

Department of Defense Emerging Technology Strategy: A Venture Capital Perspective

James Cross, CFA

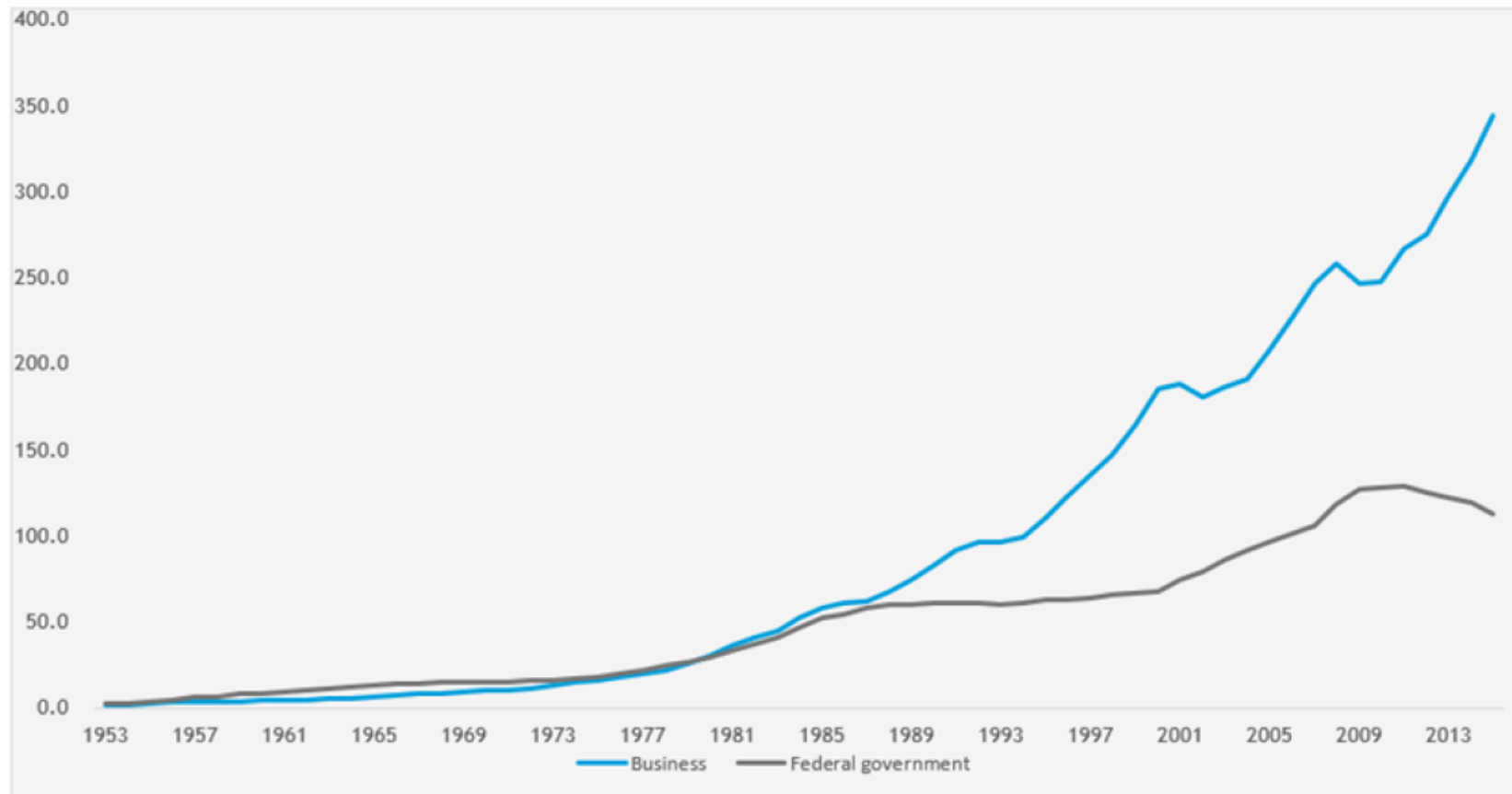
Senior Research Fellow

UC Institute on Global Conflict and Cooperation

April 2019

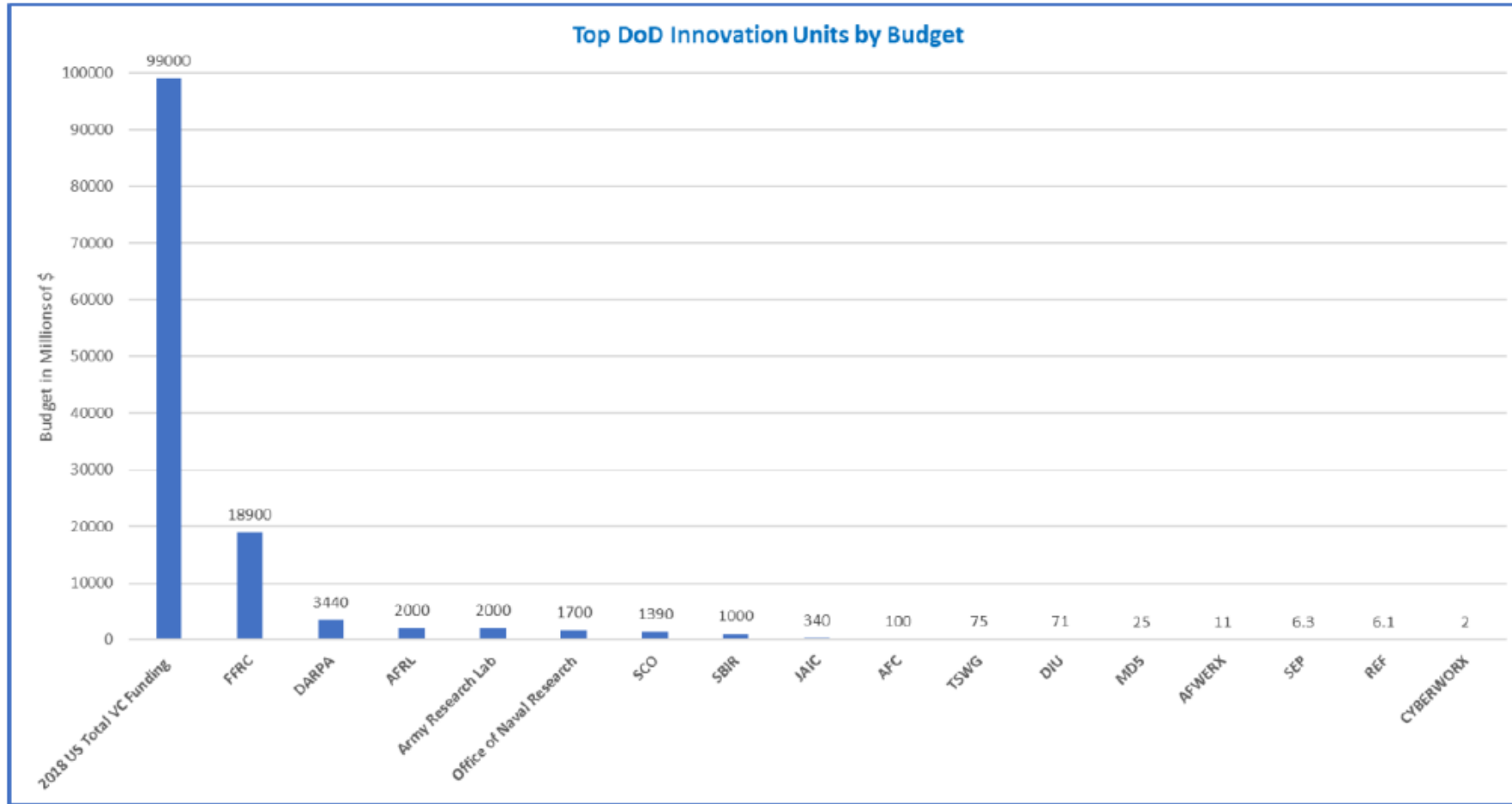
DoD No Longer Drives the Nation's Innovation Ecosystem

R&D Spending

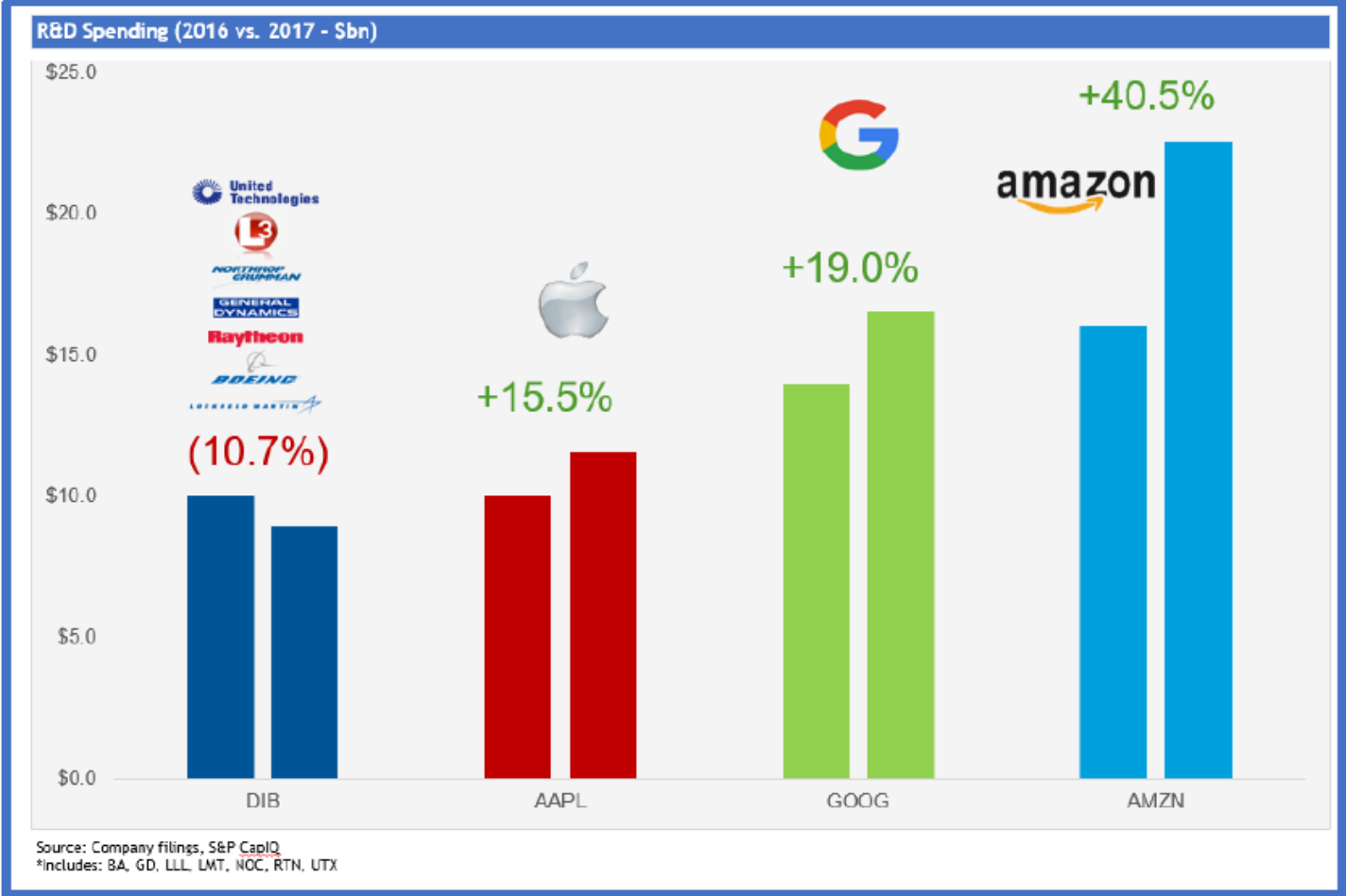


Source: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey.

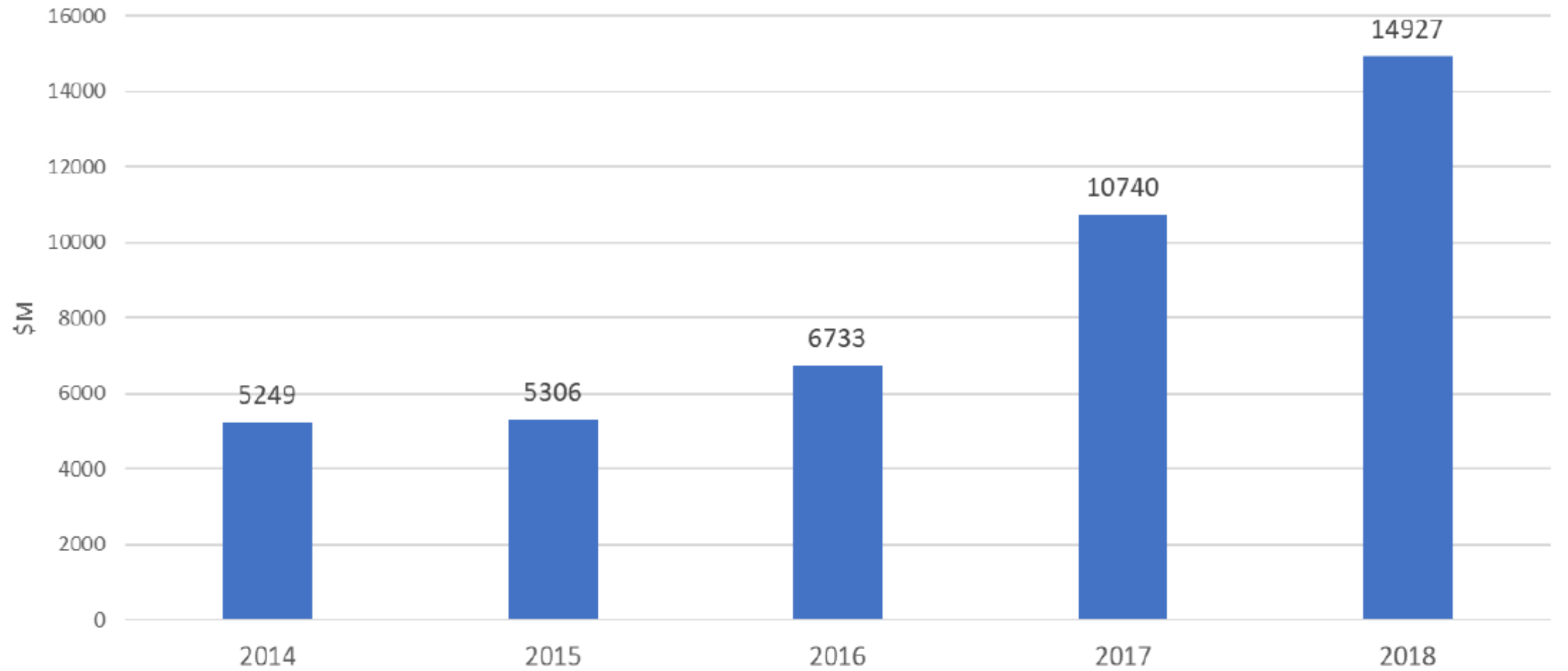
US VC Spending Dwarfs DOD R&D



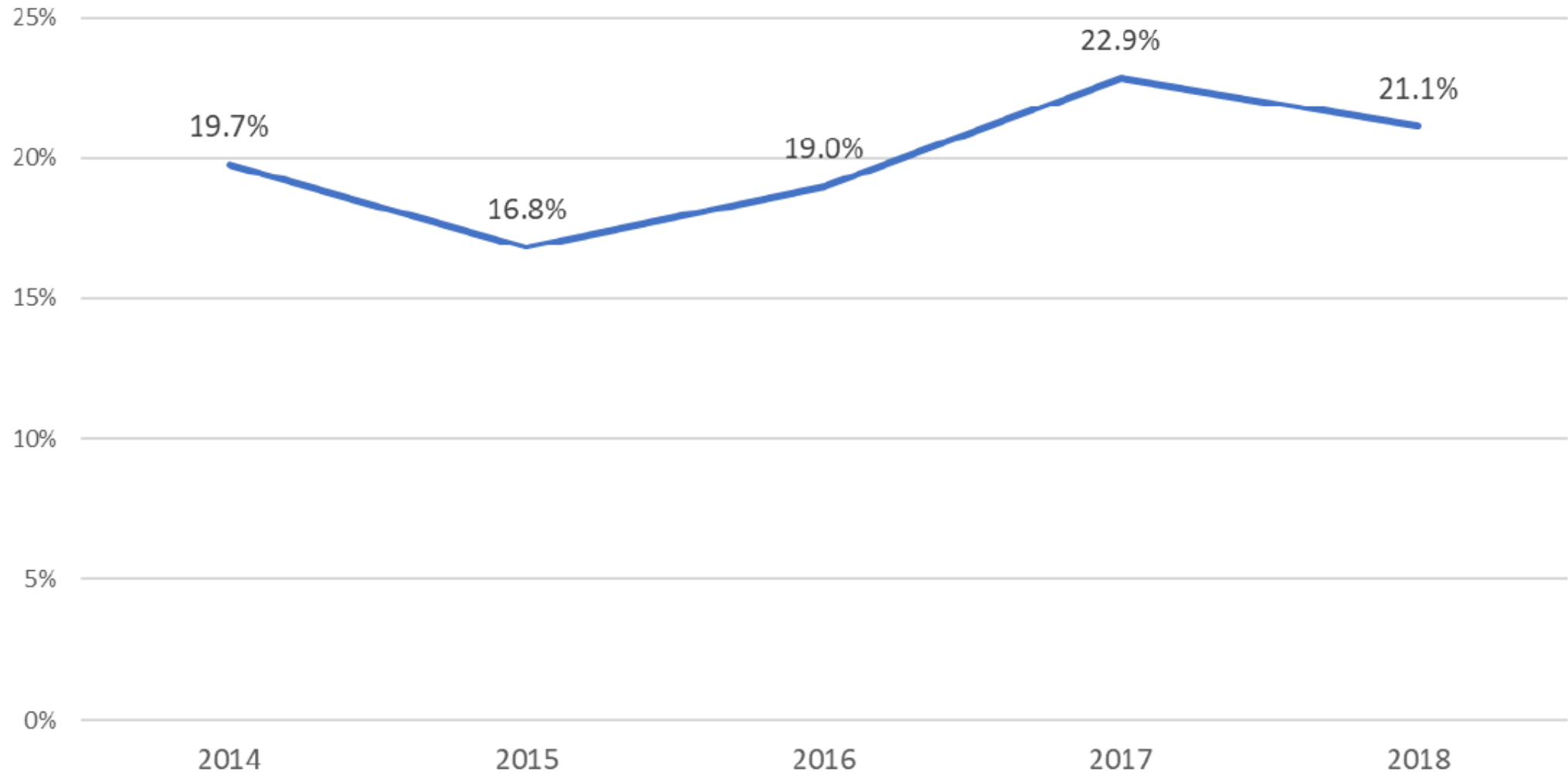
New Tech Titans Outspend Primes on R&D



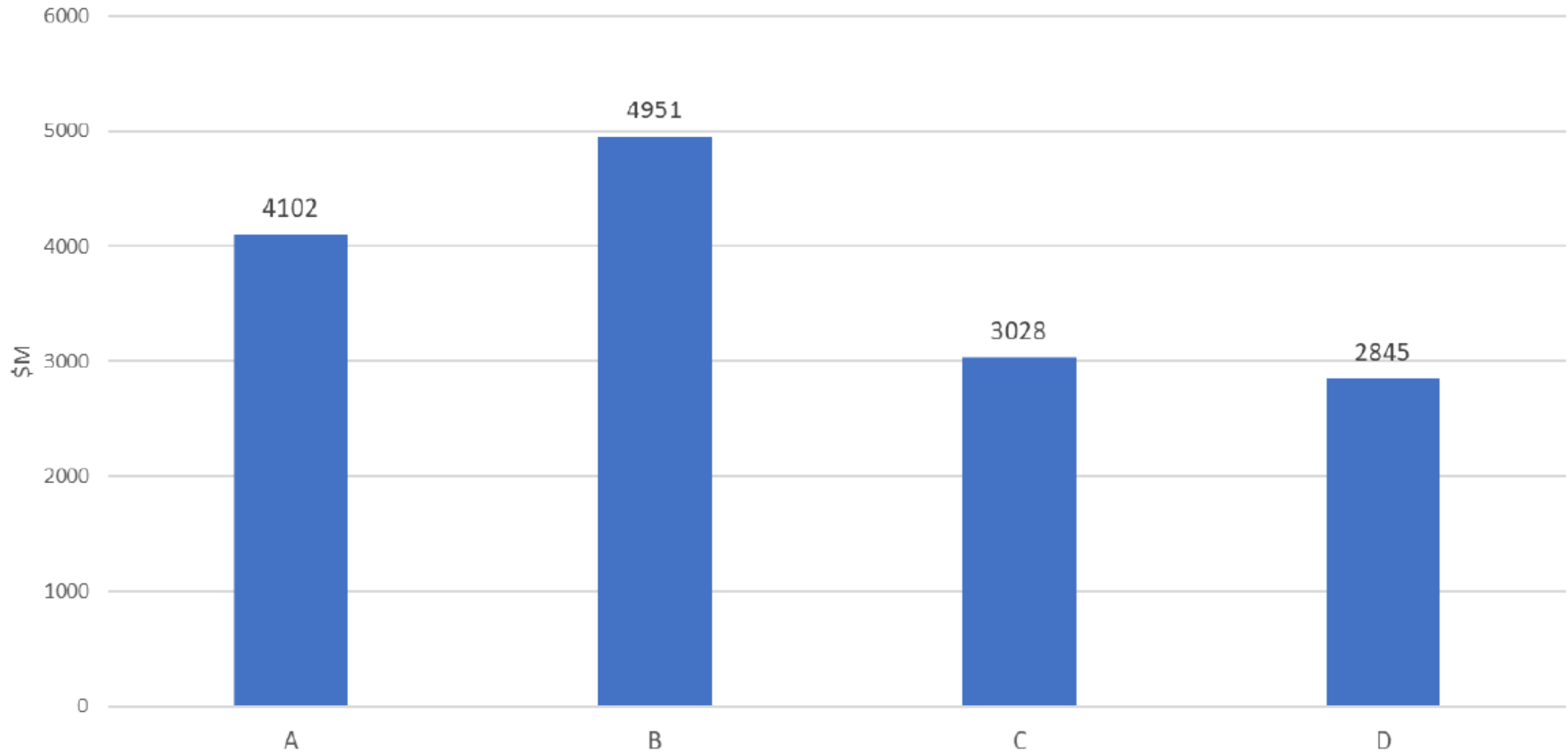
ABCD Round Funding in DOD Tech Priorities (\$M)



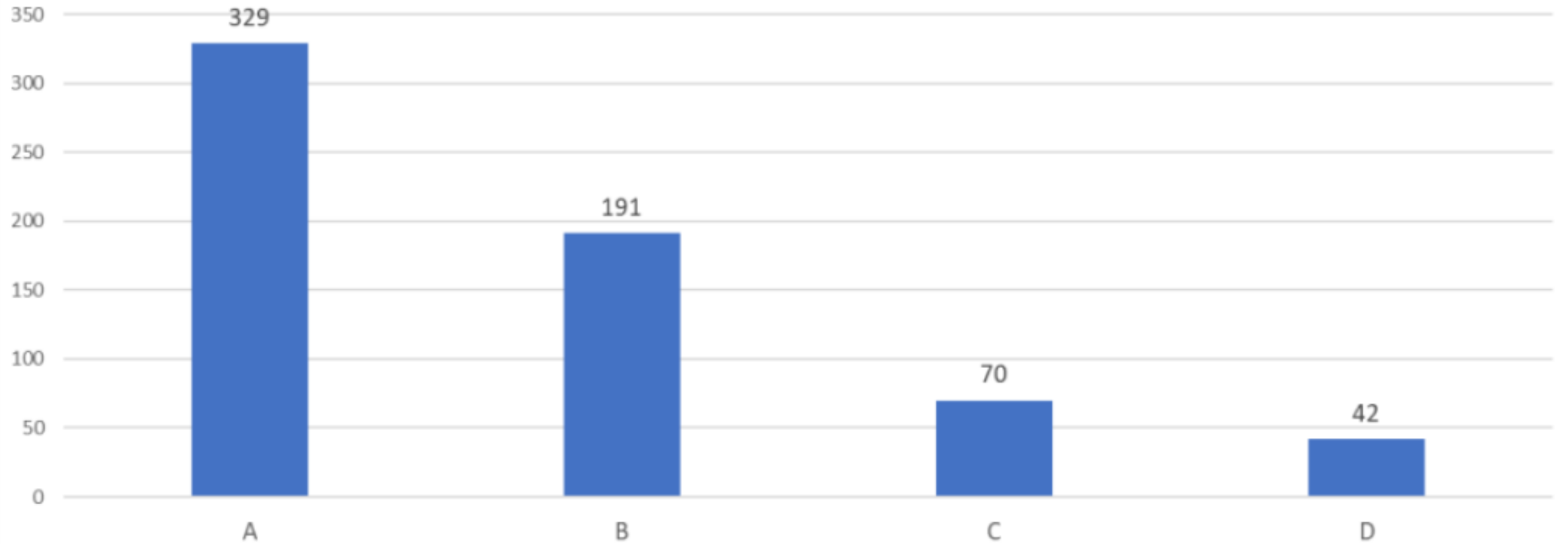
% Share DOD to Total US VC



2018 DOD Tech Priority VC Investment by Series (\$M)



2018 DOD Deal Count



2018 Dual Use Venture Activity by Region								
					Funding Round			
Region	Dollars (MM)	% of Total \$	Deal Count	% of Total #	A	B	C	D
NCR	374	2.6%	24	3.9%	13	9	1	1
Midwest	392	2.7%	24	3.9%	15	5	2	2
New England	1316	9.0%	76	12.4%	42	23	7	4
New York	1825	12.5%	62	10.1%	28	24	7	3
Northwest	53	0.4%	7	1.1%	4	3	0	0
Rocky Mountains	175	1.2%	13	2.1%	6	4	3	0
Silicon Valley	8414	57.5%	290	47.4%	152	76	41	21
Southeast	308	2.1%	18	2.9%	8	8	0	2
Southern California	1102	7.5%	58	9.5%	26	24	6	2
Southwest	287	2.0%	14	2.3%	10	3	1	0
Texas	389	2.7%	26	4.2%	13	8	1	4
Totals	14635		612		317	187	69	39

2018 DOD Innovation Unit Budget by Geography vs VC Funding Flow					
	VC Dollars		DOD Dollars		
Region	Dollars (MM)	% of Total \$	Dollars (MM)	% of Total #	Innovation Units (HQ)
NCR	374	2.6%	1755	91.0%	SCO, MD5, JAIC, NavalX
Midwest	392	2.7%	0	0.0%	
New England	1316	9.0%	0	0.0%	
New York	1825	12.5%	0	0.0%	
Northwest	53	0.4%	0	0.0%	
Rocky Mountains	175	1.2%	2	0.1%	CYBERWERX
Silicon Valley	8414	57.5%	71	3.7%	DIU
Southeast	308	2.1%	0	0.0%	SOFWERX (no public budget data avail)
Southern California	1102	7.5%	0	0.0%	
Southwest	287	2.0%	0	0.0%	AFWERX
Texas	389	2.7%	100	5.2%	AFC
Totals	14635		1928		

Venture Backed Emerging Tech Ecosystem

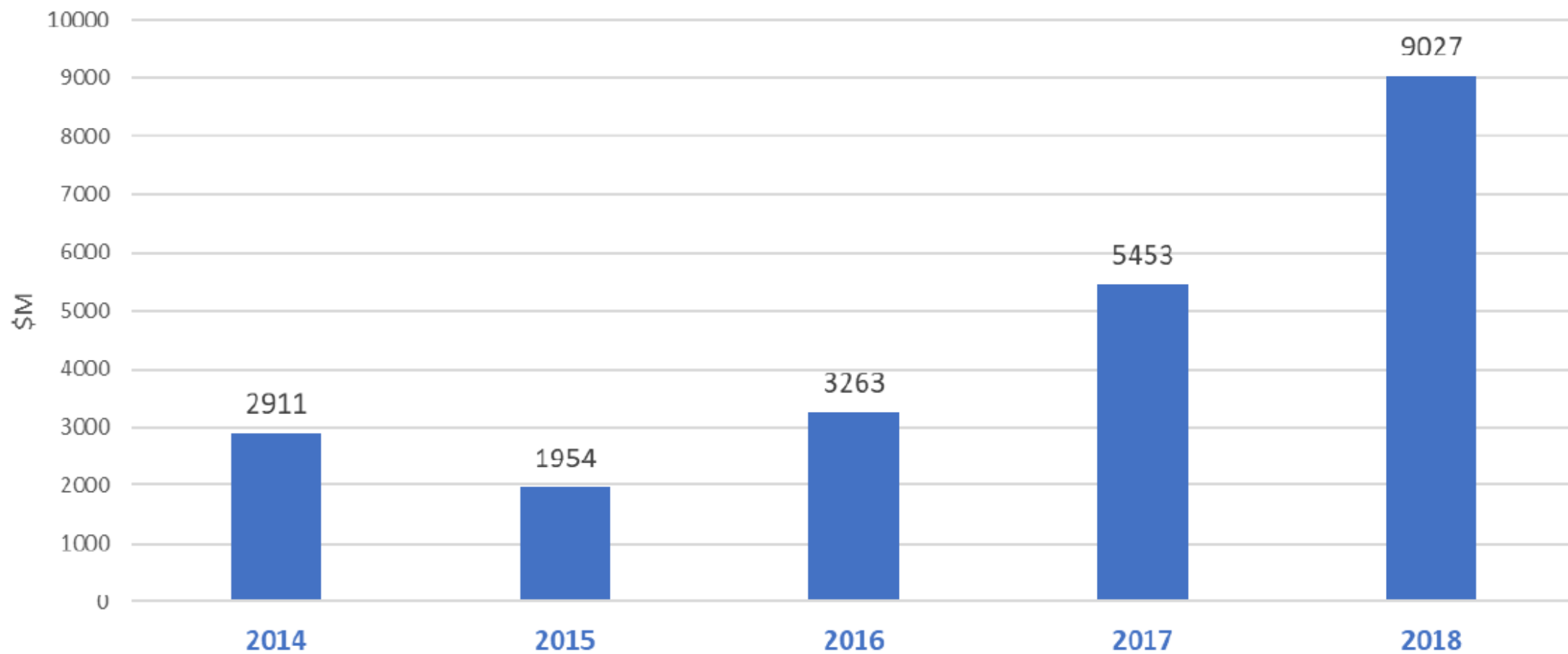
Start Up Stage	Year	VC Funding Round	Average Round Size	VC Funding Sources	Key Funding Milestone	Customer Role	DOD Role	DOD Innovation Units
Early	0 ↓	Angel	25K	Local	Identify MVP/Build Team	Intros - MVP Feedback, Alpha Product Contracts	Attract & Inspire Dual Use Founders	AFC, AFWERX, MD5, NSA2, H4D
		Seed	1.8M					
Mid	↓	A	7M	Regional	Launch Product/Biz Model	Engagement - Proof of Concept, Beta Product Contracts	Help Attract Capital, Guide thru DOD "Market"	??? DOD needs to fill this gap.
		B	15M					
Late	↓ 7	C	26M	Sand Hill Road/Wall Street	Scale Business towards Exit	Revenue - Long Term Full Production Contracts	Rapidly Deploy Emerging Tech to Warfighter/ Services	DIU
		D	44M					
		Exit	243M					

2018 Most Active Late Stage Investors

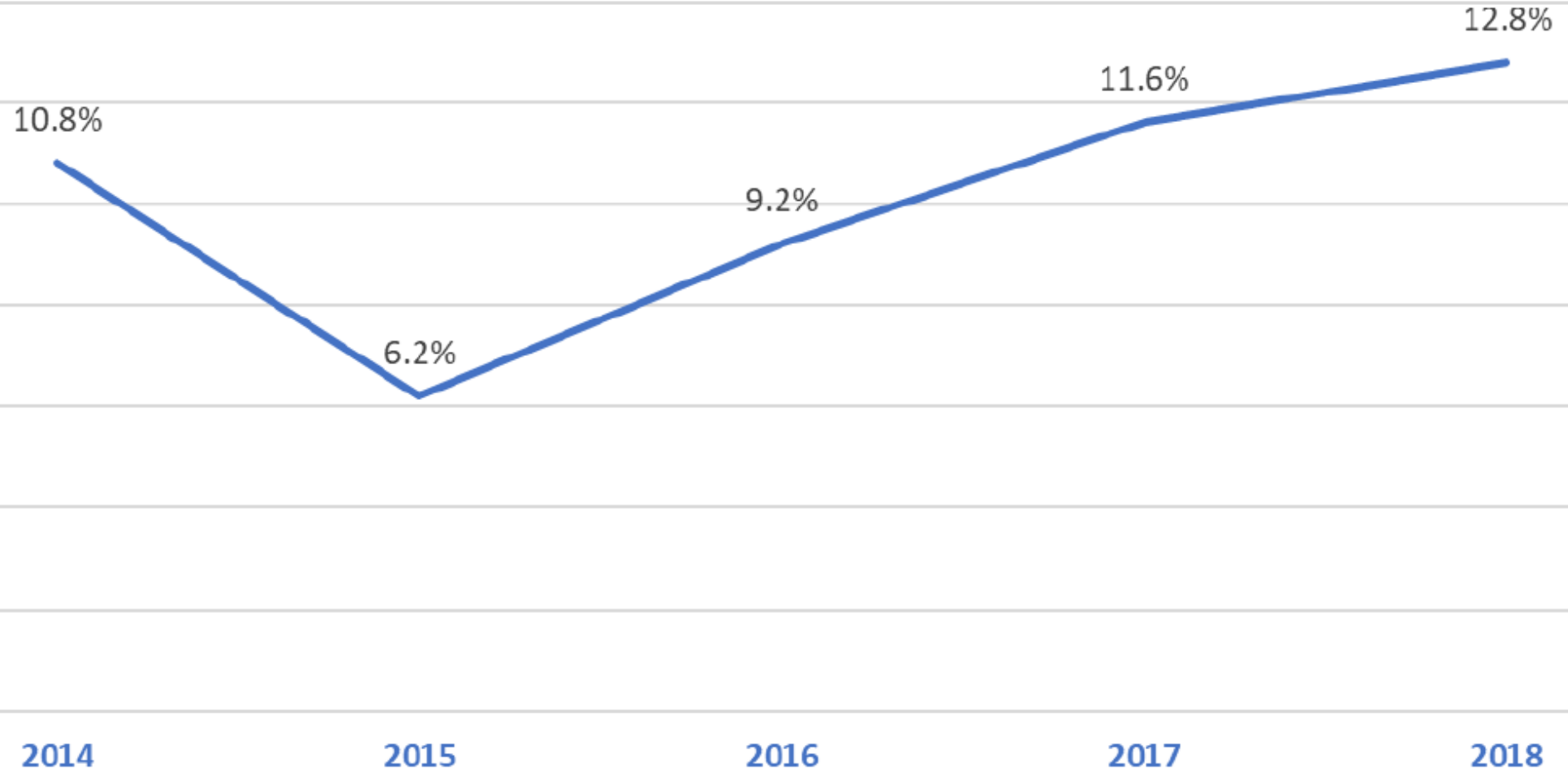
VC Firm	Deals	Location
New Enterprise Associates	53	SV
Kleiner Perkins	39	SV
Accel	37	SV
GV	36	SV
Bessemer Venture Partners	35	SV
Alumni Ventures Group	31	Manchester, NH
Khosla Ventures	28	SV
Andreessen Horowitz	28	SV
Lightspeed Venture Partners	27	SV
Sequoia Capital	26	SV
Keiretsu Forum	26	SV
Salesforce Ventures	25	SV
Battery Ventures	24	SV
IVP	23	SV
T. Rowe Price	22	Baltimore, MD
Insight Venture Partners	21	NYC
Revolution	21	DC
Spark Capital	20	SV
General Catalyst	20	SV
Bain Capital Ventures	19	SV
ICONIQ Capital	18	SV
Redpoint Ventures	18	SV
Norwest Venture Partners	18	SV
Y Combinator	17	SV
Tiger Glocal Management	16	NYC

APPENDIX

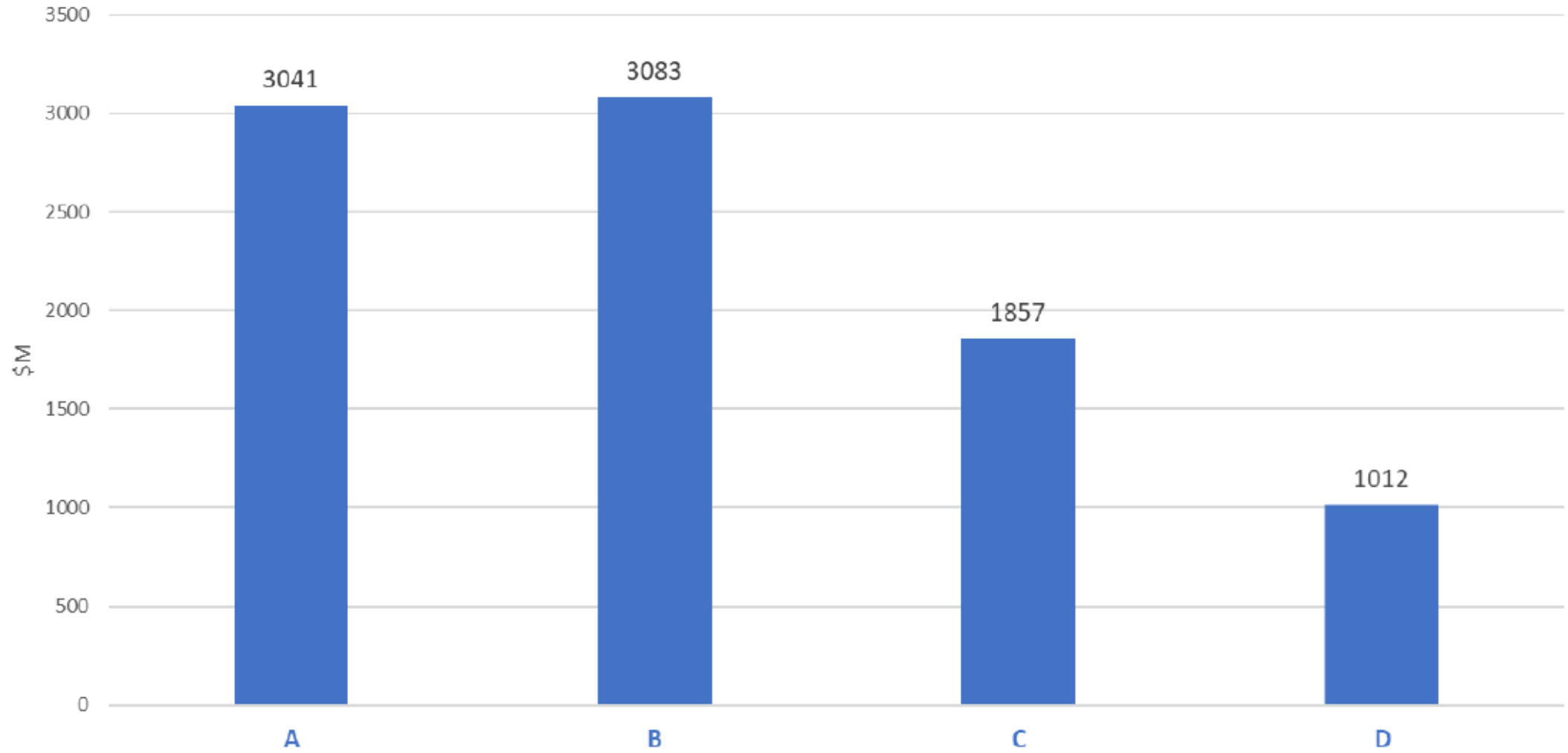
AI/ML ABCD Round Funding (\$M)



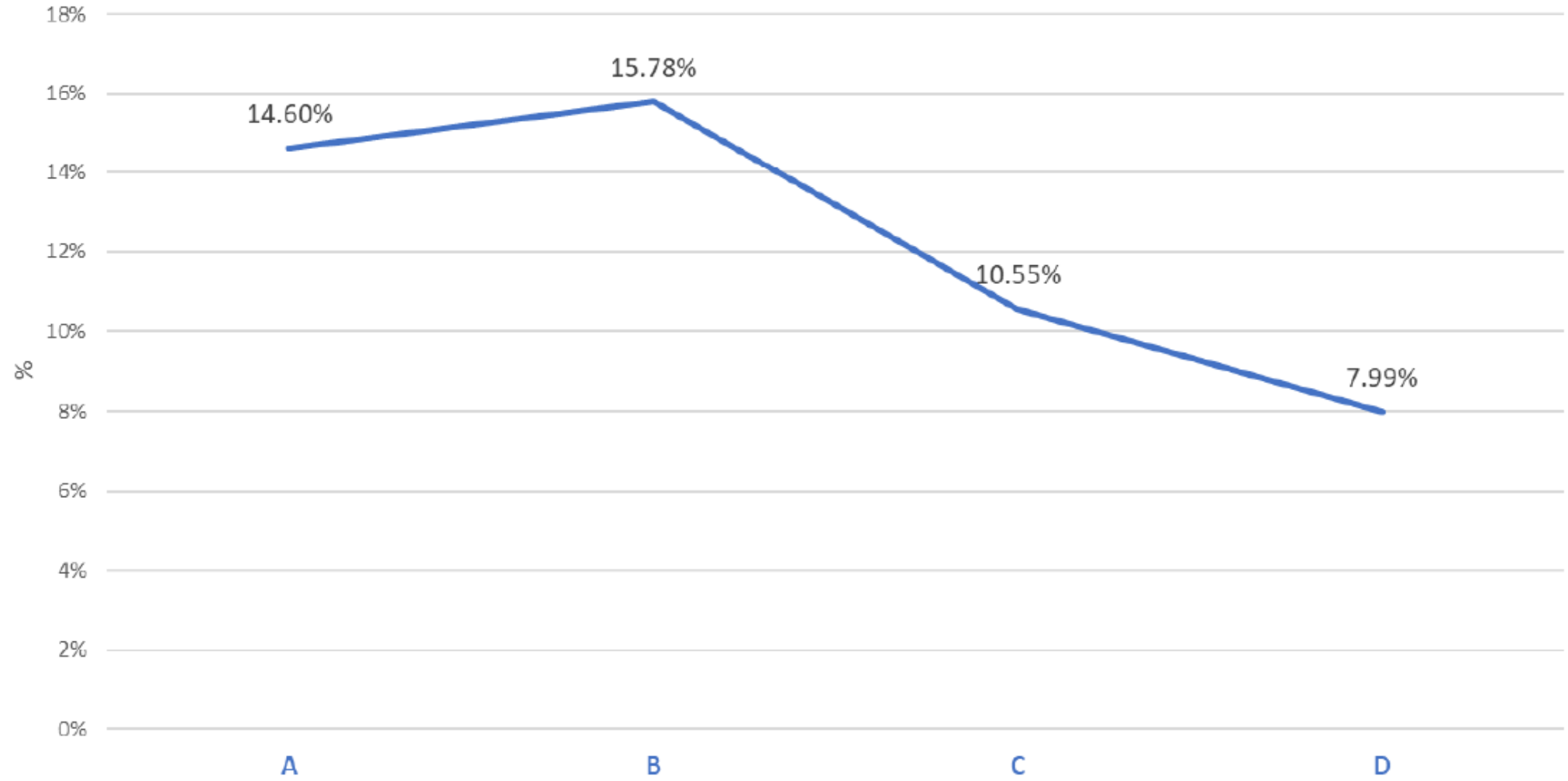
% Share AI/ML to Total US VC



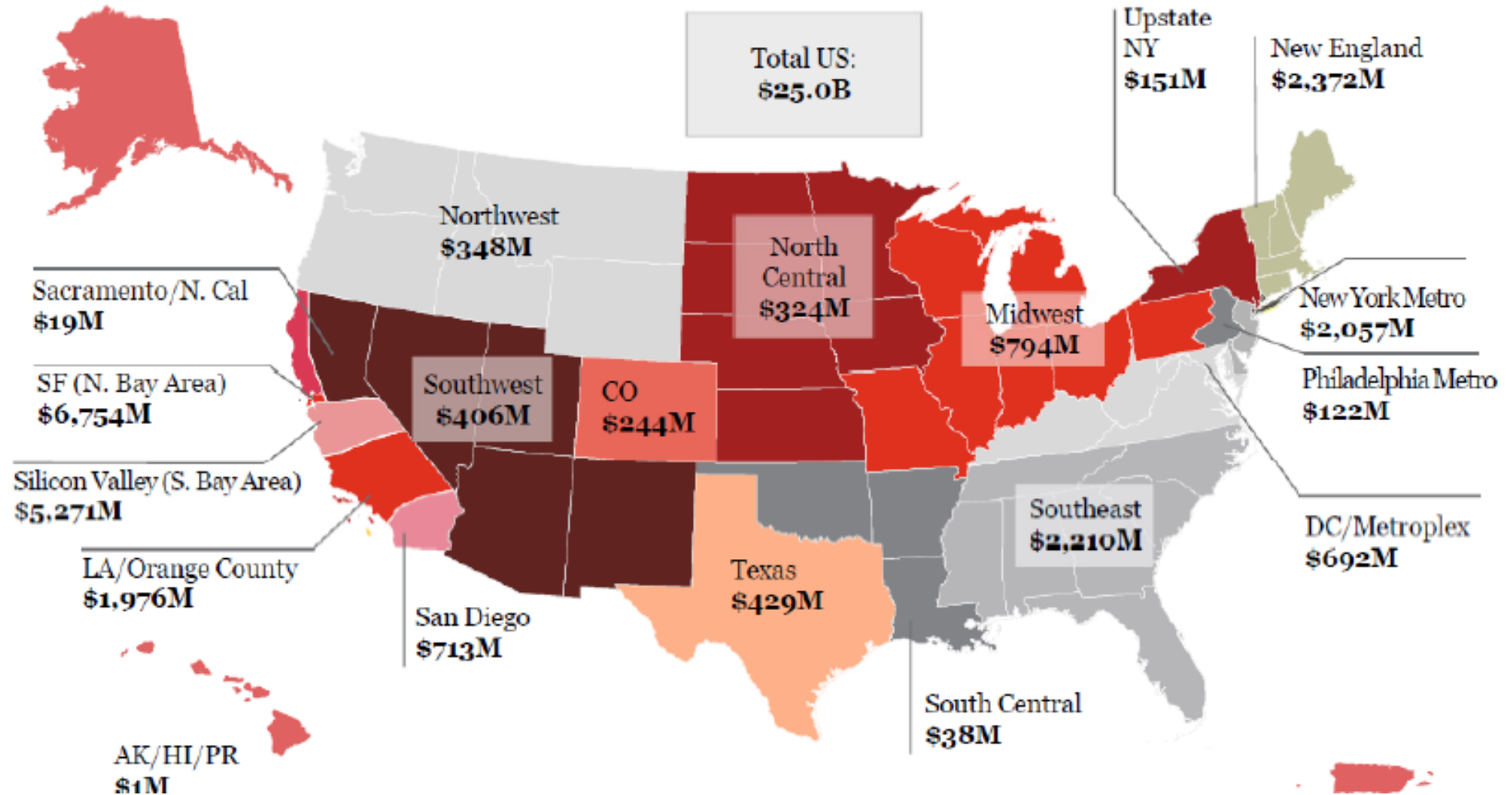
2018 AI/ML VC Investment by Round (\$M)



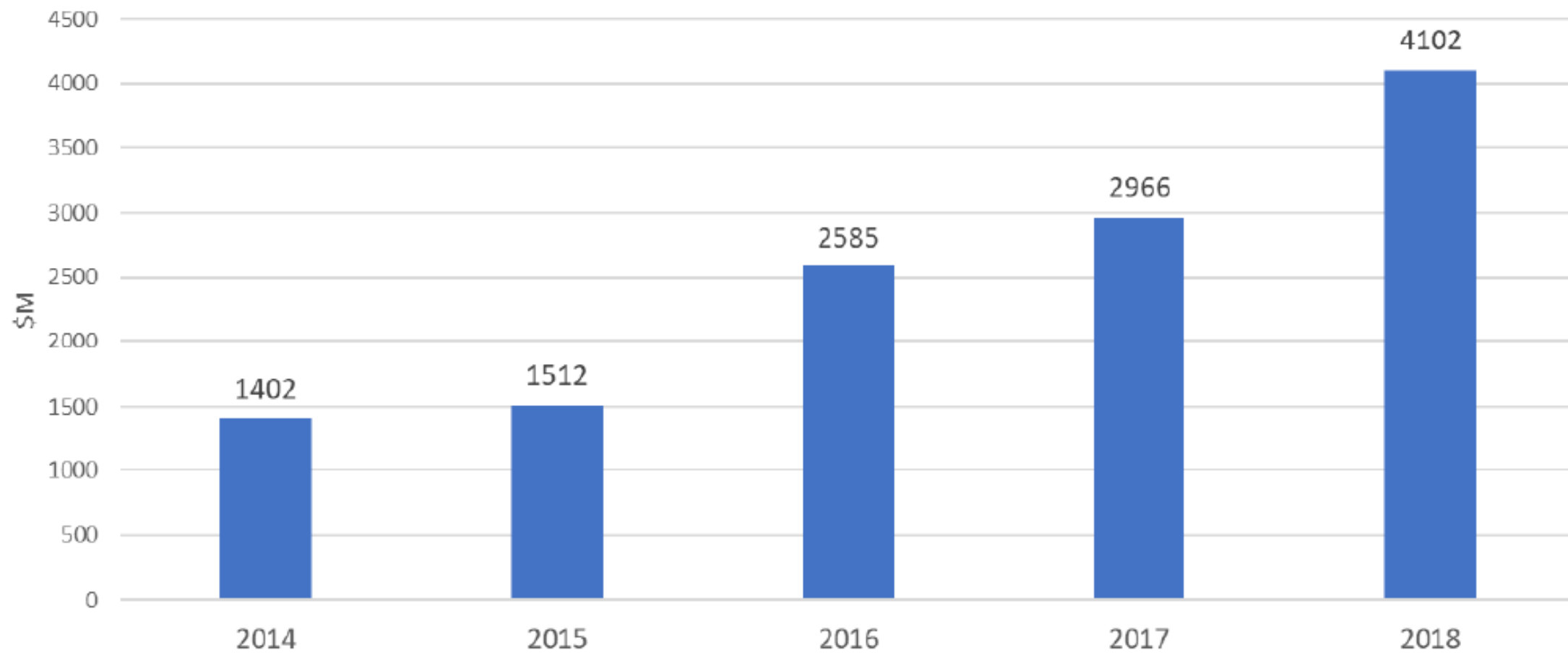
2018 % Share AI/ML vs Total US VC



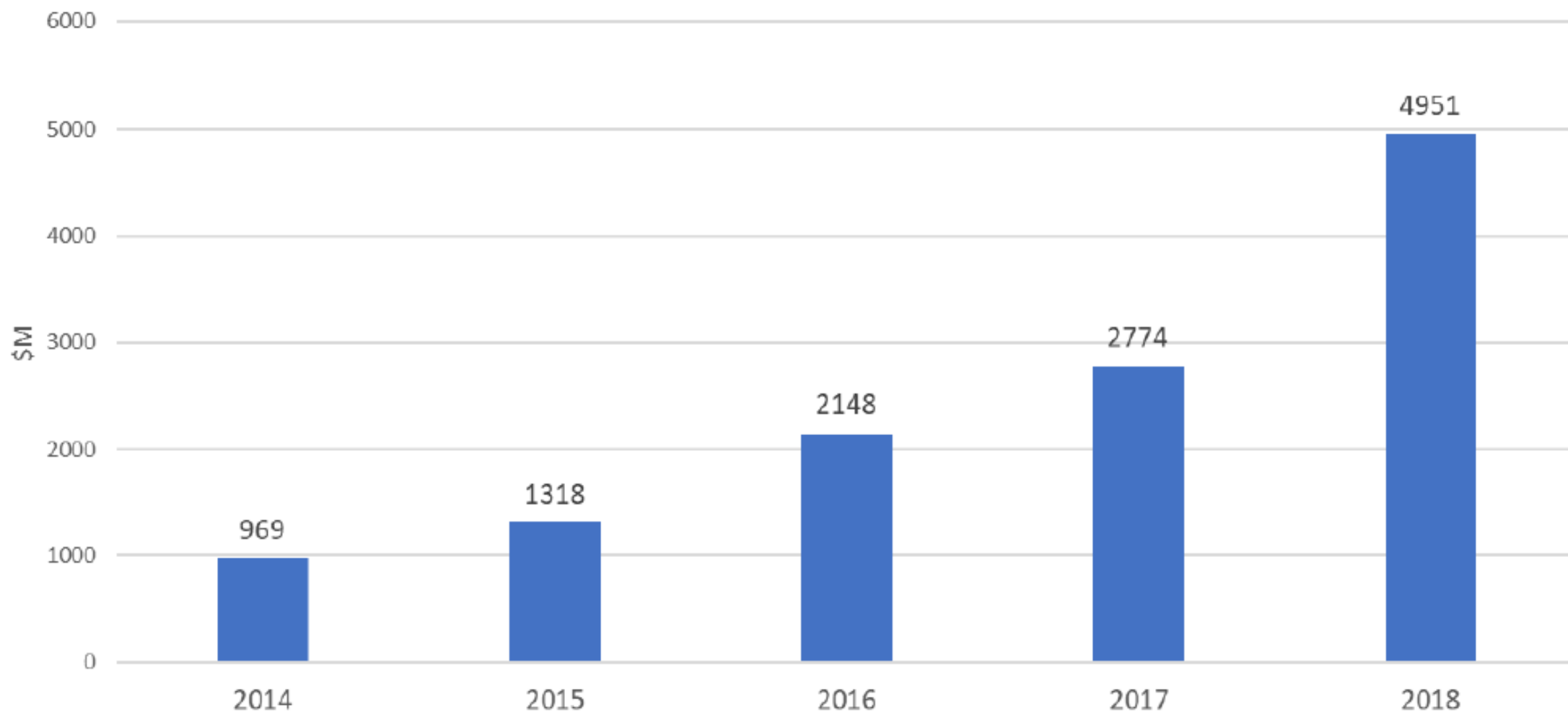
US: Q4'18 funding by region



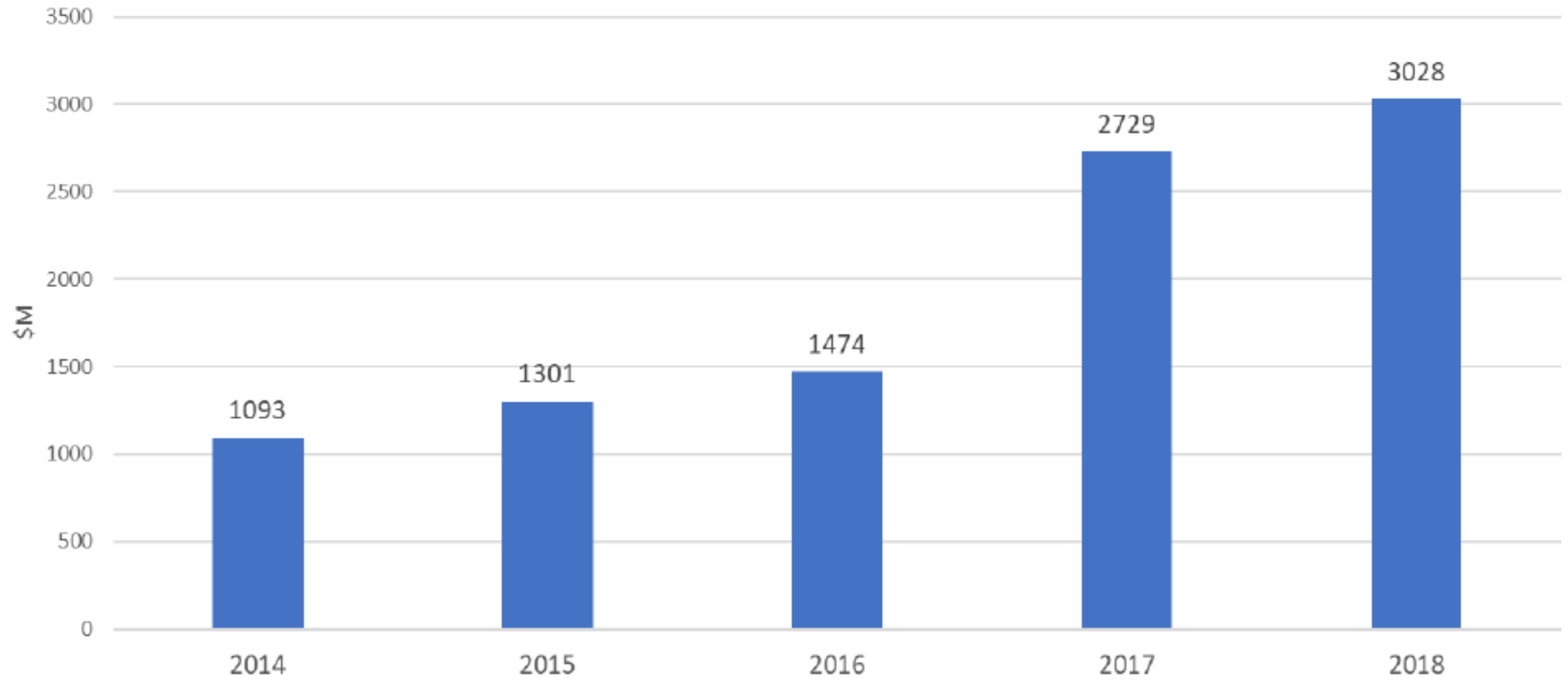
A Round Funding in DOD Tech Priorities (\$M)



B Round Funding in DOD Tech Priorities (\$M)



C Round Funding in DOD Tech Priorities (\$M)



D Round Funding in DOD Tech Priorities (\$M)

