

LIFESCIENCE STARTUP LISTUP OBSERVATORY



Italy 2021-2023

Promoted by

INDICON
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INNOVATION IN LIFESCIENCE

ABOUT INDICON



“We believe that innovation is a driver of social, economic, and personal growth. We are a growth catalyst for life science companies.

That's why Indicon Benefit Company was born:

- innovative startup founded in 2021
- certified as a Benefit Company in 2023

We are the **first consulting firm** established to support innovation management in the life sciences field.

Founded by **Elena Paola Lanati**, with over 20 years of experience in life sciences, Paola recently achieved a successful exit from the companies she founded in 2010 (MAP group with Cencora, NYSE).

Paola is a business angel in the life sciences sector and in 2023 has been named among the top 100 women in VC in Europe and among top Four Italian Business Angels.



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1. WHY LIFE SCIENCE



1.1 IMPACT ON PATIENTS LIFE

A number of reported shifts in the survival rates since 1975 cast a spotlight on how more cancer patients are surviving longer. Consider the examples below:

- **Lung cancer:** 12% to 23%
- **Female breast cancer:** 75% to 91%
- **Colorectal cancer:** 50% to 65%
- **Kidney cancer:** 50% to 77%
- **Leukemia:** 34% to 66%
- **Non-Hodgkin Lymphoma:** 47% to 75%

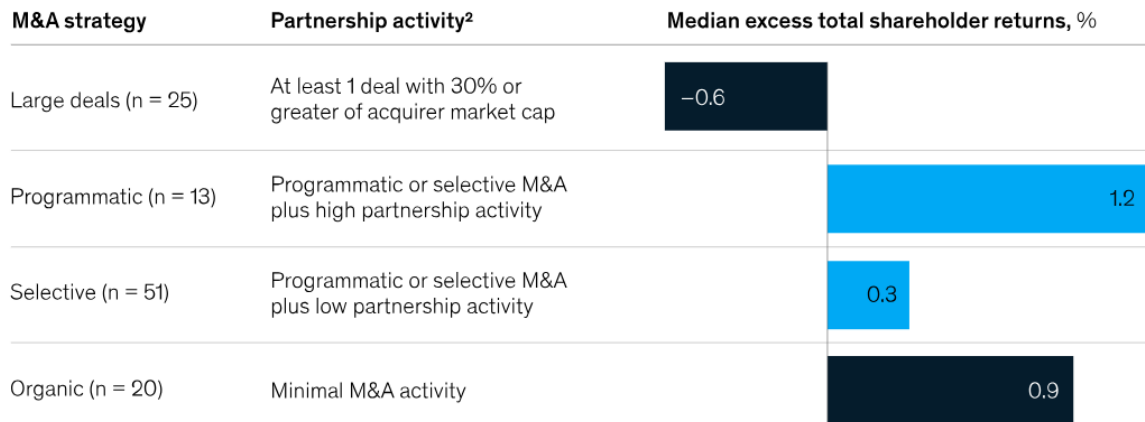
Cancer Survival Rates Are Improving, Researchers Say
<https://www.cancercenter.com/community/blog/2023/01/cancer-survival-rates-are-improving>



1.2 M&A ACTIVITY MAIN DRIVER OF GROWTH IN LS

Biopharma companies pursuing programmatic M&A and divestitures outperform those pursuing other deal types.

Comparing shareholder return at large pharma companies by deal type,¹ Jan 2010–19

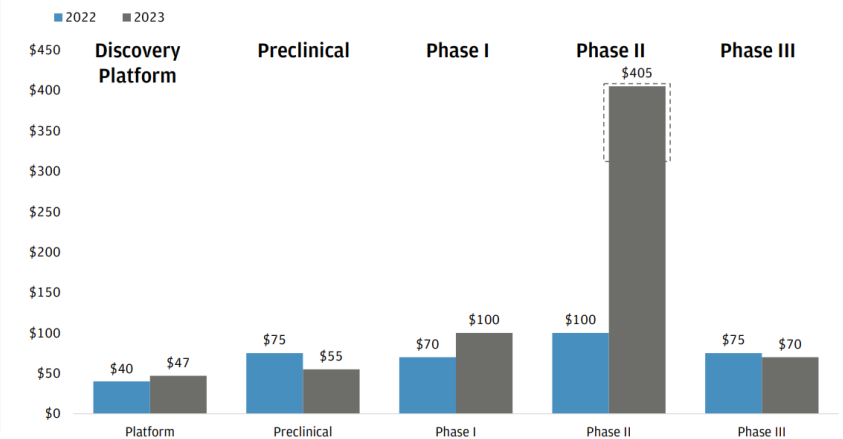


Big pharma continues to pay well for clinical-stage biotechs with meaningful growth in upfront payments for Phase I/II assets

Opportunity remains abundant for hopeful out-licensors. 2023 saw upward pressure on big pharma to dole out larger upfront payments for biotechs with early safety/efficacy data in hand.

- Median upfront cash and equity payments from big pharma were up to \$405 million across five deals signed in Phase II in 2023, up from a median of \$100 million from four deals in 2022.
- The Phase II median upfront of \$405 million counts the \$4 billion upfront in the Daiichi/Merck deal; it totals \$310 million without.
- Phase III asset deals, which are often signed for less-than-worldwide licensed territories, saw the median upfront drop slightly to \$70 million in 2023 from \$75 million in 2022.
- Phase I biotechs also enjoyed a hefty 42% increase in upfront payments year over year.

In-Licensing by Big Pharma: Median Upfront Cash & Equity by Stage at Signing, 2022 vs. 2023



Source: DealForma.com database
Q4 2023 Daiichi/Merck \$22B Total, \$4B Upfront. Financials based on disclosed figures. Stage of lead asset in multi-asset deals. Phase III deals are more often regional rather than worldwide, hence the smaller upfront. Data through 12/15/2023.

Mc Kinsey 2023

JPM 2023 Annual Biopharma Licensing and Venture Report

2. OBJECTIVE



2.1 OBJECTIVE



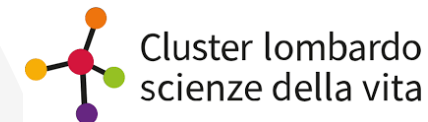
Shape the Italian ecosystem of Life Sciences (LS) innovative start ups to understand trends and provide all stakeholders with a systematic picture (2021-2023).

PARTNERS:



CITY PARTNER:

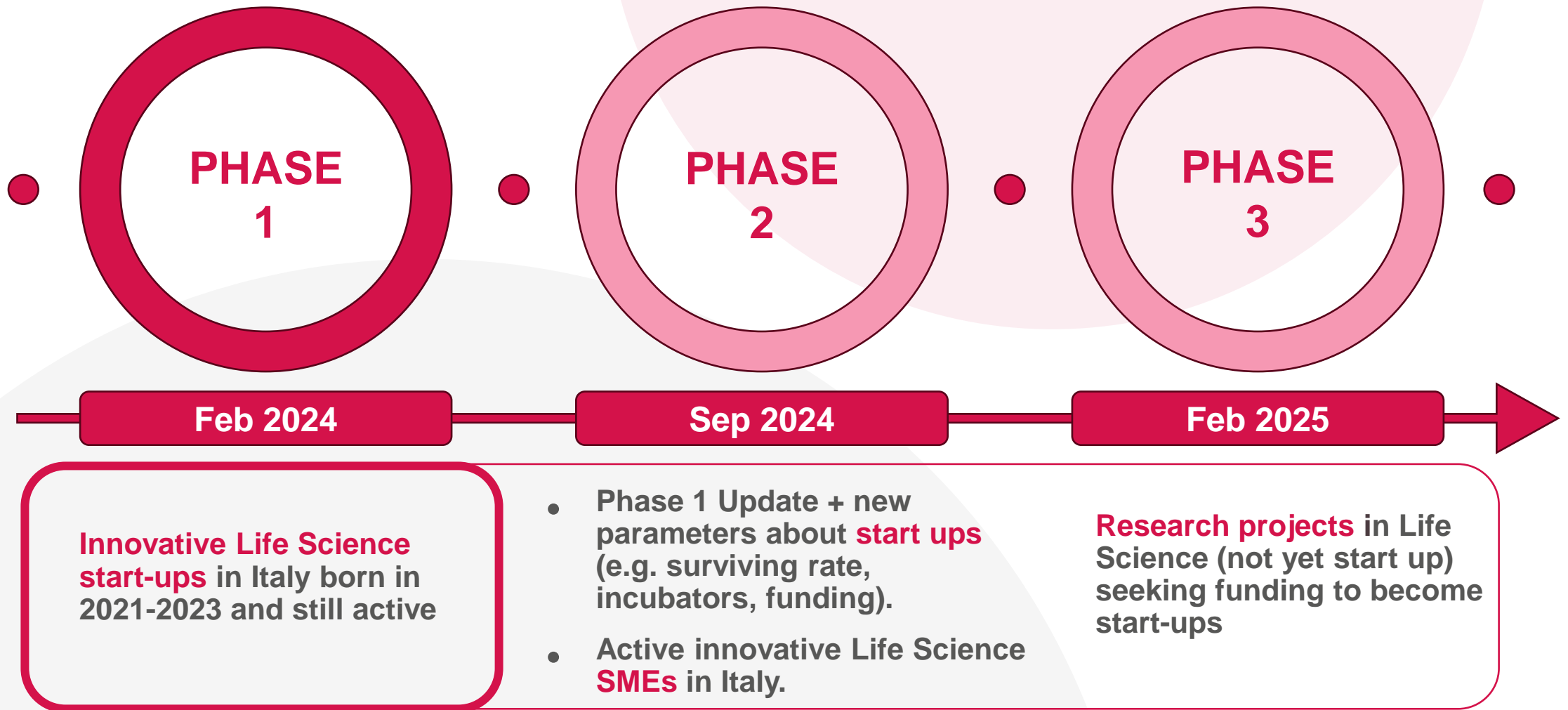
MILANO&PARTNERS



UNDER THE PATRONAGE OF:



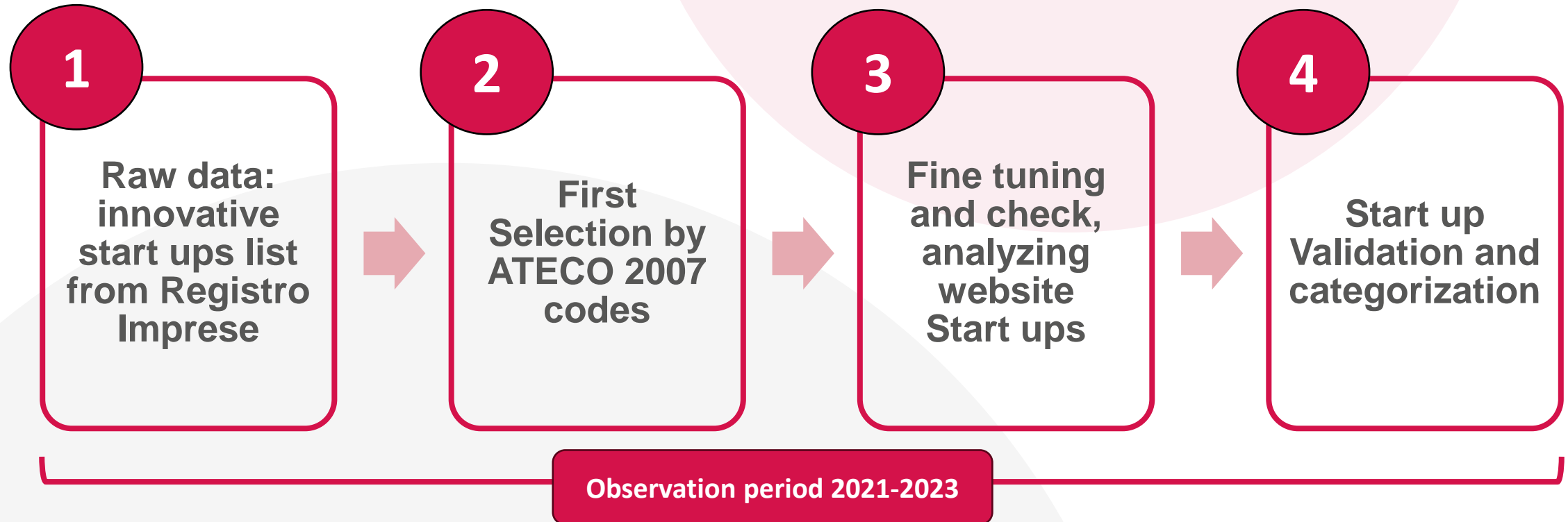
2.2 RESEARCH MAPPING BY PHASE



3. METHODOLOGY



3.1 DATABASE BUILDING FLOW*



*Details in Appendix.



3.2 CATEGORY DEFINITION

BIOTECH / PHARMA	MED TECH ¹	DIGITAL HEALTH ²	HEALTHCARE PRODUCTS/SERVICES
Biological Drugs	Electromedical	Enterprise systems&support	Non-digital services
Small Molecules	Biomedical	Clinician services&support	Retail&delivery
ATMPs	Biomedical equipment	Patient-facing wellness&support	Health facilities and home care
Biological Derived Materials	Technical equipment	Patient-facing diagnostic&monitoring	Nutraceuticals
	Diagnostics	Patient-facing therapeutic interventions	Other products
	Borderline (substance-based)		

*Source: 1. *Confindustria Medical Devices 2019 classification*
 2. *Digital Therapeutic Alliance 2023 classification*
 Further methodology details in Appendix

3.3 PARAMETERS ANALYSIS



THERAPEUTIC AREAS



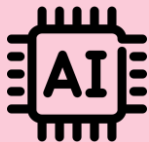
TELEMEDICINE



REGIONAL DISTRIBUTION



PATENTS



**ARTIFICIAL
INTELLIGENCE**



FOUNDERS FEATURES

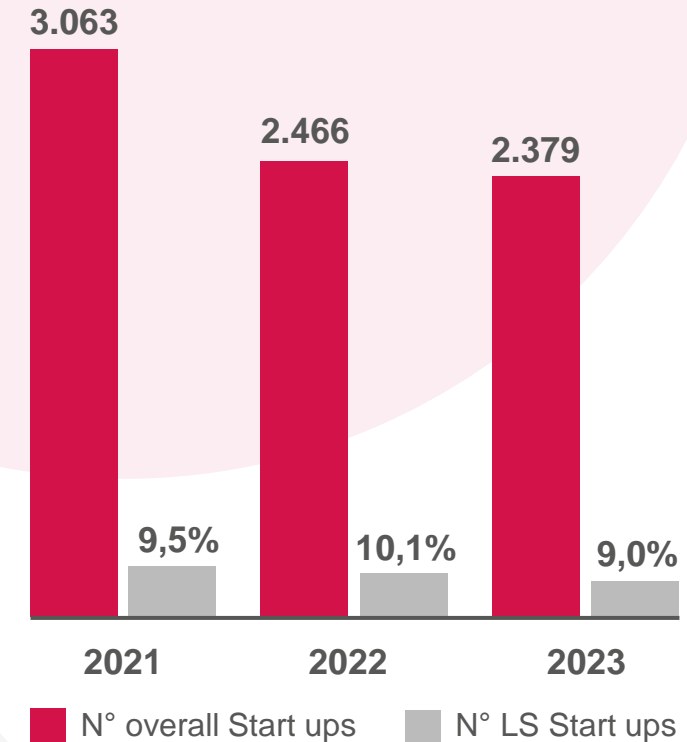


4. MAIN RESULTS



4.1 LIFE SCIENCE START UPS WEIGHT

Innovative Start ups – 2021-22-23			
Year	#Overall	#LS	%LS vs. Overall
Total	7.908	753	9,5%
2021	3.063	290	9,5%
2022	2.466	250	10,1%
2023	2.379	213	9,0%
Growth rate 21-23	-22,3%	-26,5%	

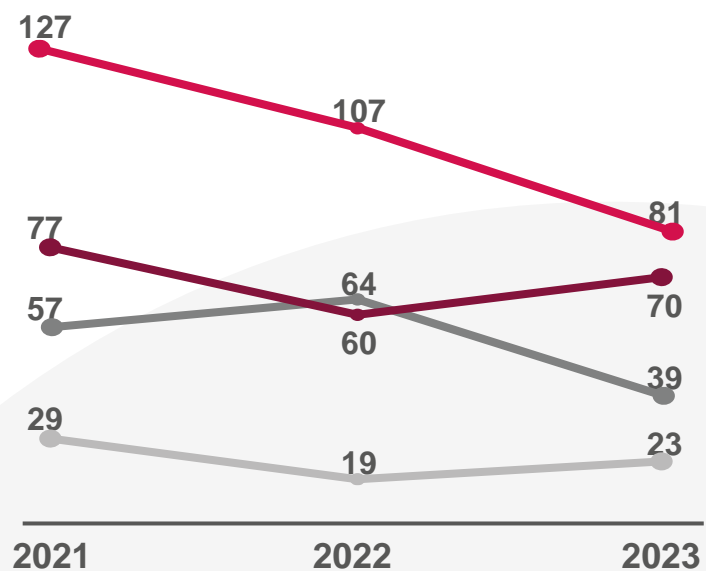


753 Life Science start ups in 21- 23 period:

- Innovative LS start ups account for **9.5%** of the total innovative start ups.
- 23 vs 21 decrease higher in LS (-26,5%), than in overall (-22,3%).



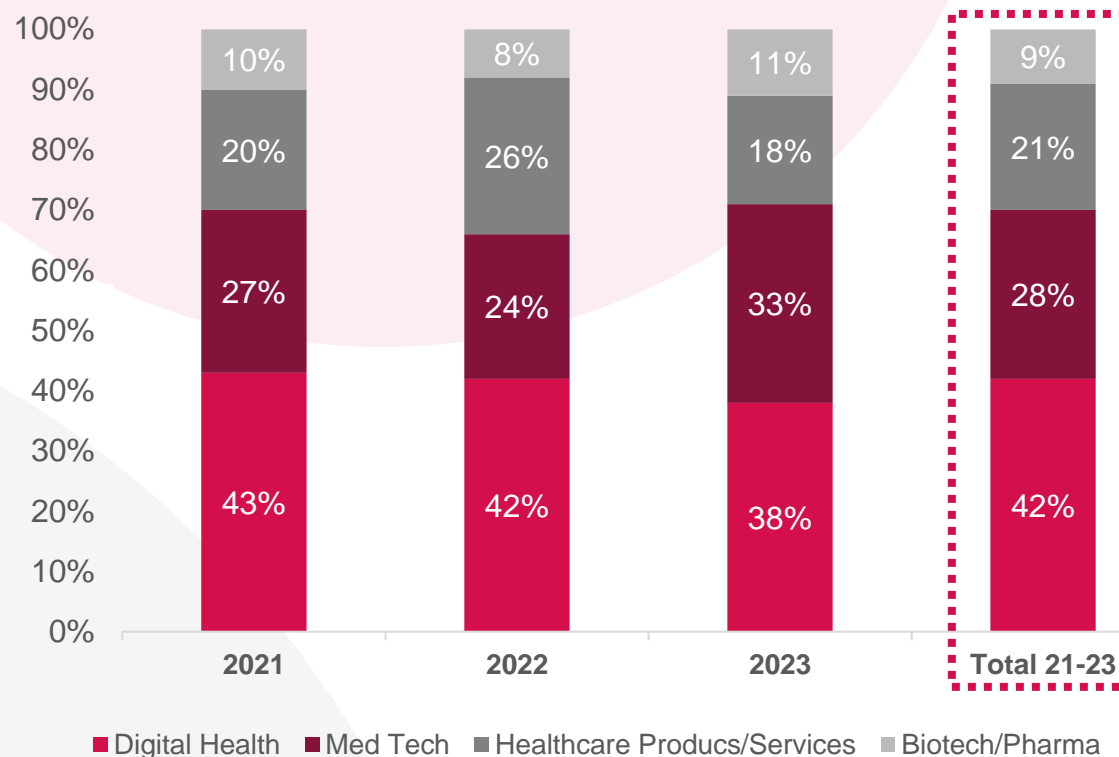
4.2 CATEGORIZATION & TRENDS



	Δ% 21-23	Δ% 22-23
tot	-26,5%	
DH	-36%	-24%
MT	-9%	+17%
H p/s	-32%	-39%
B/P	-21%	+21%

■ Digital Health ■ Healthcare products/services
■ Med Tech ■ Biotech/Pharma

% START UP CATEGORIZATION PERIOD 2021 - 2023



Data set: 753 LS innovative start ups

4.2.1 DIGITAL HEALTH



Sub-classification of LS Innovative Start ups by year – DIGITAL HEALTH								
	2021		2022		2023		Total	
LS Innovative Startups - TOTAL	290	100%	250	100%	213	100%	753	100%
DIGITAL HEALTH	127	43%	107	42%	81	38%	315	42%
CLINICIAN SERVICES&SUPPORT	39	13%	33	13%	24	11%	96	13%
PATIENT-FACING WELLNESS&SUPPORT	36	12%	28	11%	24	11%	88	12%
PATIENT-FACING DIAGNOSTIC&MONITORING	31	11%	18	7%	18	8%	67	9%
ENTERPRISE SYSTEMS&SUPPORT	12	4%	19	8%	10	5%	41	5%
PATIENT-FACING THERAPEUTIC INTERVENTION - DTx	9	3%	9	4%	5	2%	23	3%

Methodology details in Appendix

Analysis data set: 753 LS innovative start ups

4.2.2 MED TECH



Sub-classification of LS Innovative Start ups by year – MED TECH								
	2021		2022		2023		Total	
LS Innovative Startups - TOTAL	290	100%	250	100%	213	100%	753	100%
MED TECH	77	27%	60	24%	70	33%	207	28%
BIOMEDICAL	21	7%	12	5%	29	14%	62	8%
DIAGNOSTIC	19	6%	12	5%	15	7%	46	6%
BIOMEDICAL EQUIPMENT	17	6%	15	6%	5	2%	37	5%
ELECTROMEDICAL	9	3%	10	4%	12	6%	31	4%
TECHNICAL EQUIPMENT	8	3%	10	4%	9	4%	27	4%
BORDERLINE (Substance-based)	3	1,03%	1	0,4%	-	0%	4	0,53%

Methodology details in Appendix

Analysis data set: LS 753 innovative start ups

4.2.2.1 ANALYSIS ALIGNMENT



LS Start ups alignment analysis				
	2021	2022	2023	TOT
Confindustria Medical Devices	134	120	108	362
LISTUP	133	110	105	348
MED TECH	77	60	70	207
DIGITAL HEALTH				
Patient-facing diagnostic&monitoring	31	18	18	67
Enterprise systems&support	12	19	10	41
Patient-facing therapeutic intervention	9	9	5	23
HEALTHCARE P/S				
Non digital services*	1	1	2	4
Other products*	3	3	0	6
Δ CMD/LISTUP	1	10	3	14

* Only the # of medical devices present in the category



4.2.3 HEALTHCARE PRODUCTS/SERVICES

Sub-classification of LS Innovative Start ups by year – HEALTHCARE PRODUCTS/SERVICES								
	2021		2022		2023		Total	
LS Innovative Startups - TOTAL	290	100%	250	100%	213	100%	753	100%
HEALTHCARE PRODUCTS/SERVICES	57	20%	64	26%	39	18%	160	21%
NUTRACEUTICALS	12	4%	21	8%	18	8%	51	7%
OTHER PRODUCTS	20	7%	18	7%	9	4%	47	6%
NON-DIGITAL SERVICES	10	3%	12	5%	5	2%	27	4%
HEALTH FACILITIES AND HOME CARE	11	4%	9	4%	4	2%	24	3%
RETAIL&DELIVERY	4	1%	4	2%	3	1%	11	1%

Methodology details in Appendix

Analysis data set: 753 LS innovative start ups



4.2.4 BIOTECH/PHARMA

Sub-classification of LS Innovative Start ups by year – BIOTECH/PHARMA								
	2021		2022		2023		Total	
LS Innovative Startups - TOTAL	290	100%	250	100%	213	100%	753	100%
BIOTECH/PHARMA	29	10%	19	8%	23	11%	71	9%
BIOLOGICAL DRUGS	14	5%	7	3%	13	6%	34	5%
SMALL MOLECULES	10	3%	4	2%	6	3%	20	3%
ATMPs	3	1%	6	2%	3	1%	12	2%
BIOLOGICAL DERIVED MATERIALS	2	0,7%	2	0,8%	1	0,5%	5	0,7%

Methodology details in Appendix

Analysis data set: 753 LS innovative start ups

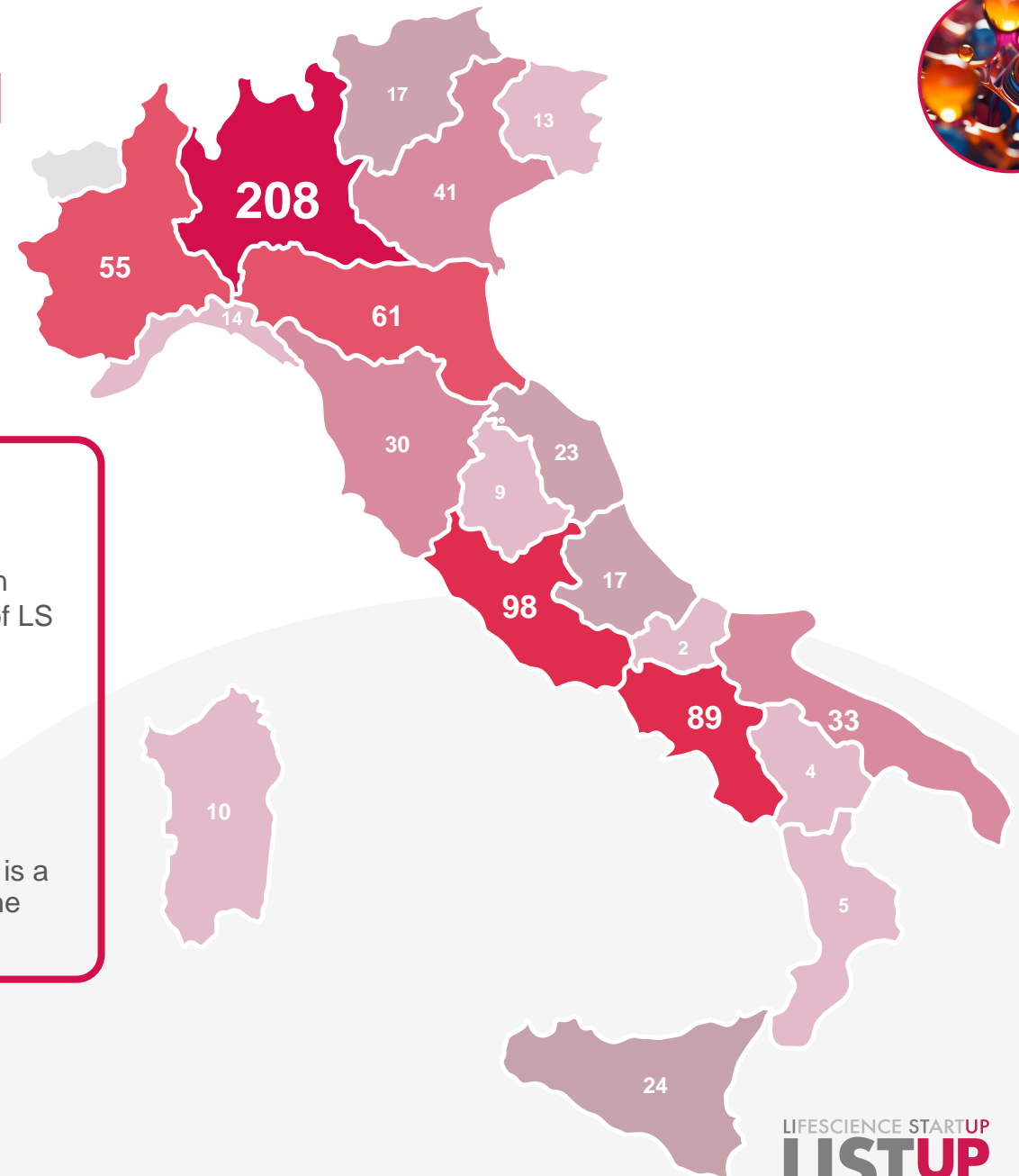


4.3 REGIONAL DISTRIBUTION

Regional distribution of LS start ups

Regioni	#	%
LOMBARDIA	208	28%
LAZIO	98	13%
CAMPANIA	89	12%
EMILIA-ROMAGNA	61	8%
PIEMONTE	55	7%
VENETO	41	5%
PUGLIA	33	4%
TOSCANA	30	4%
SICILIA	24	3%
MARCHE	23	3%
TRENTINO-ALTO ADIGE	17	2%
ABRUZZO	17	2%
LIGURIA	14	2%
FRIULI-VENEZIA GIULIA	13	2%
SARDEGNA	10	1%
UMBRIA	9	1%
CALABRIA	5	1%
BASILICATA	4	1%
MOLISE	2	0,3%
TOTAL	753	100%

Data set: 753 LS innovative start ups



CITY DISTRIBUTION*

- **MILANO: 152**
(73% of LS start ups in Lombardia and 20% of LS startups in Italy).
- **ROMA: 91 (12%)**
- **NAPOLI: 48 (6%)**
- **TORINO: 39 (5%)**

In **Emilia Romagna** there is a uniform distribution over the territory.

*The data of innovative districts are referred to the Metropolitan Areas



4.4 THERAPEUTIC AREAS

Ranking	Therapeutic Areas	#	%
1	NEUROLOGY	50	12%
2	ONCOLOGY	47	11%
3	CARDIOLOGY	40	10%
4	ORTHOPEDECS	38	9%
5	REHAB	38	9%
6	PSYCHOLOGY PSYCHOTHERAPY	35	8%
7	DENTISTRY	30	7%
8	METABOLIC DISORDERS AND HEPATOLOGY	17	4%
9	OPHTHALMOLOGY	17	4%
10	PNEUMOLOGY	16	4%
11	DERMATOLOGY	12	3%
12	GASTROENTEROLOGY	12	3%
13	INFLAMMATORY AND AUTOIMMUNE DISEASES	12	3%
14	GYNECOLOGY	11	3%
15	RARE DISEASES	8	2%
16	OTOLARYNGOLOGY	8	2%
17	VACCINES	7	2%
18	OTHER	5	1%
19	UROLOGY	4	1%
20	VIROLOGY	4	1%
21	HEMATOLOGY	2	0,5%
22	NEPHROLOGY	1	0,2%
	TOT	414	100%

- **BIOTECH/PHARMA:** prevalence of **Oncology** (40% off total).
- **MED TECH:** prevalence of **Cardiology** and **Dentistry** (15% each).
- **DIGITAL HEALTH:** prevalence of **Psychology** and **Psychotherapy** (27%).

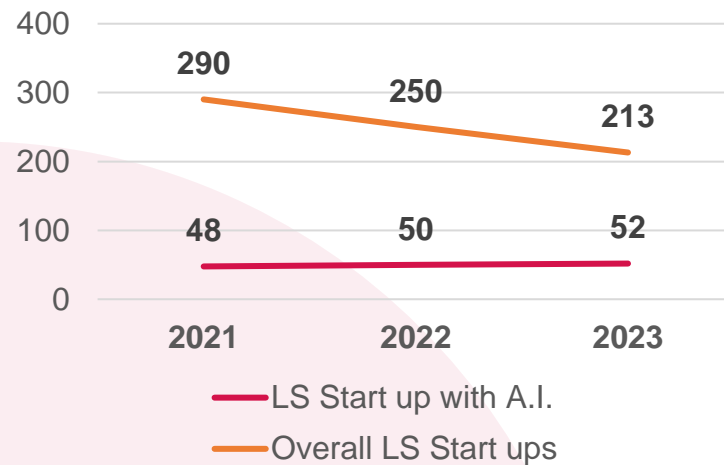
VETERINARY
Present in 4%
of LS start up

TO NOTE: Out of 753 startups analyzed, **332** clearly state their therapeutic area of reference. For the remaining 421 startups in the sample, the therapeutic area appears to be either generalist or undefined.

Moreover, out of 332 startups stating their therapeutic area, 71 belong to multiple (2+) therapeutic areas



4.5 ARTIFICIAL INTELLIGENCE (A.I.)



A.I. presence per macrocategory	
Macrocategory	% A.I.
DIGITAL HEALTH	32%
MED TECH	16%
HEALTHCARE PRODUCTS/SERVICES	8%
BIOTECH/PHARMA	6%
Total vs. Overall	20%

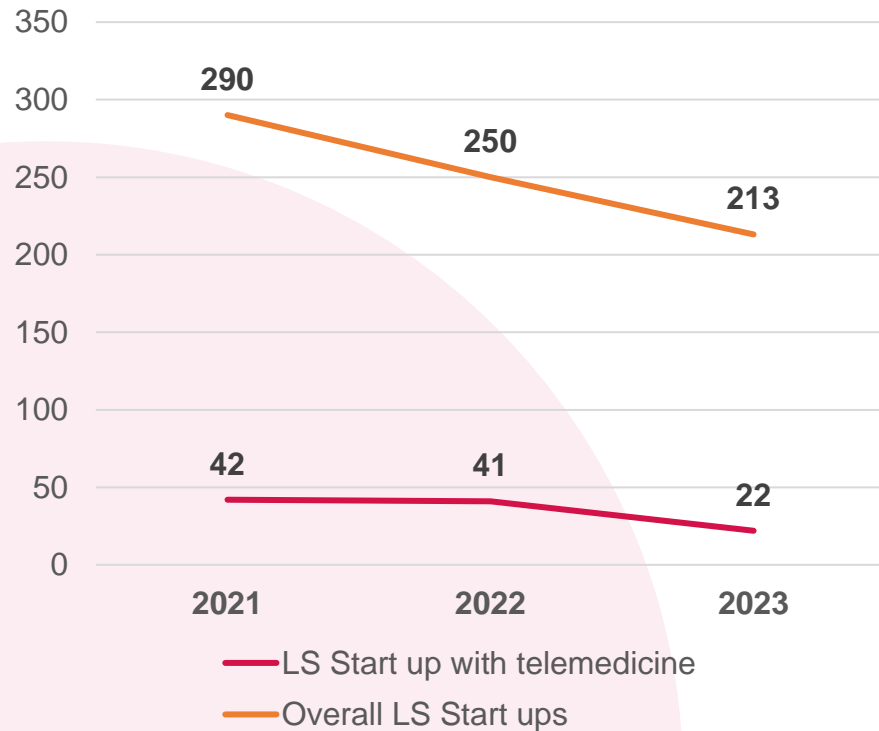
- A.I. technology is in **20%** of total LS Start up (150 out of 753).
- Its distribution is prevalent in the DIGITAL HEALTH sector (67%) and in MED TECH (21%).
- Trend is progressively increasing. From a presence of 17% in 2021 to a presence of 24% in 2023.
- In DIGITAL HEALTH, 1 LS start up out of 3 (32%) uses A.I.

A.I. PRESENCE by category					
	2021	2022	2023	TOT	%
A.I.- presence vs Overall LS	48	50	52	150	20%
DIGITAL HEALTH	31	35	35	101	67%
PATIENT-FACING DIAGNOSTIC&MONITORING	11	10	8	29	19%
CLINICIAN SERVICES&SUPPORT	9	6	9	24	16%
PATIENT-FACING WELLNESS&SUPPORT	7	7	8	22	15%
ENTERPRISE SYSTEMS&SUPPORT	3	9	8	20	13%
PATIENT-FACING THERAPEUTIC INTERVENTION	1	3	2	6	4%
MED TECH	13	9	10	32	21%
DIAGNOSTIC	4	2	4	10	7%
BIOMEDICAL EQUIPMENT	4	5	1	10	7%
ELETTROMEDICALS	2	2	2	6	4%
BIOMEDICAL	2	-	1	3	2%
TECHNICAL EQUIPMENT	1	-	2	3	2%
HEALTHCARE PRODUCTS/SERVICES	3	6	4	13	9%
OTHER PRODUCTS	2	2	2	6	4%
HEALTH FACILITIES AND HOME CARE	1	2	-	3	2%
RETAIL&DELIVERY	-	2	1	3	2%
NON DIGITAL SERVICES	-	-	1	1	1%
BIOTECH/PHARMA	1	-	3	4	3%
SMALL MOLECULES	1	-	1	2	1%
BIOLOGICAL DRUGS	-	-	2	2	1%
Total	48	50	52	150	100%

Data set: 753 LS innovative start ups



4.6 TELEMEDICINE

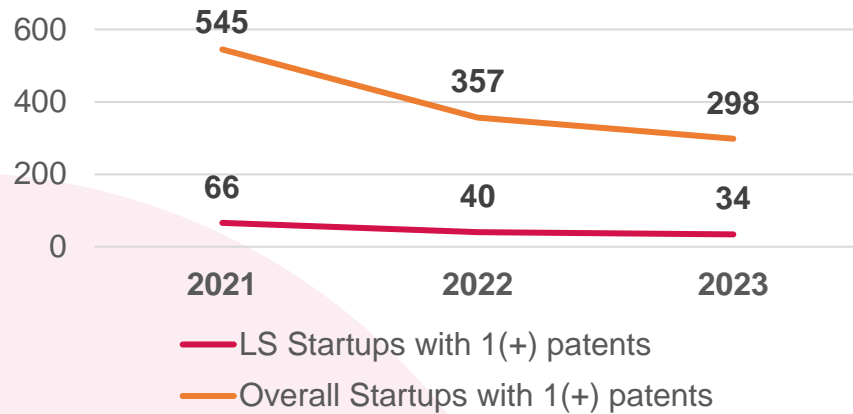


Telemedicine distribution details in LS					
	2021	2022	2023	TOT	%
TELEMEDICINE presence vs.Overall LS	42	41	22	105	14%
DIGITAL HEALTH	39	36	21	96	91%
CLINICIAN SERVICES&SUPPORT	26	23	10	59	56%
PATIENT-FACING DIAGNOSTIC&MONITORING	4	6	9	19	18%
PATIENT-FACING WELLNESS&SUPPORT	7	3	-	10	10%
PATIENT-FACING THERAPEUTIC INTERVENTION	2	3	1	6	6%
ENTERPRISE SYSTEMS&SUPPORT	-	1	1	2	2%
HEALTHCARE PRODUCTS/SERVICES	3	4	-	7	7%
OTHER PRODUCTS	1	2	-	3	3%
HEALTH FACILITIES AND HOME CARE	1	2	-	3	3%
RETAIL&DELIVERY	1	-	-	1	1%
MED TECH	-	1	1	2	2%
DIAGNOSTICS	-	-	1	1	1%
ELECTROMEDICAL	-	1	-	1	1%
Total	42	41	22	105	100%

- Telemedicine is in **14%** of total LS start up (105 out of 753).
- **91%** of LS start up with telemedicine are from DIGITAL HEALTH.
- From 2021 to 2023 the trend is significantly decreasing.

Data set: 753 LS innovative start ups

4.7 PATENTS* PRESENCE



Patents presence in macrocategory in LS	
Macrocategory	%
MED TECH	28%
BIOTECH/PHARMA	25%
HEALTHCARE PRODUCTS/SERVICES	16%
DIGITAL HEALTH	13%
Total LS vs. Overall LS	19%

- Patents presence in LS start ups is **19%** (140 out of 753) vs. **15%** Overall (1.200 out of 7.908).
- 48% decrease of number of LS start ups with patents from 2021 to 2023

Patent Distribution Over Macro-categories & Subcategories					
	2021	2022	2023	TOT	%
Patents presence Overall	545	357	298	1200	15%
Patents presence LS	66	40	34	140	19%
MED TECH	25	15	17	57	41%
BIOMEDICAL	7	2	11	20	14%
BIOMEDICAL EQUIPMENT	8	5	0	13	9%
DIAGNOSTIC	5	3	2	10	7%
ELECTROMEDICAL	3	1	3	7	5%
TECHNICAL EQUIPMENT	1	4	1	6	4%
BORDERLINE	1	0	0	1	1%
DIGITAL HEALTH	20	10	10	40	29%
CLINICIAN SERVICES&SUPPORT	6	4	3	13	9%
PATIENT-FACING WELLNESS&SUPPORT	7	1	3	11	8%
PATIENT-FACING DIAGNOSTIC&MONITORING	6	4	1	11	8%
ENTERPRISE SYSTEMS&SUPPORT	1	1	1	3	2%
PATIENT-FACING THERAPEUTIC INTERVENTION	0	0	2	2	1%
HEALTHCARE PRODUCTS/SERVICES	9	13	3	25	18%
OTHER PRODUCTS	5	6	1	12	9%
NUTRACEUTICALS	2	4	2	8	6%
NO-DIGITAL SERVICES	1	1	0	2	1%
HEALTH FACILITIES AND HOME CARE	1	1	0	2	1%
RETAIL&DELIVERY	0	1	0	1	1%
BIOTECH/PHARMA	12	2	4	18	13%
SMALL MOLECULES	4	1	2	7	5%
BIOLOGIC DRUGS	5	0	1	6	4%
BIOLOGICAL DERIVED MATERIALS	2	1	1	4	3%
ATMPs	1	0	0	1	1%
Total – Patents presence LS	66	40	34	140	100%

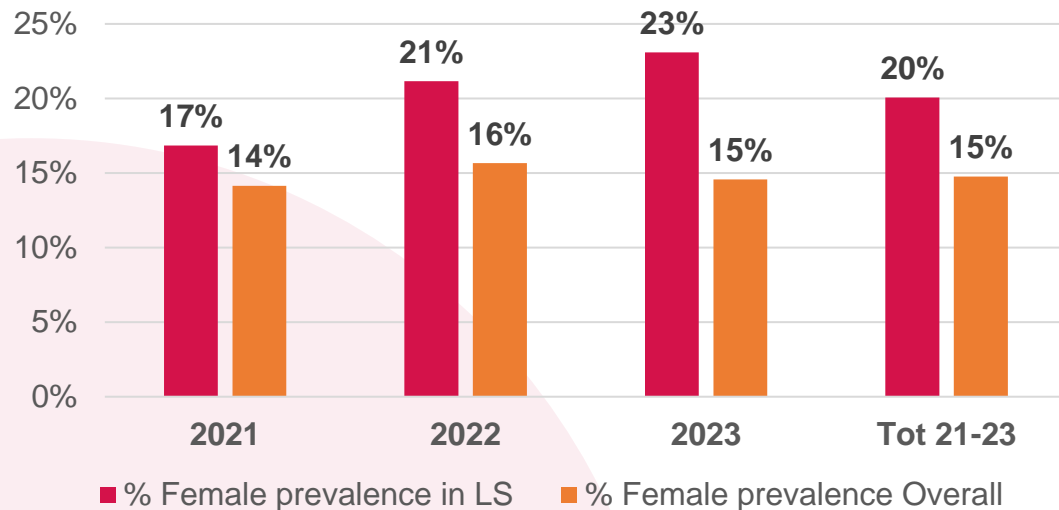


*Refers to a start up that is owner, custodian or licensee of at least one patent or holder of registered software.

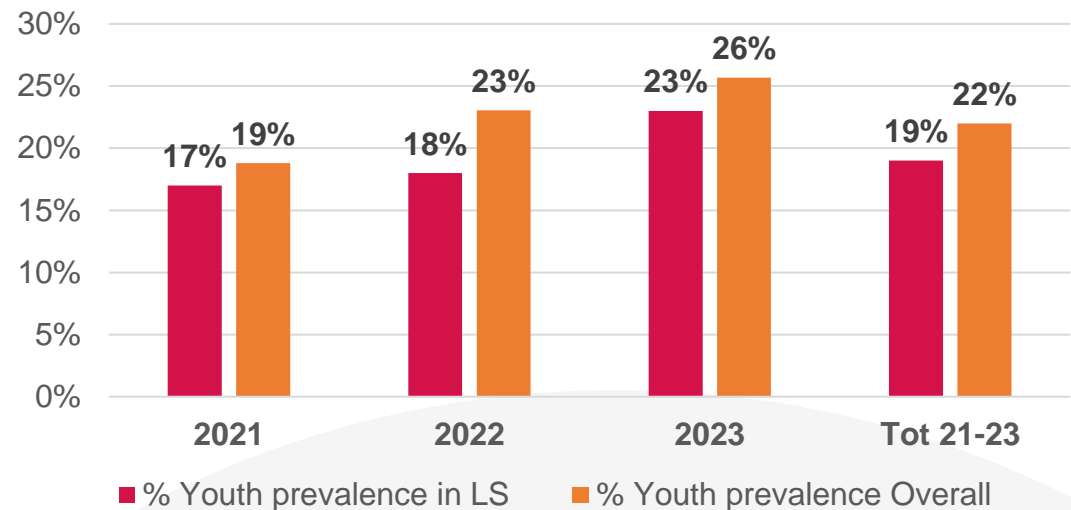


4.8 FOUNDERS FEATURES

Female prevalence* LS vs. Overall



Youth (<35) prevalence* LS vs. Overall



Benefit Corporations in Life Science				
BENEFIT CORPORATIONS	Overall		Life Science	
	(#)	(%)	(#)	(%)
	447	5,7%	29	3,9%

Female Prevalence

LS Start ups are **20%** vs 15% Overall, and growing trend.

Benefit Corporations

Among the total LS Start ups, benefit corporations are 3,9% vs 5,7% Overall

Youth Prevalence (< 35)

LS Start ups are 19% vs 22% Overall.

Analysis data set for Female prevalence:

- 7332 innovative start ups overall ; 708 LS innovative start ups
- Does not include startups that have not made such data available (N.D. column)

Analysis data set for Youth prevalence:

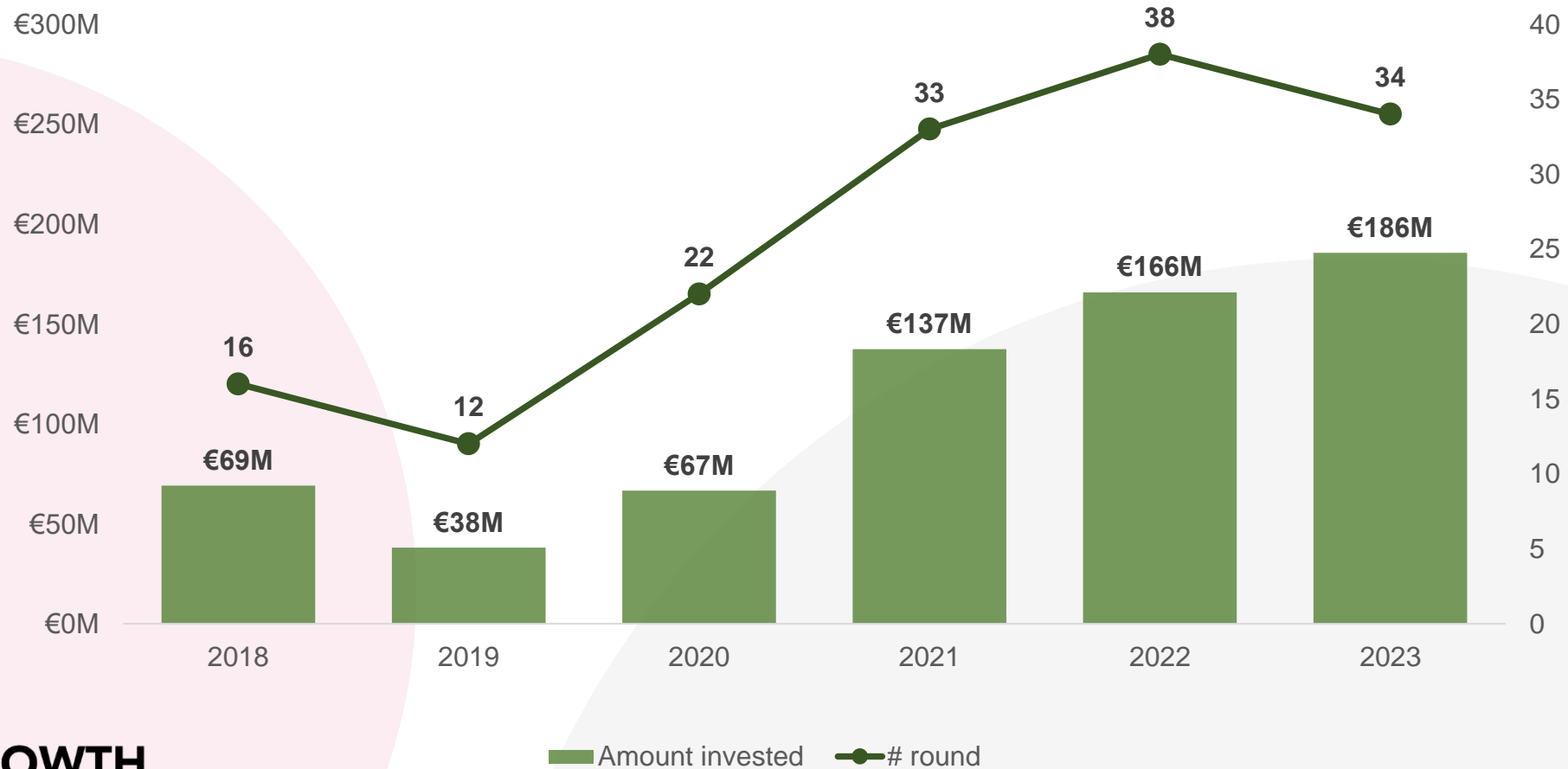
- 7303 innovative start ups overall ; 707 LS innovative start ups
- Does not include startups that have not made such data available (N.D. column)

* Within Prevalence, all three categories present in the Registro Imprese are grouped: Majority (> 50%), Strong (>66%), Exclusive (100%);

5. OVERVIEW ON FUNDING



5.1 VC ROUNDS IN LS SECTOR IN ITALY





5.2 OVERVIEW ON FUNDING

# Round	DIGITAL HEALTH	MED TECH	HEALTHCARE PRODUCTS/SERVICES	BIOTECH / PHARMA	TOTAL
2018	1	7	1	7	16
2019	2	4	2	4	12
2020	1	15	1	5	22
2021	6	11	6	10	33
2022	9	17	1	11	38
2023	6	13	5	10	34
TOTAL	25	67	16	47	155

Amount invested	DIGITAL HEALTH	MED TECH	HEALTHCARE PRODUCTS/SERVICES	BIOTECH / PHARMA	TOTAL
2018	€0,5M	€6,7M	€0,1M	€61,7M	€69,1M
2019	€5,9M	€8,7M	€2,8M	€20,7M	€38,1M
2020	€0,3M	€46,2M	€0,03M	€20,0M	€66,6M
2021	€6,5M	€84,4M	€14,0M	€32,5M	€137,4M
2022	€50,9M	€37,5M	€2,2M	€75,2M	€165,8M
2023	€2,8M	€23,1M	€4,0M	€155,7M	€185,6M
TOTAL	€67,0M	€206,7M	€23,2M	€365,8M	€662,6M

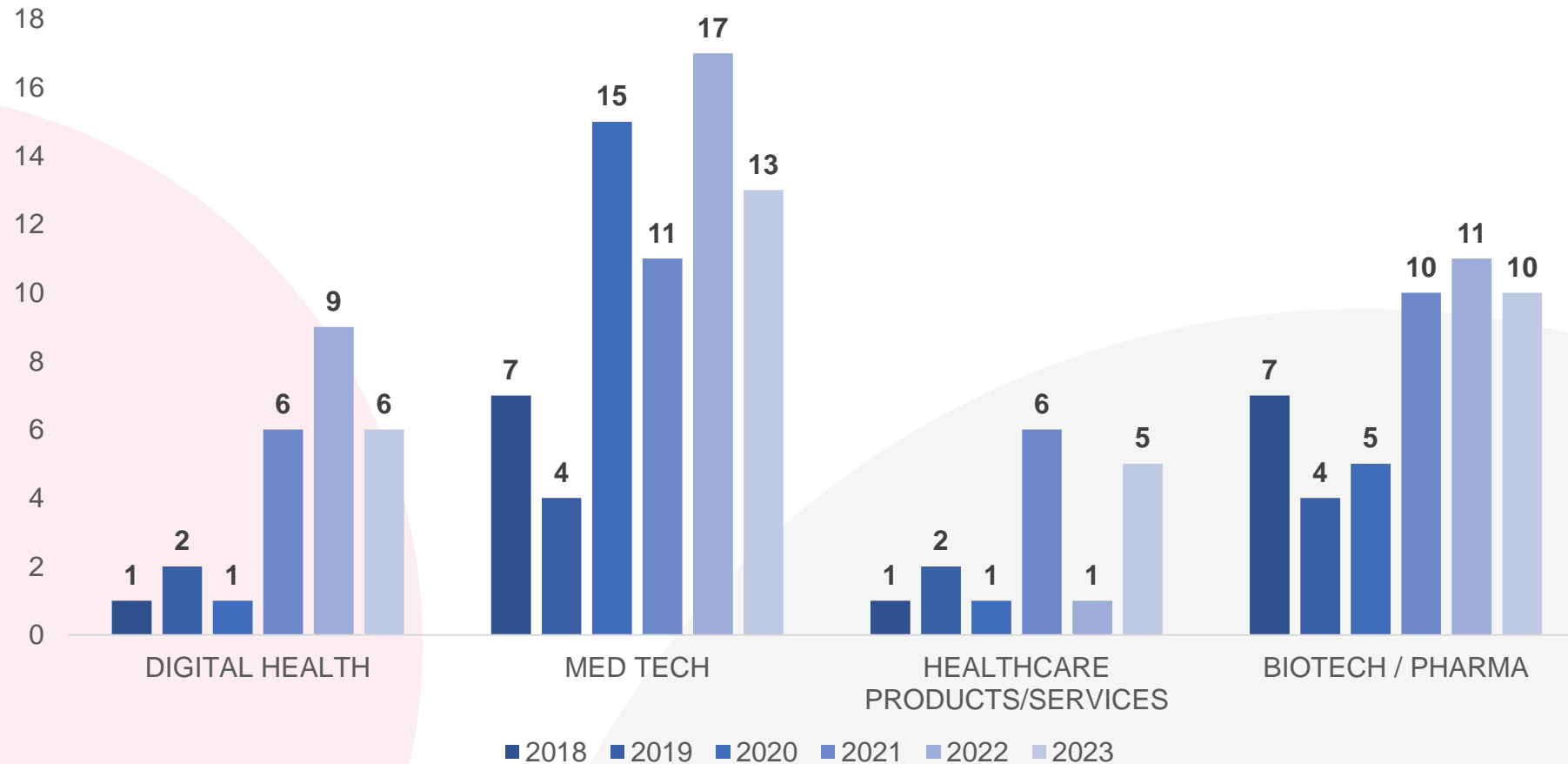
Mean	DIGITAL HEALTH	MED TECH	HEALTHCARE PRODUCTS/SERVICES	BIOTECH / PHARMA	TOTAL
2018	€0,5M	€1,0M	€0,1M	€8,8M	€4,3M
2019	€2,9M	€2,2M	€1,4M	€5,2M	€3,2M
2020	€0,3M	€3,1M	€0,03M	€4,0M	€3,0M
2021	€1,1M	€7,7M	€2,3M	€3,3M	€4,2M
2022	€5,7M	€2,2M	€2,2M	€6,8M	€4,4M
2023	€0,5M	€1,8M	€0,8M	€15,6M	€5,5M
TOTAL	€2,7M	€3,1M	€1,5M	€7,8M	€4,3M

Methodology details in Appendix

*The data mapped by Growth Capital include all the rounds carried out by innovative start ups and SMEs.

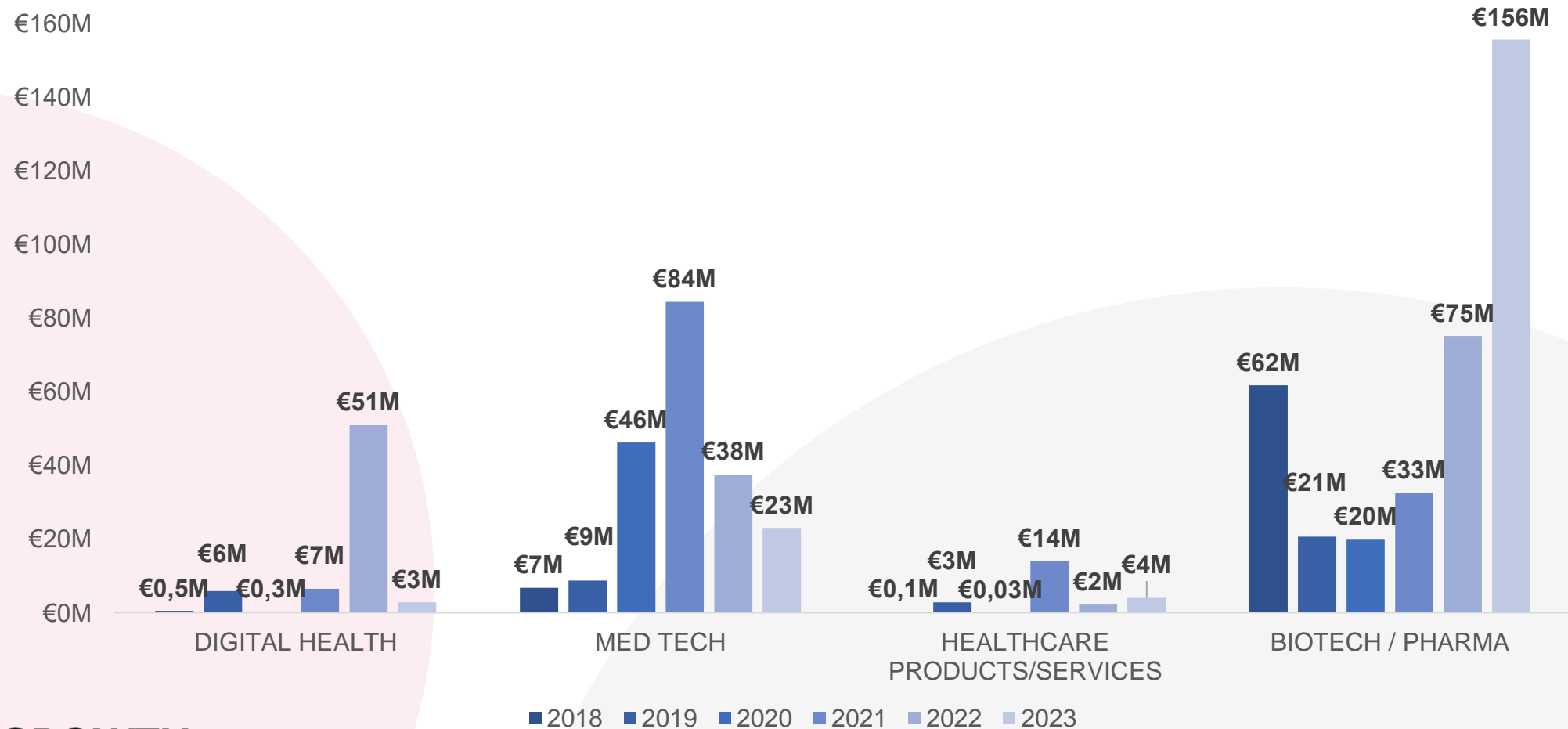


5.3 # OF ROUNDS IN THE LS SECTOR – BREAKDOWN BY VERTICAL



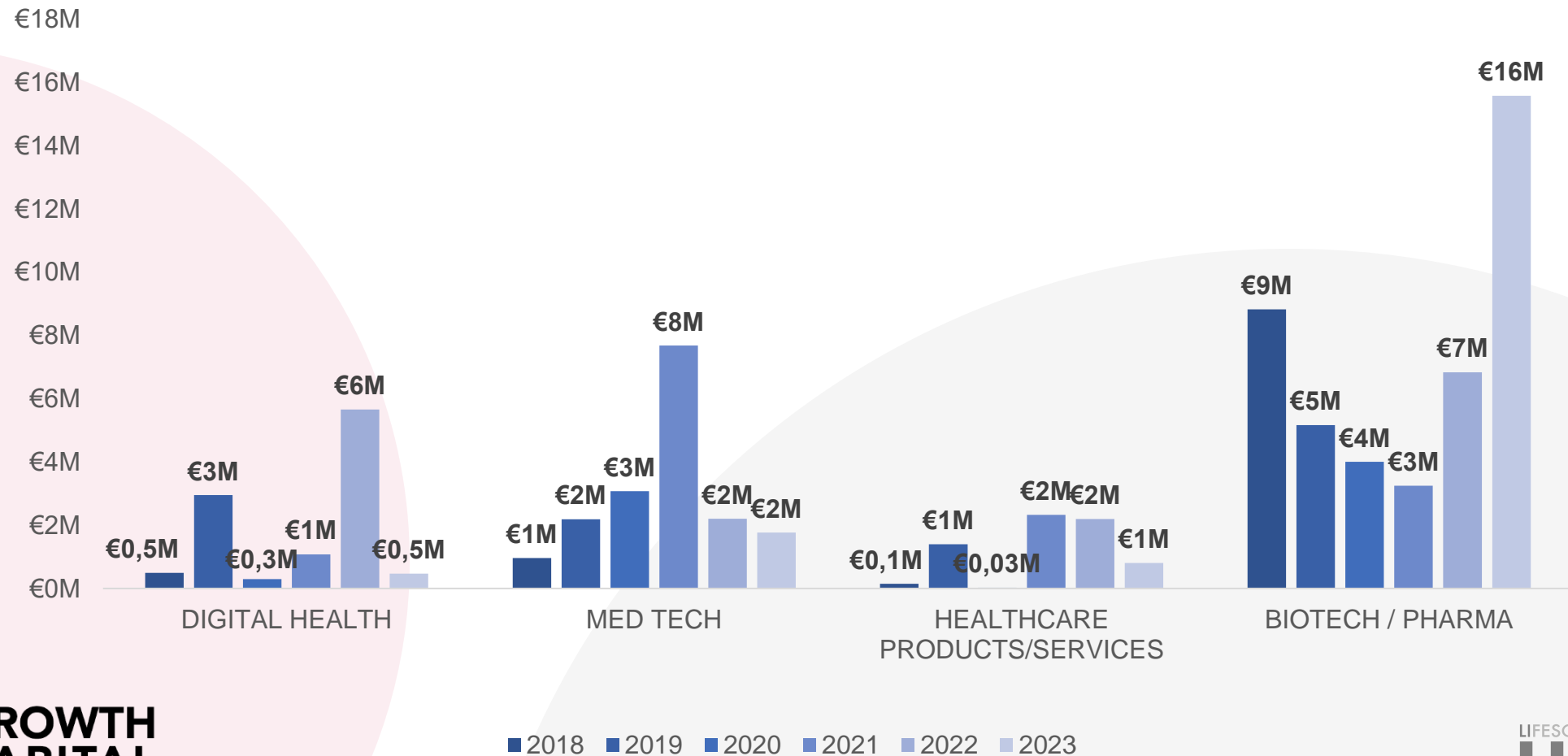


5.4 AMOUNT (€) INVESTED IN THE LS SECTOR – BREAKDOWN BY VERTICAL



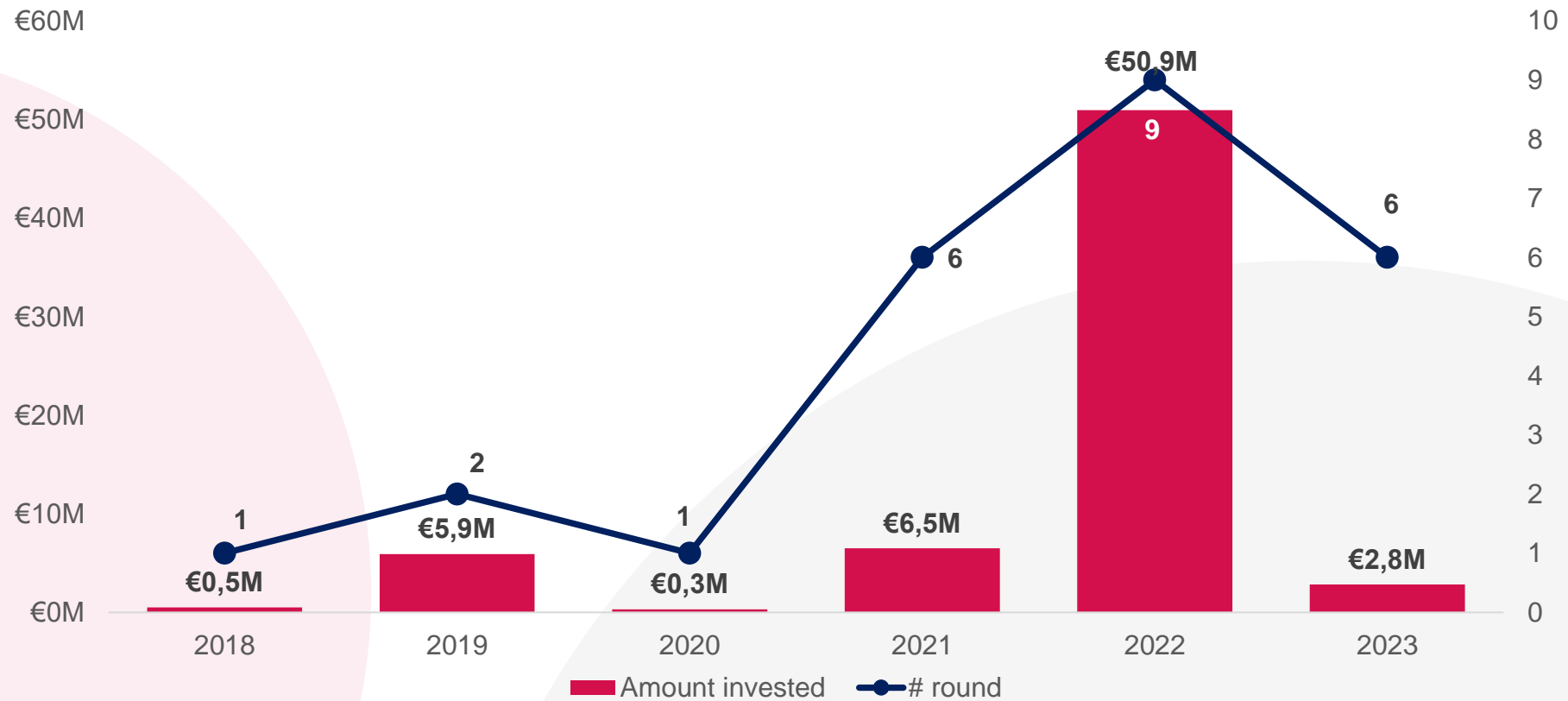


5.5 AVERAGE ROUND SIZE (€) IN THE LS SECTOR – BREAKDOWN BY VERTICAL



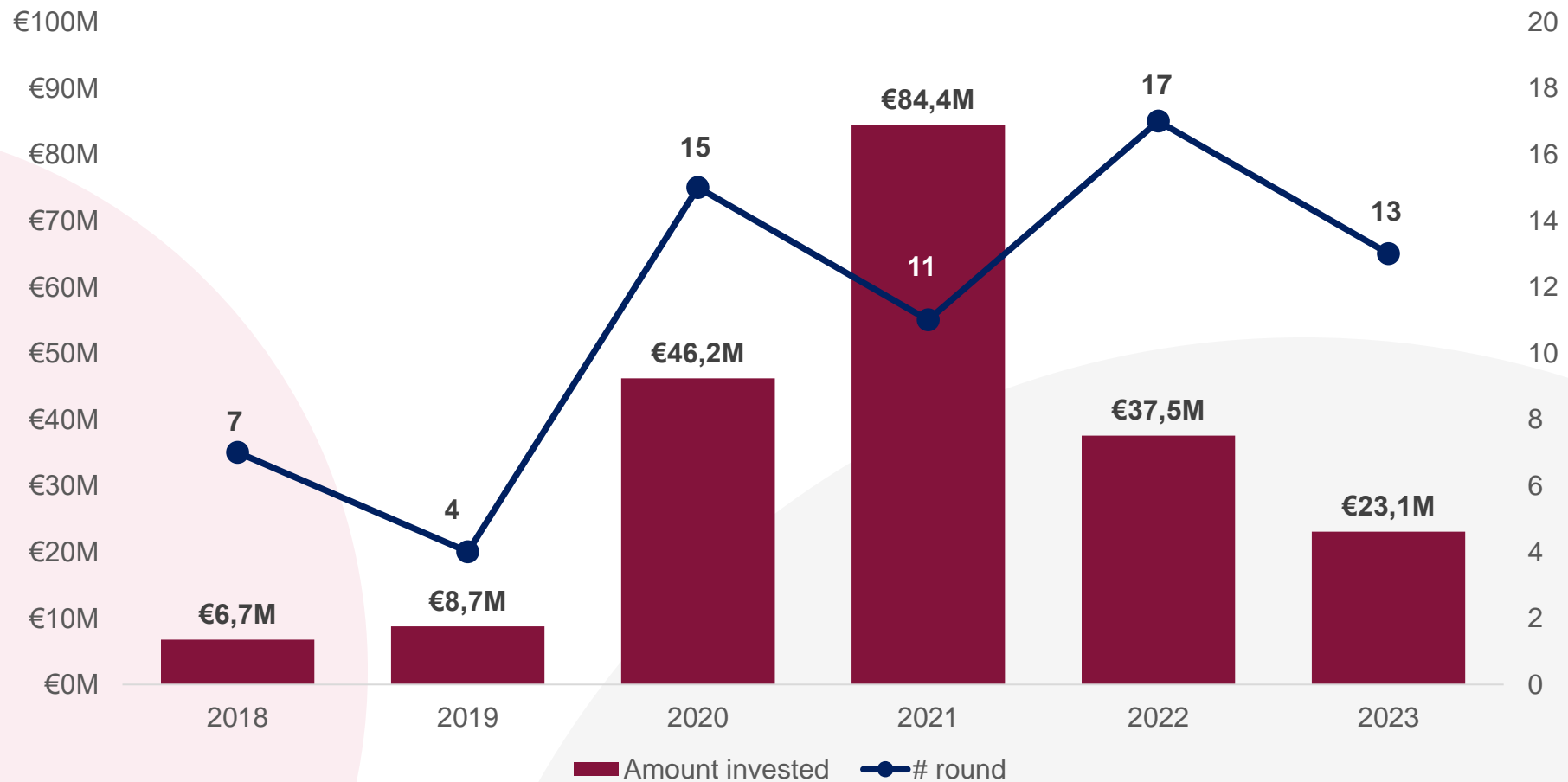


5.6 VC ROUNDS – DIGITAL HEALTH

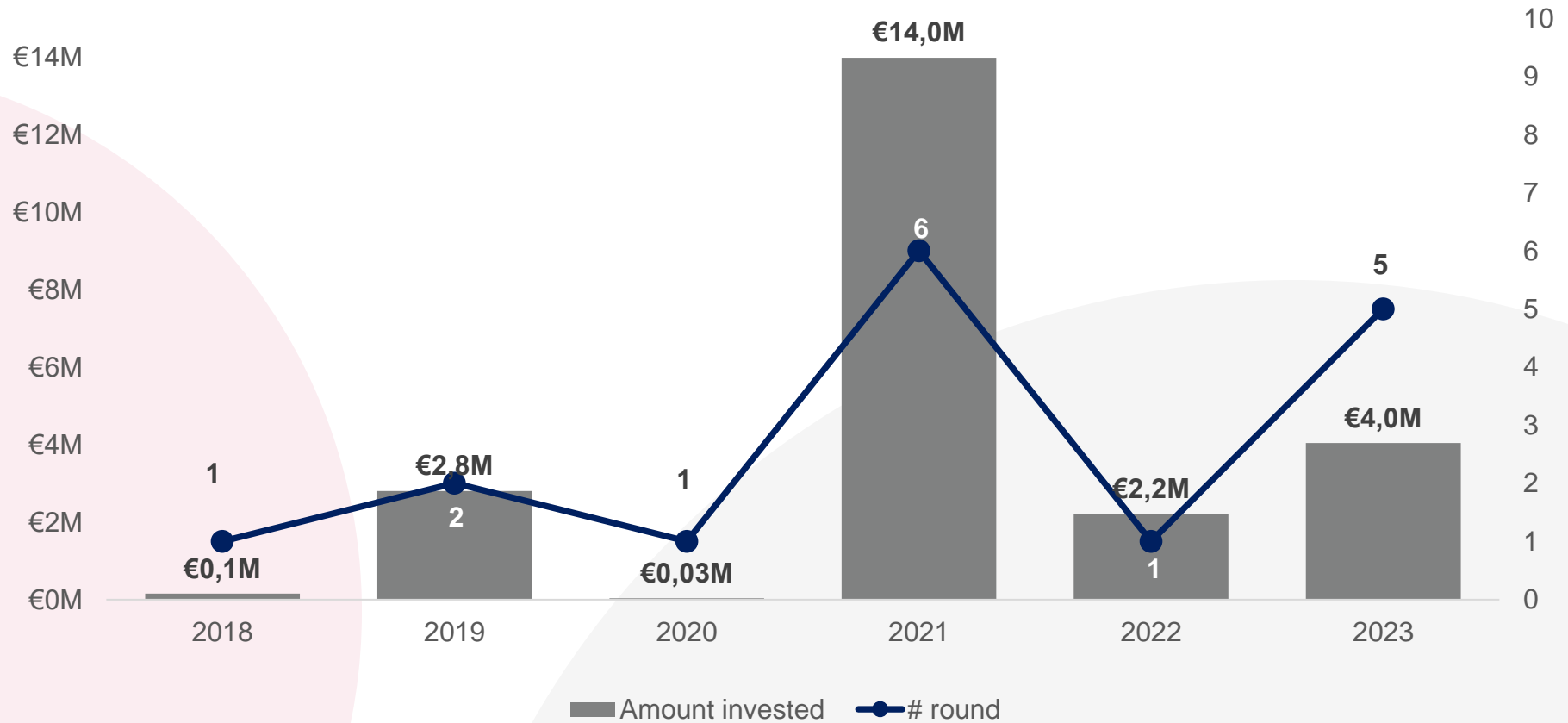




5.7 VC ROUNDS – MED TECH

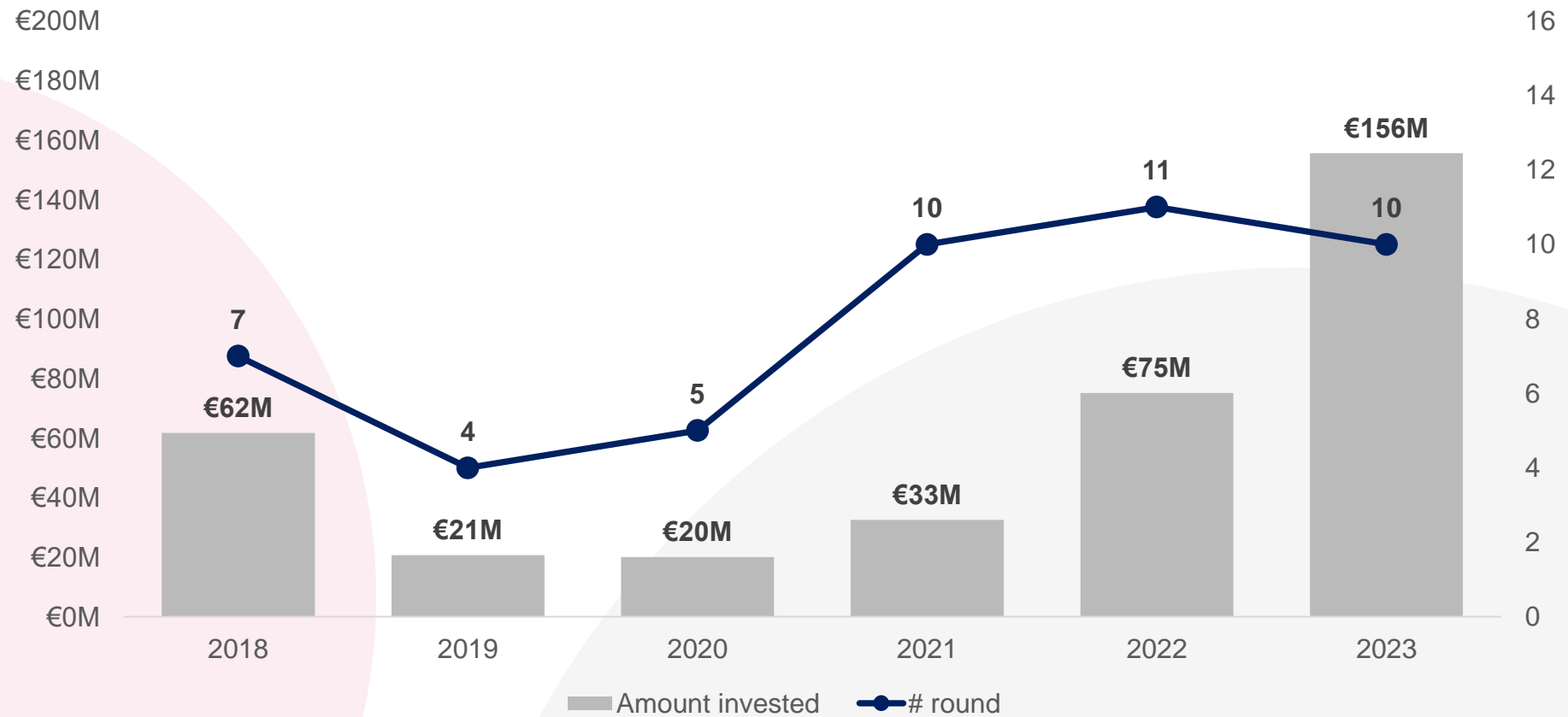


5.8 VC ROUNDS – HEALTHCARE PRODUCTS/SERVICES





5.9 VC ROUNDS – BIOTECH/PHARMA



6. CONCLUSIONS



6.1 KEY LEARNINGS



DIGITAL HEALTH 42%

MED TECH 28%



HEALTHCARE P/S 21%

BIOTECH/PHARMA 9%



**INNOVATIVE
LS START UPS IN
ITALY BORN IN 2021-
2023 & STILL ACTIVE**

LOMBARDIA



28%
of LS START UPS in Italy



1 out of 5 of LS START UPS



LS START UPS vs Overall

WOMEN
PREVALENCE

20% vs. 15%

753



2021 – 290
2022 – 250
2023 – 213

A.I.



20%

OF TOTAL LS START UPS

TELEMEDICINE



14%

PATENTS



19% LS START UPS
vs Overall
vs. 15%



6.2 LIFE SCIENCES ECOSYSTEM IN ITALY

Life Science sector in Italy reached a production value of 252 mld € in 2021.

LS COMPANIES IN ITALY



10,6%

of PIL (in terms of added value)
(105mld€)



29,5%
(74,5mld€)

Life Science Production
Value of Lombardia

INNOVATIVE LS START UPS*



9,5%

of the total
innovative startups



28%

Life Science Start ups
of Lombardia

Source: La rilevanza della filiera life sciences in Lombardia - Assolombarda – (edizione 2022)



6.3 CONCLUSIONS

- Lifescience is a very attractive field in Italian and global economy.
- There is a mismatch between research and VC funding (biotech).
- To compete we need to concentrate resource to create a strong ecosystem, Silicon Valley like.

THE REPORT IS AVAILABLE AT
<https://www.indicon-innovation.tech/listup/>

LIFESCIENCE STARTUP LISTUP OBSERVATORY



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INNOVATION IN LIFESCIENCE

APPENDIX



A - METHODOLOGY DETAILS

INNOVATIVE START UP DEFINITION

***Innovative start-ups** are joint stock companies, including cooperatives, established in Italy (or in another EU Member State if they have a production site or a branch in Italy) that meet certain requirements and have as their exclusive or predominant business purpose the **development, production and marketing of innovative products or services with high technological value**"*

Source: Registro Imprese

Additionally, the company must meet at least one of the following three criteria:

- 1. It incurs **R&D** expenses amounting to **at least 15%** of the higher value between cost and total production value;*
- 2. It **employs highly qualified personnel** (at least one-third PhDs, PhD candidates, or researchers, or at least two-thirds with a master's degree);*
- 3. It holds, has deposited, or is licensed for at least one **patent** or is the holder of **registered software***

Source: mimit.gov.it



A - METHODOLOGY DETAILS

The methodological steps used have been the following:

1- **Raw data: innovative start ups list:** The complete report on innovative start-ups registered in Italy between 1 January 2021 and 31 December 2023 was downloaded on an Excel platform by accessing the special section of Registro Imprese. The **official database** of the Italian Camera di Commercio, which includes all innovative start-ups and SMEs registered in the special section of **Registro Imprese**, was used to conduct the research.

Only innovative start-ups registered and active between **1 January 2021 and 31 December 2023** in the special section of Registro Imprese are included in the analysis*.

2- **Selection of ATECO 2007 codes:** ATECO 2007 codes identifying areas of activity potentially related to the life science sector were selected.

3- **Website Start up analysis:** Each individual start-up identified by an ATECO 2007 code as potentially related to the life sciences sector was analysed to determine its actual relevance to the sector. The analysis was carried out by reading the data sheets of each start-up on the company register and, if this was not sufficient, by checking the company's website.

4- **Validation e categorization:** The selected start-ups were classified according to their year of registration in the special section of Registro Imprese and then classified into four macro-categories according to their sector of activity: Biotech, Med tech, Digital Health, Healthcare product/service.

WHAT LIFE SCIENCE IS NOT

The following categories were not included in the analysis:

- Environmental sustainability projects
- Waste recycling
- Environmental and surface disinfectants
- Pollutant classification equipment
- Renewable energy

*the extraction from the register was made on 8 January 2024

A - METHODOLOGY DETAILS



ATECO CODES	DENOMINATION
C10	INDUSTRIE ALIMENTARI (FOOD INDUSTRY)
C20	FABBRICAZIONE DI PRODOTTI CHIMICI (MANUFACTURE OF CHEMICAL PRODUCTS)
C21	FABBRICAZIONE DI PRODOTTI FARMACEUTICI DI BASE E PREPARATI FARMACEUTICI (MANUFACTURE OF BASIC PHARMACEUTICAL PRODUCTS AND PHARMACEUTICAL PREPARATIONS)
C22	FABBRICAZIONE DI ARTICOLI IN GOMMA E MATERIE PLASTICHE (MANUFACTURE OF RUBBER AND PLASTIC PRODUCTS)
C26	FABBRICAZIONE DI COMPUTER E PRODOTTI DI ELETTRONICA E OTTICA; APPARECCHI ELETTROMEDICALI, APPARECCHI DI MISURAZIONE E DI OROLOGI (MANUFACTURE OF COMPUTERS AND ELECTRONIC AND OPTICAL PRODUCTS; ELECTROMEDICAL EQUIPMENT, MEASUREMENT AND WATCHES)
C27	FABBRICAZIONE DI APPARECCHIATURE ELETTRICHE ED APPARECCHIATURE PER USO DOMESTICO NON ELETTRICHE (MANUFACTURE OF ELECTRICAL EQUIPMENT AND NON-ELECTRICAL HOUSEHOLD APPLIANCES)
C28	FABBRICAZIONE DI MACCHINARI ED APPARECCHIATURE N.C.A. (MANUFACTURE OF MACHINERY AND EQUIPMENT N.E.C. (NOT ELSEWHERE CLASSIFIED))
C30	FABBRICAZIONE DI ALTRI MEZZI DI TRASPORTO (MANUFACTURE OF OTHER TRANSPORT EQUIPMENT)
C32	ALTRE INDUSTRIE MANIFATTURIERE (OTHER MANUFACTURING INDUSTRIES)
C33	RIPARAZIONE, MANUTENZIONE ED INSTALLAZIONE DI MACCHINE ED APPARECCHIATURE (REPAIR, MAINTENANCE, AND INSTALLATION OF MACHINERY AND EQUIPMENT)
G46	COMMERCIO ALL'INGROSSO (ESCLUSO QUELLO DI AUTOVEICOLI E MOTOCICLI) [WHOLESALE TRADE (EXCLUDING MOTOR VEHICLES AND MOTORCYCLES)]
G47	COMMERCIO AL DETTAGLIO (ESCLUSO QUELLO DI AUTOVEICOLI E DI MOTOCICLI) [RETAIL TRADE (EXCLUDING MOTOR VEHICLES AND MOTORCYCLES)]
J58	ATTIVITÀ EDITORIALI (PUBLISHING ACTIVITIES)
J62	PRODUZIONE DI SOFTWARE, CONSULENZA INFORMATICA E ATTIVITÀ CONNESSE (SOFTWARE PRODUCTION, IT CONSULTING, AND RELATED ACTIVITIES)
J63	ATTIVITÀ DEI SERVIZI D'INFORMAZIONE E ALTRI SERVIZI INFORMATICI (INFORMATION SERVICES ACTIVITIES AND OTHER IT SERVICES)
M70	ATTIVITÀ DI DIREZIONE AZIENDALE E DI CONSULENZA GESTIONALE (BUSINESS MANAGEMENT AND CONSULTING SERVICES)
M71	ATTIVITÀ DEGLI STUDI DI ARCHITETTURA E D'INGEGNERIA; COLLAUDI ED ANALISI TECNICHE (ARCHITECTURAL AND ENGINEERING ACTIVITIES; TESTING AND TECHNICAL ANALYSIS)
M72	RICERCA SCIENTIFICA E SVILUPPO (RESEARCH AND DEVELOPMENT)
M74	ALTRE ATTIVITÀ PROFESSIONALI, SCIENTIFICHE E TECNICHE (OTHER PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES)
M75	SERVIZI VETERINARI (VETERINARY SERVICES)
N82	ATTIVITÀ DI SUPPORTO PER LE FUNZIONI D'UFFICIO E ALTRI SERVIZI DI SUPPORTO ALLE IMPRESE (OFFICE SUPPORT SERVICES AND OTHER BUSINESS SUPPORT SERVICES)
P85	ISTRUZIONE (EDUCATION)
Q86	SANITA' E ASSISTENZA SOCIALE (HEALTHCARE AND SOCIAL ASSISTANCE)
S96	ALTRE ATTIVITÀ DI SERVIZI PER LA PERSONA (OTHER PERSONAL SERVICE ACTIVITIES)



B – DEFINITIONS: DIGITAL HEALTH

DIGITAL HEALTH

Digital Health refers to tools and services that use information and communication technologies (ICT) to improve the prevention, diagnosis, treatment, monitoring and management of health-related problems and to monitor and manage lifestyles that have an impact on health.

Source: European Commission – https://health.ec.europa.eu/ehealth-digital-health-and-care/overview_en

ENTERPRISE SYSTEMS&SUPPORT

Platforms for healthcare systems, clinics and other enterprise setting (e.g. clinical administration and management tools, predictive analytics, clinical trial management).

CLINICIAN SERVICES&SUPPORT

Platforms primarily for clinicians and clinical support staff (e.g. health information technology, electronic medical records and prescribing systems, point-of-care and workflow improvement tools, telemedicine platforms).

PATIENT-FACING WELLNESS&SUPPORT

Products that capture, store, or transmit health data [e.g., lifestyle and wellness apps, activity and fitness tracker, medication reminder apps, wearables and sensors (non-clinical grade), consumer health information]

PATIENT-FACING DIAGNOSTIC& MONITORING

Products used to diagnose, guide diagnoses, or actively monitor patients [e.g., digital diagnostics, digital biomarkers, remote patient monitoring tools, wearable and biometric sensors (clinical grade) medical ingestible sensors, connected drug delivery devices]

PATIENT-FACING THERAPEUTIC INTERVENTIONS

Products that deliver medical interventions and therapies [Digital therapeutics (clinical interventions delivered directly to patients via software to treat, manage, or prevent a disease or disorder]

Source: Digital Therapeutics Alliance - <https://dtxalliance.org/understanding-dtx/>



B – DEFINITIONS: MED TECH

MED TECH

An article, instrument, apparatus or machine that is used in the prevention, diagnosis or treatment of illness or disease, or for detecting, measuring, restoring, correcting or modifying the structure or function of the body for some health purpose. Typically, the purpose of a medical device is not achieved by pharmacological, immunological or metabolic means.

Source: WHO – <https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/medical-devices>

ELECTRO-MEDICAL

CT scans, MRIs, Radiographers, Echographs, ECGs, Mammographs and similar devices.

BIOMEDICAL

Prostheses, patches, needles, syringes, pacemakers, stents, acoustic protheses, optical devices, defibrillators and similar devices.

BIOMEDICAL EQUIPMENT

Instruments and equipment for surgery, monitoring, rehabilitation and support and similar devices.

TECHNICAL EQUIPMENT

Hospital equipment, laboratory equipment for medical and dental practices and similar equipment.

DIAGNOSTIC

Laboratory analysis, molecular diagnostics, self-testing, DNA testing, predictive genomics testing, NGS and similar devices

BORDERLINE (substance-based)

Products with mechanical and non-pharmacological action such as eye drops and syrups

Source: Aggregation based on the classification of the Confindustria Medical Devices 2019

B – DEFINITIONS: HEALTHCARE PRODUCTS/SERVICES



HEALTHCARE PRODUCTS/SERVICES

The set of all those activities performing their service in the lifescience/healthcare field that do not fall under the previous categories.

NON DIGITAL SERVICES

All life sciences or healthcare services that do not involve software (e.g. consulting)

RETAIL&DELIVERY

Healthcare distribution activities, including online pharmaceutical sales platforms and home delivery.

HEALTH FACILITIES AND HOME CARE

Activities of health facilities and home care

NUTRACEUTICALS

Food or elements of food obtained from plant or animal origin with significant medical or health benefits mostly employed to prevent or cure diseases. (Prakash, S. E., Manjunatha, V. C., Nagella, P., & Lakshmaiah, V. V. (2023). Nutraceuticals to prevent and manage cardiovascular diseases. In Elsevier eBooks (pp. 269–291).

OTHER PRODUCTS

Life science/healthcare products that do not fit into other categories (e.g. veterinary)



B – DEFINITIONS: BIOTECH / PHARMA

BIOTECH / PHARMA

"The technological application that makes use of biological systems, living organisms or derivatives thereof, to produce or modify products or processes for a specific purpose."*

** In this case, the specific purpose is research, development and production of health-related goods.*

Convention on Biological Diversity or CBD, international treaty adopted in Nairobi in 1992.

BIOLOGICAL DRUGS

Biological drugs are medicines that contain one or more active ingredients produced or extracted from a biological system.
(source: AIFA)

SMALL MOLECULES

Refers to chemically synthesized organic compounds

ATMPs

ATMPs are biological medicines that are classified into four main groups: gene therapy medicinal products; somatic cell therapy medicinal products; tissue engineering medicinal products; combined advanced therapy medicinal products.
(source: AIFA)

BIOLOGICAL DERIVED MATERIALS

bioderived structural materials with biological activity such as extracellular matrices, proteins and polysaccharides.

C - INDICON RESEARCH TEAM



ELENA PAOLA LANATI

Founder – CEO



EDOARDO SANNA

Consultant



MICAELA RIVA

Innovation Lead



DAVIDE GALLOTTI

Head of Consultancy



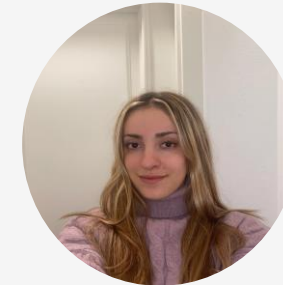
VALENTINA PAGELLA

Scientific Specialist



AUGUSTO D'EVANT

Consultant



GIULIA ZENONI

Junior Marketing Assistant

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