

\$193 BILLION REASONS TO RING CAMBRIDGE



“Buns” Talk to the I.f.M., 6 June 2025

By Stephen Allott

Chairman, Tarigo™ Product Management Training

Hon. Member, University of Cambridge, Department of Computer Science and Technology

Founder, Funder and Designer of the Cambridge Computer Lab Ring



\$193 BILLION IS IMPORTANT TO THESE 7 DISTINCT STAKEHOLDER GROUPS

Ring Hall of Fame Founders

Ring Hall of Fame companies

Companies employing technical graduates especially PhDs

Cambridge University

- CU senior management e.g. Pro-Vice Chancellors and Heads of Schools
- Department heads e.g. of the Computer Lab or Engineering
- Institute for Manufacturing (“IfM”) faculty and students

Observers, commentators and journalists in Innovation

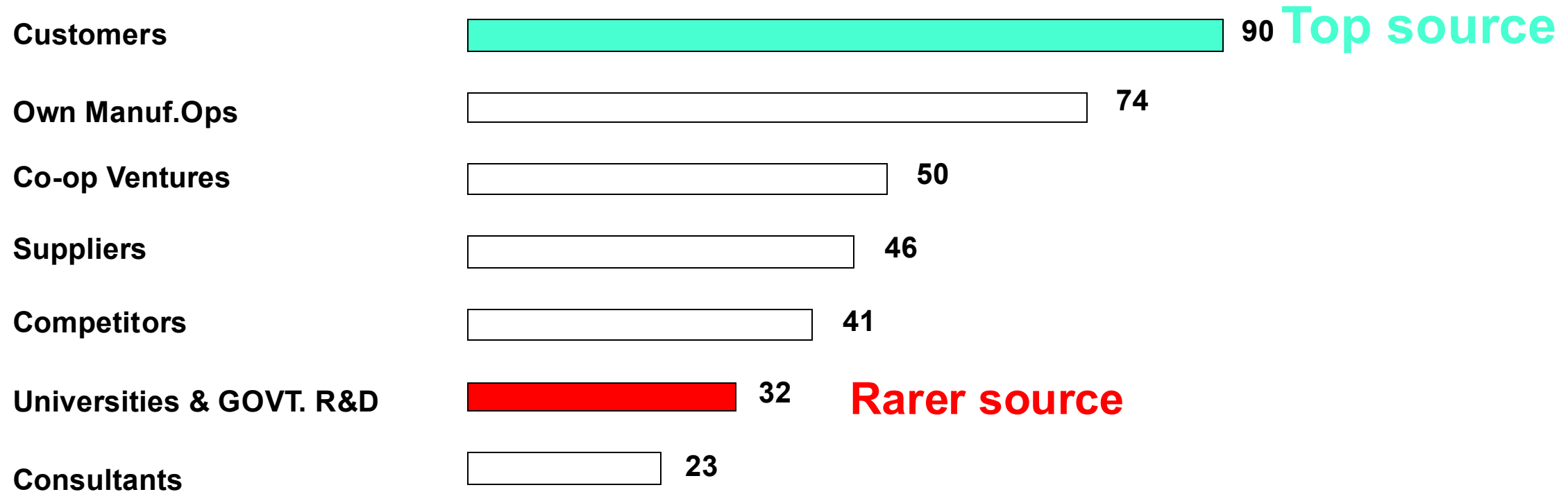
Government Depts (Business, Education, Treasury),

The **UK General Population**



INFORMATION SOURCES SUGGESTING NEW R&D PROJECTS

% R&D managers in industry indicating source



Source : Cohen, Nelson & Walsh published in 2002 from 1994 survey



TREASURY SCIENCE AND INNOVATION REPORT

July 2004

“Studies show that R & D delivers benefits by allowing an economy to do two things:

- understand and appreciate the value of others’ findings and results;
- and make new discoveries.”


Source: http://www.hm-treasury.gov.uk/spending_review/spend_sr04/associated_documents/spending_sr04_scienc_e.cfm at p.150

The first means looking things up. The second means inventing things.

TREASURY SCIENCE AND INNOVATION REPORT

July 2004

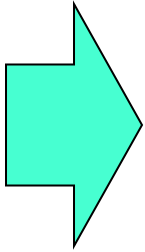
“Studies show that R & D delivers benefits by allowing an economy to do two things:

1. Start with a valuable customer problem
 - understand and appreciate the value of others' findings and results; 
 - and make new discoveries.”
2. Using the findings of others, a Computer Lab PhD graduate can create a product

Source: http://www.hm-treasury.gov.uk/spending_review/spend_sr04/associated_documents/spending_sr04_science.cfm at p.150

The first means looking things up. The second means inventing things.

TOPICS



What has the Ring done?

What this means for the stakeholders

What has to change as a result



The
Ring



CAMBRIDGE COMPUTER LAB “THE RING”

... provides graduates with a lifetime benefit from their Cambridge degree helping them and the companies they found (the “Ring Hall of Fame”) to be more successful

Annual Recruitment Fair



CAMBRIDGE COMPUTER LAB “THE SUPPORTERS CLUB”

...enables graduates to find their first job and strengthens the business / university interface.



CAMBRIDGE COMPUTER LAB “THE LAB”

... refers to the University of Cambridge Department of Computer Science & Technology does both teaching and research for undergraduates, Masters and PhDs.



UNIVERSITY OF CAMBRIDGE

Study at Cambridge

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Cambridge Ring

> Ring News

> Ring Events

> Hall of Fame

> Hall of Fame Awards

> FAQ

> Hall of Fame - Nominations

Accelerate Programme for Scientific Discovery

Data Trusts Initiative

The Supporters' Club

Collaborate with Us

Cambridge Centre for Carbon Credits (4C)

Equality and Diversity

LGBTQ+@CL


women@CL

Outreach

Raspberry Pi Tutorials

Wiseman prize

Cambridge Ring



The Cambridge Ring is our alumni association.

Membership of the Ring is free and gives alumni access to information, contacts, a programme of events, an alumni LinkedIn group and the opportunity for discussions with fellow alumni via the online Ring Forum.

For more information about becoming a member, please see the [FAQ](#). If you would like to join, you can do so using [this form](#).

Background

The Ring was founded in 2002 as a not-for-profit independent members' association, to enable graduates to get a lifetime benefit from their Cambridge degrees, professionally, technically and socially.

The association's governing council designed a programme of events to allow members not only to re-discover and engage with the intellectual rigour associated with being a graduate of the University, but also to provide the opportunity to catch up with old friends and make new contacts within the computing industry.

In 2012, the department, adamant that the Ring was an important asset and should be helped to flourish, decided to bring the association in-house. So, in July 2012 the Cambridge Ring moved from constitutional and operational independence to being part of the department.


Benefits of joining the Ring

Social

- Find out what your contemporaries are doing now and keep in contact for the future
- Make new contacts amongst fellow graduates at Ring events
- Stay in touch with the department and hear about talks and activities

Career

Ring News



Our newsletters

The Ring newsletters have migrated to email. Here you can read our e-newsletters:

04/06/2024 - Come to our Computer Architecture & Ringlet events

14/05/2024 - Celebrating Computer Architecture

23/04/2024 - Meet our Hall of Fame winners & join us in San Fran

27/03/2024 - Alumni event dates for your diary

08/03/2024 - Are you coming to next week's events?

16/02/2024 - Come to our Spring Alumni Events

17/01/2024 - Are you coming to next week's Climate Research Showcase?

09/11/2023 - Cambridge Ring events this winter

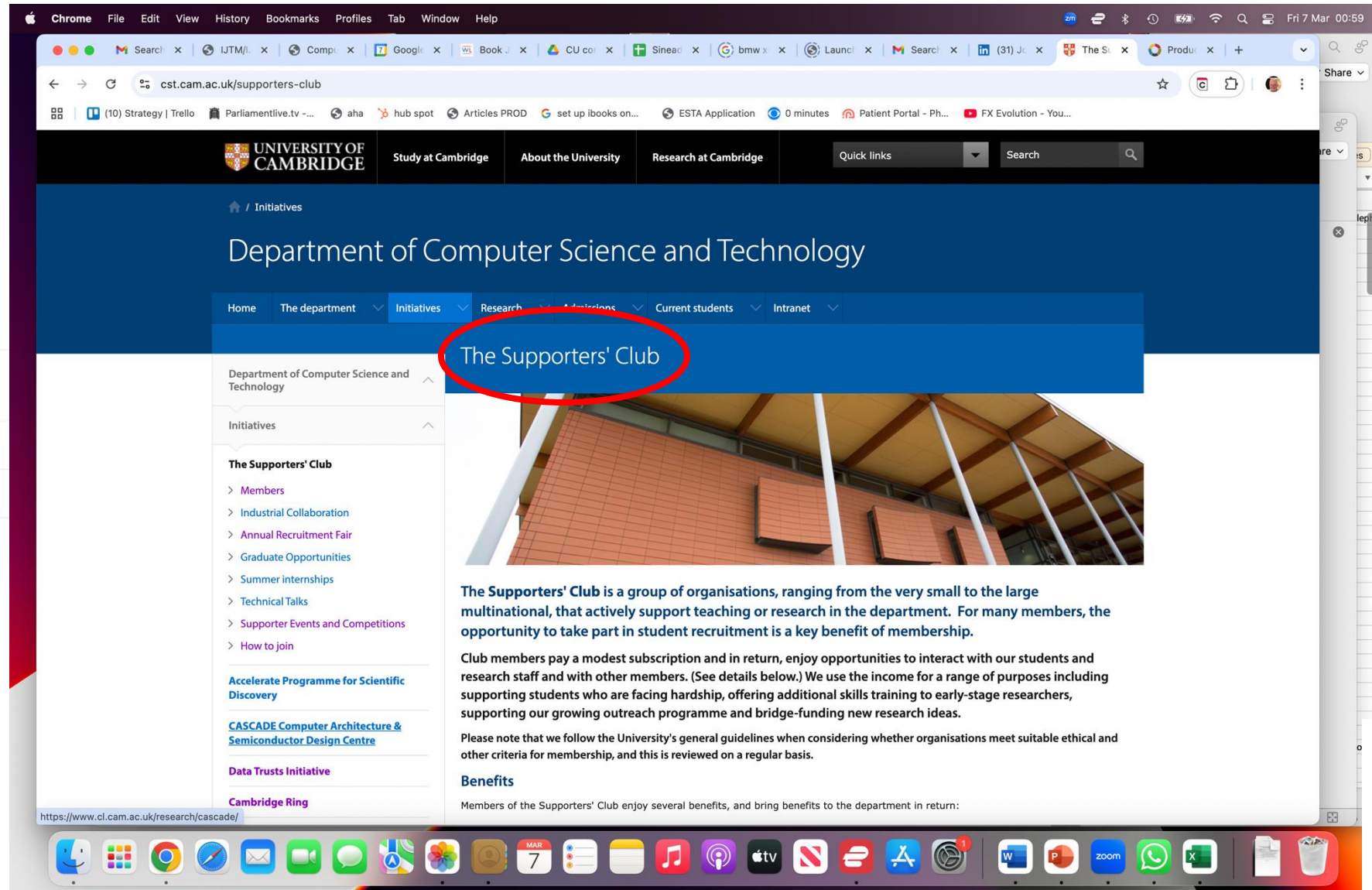
03/10/2023 - Book for the Wheeler Lecture & meet our new Head of Department

“Lifetime benefit from your Cambridge Degree”

The Ring was founded in 2002
Maurice Wilkes suggested the name.

Maurice Wilkes designed the famous Cambridge Ring network in 1975

81 SUPPORTERS CLUB COMPANIES* ENABLE GRADUATES TO FIND THEIR FIRST JOB



The screenshot shows the University of Cambridge Department of Computer Science and Technology website. The main navigation bar includes links to 'Study at Cambridge', 'About the University', and 'Research at Cambridge'. The 'Initiatives' dropdown menu is open, highlighting 'The Supporters' Club'. The page content describes the club as a group of organisations that support teaching or research in the department. It lists benefits for members and provides a link to join.

The Supporters' Club

The Supporters' Club is a group of organisations, ranging from the very small to the large multinational, that actively support teaching or research in the department. For many members, the opportunity to take part in student recruitment is a key benefit of membership.

Club members pay a modest subscription and in return, enjoy opportunities to interact with our students and research staff and with other members. (See details below.) We use the income for a range of purposes including supporting students who are facing hardship, offering additional skills training to early-stage researchers, supporting our growing outreach programme and bridge-funding new research ideas.

Please note that we follow the University's general guidelines when considering whether organisations meet suitable ethical and other criteria for membership, and this is reviewed on a regular basis.

Benefits

Members of the Supporters' Club enjoy several benefits, and bring benefits to the department in return:

* 24 May 2025

SINCE 2002 WE HAVE COLLECTED THE LIST OF COMPANIES FOUNDED BY OUR GRADUATES



Companies started by Computer Science and Technology graduates and staff

If you would like to add a company to the list, please fill in [this form](#). Please send any corrections to this list to ring-organiser@cst.cam.ac.uk.

Current number of companies: 341

• **Acorn Computer** Co-founder: **Andy Hopper**

Founded in 1979, Acorn produced a number of computers including the BBC Micro.

• **Active Media Solutions** Founders: **John Bates and Giles Nelson**

Founded in 1995, Active Media Solutions was one of the first companies to deploy complex database-driven websites in which information can be easily classified and searched rather than statically encoded as HTML.

• **Actuarial Solutions Ltd** Founder: **Martin Barringer**

Founded in 1999, Actuarial Solutions Limited is a specialist provider of software tools and consultancy for actuarial applications.

The Hall of Fame is listed on the department web site. These wooden honour boards are located in the "Street" (the building entrance lobby) and are proudly pointed out to all visitors. Ingeniously mounted on wheels, they can be wheeled into lecture halls and meeting rooms if needed.

“RING TOP ONE HUNDRED” HALL OF FAME COMPANIES BY LTM REVENUE

£ m, last 12 months revenue

THE TOP 100: number 1 – number 10

ARM	2,554
Micro Focus	1,646
DeepMind	1,527
Sophos	820
Raspberry Pi	209
Jagex	137
Evi	126
Go Mobile	118
Improbable.io	66
NextBase Ltd	49

THE TOP 100: number 11 – number 35

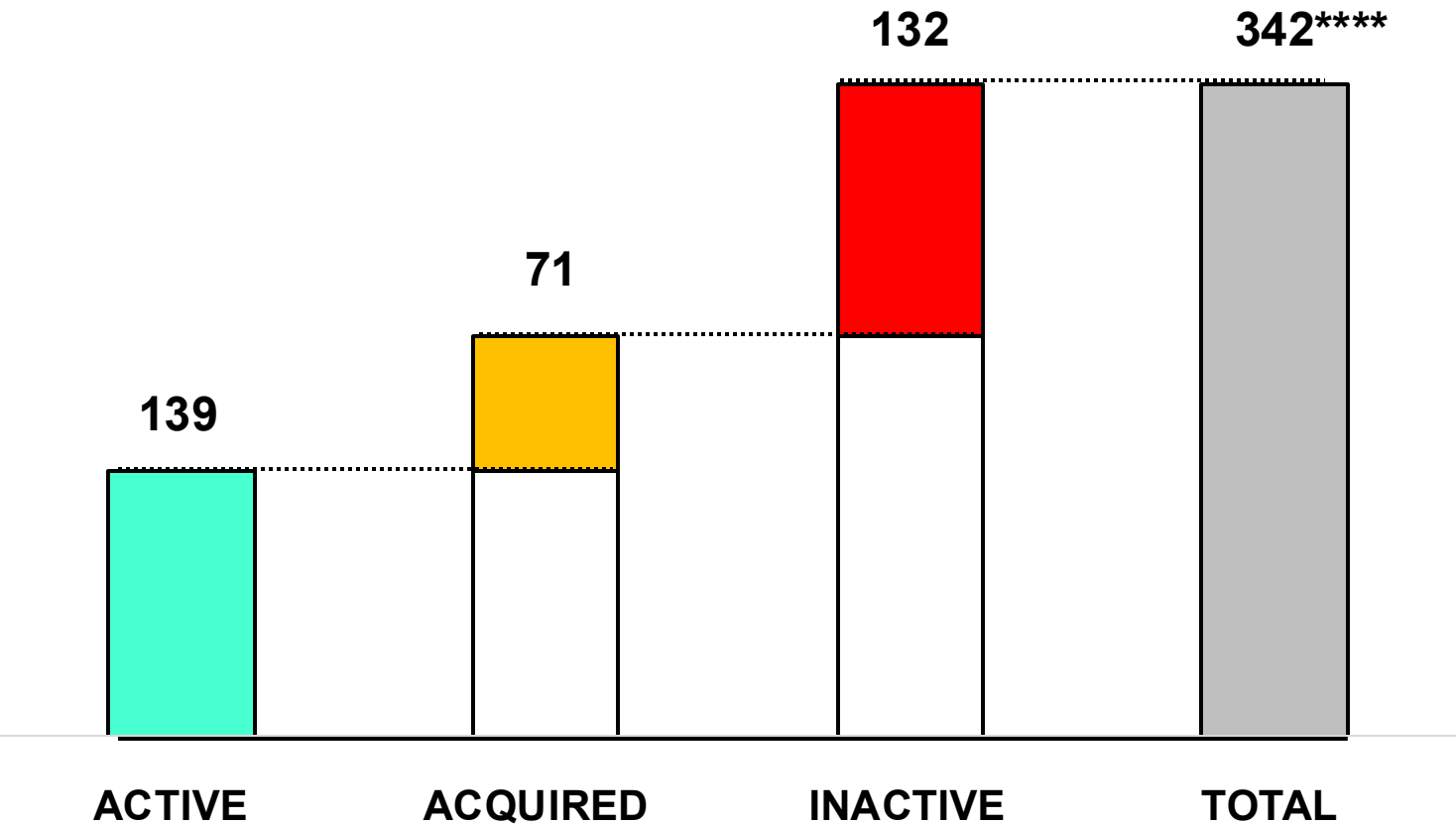
Grapeshot	39	Global Inkjet	11
Perfect Image	31	Beauhurst	9
Superhuman	30	Questionmark	8
Masabi	29	Element	8
Bango	25	blinkx	8
Spektrix	18	PolyAI	7
Tractable	16	Operis Plc	7
Amino Comms	16	Jobstream Group	2
CodeThink	16	FusePump	2
Collabora	15	English Language	2
Ubisense	14	Eluceda	1
Speechmatics	12	Applied Generics	1
		Moon Express	1



355* RING HALL OF FAME** COMPANIES AS OF 6 Jun 2025

Number of companies on the Ring Hall of Fame web page

**COMPUTER LAB+CLUB+RING
=> HUGE ECONOMIC IMPACT*****



**Revenue p.a. \$ 10.1 billion
(£7.6 billion)**

**Valuation \$ 193 billion
(£145 billion)**

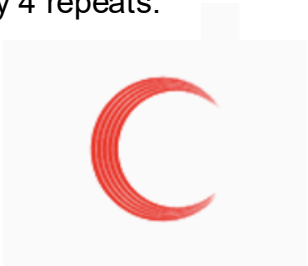
Staff 28,000

**Equity raised \$ 2.3 billion
(£1.7 billion)**

* Companies listed on the Cambridge Computer Ring Hall of Fame web page as of 6 Jun 2025
** A company founded by a Ring Member (= Cambridge University Computer Lab graduate or member of staff)
*** Source: Beauhurst analysis as of 15 May 2025
**** total of 342 to be updated by the further 12 companies found.

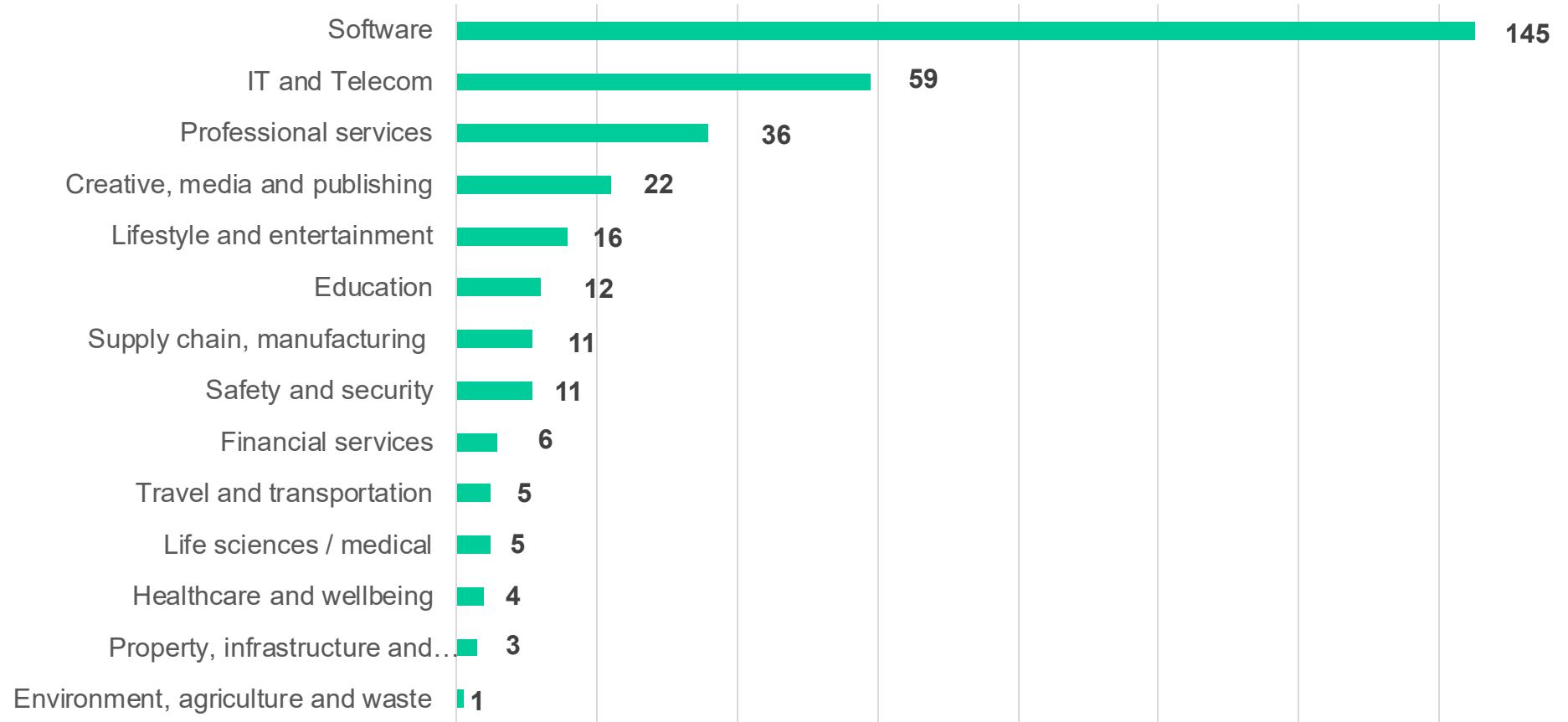
55 separate acquirors with only 4 repeats:

MSFT	4 acquisitions
Citrix	3 acquisitions
Oracle	2 acquisitions
Google	2 acquisitions



INDUSTRY FOCUS IS ON SOFTWARE, IT AND TELECOMS

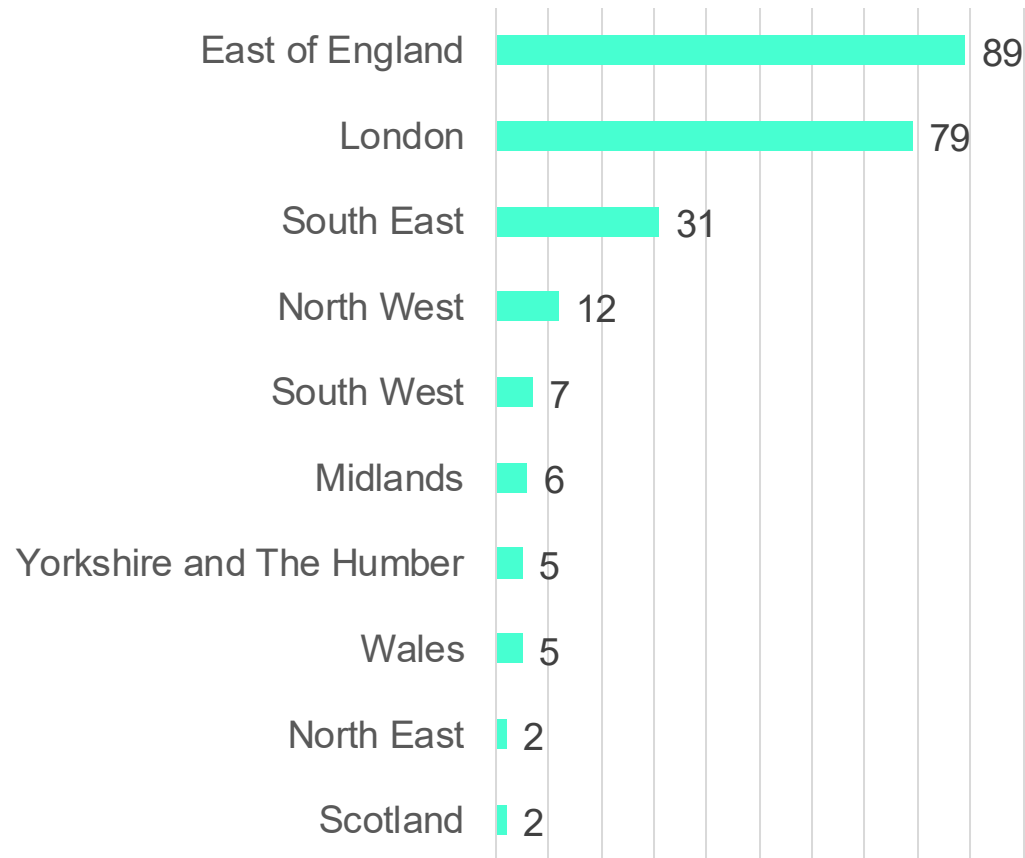
Number of companies



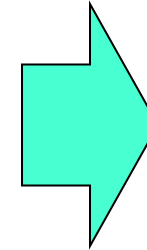
Source: Beauhurst analysis



THE COMPANIES ARE CLUSTERED AROUND CAMBRIDGE



Cambridge
clustered
in
Software, tech
and telecoms



Ring Hall of Fame
companies are
major contributors
to the
**Cambridge
technology industry
cluster**

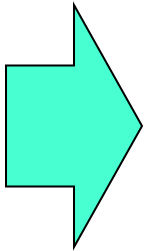


**Key feature of
the Ring
organisation
design**



TOPICS

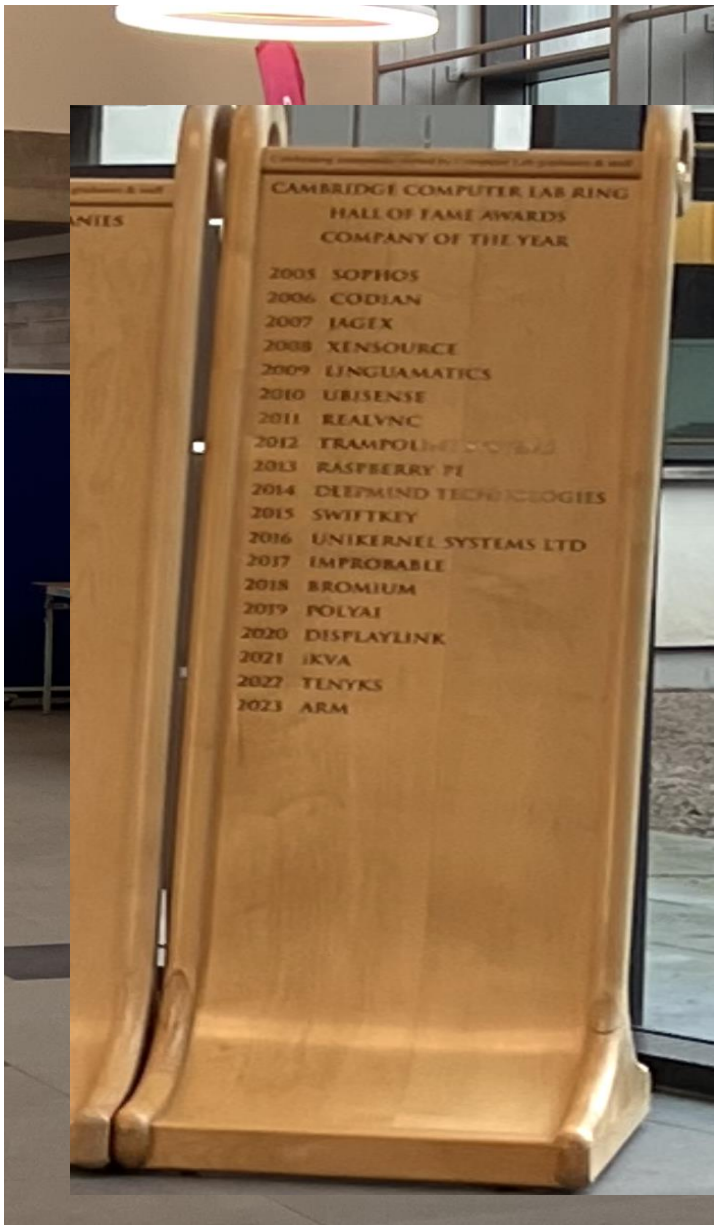
What has the Ring done?



What this means for the stakeholders

What has to change as a result





Key feature
of the Ring
org. design



GROWTH LEVERS FOR RING START-UPS

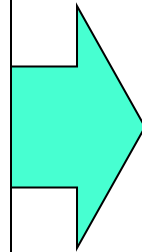
THE UNDER EXPLOITED ECONOMIC IMPACT OF RING START-UPS

More start-ups

1. Grow Computer Lab size
2. Increase % of entrepreneurial Lab students
3. Invest in inspiration

Address richer customer problems

Radically upgrade management skills



UPSIDE POTENTIAL ECONOMIC IMPACT OF RING START-UPS

8x more start-ups could happen if:

1. Double the Computer Lab size
2. Double % of entrepreneurial students in the Lab
3. Double the level of inspiration

e.g. Double value of customer problems

10 x management skill: hire & train better

Upside
could
be:

2 x

2 x

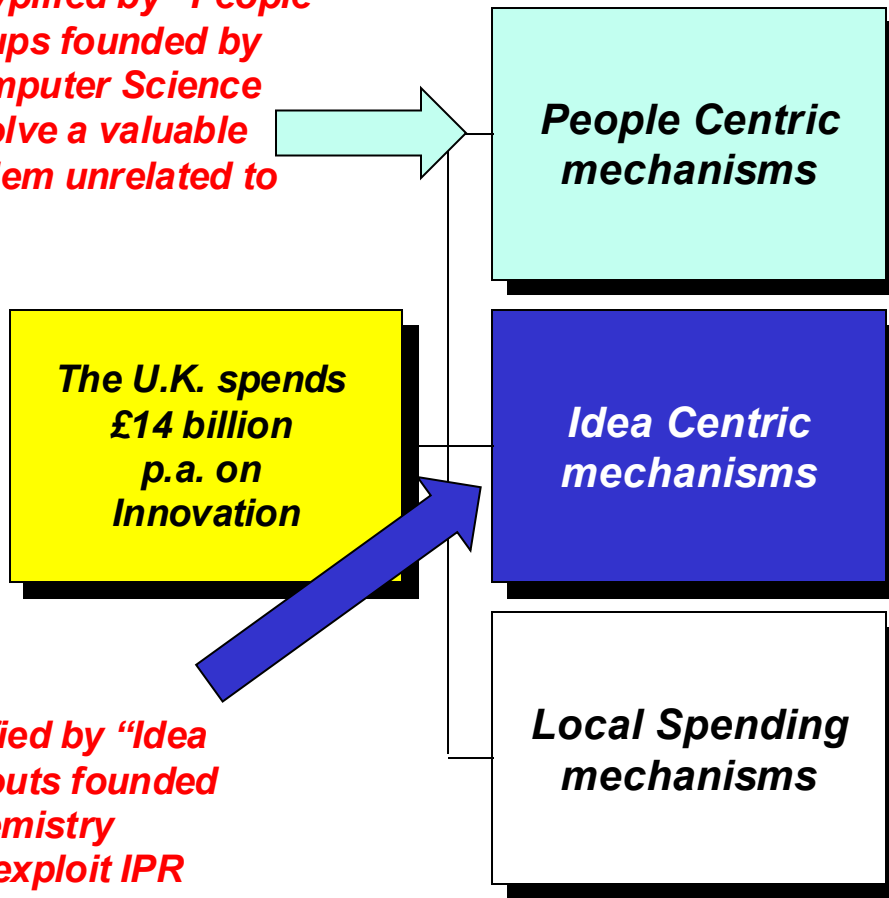
2 x

2 x

10 x

THERE ARE A WIDE RANGE OF MECHANISMS THAT TURN SCIENCE INTO GROWTH

Cambridge is typified by “People Centric” Start-ups founded by Cambridge Computer Science graduates to solve a valuable customer problem unrelated to their research



- Education of graduates taking jobs in industry
- “B-rainfall” of future Hausers, Brins and Musks
- B-rainfallers may found Start-ups e.g. the 351 Cambridge Computer Lab Ring Hall of Fame companies aggregate market cap of £150 billion (est.)

Works well in SOFTWARE

- Technology Transfer and Licensing / University Spinouts
- Diffusion by publication, conferences and contacts
- Textbooks and examinations board revenues

Works well in DRUGS

- University staff spending in the local region
- University student spending in the local region
- Tourist spending

Oxford is typified by “Idea Centric” Spinouts founded by Oxford Chemistry academics to exploit IPR from research owned by Oxford University

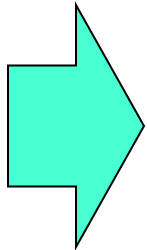
“Don’t treat software like a drug” per Stephen Allott



TOPICS

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What this means for the stakeholders



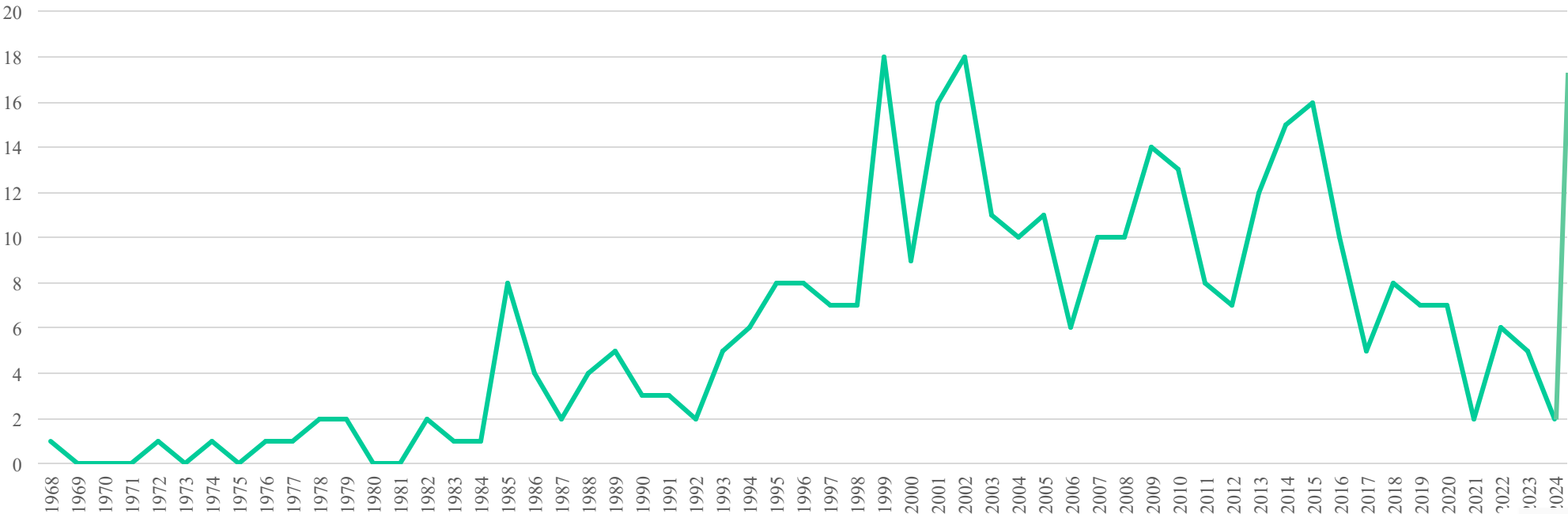
What has to change as a result



TRACK DOWN 100% OF THE HALL OF FAME AND INSPIRE MORE

RING HALL OF FAME COMPANY FORMATIONS BY YEAR

number per year



Analysis shows that the Hall of Fame is more like 400 + companies

Cause of this decline in formations is not yet known. Hypothesis that the cause is lack of systematic discovery and inclusion in the Ring Hall of Fame list

2025
so far
is +15



MAKE NEWS - THE “RING AWARDS” WERE LAUNCHED IN 2005

example of recent notice



23 April: Cambridge Ring Dinner

A reminder that the next Cambridge Ring Dinner is on Wednesday 23 April 2025.

Taking place at Queens' College, the event starts at 16:30 with short research talks and the Hall of Fame Awards ceremony. These will be followed by a drinks reception and dinner.

THE RING AWARDS

Conceived, created and judged by Stephen Allott since 2005 with the purposes of:

- Attracting top talent
- Celebrating the successes of Ring members
- Creating news “out of thin air”



THE DREAMS OF RAHUL VOHRA INSPIRED BY THE HONOUR BOARDS: INSPIRE MORE



RAHUL VOHRA

- Cambridge Computer Lab Comp Sci 2002 - 2005
- Cambridge Computer Lab PhD 2006 – 2007
- CUE President 2006 - 2007
- CUE Chairman 2007 – 2008
- Rapportive Founded 2010
- Superhuman Founded 2014
- Superhuman Ring Product of the Year 2023

"I became aware of the Lab Ring as a graduate student,"

"It is amazing to see Superhuman on this list. I remember dreaming about building something meaningful everyday as a student."

"I have fond memories of the awards ceremony being over dinner. It's something that's very uniquely Cambridge and hopefully can continue happening!"

"I met some great people through it, like Eben Upton (Founder of Raspberry Pi)"

HIGH PRESTIGE WINNERS OF THE RING COMPANY OF THE YEAR AWARDS



2005	Sophos
2006	Codian
2007	Jagex
2008	Xensource
2009	Linguamatics
2010	Ubisense
2011	Real VNC
2012	Trampoline
2013	Raspberry Pi
2014	Deepmind
2015	Swiftkey
2016	Unikernel
2017	Improbable
2018	Bromium
2019	PolyAI
2020	Displaylink
2021	iKVA
2022	Tenyks
2023	A.R.M.
2024	Tractable



THE “CAMBRIDGE RING” WILL RECEIVE ROI ALLOCATED INNOVATION SPENDING

The £14 bn annual Government spend on innovation currently goes on Idea Centric mechanisms. None is spent on People Centric mechanisms

***The U.K. spends
£14 billion
p.a. on
Innovation***

People Centric mechanisms

- Educate and place graduates into jobs in industry
- Attract “B-rainfall” of future Brin, Hausers and Musks
- Support their Ring start-ups e.g. the 355 Cambridge Computer Lab Ring Hall of Fame companies and celebrate their successes

Idea Centric mechanisms

- Technology Transfer and Licensing / University Spinouts
- Diffusion by publication, conferences and contacts
- Textbooks and examinations board revenues

Local Spending mechanisms

- University staff spending in the local region
- University student spending in the local region
- Tourist spending



Note on Business Cases

How does one do a business case for a policy intervention given the twin problems of projecting future cashflows and there is no counterfactual?

This is in my view a conventional Treasury social value assessment combined with a NPV model approach.

Current policies should be subject to the discipline of a business case. These should be zero based with no grandfathering of current policies and practices.

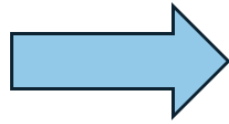
The Tripos exam question will be:

1. List comprehensively all the mechanisms which lead from science to growth
2. Describe how each mechanism operates
3. Describe the levers which can boost each mechanism i.e. how each might be catalysed with money
4. Scope the return function of each boosting lever
5. Explain how the return might vary with the circumstances of any particular case
6. Estimate the potential returns on interventions for a set of Cambridge start-ups (e.g. for the Cambridge Ring) where a start-up includes a graduate founded company located anywhere or located in the UK or in a CB post code
7. Estimate the sum of Idea Centric interventions outside Pharma that have been made in Cambridge University
8. Estimate the Social Value / NPV of those interventions in fact
9. Estimate the Social Value / NPV had those interventions gone to start-ups
- 10 Compute the difference (the public value foregone)



WE SAY “BOTH ROUTES CAN BE GOOD” LET THE ROI DECIDE

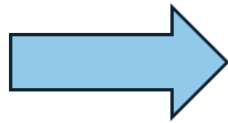
Value \$100's billions



brilliant *leaders*

ARM

Brilliant researchers



brilliant *research*

**Mono-clonal
Anti-bodies**

Value \$ billions



SHIFTING TO THE LAB / CLUB / RING

MERELY A SMALL FRACTION OF THE

BILLIONS CURRENTLY BEING SPENT

ON INNOVATION WOULD CREATE A

HUGE UPSIDE



TAKE - AWAYS

The Ring is the THING.

“WOW”

Big changes.

“NOW”

Move the money.

“OW”



CAMBRIDGE COMPUTING

The First 75 Years



HALL OF FAME COMPANIES

1960-1989

Media Dynamics Ltd.
Shape Data Ltd.
Micro Focus
Orbis Ltd.
Acorn Computer Ltd.
GST Technologies Ltd.
Camdata
APM Ltd.
First DBS Ltd.
Global Software Publishing
PC Communications Ltd.
Qudos Technology Ltd.
SRI Cambridge
Olivetti Research Ltd.
Perihelion Software
Three-Space Ltd.
Xi Software Ltd.
Equisys
Sophos plc
Cunning Running Software Ltd.
NextBase Ltd.
Questionmark
Software Integrators
JMEC Ltd.
Leading Technology Inc.
Rubicon Software Group plc.
Software Solutions
Consulting AG

2000-

Cambridge Broadband Ltd.
Filonet Korea Incorporated
FiloSafe Corporation
Metanate Ltd.
Tenison Technology EDA Ltd.
Xandera
Zoonami
Blue technologies
break-step productions
Business Web Software
Datanomic Ltd.
Governor Technology Ltd.
GreX Games Ltd.
Interactive Digital Television Ltd.
Ionsquare
Jagex Ltd.
Jawasoft
Lemur Consulting
Linguamatics
Linguit GmbH
Micropraxis Ltd.
Paradigm Design Systems Ltd.
Azuro
Bid Management Ltd.
CacheLogic Ltd.
Level 5 Networks
Cotares Ltd.
eCosCentric Ltd.
Fraser Research Inc.
Great East London Software Solutions Ltd.



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