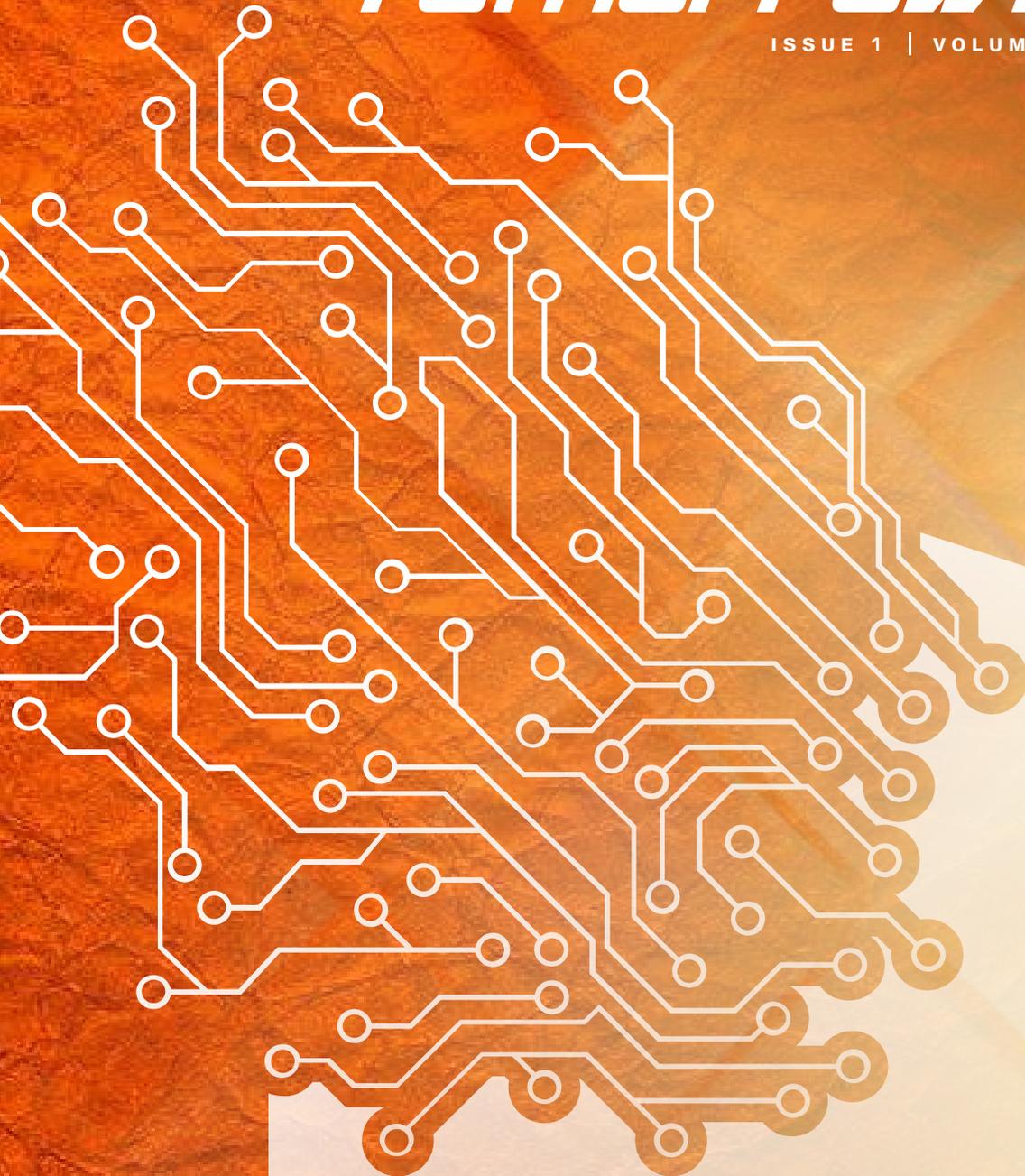


Mahindra
COMVIVA

TOWARDS TOMORROWS

ISSUE 1 | VOLUME 2



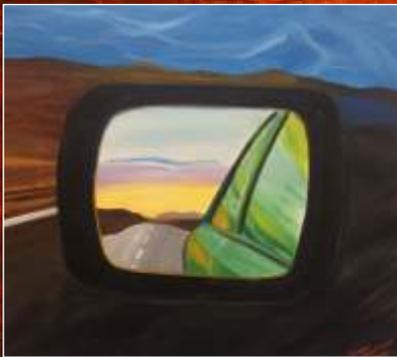
THE YEAR THAT **WAS** AND **WILL BE**

2017-2018

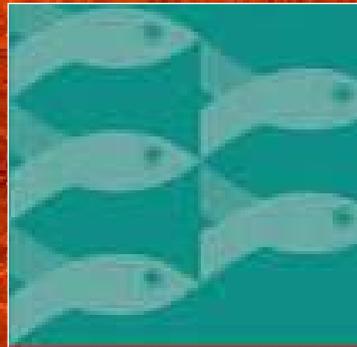
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1

Rearview Mirror



2017 was, without a doubt, an eventful year for the technology space. Key technology influencers share their view on this year's hits and misses and what is likely to take centre stage in 2018.



2

Developer Conferences

Developer Conferences provide a glimpse of the future. Key announcements at f8, Apple WWDC, Google I/O (some of the big developer conferences) predicate big & important shifts in the world of content, messaging, digital payments and so on. So we tracked key developer conferences (years 2016 & 2017). The trends that became mainstream in 2017, and what fell by the wayside. Using the same methodology, we drew our own list of Trends for the year 2018.

FOREWORD

It would be a bit of an understatement to say that 2017 was eventful for the telecom and technology spaces. And why not? After all, everything from chatbots to smart homes made an appearance—brief or otherwise.

Naturally, then, this year promises to be bigger and better in every way. Here's how—while industry experts have (of course) created several lists, here is what we think the overall landscape is likely to be shaped by:

- AI development is likely to be fast-paced
- Messaging is going to overtake social
- User engagement is going to take centre stage
- It's going to be all about the bots
- VR/AR are going to make their presence felt

This is, of course, merely the tip of the iceberg. It would be interesting to see how the year shapes up. After all, isn't innovation and constant change the name of the game?



REARVIEW MIRROR

2017 was, without a doubt, an eventful year for the technology space. There were, of course, several hits and misses, which, experts say is a part of the game. Going forward, the fast pace is expected to continue, with many more unexpected twists and turns. Key technology influencers share their view on this year's hits and misses and what is likely to take centre stage in 2018. Excerpts...



Simon Cocking

Senior Editor, Irish Tech News and
Editor-in-Chief, CryptoCoinNews



Daniel Steeves

Chief Executive Officer
Steeves Solutions, Germany and Nigeria



Ronald Van Loon

Member, Advisory Board; Advisor,
Big Data and Analytics Course, Simplilearn



REARVIEW MIRROR

On what is likely to be in the news in 2018



Alternate currencies, Ethereum, ether, and all the tokens built on this platform will be in the news. An increasing number of Initial Coin Offerings (ICOs) will be witnessed, just of a higher quality, as the fakes and scams are weeded out.



Being more of a fan of realism with a side of cynicism, you could say that by definition I'm not much on futurism. That said many have been expecting a bubble or two to burst, whether it be the extreme valuations of some start-ups, the ongoing growth of bitcoin or large scale ICO fund raising – but I'm expecting that to continue mostly unabated for some time yet. I assume that 2018 will be the year of blockchain hype and that somewhere amongst the noise we'll find enough innovative thinking to deliver a strong signal.



Machine Learning applications are going to grow and develop, with each vendor providing a domain-specific solution. Organizations must effectively handle increases in different data streams, including Deep Learning applications, and need fully integrated, end-to-end data management platforms while having the capability to transform all of this data into actionable insights. Deep Learning and artificial intelligence (AI) applications in video analytics and voice recognition will also continue to increase, responding to the shift in video usage as a significant source of data generation. In 2018 we're also going to see the continued evolution of Edge Analytics, which corresponds to the substantial increase in sensed, connected devices. It enables real-time analytics solutions at whatever point data is generated. This gives businesses the ability to improve their responsiveness and overcome challenges regarding slow network availability, overtaxed central systems, and massive volumes of streaming data from so many connected devices.



On what failed to live up to the hype in 2017

Augmented reality and/or virtual reality are coming along fast. However, at times it is still a solution looking for the right problem.

It is easy to say that 2017 turned out to be the year of the bitcoin investor (at least, for some) and I am to report that my own logic was a barrier to a very serious return! Otherwise the most notable thing was probably the blockchain coming into the business – and public eye. Things will never be the same (but not too many realise that quite yet!)

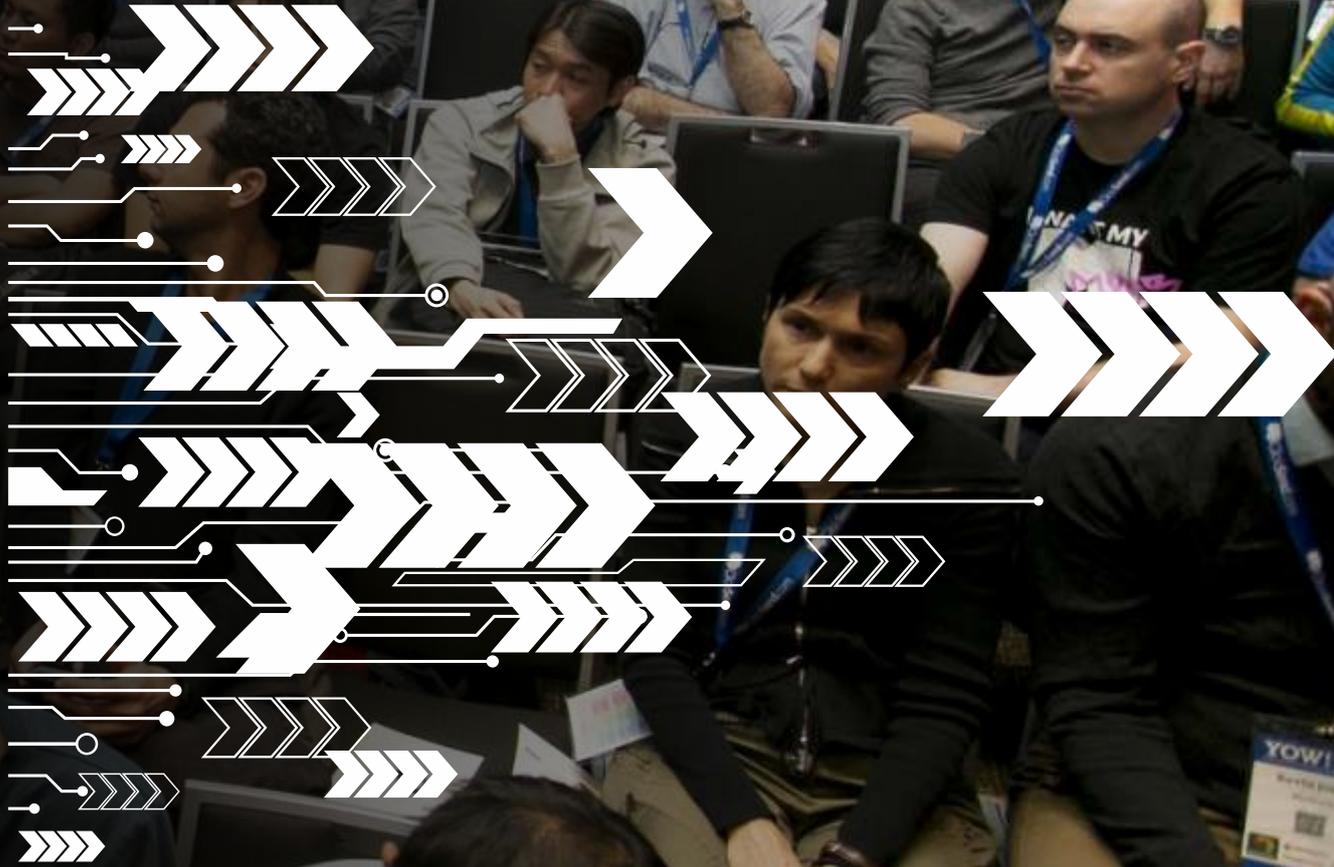
We witnessed practical first implementations of AI technologies at leading companies in 2017, but it was far from mainstream. As Machine Learning and Deep Learning applications continue to mature in 2018, so will AI applications.

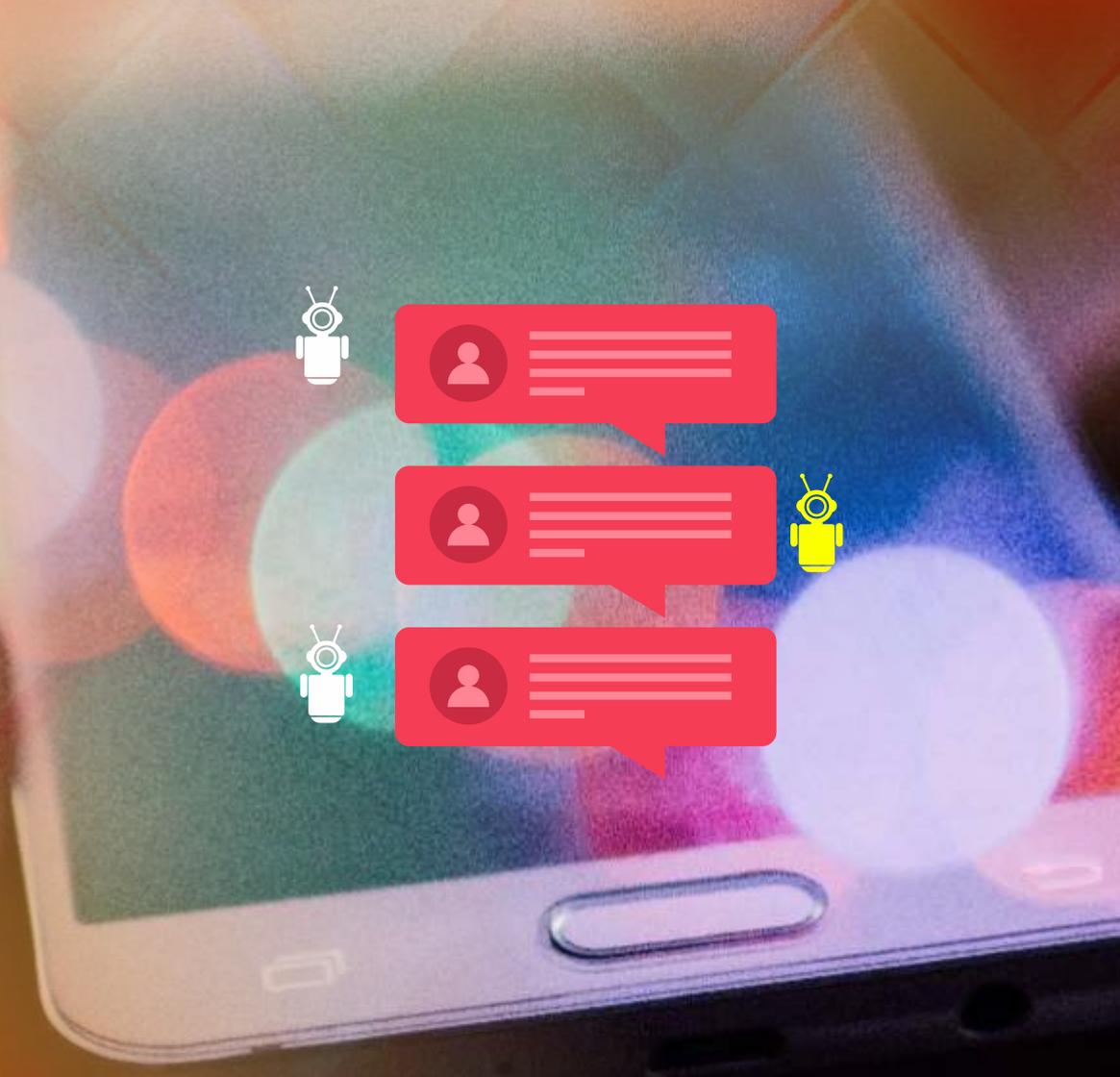
DEVELOPER CONFERENCES

YOW! AUSTRALIA
ITP

DELIVERING

KEY TAKEAWAYS





2016-2017

> MESSAGING

The dawn of Conversational Commerce



FACEBOOK DEVELOPER CONFERENCE (F8)

Facebook bots will make Messenger a one-stop location for all the information you could ever need; from news and weather bulletins, to fictional characters that will interact with you to create a story.

APPLE WWDC

For iOS 10, Siri has been opened up to third-party developers, letting users book Ubers, send WeChat messages, and watch sports, all by asking Siri to do it for them.
Messages opened for third party developers

GOOGLE I/O

Launches next generation of Google Assistant for Allo and Home. Google assistant can be called during an conversation. Suggestion Chips – the google assistant offers possible replies

Launches Duo – Apple's facetime competitor

SAMSUNG DEVELOPER CONFERENCE

Like Echo, **Otto can answer simple search queries** via voice and control a variety of smart-home systems, such as lighting and thermostats.

CONSUMER ELECTRONIC SHOW

Automakers moved to connect not only to the smartphone, but to the smart home and other parts of the digital life. Ford teamed with Amazon to link up the carmaker's Sync vehicle hub with the online giant's smart home hub called Echo.

2016 – 2017 IN A NUTSHELL

2016 was all about conversational commerce. Mark Zuckerberg, Facebook CEO summed it beautifully, "We should message a business just the way you would message a friend". Apple opened its API to developers adding a new set of wheels to Conversational Commerce.

> PAYMENTS

The party is over –
Payments firm buckle up, after
Stripe's poor IPO Facebook
Developer Conference (f8)



The bots will know everything about any item in their store and will be able to help you through any concerns you may have while shopping. Facebook is hoping that this will consolidate online shopping and provide convenience for its users. As Mark Zuckerberg put it, you can order flowers from 1-800-Flowers without ever actually calling the number.

MONEY 20/20

Buzz was around AI, bots, and **new mobile identity verification systems** (haptic, biometric, and more)

It's now also clear that being top of wallet is critical – with McKinsey's Global Payments Practice leader Kausik Rajgopal sharing data that 70% don't change the primary card in their digital wallet barring a major card event.

Machine learning is very important to an ever-increasing number of players in fintech. Also, human experts combined with machine learning make for a much stronger solution.

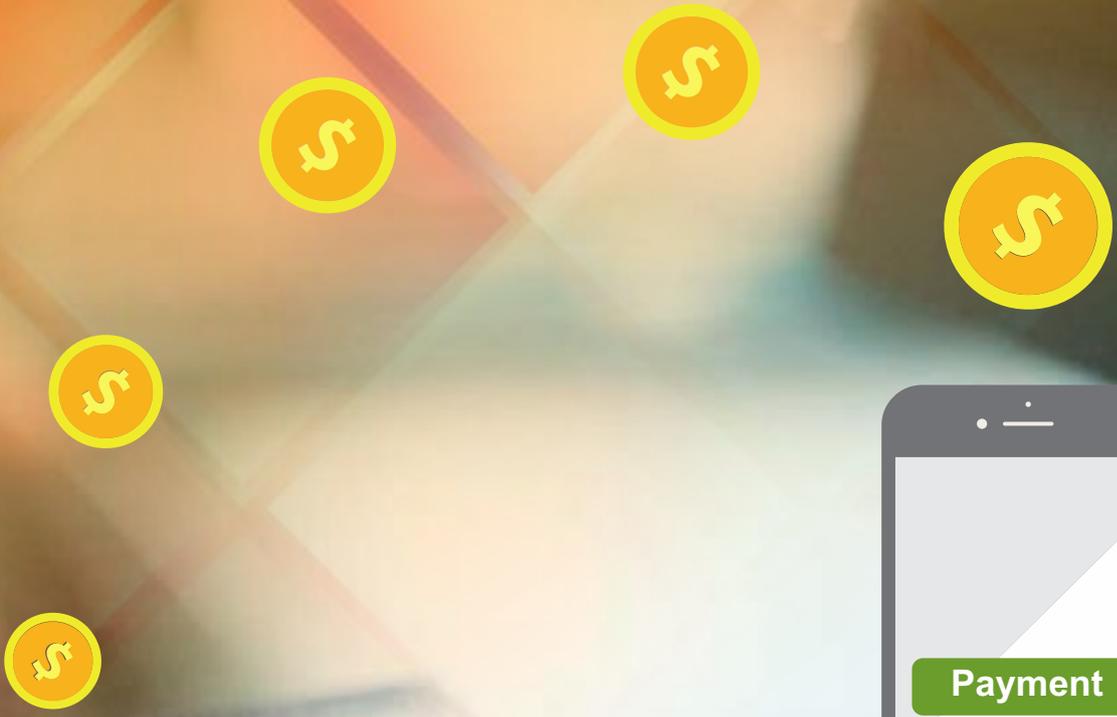
Bitcoins may be losing cache – there was almost zero talk of them – but many traditional players are experimenting with the Blockchain with aim to reduce costs, make back-end fund transfers safer, and more.

Google announced agreements with Visa and Mastercard to emerging Blockchain players working with banks to enable faster, cheaper transactions on their legacy rails.

Competitive pressure continues to rise on merchant acquiring economics.

2016 – 2017 IN A NUTSHELL

Blockchain, the technological concept behind Bitcoin, is real. In many ways, its approach to storing data in a transactional database that is distributed across many machines is reminiscent of the cloud approach to computing. As Square CEO Jack Dorsey noted in his keynote at Money 20/20: Both are “distributed, redundant, failsafe, and ubiquitous.”



> DIGITAL CONTENT



FACEBOOK DEVELOPER CONFERENCE (F8)

Facebook is upping the ante for 360-degree videos - unveiled its first 360-degree camera, aptly named the Facebook Surround 360. It comprises of 17 interconnected cameras that simultaneously capture video and feed it into specialized software that seamlessly stitches it together. Hardware and software for Surround 360 will be open-source so that developers will have their shot to help 360 videos progress.

Big plans for virtual reality on the horizon - Plans for Virtual meetups and interactive entertainment. Zuckerberg's hope is that the VR functions found in devices like the Oculus Rift will soon be able to fit in a pair of ordinary glasses.

Live videos are now a top priority

Your browsing experience is about to be even faster and more efficient with instant articles

APPLE WWDC

Apple TV can also become a remote control for the company's smart phone, internet of things control system called Home Kit

GOOGLE I/O

Announced a new home system called Google Home a small speaker with an always listening

Home is built chromecast standard which allow it to push media to other cast compatible devices, change temperature or lighting through devices.

CONSUMER ELECTRONIC SHOW

Netflix stunned the show with the announcement that it added 130 new countries for its streaming TV service to bring its total to 190, calling it "the birth of a new global Internet TV network."

India will be one of the new markets for Netflix, which is still studying ways to get into China.

Virtual reality spread beyond video games to touch sports, sales and space exploration.

Facebook-owned Oculus began taking pre-orders for its eagerly-anticipated Rift VR headsets at a price of \$599

Startups turned attention to ways to tap into the brain.

A "mind control" headband unveiled by startup BrainCo effectively hacks into brain signals with a range of possible applications -- from helping to improve attention spans, to detecting disease, controlling smart home appliances or even a prosthetic device.

2016 - 2017 IN A NUTSHELL

2016 was revolutionary year in Tech. Facebook took something that was abstract – Virtual Reality & Augmented Reality – and brought it into our day to day lives.

> DATA

Virtual Reality – Preparing for the platforms of tomorrow



FACEBOOK DEVELOPER CONFERENCE (F8)

Facebook will deliver internet access from the skies

In addition to Aquila, Facebook announced a new project called Terragraph as part of its accessibility initiative. Terragraph consists of a network of interconnected nodes mounted on light posts throughout dense urban areas that will provide fast, easily connectable internet for anyone walking the city streets.

GARTNER BI SUMMIT

Focus on business outcomes

Algorithms are set to become the basis of competition between organisations, with Gartner predicting that 75% of large and mid sized organisations will compete using advanced analytics and algorithms by 2020.

Continuing on from the point above, data became a balance sheet asset a while back, next it will be algorithms and registered IP that will accumulate value for organisations.

Gartner claim that 90% of leading organisations will have hired a “Chief Data Officer” by 2019.

Trial / Freemium analytics software is the new black

Gartner asserts the number 1 reason that people have trust issues in data is that technology innovation goes too far.

Data/Information security needs to keep pace with the growth in data

2016 – 2017 IN A NUTSHELL

“Mobile is the platform of today, and we are also getting ready for the platforms of tomorrow” – Mark Zuckerberg



2018

◀ THE YEAR THAT WAS AND WILL BE ▶

> MESSAGING

Smart speaker is like having a remote control in the real world



APPLE WWDC

Apple Announces Homepod Speaker to take on Amazon Echo and Sonos
 Apple Homepod integrate with Siri in an Amazon Echo/Google Home like use case
 You can use it to control smart home devices and check the day's weather and news briefing

GOOGLE I/O

Like Amazon, Google is turning its smart speaker into a phone. Only outgoing calls will be available at launch, as Google is taking a cautious approach to avoid privacy headaches.
 Google showed off what it's calling "[visual responses](#)." Using Google Assistant, Home will now be more capable of directing the right information to the right connected screen.

SAMSUNG DEVELOPER CONFERENCE

Project Ambience – getting Bixby onboard IoT. Samsung is uniquely positioned since it produces more hardware than Apple, Google or Microsoft.
 Viv will continue to operate as an independent company that will provide services to Samsung and its platforms.

CONSUMER ELECTRONIC SHOW

Amazon will have a major influence in the segment with many Alexa powered devices on show at CES 2017. Examples: Lynx, the \$799 humonoid robot
 Hype for smartwatches and fitness trackers was certainly subdued during the year
 Amazon smart Home devices controlled by Alexa voice assistant

2016 – 2017 IN A NUTSHELL

Speakers were just dumb boxes in a room for many years until Amazon Echo happened. Now you can control just about anything in the room with Amazon Alexa. 20 million units have been shipped out till date. .

> PAYMENTS



MONEY 20/20

Because of the Equifax breach, there's renewed interest in accurately establishing the true identity of online customers.

Blockchain gains traction, as almost every major bank (including UBS, Goldman Sachs, and Morgan Stanley) around the world is testing it.

According to Michael Abbott, Digital Lead for Financial Services at Accenture Consulting, "the industry could expect \$31.3 billion in global card losses in 2018, which have increased by 18% every year since 2013."

FinTech industry seems to be scrambling to understand how biometric-based authentication will work and whether it can be used to securely, reliably, and easily establish identity.

A primary focal point for the AI conversation in payments is anti-fraud and many of the emerging vendors in this space, including Signifyd, Kount, and Jumio, are investing heavily in AI and machine learning to help identify criminal patterns.

As the payments universe expands, customer experience is becoming the prime competitive differentiator. User experience is a genuine threat to banks because it usually translates to fewer touchpoints with their own customers.

Alipay and WeChat Pay are ratcheting up their expansion plans through separate initiatives that will allow taxis outside the mainland to accept digital payments from Chinese travellers using these services.

Mobile payments are poised to make a move in 2018. Consider this: 64% of consumers plan to use a mobile wallet in 2020, up from 46% today (source: Accenture 2017 North America Consumer Payments Pulse Survey).

APPLE WWDC

Pay and receive payments from contacts through iMessage

2016 – 2017 IN A NUTSHELL

AI came into prominence in the year backed by active VC funding. The startups solved a very specific problem – fraud. Considering that 64% of the consumers plan to use mobile wallet in 2020, up from 46% - this development is very timely.

> CONTENT

The future is immersive



FACEBOOK DEVELOPER CONFERENCE (F8)

Facebook to make camera its first augmented reality platform

Facebook's long-game play is based on the prediction that AR is set to replace the hardware we know today.

Bets of optical neuro imaging, allowing people to type by simply thinking about it

GOOGLE I/O

Home is now going to be able to control HBO Now, Hulu, SoundCloud, Deezer, and more.

Launches Google Lens – analyzes your surrounding and display relevant content on your screen (artificial intelligence with camera)

Google Photos uses AI to remove unwanted objects

CONSUMER ELECTRONIC SHOW

AR with glass surfaces, like Panasonic Window AR prototype , AR Car Windshields; AR requires less horsepower

2016 – 2017 IN A NUTSHELL

In 2017's f8, Mark Zuckerberg envisaged a future where software will replace physical device. For example, you could easily replace a \$ 5K TV with a 99 cent app on your VR headset. 5G and new VR hardware are key to this future.

CONCLUSION — WHAT TO EXPECT IN 2018

MESSAGING



Advances in AI Development

Due to advances in Natural Language Processing (NLP) machines hear better than us. For example, the average word error rate for human is 5%, while for machines it is 3-4%. However, they are still unable to talk conversationally with us. However, this might change in 2018. Google's Deepmind showed us in 2017 that machines can learn intuitively, in iterations.



Smart Speakers will usher a revolution in voice

All the big players in tech are invested in voice messaging. However, until very recently, there were no business cases to justify the investment. However, all that is changing with the growing home speaker market, which include Amazon's Echo, Google's Home, Apple's HomePod, and Samsung's Otto. Amazon has already sold 20 million units. With Amazon pushing Echo very aggressively, voice will become an important platform.



Messaging will overtake Social

The winners will be Facebook's Messenger, Google's Allo, Amazon's Alexa and Apple's iMessage, and WeChat. Advances in AR, chatbots, voice recognition will provide value, entertainment and commerce.

CONTENT



Rise of user engagement

Content providers will focus on user engagement to rise above the noise and decreasing attention span.



AI

AI will assist humans in content creation and dissemination. Improvement in natural language processing, image recognition and voice recognition will spur this trend. This will include articles, as well as videos. More companies like Toutio will come up.



Bots will become important

With Facebook launching discovery and chat extensions, the media and entertainment industry will leverage the trend to improve the level of engagement with their customers. Disney, Universal Studios have used this feature to market their content. Other early adopters include news publishers such as NY Times, CNN, NBC, WSJ.



VR/AR

In a landmark decision in the history of 360 degree content, as well as AR/VR, Facebook licensed its 360 degree cameras to content developers, which drive progress in the field. Apple's ARkit is a move in a similar direction.



Smart Home Entertainment

The home entertainment industry is poised for a major shakeup with the likes of Amazon, Google, Apple, Samsung launching their range of voice assisted Smart Speakers. Google Home, is now going to be able to control HBO Now, Hulu, SoundCloud, Deezer and more. Google showed off what it's calling "visual responses." Using Google Assistant, Home will now be more capable of directing the right information to the right connected screen.



Blockchain

Blockchain would decentralize the entire content industry. It would free content from the shackles of a few media companies and conglomerates controlling content. It would lead to artists getting a fair share for their work, and more transparency in transactions.

FINTECH

Open banking

Open banking will become the conduit for more transparency and innovation in banking and finance. It will provide a shift from physical branch led banking to mobile first banking.

AI, Machine learning, deep learning

Deep learning will help banks to assess customer's creditworthiness, fight fraud and lower the rate of card declined at merchants.

Voice payments

Key developments in voice based assistants such as Apple's Siri, Amazon's Alexa, Google's Assistant, and Microsoft's Cortana will lead to a resurgence in conversational commerce.

IoT

The Internet of Payments segment is ready for takeoff, with the number of connected devices with integrated payments increasing. Machine to Machine payments could be the next big revolution in payments, especially with blockchain providing the security as well as control.

Robo Advisory Services

Robo Advisory services provide a new perspective of managing wealth, especially for millennials. Robo advisory is new type of financial service that uses mathematical calculations to allocate wealth across different asset classes and is characterized by minimum human intervention.

Social Payments

With facebook launching chat discovery and chat extensions banks have expressed their interest in joining the chatbot economy. The aim is to weave into context as quickly and naturally as possible. Eg: Two people are having a conversation on facebook. One of them calls a Western Union Bot and pays the other.

DATA



Machine learning

Systems are now moving from using brute force to solve problems to using trained learning to tackle very complex issues. And they are doing it more quickly, and with less code.



Democratization of AI

The application of artificial intelligence and machine learning is no longer only in the realm of the enterprise innovation teams. Today, with many toolkits coming to market and prices dropping quickly, there are many tools available to small and medium-sized businesses that leverage artificial intelligence.



Diverse Use cases

Artificial intelligence and machine learning will be used in almost all applications by 2020. Think crime prediction, handwriting or even lip-reading recognition, price optimization, error prevention, customer support assistance, and of course, self-driving cars.



Too early to dismiss Narrow AI

We should not dismiss simple applications, called narrow or shallow artificial intelligence. These today are being used with great success for simple tasks like scheduling assistants.



Edge computing

With facebook launching chat discovery and chat extensions banks have expressed their interest in joining the chatbot economy. The aim is to weave into context as quickly and naturally as possible. Eg: Two people are having a conversation on facebook. One of them calls a Western Union Bot and pays the other.

Mahindra COMVIVA

THE BUSINESS OF TOMORROWS

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