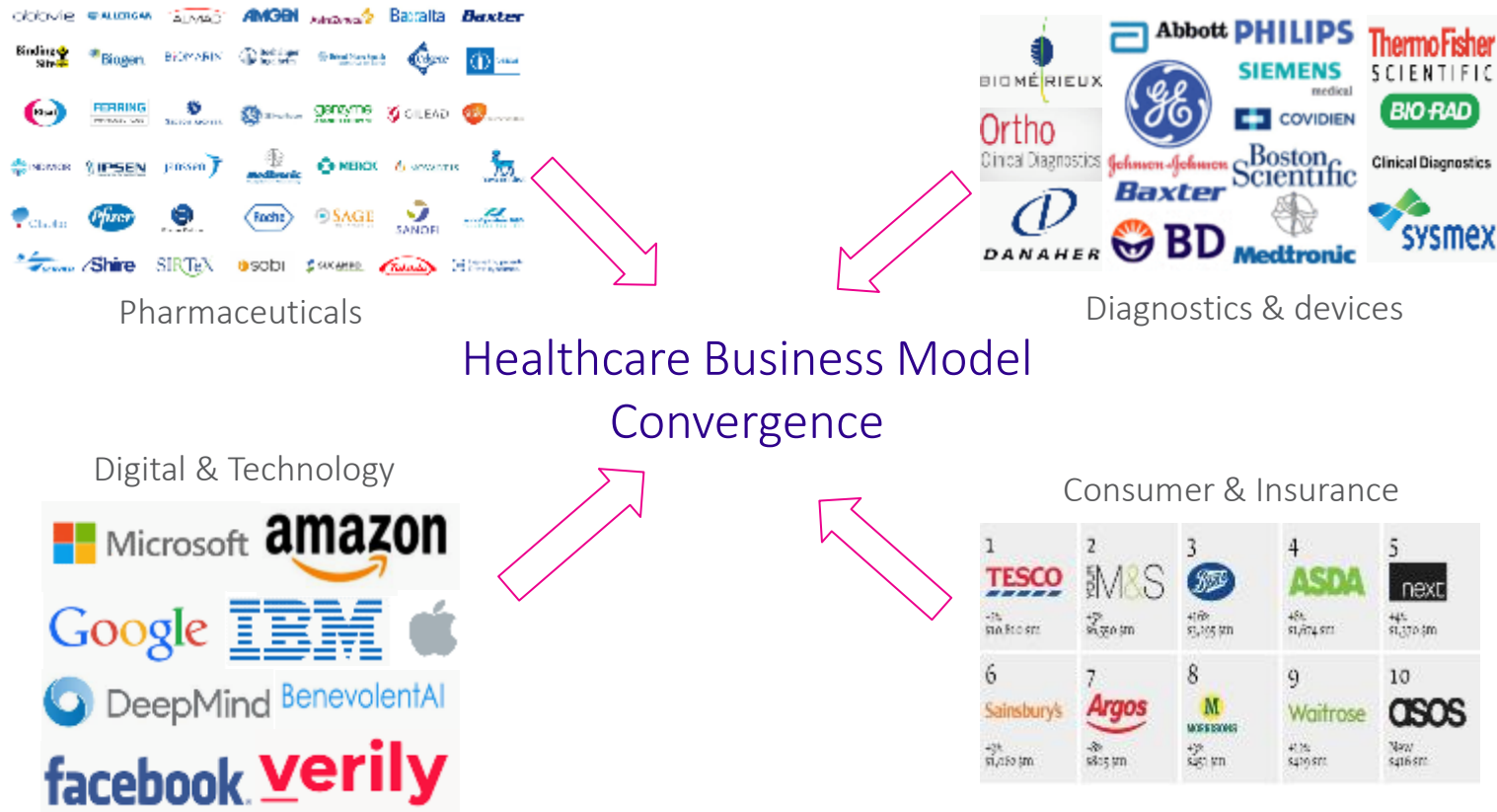
FOR EXAMPLE:

- **Radiotherapy**
- **Early detection & diagnosis**
- **Paediatric medicines**
- **Cancers with high unmet need (e.g. Pancreatic, Brain, Oesophageal, Lung, Rare)**

**SOCIAL IMPACT MODELS?
KEEN TO LOOK AT NEW MODELS OF
VENTURE PHILANTHROPY HERE**

ADAPTATION TO CONVERGENCE IN THE FUTURE

“It Is Not the Strongest of the Species that Survives But the Most Adaptable” Charles Darwin



The future importance of data/AI, pricing & reimbursement, patient-centric, personalized health, prevention, wellness not illness



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**Cancer research funding—Navigating a competitive environment
The role of collaboration and innovation**

Dr. Maximilian Martin

Philanthropy Services

April 4, 2019

Philanthropy and sustainable investing are in our DNA

 <p>1796</p>	 <p>1841</p>	 <p>1863</p>	 <p>1911</p>	 <p>2001</p>	
	<p>Alexandre Lombard warns against investing in slavery</p>	<p>Contribution to the foundation of the future Red Cross</p>	<p>Amongst the first private Swiss companies to establish an employee pension fund</p>	<p>Founding member of Blue Orchard Finance S.A., pioneer in microfinance</p>	
 <p>2004</p>	 <p>2007</p>	 <p>2008</p>	 <p>2010</p>	 <p>2012</p>	
<p>Creation of Fondation Lombard Odier</p>	<p>LO adheres to the UN Principles for Sustainable Investment & partners with Generation</p>	<p>Creation of Fondation Philanthropia</p>	<p>Advancing Philanthropy in Switzerland Report</p>	<p>Member of the Global Impact Investing Network</p>	
 <p>2014</p>	 <p>2016</p>	 <p>2017</p>	 <p>2017</p>	 <p>2019</p>	 <p>2019</p>
<p>Launch of LO Gateway Development Finance Fund</p>	<p>Creation of LO Carbon Intensity Radar</p>	<p>Partnership with AIM for Global Climate Bond fund launch</p>	<p>New Sustainable Development Goals scoring methodology</p>	<p>World's first "Humanitarian Impact Bond" with ICRC</p>	<p>Received B Corp certification</p>

Fondation Lombard Odier and Fondation Philanthropia



Our Group's commitment

- Grant-making foundation
- Group allocation as well as Managing Partners' own sheltered funds
- Committed to **innovation**
- Track record includes strategic grantees such as **EPFL** (the "MIT of Europe") and International Committee of the Red Cross (**ICRC**), where we fund innovation projects



A foundation home for our clients' giving

- **Umbrella foundation:** personalised funds, thematic funds, across all philanthropic causes
- **Effective philanthropy made simple:** delegation of all related matters (strategy setting, grant making, asset management, reporting)

Why innovative finance?

Enlarging the toolbox

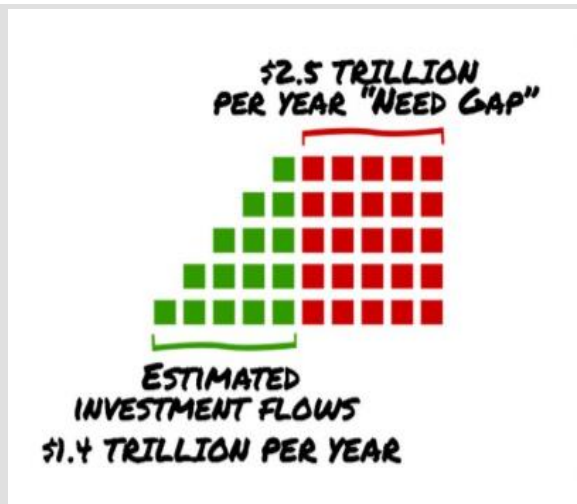
“Crowd in private capital to help address global challenges”

**Example:
Addressing
the
Physical
Rehabilitation
Challenge**



Physical disability is a critical issue in developing countries.
Of the 90 million people with physical disabilities who need a mobility device worldwide, only 10%, on average, have access to adequate physical rehabilitation services.
This leads to social and economic exclusion.

Solution pathway:
The International Committee of the Red Cross (ICRC) has a strong track record in physical rehabilitation, operating since 1979 – 197 projects in 34 countries, helping almost 330,000 people with physiotherapy and mobility devices, including wheelchairs, artificial limbs and braces.



Source: ICRC, UNCTAD

Innovative finance transaction example

The ICRC's first innovative financing mechanism



ICRC

In partnership with Lombard Odier, ICRC launched the first “Humanitarian Impact Bond” (the Programme for Humanitarian Impact Investment)



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- Government funding often has a time horizon of 1-2 years. **Providing financing certainty** for a longer period of time allows taking a strategic perspective, aiming for much higher expectations of efficiency.
- The three centres will be **piloting the next generation of physical rehabilitation service delivery**.
- **Testing such contingent-return financing model** for potential application to other programmes at ICRC
- Adding value to the cherished **long-standing relationship** with the ICRC.
- Leveraging **pioneering experience in innovative financing** to support a highly innovative transaction in the humanitarian space with a high social impact.
- Providing an **innovative, quality transaction to clients** interested in impact investing.

Objectives

- **Channel additional resources** – EUR 22m of five-year funding - to provide much needed humanitarian services to people in conflict affected countries → construction and operation of three centres in Africa
- **Test and implement new efficiency initiatives** - social impact, expected to reach far beyond the three centres
- **Successful co-operation of different European parties** - improvement of services and a new financing model

Source: ICRC

Building on our efforts in oncology



New talents: Course of excellence in oncology

MOVE INTO KEY AREAS IN CANCER SCIENCES

Fulfill yourself in a great scientific project in translational research:

- DNA repair
- Molecular medicine
- Radiobiology
- Onco-haematology
- Immunotherapy
- Epidemiology

PARTNERS FOR A HIGH LEVEL PROGRAMME

The Course of Excellence in Oncology is powered by the École des Sciences du Cancer (University Paris-Sud / Gustave Roussy). The School includes a top-flight faculty who exercise their clinical and research activities in Europe's leading cancer research centre. The programme is supported by the Fondation Philanthropia, an umbrella foundation created by Lombard Odier.

<http://www.fondationphilanthropia.org/>
<http://formation.gustaveroussy.fr/>



The "Course of Excellence in Oncology - Fondation Philanthropia" is a 3-year programme offering made-to-measure training each year to 4 doctors, pharmacists or engineers who hold a Masters 2 degree (or equivalent) in Biology. You will obtain your doctorate in 3 years in a major field of research in oncology.



3 years in Paris



4 doctoral student positions available in 2017

Take part in the next PhD program, apply before 15th february:

www.phd-in-oncology.com

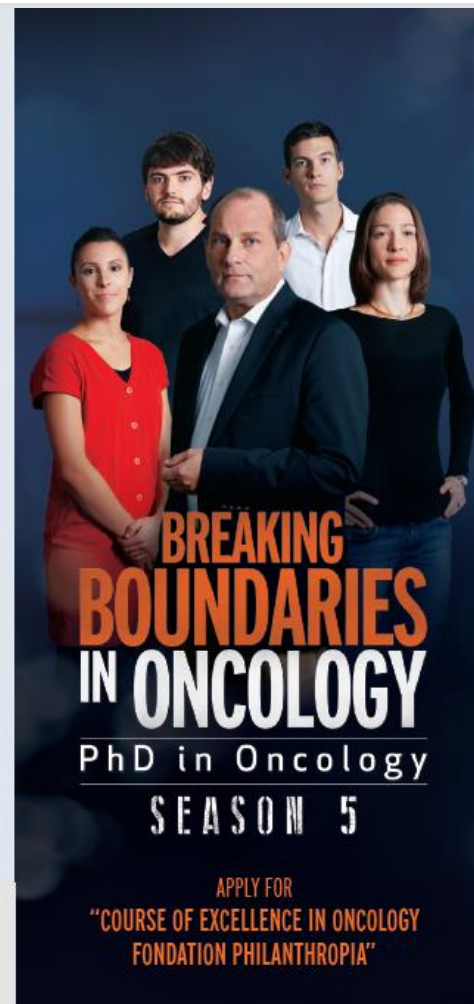
POWERED BY



ÉCOLE DES SCIENCES DU CANCER

SUPPORTED BY

FONDATION PHILANTHROPIA LOMBARD ODIER



Source: Institute Gustave Roussy

Learnings (I): Take collaboration to the next level


Smart collaboration is a must

“58% of foundations do not collaborate, 42% do”

**From
managing
to solving
the
Cancer
Challenge**

To solve large-scale challenges, collaboration is an essential part of the philanthropic enterprise.

- Knowledge sharing
- Accessing relevant know how
- Enlarging the financing pool



What's at stake in oncology?

- 61 new cancer drugs have been used in the treatment of 23 cancer types in the past 5 years.
- In 2017, of 14 New Active Substance cancer therapies, 11 received “Breakthrough Therapy” designation by FDA.
- Developing effective cancer treatment is risky & requires large pools of capital, plus collaboration & quality infrastructure to support the development of drugs and other therapies & diagnostic devices.

Pathways to accelerate advancement in oncology include:

- Sharing of clinical data
- Smart R&D funding

Source: “Global Philanthropy Report: Perspectives on the Global Foundation Sector. Hauser Institute for Civil Society at Harvard University”, Johnson P., 2018;
 “Global Oncology Trends 2018 - Innovation, Expansion and Disruption”, IQVIA Institute, May 24, 2018

Collaboration example

Cancer Core Europe

“To win the fight against the cancer, we need to join forces”

Solution Pathway

- Seven leading European cancer centres have partnered to create Cancer Core Europe.
- Reshaping the cancer research model for **cutting edge research** and more **personalised medicine**.
- Creating a **multi-site cancer institute**.

Goals:

- ✓ Increasing the cure rate to 75%
- ✓ Increasing Europe’s competitiveness
- ✓ Drive development of new treatments
- ✓ Earlier diagnoses
- ✓ Better cancer prevention
- ✓ Better aftercare methods
- ✓ Ensuring all patient needs are met



The infographic displays the Cancer Core Europe logo at the top. Below it is a map of Europe with seven hexagonal markers indicating the locations of partner institutions. At the bottom, there is a row of logos for the following institutions: Cancer Research UK, Cambridge Institute, NCT (National Cancer Therapy Evaluation Centre), Gustave Roussy, Karolinska Institutet, Fondazione IRCCS Istituto Nazionale dei Tumori, and Gustave Roussy (Cancer Campus Grand Paris).

Source: Cancer Core Europe

Learnings (II): We need to develop new financing mechanisms

The need for capital

“New financing instruments are needed to direct capital to the cancer challenge”

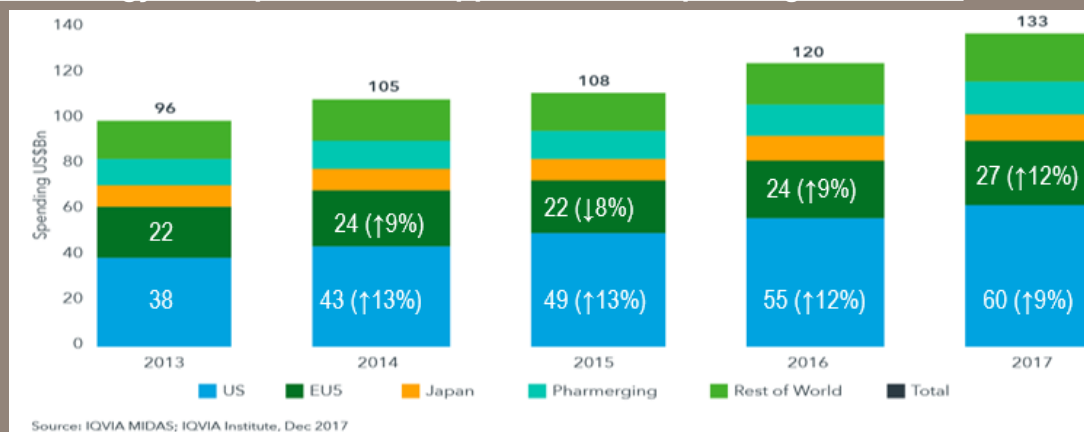
Challenge
Smart
R&D
Financing



Available funds are an important damper for European oncology.

- Comparatively, readily available funds in the US have greatly aided in accelerating innovation:
 - A major aspect of the discrepancy in both the amount and increase of expenditure due to a large venture capital gap in US vs EU.
 - This hampers the rapid translation of research advances into new business models and start-ups in Europe.
 - In turn, breakthroughs cannot be made available to patients quickly.

Global Oncology, Therapeutic and Supportive Care Spending, 2013-2017



Source: “Global Oncology Trends 2018 - Innovation, Expansion and Disruption”, IQVIA Institute, May 24, 2018

Update on feasibility of new financing mechanisms

Recommendations from feasibility study

Coupling investment returns with patient impact



A critical-mass private equity fund to provide investors with attractive risk adjusted returns



Focus on funding breakthrough cancer innovations that actually benefit patients' outcomes and experience



To improve innovation and patient care through philanthropy which does not compromise investment returns – give a percentage of profits to cancer charities



In terms of delivery, find ways to provide innovative drugs/technologies/solutions to cancer patients who could not otherwise afford them



Thank you!

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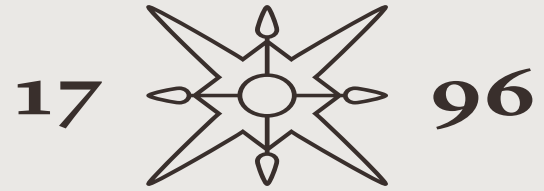
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