



KEMENTERIAN PENDIDIKAN TINGGI, SAINS, DAN TEKNOLOGI

Peran STP Dalam Mendorong Percepatan Inovasi dan
Penguatan Industri Lokas Menghadapi Kompetisi Global

**DIREKTORAT JENDERAL
RISET DAN PENGEMBANGAN**

ITS, Surabaya, 19 Desember 2024



VISI KEMENDIKTISIANTEK

“Terwujudnya keberdayaan perguruan tinggi yang bertanggung jawab dengan tata kelola yang baik untuk bertumbuh dan berdampak, meningkatnya kemampuan riset dan pengembangan sampai hilirisasi bernilai tambah, serta berfungsinya sains dan teknologi untuk



Arah Kebijakan Kemendiknasaintek

TANTANGAN STRATEGIS BANGSA INDONESIA



8 MISI PRESIDEN DAN WAKIL PRESIDEN DALAM ASTA CITA

Visi Presiden dan Wakil Presiden akan dicapai dengan 8 Misi yang disebut Asta Cita. Beberapa poin yang relevan serta bisa dikaitkan dengan Kemdiktisaintek adalah sebagai berikut:



2

Memantapkan sistem pertahanan keamanan negara dan mendorong kemandirian bangsa melalui swasembada pangan, energi, air, ekonomi kreatif, ekonomi hijau, dan ekonomi biru.



4

Memperkuat pembangunan sumber daya manusia (SDM), sains, teknologi, pendidikan, kesehatan, prestasi olahraga, kesetaraan gender, serta penguatan peran perempuan, pemuda, dan penyandang disabilitas.



5

Melanjutkan hilirisasi dan industrialisasi untuk meningkatkan nilai tambah di dalam negeri.

KEMDIKTISAINTEK

17 Program Prioritas



Visi dan Misi Presiden dan Wakil Presiden akan dicapai dengan program prioritas sebagai berikut:



1

Mencapai swasembada pangan, energi, dan air.



8

Penguatan pendidikan, sains dan teknologi, serta digitalisasi.



10

Penguatan kesetaraan gender dan perlindungan hak perempuan, anak, serta penyandang disabilitas.



11

Menjamin pelestarian lingkungan hidup.



15

Melanjutkan hilirisasi dan industrialisasi berbasis sumber daya alam (SDA) dan maritim untuk membuka lapangan kerja yang seluas-luasnya dalam mewujudkan keadilan ekonomi.



17

Pelestarian seni budaya, peningkatan ekonomi kreatif, dan peningkatan prestasi olahraga.

KEMDIKTISAINTEK

Paradigma Baru Kebijakan Pendidikan Tinggi



Pendidikan Tinggi



Talenta



Institusi Perguruan Tinggi



Sains dan Teknologi



Ekosistem Penelitian dan Pengembangan



Penggerak Pembangunan

KONTRIBUSI

Program Prioritas Kemdiktisaintek:



Akses pendidikan tinggi bermutu, relevan, dan berdampak,



Pengembangan talenta sains dan teknologi,



Penumbuhan dan penguatan budaya ilmiah (*scientific culture*) penelitian dan pengembangan, dan



Penyelesaian permasalahan sosial dan ekonomi nasional.

Pembangunan Ekonomi



Pengentasan Kemiskinan



Swasembada Pangan



Swasembada Energi



Subsidi Tepat Sasaran



Hilirisasi Komoditas

Pergeseran Paradigma Pendidikan Tinggi

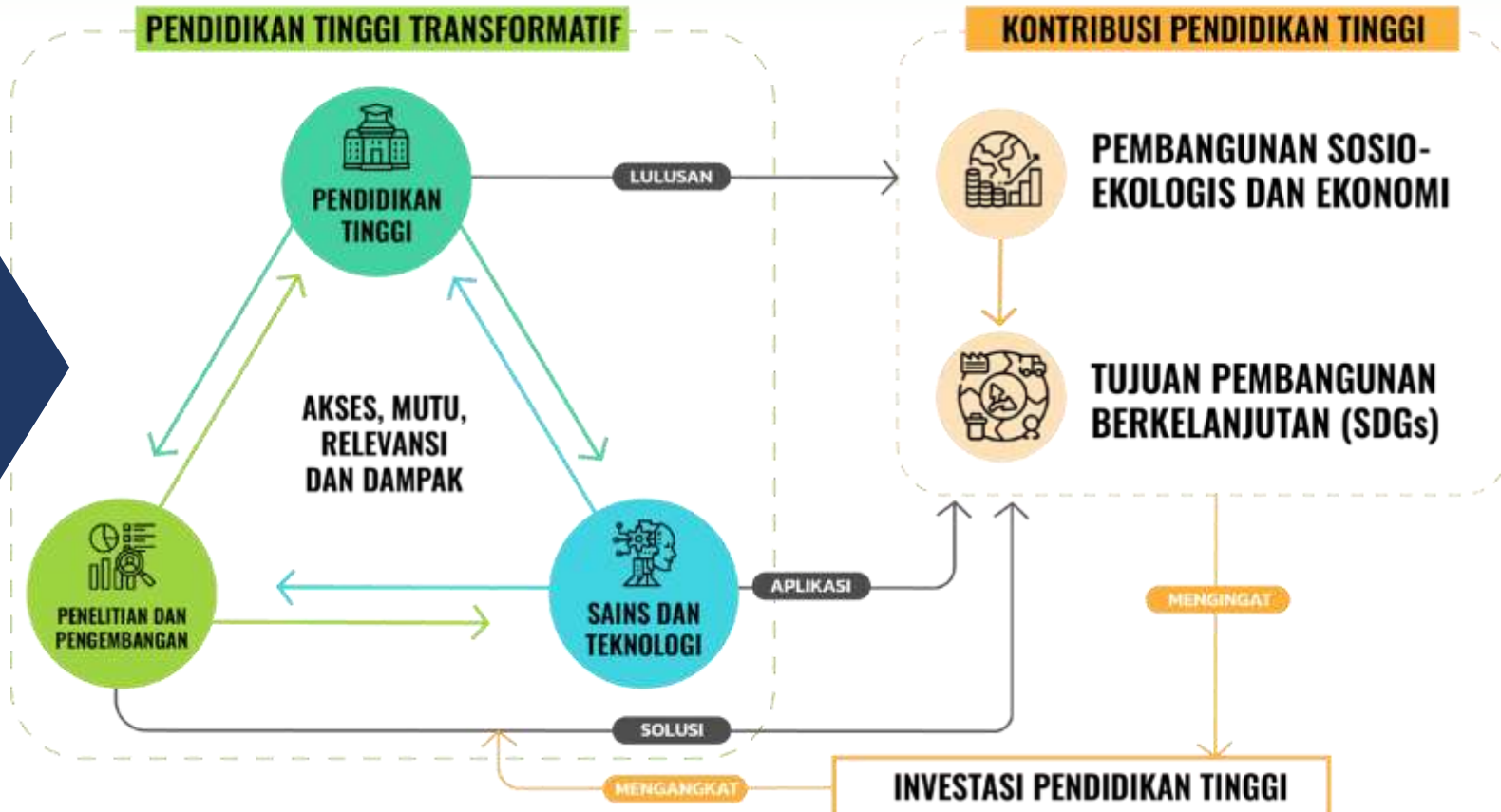
PARADIGMA KONVENSIONAL

PENDIDIKAN TINGGI TRI DHARMA

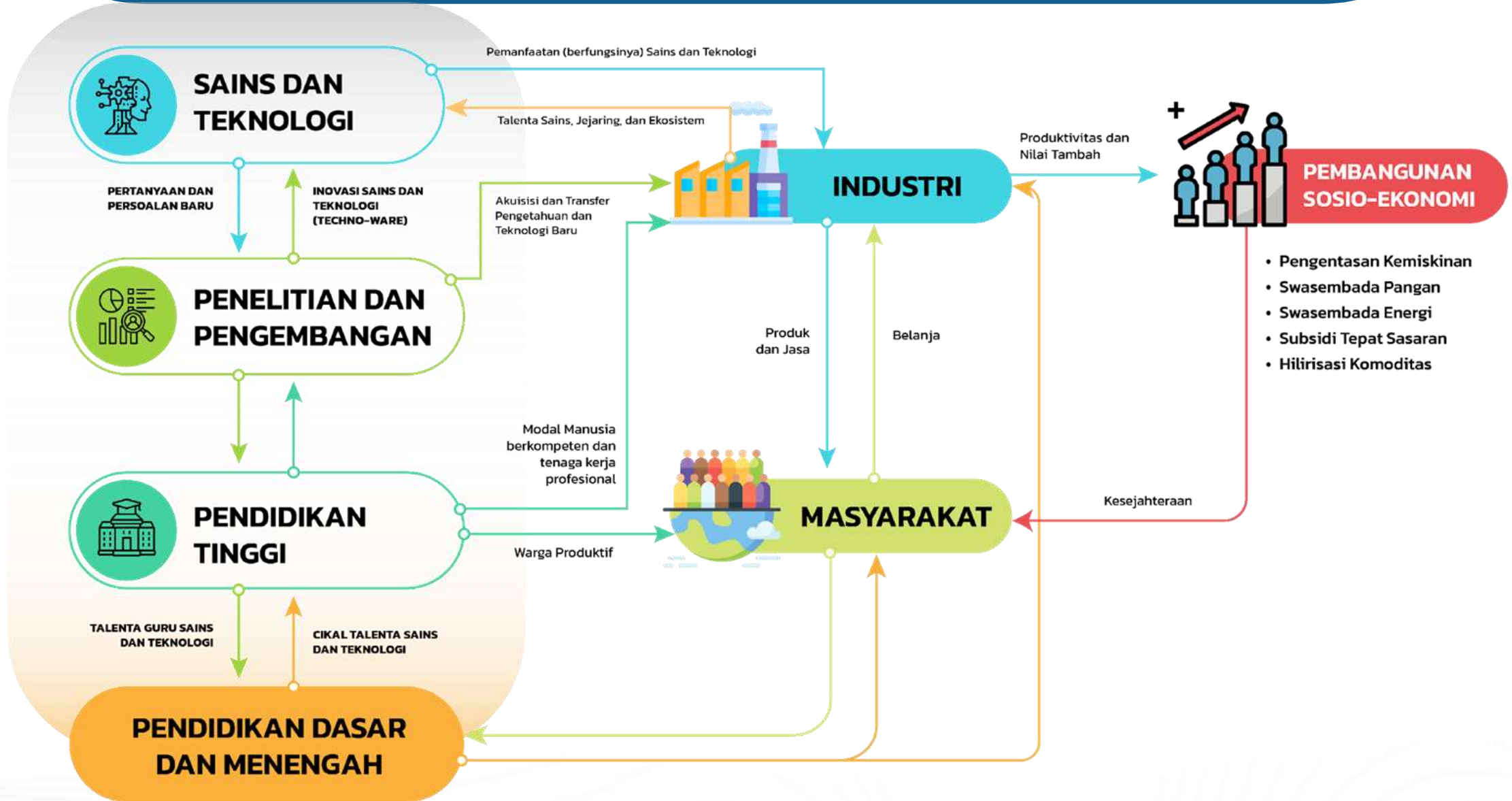


STIMULASI PENDIDIKAN TINGGI

PARADIGMA TRANSFORMASIONAL



Paradigma Transformasional Pendidikan Tinggi



PROGRAM PRIORITAS KEMENTERIAN PENDIDIKAN TINGGI, SAINS, DAN TEKNOLOGI



AKSES PENDIDIKAN TINGGI BERMUTU, RELEVAN, DAN BERDAMPAK.

- Perluasan akses pendidikan tinggi bagi mahasiswa yang kurang mampu dan mahasiswa wilayah 3T
- Peningkatan inovasi pembelajaran dan kemahasiswaan
- Pengembangan kelembagaan perguruan tinggi
- Peningkatan kualifikasi dan kompetensi sumber daya manusia
- Peningkatan sarana dan prasarana perguruan tinggi

PENGEMBANGAN TALENTA SAINS DAN TEKNOLOGI.

- Pengembangan sekolah unggulan
- Pengembangan pembelajaran transformatif
- Revitalisasi LPTK

PENUMBUHAN DAN PENGUATAN BUDAYA ILMIAH (SCIENTIFIC CULTURE) PENELITIAN DAN PENGEMBANGAN.

- Peningkatan talenta penelitian dan pengembangan
- Penguatan penelitian dan pengembangan
- Pengembangan Taman Sains dan Teknologi
- Peningkatan hilirisasi hasil penelitian dan kerjasama DUDI

PENYELESAIAN PERMASALAHAN SOSIAL DAN EKONOMI NASIONAL.

- Penguatan pengabdian kepada masyarakat
- Pengembangan kemitraan untuk pemberdayaan masyarakat

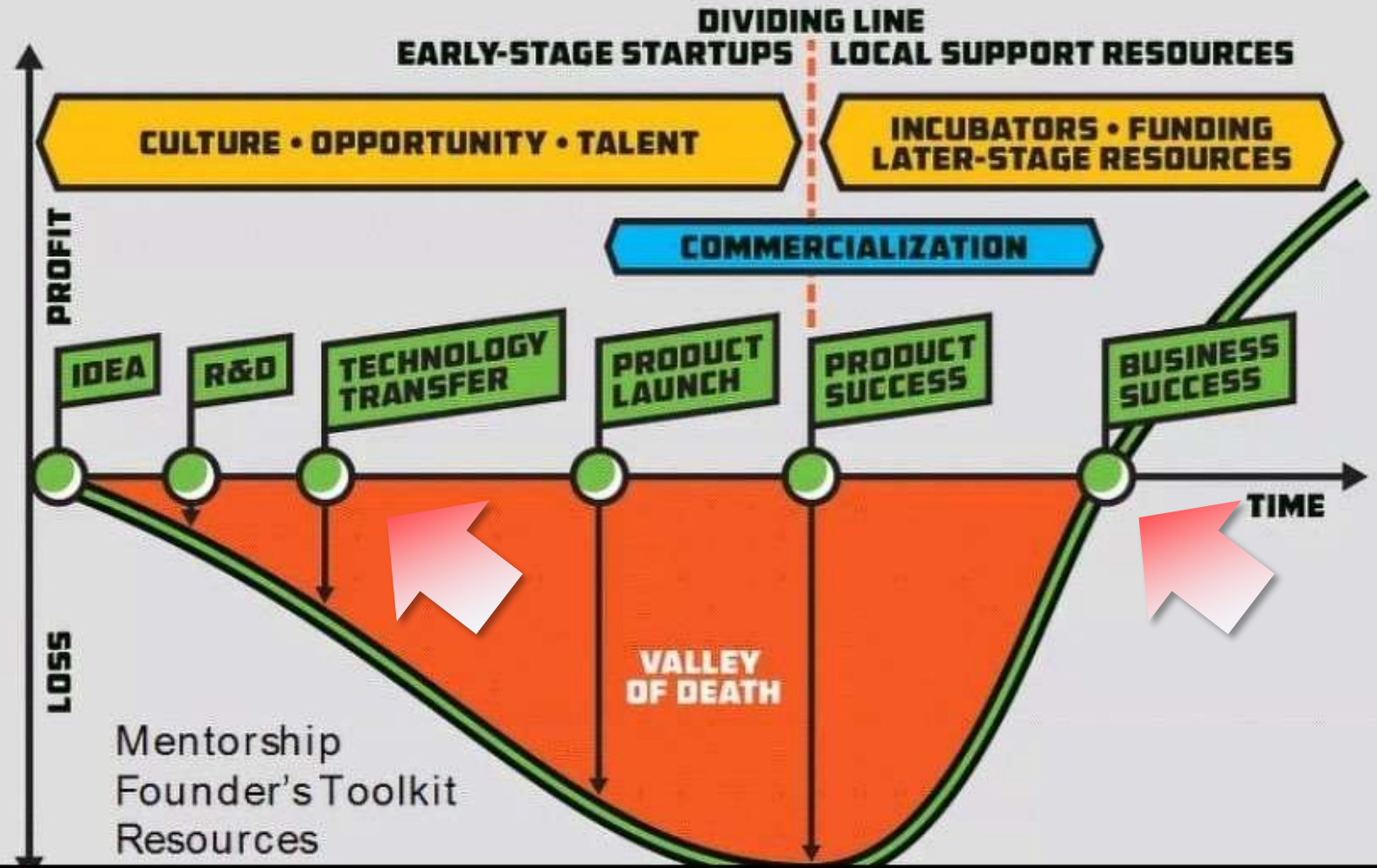
Hilirisasi?



Radcliffe Camera, University of Oxford, UK

>> The challenge

JURANG KEMATIAN INOVASI



>> The challenge

JURANG KEMATIAN INOVASI



Good ideas don't always make good businesses

"An investment in knowledge pays the best interest." - Benjamin Franklin

Kebijakan Prioritas Unit Direktorat Jenderal Riset dan Pengembangan TA 2025



Peningkatan talenta penelitian dan pengembangan

→ SDM kelas dunia, dengan ekosistem yang difasilitasi



Penguatan penelitian, pengembangan, dan hilirisasi

→ Hasil riset dan produk berkualitas, berbasis kompetisi



Peningkatan pengabdian kepada masyarakat dan kemitraan

→ *Scaling-up*

Kontribusi Pendidikan tinggi



Pembangunan sosio-ekologis dan ekonomi



Tujuan Pembangunan berkelanjutan (SDGs)

Paradigma transformasional

Transportasi dan Infrastruktur

Material Maju dan Teknologi Nano

Artificial Intelligence, ICT, dan Automation

Energi Baru dan Terbarukan

Teknologi Pangan dan Kesehatan

Program Penguatan Riset Dasar dan Hilirisasi Riset Berbasis *Challenge*

Topic or product-based

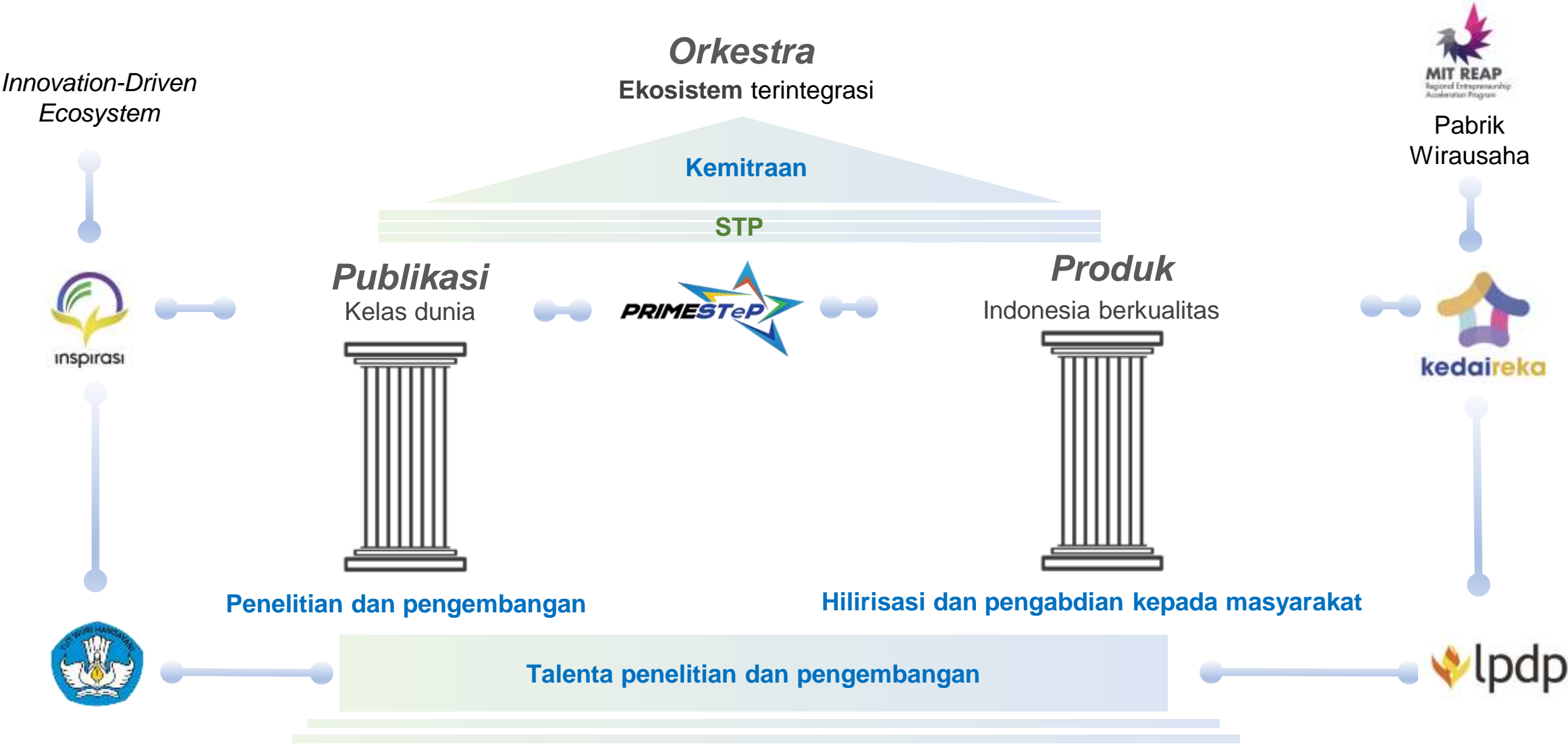


Paradigma transformasional

Challenge-based



Skema Ekosistem Risbang yang Terintegrasi di Ditjen Risbang (PROSES: Interaksi)



*sistem produk servis

Skema Contoh Pendanaan Ekosistem Riset dan Pengembangan yang Terintegrasi



Kontribusi Pendidikan tinggi

Pembangunan sosio-ekologis dan ekonomi

Tujuan Pembangunan berkelanjutan (SDGs)

Paradigma transformasional

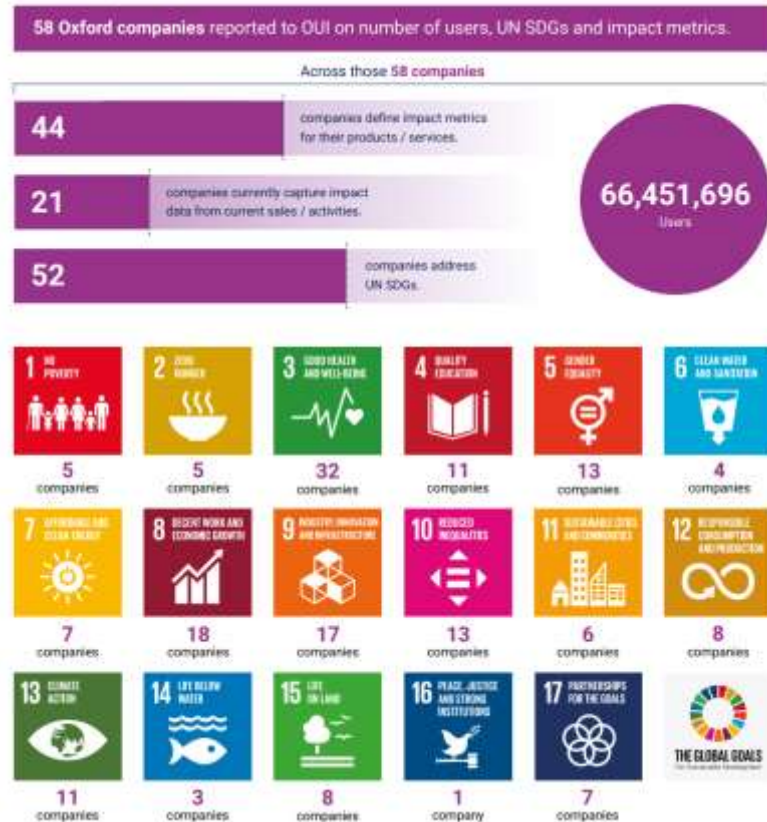


Kemitraan

TTO at University of Oxford: Oxford University Innovation

Oxford University Innovation: Impact

External impact data



Vaccitech and the Oxford-AZ COVID-19 Vaccine: Spearheading global health innovation

COVID-19 vaccine: more than **3 billion** doses delivered to **180 countries** by end of 2022

COVID-19 vaccine: up to an estimated **122.4 million hospitalisations prevented**

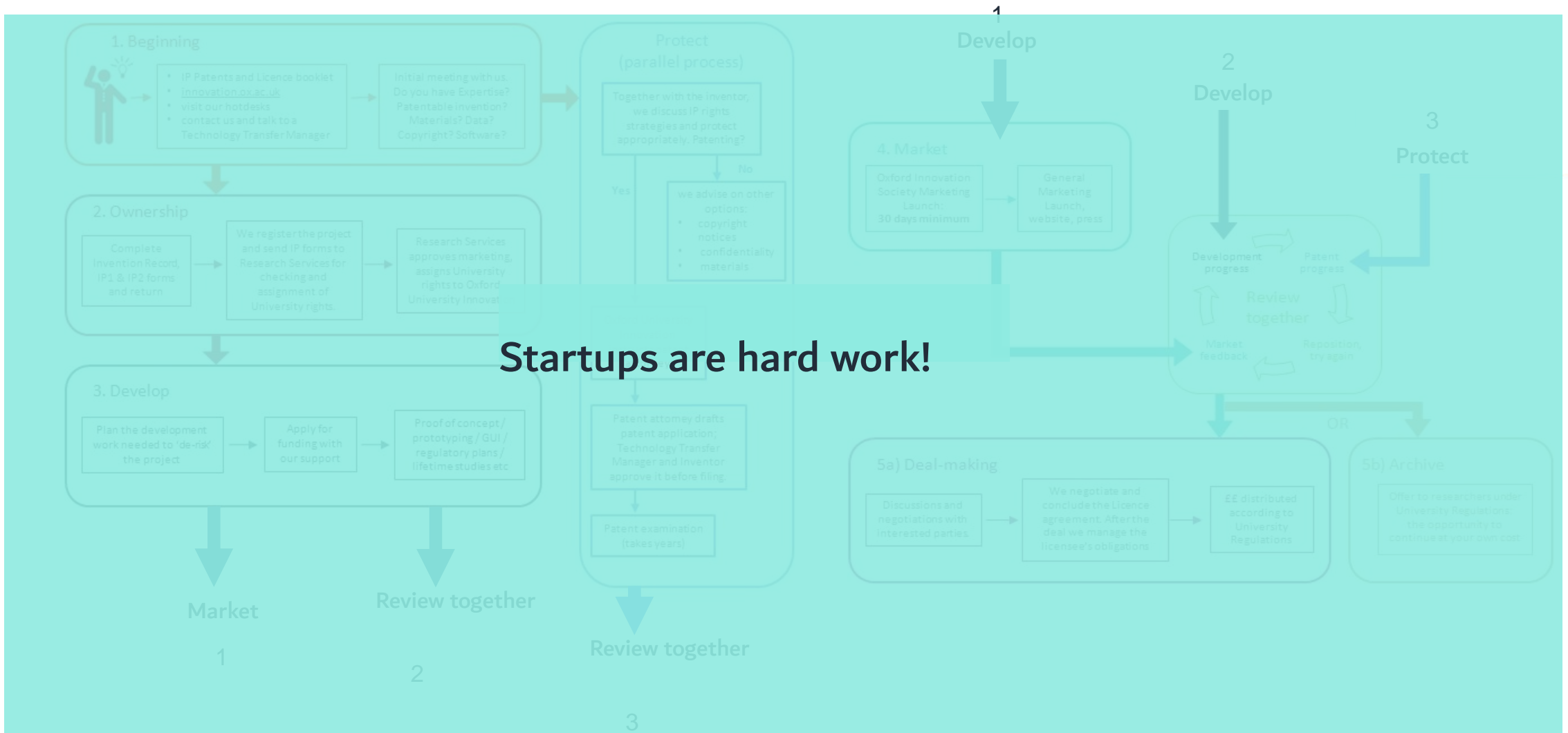


The amazing and well-known story of the Oxford-AstraZeneca COVID-19 vaccine is the story of one of the most significant health breakthroughs in recent history.

OUI also helps Oxford entrepreneurs achieve a wide-ranging impact

TTO at University of Oxford: Oxford University Innovation

Oxford University Innovation: How does it work



Delivering returns to the University and the wider economy



Oxford University invests in Oxford University Innovation to protect, develop and create impact from University intellectual property and expertise

Financial Returns

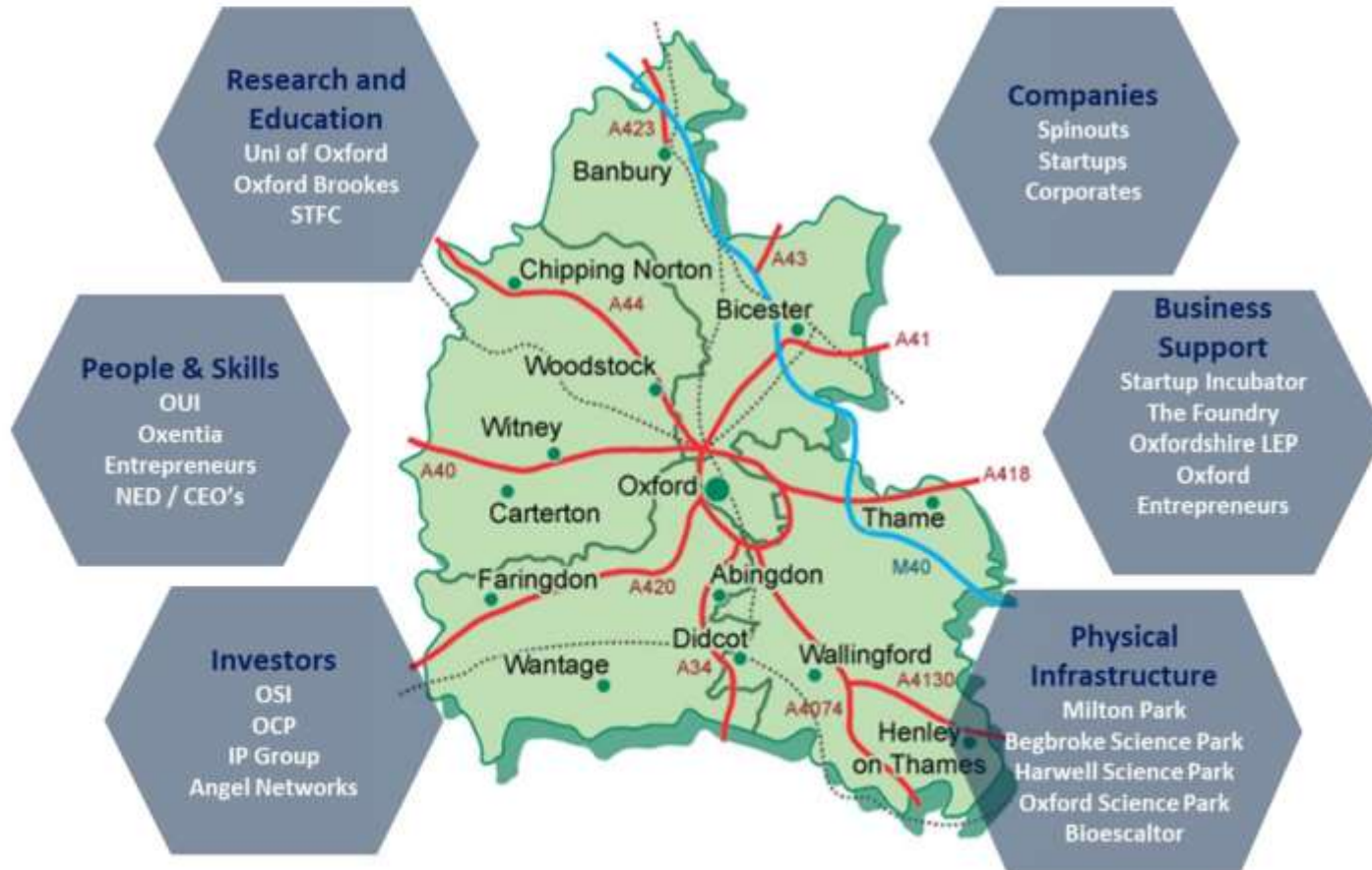
- Distributions of royalties back to University
- Research funding from spinouts to University
- Spinouts cash & shareholding portfolio value
- Seed and early-stage funds
- Value of new patents and patent applications
- Research funding from Translation Awards to University
- Supporting Strategic IP Deals
- Managing the Oxford Innovation Society

Other, non-financial, benefits

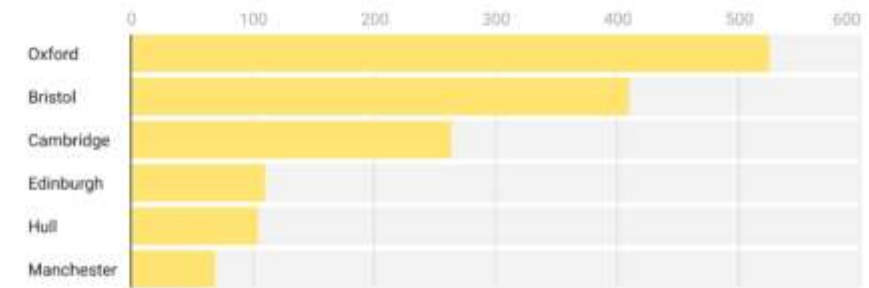
- Transferring technologies to improve lives
- Contributing to the 'impact' of the University
- Promoting good news stories from University to audiences around the world
- Attracting investment and talent to the Oxford cluster



Oxfordshire's Innovation and Entrepreneurship ecosystem



Investment by UK cluster in 2020 (\$bn) exc. London



Source: Tech Nation, Dealroom 2021 • Created with Dataswrapper

Connecting Global
 An integrated digital platform for Oxfordshire

Initiative to promote Oxfordshire as a major global hub for innovation and investment by bringing together the entire Oxfordshire offer in one place

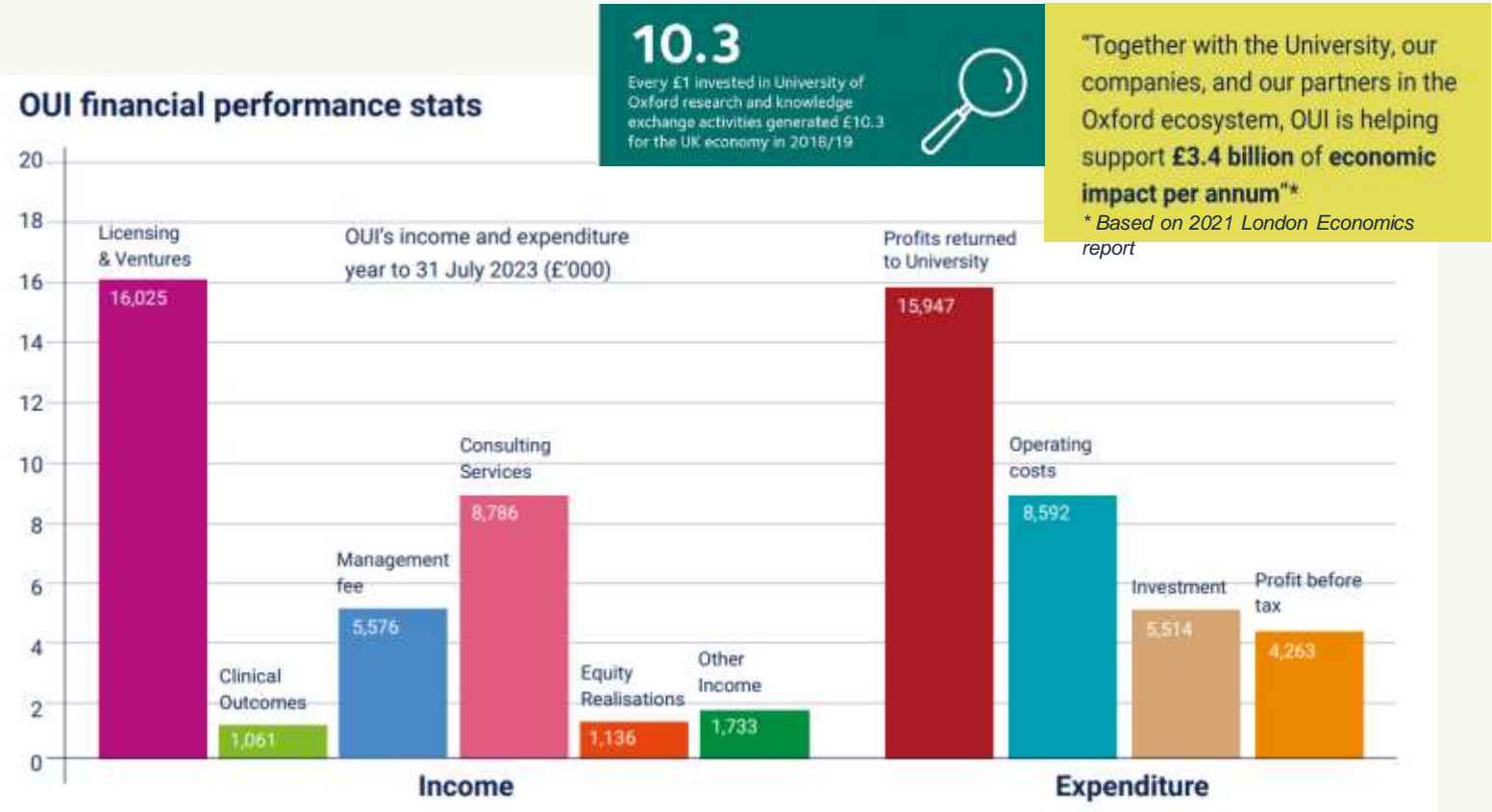
TTO at University of Oxford: Oxford University Innovation

Oxford University Innovation



Quick Facts

- £34 million** total income (2022 / 23)
- £15.9 million** returned to the University
- 20** new companies
- £698.8 million** raised across portfolio companies
- £32 million** seed funding available



The mission of Oxford University Innovation (OUI) is to maximize the global impact of Oxford's research and expertise

Lessons Learned: Oxford innovation ecosystem

Oxford economic impact

Type of impact		£m	%
	Impact of research and knowledge exchange	£7,909m	50%
	Research activities	£4,496m	29%
	Knowledge exchange activities	£3,413m	22%
	Impact of teaching and learning	£422m	3%
	Students	£213m	1%
	Exchequer	£209m	1%
	Impact of exports	£732m	5%
	Tuition fee income	£393m	3%
	Non-tuition fee income	£340m	2%
	Impact of the University's spending	£6,032m	38%
	University expenditure	£4,472m	28%
	College expenditure	£1,561m	10%
	Impact of tourism	£611m	4%
	Direct impact	£221m	1%
	Indirect and induced impact	£390m	2%
Total economic impact		£15,706m	100%

- The total research-related income accrued by the University is stood at £771 million (spillover productivity 5.3)
- £2,701 million was generated through the activities of the University's spinouts

Research and knowledge exchange activities

Impact of research, intellectual property, University spinouts, and science parks



The economic impact of the University of Oxford's research and knowledge exchange activities in 2018/19 was estimated at £7.9bn. This includes £4.5bn of research impact, and £3.4bn of impact from the University's knowledge exchange activities.

10.3

Every £1 invested in University of Oxford research and knowledge exchange activities generated £10.3 for the UK economy in 2018/19.



£546m

Venture capital investment across the University's spinout portfolio in 2018/19 (an increase of £416m since 2015/16)*



*Oxford University Innovation Ltd Investment and New Ventures data (July 2021)

145

The number of University of Oxford spinout companies operating in 2018/19 (the largest of any UK university), alongside 116 startups and social enterprises



£771m

The total research income received by the University of Oxford in 2018/19, including £386m from UK public sources, £186m from UK industry and charities, and £199m from international sources



28,000

Full-time equivalent jobs supported by the University's knowledge exchange activities in 2018/19



Top 10

In top 10 of all UK organisations in terms of patents filed*



*World Intellectual Property Organisation (WIPO) Statistics Database (April 2021). Information relating to 2019 calendar year

9%

Increase in economic impact of research and knowledge exchange between 2015/16 and 2018/19



40%

Of the £3.4bn of impact of the University's knowledge exchange activities, 40% occurred outside the South East



Oxford innovation ecosystem

Wider international ecosystem



TenU is an international collaboration formed to capture effective practices in research commercialisation and share these with governments and higher education communities.



The Winning Formula:
Ideas to Commercialisation

S

Step-by-step

T O

Target-oriented

Open-minded

R

Realistic yet
unthinkable

Y

You!

*'It's the world,
to wake up to Indonesia...'*



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