



# Bioconvergence, the future of health care. How Venture Capital is enabling Transformation?

**Paolo Barbanti Ph.D. MBA**



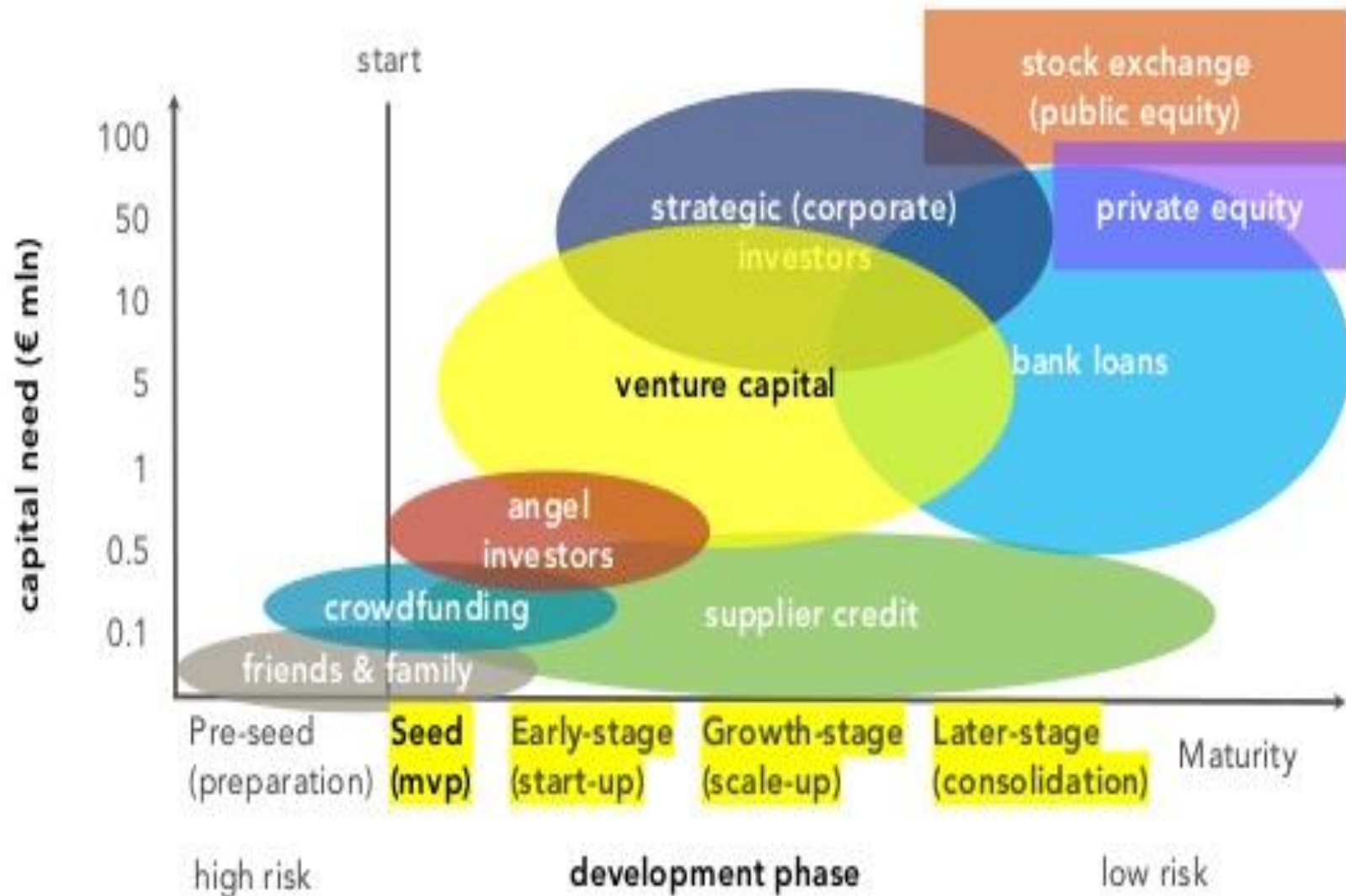
# ENTREPRENEUR MINDSET

NOT FOR EVERYONE  
APPRECIATE CHALLENGES  
VENTURE CAPITAL ANALYSIS  
EVALUATE HEALTHCARE VENTURES

HOW HIGH IS THE TIGHTROPE FOR YOU?

Paolo Barbanfi

# Types of Venture Capital and other financing



Paolo Barbanti

# How does Venture Capital work ?

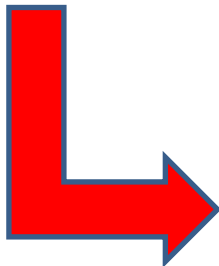
Source capital from institutional investors, high net worth individuals or family offices, corporations, sovereign funds and public development banks

## 1. FUNDRAISING



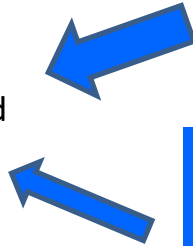
## 2. SCOUTING, EVALUATION & INVESTMENT

Evaluate investment opportunities and invest tranches of capital in fundable start-up enterprises



LIMITED PARTNERS  
(INVESTORS)

GENERAL PARTNERS  
(VENTURE CAPITAL  
FUND MANAGERS)



## 3. MONITORING (PORTFOLIO MANAGEMENT)

Govern and steer portfolio of start-up towards profitable growth

PORTFOLIO COMPANIES  
(ENTREPRENEURS)



Minimum return  
(hurdle rate)



Profit share  
(carried interest)



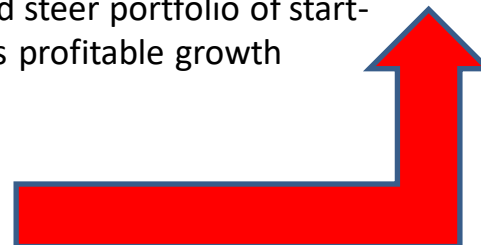
## 5. DISTRIBUTION

Distribute profit  
back to limited  
and general  
partners



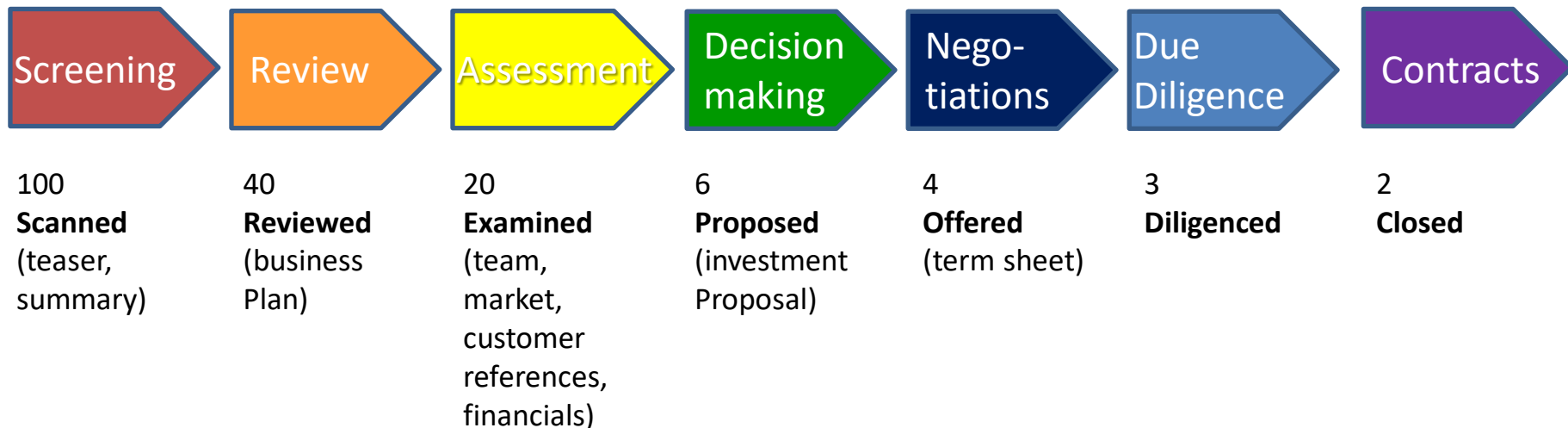
## 4. EXIT

Generate  
liquidity  
through  
M&A or  
IPO



# Scouting, evaluation & investment process

**Dealflow** from network introductions, startup/pitch events, databases/research, matchmaking platforms, advisors, etc.,...



# 6 Key Investment Criteria





# The Economist

FEBRUARY 17TH - 23RD 2001

IRELAND'S  
EURO-SINS

page 22

NEXT, ONLINE  
LEARNING?

pages 81-85

## Science and profit

Are they partners  
or enemies?



Contents  
Ireland's Euro-sins 22  
Next, online learning? 81-85  
Science and profit 90-95  
The new world order 96-101  
The new world order 102-107  
The new world order 108-113  
The new world order 114-119  
The new world order 120-125  
The new world order 126-131  
The new world order 132-137  
The new world order 138-143  
The new world order 144-149  
The new world order 150-155  
The new world order 156-161  
The new world order 162-167  
The new world order 168-173  
The new world order 174-179  
The new world order 180-185  
The new world order 186-191  
The new world order 192-197  
The new world order 198-203  
The new world order 204-209  
The new world order 210-215  
The new world order 216-221  
The new world order 222-227  
The new world order 228-233  
The new world order 234-239  
The new world order 240-245  
The new world order 246-251  
The new world order 252-257  
The new world order 258-263  
The new world order 264-269  
The new world order 270-275  
The new world order 276-281  
The new world order 282-287  
The new world order 288-293  
The new world order 294-299  
The new world order 300-305  
The new world order 306-311  
The new world order 312-317  
The new world order 318-323  
The new world order 324-329  
The new world order 330-335  
The new world order 336-341  
The new world order 342-347  
The new world order 348-353  
The new world order 354-359  
The new world order 360-365  
The new world order 366-371  
The new world order 372-377  
The new world order 378-383  
The new world order 384-389  
The new world order 390-395  
The new world order 396-401  
The new world order 402-407  
The new world order 408-413  
The new world order 414-419  
The new world order 420-425  
The new world order 426-431  
The new world order 432-437  
The new world order 438-443  
The new world order 444-449  
The new world order 450-455  
The new world order 456-461  
The new world order 462-467  
The new world order 468-473  
The new world order 474-479  
The new world order 480-485  
The new world order 486-491  
The new world order 492-497  
The new world order 498-503  
The new world order 504-509  
The new world order 510-515  
The new world order 516-521  
The new world order 522-527  
The new world order 528-533  
The new world order 534-539  
The new world order 540-545  
The new world order 546-551  
The new world order 552-557  
The new world order 558-563  
The new world order 564-569  
The new world order 570-575  
The new world order 576-581  
The new world order 582-587  
The new world order 588-593  
The new world order 594-599  
The new world order 600-605  
The new world order 606-611  
The new world order 612-617  
The new world order 618-623  
The new world order 624-629  
The new world order 630-635  
The new world order 636-641  
The new world order 642-647  
The new world order 648-653  
The new world order 654-659  
The new world order 660-665  
The new world order 666-671  
The new world order 672-677  
The new world order 678-683  
The new world order 684-689  
The new world order 690-695  
The new world order 696-701  
The new world order 702-707  
The new world order 708-713  
The new world order 714-719  
The new world order 720-725  
The new world order 726-731  
The new world order 732-737  
The new world order 738-743  
The new world order 744-749  
The new world order 750-755  
The new world order 756-761  
The new world order 762-767  
The new world order 768-773  
The new world order 774-779  
The new world order 780-785  
The new world order 786-791  
The new world order 792-797  
The new world order 798-803  
The new world order 804-809  
The new world order 810-815  
The new world order 816-821  
The new world order 822-827  
The new world order 828-833  
The new world order 834-839  
The new world order 840-845  
The new world order 846-851  
The new world order 852-857  
The new world order 858-863  
The new world order 864-869  
The new world order 870-875  
The new world order 876-881  
The new world order 882-887  
The new world order 888-893  
The new world order 894-899  
The new world order 900-905  
The new world order 906-911  
The new world order 912-917  
The new world order 918-923  
The new world order 924-929  
The new world order 930-935  
The new world order 936-941  
The new world order 942-947  
The new world order 948-953  
The new world order 954-959  
The new world order 960-965  
The new world order 966-971  
The new world order 972-977  
The new world order 978-983  
The new world order 984-989  
The new world order 990-995  
The new world order 996-1001



# Investing in Biotech: the VC perspective

- Differentiated approach
- Translatability
- Platform company vs. target based
- Intellectual property
- Potential partnering opportunities
- Competitive landscape
- Engagement of scientific founder(s)
- Passion and vision for the company Mission



# Corporate Venture Capital vs (Indipendent) Venture Capital

|  | Corporate Venture Capital  | Indipendent Venture Capital  |
|--|--|--|
| <b><i>Key objective</i></b>              | <ul style="list-style-type: none"> <li>Strategic value creation for corporate investor(s)</li> </ul>   | <ul style="list-style-type: none"> <li>Financial return for limited partner investors through exits</li> </ul>                         |
| <b><i>Investment horizon</i></b>         | <ul style="list-style-type: none"> <li>From medium term to very long (open ended)</li> </ul>   | <ul style="list-style-type: none"> <li>8 – 10 years (closed end)</li> </ul>  |
| <b><i>Governance</i></b>                 | <ul style="list-style-type: none"> <li>Investment committee with corporate executives decide on investments</li> </ul>   | <ul style="list-style-type: none"> <li>General partners (jointly) decide on fund investments, indipendent from LP investors</li> </ul> |
| <b><i>Value add</i></b>                  | <ul style="list-style-type: none"> <li>Fund management experience and network plus the corporate's executives expertise, business network, channel to customers</li> </ul> | <ul style="list-style-type: none"> <li>General partners experience and individual network</li> </ul>                                   |
| <b><i>Fund management incentives</i></b> | <ul style="list-style-type: none"> <li>Corporate salary &amp; bonus structure</li> </ul>   | <ul style="list-style-type: none"> <li>Profit share (carried interest)</li> <li>Management fees</li> </ul>                             |

# US Venture Capital: Software and pharma & biotech continue to dominate dealmaking

US VC deals (#) by sector

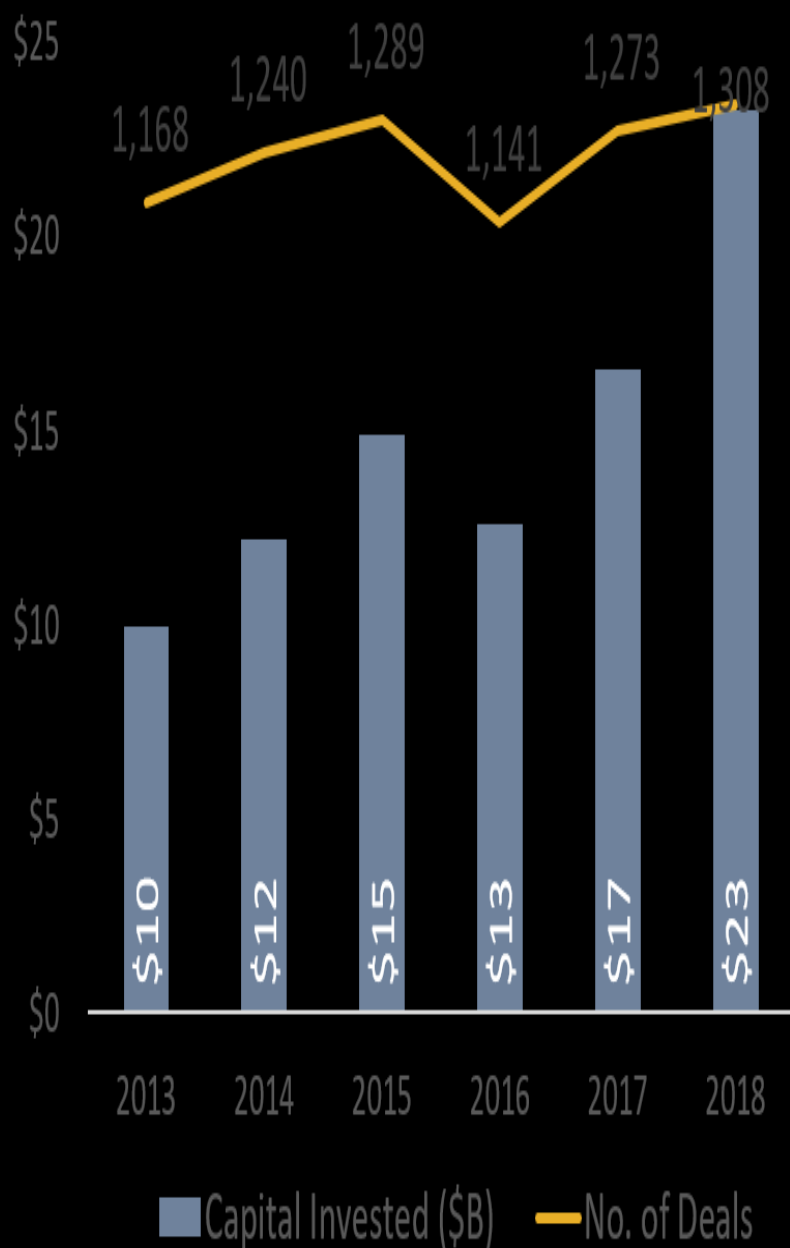


US VC deals (\$B) by sector

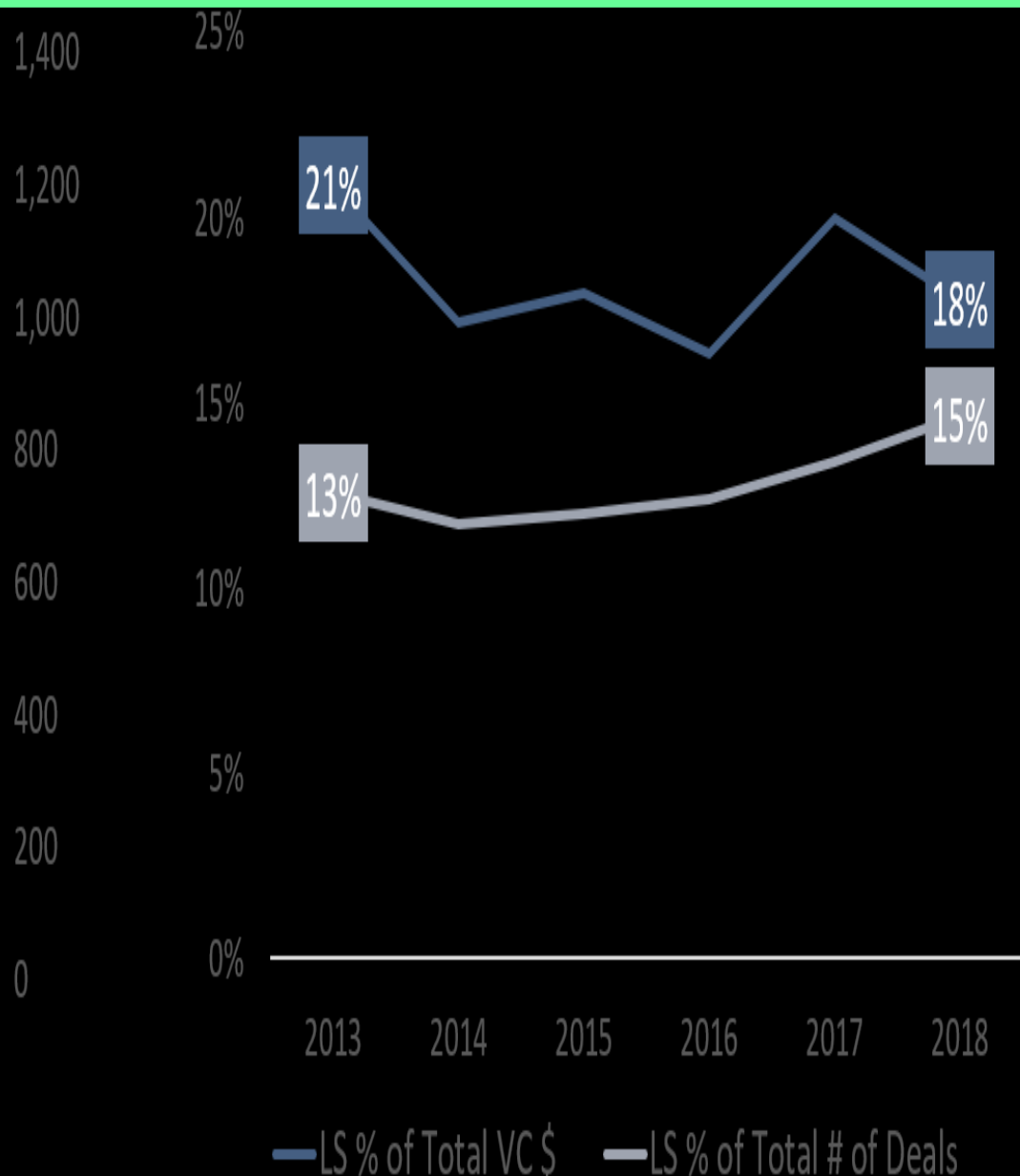


Commercial services    Energy    IT hardware    Media    Pharma & biotech  
 Consumer goods & recreation    HC devices & supplies    HC services & systems    Other    Software

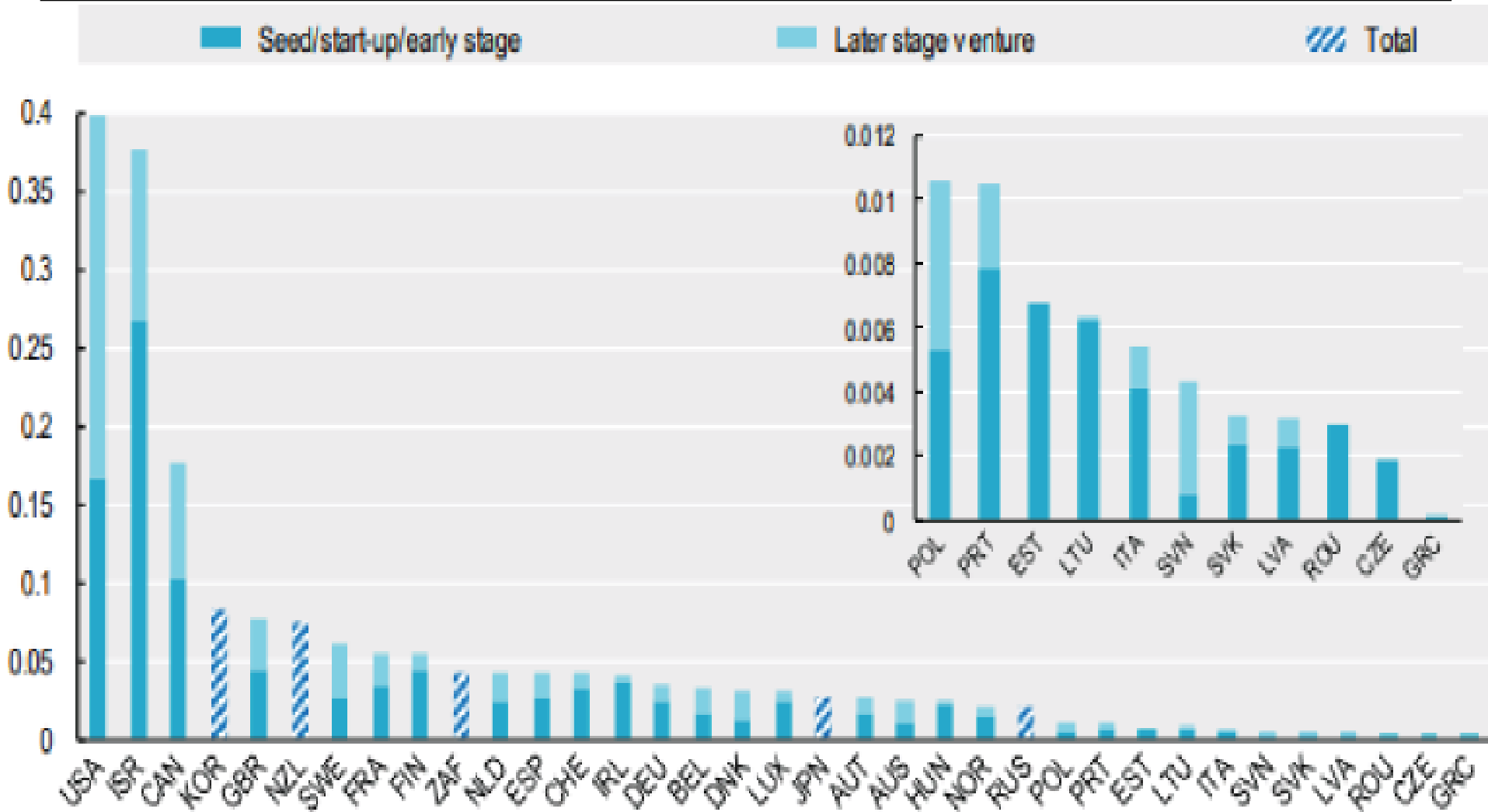
## US VC Life Science investment activity



## US VC Life Science investment activity % of total VC



# Expenditure by VC as a % of GDP (2017)



Source: OECD's Entrepreneurship at a Glance 2018 Report

Paolo Barbanti

# Key Success Factors of Israel's Technology Cluster



# 10 Health Moonshots that are changing the World

## 1) Access to Care Moonshots

*Delivering quality care to everyone, regardless of location or income*

## 2) Cost to zero Moonshots

*Radically reducing the cost of care by a factor of a million*

## 3) Cure Disease Moonshots

*Curing diseases using data, technologies and personalized medicine*

## 4) Cancer Moonshots

*Ending Cancer as we know it*

## 5) Women's Health Moonshots

*Prioritizing women's health, including preventive care and new research*

## 6) Children's Health Moonshots

*Ensuring every child has access to quality care, particularly in under served areas*

## 7) Nutrition and Fitness Moonshots

*Providing access to healthy environment and support an active lifestyle*

## 8) Brain Health Moonshots

*Unlocking the mysteries of the brain to improve health*

## 9) Mental Health and Wellbeing Moonshots

*Destigmatizing mental health and connect mind, body and spirit*

## 10) Longevity Moonshots

*Adding 50 healthy years to every human life*



# Regenerative Medicine: Clinical Trials (worldwide) by Indication (2018)

## Clinical Trials by Indication: 2018



# Number of Clinical Trials utilizing specific RM/AT (2018)



# 1,028

Clinical trials underway  
worldwide by end of 2018

**Ph. I: 341**

**Ph. II: 595**

**Ph. III: 92**

## Number of Clinical Trials Utilizing Specific RM/AT Technology: 2018



### Gene Therapy

**Total: 362**

Ph. I: 120

Ph. II: 210

Ph. III: 32



### Gene-Modified Cell Therapy

**Total: 362**

Ph. I: 158

Ph. II: 188

Ph. III: 16



### Cell Therapy

**Total: 263**

Ph. I: 53

Ph. II: 177

Ph. III: 33



### Tissue Engineering

**Total: 41**

Ph. I: 10

Ph. II: 20

Ph. III: 11

# Regenerative Medicine: companies worldwide (2018)






# R M: companies based Europe / Israel (2018)

## European Sector Landscape

**241+**

Regenerative Medicine / Advanced Therapies Companies based in Europe/Israel



 Alliance for  
Regenerative  
Medicine

# R M: total global financing (2018)

## Financings

### Total 2018 Global Financings



TOTAL GLOBAL FINANCING

**\$13.3 Billion**

**↑ 73%**

Increase from 2017



GENE & GENE-MODIFIED  
CELL THERAPY

**\$9.7 Billion**

**↑ 64%**

Increase from 2017



CELL THERAPY

**\$7.6 Billion**

**↑ 64%**

Increase from 2017



TISSUE ENGINEERING

**\$937 Million**

**↓ 258%**

Decrease from 2017

# R M: total European/Israeli financing (2018)

## Total 2018 European/Israeli Financings



TOTAL  
GLOBAL FINANCING

**\$2.2 Billion**

*Approximately €1.9 Billion*

**↑ 40%**

*Increase from 2017*



GENE & GENE-MODIFIED  
CELL THERAPY

**\$1.9 Billion**

*Approximately €1.7 Billion*

**↑ 117%**

*Increase from 2017*



CELL  
THERAPY

**\$884.7 Million**

*Approximately €885 Million*

**↓ 2%**

*Decrease from 2017*



TISSUE  
ENGINEERING

**\$73.3 Million**

*Approximately €64 Million*

**↓ 41%**

*Decrease from 2017*



# Total Global Financings by Type, by Year

## Total Global Financings by Type, by Year



## Mergers & Acquisitions: Upfront Payments



### Key

2018

2017

2016

2015

# Building the healthcare system of the future

\$ 7.5 Trillion Global annual spending on healthcare in 2013

6% Average annual rate of increase in global healthcare spending (1995 to 2013)

***Today's model in healthcare provision is increasing unsustainable.  
To deliver continued improvements to the world's health, it will  
need to be transformed, with digital playing a central role***

**Global health has improved dramatically in recent decades. However, the current model for providing healthcare is being slowly torn apart by the opposition forces of an ageing population and greater restraints on government spending.**

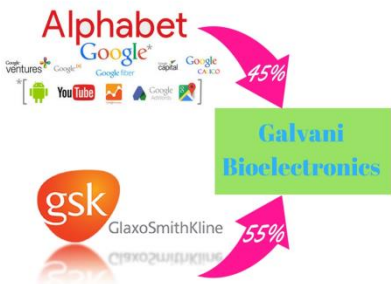
**Few industries have the potential to be changed so profoundly by digital technology as healthcare, but the challenges facing innovators, from regulatory barriers to difficulties in digitalizing patient data, should not be underestimated.**

**Healthcare is also shifting towards Bioconvergence**

# Biopharma

## Medical Device

## Digital Health



# Bio-electronic Medicines

**Rani**  
THERAPEUTICS



# Robotic biologic pill


















## Smart implants delivering drugs

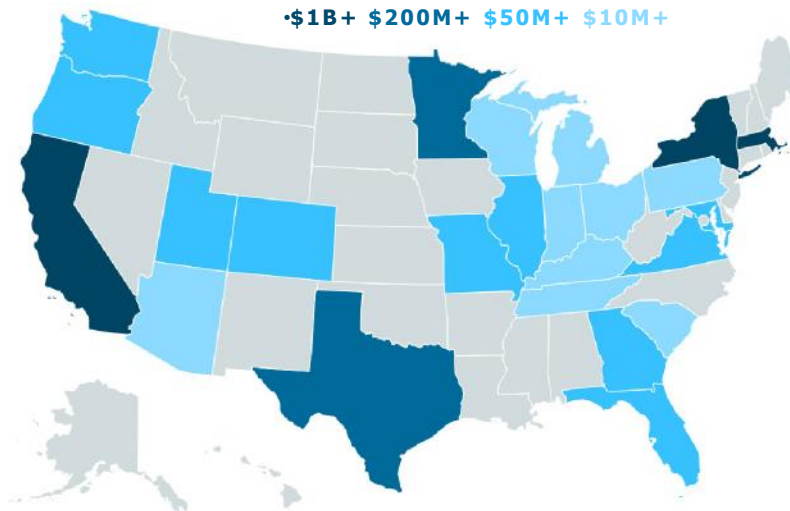
# Digital Health: Burgeoning Ecosystems Coast-to-Coast

Perhaps more than other industries, startups in digital health rely on strategics to accelerate growth. Eight of the ten best-funded startups of the last two years have tapped corporate capital. It's no wonder then that states rich in partnership opportunities have attracted the most funding.

## Digital Health Startups: Most Capital Raised 2017–2018

| Company                      | Equity Raised | Strategics  |
|------------------------------|---------------|---|
| <b>OSCAR</b>                 | \$540M        |    |
| <b>DevotedHealth</b>         | \$362M        |   |
| <b>bright HEALTH</b>         | \$360M        |   |
| <b>American Well</b>         | \$350M        |          |
| <b>HUMAN LONGEVITY, INC.</b> | \$200M        |     |
| <b>Clover</b>                | \$130M        |     |
| <b>Welltok</b>               | \$117M        |     |
| <b>Livongo</b>               | \$105M        |    |
| <b>eghc</b>                  | \$100M        |     |
| <b>insitro</b>               | \$100M        |    |

## Digital Health: Funding and Notable Strategics by State: 2017–2018



### Massachusetts

 MASSACHUSETTS GENERAL HOSPITAL  
 BRIGHAM AND WOMEN'S HOSPITAL  
 Boston Scientific

### New York

 Northwell Health  
 Montefiore HEALTH SYSTEM, INC.  
 NYU Langone Health  
 Mount Sinai

### California

 MCKESSON  
 Dignity Health  
 KAISER PERMANENTE  
 MOLINA HEALTHCARE

### Texas

 Baylor Scott & White HEALTH  
 TMC TEXAS MEDICAL CENTER  
 CORNERSTONE HEALTH CARE  
 tenet HEALTH

### Minnesota

 Medtronic  
 unitron  
 MAYO CLINIC  
 UnitedHealthcare



# THE US DIGITAL HEALTH ECOSYSTEM 2019

## INCUMBENT PAYERS



## STARTUP PAYERS



## INCUMBENT PROVIDERS



## STARTUP PROVIDERS



## RETAIL CLINICS



## DISTRIBUTORS



## GOVERNMENT PAYERS



## CONSUMER DEVICES



## TELEMEDICINE



## MEDICAL DEVICES



For information, please contact:

**Paolo Barbanti**

*Chief Executive Officer*

**Pharma & Biotech Advisors**

**Via Placido Riccardi 19**

**20132 Milano Italy**

**[barbanti@pharmaebiotech.com](mailto:barbanti@pharmaebiotech.com)**

**Ph +39 02 45409122**

**Fax + 39 02 27203492**



**Pharma & Biotech Advisors**  
Management Consulting

*Knowledge is vital. But knowledge is nothing without understanding*