

**Dennis McWilliams**  
Partner, Santé Ventures

Surgical AI Financing  
Landscape:  
Unicorn Hunting





- Venture Capital fund focused on lifescience: medical device, biotech, healthtech
- \$900M in assets under management, Current fund \$260M
- Stage: Series A, Seed
- Typical Investment: \$5-10M initial, \$15-20M total
- Offices: Austin, Boston



- Dennis McWilliams
- Partner, Santé Ventures
- Entrepreneur, Engineer, Investor
- Founder: Apollo Endosurgery, Chrysalis Biotech, SMG Pharmaceutical
- Investment area: Devices, Biotech, SAS/AI

In

# Why Surgical AI?

**\$1.7 Trillion of  
US Healthcare**

**66% of Hospital  
Revenue**

**51% Medicare  
Spend**



Technical advances driving an increasingly digital operating room



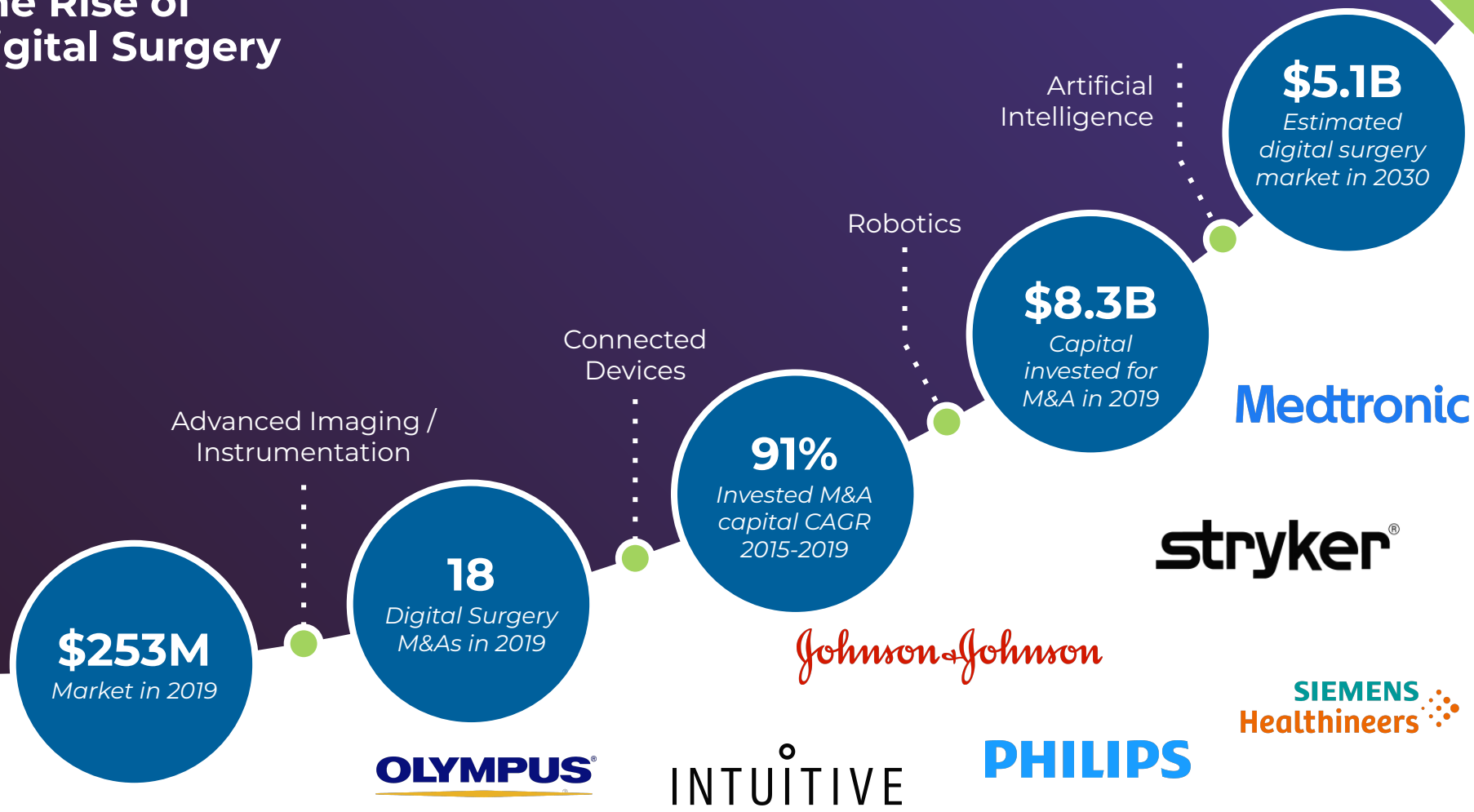
Robotization, connectivity, and real-time informatics providing rich data streams



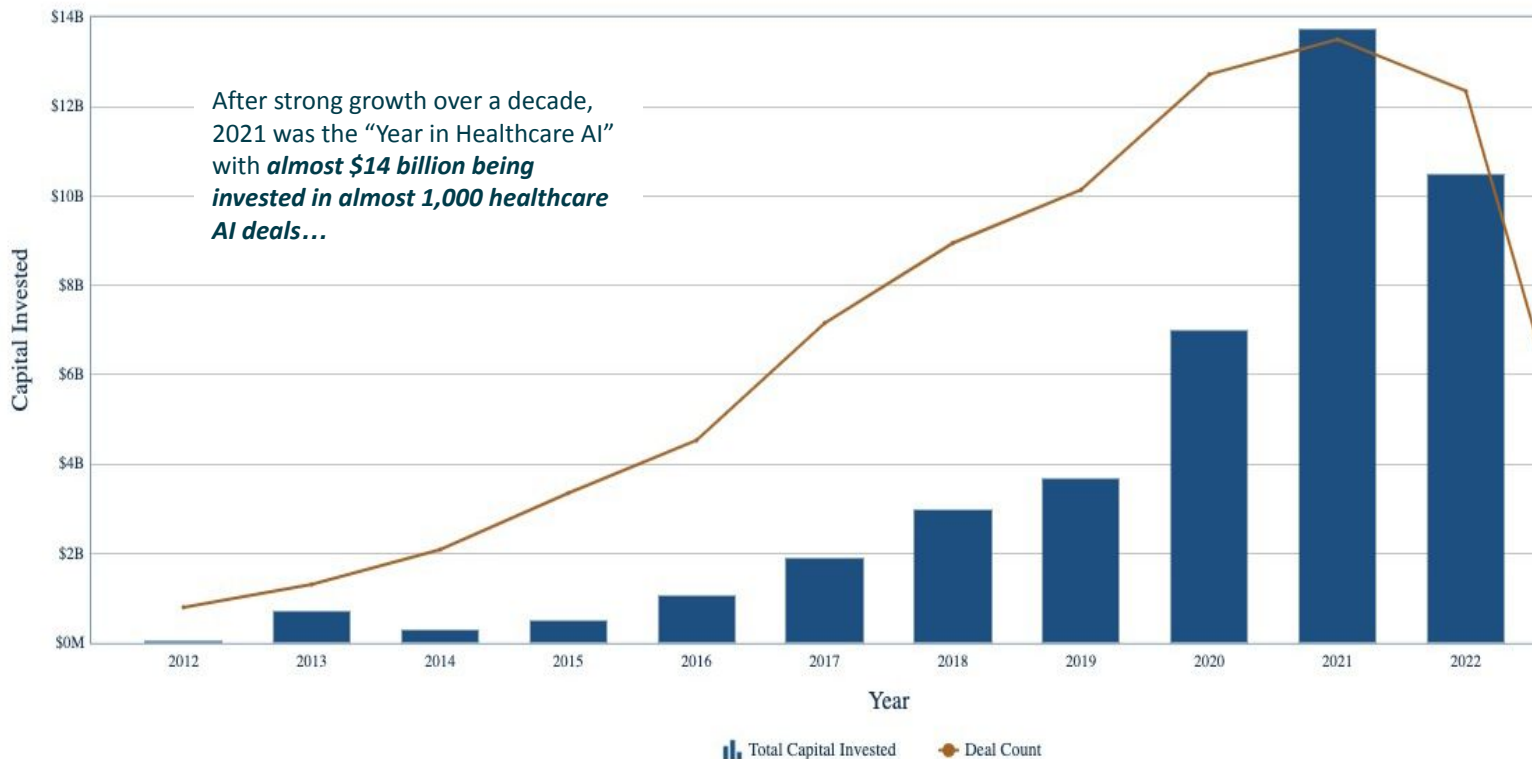
Widespread desire to utilize this data to develop innovative artificial intelligence and other data-based solutions

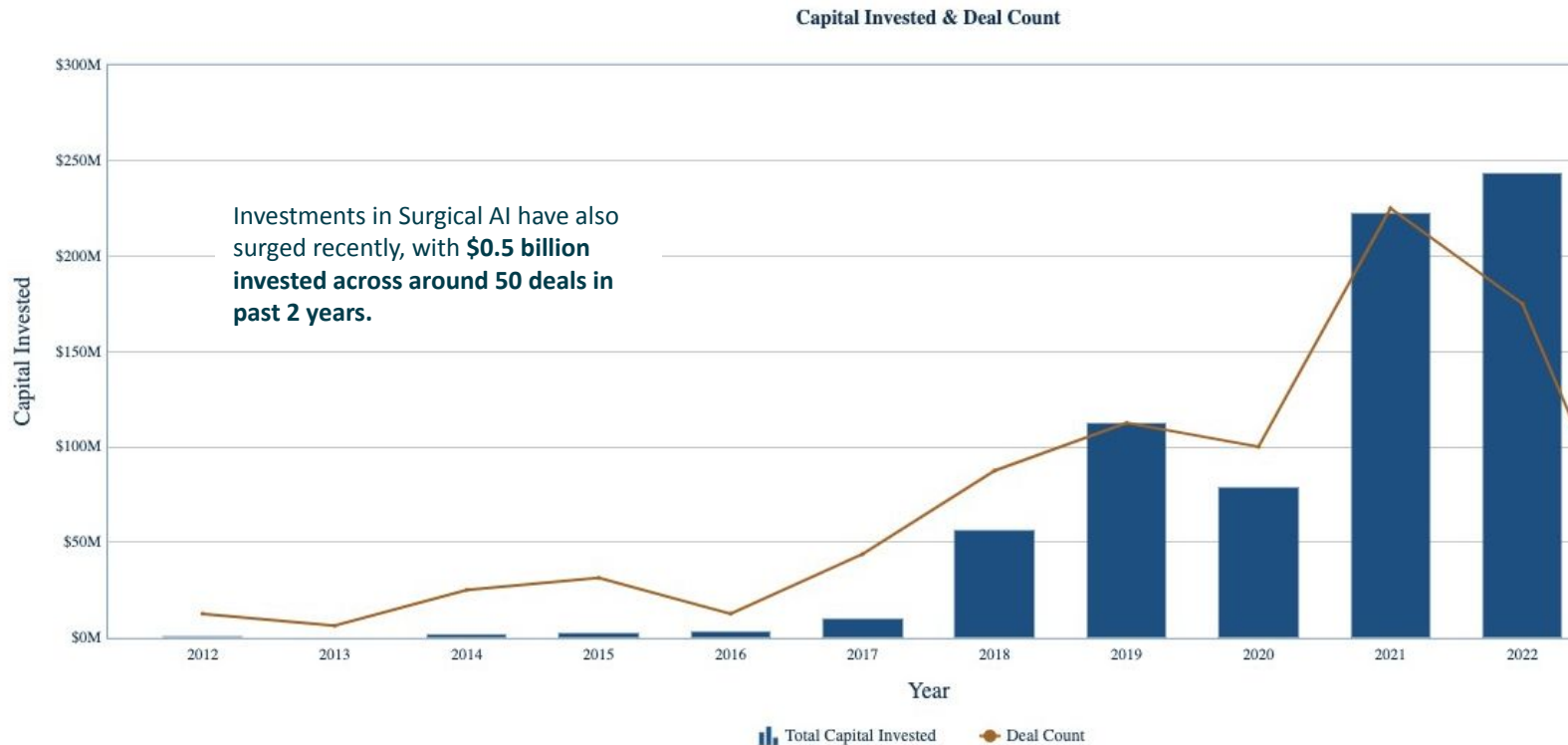











# The Rise of Digital Surgery



### Capital Invested & Deal Count





Company	Description	Total Raised (\$M)
	<ul style="list-style-type: none"> <li>Vendor-agnostic surgical intelligence and automation platform</li> <li>Using video &amp; big data to create a high-fidelity surgical record</li> <li>Enables OR telepresence, video annotation, and analysis</li> </ul>	208.50
	<ul style="list-style-type: none"> <li>Connected operating room, democratize knowledge</li> <li>Surgical video repository for review and analysis</li> <li>"OS of the operating room"</li> </ul>	140.12
	<ul style="list-style-type: none"> <li>Applying AI and analytics to surgical vision</li> <li>Multiple applications on vendor agnostic platform</li> </ul>	101.89
	<ul style="list-style-type: none"> <li>HIPAA-compliant surgical video-sharing platform</li> <li>Video annotation focused around teaching procedures</li> </ul>	101.44
	<ul style="list-style-type: none"> <li>Surgical intelligence platform to detect critical events intra-op</li> <li>Data dashboard for physician &amp; hospital performance tracking</li> <li>Surgical video repository, mention of AI-based annotations</li> </ul>	42.50
	<ul style="list-style-type: none"> <li>Capturing OR data via installed sensors</li> <li>Seem to be targeting many different data sources</li> <li>"OS for the operating room"</li> </ul>	23.54
	<ul style="list-style-type: none"> <li>Capture and store surgical video for review and sharing</li> <li>Surgical analytics and performance review</li> <li>AI-driven surgical data management system</li> </ul>	5.70
	<ul style="list-style-type: none"> <li>Vendor-neutral clinical management platform</li> <li>Capture, storage, streaming, and sharing of clinical video/images for collaboration and review</li> </ul>	4.41
	<ul style="list-style-type: none"> <li>Synced acquisition from OR data sources</li> <li>Analytics that drive surgical quality improvement</li> <li>AI-powered assessment tools to monitor surgical performance</li> </ul>	Undisclosed

*We have strategically positioned ourselves with investments in the following two areas...*

### Platforms with Proprietary AI Solutions



Aggregation of Peri-operative data to provide predictive insights on surgical complications, and actions to prevent those complications.



OR “BlackBox” using proprietary hardware to aggregate intraoperative data and analyse that data to improve OR safety and efficiency.

### AI Enabling Platforms aka “Picks and Shovels”



Secure data enclaves that enable “zero-trust” data sharing between data stewards (like hospitals) and algorithm developers.



Open-system, device agnostic platform to enable data collaborations with complex spatial-temporal healthcare procedures.



Physician Resistance

Data size

Liability

Data ownership

Decoding Insights

Clinical Studies

Regulatory Complexity

**Data complexity**

**Payment models**

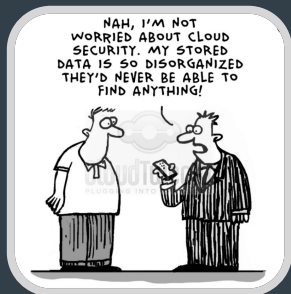
**Financial Markets**





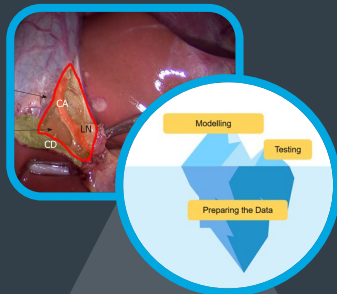
Headwinds

Data Complexity



## Storage Issues

- Lacking storage infrastructure
- Data exists in disparate locations (i.e. surgeon hard drives, non-networked drives, etc.)
- Security concerns



## Data Prep Difficulty

- "AI models are only as good as their data"
- Hard to annotate, deidentify, and do other data processing
- No tailor-made, standardized tools



## Format Inconsistencies

- Various data sources each with their own formats
- No standard format for streamlining data ingestion
- Impedes easy collaboration and cross pollination of data



## Shareability

- Data is currently siloed and cannot easily be shared
- There is no turnkey infrastructure for trustworthy data transactions
- Security is paramount



Headwinds

# Business Models

Computer Aided Diagnostics (aka AI) does not provide any additional reimbursement in the US

Europe's health system has been more aggressive in adopting CAD technology, but financial incentives for companies still low

Imaging manufacturing companies roll-in these tools as add-on features, limiting revenue

**Table 1: 2019 Medicare Reimbursement for Mammography, With or Without CAD and Digital Breast Tomosynthesis Procedures<sup>a</sup>**  
(Reflects national rates, unadjusted for locality)

CPT <sup>9</sup> /HCPCS Code Description	Reimbursement Component	Physician Fee Schedule Payment <sup>10</sup>	APC	Hospital Outpatient Payment <sup>11</sup>
Mammography, 2D - Screening/Diagnostic				
77065*** Diagnostic mammography, including computer-aided detection (CAD) when performed; unilateral	Professional (-26)*	\$41.81	N/A	\$94.06****
	Technical (-TC)**	\$94.06****		
	Global	\$135.87****		
77066*** Diagnostic mammography, including computer-aided detection (CAD) when performed; bilateral	Professional (-26)	\$51.54	N/A	\$120.37****
	Technical (-TC)	\$120.37****		
	Global	\$171.91****		
77067*** Screening mammography, bilateral (2-view study of each breast), including computer-aided detection (CAD) when performed	Professional (-26)	\$38.92	N/A	\$99.47****
	Technical (-TC)	\$99.47****		
	Global	\$138.39****		
Tomosynthesis - Screening/Diagnostic				
+77063 Screening digital breast tomosynthesis, bilateral (List separately in addition to code for primary procedure)	Professional (-26)	\$30.63	N/A	\$25.23
	Technical (-TC)	\$25.23		
	Global	\$55.86		
+G0279 Diagnostic digital breast tomosynthesis, unilateral or bilateral (List separately in addition to 77065 or 77066)	Professional (-26)	\$30.63	N/A	\$25.23
	Technical (-TC)	\$25.23		
	Global	\$55.86		

\* Add-on code

\*\* Professional - Physician payment

Technical - Facility payment

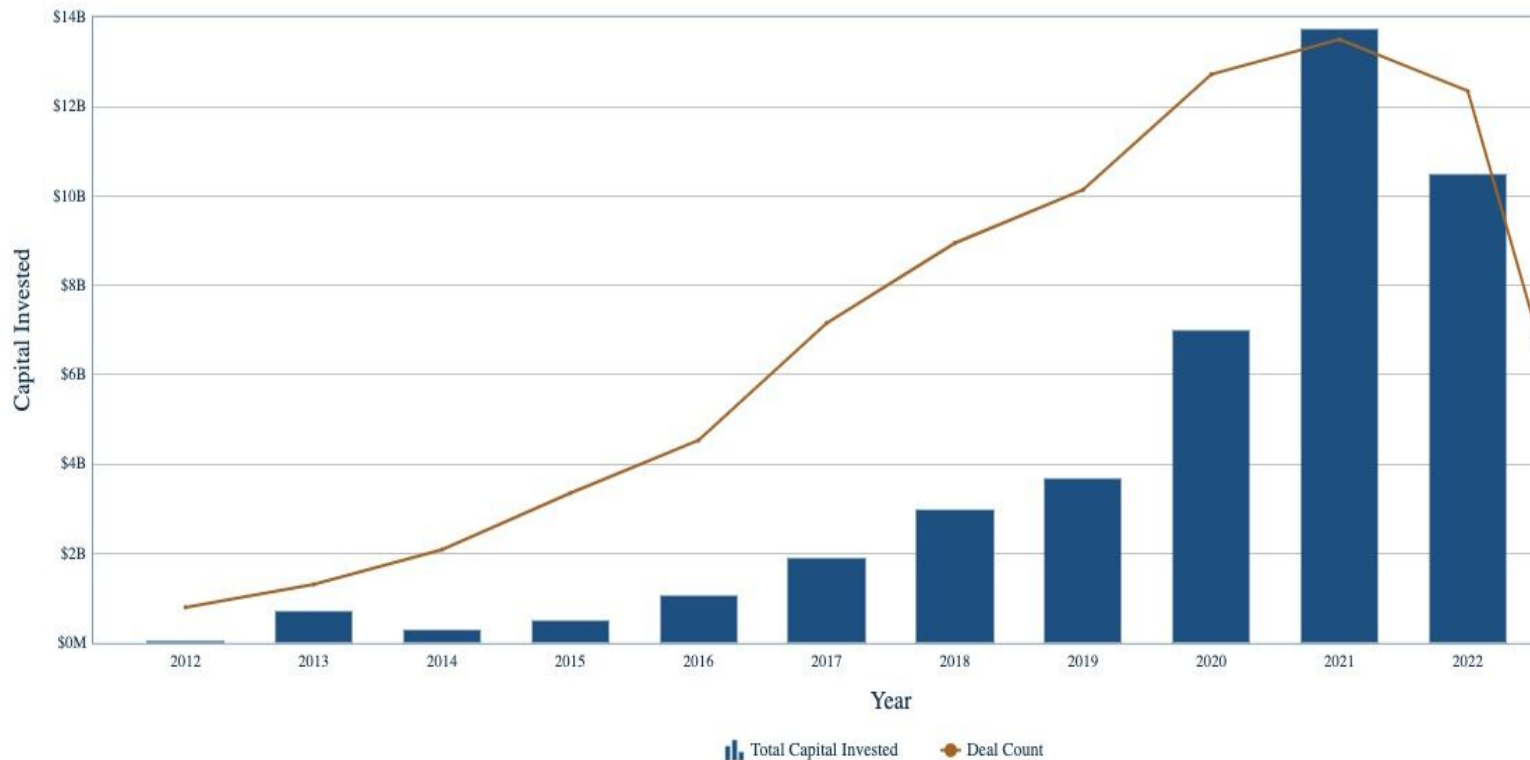
\*\*\* These codes, when applied to SenoClaire or SenographePristina, assume directly-acquired planar FFDM images

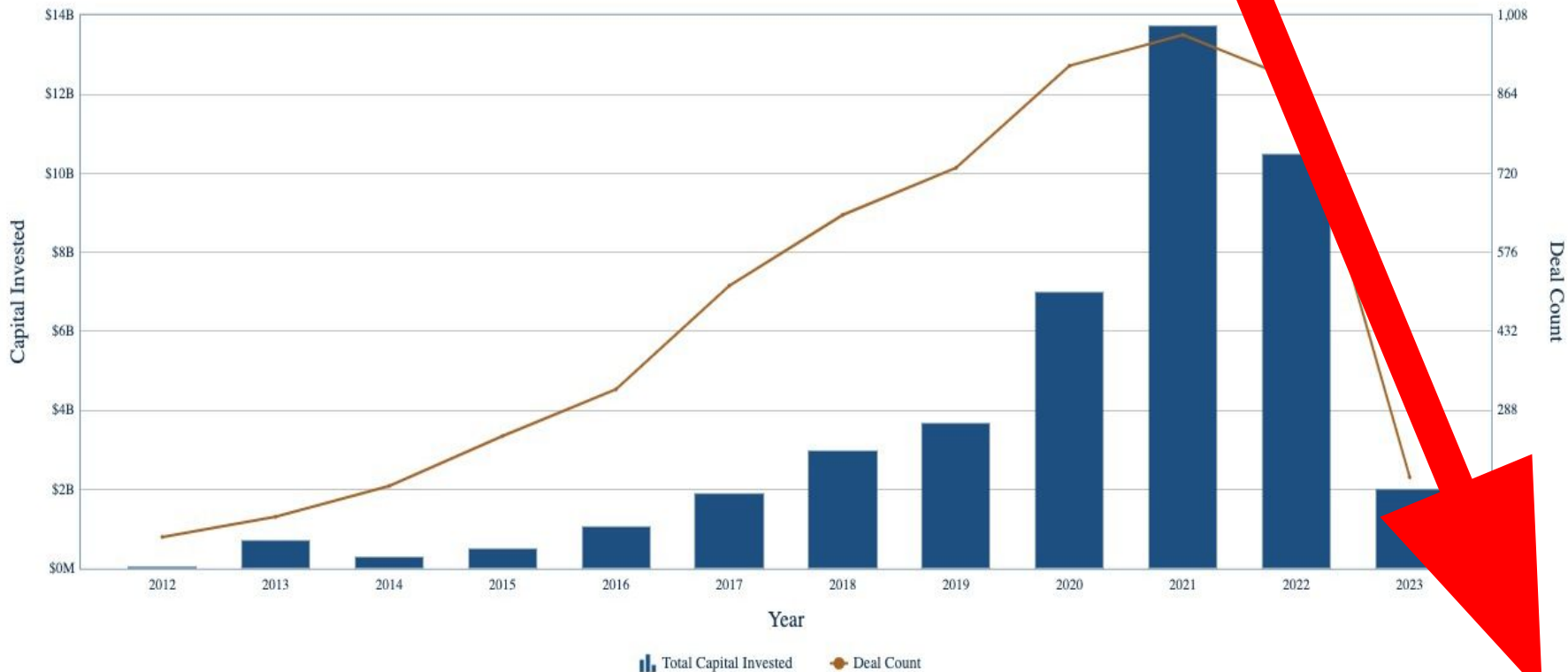
\*\*\*\* Payment if images acquired with X Ray film: 20% reduction of TC

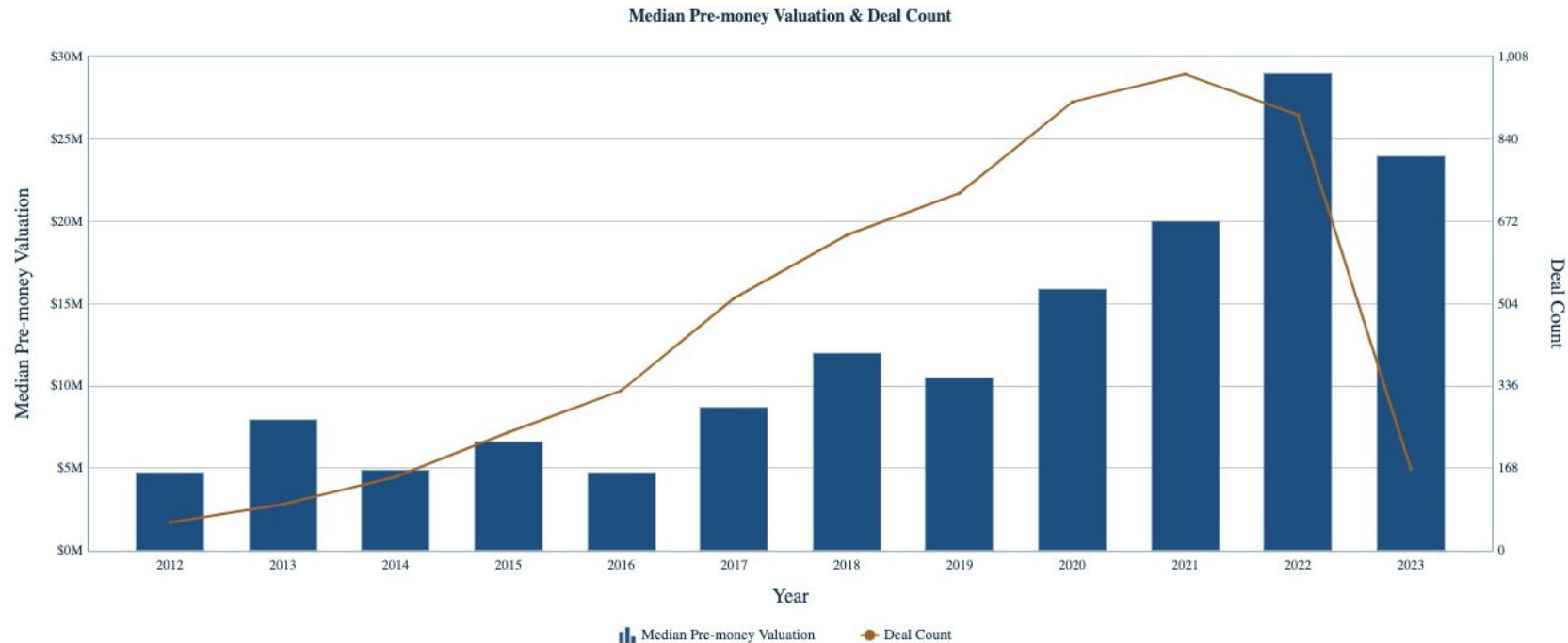


Headwinds

# Financial Markets

**Capital Invested & Deal Count**


**Capital Invested & Deal Count**






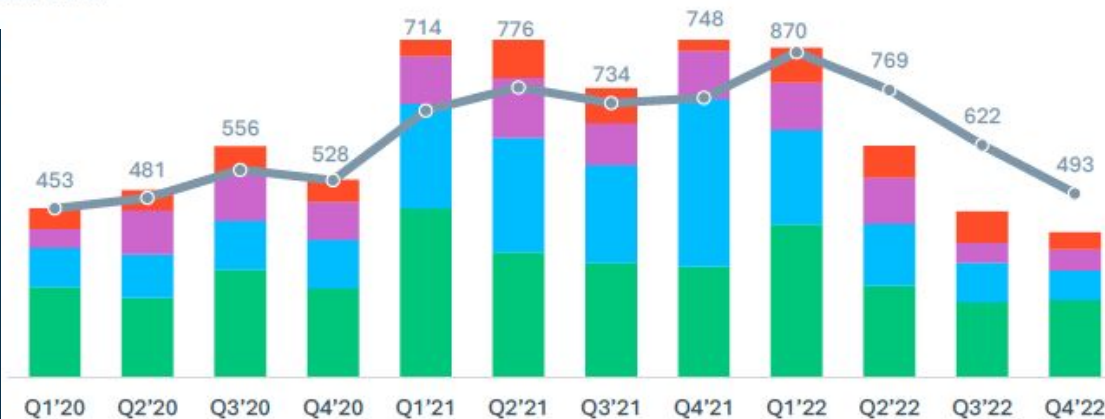
# Healthcare Investments and Exits

Annual Report 2022

Biopharma | Healthtech | Dx/Tools | Device

Published on January 6, 2023

Number of Deals



Sectors (\$B)	2020			2021			2022 <sup>1</sup>		
	US	EU & UK	Total	US	EU & UK	Total	US	EU & UK	Total
Biopharma	22,594	4,795	27,389	31,730	6,919	38,649	24,604	4,870	29,474
Healthtech <sup>2</sup>	11,760	1,613	13,373	33,031	2,869	35,900	12,905	3,837	16,742
Dx/Tools	9,116	1,784	10,900	11,964	2,703	14,667	8,256	1,609	9,865
Device	5,769	821	6,590	6,774	2,429	9,203	6,882	1,617	8,499
Total	49,239	9,013	58,252	83,499	14,920	98,419	52,647	11,933	64,580

Note: 1) Investment data includes deals as of 12/16/2022. 2) Healthtech deals that overlap with other sectors are not included in healthtech totals on this slide but are included in healthtech-specific analyses on pages 13 -17. With overlap, healthtech investments for 2022 total \$228. Financing data include private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments.  
Source: PitchBook and SVB proprietary data.



Investing in Surgical AI

Conclusions



- Worry more about your post money than your pre-money
  - Revenue EBITDA multiples are REAL and you
  - Future investors need to make a multiple on investment too
  - Existing investors don't like admitting failure
- It is great to disrupt a space, but make sure you understand what you're disrupting
  - Healthcare is complex. Healthcare payment models are even more complicated.
  - Regulators have real power
- Build syndicates with staying power
- Tough financial times can be great times to build companies
  - When the going gets tough... new funds disappear
  - There is safety in numbers, and dollars

The background image is a composite of a night landscape and a digital overlay. The landscape features a dark, rugged mountain range in the foreground and middle ground, with a city's lights visible in the distance under a starry night sky. A thin, horizontal band of light, possibly a sunset or sunrise glow, is visible above the city. Overlaid on this entire scene is a complex network of thin, light-colored lines that connect various points, creating a web-like or geometric pattern across the image.

**Thank You!**

**Dennis McWilliams**  
**Partner, Santé Ventures**