Cardiff Business School
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Technology Hype in Financial Markets

EFM "Merton H. Miller" Special Session

EFMA 2025 Annual Meeting, Athens

Arman Eshraghi

Cardiff University, UK

Hype matters in financial markets

Various types of hype exist in finance

- Media hype
- Celebrity/guru hype
- Brand hype
- Institutional investor hype
- Stock-level hype (e.g., meme stocks)
- …

Media/celebrity hype (TV channel)

MANAGEMENT SCIENCE
Vol. 58, No. 2, February 2012, pp. 351–364
ISSN 0025-1909 (print) | ISSN 1526-5501 (online)

http://dx.doi.org/10.1287/mnsc.1100.1290

Market Madness? The Case of *Mad Money*

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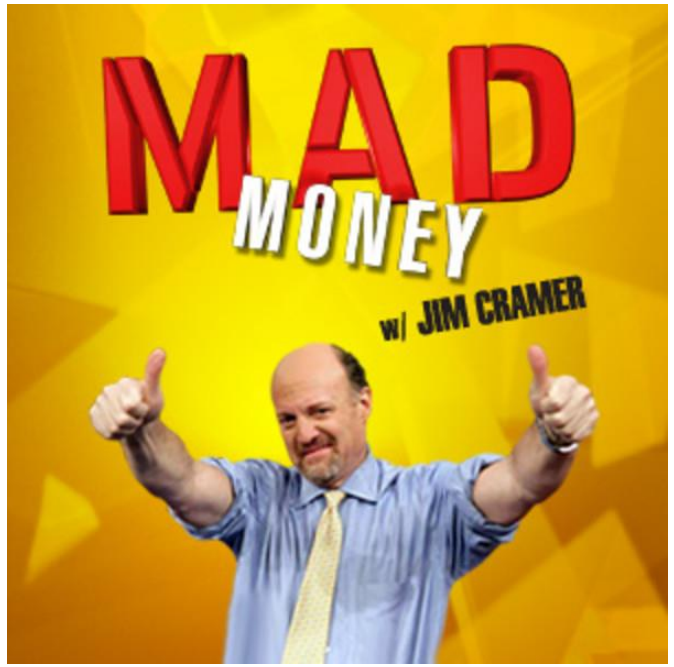
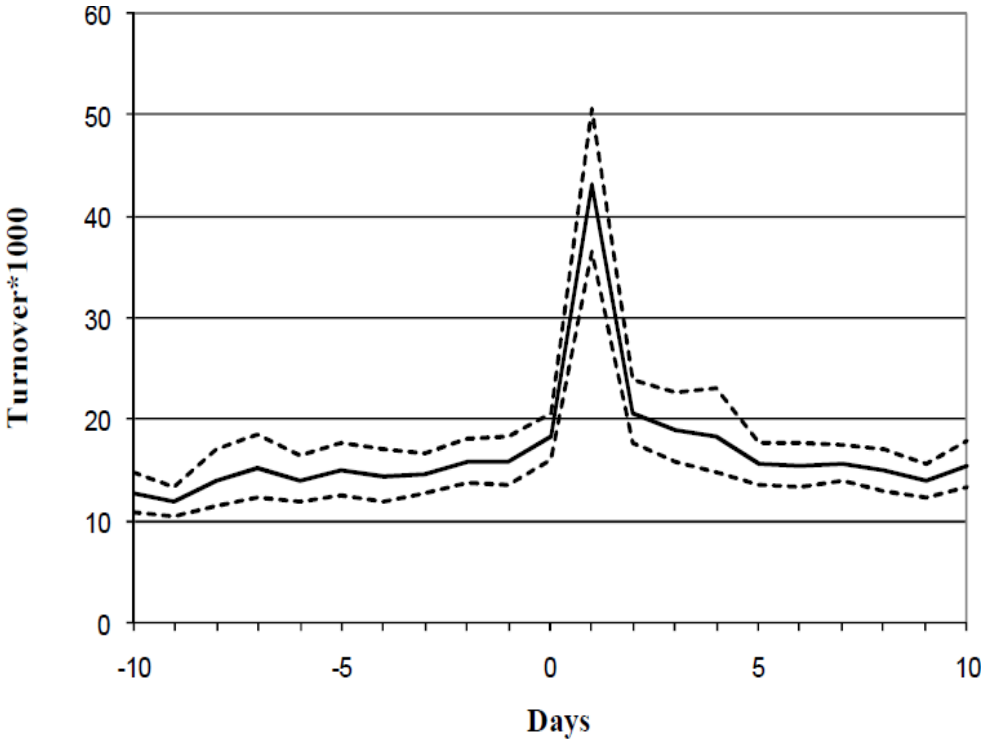
We use the popular television show *Mad Money*, hosted by Jim Cramer, to test theories of attention and limits to arbitrage. Stock recommendations on *Mad Money* constitute attention shocks to a large audience of individual traders. We find that stock recommendations lead to large overnight returns that subsequently reverse over the next few months. The spike-reversal pattern is strongest among small, illiquid stocks that are hard to arbitrage. Using daily Nielsen ratings as a direct measure of attention, we find that the overnight return is strongest when high-income viewership is high. We also find weak price effects among sell recommendations. Taken together, the evidence supports the retail attention hypothesis of Barber and Odean (Barber, B., T. Odean. 2008. All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Rev. Financial Stud.* **21**(2) 785–818) and illustrates the potential role of media in generating mispricing.



Media/celebrity hype (TV channel)

- **3%** abnormal return overnight
- **Immediate** market response even though the show airs after the NYSE trading hours
- These price spikes followed by partial **reversals**
- Short-selling significantly higher than normal on the day following the recommendations



Media/celebrity hype (YouTube / social media)

Contents lists available at ScienceDirect

Pacific-Basin Finance Journal

journal homepage: www.elsevier.com/locate/pacfin

Investor PSY-chology surrounding "Gangnam Style"☆

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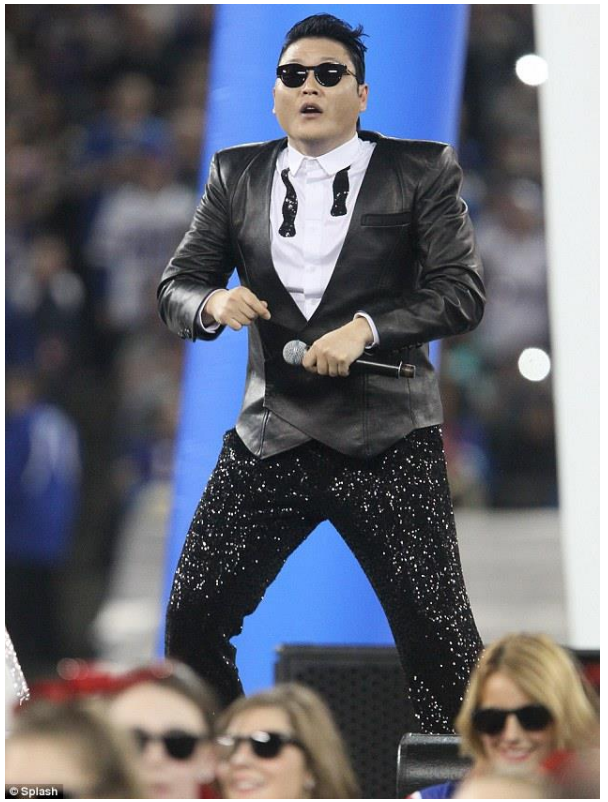
ARTICLE INFO

Article history:
Received 17 May 2015
Received in revised form 20 February 2016
Accepted 28 February 2016
Available online 3 March 2016

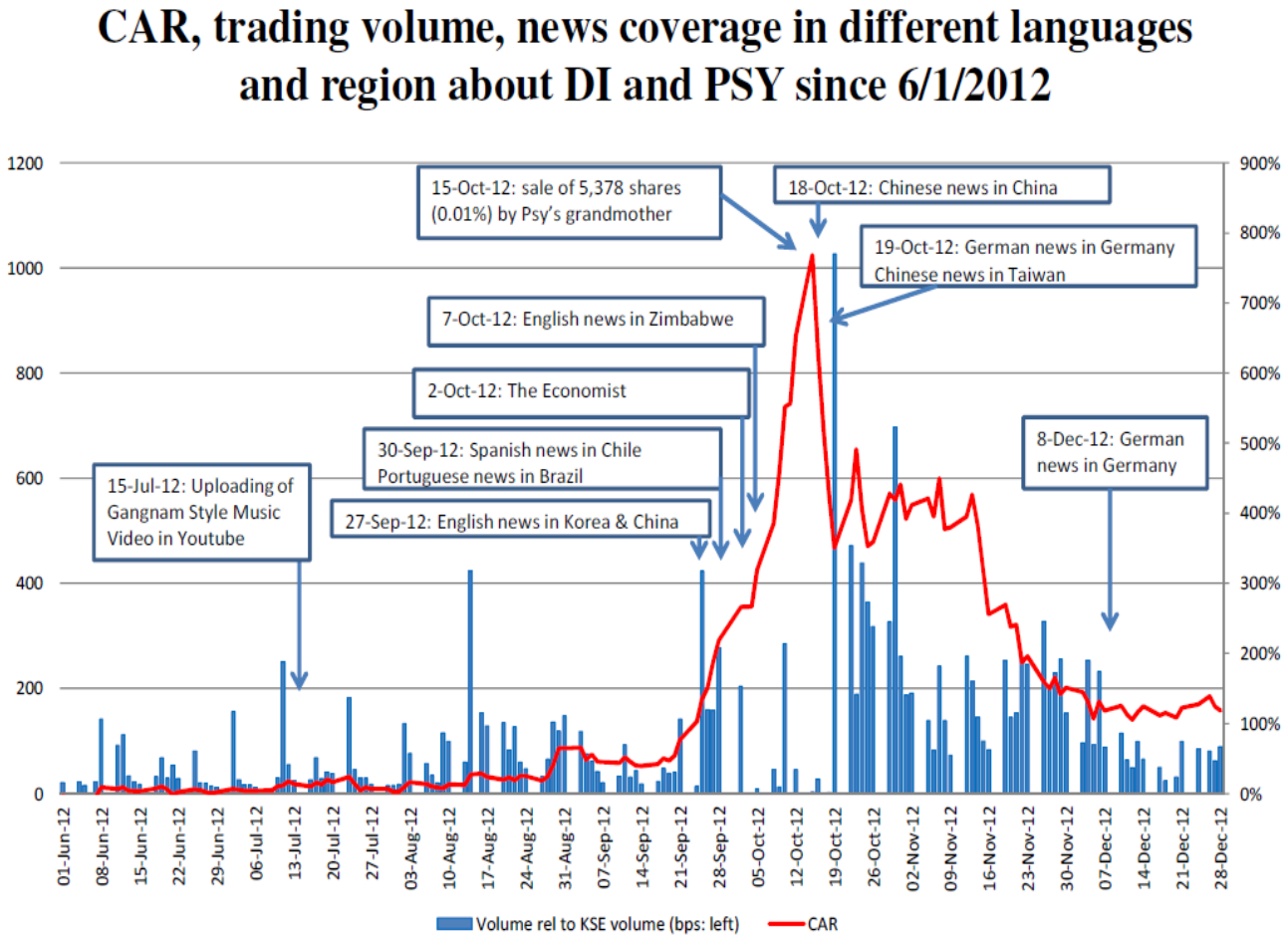
Keywords:
Gangnam Style
Flash mob
Bubble

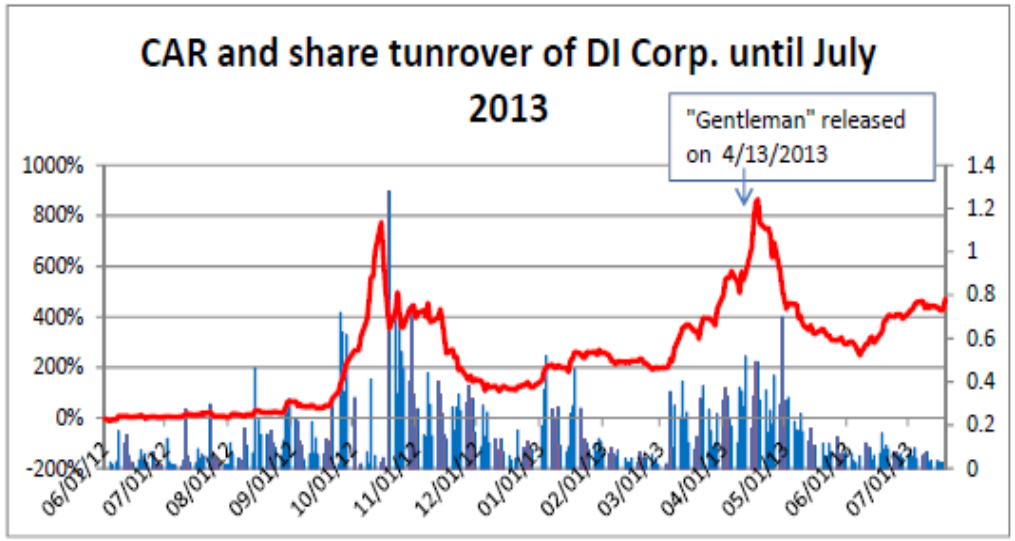
ABSTRACT

The global success of the song, "Gangnam Style", by the Korean rapper PSY in 2012, was an exogenous shock to investor enthusiasm for DI Corp., a Korean semiconductor manufacturer. Although DI Corp.'s business is not related to the entertainment industry, its co-CEO is the father of PSY. Using the count of flash mob and parody videos of "Gangnam Style" on YouTube from different countries and domestic regions as a proxy for the enthusiasm of individual investors, we find that individual investors became net buyers of DI Corp. stock when the attention level increased in their neighborhood (countries). Accordingly, the attention drove up the stock price by 800% without information on the stock's fundamentals.



Media/celebrity hype (YouTube / social media)





What about **technology hype**…?

Technophilia (from Greek τέχνη - *technē*, "art, skill, craft"[1] and φίλος - *philos*, "beloved, dear, friend"[2]) refers generally to a strong attraction for technology, especially new technologies such as personal computers, the Internet, mobile phones, and home cinema.[3] The term is used in sociology to examine individuals' interactions with society and is contrasted with technophobia.

Nasdaq accuses Long Blockchain of misleading investors

Former drinks company added ‘blockchain’ to its name in December

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http://pubsonline.informs.org/journal/mnsc

MANAGEMENT SCIENCE
Vol. 65, No. 12, December 2019, pp. 5901–5913
ISSN 0025-1909 (print), ISSN 1526-5501 (online)

Riding the Blockchain Mania: Public Firms' Speculative 8-K Disclosures

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Received: February 15, 2019
Revised: March 24, 2019
Accepted: March 29, 2019
Published Online in Articles in Advance: July 31, 2019

https://doi.org/10.1287/mnsc.2019.3357

Abstract. This paper provides evidence on public firms' initial 8-K disclosures that mention Blockchain and investors' response to these disclosures. We categorize the description of Blockchain activities in firms' 8-Ks as Speculative (e.g., a vague future plan that involves Blockchain) or Existing (e.g., a description of Blockchain product). We document a sharp increase in the number of initial 8-K disclosures of Blockchain, particularly by Speculative firms, coinciding with the rise of Bitcoin prices and excitement in Blockchain technology in the last quarter of 2017. Investors react positively to the Blockchain 8-Ks issued by Speculative firms in the initial seven-day event window although the reaction is mostly reversed over the 30 days following the disclosure. The reaction is stronger when Bitcoin returns are more positive. Overall, our results are consistent with a situation that troubles the SEC and the financial press: investors overreact to a firm's first 8-K disclosure of a potential foray into Blockchain technology and that overreaction is a function of the Bitcoin price bubble.

ELSEVIER

Journal of Banking & Finance
Volume 113, April 2020, 105740

I am a blockchain too: How does the market respond to companies' interest in blockchain?

Daniel Cahill, Dirk G. Baur, Zhangxin (Frank) Liu, Joey W. Yang

Show more

https://doi.org/10.1016/j.jbankfin.2020.105740

Abstract

We investigate the price reaction of listed companies in response to blockchain-related announcements. The average abnormal return based on a global sample of 713 firm announcements is approximately 5% on the announcement day, with significantly higher returns for U.S. firms, smaller firms and announcements in late 2017 and early 2018. We show that abnormal returns are linked to the performance of bitcoin. Additionally, speculative announcements exhibit higher returns than non-speculative announcements, and blockchain-related Form 8-K disclosures have negligible difference in performance compared to their U.S. peers. Whilst we acknowledge the possibility of a latent variable that affects both the abnormal returns and the performance of bitcoin, we hypothesise that investors have confused bitcoin and blockchain, and used the performance of bitcoin as an indicator of the expected success of the blockchain technology.

Financial Management

ORIGINAL ARTICLE

Blockchain speculation or value creation? Evidence from corporate investments

Don M. Autore, Nicholas Clarke, Danling Jiang

First published: 11 September 2020 | https://doi.org/10.1111/fima.12336

Abstract

Many corporate executives believe blockchain technology is broadly scalable and will achieve mainstream adoption, yet there is little evidence of significant shareholder value creation associated with corporate adoption of blockchain technology. We collect a broad sample of firms that invest in blockchain technology and examine the stock price reaction to the "first" public revelation of this news. Initial reactions average close to +13% and are followed by reversals over the next 3 months. However, we report a striking difference based on the credibility of the investment. Blockchain investments that are at an advanced stage or are confirmed in subsequent financial statements are associated with higher initial reactions and little or no reversal. The results suggest that credible corporate strategies involving blockchain technology are viewed favorably by investors.

Investor frenzy will overvalue AI tech start-ups, says early OpenAI backer

Many are ‘investing because everybody else is’ and most will lose money, claims Vinod Khosla

Vinod Khosla, one of the first venture capitalists to back the ChatGPT developer, sees a parallel with the investment frenzy into crypto start-ups © David Paul Morris/Bloomberg

George Hammond in San Francisco OCTOBER 29 2023

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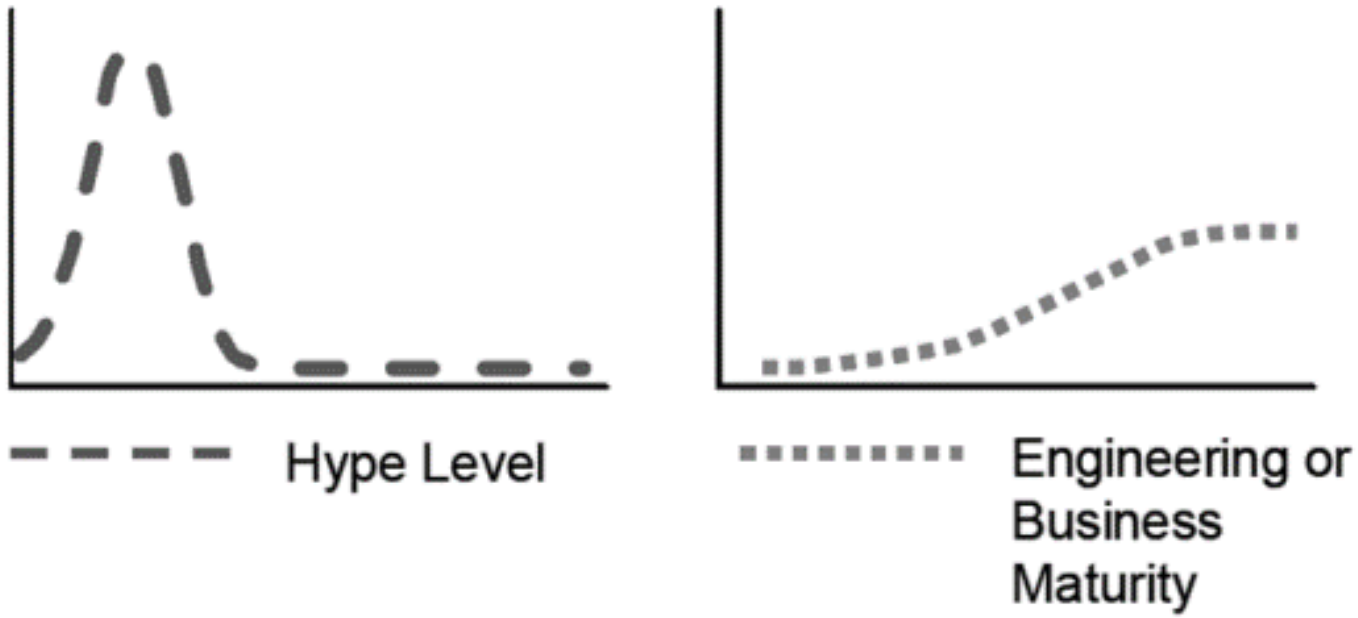
Open questions

- How does this overreaction apply to **other technologies**?
- What role does the **phase of the technological development** play?
- Are overhyped stocks more prone to **crash risk**?
- What is special about **AI hype**?

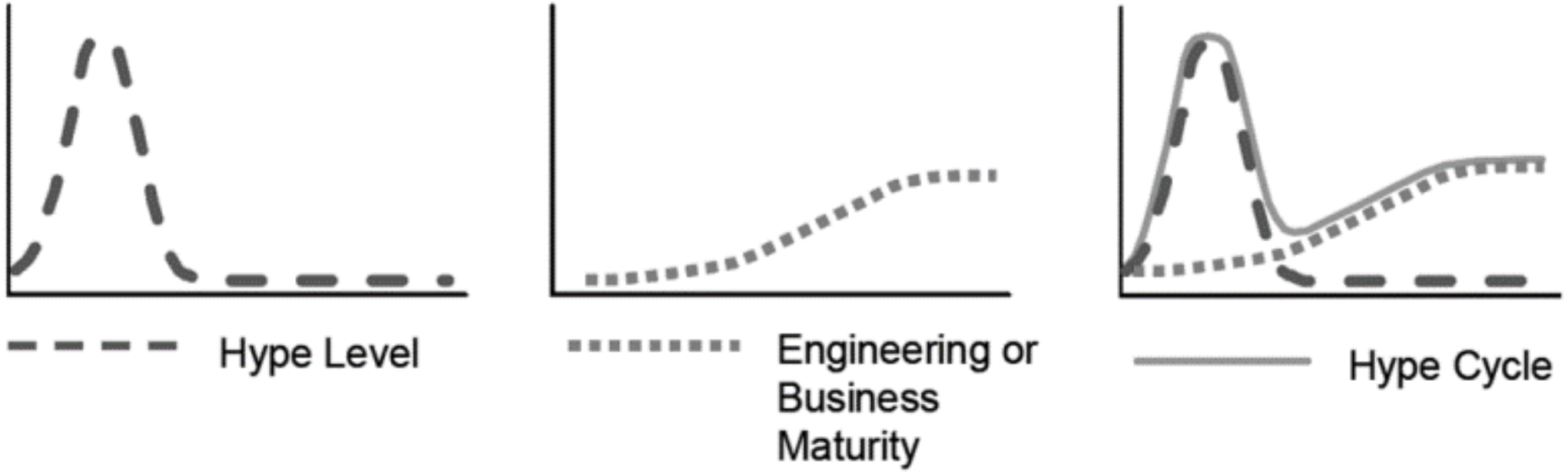
Joint work across three projects with Gao, Kalak and Xiao (1 & 2) and Wang and Zhang (3)

Hype Cycle

Hype Cycle



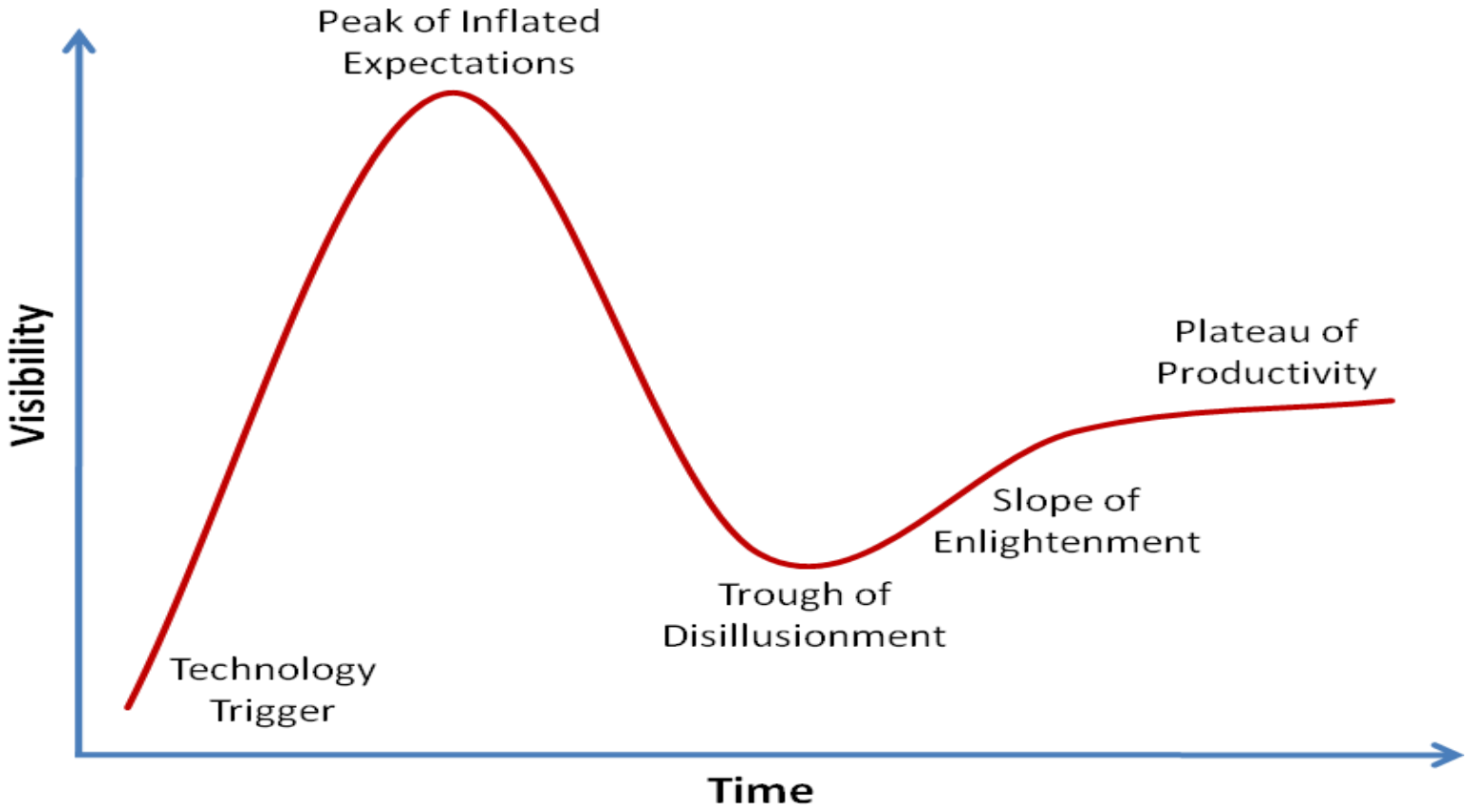
Hype Cycle



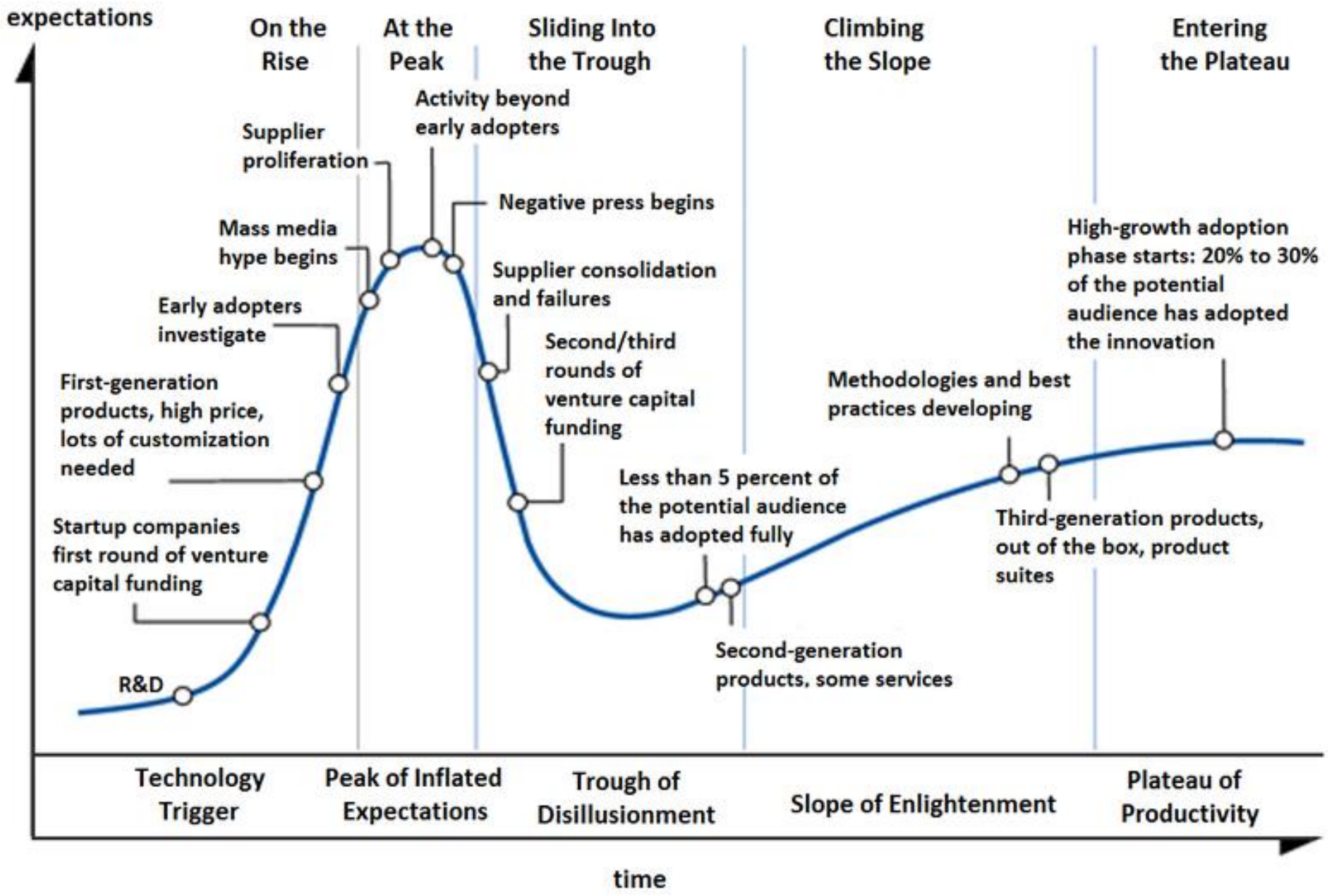
Gartner Hype Cycle

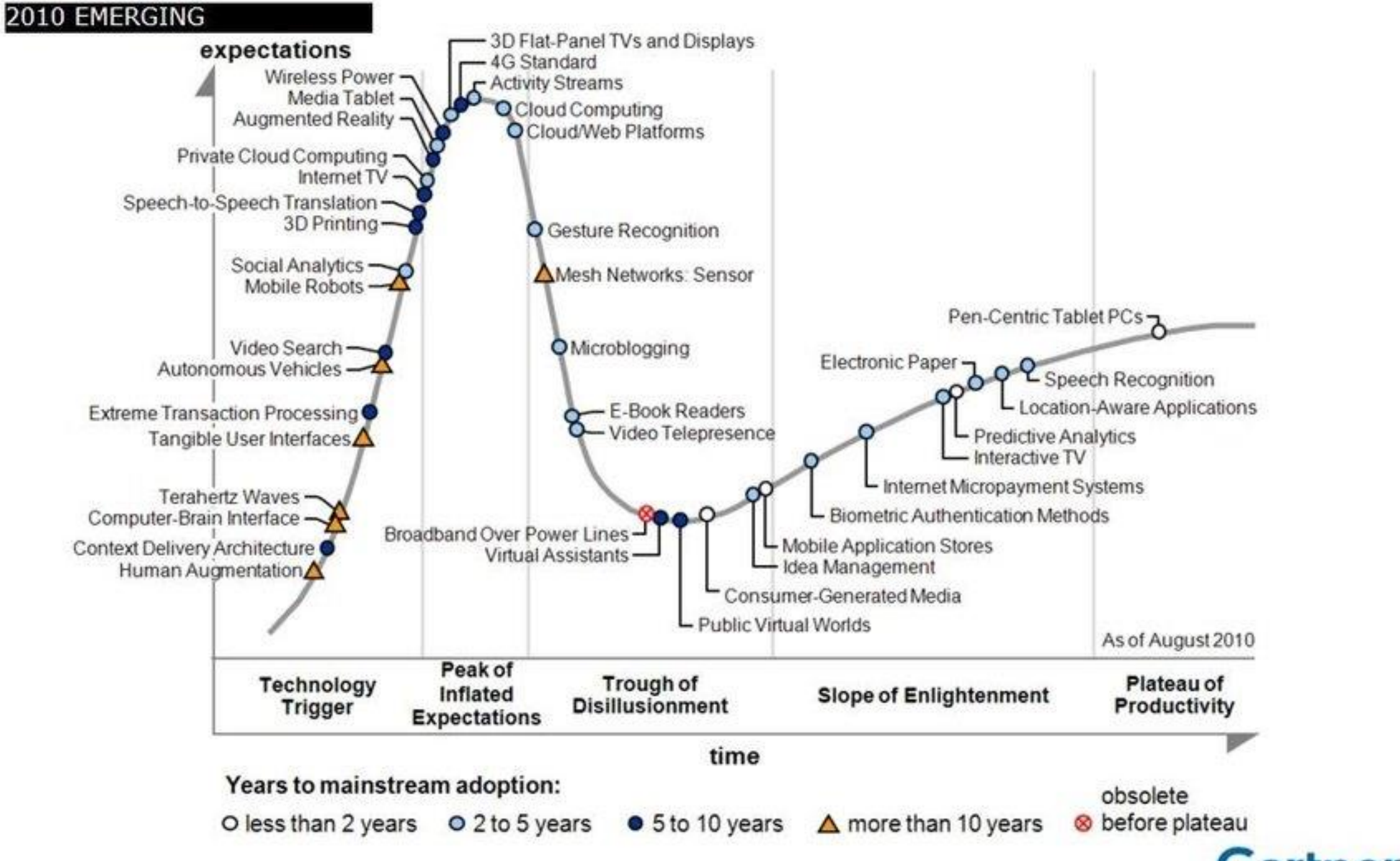
Introduced in 1995 by Gartner Inc. and widely used in the tech sector

An emerging technology graphical presentation which includes the maturity, adoption, and social application of new technologies



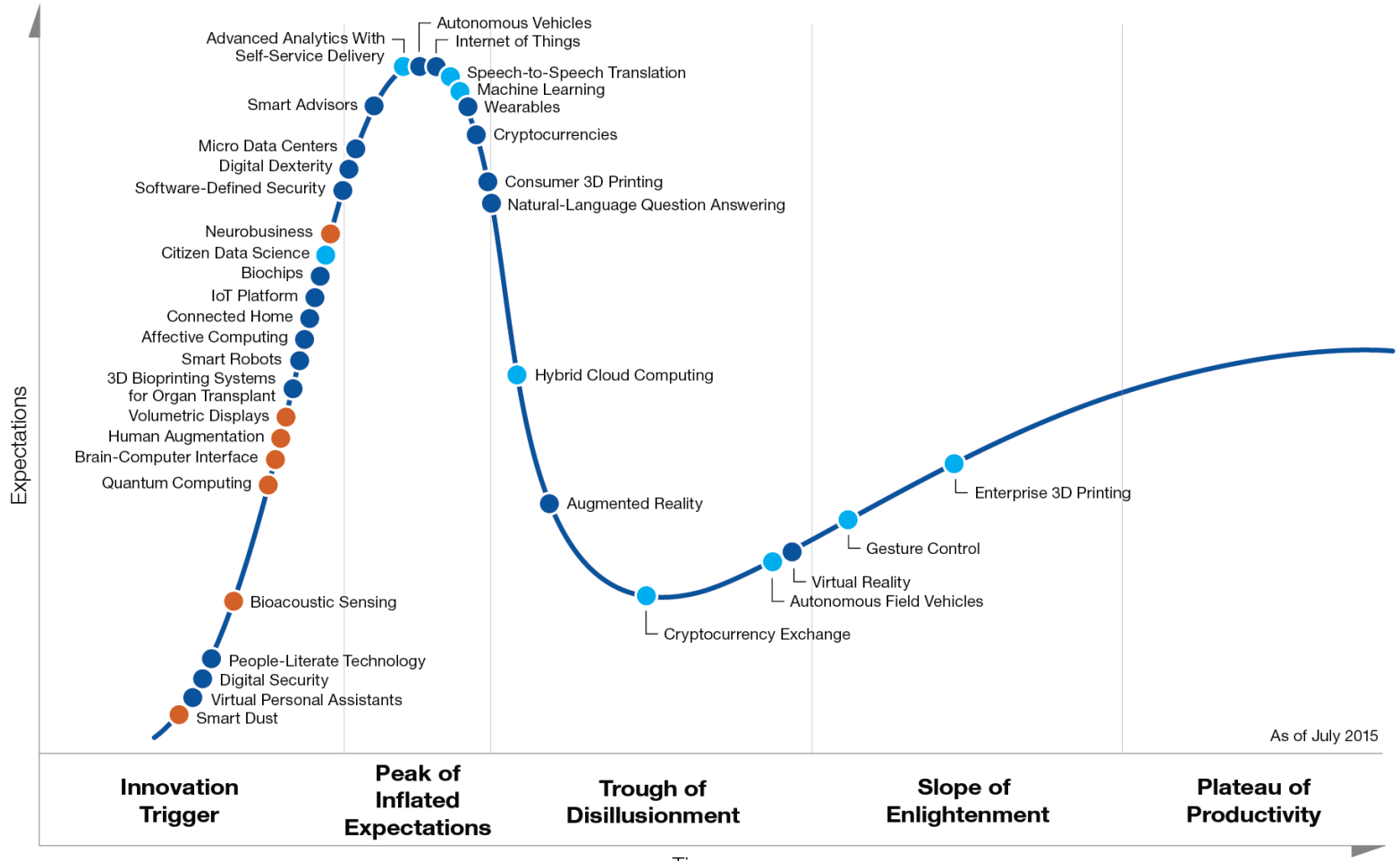
Gartner Hype Cycle




2010 EMERGING
expectations
3D Flat-Panel TVs and Displays
4G Standard
Activity Streams
Wireless Power
Media Tablet
Augmented Reality
Cloud Computing
Cloud/Web Platforms
Private Cloud Computing
Internet TV
Speech-to-Speech Translation
3D Printing
Gesture Recognition
Social Analytics
Mobile Robots
Mesh Networks: Sensor
Pen-Centric Tablet PCs
Video Search
Autonomous Vehicles
Microblogging
Electronic Paper
Speech Recognition
Location-Aware Applications
Extreme Transaction Processing
Tangible User Interfaces
E-Book Readers
Video Telepresence
Predictive Analytics
Interactive TV
Internet Micropayment Systems
Terahertz Waves
Computer-Brain Interface
Biometric Authentication Methods
Broadband Over Power Lines
Virtual Assistants
Mobile Application Stores
Idea Management
Context Delivery Architecture
Human Augmentation
Consumer-Generated Media
Public Virtual Worlds
As of August 2010
Technology Trigger
Peak of Inflated Expectations
Trough of Disillusionment
Slope of Enlightenment
Plateau of Productivity
time
Years to mainstream adoption:
less than 2 years
2 to 5 years
5 to 10 years
more than 10 years
obsolete before plateau

Gartner

Emerging Technology Hype Cycle



Years to mainstream adoption:

less than 2 years | 2 to 5 years | 5 to 10 years | more than 10 years | obsolete before plateau

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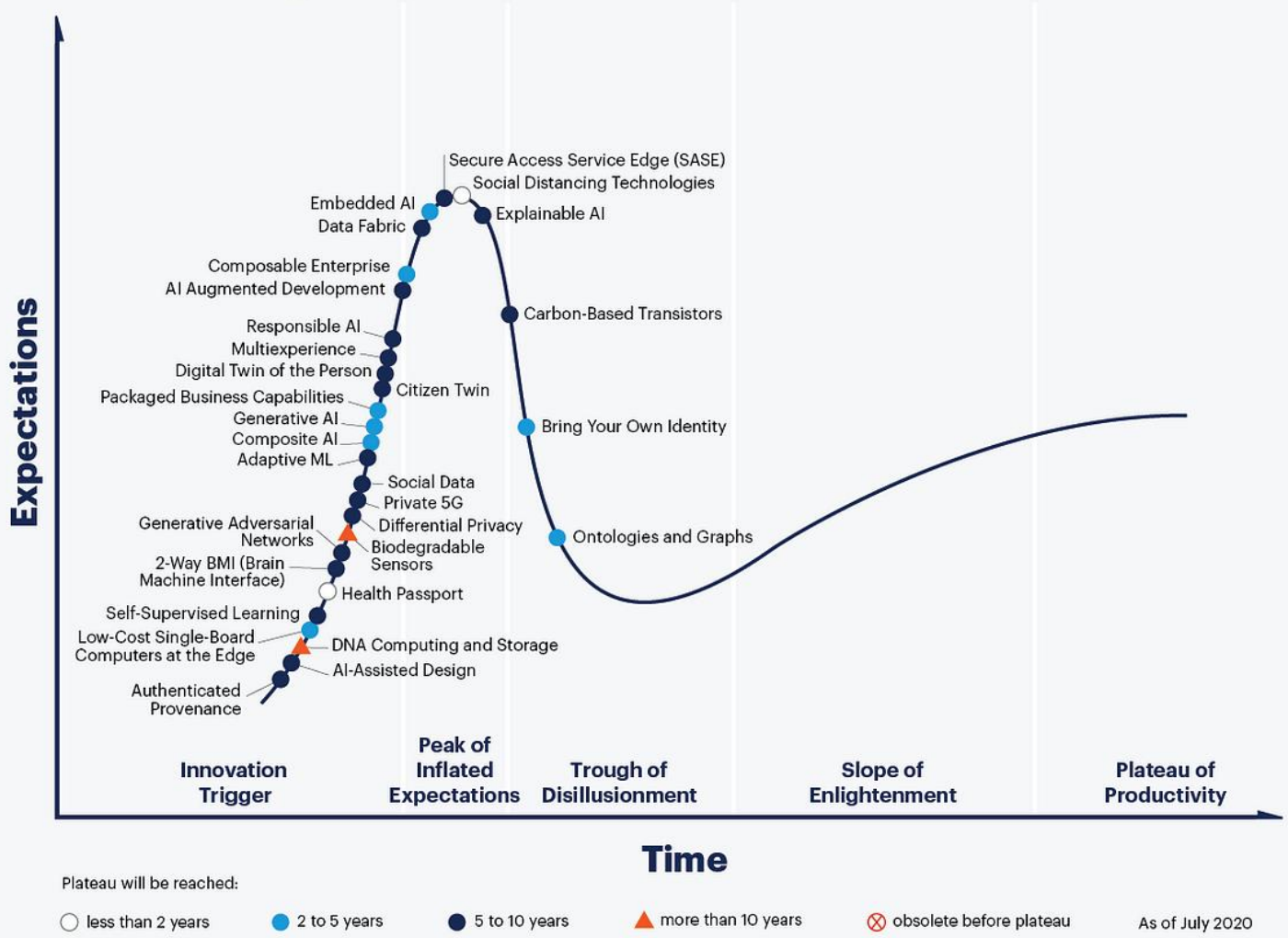
Gartner

Hype Cycle for Emerging Technologies, 2020



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Source: Gartner

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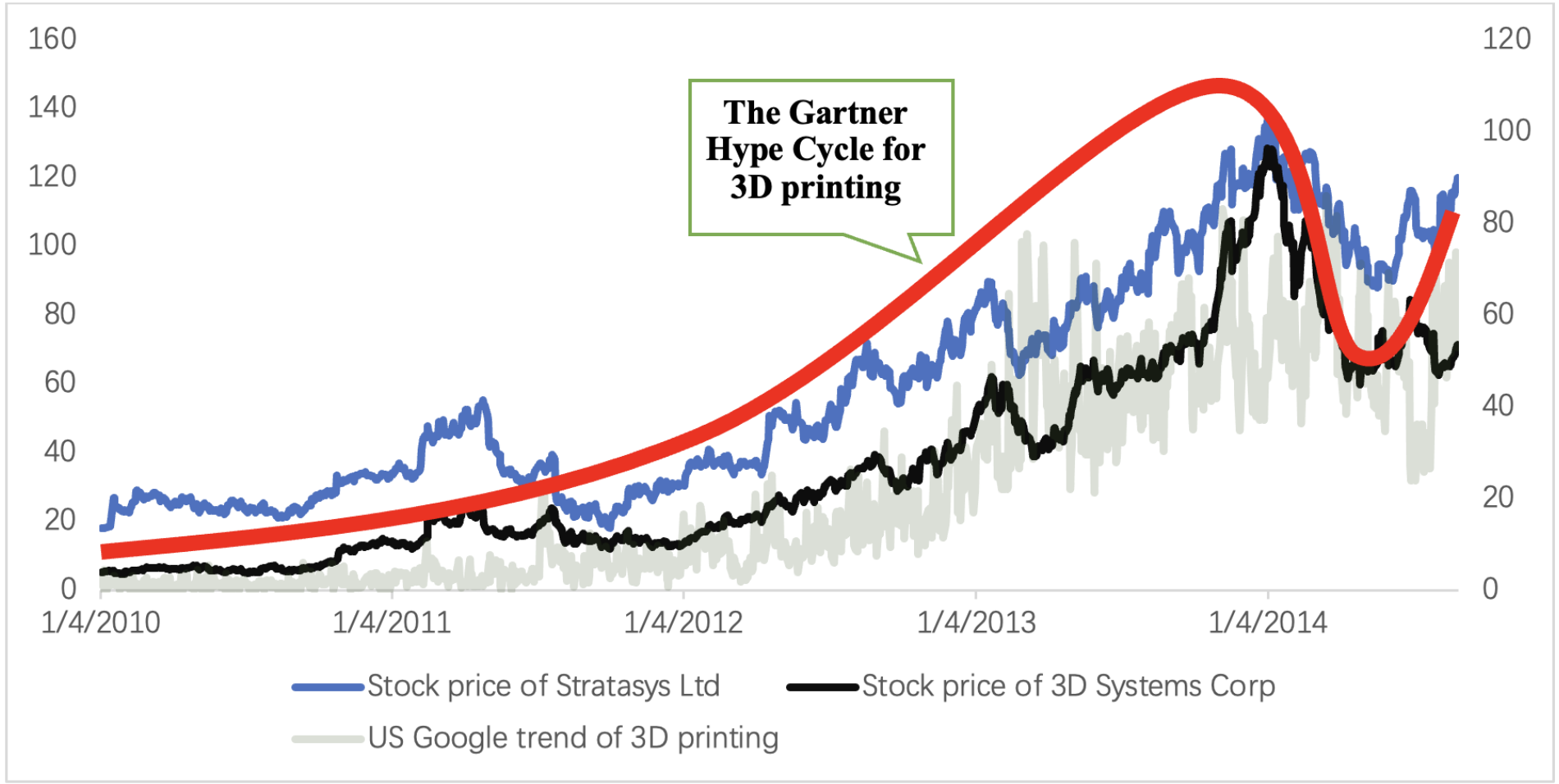
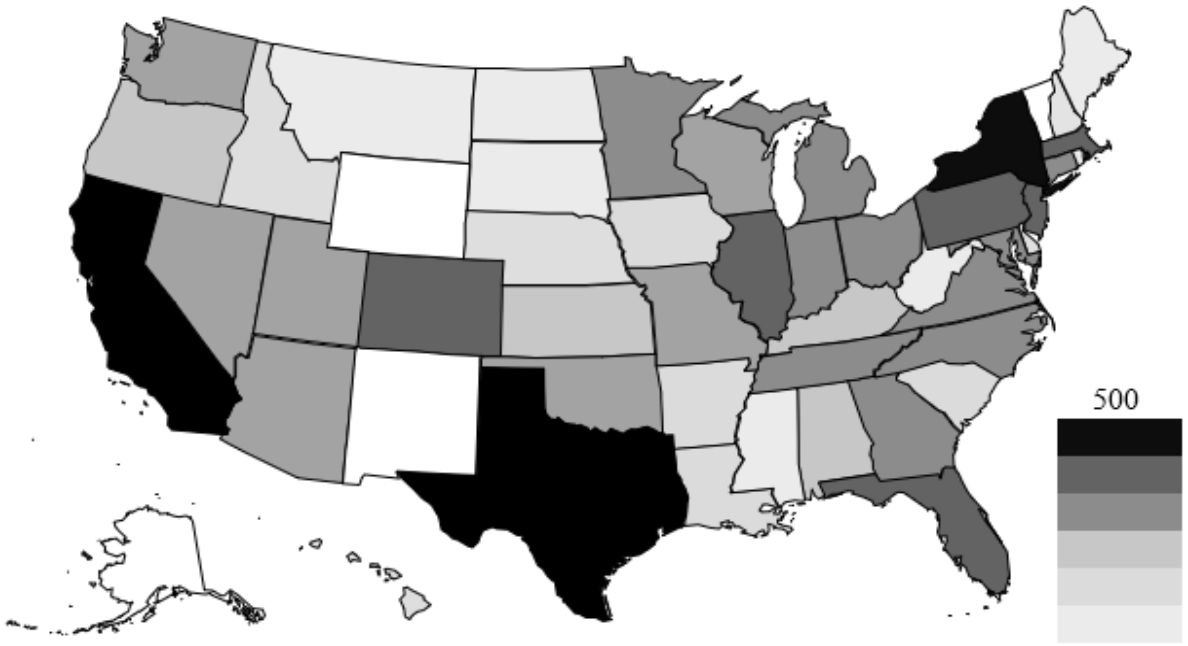
Illustrative example



Top 20 most-disclosed emerging technologies

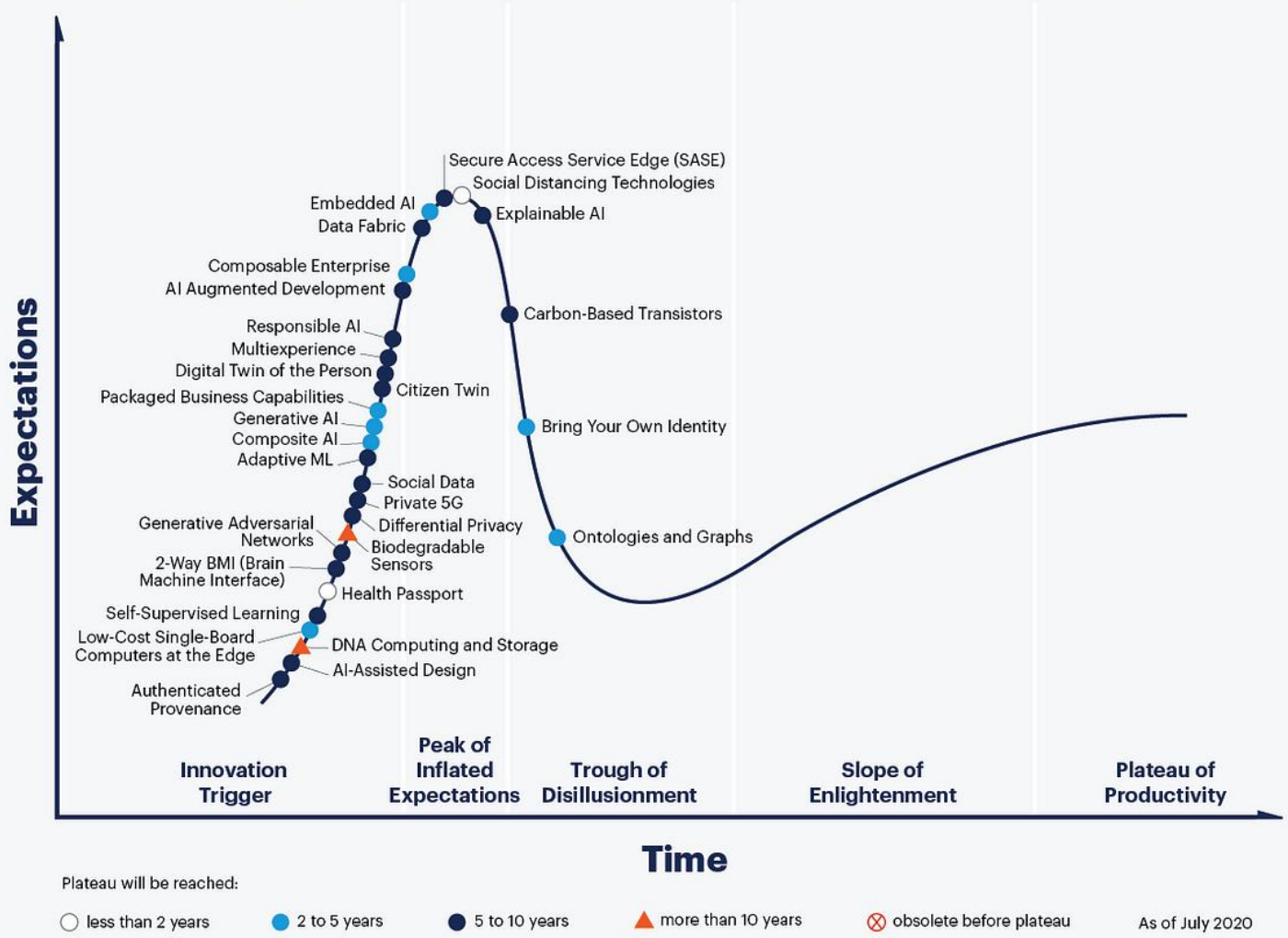
Geographic distribution



Short-term reaction
CAR (-3, +3) and (-5, +5) of the GHC disclosures

	CAR_MM (-3, +3)				CAR_MM (-5, +5)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GHC	0.0164***	0.0181***	0.0641***	0.0285***	0.0175***	0.0193***	0.0650***	0.0299***
	(0.0052)	(0.0053)	(0.0078)	(0.0058)	(0.0060)	(0.0062)	(0.0091)	(0.0067)
Freq			-0.0239***				-0.0238***	
			(0.0030)				(0.0035)	
Num_8Ks				-0.0041***				-0.0042***
				(0.0009)				(0.0010)
RET	1.0115***	1.0117***	1.0107***	1.0108***	1.0360***	1.0358***	1.0349***	1.0349***
	(0.0130)	(0.0130)	(0.0129)	(0.0130)	(0.0150)	(0.0150)	(0.0150)	(0.0150)
Turnover	-0.0080	-0.0078	-0.0071	-0.0077	-0.0107*	-0.0102*	-0.0095	-0.0100
	(0.0053)	(0.0053)	(0.0053)	(0.0053)	(0.0061)	(0.0062)	(0.0062)	(0.0062)
Firm Size	-0.0021***	-0.0024***	-0.0024***	-0.0024***	-0.0021**	-0.0024**	-0.0024**	-0.0024**
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0009)	(0.0010)	(0.0010)	(0.0010)
ROA	-0.0145	-0.0089	-0.0093	-0.0074	-0.0217	-0.0171	-0.0176	-0.0157
	(0.0155)	(0.0162)	(0.0161)	(0.0162)	(0.0179)	(0.0187)	(0.0187)	(0.0187)
BM	-0.0031	-0.0037	-0.0036	-0.0035	-0.0054	-0.0067	-0.0066	-0.0066
	(0.0032)	(0.0036)	(0.0036)	(0.0036)	(0.0037)	(0.0041)	(0.0041)	(0.0041)
Age	0.0004	0.0005	0.0005	0.0004	0.0020	0.0020	0.0020	0.0020
	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0016)	(0.0016)	(0.0016)	(0.0016)
FCF	0.0087	0.0072	0.0074	0.0068	0.0095	0.0098	0.0100	0.0094
	(0.0113)	(0.0114)	(0.0114)	(0.0114)	(0.0130)	(0.0132)	(0.0132)	(0.0132)
OCF	0.0022	0.0016	-0.0001	0.0001	0.0075	0.0069	0.0052	0.0054
	(0.0183)	(0.0194)	(0.0194)	(0.0194)	(0.0212)	(0.0225)	(0.0225)	(0.0225)
FCI	0.0005	0.0002	0.0001	0.0001	0.0007	0.0004	0.0003	0.0003
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Constant	0.0142	0.0235**	0.0237**	0.0237**	0.0085	0.0191	0.0192	0.0192
	(0.0098)	(0.0113)	(0.0113)	(0.0113)	(0.0113)	(0.0131)	(0.0131)	(0.0131)
Year FEs	NO	YES	YES	YES	NO	YES	YES	YES
Industry FEs	NO	YES	YES	YES	NO	YES	YES	YES
Clustered SEs	NO	YES	YES	YES	NO	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.3165	0.3166	0.3198	0.3176	0.2657	0.2661	0.2686	0.2669

Hype Cycle for Emerging Technologies, 2020



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Source: Gartner

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Short-term reaction
CAR (-3, +3) of GHC disclosures by phase

Similar results for CAR (-5, +5)

	CAR_MM (-3, +3)				
	(1)	(2)	(3)	(4)	(5)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0232**	0.0316***	0.0033	-0.0025	-0.0137
	(0.0093)	(0.0094)	(0.0098)	(0.0183)	(0.0281)
Constant	0.0242**	0.0245**	0.0245**	0.0246**	0.0245**
	(0.0113)	(0.0113)	(0.0113)	(0.0114)	(0.0113)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.3163	0.3166	0.3160	0.3160	0.3160
	(6)	(7)	(8)	(9)	(10)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0426***	0.0524***	0.0155	0.0054	-0.0074
	(0.0103)	(0.0103)	(0.0105)	(0.0185)	(0.0282)
Freq	-0.0099***	-0.0107***	-0.0071***	-0.0060***	-0.0059***
	(0.0022)	(0.0022)	(0.0022)	(0.0021)	(0.0020)
Constant	0.0251**	0.0258**	0.0250**	0.0251**	0.0252**
	(0.0113)	(0.0113)	(0.0113)	(0.0114)	(0.0113)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.3173	0.3177	0.3165	0.3164	0.3164
	(11)	(12)	(13)	(14)	(15)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0319***	0.0418***	0.0075	0.0006	-0.0112
	(0.0096)	(0.0097)	(0.0099)	(0.0183)	(0.0281)
Num_8Ks	-0.0031***	-0.0034***	-0.0025***	-0.0024***	-0.0024***
	(0.0009)	(0.0009)	(0.0008)	(0.0008)	(0.0008)
Constant	0.0246**	0.0251**	0.0248**	0.0249**	0.0250**
	(0.0113)	(0.0113)	(0.0113)	(0.0114)	(0.0113)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.3170	0.3173	0.3164	0.3164	0.3164

Robustness tests and controls

- Other price-sensitive **information** around disclosure dates (such as annual, quarterly, etc. earnings announcements)
- Aggregate market **sentiment**
- Disclosure frequency, tone and readability
- **Investor** type
- **Analyst** following
- **Technology** classification, adoption speed
- Firm **location** and exchange **listing**
- Other **estimation** models and various **placebos**

Are financial technologies more 'hyped'?

- Averse to ambiguity, people seem to believe things they are familiar with.
- For emerging technologies in Fintech, investors are more likely to receive the overwhelming hype from the media.

Panel A. Fintech-type technologies

	Short-term reactions based on market model		Long-term reactions based on market model	
	CAR (-3, +3)	CAR (-5, +5)	CAR (+4, +60)	CAR (+6, +60)
	(1)	(2)	(3)	(4)
Fintech	0.0483***	0.0449***	-0.0522***	-0.0538***
	(0.0088)	(0.0101)	(0.0193)	(0.0188)
Constant	0.0237**	0.0193	-0.0221	-0.0159
	(0.0113)	(0.0131)	(0.0249)	(0.0244)
Control	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268
Adj. R-square	0.3176	0.2666	0.0173	0.0172

	CAR_MM (-3, +3)					
	(1)	(2)	(3)	(4)	(5)	(6)
GHC	0.0164***	0.0181***	0.0641***	0.0285***	0.0175***	0.0193**
	(0.0052)	(0.0053)	(0.0078)	(0.0058)	(0.0060)	(0.0062
Freq			-0.0239***			
			(0.0030)			
Num_8Ks				-0.0041***		
				(0.0009)		

	CAR_MM (+4, +60)					CAR_MM (+6, +60)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GHC	-0.0384***	-0.0317***	-0.0149	-0.0184	-0.0400***	-0.0331***	-0.0152	-0.0202
	(0.0115)	(0.0117)	(0.0172)	(0.0127)	(0.0113)	(0.0114)	(0.0169)	(0.0124)
Freq.			-0.0088				-0.0093	
			(0.0066)				(0.0064)	
Num_8Ks				-0.0053***				-0.0051***
				(0.0020)				(0.0019)

Fintech word list from Deloitte: Available at: https://www.deloitte.com/uk/en/pages/financial-services/articles/fintech-glossary.html

And blockchain, too…

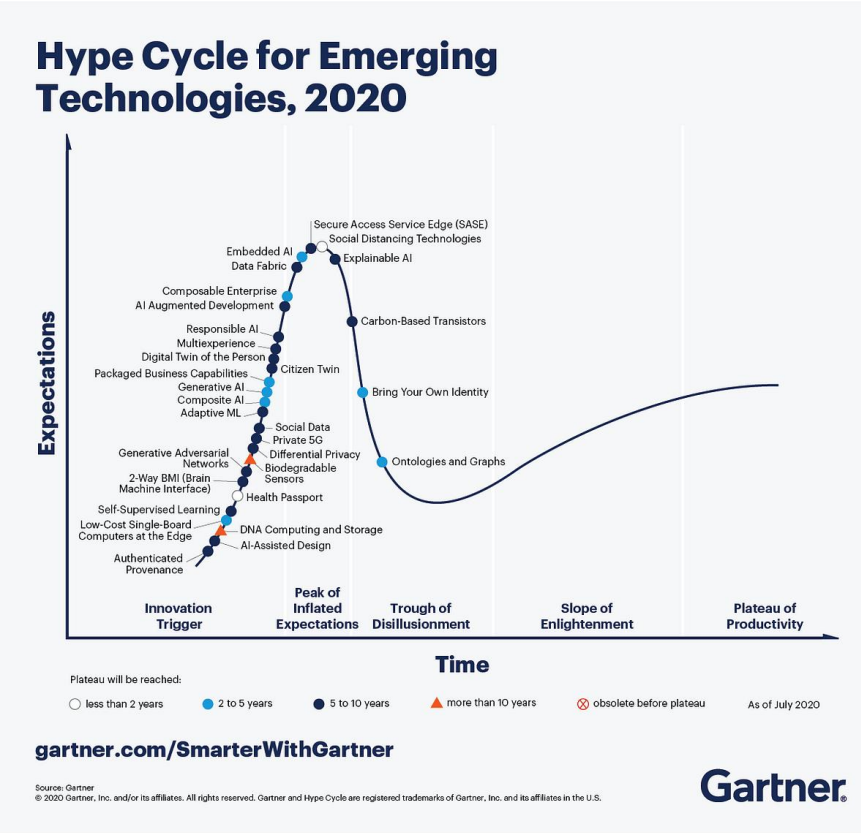
Variables	Short-term market reaction				Delayed market reaction			
	Blockchain-related disclosure		non-Blockchain-related disclosure		Blockchain-related disclosure		non-Blockchain-related disclosure	
	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (+4, +30)	CAR_MM (+4, +60)	CAR_MM (+4, +30)	CAR_MM (+4, +60)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$GHCET_{i,t}$	0.0485**	0.0673***	0.0168***	0.0172***	-0.0318	0.0021	-0.0155**	-0.0331***
	(0.0191)	(0.0238)	(0.0054)	(0.0063)	(0.0334)	(0.0523)	(0.0076)	(0.0119)
Constant	0.0130	0.0117	0.0235**	0.0190	-0.0007	-0.0178	-0.0022	-0.0226
	(0.0093)	(0.0116)	(0.0113)	(0.0131)	(0.0163)	(0.0254)	(0.0159)	(0.0249)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	12,753	12,753	13,201	13,201	12,753	12,753	13,201	13,201
Adj. R-square	0.4115	0.3205	0.3153	0.2649	0.0086	0.0176	0.0091	0.0176

Note: Table 11 shows the market reaction of the GHC-ET disclosures. The dependent variables of columns (1) to (4) are estimated CARs in the event windows (-3, +3) and (-5, +5) based on market model while columns (5) to (8) are estimated CARs in the event windows (+4, +30) and (+4, +60) based on market model. Columns (1), (2), (5) and (6) are the market reaction for Blockchain-related disclosure only while the rest columns for non-Blockchain-related disclosure. All columns include fixed effects by year and industry. The industry fixed effect is based on the GIC industry classifications. The standard errors presented in parentheses are corrected for firm-clustering heteroscedasticity. Definitions for all of variables are provided in Appendix B. The significance levels are: *** p<0.01, ** p<0.05, * p<0.1.

Do investors prefer technologies with faster adoption?

Panel B. Quick Adoption

	Short-term reactions based on market model		Long-term reactions based on market model	
	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (+4, +60)	CAR_MM (+6, +60)
	(1)	(2)	(3)	(4)
Quick Adoption	0.0306***	0.0311***	-0.0283**	-0.0287**
	(0.0058)	(0.0067)	(0.0127)	(0.0124)
Constant	0.0227**	0.0183	-0.0213	-0.0151
	(0.0113)	(0.0131)	(0.0250)	(0.0244)
Control	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268
Adj. R-square	0.3174	0.2667	0.0172	0.0170



Technology environment

Panel C. Technology cluster								
	Short-term reactions based on market model				Long-term reactions based on market model			
	Silicon Valley area		Non-Silicon Valley area		Silicon Valley area		Non-Silicon Valley area	
	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (+4, +60)	CAR_MM (+6, +60)	CAR_MM (+4, +60)	CAR_MM (+6, +60)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GHC-ET	0.0203	0.0165	0.0176***	0.0194***	-0.0670**	-0.0611*	-0.0293**	-0.0316***
	(0.0186)	(0.0202)	(0.0055)	(0.0065)	(0.0339)	(0.0335)	(0.0125)	(0.0122)
Constant	-0.0179	-0.0020	0.0255**	0.0199	0.1018	0.1039	-0.0130	-0.0050
	(0.0573)	(0.0623)	(0.0117)	(0.0137)	(0.1042)	(0.1031)	(0.0263)	(0.0257)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,382	1,382	11,886	11,886	1,382	1,382	11,886	11,886
Adj. R-square	0.2903	0.2559	0.3200	0.2669	0.0094	0.0105	0.0190	0.0189

Exchange listing

Panel D. NASDAQ exchange

	Nasdaq firms		Other firms		Nasdaq firms		Other firms	
	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (-3, +3)	CAR_MM (-5, +5)	CAR_MM (+4, +60)	CAR_MM (+6, +60)	CAR_MM (+4, +60)	CAR_MM (+6, +60)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GHC-ET	0.0039	0.0059	0.0513***	0.0508***	-0.0328**	-0.0348**	-0.0268	-0.0267
	(0.0059)	(0.0071)	(0.0108)	(0.0119)	(0.0150)	(0.0147)	(0.0186)	(0.0182)
Constant	0.0082	-0.0074	0.0506**	0.0611***	-0.0190	-0.0094	-0.0369	-0.0353
	(0.0135)	(0.0163)	(0.0212)	(0.0233)	(0.0343)	(0.0335)	(0.0365)	(0.0358)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES	YES	YES	YES
Observations	8,187	8,187	5,081	5,081	8,187	8,187	5,081	5,081
Adj. R-square	0.4183	0.3411	0.1477	0.1331	0.0131	0.0135	0.0263	0.0245

Stock price crash risk

Variables	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
	(1)	(2)	(3)	(4)
HET_t	0.1899***	0.1879***	0.0790**	0.0739**
	(3.53)	(3.50)	(2.55)	(2.38)
$NCSKEW_t$		0.0548***		
		(4.61)		
$DUVOL_t$				0.0575***
				(4.92)
RET_t		7.1830***		4.3662***
		(5.20)		(5.44)
$SIGMA_t$		-0.2437		0.2285
		(-0.55)		(0.90)
$Dturnover_t$		0.0064		0.0037
		(0.75)		(0.75)
$SIZE_t$		0.0379***		0.0239***
		(5.61)		(6.14)
ROA_t		-0.1162**		-0.0582**
		(-2.40)		(-2.08)
LEV_t		-0.013		-0.0123
		(-0.27)		(-0.43)
MB_t		0.0027		0.0022**
		(1.61)		(2.27)
$ABACC_t$		0.0546		0.0663*
		(0.79)		(1.67)
Constant	0.0615***	-0.2233***	0.0572***	-0.1518***
	(5.74)	(-3.59)	(9.25)	(-4.23)
Year, Industry FE	YES	YES	YES	YES
Observations	9,734	9,734	9,734	9,734
Adj. R-square	0.008	0.016	0.011	0.021

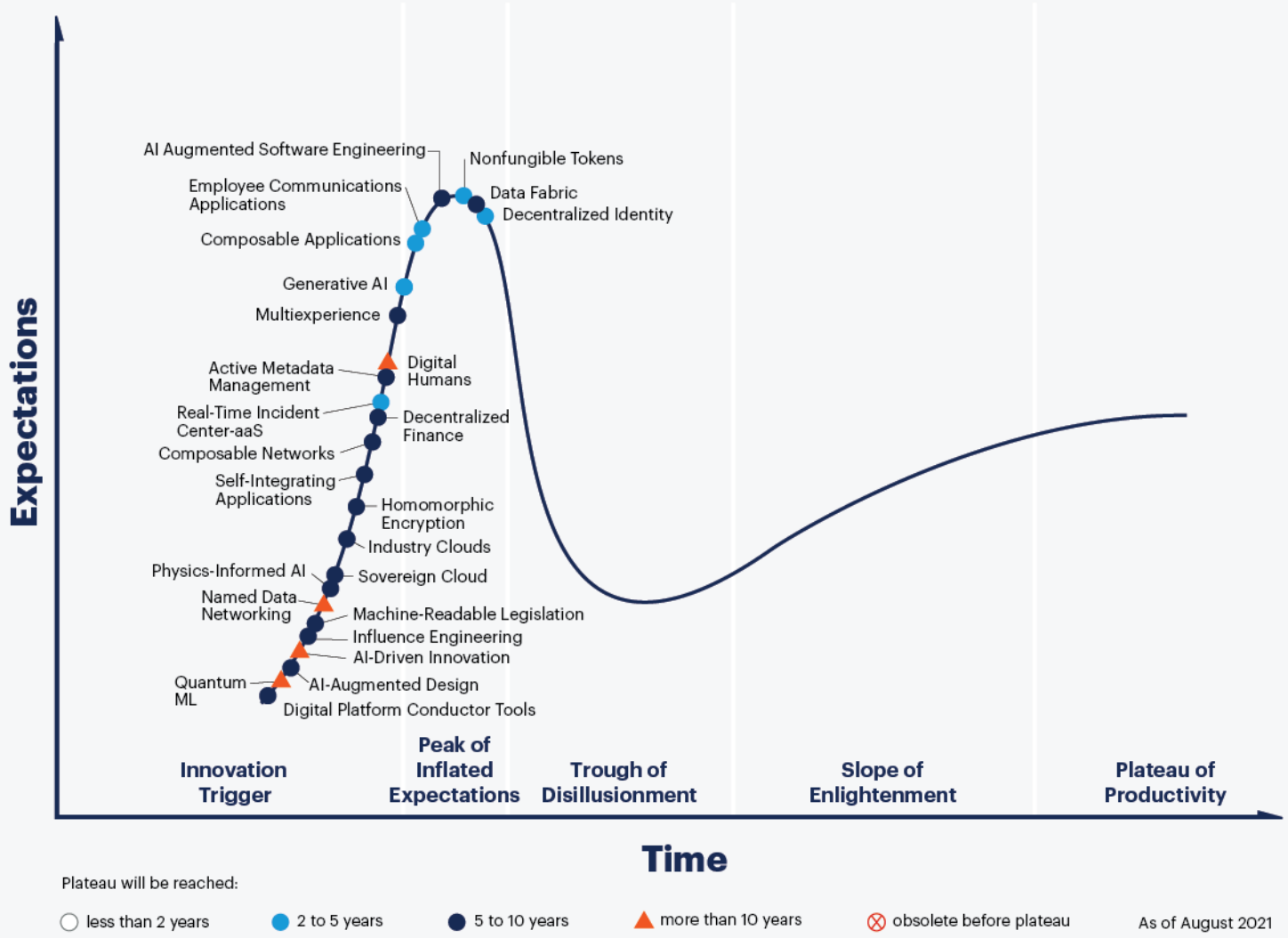
Subsample analysis

Panel A. The effects of political leadership ideology				
Variables	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
	Democrat President	Republican President	Democrat President	Republican President
	(1)	(2)	(3)	(4)
HET_t	0.0890	0.3190***	0.0385	0.1182**
	(1.27)	(3.79)	(0.95)	(2.43)
Constant	-0.2655***	-0.1754*	-0.1945***	-0.0972*
	(-3.32)	(-1.75)	(-4.23)	(-1.68)
Controls	YES	YES	YES	YES
Year, Industry FE	YES	YES	YES	YES
Observations	5,947	3,787	5,947	3,787
Adj. R-square	0.014	0.021	0.018	0.022
Panel B. The effects of innovation environment				
Variables	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
	Silicon Valley area	Other areas	Silicon Valley area	Other areas
	(1)	(2)	(3)	(4)
HET_t	0.0041	0.2143***	0.0020	0.0819**
	(0.03)	(3.69)	(0.02)	(2.44)
Constant	-0.1770	-0.2261***	-0.2013*	-0.1436***
	(-0.88)	(-3.44)	(-1.77)	(-3.78)
Controls	YES	YES	YES	YES
Year, Industry FE	YES	YES	YES	YES
Observations	1,040	8,694	1,040	8,694
Adj. R-square	0.001	0.017	0.004	0.023

Summary

1. Strong evidence of short-term **overreaction** to hyped technologies
2. Typical **reversal** in a few months
3. Concentrated in **phases 1 and 2** of the hype cycle
4. Stronger for intangible technologies such as **fintech**
5. Stronger when firms have lower **institutional holdings**, lower **analyst coverage**
6. Stronger for more '**surprising**' disclosures ('hidden gems')
7. Overhyped stocks are more prone to **crash risk**

Hype Cycle for Emerging Technologies, 2021



Plateau will be reached:

○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years ⊗ obsolete before plateau

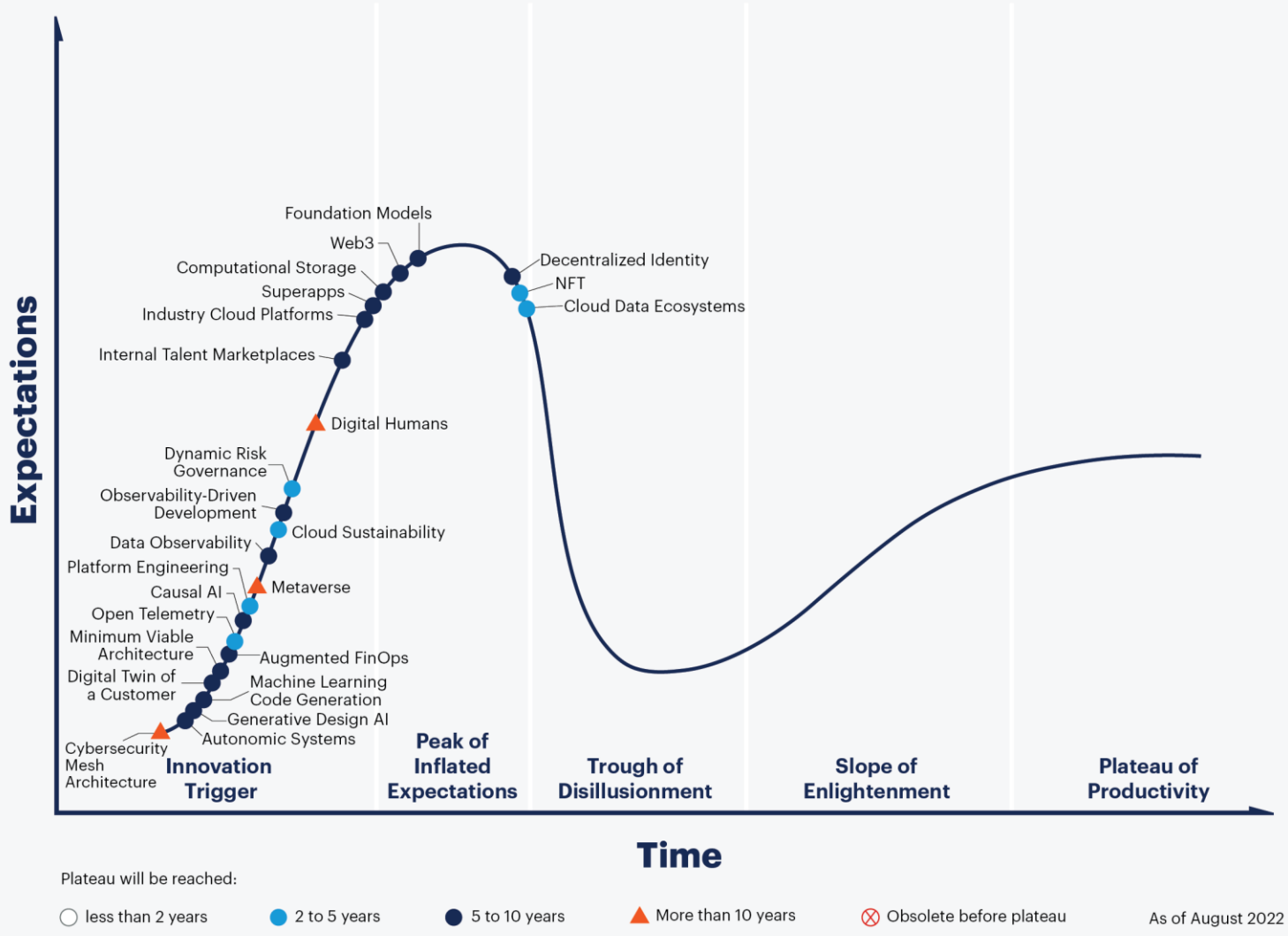
As of August 2021

gartner.com

Source: Gartner

Gartner

Hype Cycle for Emerging Tech, 2022



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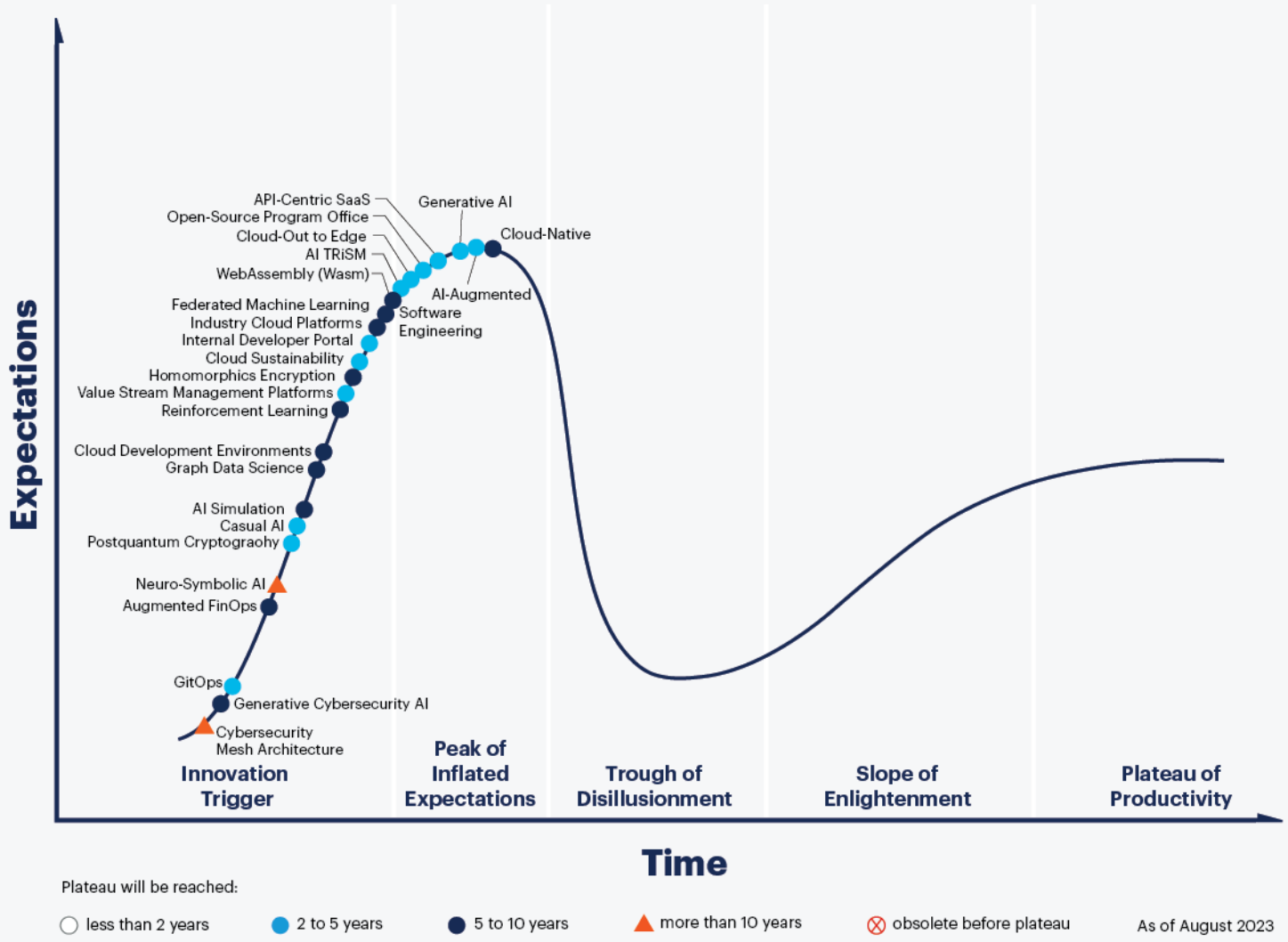
Hype Cycle for Emerging Technologies, 2023



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Baseline model

- $CAR_i(t_1, t_2) = \alpha + \beta GHC_{i,t} + \gamma X_{i,t} + Year_{i,t} + Industry_{i,t} + \varepsilon_{i,t}$
- $CAR_i(t_1, t_2) = \alpha + \beta_1 GHC + \beta_2 Freq_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}$
- $CAR_i(t_1, t_2) = \alpha + \beta_1 GHC + \beta_2 Num\_8Ks_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}$
- $CAR_i(t_1, t_2) = \alpha + \beta_1 GHC\_Phase_{j,i,t} + \gamma X_{i,t} + Year_{i,t} + Industry_{i,t} + \varepsilon_{i,t}$

- $\boldsymbol{CAR_i(t_1, t_2)}$, Cumulative abnormal returns around the event window

  Baseline: Market Model

  Short-term: (-3, +3) (-5, +5)

  Long-term: (+4, +60) (+6, +60)

  Robustness:

  FF3, C4

  Placebo (-60, -6) (-60, -4)

- $\boldsymbol{GHC_{i,t}}$

  Dummy variable: one if a company disclose information with related GHC in its initial 8-K filing which contains Item 7.01, zero otherwise.

Baseline model

- $\boldsymbol{Freq_{i,t}}$

  The number of emerging technologies-related words in the initial 8-K filing of each firm year.

- $\boldsymbol{Num\_8Ks_{i,t}}$

  The number of 8-K filings containing the emerging technologies-related words each firm year

- $\boldsymbol{GHC\_Phase_{j,i,t}}$

  The development phase of the GHC-ETRI disclosure in the initial 8-K filing, where j from one to five of each firm each year.

- $\boldsymbol{X_{i,t}}$, Control variables

  Return, Firm Size, ROA, Age, BM, Turnover, FCF, OCF, FCI

Initial signs

Panel C: Comparison between the Non-GHC and the GHC group

	Non-GHC sample Mean	GHC sample Mean	Difference
CAR_MM (-3, +3)	0.007	0.027	0.019***
CAR_MM (-5, +5)	0.007	0.028	0.021***
CAR_MM (+4, +60)	0.0005	-0.040	-0.040***
CAR_MM (+6, +60)	0.001	-0.041	-0.042***

Delayed reaction

CAR (+4, +60) and (+6, +60) of GHC disclosures

	CAR_MM (+4, +60)				CAR_MM (+6, +60)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GHC	-0.0384***	-0.0317***	-0.0149	-0.0184	-0.0400***	-0.0331***	-0.0152	-0.0202
	(0.0115)	(0.0117)	(0.0172)	(0.0127)	(0.0113)	(0.0114)	(0.0169)	(0.0124)
Freq.			-0.0088				-0.0093	
			(0.0066)				(0.0064)	
Num_8Ks				-0.0053***				-0.0051***
				(0.0020)				(0.0019)
RET	0.0688**	0.0715**	0.0711**	0.0704**	0.0552**	0.0582**	0.0578**	0.0571**
	(0.0287)	(0.0285)	(0.0285)	(0.0285)	(0.0281)	(0.0279)	(0.0279)	(0.0279)
Turnover	-0.0280**	-0.0259**	-0.0256**	-0.0257**	-0.0241**	-0.0220*	-0.0218*	-0.0219*
	(0.0117)	(0.0117)	(0.0117)	(0.0117)	(0.0115)	(0.0115)	(0.0115)	(0.0115)
Firm Size	-0.0017	-0.0025	-0.0025	-0.0025	-0.0018	-0.0025	-0.0025	-0.0025
	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0017)	(0.0018)	(0.0018)	(0.0018)
ROA	-0.1110***	-0.0851**	-0.0853**	-0.0833**	-0.1017***	-0.0743**	-0.0744**	-0.0725**
	(0.0343)	(0.0356)	(0.0356)	(0.0356)	(0.0335)	(0.0348)	(0.0348)	(0.0348)
BM	-0.0137*	-0.0143*	-0.0143*	-0.0141*	-0.0129*	-0.0133*	-0.0133*	-0.0131*
	(0.0072)	(0.0078)	(0.0078)	(0.0078)	(0.0070)	(0.0077)	(0.0077)	(0.0077)
Age	0.0004	0.0012	0.0012	0.0011	-0.0015	-0.0006	-0.0006	-0.0006
	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)
FCF	-0.0911***	-0.0936***	-0.0935***	-0.0941***	-0.0945***	-0.0982***	-0.0981***	-0.0987***
	(0.0249)	(0.0251)	(0.0251)	(0.0251)	(0.0244)	(0.0246)	(0.0246)	(0.0246)
OCF	-0.0002	0.0023	0.0017	0.0004	-0.0042	-0.0050	-0.0057	-0.0069
	(0.0405)	(0.0428)	(0.0428)	(0.0428)	(0.0396)	(0.0418)	(0.0418)	(0.0418)
FCI	0.0025**	0.0022*	0.0022*	0.0022*	0.0025**	0.0023**	0.0023**	0.0023**
	(0.0011)	(0.0012)	(0.0012)	(0.0012)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Constant	-0.0085	-0.0213	-0.0212	-0.0211	-0.0048	-0.0150	-0.0149	-0.0148
	(0.0216)	(0.0250)	(0.0250)	(0.0249)	(0.0212)	(0.0244)	(0.0244)	(0.0244)
Year FEs	NO	YES	YES	YES	NO	YES	YES	YES
Industry FEs	NO	YES	YES	YES	NO	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.0030	0.0173	0.0174	0.0178	0.0030	0.0173	0.0173	0.0177

Delayed reaction
CAR (+4, +60) of GHC disclosures by phase

Similar results for CAR (+6, +60)

CAR (+4, +60)					
	(1)	(2)	(3)	(4)	(5)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0002	-0.0542***	-0.0291	-0.0396	-0.0656
	(0.0204)	(0.0206)	(0.0215)	(0.0402)	(0.0618)
Constant	-0.0231	-0.0231	-0.0224	-0.0222	-0.0230
	(0.0250)	(0.0249)	(0.0250)	(0.0250)	(0.0250)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.0168	0.0173	0.0169	0.0169	0.0169
	(6)	(7)	(8)	(9)	(10)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0311	-0.0353	-0.0078	-0.0232	-0.0521
	(0.0226)	(0.0227)	(0.0230)	(0.0407)	(0.0620)
Freq	-0.0158***	-0.0097**	-0.0124***	-0.0126***	-0.0126***
	(0.0049)	(0.0049)	(0.0048)	(0.0045)	(0.0045)
Constant	-0.0217	-0.0220	-0.0215	-0.0211	-0.0216
	(0.0249)	(0.0249)	(0.0250)	(0.0250)	(0.0250)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.0175	0.0175	0.0174	0.0174	0.0174
	(11)	(12)	(13)	(14)	(15)
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
GHC_Phase	0.0192	-0.0374*	-0.0188	-0.0315	-0.0590
	(0.0211)	(0.0214)	(0.0217)	(0.0403)	(0.0618)
Num_8Ks	-0.0069***	-0.0055***	-0.0062***	-0.0064***	-0.0064***
	(0.0019)	(0.0019)	(0.0018)	(0.0018)	(0.0018)
Constant	-0.0221	-0.0221	-0.0216	-0.0213	-0.0219
	(0.0249)	(0.0249)	(0.0249)	(0.0250)	(0.0249)
Control	YES	YES	YES	YES	YES
Year, Industry FEs	YES	YES	YES	YES	YES
Clustered SEs	YES	YES	YES	YES	YES
Observations	13,268	13,268	13,268	13,268	13,268
Adj. R-square	0.0177	0.0179	0.0177	0.0177	0.0177