

STANFORD UNIVERSITY AND HIGH-TECH ENTREPRENEURSHIP: AN EMPIRICAL STUDY

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Babson College Entrepreneurship
Research Conference



Motivation

- High-tech entrepreneurship and innovation are important topics
- Whereas Silicon Valley, the Boston Area and MIT have been extensively studied, Stanford University is not really well-known, with the exceptions of (many) famous success stories (Sun, Cisco, Yahoo, Google, etc)
- Basic motivation is a description of high-tech entrepreneurship and founders from Stanford university
- Another important motivation is that data on Stanford may induce new studies and results on the topic

Spin-off and start-up

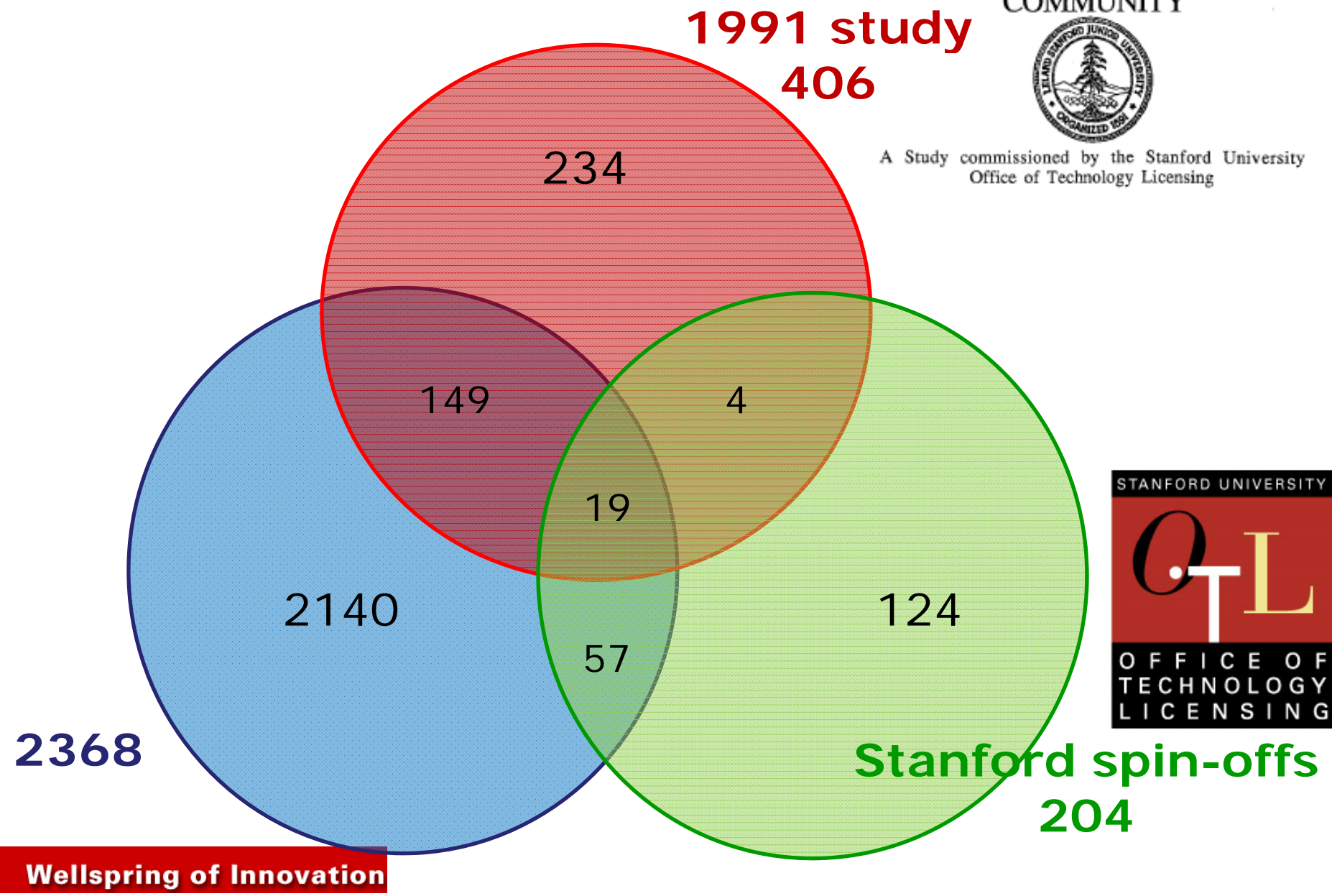


The full set of data (2727 companies)

TECHNOLOGY BASED COMPANIES
FOUNDED BY MEMBERS OF THE
STANFORD UNIVERSITY
COMMUNITY



A Study commissioned by the Stanford University
Office of Technology Licensing

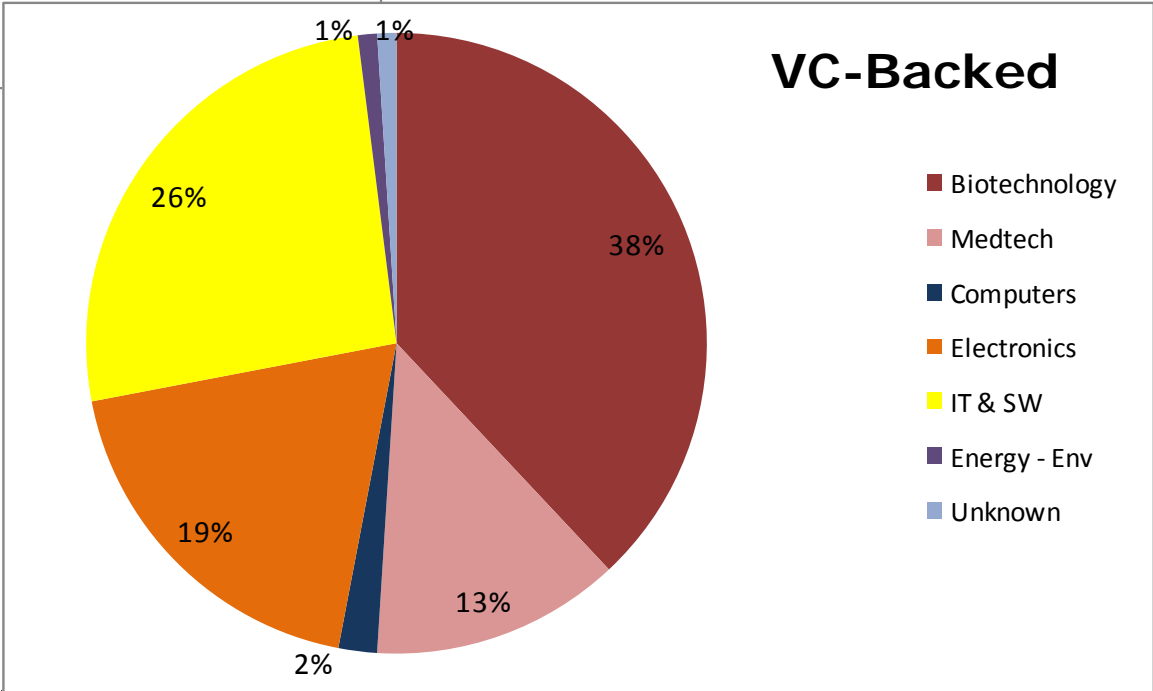
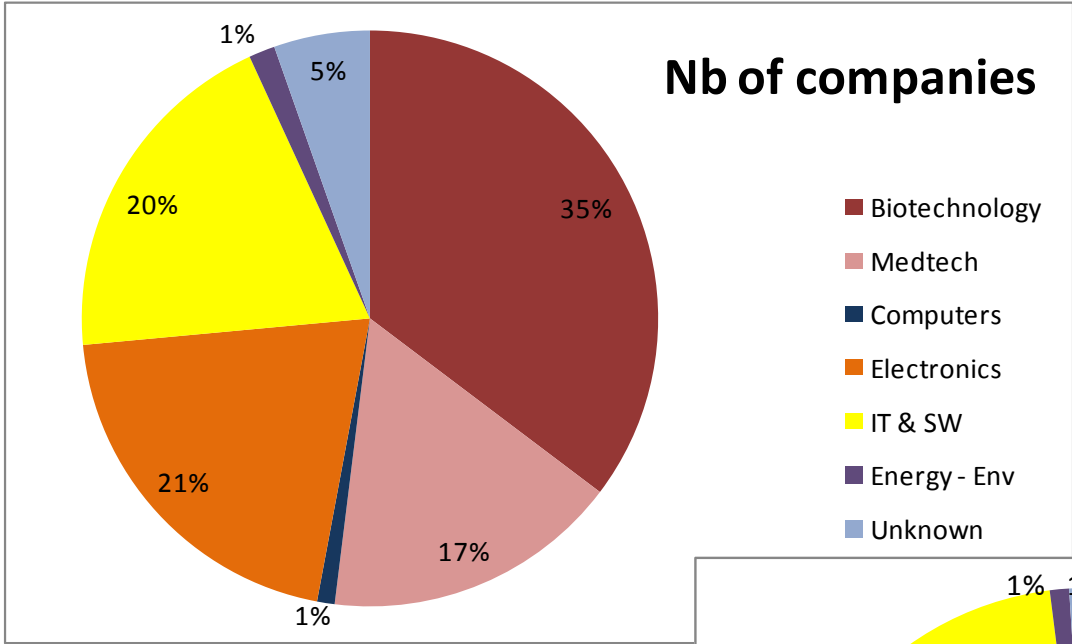


Wellspring of Innovation

Stanford spin-offs

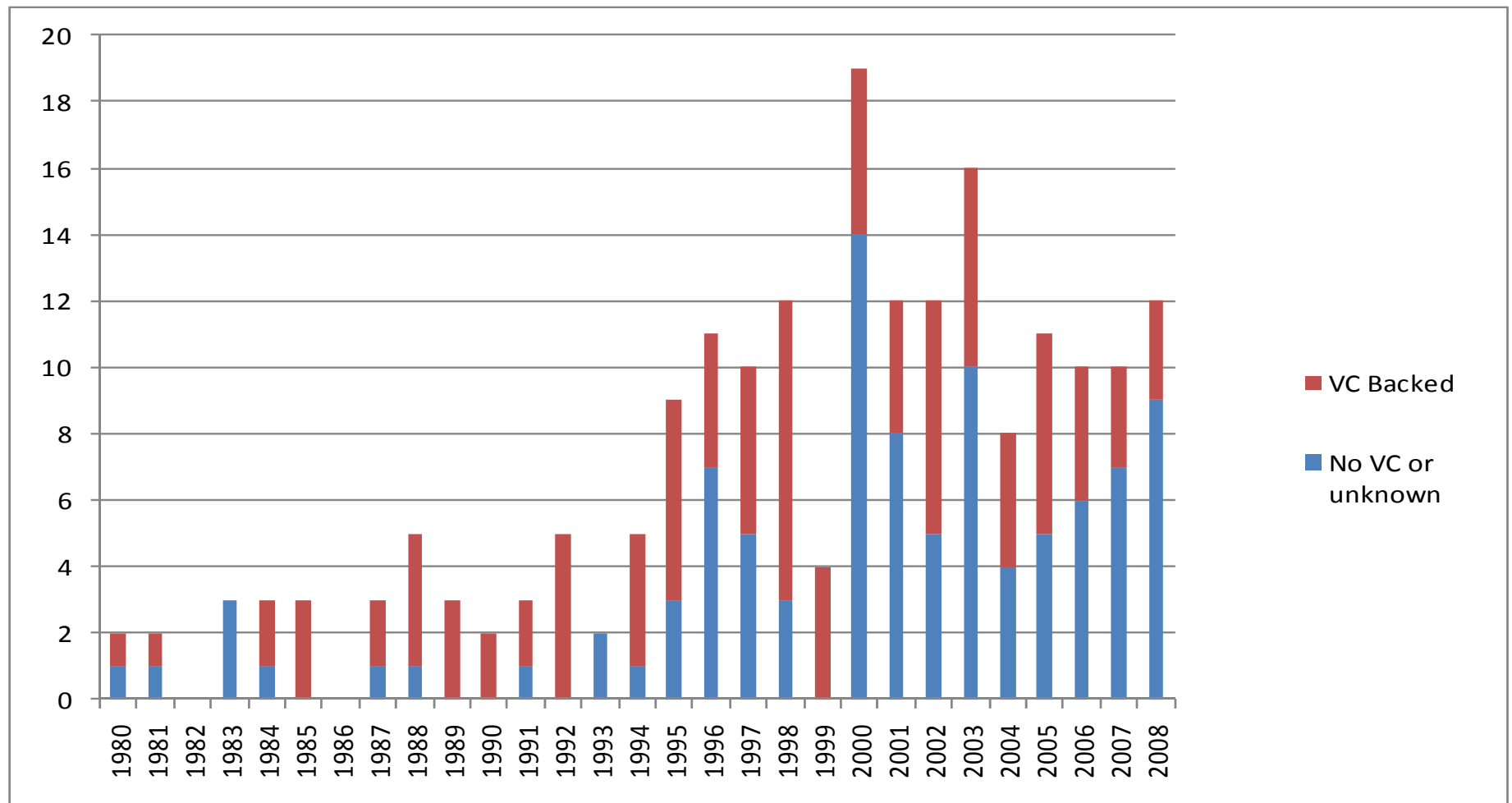
204 companies

Stanford spin-offs - distribution



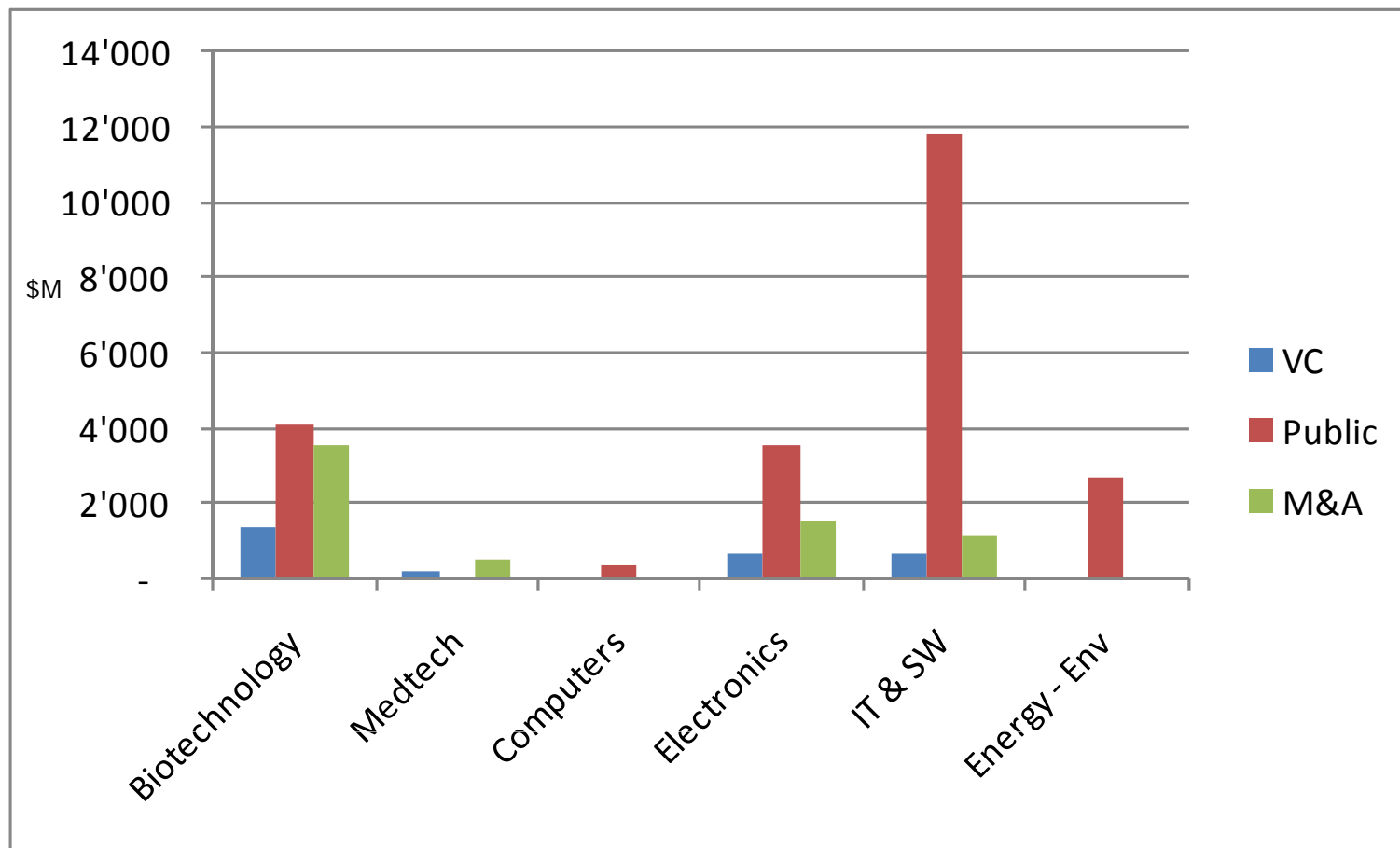
Stanford spin-offs – VC funding

- 100 in total, 4 VC-backed start-ups per year since 1985
- \$120M / year of VC money, \$30M per company since 1985

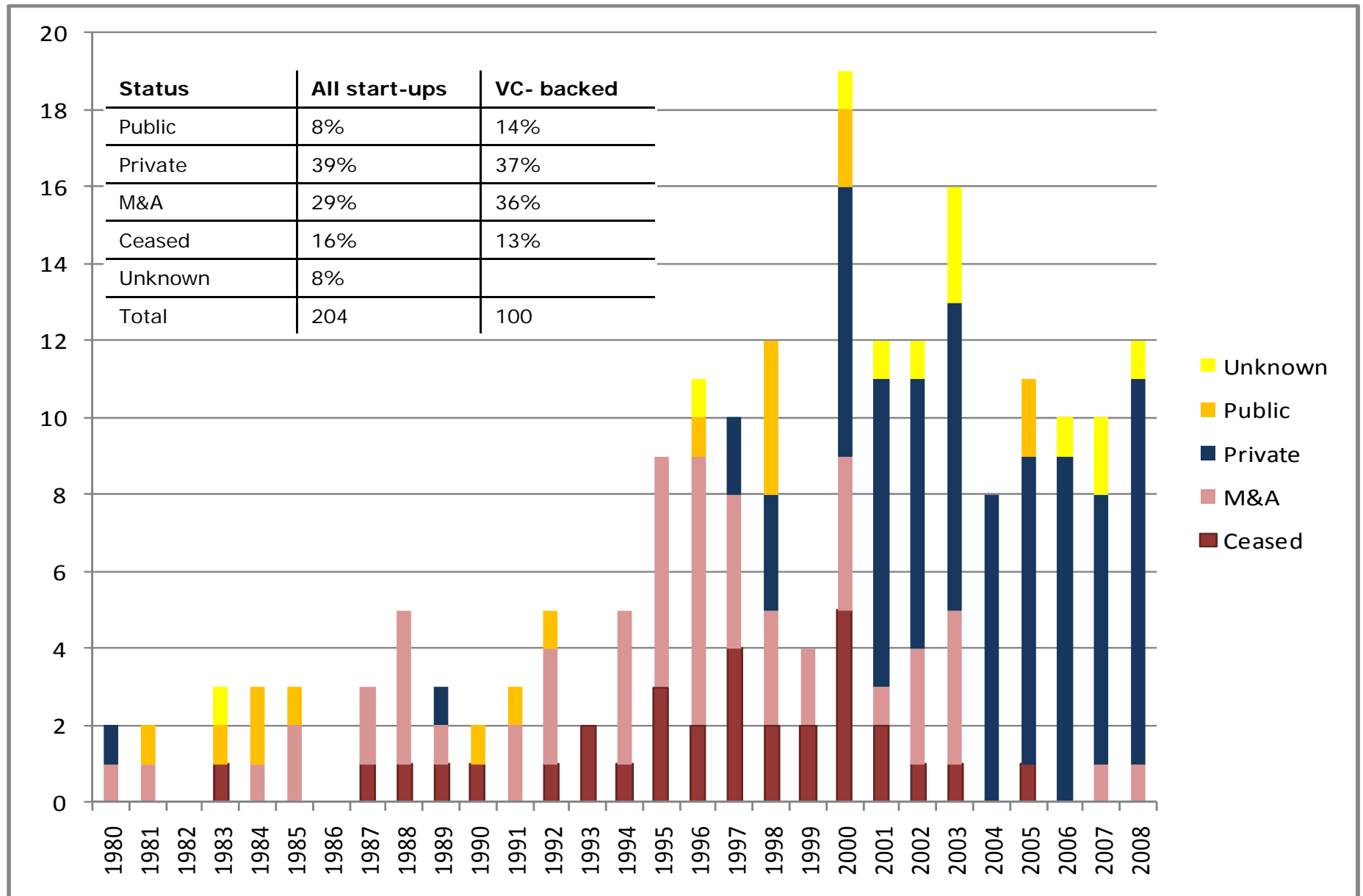


Stanford spin-offs - success

- \$2.9B invested,
- \$8.2B of M&A,
- \$22.4B of public value exc.
 - Cisco (\$131B) and
 - Google (\$153B)



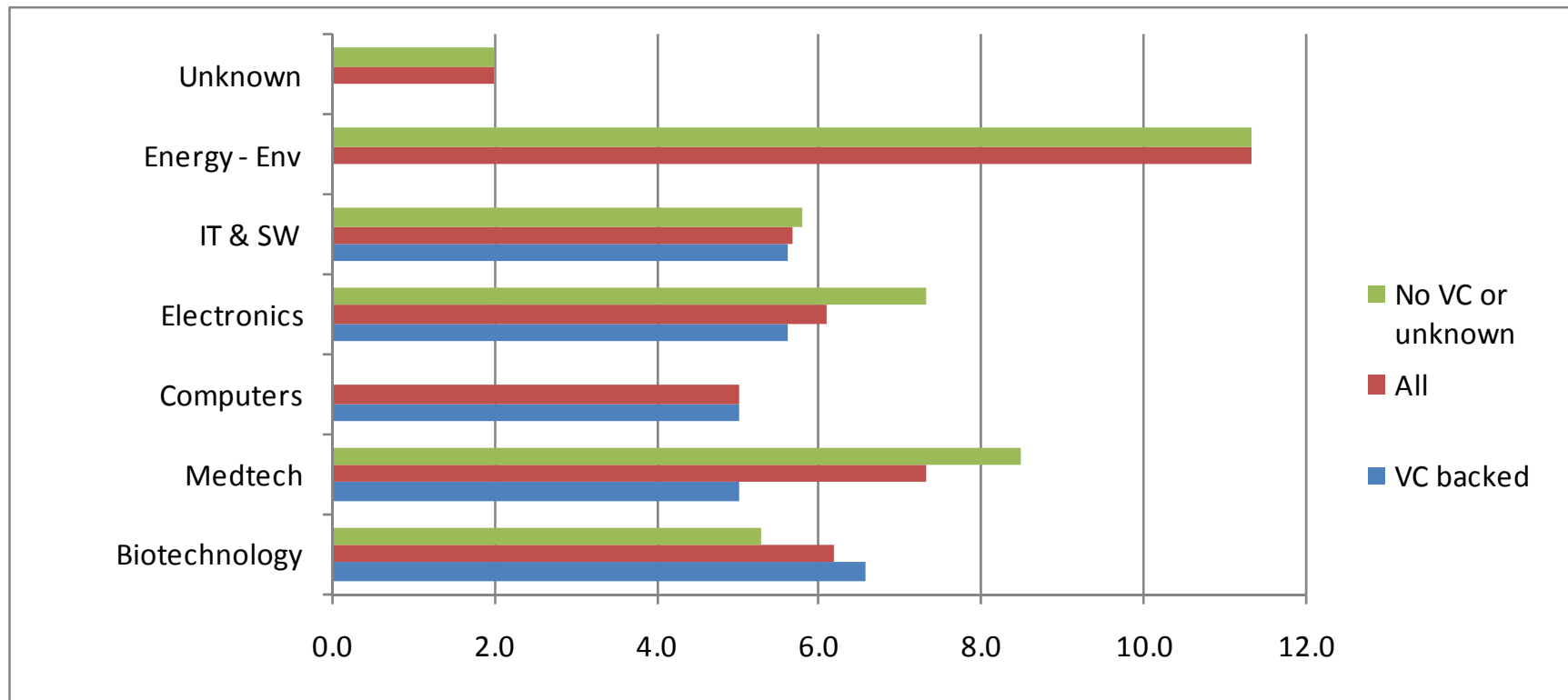
Stanford spin-offs - status



Stanford spin-offs – time to liquidity

- 5.97 years to liquidity when VC-backed
- 6.55 years if no VC or unknown
- 6.16 years overall

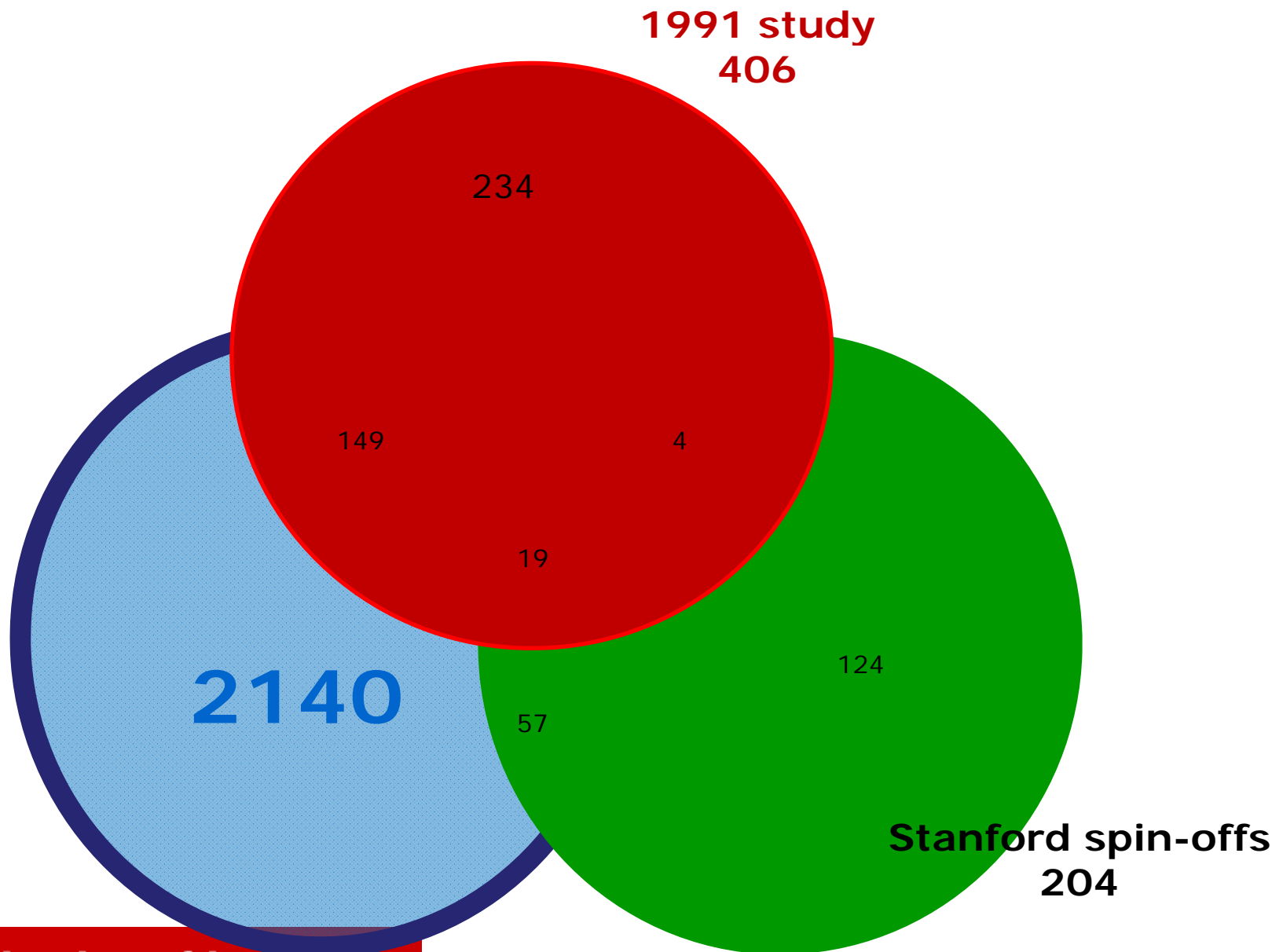
Nb. of companies	VC backed	No VC or unknown
Unknown		2
Energy – env.		3
IT & SW	16	5
Electronics	16	6
Computers	2	0
Medtech	2	4
Biotech	25	11
Total	61	31



A broader picture

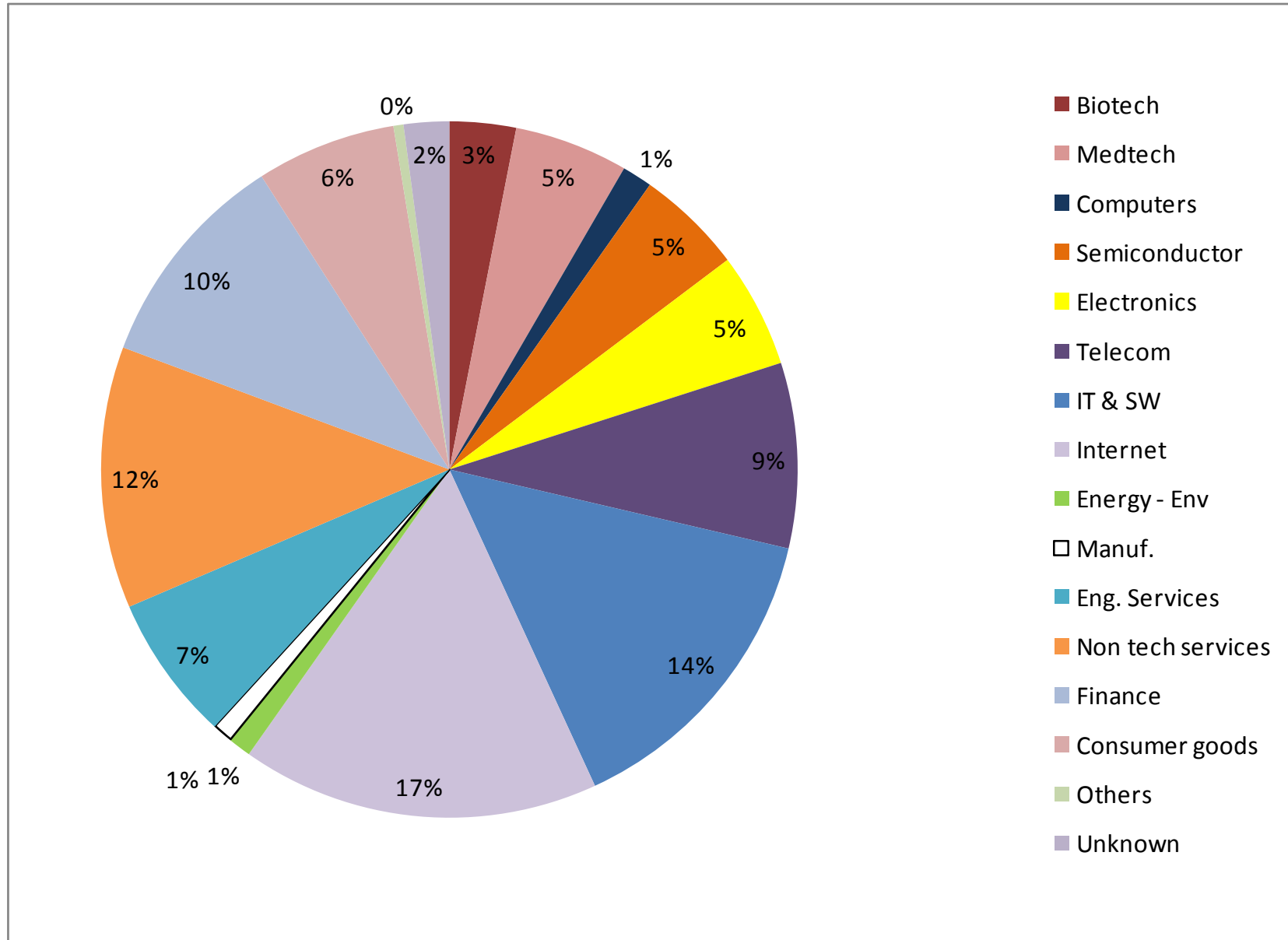
2140 companies
out of the Wellspring
of Innovation

The full set of data

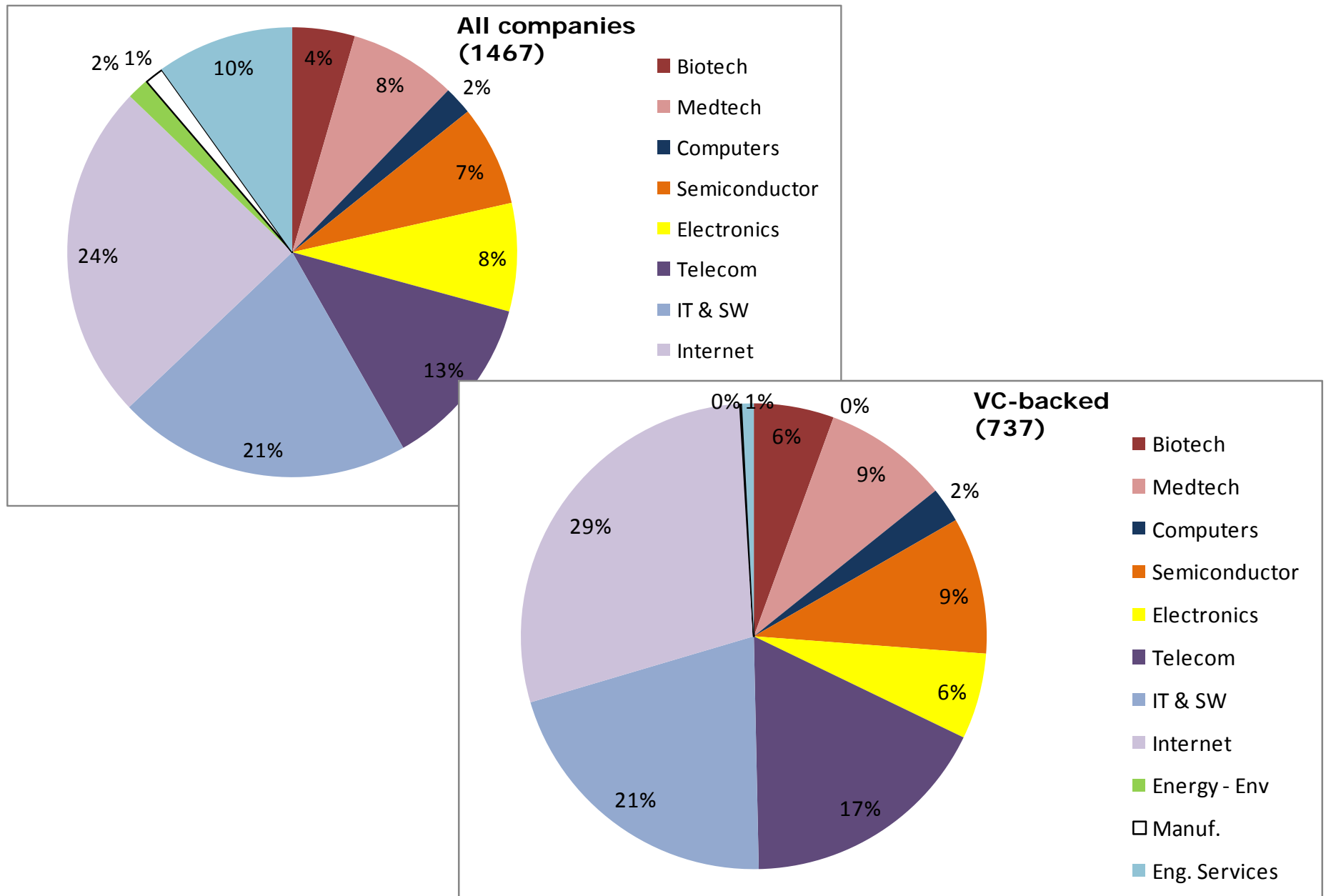


Wellspring of Innovation

WellSpring Start-ups (2140) - distribution

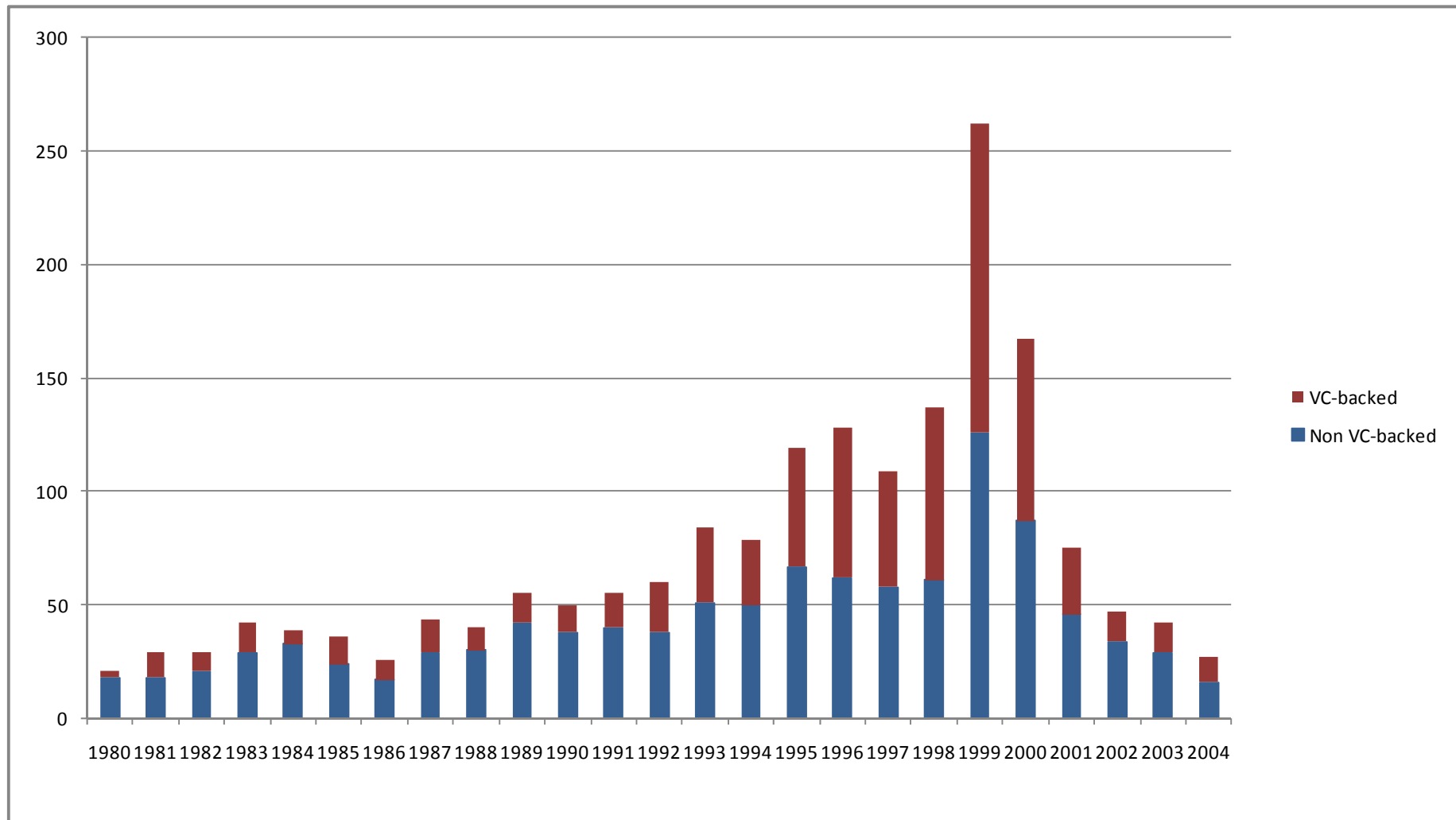


WellSpring High-Tech Start-ups – distribution



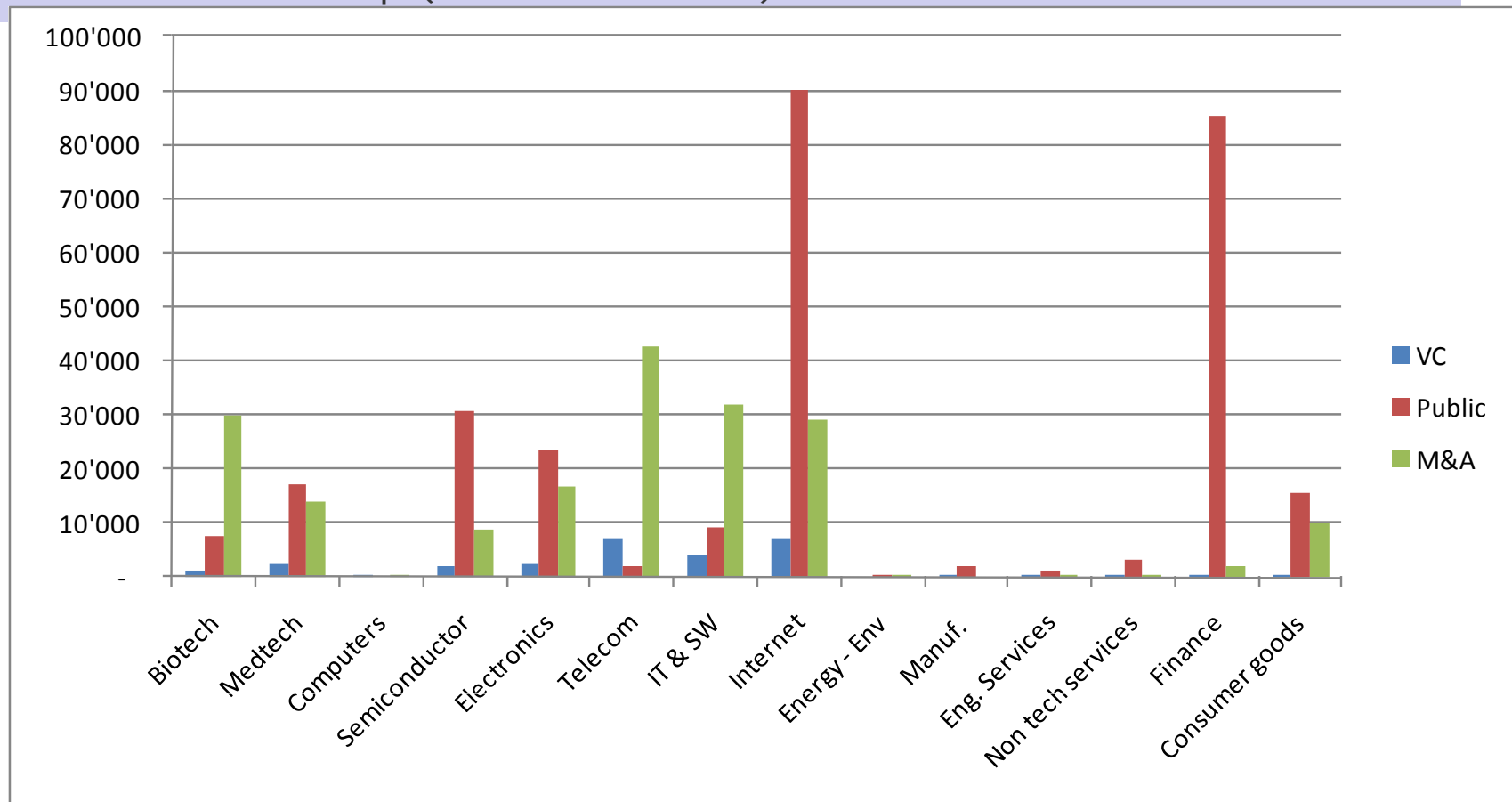
Wellspring (2140) – VC funding

- 754 VC backed companies
- 26 VC-backed start-ups per year over 1980-2004 (35% of all)
- \$360M / year of VC money (81-94), \$3.3B (95-00), \$41M per company

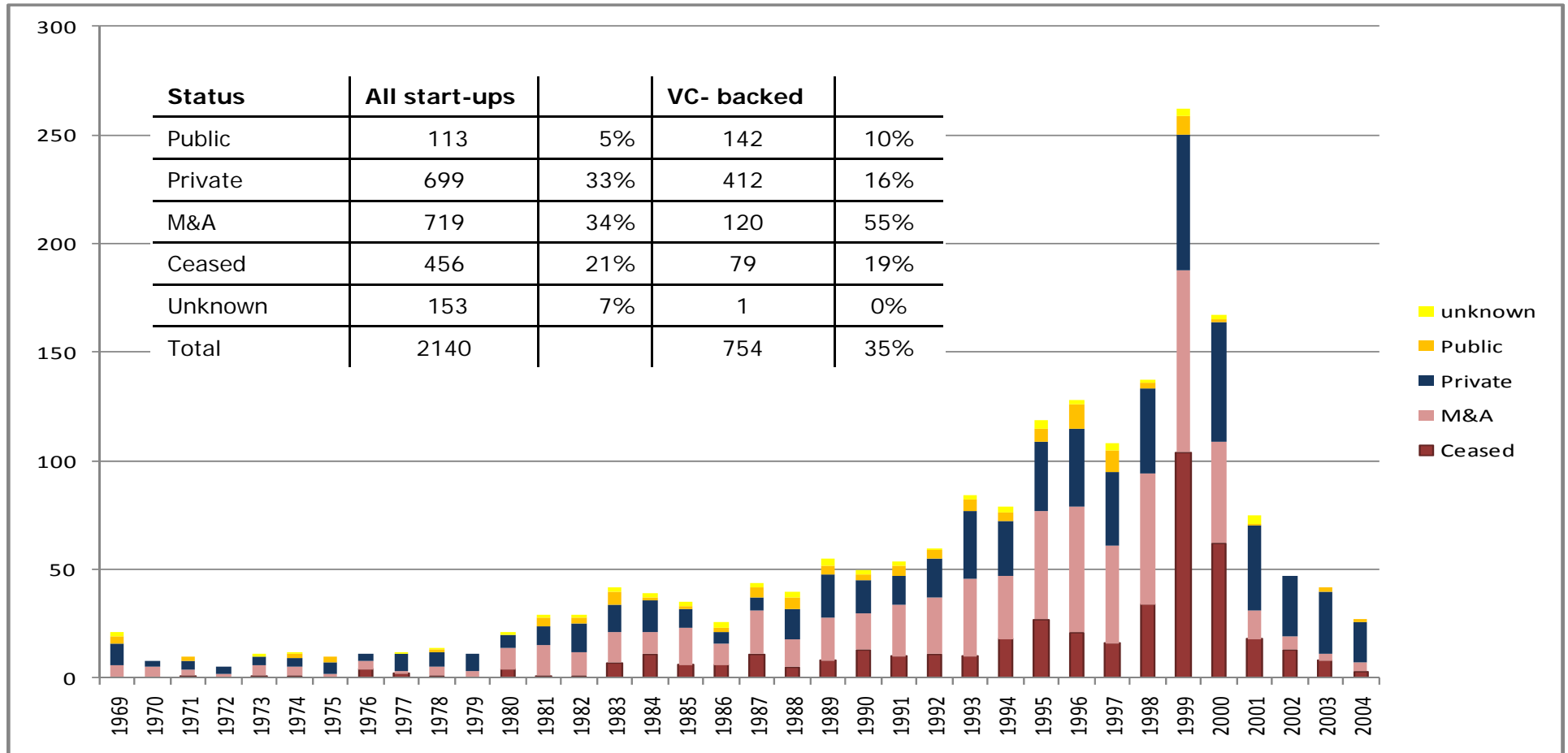


WellSpring (2140) - success

- \$27.5B invested,
- \$185B of M&A
- \$287B of public value including eBay (\$29.3B) Yahoo (\$23.6B), Baidu (\$13B)
but also Charles Schwab (Finance) - \$21.7B
The Gap (Consumer Goods) - \$14.5B

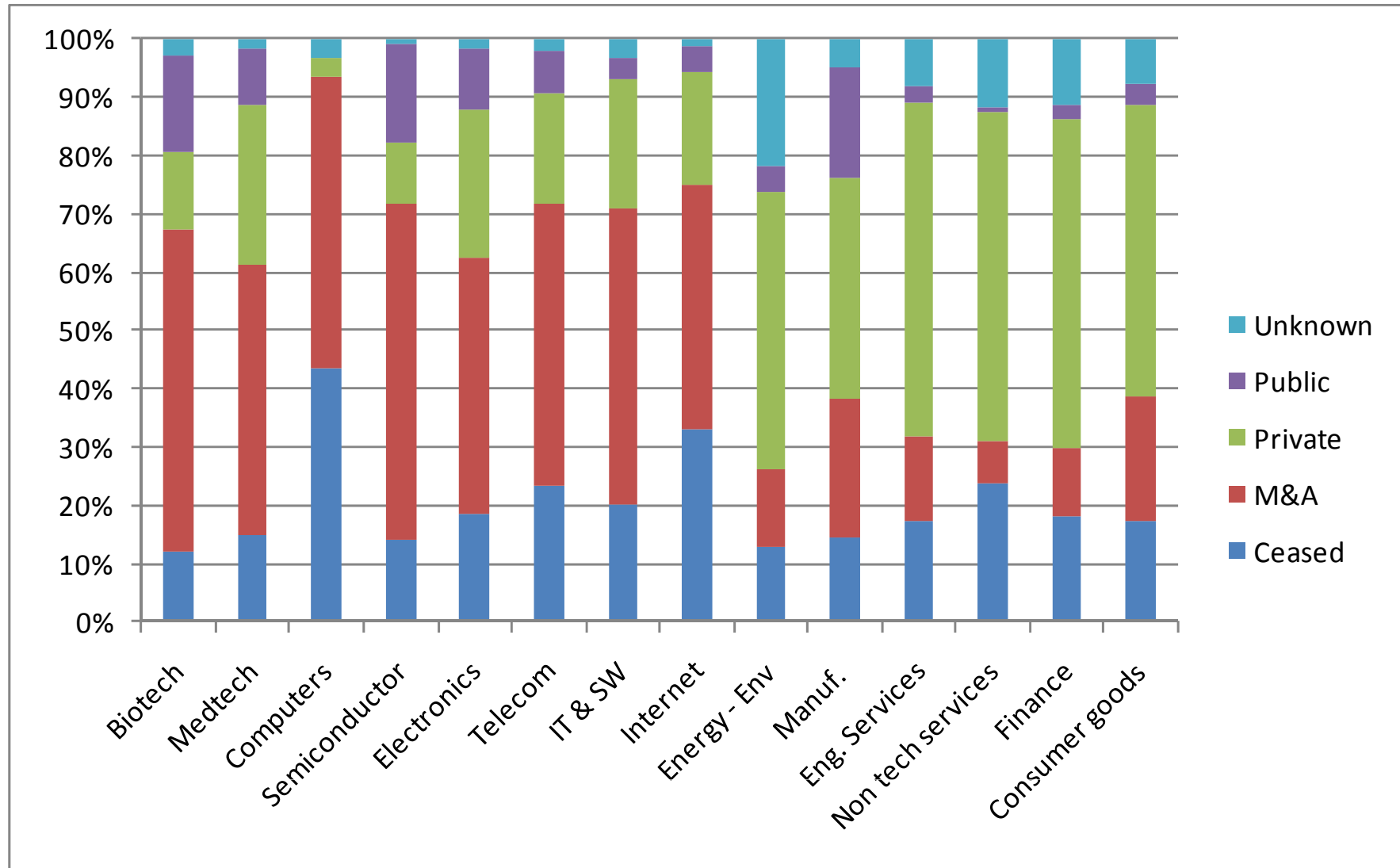


WellSpring Start-ups (2140) – status in 2008



WellSpring Start-ups (2140) – status by field

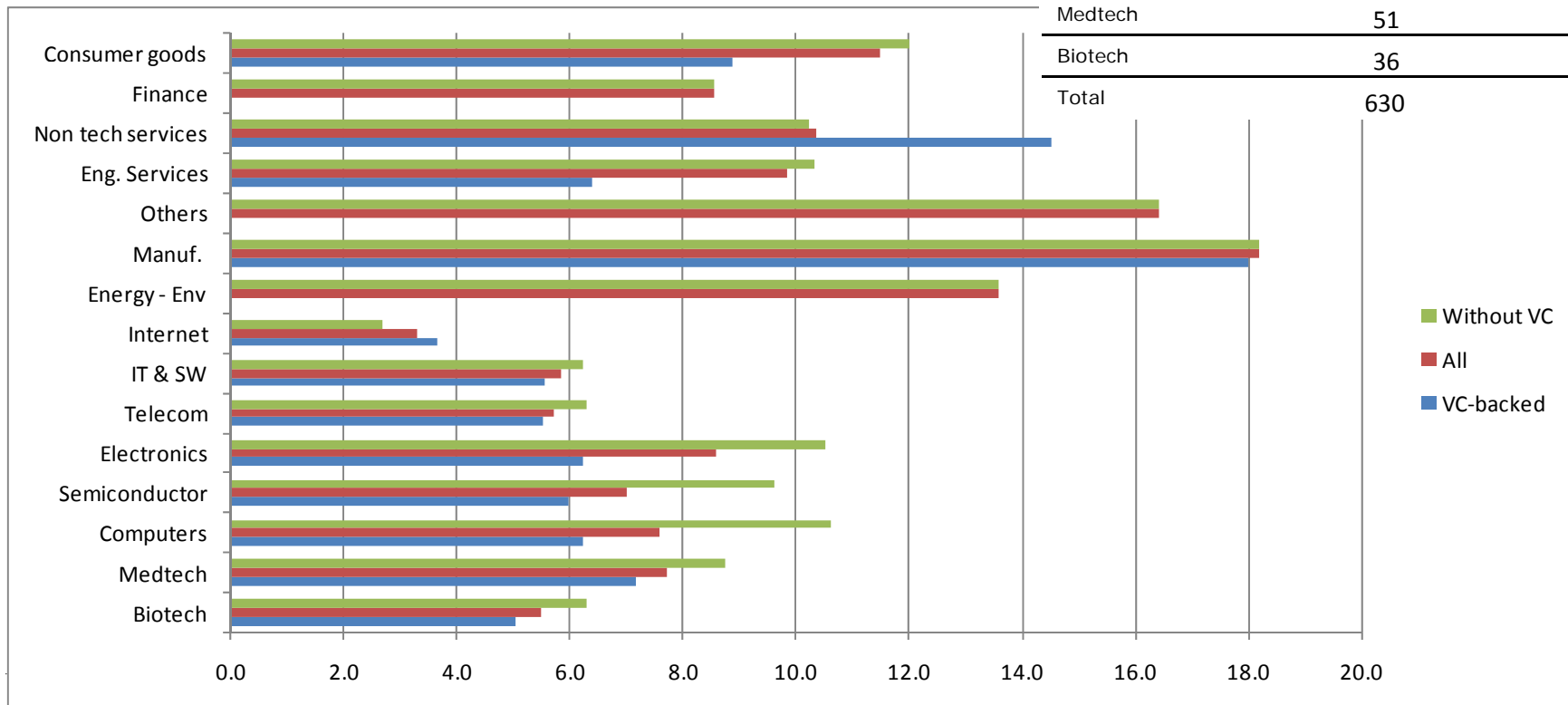
- 21% of high-tech are private vs. 55% of services or non-tech



WellSpring – time to liquidity

- 5.3 years to liquidity when VC-backed
- 8.0 years if no VC or unknown
- 6.6 years overall

Nb. of companies	VC backed	No VC or unknown
Consumer Goods	8	45
Finance	0	52
Non Tech Services	2	67
Engineering services	5	37
Other tech	0	5
Manufacturing	1	10
Energy – env.	0	7
Internet	177	102
IT & SW	125	93
Telecom	107	34
Electronics	35	43
Semiconductor	65	26
Computers	18	8
Medtech	51	27
Biotech	36	18
Total	630	574



About the founders

Reminder: These are Stanford alumni only; the companies may have had other founders, who are not studied here.

A few famous founders



Sergey Brin and Larry Page
Google



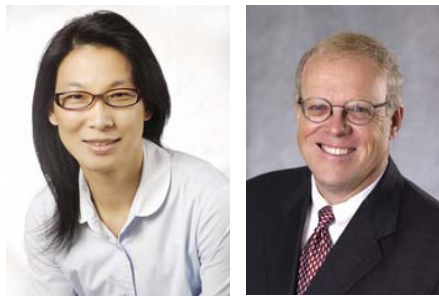
Jerry Yang and David Filo
Yahoo!



Sandy Lerner Larry Bosack
Cisco



Dave Hewlett and Bill Packard
HP

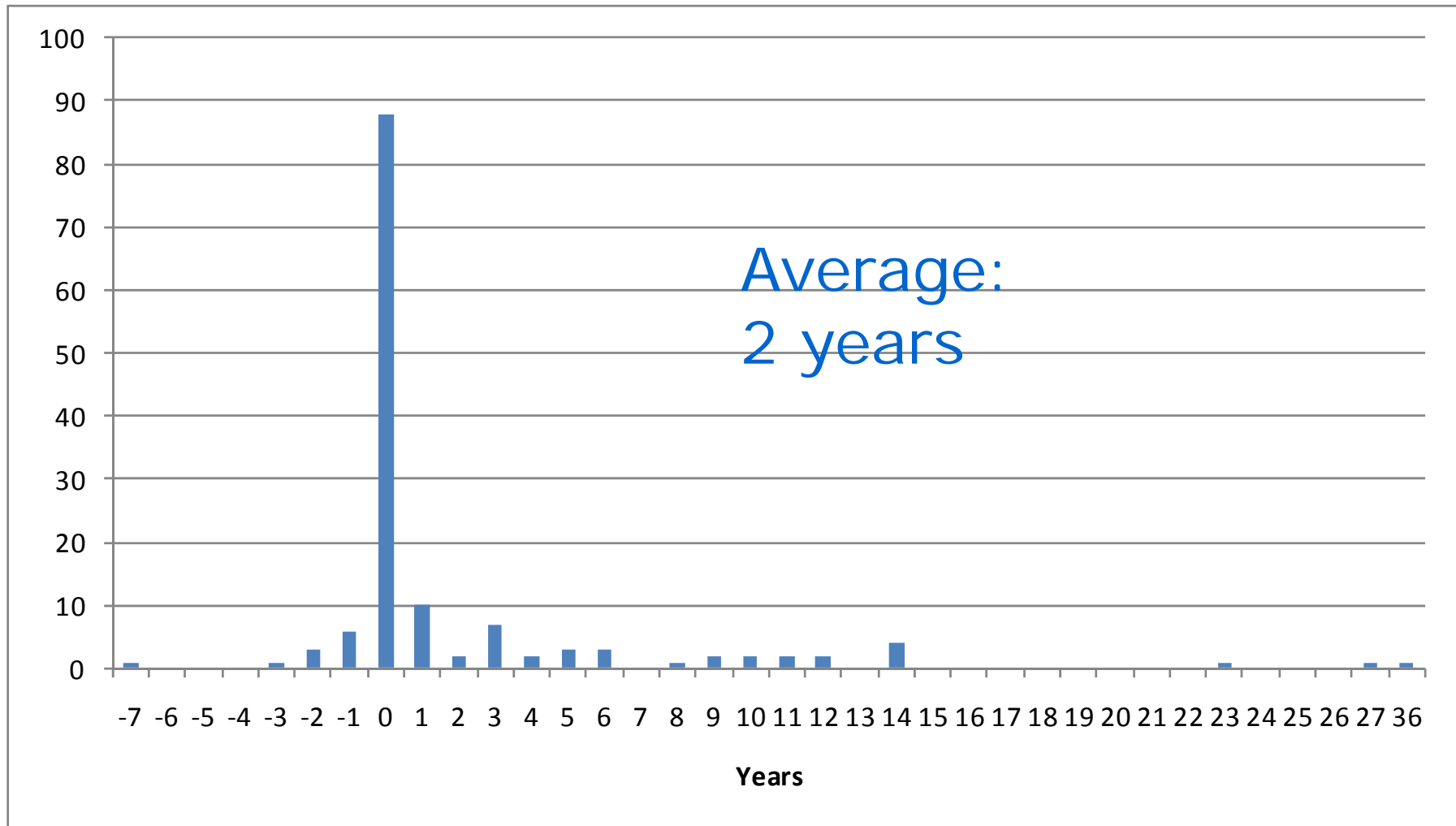


Professors Theresa Meng and John Hennessy,
Atheros Communications



Marc Andreessen and Professor James Clark,
Netscape

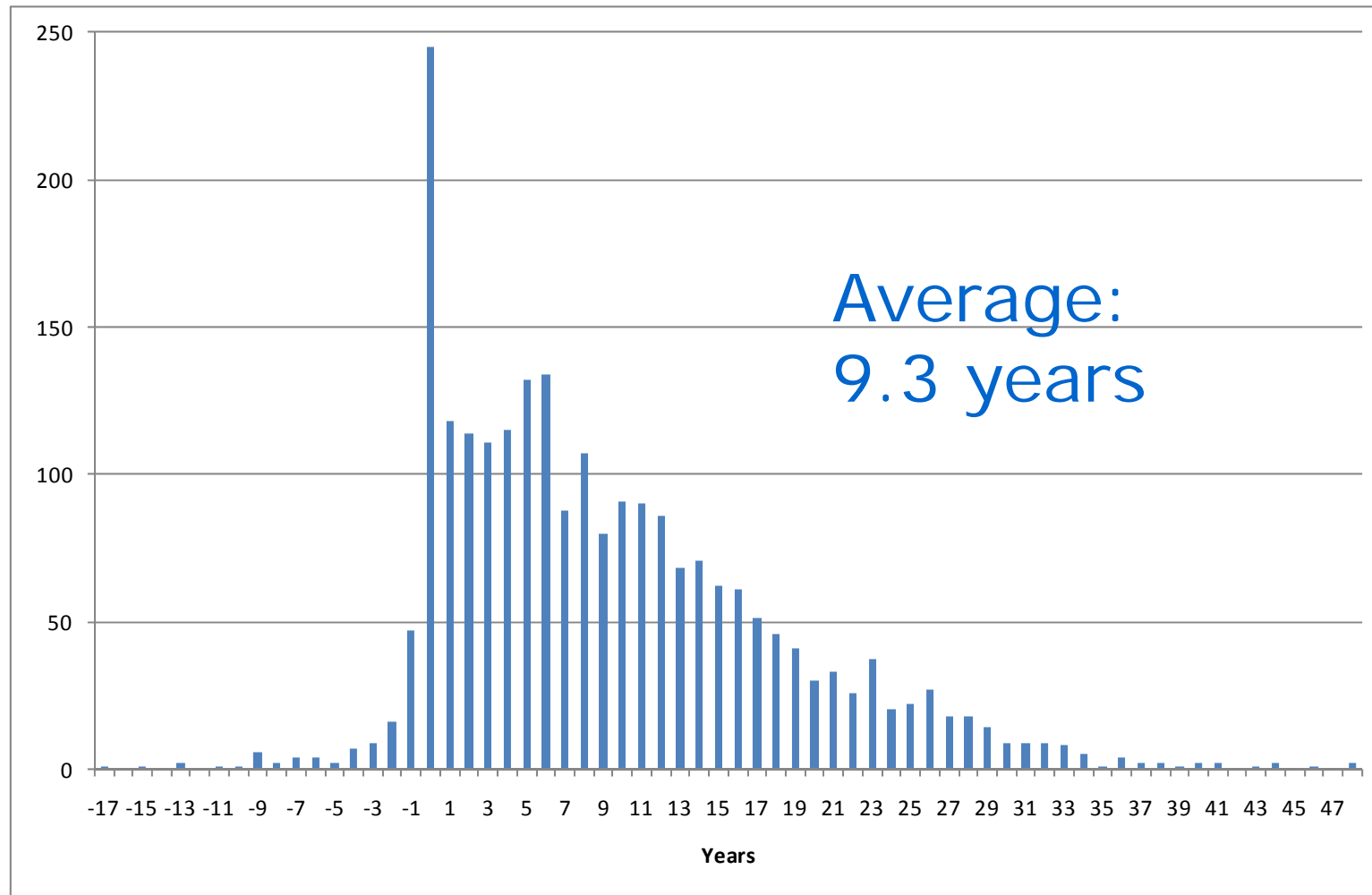
Founders: years from graduation* to foundation



Stanford spin-offs (license), 204 companies
62 unknown or no Stanford founder identified
also 1 comp at 23, 27, and 36 years

* Stanford professors or staff imply 0 as value. If a company has many founders, this is an average by company.

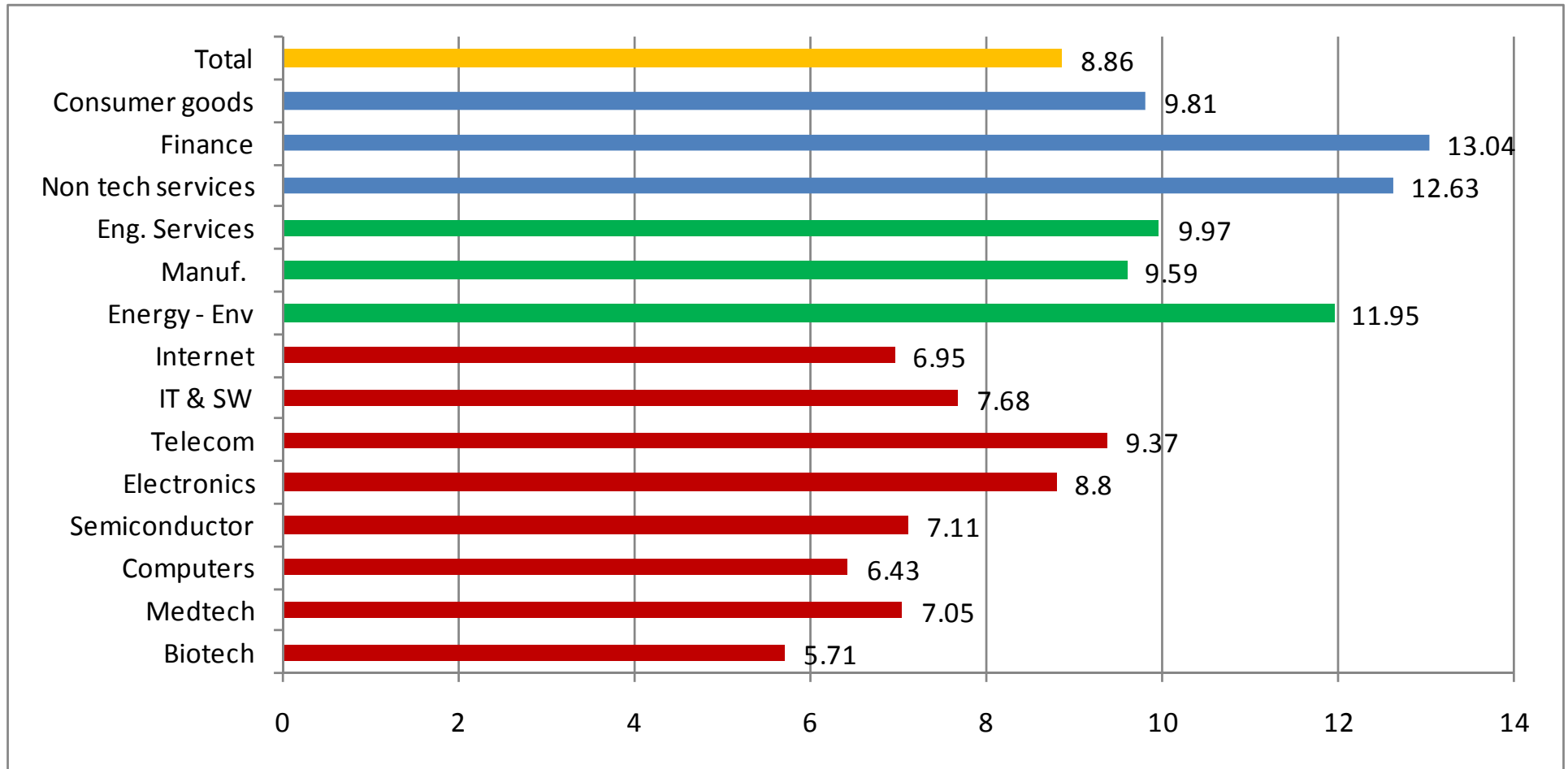
Founders: years from graduation* to foundation



1992 study: 383 companies, 42 unknown
Wellspring study: 2140 companies, 162 unknown.

* Stanford professors or staff imply 0 as value. If a company has many founders, this is an average by company.

Founders: years from graduation* to foundation



All 3 groups
266 unknown.

* Stanford professors or staff imply 0 as value. If a company has many founders, this is an average by company.

Serial Founders

- 2'266 founders created only one company
- 445 founders having created more than one company (16%) including 44 professors (26%)

Nb of companies founded	Nb of founders	Nb of professor founders
1	2266	123
2	317	24
3	82	11
4	27	3
5	10	4
6	6	
8	2	1
16	1	1
Total	2711	167
% serial	16%	26%

Question: a correlation between **success** and **serial** entrepreneur?

How do serial founders do vs. novice founders

Data on non-serial 1739	VC-backed Number 474	Average \$36'081'000	M&A Number 253	Average \$520'000'000	Public Number 102	Average \$4'929'000'000	Ceased 370
Data on serial 988	VC-backed Number 386	Average \$39'132'000	M&A Number 220	Average \$624'000'000	Public Number 55	Average \$5'955'000'000	Ceased 232
1st comp 445	VC-backed Number 147	Average \$28'466'000	M&A Number 120	Average \$900'000'000	Public Number 30	Average \$11'934'000'000	Ceased 92
2nd comp 445	VC-backed Number 202	Average \$42'042'000	M&A Number 93	Average \$617'000'000	Public Number 20	Average \$3'371'000'000	Ceased 107
3rd comp 128	VC-backed Number 57	Average \$54'251'000	M&A Number 18	Average \$277'000'000	Public Number 6	Average \$2'324'000'000	Ceased 39
4th comp 46	VC-backed Number 23	Average \$38'867'000	M&A Number 13	Average \$165'000'000	Public Number 3	Average \$1'109'000'000	Ceased 12

A summary

- 2'727 companies
- 1'050 were VC backed
- 150 were public in 2008

	VC (\$M)	M&A (\$M)	Public (\$M)	Sales (\$M)	Jobs
Stanford Start-Ups	2'969	8'214	307'136	65'410	105'281
1991 Study (not including licenses)	1'842	75'406	185'175	171'579	454'082
WellSpring of Innovation (tech. only)	27'125	173'375	183'615	111'696	401'453
Total-Tech	31'936	256'995	675'926	348'685	960'816
(non tech)	272	11'892	154'413	46'348	204'895
Total	32'208	268'887	830'339	395'033	1'165'711
Top 5 (tech)	1'719	75'800	445'000	115'661	603'528
Top 10	2'794	110'200	497'010	145'377	680'087
Top 20	4'532	148'800	564'040	173'645	762'618
Top 50	8'379	194'772	626'037	199'502	872'731
Top 5	5%	29%	66%	33%	63%
Top 10	9%	43%	74%	42%	71%
Top 20	14%	58%	83%	50%	79%
Top 50	26%	76%	93%	57%	91%

Sales, jobs and public value in the table come only from the 153 public companies