

# DT 212: Techno Economics of Networks [TEN]

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## **'Musk destroyed all that': Twitter's business is flailing after a year of Elon**

Advertisers are spending less, regulators are circling, staff is at less than 50% of what it used to be and user numbers are down



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Gadgets 360 Staff, 25 December 2017

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02-Jan-18

How do operators price their services? Is there any freebie after all?

## What to Expect From Apple in 2024: Vision Pro, iPhone 16 Models, Revamped iPad Pro and More

Friday December 29, 2023 11:56 AM PST by [Juli Clover](#)

2024 is going to start off strong with the launch of the Vision Pro, Apple's first major new product since the 2015 Apple Watch, and new iPads, Macs, AirPods, and iPhones are set to follow.



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How does the Internet advertisement work? What are the various monetization models?

# How To Make A Video Go Viral

What does it take to make your video go viral? Here's an in-depth guide with video marketing expert recommendations for YouTube and TikTok.



VIP CONTRIBUTOR  
**Greg Jarboe**

June 21, 2023 · 12 min read

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By now, all SEO experts and digital marketers are familiar with the term “going viral.”





# Who won Radio Spectrum for Commercial Mobile Services? Who lost? And By how much?



		BSNL	TATA	RCOM	RJIO	RJIO	MTS	HFCL		AUCTION		L - Liberalised	U - UnLiberalised		LP - Liberalised After Payment						
Sno	LSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	AP	U	G10	G41	S	U	U	G10	L	L	L	G20	LP	LP	LP	LP	G20	G41	G41		
2	AS	U	U	G20	G41	G41	G41	G41	G20	L	L	L	L	L	L	L	L	G20			
3	BH	U	G10	G41	G41	G10	S	U	U	G20	LP	LP	LP	LP	L	L	L	L	G20		
4	DL	S	G41	G41	G10	L	G10	LP	LP	LP	LP	G10	S	G10	U	U	U	G20	L	L	
5	GU	U	S	G10	L	L	G10	G41	G41	G10	U	U	G10	L	G10	LP	LP	LP	LP	LP	G10
6	HA	U	G10	G41	G10	LP	LP	LP	L	G10	S	L	G10	U	U	G20	L	L	L	L	
7	HP	U	G10	G41	G41	G41	G10	U	U	G20	L	L	LP	LP	L	L	L	L	G20		
8	JK	U	U	G20	G41	G41	G41	G41	G20	L	L	L	L	G20	L	L	LP	LP			
9	KA	U	U	G10	S	L	G10	U	U	G10	G41	G41	G10	LP	LP	LP	LP	G20	L	L	
10	KE	U	U	S	G10	L	G10	G41	G41	G10	U	U	G10	LP	LP	LP	LP	G20	L	L	
11	KO	U	G10	G41	G41	G10	U	U	G10	L	G11	S	G10	L	L	G9	L	LP	LP	LP	LP
12	MP	U	U	G20	G41	G41	G20	L	L	L	L	LP	LP	LP	LP	G20	U	U			
13	MA	S	S	G20	U	U	S	S	G10	G41	G41	G20	LP	LP	LP	LP	G10	U	U		
14	MU	S	S	G20	U	U	U	S	G20	L	L	L	L	LP	LP	LP	LP	G20			
15	NE	U	U	G20	G41	G41	G41	G41	G20	L	L	L	L	L	L	L	L	G20			
16	OR	U	G10	G41	G41	G41	G10	U	U	G20	L	LP	LP	LP	L	L	L	L	G20		
17	PU	U	G10	G41	U	U	G41	G10	G41	G20	L	L	LP	LP	LP	G20	U	U	S		
18	RA	U	U	G10	L	L	L	L	G10	G41	G41	G10	S	U	G10	LP	LP	LP	G20	U	
19	TN	U	U	G10	S	L	G10	U	U	G10	G41	G41	G10	LP	LP	LP	LP	G20	L	L	
20	UPE	U	G10	G41	G41	G41	G10	S	U	U	G20	LP	LP	LP	LP	L	L	L	G20		
21	UPW	U	S	G41	G10	L	G10	LP	LP	LP	LP	L	G20	U	U	G10	G41	G10	L	L	
22	WB	U	U	G10	G41	G10	U	G41	L	G41	U	G10	L	L	G10	LP	LP	LP	L	G20	


What is the market structure in telecom? How is spectrum priced?

# Network slicing opens up new monetization possibilities in 5G

The recent successful deployment of world's first 5G Dynamic Radio Resource Partitioning in Malaysia and the first on-demand network slice in the United Kingdom show how network slicing can enable innovative new business models and unlock new revenue opportunities to realize the full potential of 5G.



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**Ajay Gautam**  
Strategic Product  
Manager 5G RAN

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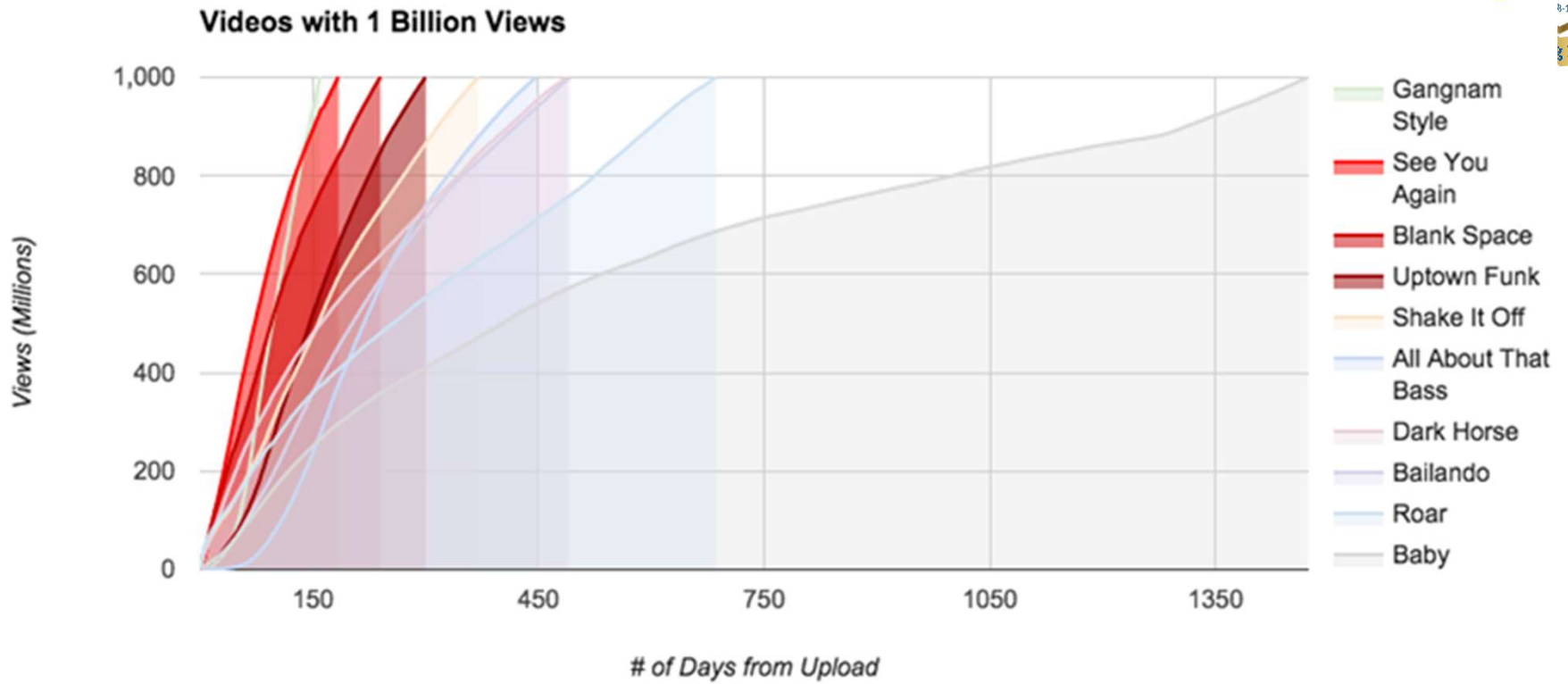
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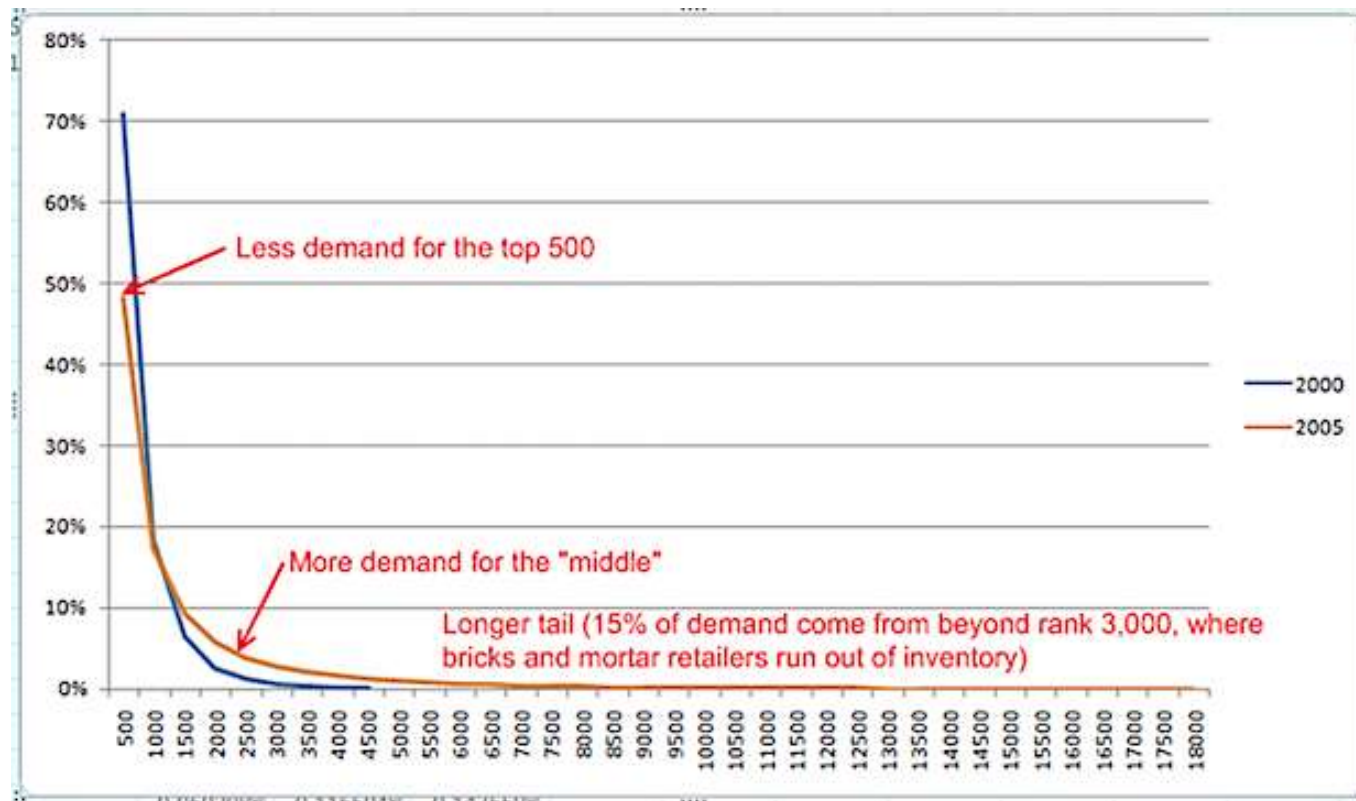


The year 2022 is quickly becoming the year of network slicing and monetization as operators move to maximize their ability to tailor their offerings to their customers.



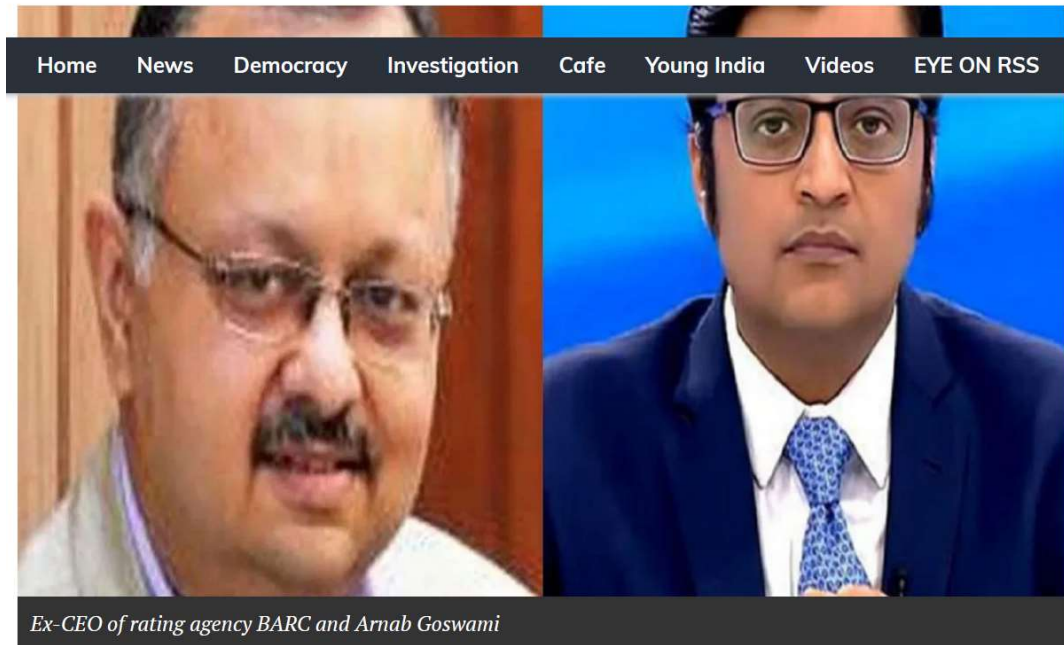


# Netflix Long Tail



## BARC data reveals TRP manipulation put Arnab Goswami's Republic TV on top spot; happening since 2016

Addressing a press conference on Friday, Milind Bharambe, Joint CP (Crime) of Mumbai Police said in some cases the ratings appeared to be pre-decided



**Does Television Rating  
matter?**

# Why is India's e-commerce industry losing money?

 bharti • December 22, 2021

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### Unacademy, Byju's and Vedantu are firing hundreds of employees amid a decline in demand for their services

— NIKHIL PATWARDHAN |  
AUGUST 08, 2022 / 10:07 AM IST

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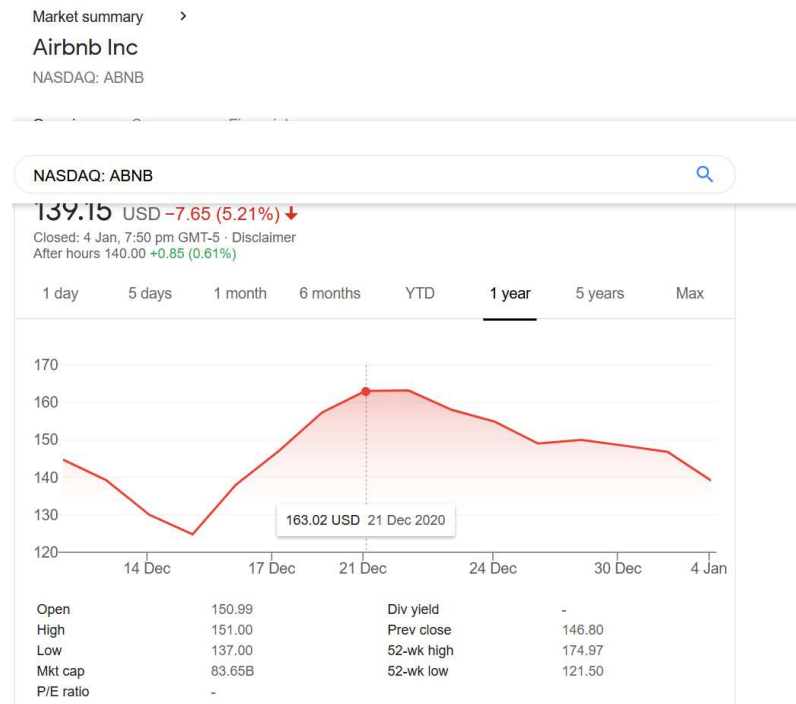


Edtech unicorn upGrad has raised \$210 million in a funding round at a valuation of \$2.25 billion, led by ETS Global, one of the world's largest providers of global entrance tests like GRE and TOEFL, and Bodhi Tree, an investment vehicle set up by media veterans Uday Shankar and James Murdoch, among others.





# Sharing Economy Platforms



What is the business value of platforms? How do they grow and how are they valued?

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forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/#4a9a4933179e

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## Facebook Closes \$19 Billion WhatsApp Deal

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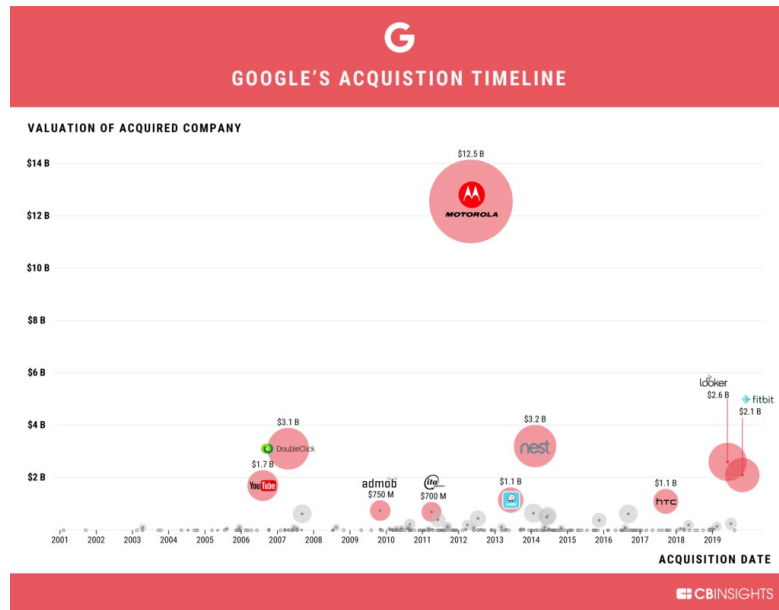
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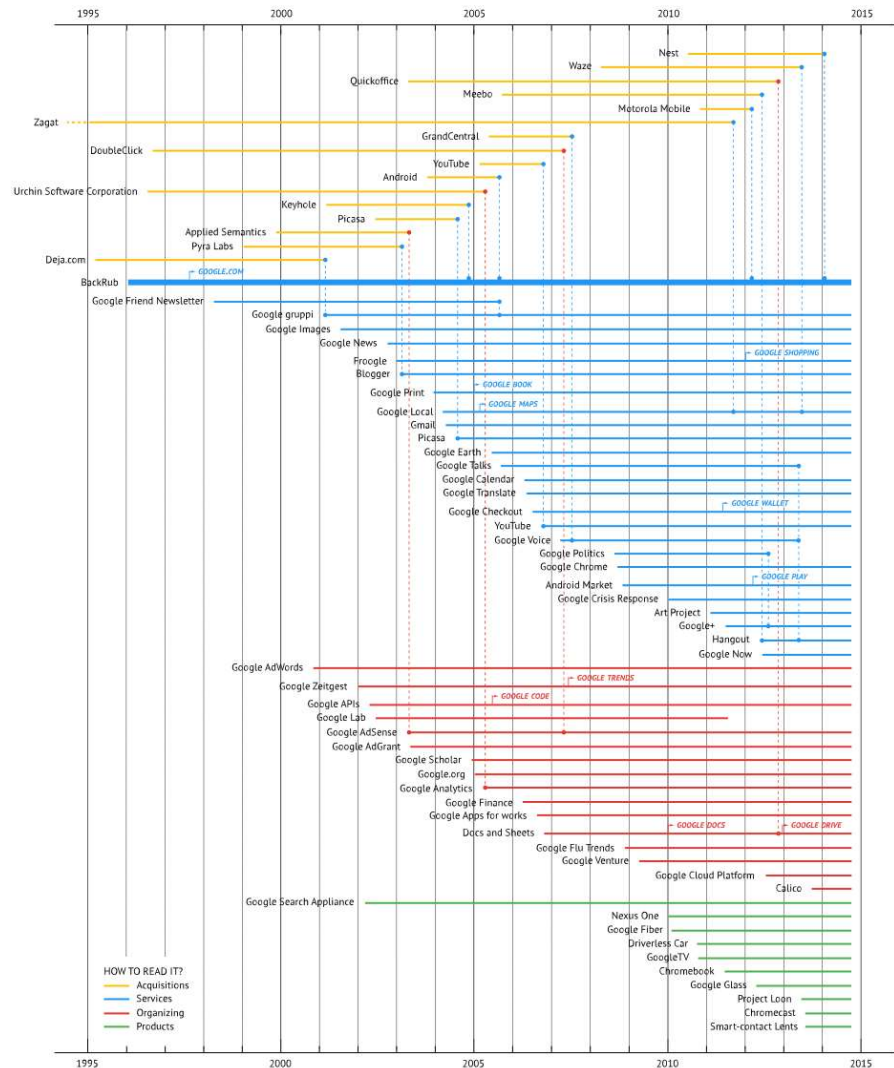


What is the big deal? Why acquisitions happens and how are they priced?

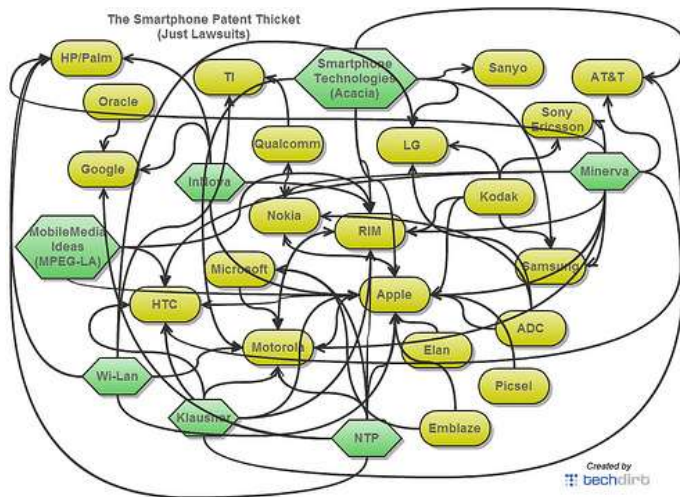
# Google's Product Portfolio



Does Google charge the users for any of its products and services? How can they recover their R&D investment?



# Who is suing whom?: Value of IPR



## Nest Becomes Google's Latest Billion-Dollar Acquisition

Google's largest acquisitions (reported acquisition price in million U.S. dollars)

Motorola Mobility (2011)	\$12,500m
Nest (2014)	\$3,200m
DoubleClick (2007)	\$3,100m
YouTube (2006)	\$1,650m
Waze (2013)	\$966m
AdMob (2009)	\$750m
ITA Software (2010)	\$676m
Postini (2007)	\$625m
Wildfire Interactive (2012)	\$450m
Admeld (2011)	\$400m



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How to assess the value of a patent or copyright?

## Google settles \$5 billion privacy lawsuit over tracking people using 'incognito mode'

The class-action lawsuit filed in 2020 said Google misled users into believing that it wouldn't track their internet activities while using incognito mode

AP | San Francisco | Published 30.12.23, 05:54 PM



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# Bitcoin at a Glance



What is the economics behind digital currencies? How are they valued and traded?



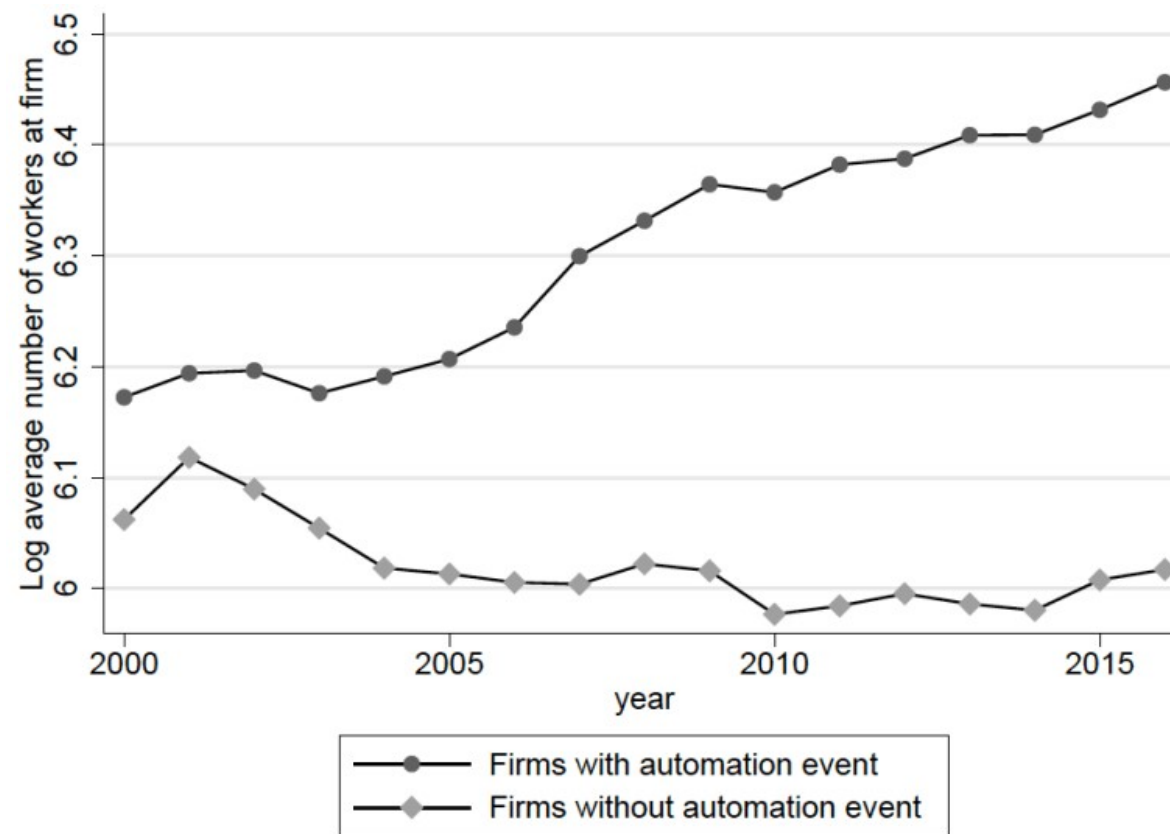
## The Collapse of FTX: What Went Wrong with the Crypto Exchange?

By [NATHAN REIFF](#) Updated December 22, 2022

Fact checked by [VIKKI VELASQUEZ](#)

Cryptocurrency exchange FTX and its founder and former CEO, Sam Bankman-Fried, are intricately entwined. Bahamian authorities arrested Bankman-Fried on Dec. 12, 2022, and jailed him in connection with multiple fraud charges involving FTX and stemming from an indictment from the U.S. Attorney of the Southern District of New York. Bankman-Fried remains in jail without bail, awaiting extradition to the U.S., an action he plans to fight. The U.S. Attorney Damian Williams said when announcing the charges against the former CEO that it was one of the largest financial crimes in American history. The court-appointed FTX CEO John Ray told the U.S. House committee on Dec. 13, that FTX practiced "no bookkeeping." He added: "It was old-fashioned embezzlement." [\[1\]](#) [\[2\]](#)

# Automation and Labour



[resources](#) > automation or human labor? here's what to consider



09.02.2021

## **AUTOMATION OR HUMAN LABOR? HERE'S WHAT TO CONSIDER**

Automation has changed the dynamic between man and machine. But woeful stories of people losing their jobs to robots overlook a key fact about today's economy: Automated manufacturing systems have played an outsized role in the recovery from the 2008 recession and continued strength of the American economy.

The writing is on the wall: Automation is here to stay. In the case of some businesses, their survival depends on it. Meanwhile, the world's leading thinkers say businesses are better served finding ways to transition their human workforce into roles where they can excel.

If you're considering automation, read on for some guidance on how to integrate it where it's most appropriate.

**Automated vs. human labor.**



# Cloudenomics



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Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers. Amazon Elastic Block Store (EBS) provides persistent storage to Amazon EC2 instances. [Clear Form](#)

**Compute: Amazon EC2 Instances:**

Description	Instances	Usage	Type	Billing Option	Monthly Cost
+ Add New Row					

**Compute: Amazon EC2 Dedicated Hosts:**

Description	Number of Hosts	Usage	Type	Billing Option
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**Storage: Amazon EBS Volumes:**

Description	Volumes	Volume Type	Storage	IOPS	Baseline Throughput	Snapshot Storage
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**Elastic IP:**

Number of Additional Elastic IPs:

Elastic IP Non-attached Time:  Hours/Month

**Common Customer Samples**

- Free Website on AWS
- AWS Elastic Beanstalk Default
- Marketing Web Site
- Large Web Application (All On-Demand)
- Media Application
- European Web Application
- Disaster Recovery and Backup

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Amazon EC2  
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Amazon Route 53  
Amazon CloudFront  
Amazon RDS  
Amazon DynamoDB  
Amazon ElastiCache  
Amazon CloudWatch  
Amazon SES  
Amazon SNS  
Amazon Elastic Transcoder  
Amazon WorkSpaces  
Amazon WorkDocs

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What does sharing mean? How does it affect what we pay for services?

## ChatGPT Plus subscription now available in India: Price, benefits and all details

While OpenAI says the subscription is available in India, it appears the company has not tweaked the price to cater to the Indian market. That means users will need to pay in USD per month.



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# The First 10 Questions that we will address in this course

— — —



1. Is the landline dead? What is the economics of VoIP?
2. Why is it difficult to provide rural area broadband connectivity?
3. Why are Facebook /Whatsapp/ Hike valued so high?
4. How does Apple continue to increase price of its iPhone and manage to sell them all?
5. How is Game Theory used in solving near-far problem in CDMA networks?
6. How does Google make money through Advertisements?
7. Is it optimal for mobile operators to charge 4 p / 10 Kbytes or Rs. 149/- unlimited voice calling and data usage of 1.5 GB/day for 28 days?
8. What are the mechanisms used for auctioning radio spectrum for commercial mobile services?
9. Why should Amazon and Flipkart give so much discounts?
10. What is a long tail distribution used in Netflix?

# The next 10 Questions that we will address in this course



1. How do Amazon and Flipkart provide product reviews and ratings?
2. How to viralize a YouTube video? Who can influence social media?
3. How does information flow through human networks connected by social media? What is the average network distance in social networks?
4. What is the value of IP such as patents? Why did Google pay \$12.5 Billion for Motorola's patents?
5. When should I upgrade my mobile phone? Should I wait or buy now?
6. Why are technology standards important? What happens if each country dictates its own standards?
7. Why do all prime shows are broadcast at the same time? How does a landing page in TV affect programme rating?
8. What is privacy economics? What is the trade-off between privacy and personalized services?
9. What is impact of digital finance on cash economy? What is the economics of crypto currencies?
10. What is the economics of AI? What is the impact of autonomous systems on labour markets and wages?

# Grading Scheme



Component	Marks
Discussion Paper Presentation	10%
Quizzes & Assignments	15%
Spectrum auction game	10%
Mid Term Exam	25%
End Term Exam	25%
Group Project: First Stage: 5% Final demonstration: 10%	15%
Total	100%

# References

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- Chiang, M. (2012). *Networked Life: 20 Questions and Answers*. Cambridge University Press. (an abridged version will be made available as pdf file. Two copies of the book will be kept in reserve in the Library)
- Jackson, M.O. (2010). *Social and Economic Networks*. Princeton University Press.
- Oz Shy, “The Economics of Network Industries”, Cambridge University Press, 2001.