gAliT fEiN

EVP & Senior Analyst
STKI

New technologies & methodologies meteor shower

Agenda

Process		Data		Organization	
Digital glue	API Strategy	Smart world	Machine learning	Community code	Open source
Conversational systems	Voice & messaging interface	**Real time knowledge**	IoT SW, sensors	**Trust engine**	Blockchain
	Chatbots		Wearables		Smart contact
	AI		mPayments		
Automate develop. & deliver	Dem				meworks
	Build				rs
	Cont				

New IT organization: Structure, governance, risk

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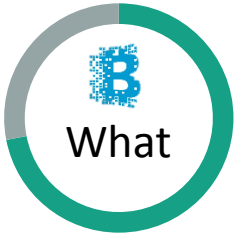
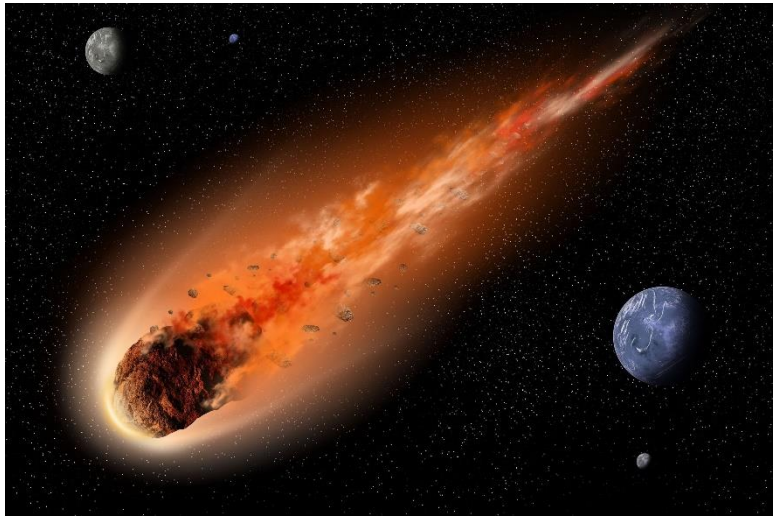
Blockchain





Will hit mainstream in 3 years

Definition

Blockchain is a technology for exchanging **value** (assets, contracts or transactions) over the internet **without central authority** or intermediary

Blockchain technology

Will fundamentally change :

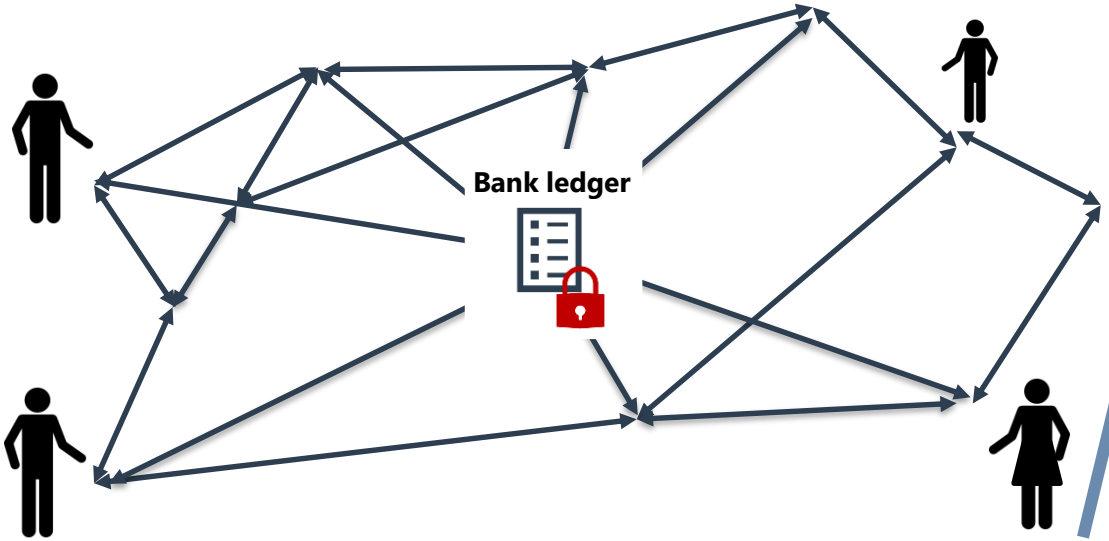
- economy, governance and business function
- understanding of trust, ownership and trade

Trade complexity requires intermediaries

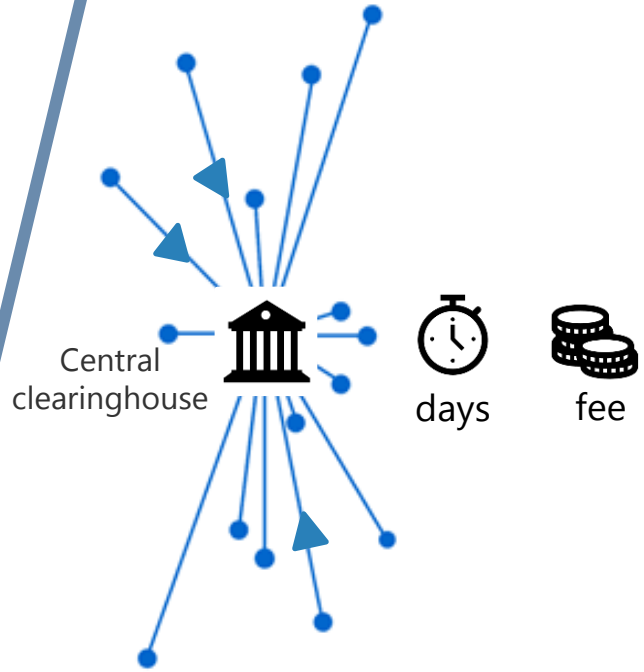
What

Trusted 3rd parties

Gov Accountant Notary Bank



Current trade business model



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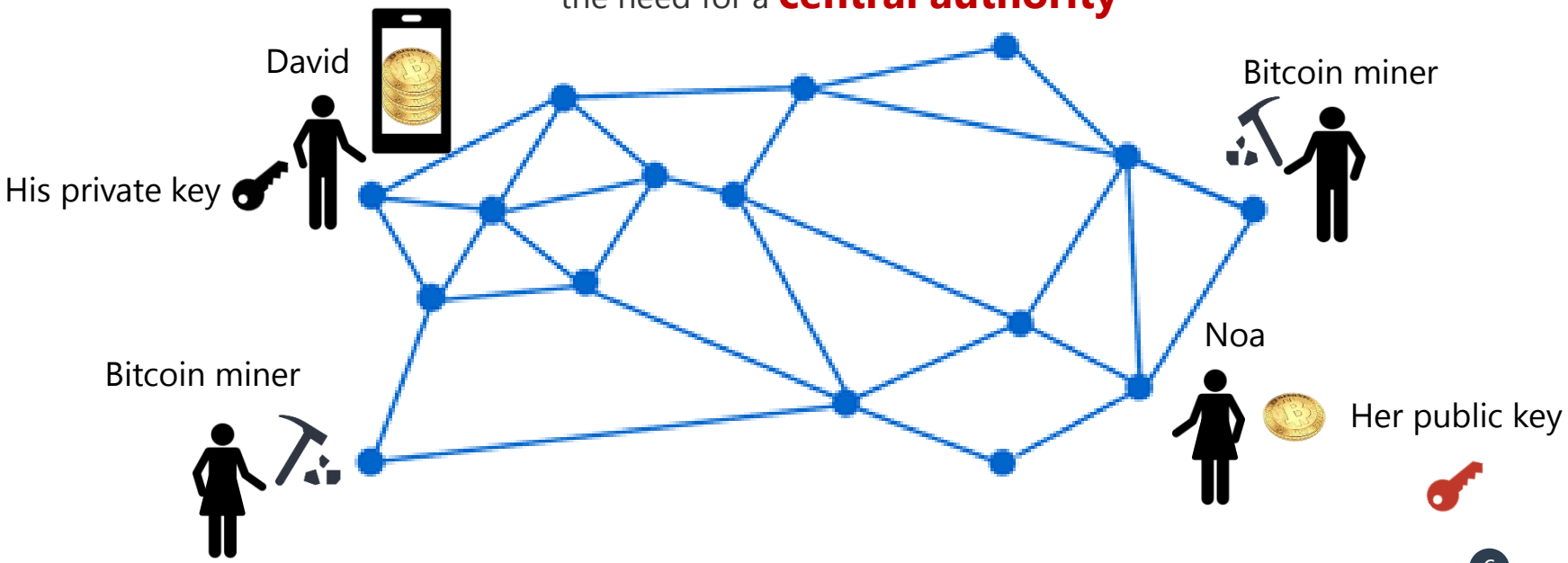
Getting rid of the middleman

How

Blockchain allows a **distributed network** of computers to reach **consensus** without the need for a **central authority**



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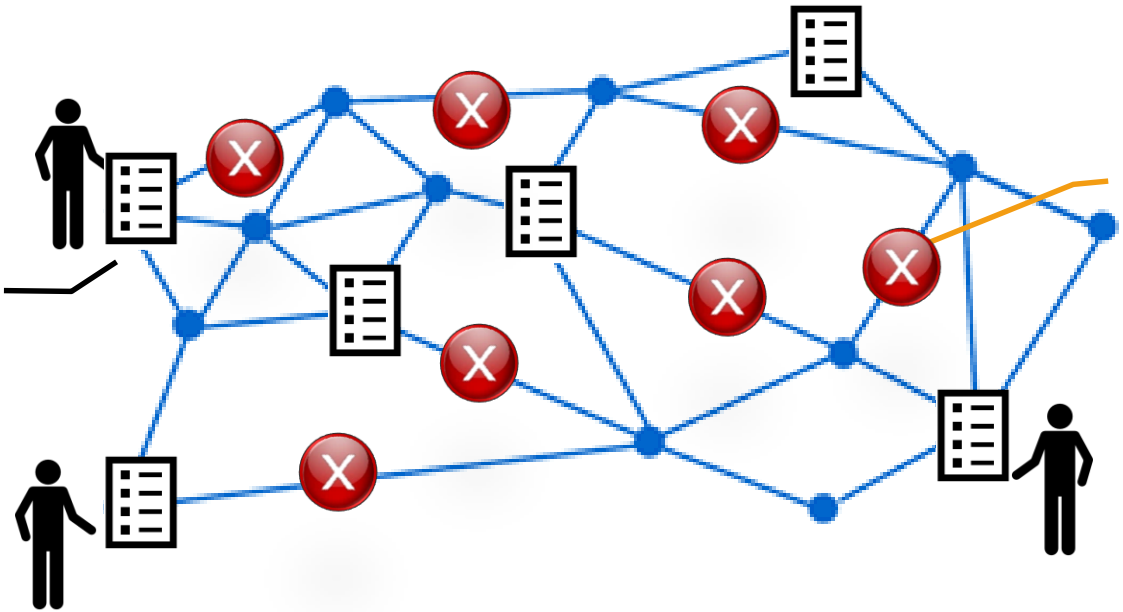
Shared single source of truth

How

Shared ledger

Transactions are synchronized & transparent to all

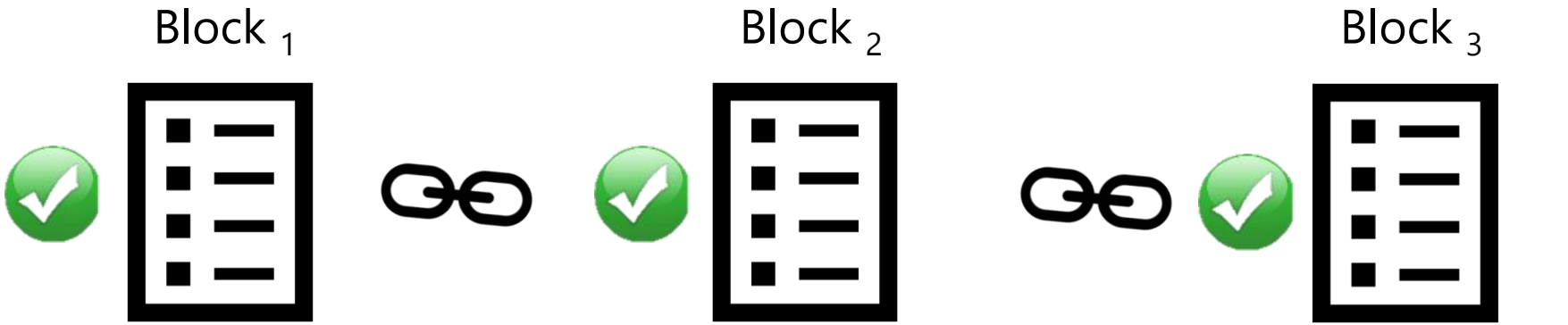


Consensus

An agreement among group of people without the need for a central authority

Block and Chain

How



It's **impossible** to change or remove data once a block is recorded on the blockchain ledger

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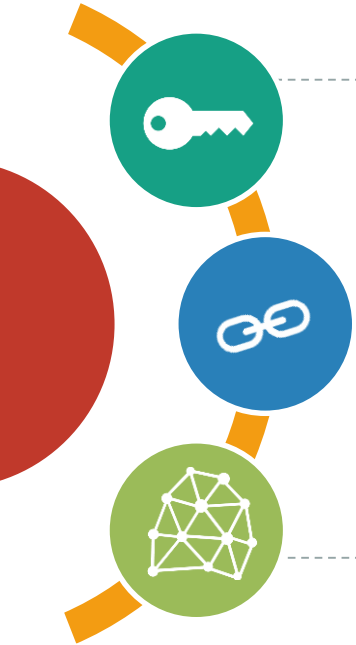
Benefits of blockchain technology

by *Forbes*

Why



Secure

As a public ledger system, blockchain records and **validates** each and every transaction made, which makes it secure and reliable.

Immutable

Once transactions enter public ledger, the **chronological history** remains forever and could not be change

Faster and cheaper

There is **no mediator** in between two people making the transaction, so it's faster and cheaper

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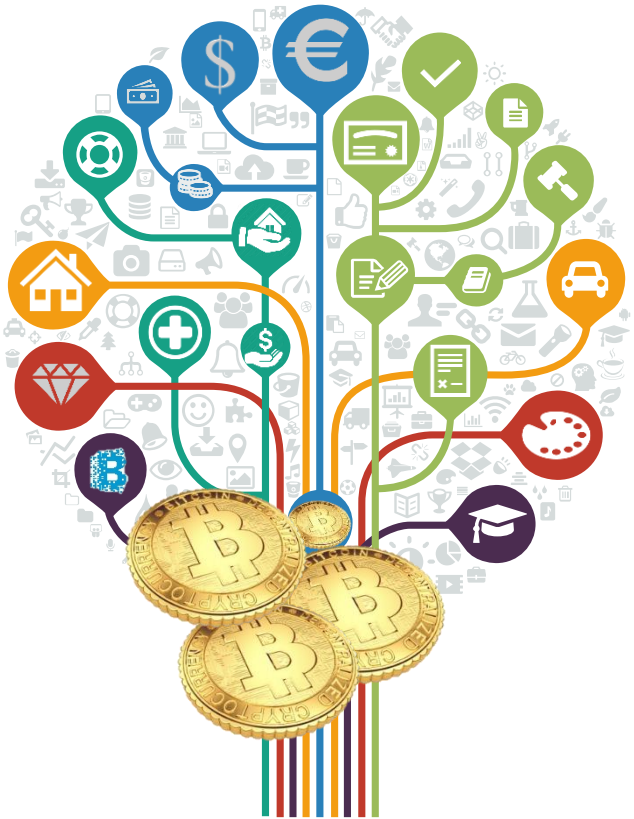
Blockchain of Everything

Why



- Digital currency 01
  Euro, dollar, Yen, credit card
- Intangible asset 02
  Loan, mortgage, life insurance
- Governance & compliance 03
  Contract terms, regulation, digital certificate of ownership, vote
- Tangible asset 04
  House, car, etc
- Digital twin 05
  Art, diamond
- Intellectual asset 06
  Academic degree, patent

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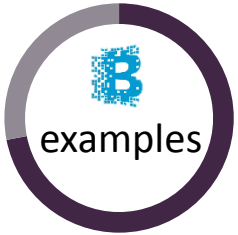
Cases of blockchain use



Blockchain and diamonds	Blockchain and car industry	Smart contracts	Medical records and Insurance	Blockchain and data mngt.
Everledger	*La'Zooz*	*Allianz*	*BitHealth*	*Colu*

Cloud based, open source software as a service

IBM, Microsoft

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Finance sector will be the first to adopt the Blockchain

Why

- Faster and cheaper than legacy processes, less bureaucracy
- Smart, self governing contracts automatically execute the terms & conditions and monitor compliance
- Regulators' paradise: data is available to regulators in real time; automatic, full audit trail
- The only way to stay relevant and competitive to fintech

Bank VS FinTech

F — Cloud only, mobile first, non regulated industry

B — Paper-heavy, expensive, complicated & highly regulated industry

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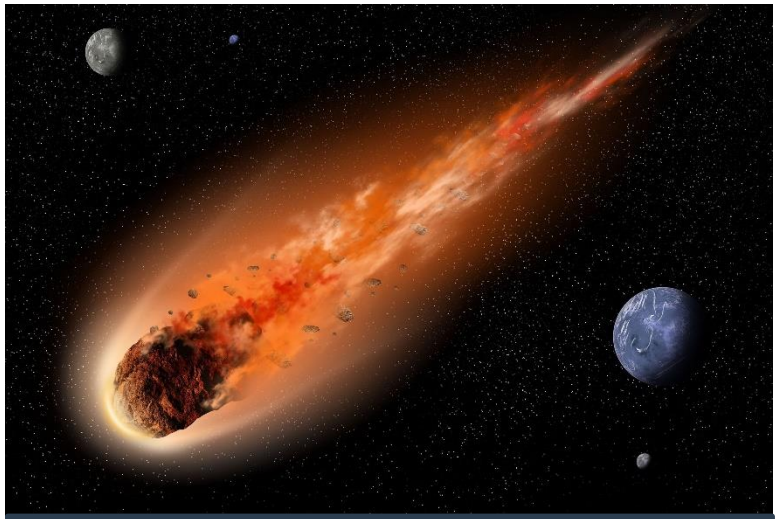
Internet of Things



Will hit mainstream in 2 years

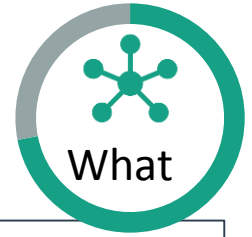
Definition

A network of internet-connected objects, able to collect & exchange data using embedded sensors

Connected smart world. Real time

Things around us are starting to share an enormous amount of data, many of them now have voice and intelligence. Based **on real time data & analytics**, we can improve experiences, reimagine business processes but most of all reach **new insights**

2 main groups of IoT:



Connected customer

What really matters to customers and how best to deliver it to them

- Smart home
- Connected car
- Health & fitness
- Empowered retail consumer
- Beacons, wearables, mPayments

Industrial IoT

Improving productivity, reducing costs, and automating internal processes

- Predictive maintenance
- Inventory mngt
- Better understing of product usage
- Smart city/ campus
- Water & waste mngt

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Connected customer and Wearable technology

What

Health & fitness track

Wearables – the greatest app of consumer IoT

Retail - Meet (directly) your customer, in-door journey

CX

Hyper relevant CX; Magic moment marketing

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Wearing Your Tech on Your Sleeve

examples

With one swipe you can answer calls, connect google map, listen to a music

Source: Google & Levi's smart jacket

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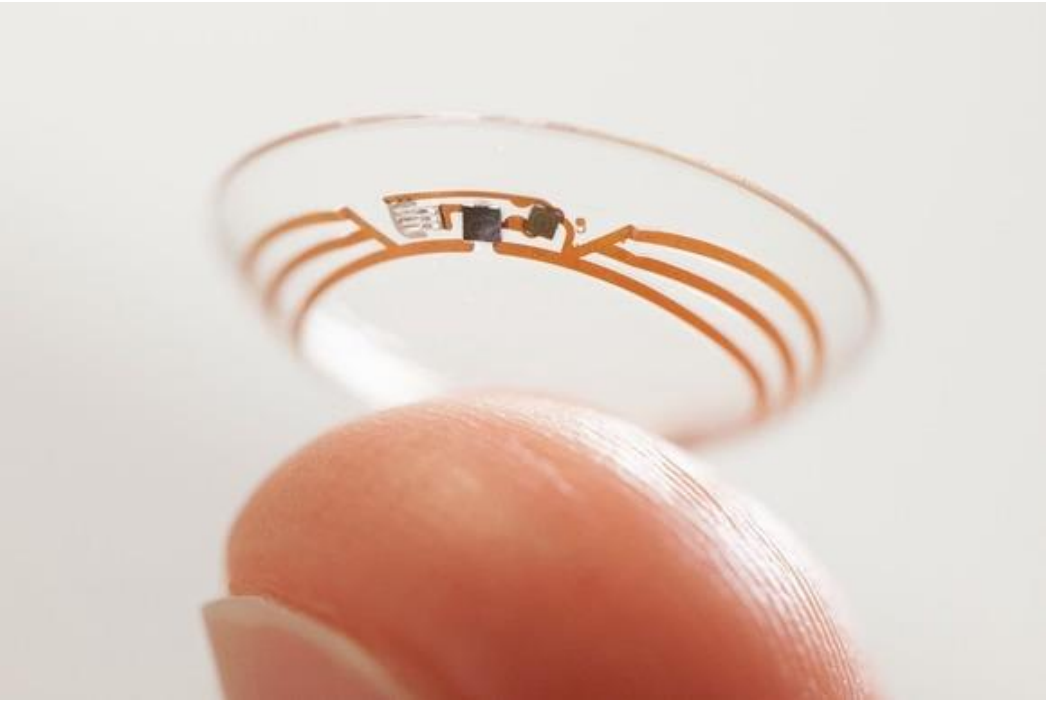
Why a smart contact lens is the ultimate wearable



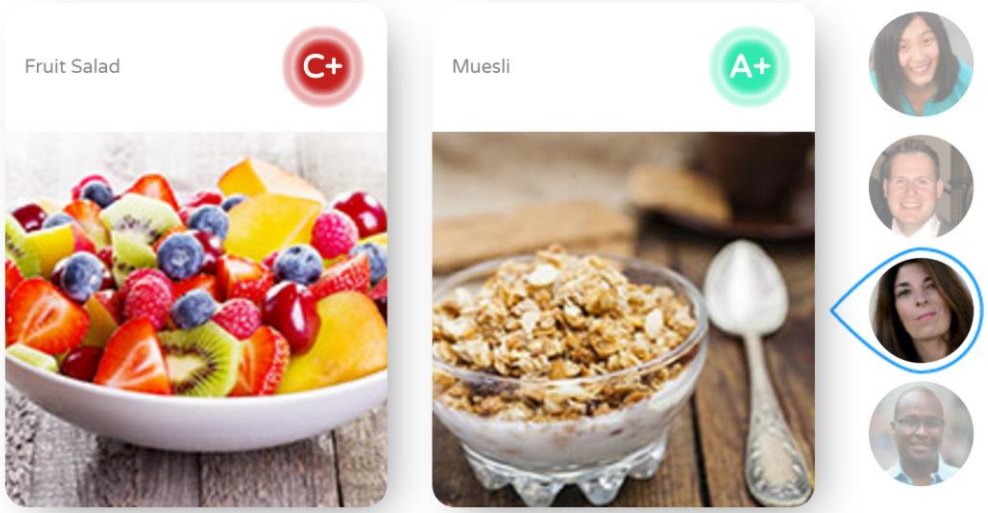
Systems will shrink so small that they can be embedded into an electronic contact lens:

- direction displays, video cameras, medical sensors

Source: Verily Life Sciences

What's healthy for others may not be healthy for you

examples



You'll be surprised to discover which foods are good for you and your gut microbiome

Source: DayTwo

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Wearables, smartphones & IoT will drive m-Payment acceptance

mPay – Why now?

Why

01 Ease of use/ seamless CX

02 Millennials/ ¼ of population, will lead the mobile wallets over credit cards and cash

03 Major players / Apple Pay, Android Pay, Samsung Pay established M-wallet successfully

04 Consuming on-demand / real-time capabilities of purchase and payment, self service check out

05 Bluetooth on the rise / using wireless everywhere you go

06 A new kind of personal assistant/ integrating all sources and providing consumers helpful info based on online habits, searches and behaviors

07 EMV/ mPay-at-POS technologies

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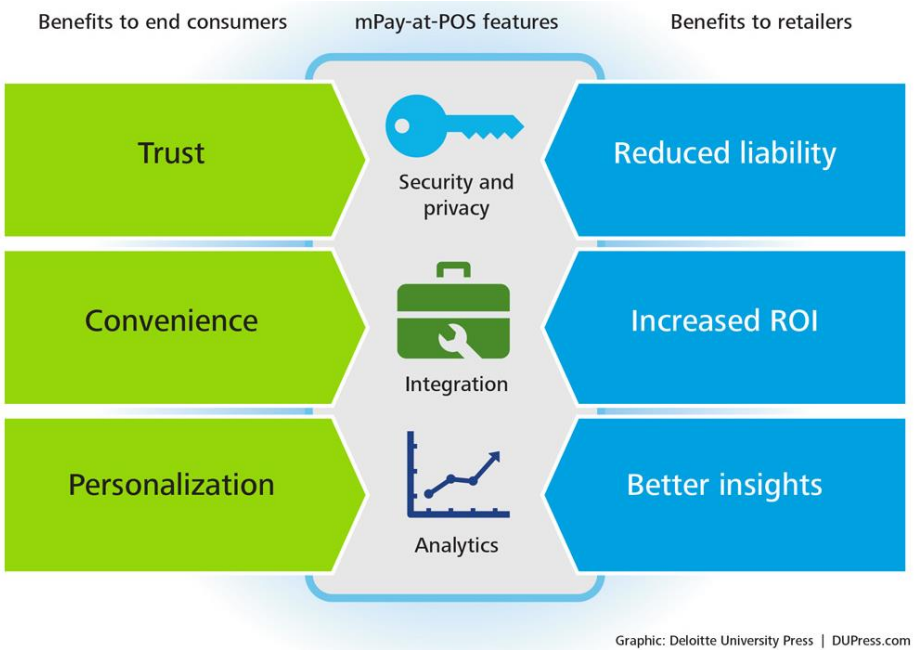
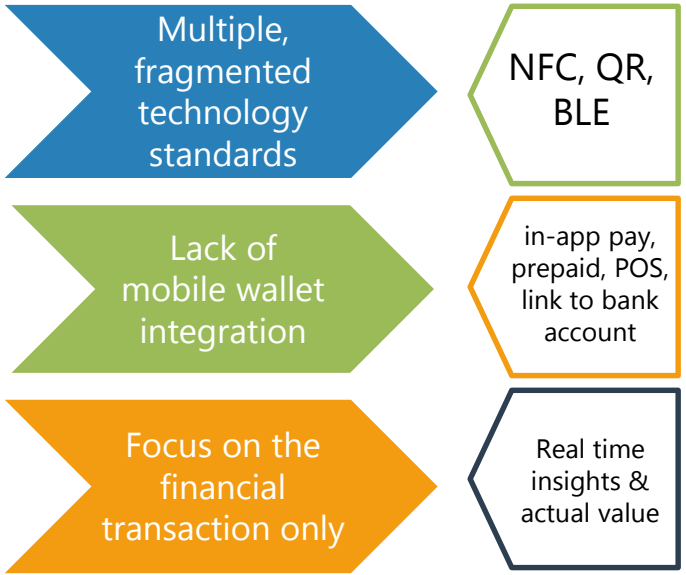
Benefits VS Barriers

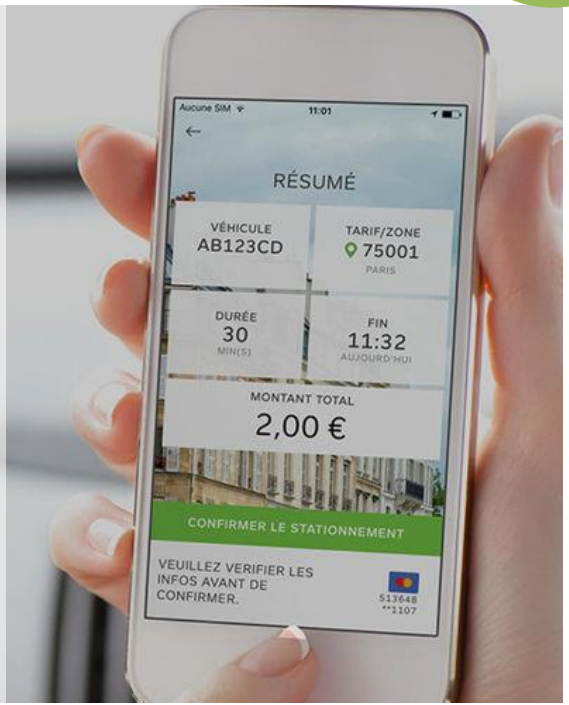




Mobile wallets

What next

- **Integrated loyalty programs:**
  - coupons, loyalty, and membership cards
- **P2P transfer, bill payment, order delivery updates**
- **Personalized offers:**
  - by in-store component with beacons
- **Ecosystem - in-car payment capabilities:**
  - parking, gas, restaurants



Volkswagen@PayByPhone

Enterprise centric IIOT

examples

Predictive maintenance

- Right on time maintenance
- Downtime reduction

Demanded transparency

Transparency of how things are being produced & delivered

Better product & service

Data from actual product usage & human behavior
Talk to your product

Smart logistics

- Inventory mng
- Better decision making

Smart city

- smart parking
- smart traffic mngt
- street lighting
- smart waste mngt

Improving productivity, reducing costs, automating processes

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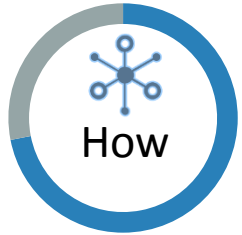
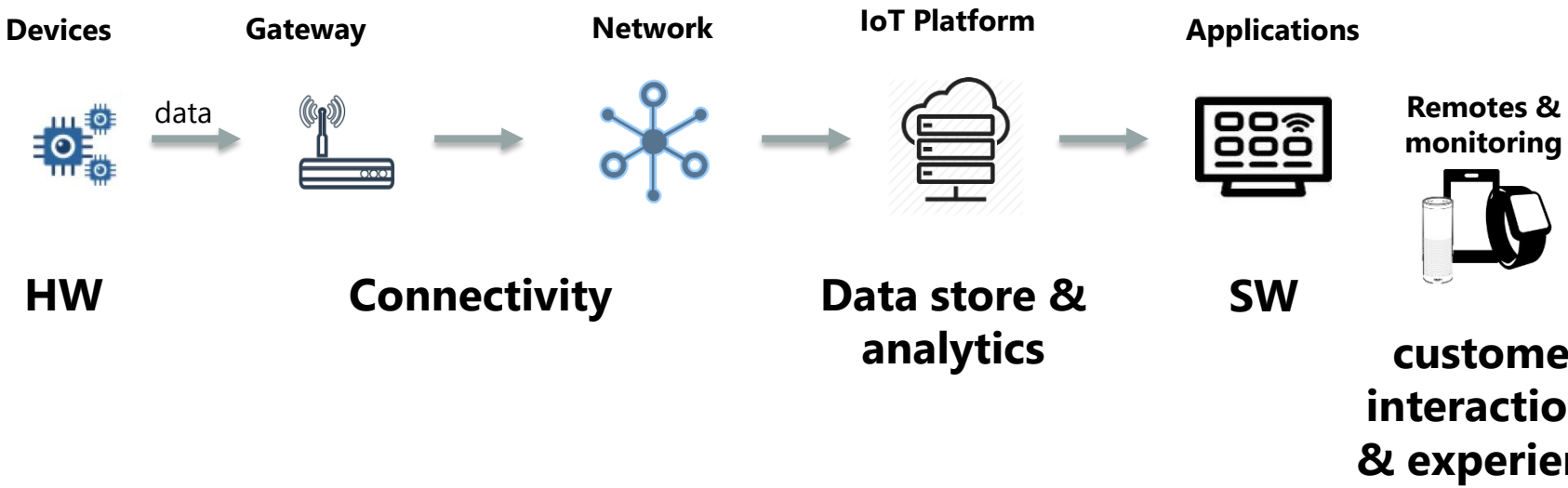
IoT comes with a load of challenges

1. Lack of business executives' full understanding regarding IoT outcomes
2. Lack of internal knowledge and skills
3. Business model variety
4. Different LoBs intersection Gathering insight from data across all aspects of the enterprise
5. Data volume & real time performance parameters
6. Device mngt , diversity & interoperability of devices (different standards)
7. IoT project complexity
8. Security, privacy and authentication
9. **Look for the BLOCKCHAIN**

IoT ecosystem





IoT major players in Israel

(partial list)

How

cloudera

DELL

thingworx

amazon web services

SAP HANA

splunk>

Hewlett Packard Enterprise

Microsoft Azure

IBM Bluemix

ORACLE CLOUD

Security

IoT devices & things

data

Edge computing Gateway

Network

Data store & analytics

Analysis & command

Business applications

Remotes & monitoring

Security

redhat.

Telit

ERICSSON

CISCO

HITACHI Inspire the Next

Google Cloud Platform

salesforce

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The glue that holds it all together: **IoT platform**

How

Modular middleware

Data storage, analytics, data communication & visualization

No platform covers all

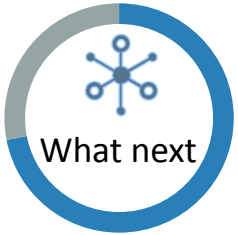
Long term strategy

Prepare a robust and modern architecture

Think BIG

Start small,
Scale fast.

Internet of Things evolution



Today

Tactic

Connect & manage devices to **collect & transmit data**

Tomorrow

HW&SW arrangement and deployment

Analyzing data

Next phase

Strategic

Devices interoperability & **automation insights** to action

- improved performance
- reduced costs
- innovative products
- new revenue

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Augmented and Virtual Reality (AR/VR)

Will hit mainstream in 3 years

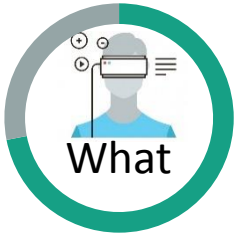
Augmented and Virtual Reality (AR/VR)

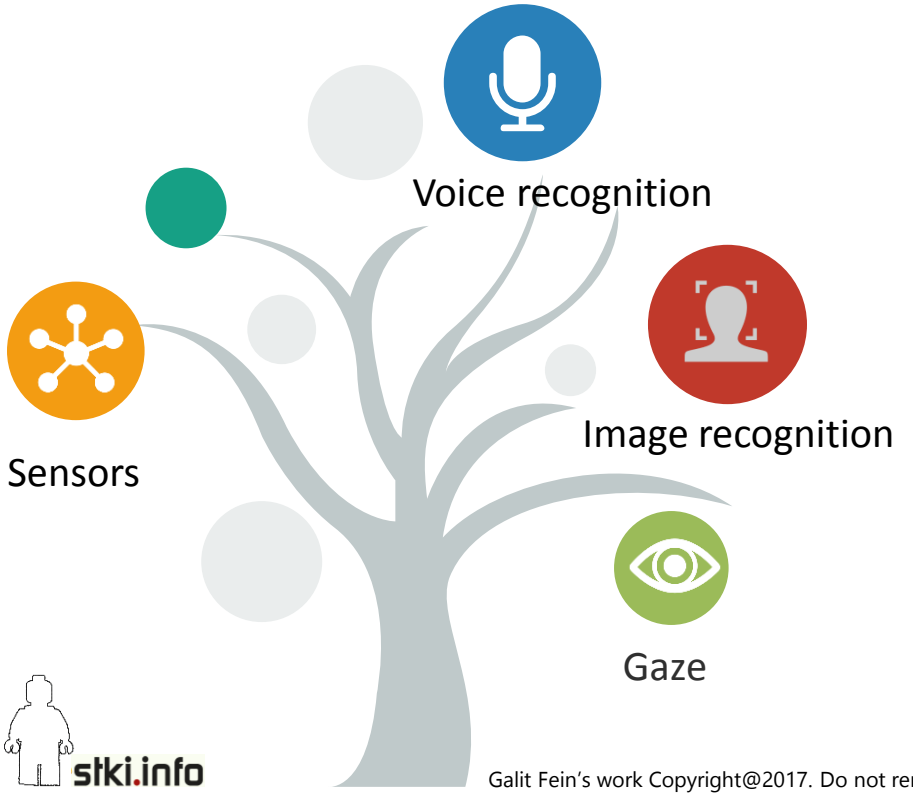
Natural interaction with a digital world, future interface, like remote interactions or retail wayfinding

AR/VR

AR and VR easing toward mainstream. Both technologies were once relegated merely to games, but today they're generating business interests. It's about more empathetic remote collaboration and storytelling which immerse users directly in an experience

Intuitive interaction with technology





Intuitive interaction allows communication with technology, making keyboard or touchpad obsolete

It's a lot more interesting to interact with an environment, if an environment can respond to you

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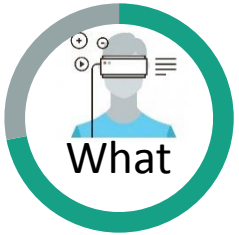
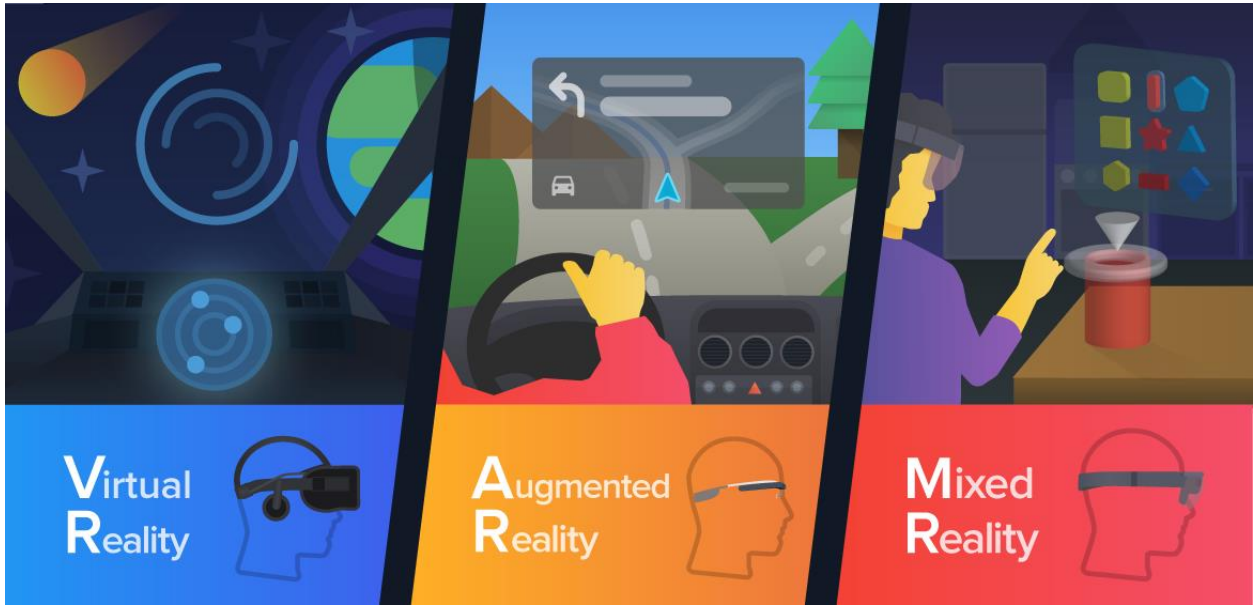
When will AR/VR/MR become a channel?





Facebook, Apple & Google are betting on AR/ VR

Microsoft HoloLens

examples

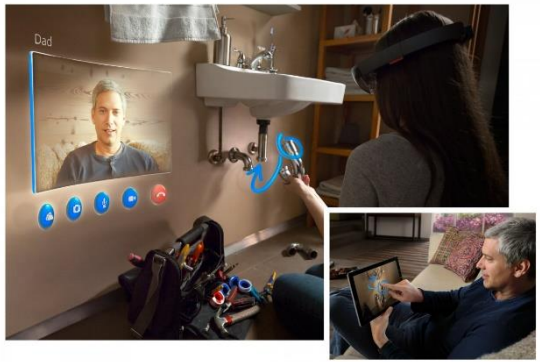
Microsoft HoloLens

AR headset with deep Windows 10 integration

Mixed reality

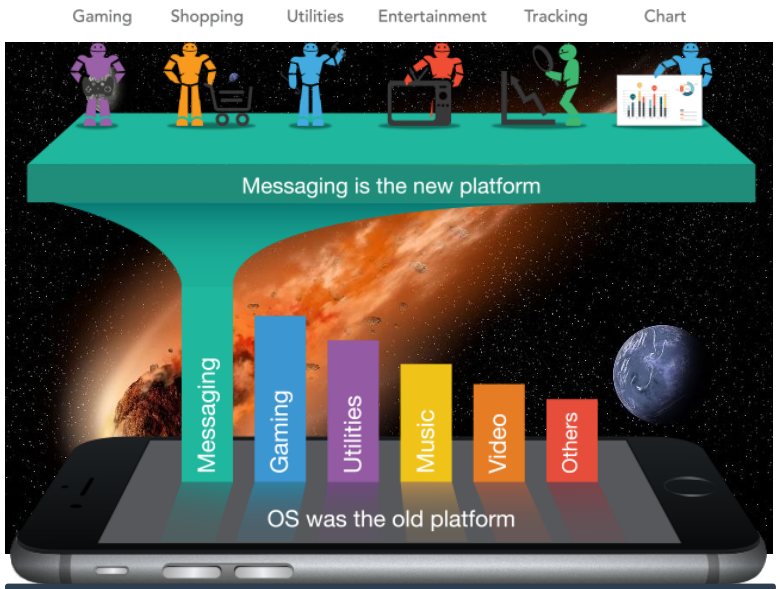
Your world is the canvas

When you collaborate, it's easier to show than to tell. Your Skype contacts can overlay sketches and holograms on physical objects in your view



Interacting with holograms in mixed reality enables you to visualize and work with your digital content as part of your real world

Conversational systems



Will hit mainstream in a year

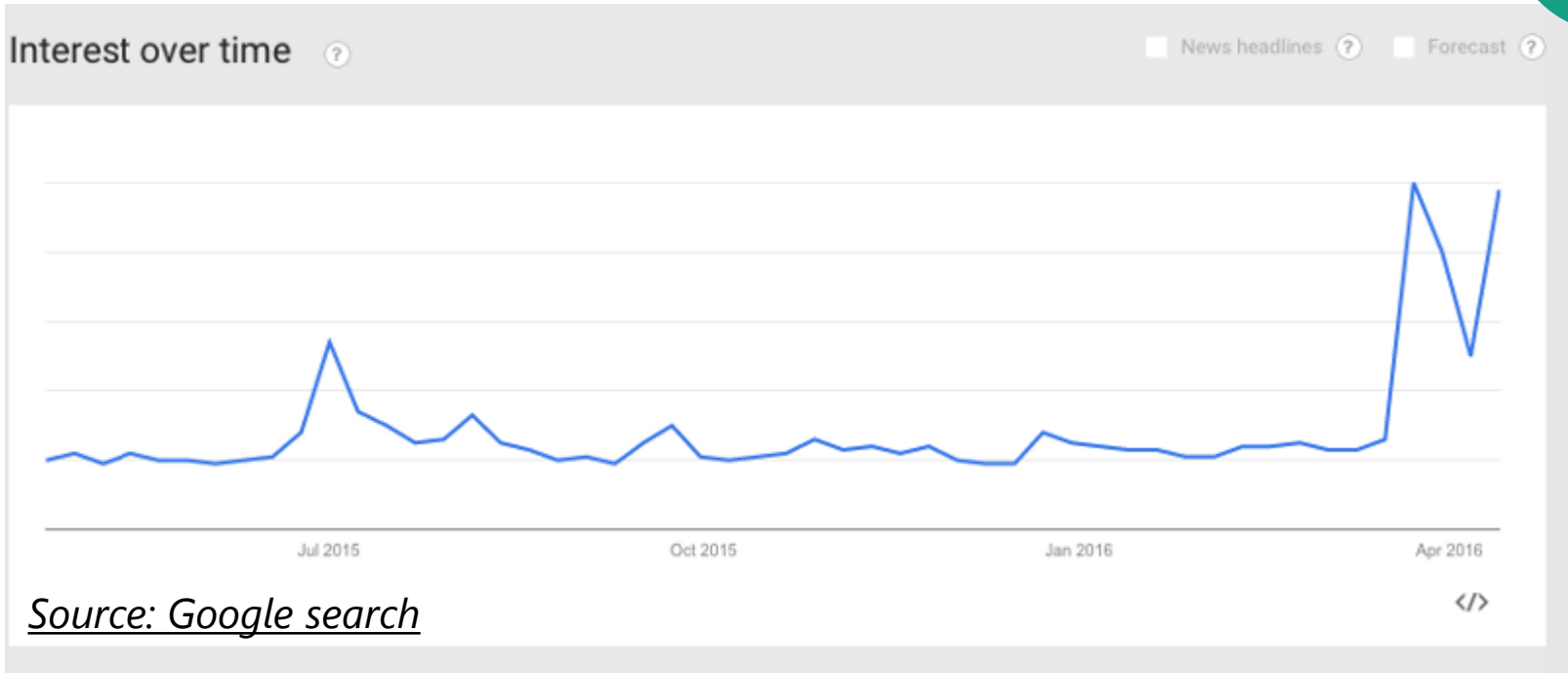
Voice & messaging OS, Chatbots

Powered by AI. Text-based services that let users complete tasks

Messaging is the new platform

- Messaging app is the most popular used app
- So lets deliver services using messaging app
- Automated services can be delivered by chatbots who will talk to you like a human

Trend alarm



Source: Google search

ANALYSIS / EVENTS / TECHNOLOGY / EUROPE

Why Chatbots Will Soon Kill the App Store

20 Oct 2016 9:57am, by Jennifer Riggins

Microsoft CEO Nadella: 'Bots are the new apps'

Marco della Cava, USA TODAY 10:21 p.m. EDT March 30, 2016

Forbes LOG IN

CMO Network / #GettingBuzz

How Chatbots And Deep Learning Will Change The Future Of Organizations

Bots, the next frontier

CHATBOTS

Bots are the new apps: Microsoft reveals how artificial intelligence will order our pizza

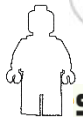
By Alistair Charlton

March 30, 2016 19:39 BST

f 34

Technology

The end of apps is here. Long live chat bots



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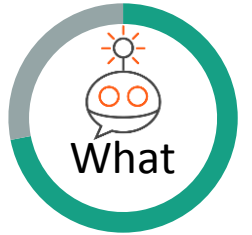
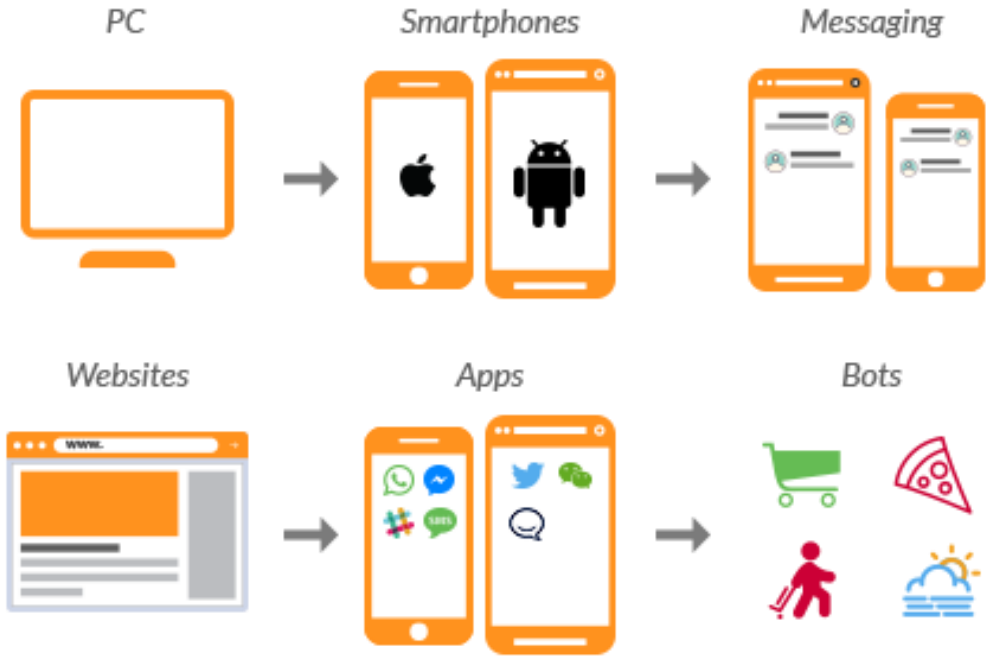
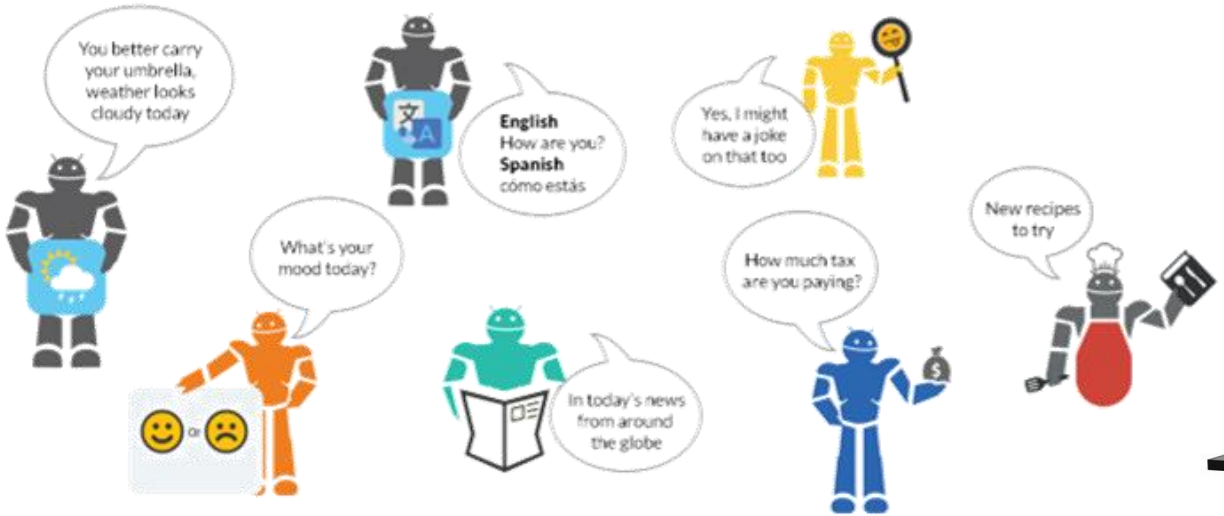
Chatbots are perfect for mobile, more than apps





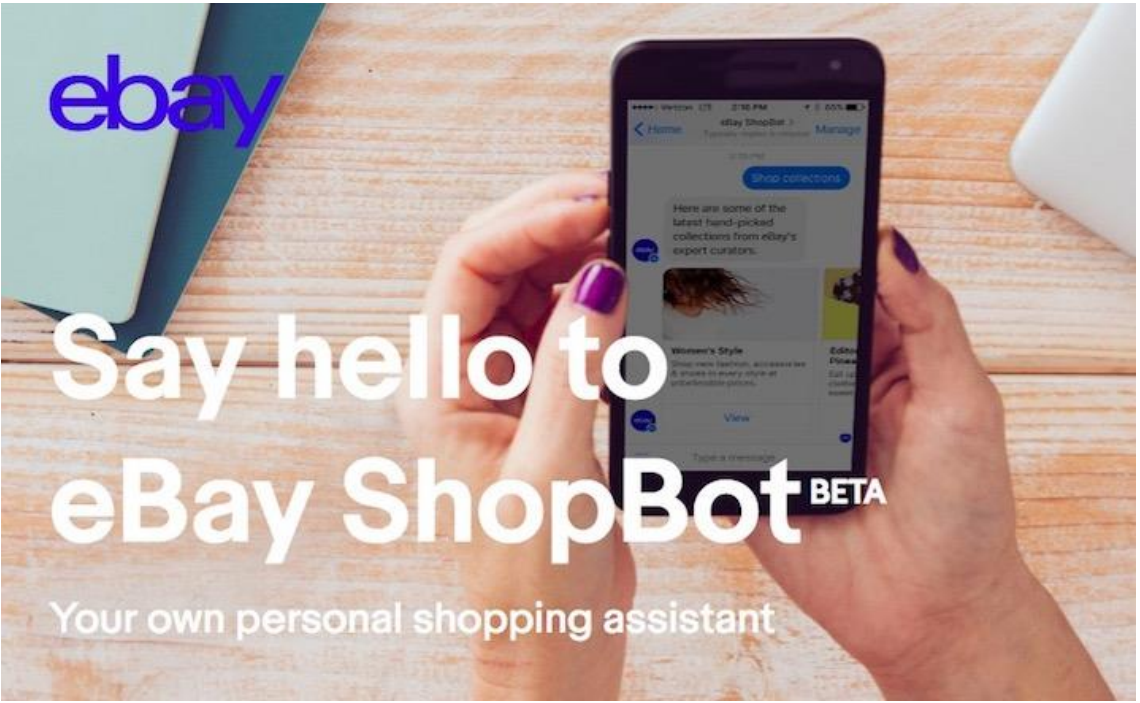
It’s already happening

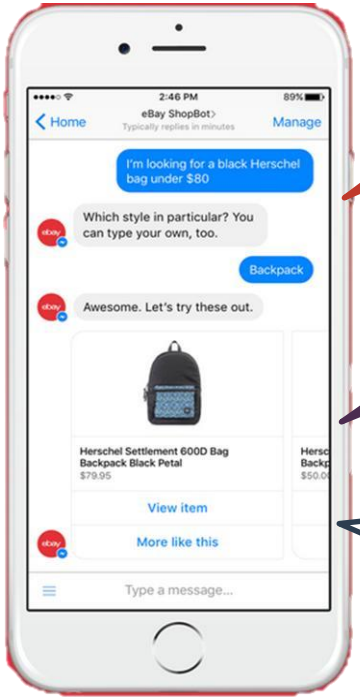


Chatbot

Personal ShopBot

examples





What are you looking for?

Favorite celebrity style?

Fashion tips

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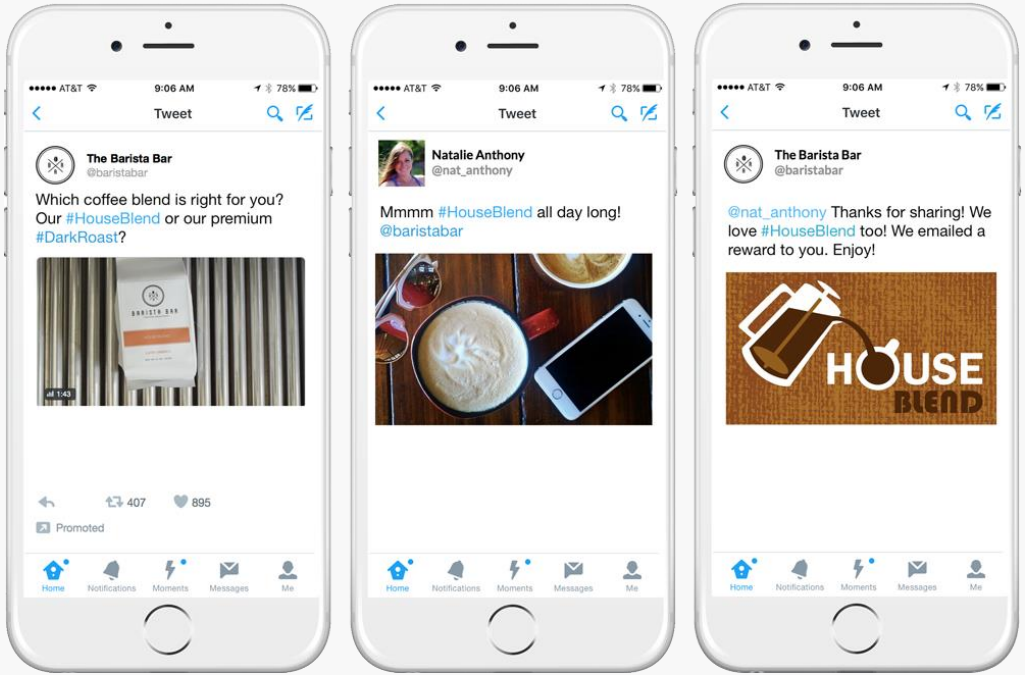
Conversational commerce bots

examples



Conversational Commerce

is any dialog between a consumer and a brand. Payment itself can be a conversation by a bots or person

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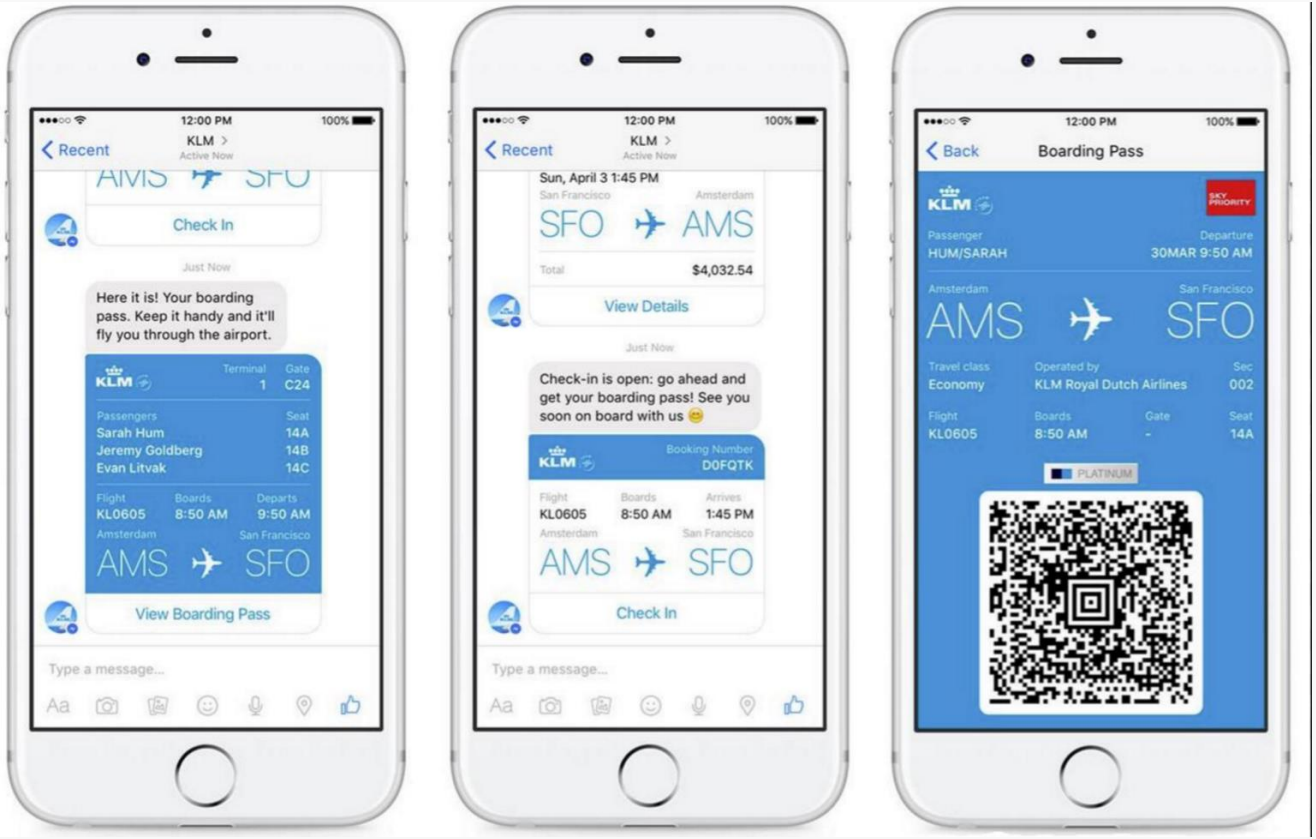
“Zero Friction” magic moment bots

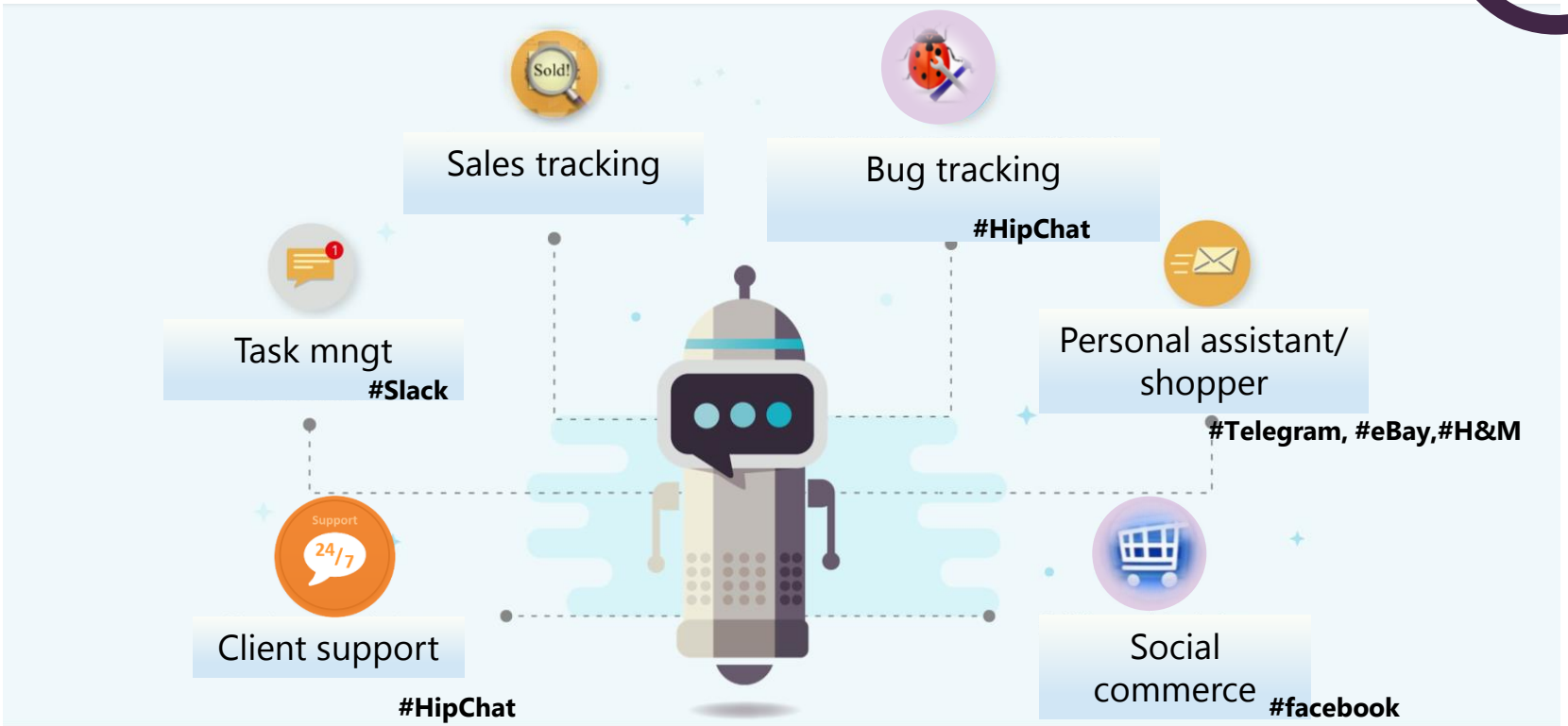
examples

KLM bot:



Enterprises are recruiting bots

examples

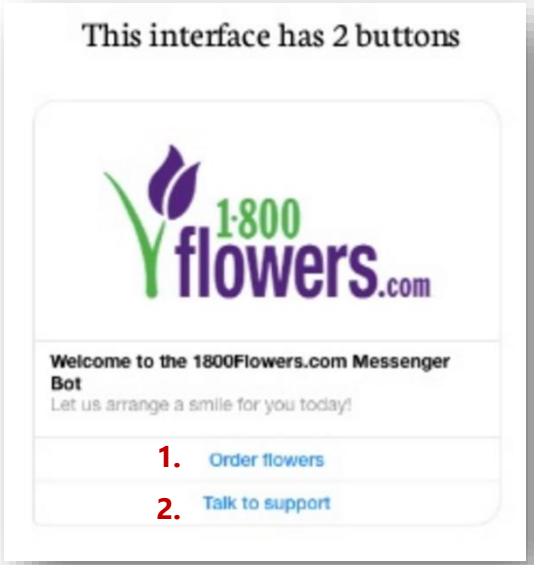


Keep it Simple and Short!

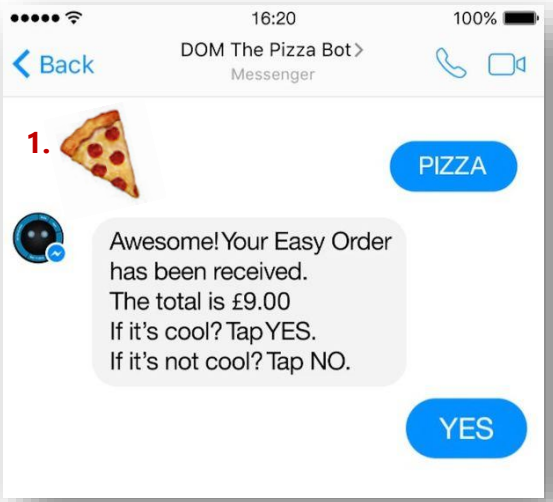
How

This interface has 27 buttons

This interface has 2 buttons



Order pizza with emoji



Source: http://www.slideshare.net/alexgodin/22-bot-rules-63138588

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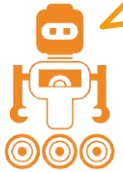
Can chatbots replace a human representative?



How

No, a chatbot should escalate to a live agent when:

1. The customer's request is not understandable.
2. The customer appears to be annoyed or frustrated.
3. The customer's request cannot be handled in self-service (due to rules or policies).
4. The customer's request is better served by an agent (e.g., conversion or attrition).
5. It is a high-value transaction and your company wants a live agent to close the sales opportunity.
6. The customer explicitly requests a human agent.

Source: [24]7.com

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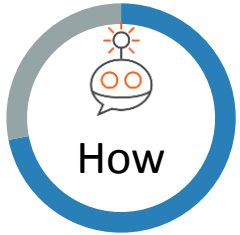
How to avoid a bad bot?

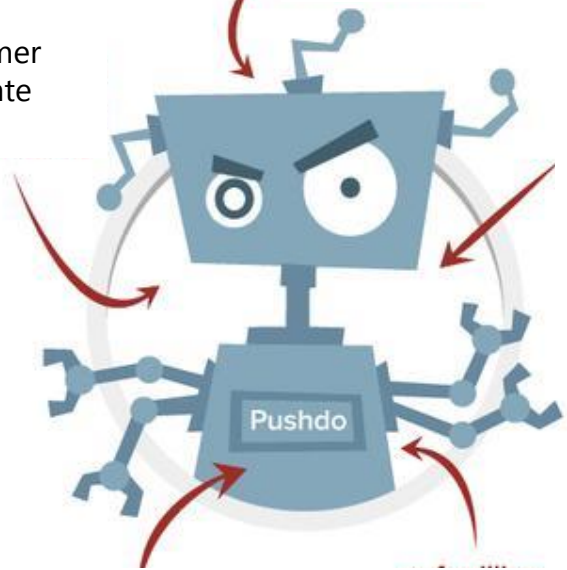


NLP:

"Sorry, ani lo medaber ivrit tov!"

Never let a bot standalone

Have to be part of the entire customer engagement strategy and collaborate across LoBs



Escalate on time

If customers don't get the right answer quickly enough, they will become frustrated and leave

Keep it relevant

Chatbots aren't set-and-forget solutions.

Plan content maintenance and bot learning

Don't pretend it's a human

Make sure customers **don't** think they're chatting with a real person.

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Chatbots evolution

V_1

Today

Tactic

Informational

Understands natural language to provide answers

$V_{1.5}$

Tomorrow

Transition

Personalized

Present user-specific responses by connecting to enterprise systems & clarifies user intent using menus or simple questions

V_2

Next phase

Strategic

Transactional

Guides the user through a series of steps to complete task and can integrate customer data

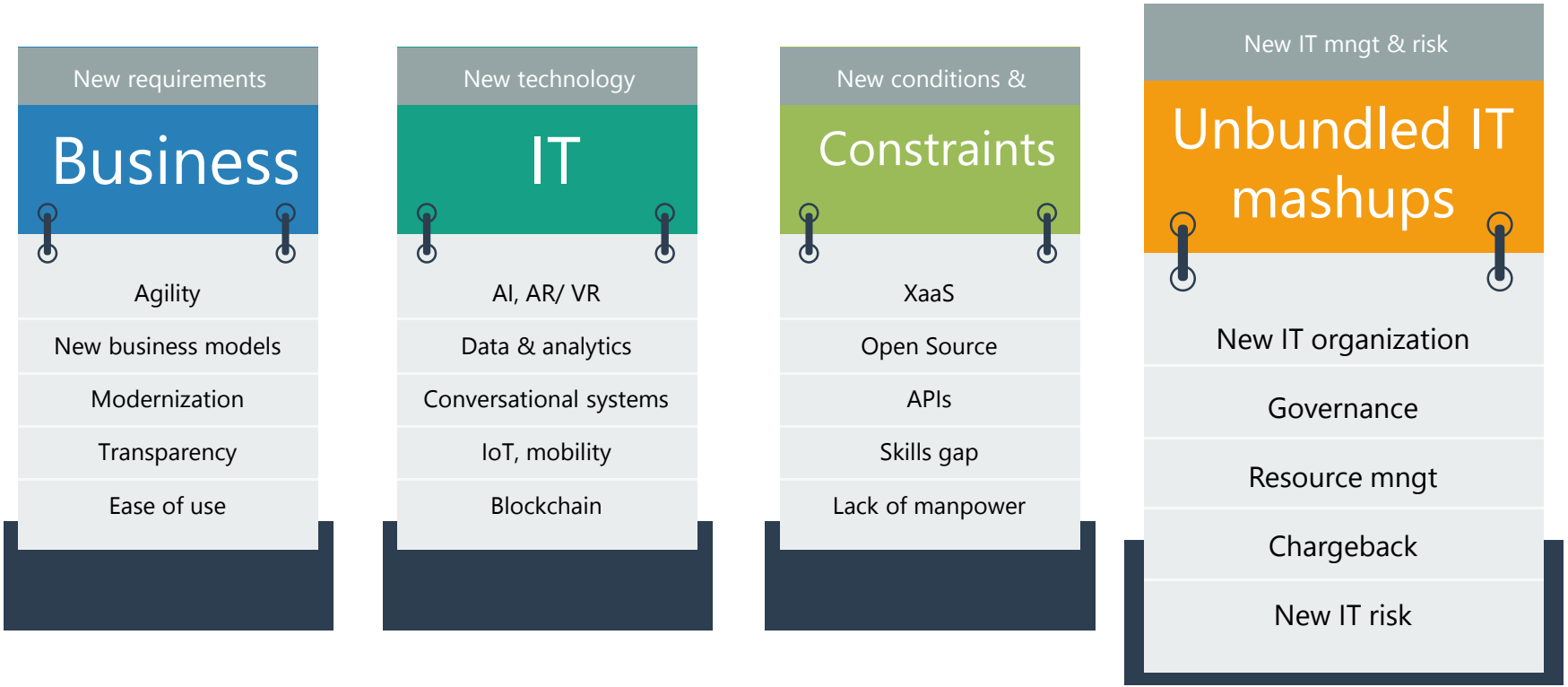
New IT organization

IT Governance

- IT structure & resource mngt
- Data Governance

IT Risk

Why do we need to change a well established IT?



Unbundled mashups effect on IT structure

- The world runs on SW and **technology is in the core** business
- **T2M** has become crucial
- Making a good SW depends on **people** rather than technology
- "**1-2 Pizza model**" is moving from startups to enterprise as a strategy for organizing teams
- From **SILO** organization to **MASH UP TEAM** working with the business
- **Interaction** between business people with a deep understanding of the domain & technologists who support them

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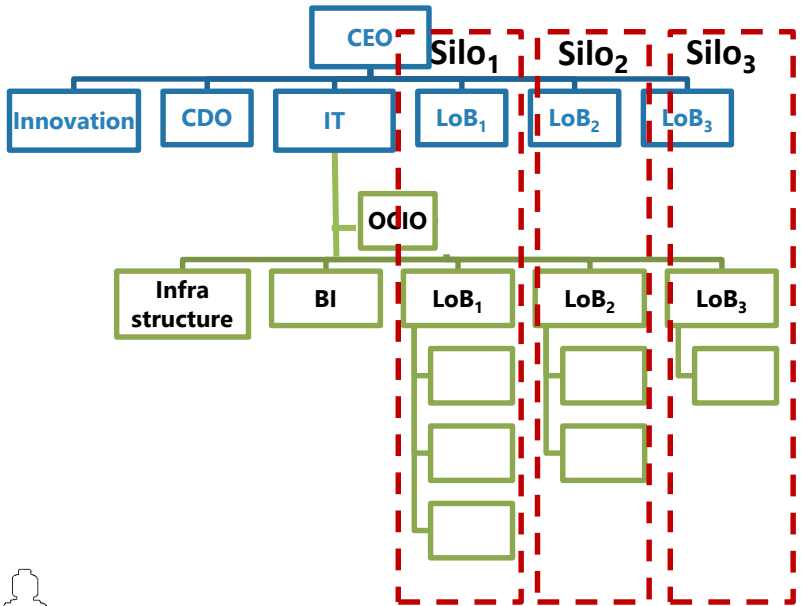
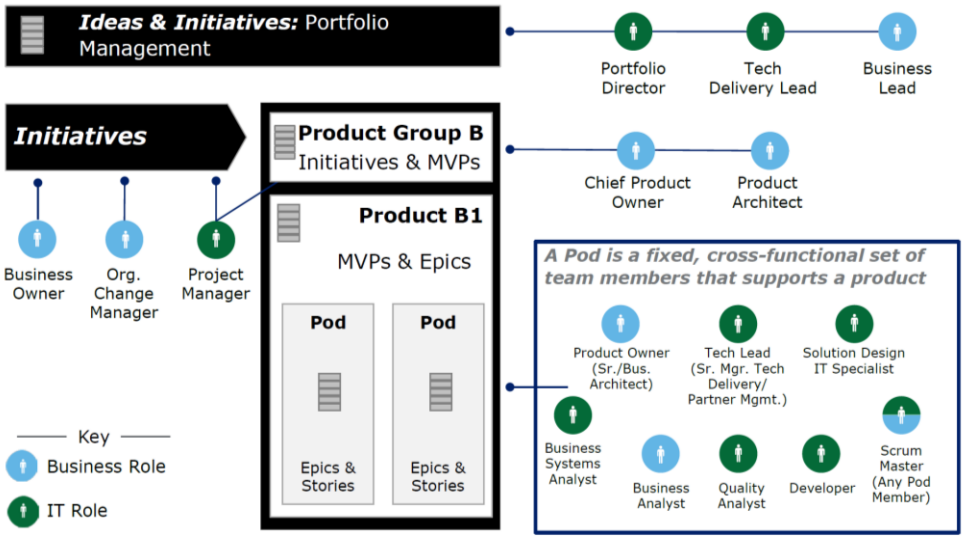
Break the functional silos

Sequential project phases with **different skill** groups



Multi skilled, **result** oriented teams



Source: Deloitte

Products over projects

Most **SW development** uses the **project model**

Within **defined time-slots** and **budgets**

SW development as a **project, doesn't fit** the needs of the **modern business and we all feel it in our gut**

On-going discovery process that runs **concurrently with development**

We **should build products** that support underlying **business processes**, which continue as long as the **business is worthwhile**

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Data governance

Is not about:

- data itself
- data protection
- data retention
- records mngt

It's all about:

- How is data managed by the business
- Applying the correct level of control

Big data – huge problem

Data overload

Unmanaged data

- **70%** of CMOs are doing nothing with their data due to data overload
- **People** make mistakes, which cause **more losses** than hackers

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Filter unwanted data

New **governance** approaches & **structure**

Data potential:
good data, old data, outdated data, gibberish data

Data assets:
the good and useful data

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Let's organize our data

Management aspect

Knowledge
What do we have/ can be done/ what are we looking for?
Familiarity with analytics tools/ predictive analytics

Ownership
Who owns the data?

Identity mng:
Who can enter/ edit/ delete the data?

Technical aspect

Legal
Understanding the regulation & future regulations direction

Compliance
Terms of use of partners, 3d party providers, internet/social companies

Ethics
It is legal, but we do not want to use this data

The CDO... - Chief Data Officer

..needs a t-shaped
skills set that combines business acumen with data or analytics skills

...is a business executive—
not a technician, programmer or data scientist

...with a creative mind

Business insights from existing data
New ideas what to do with data

Structured Data

Meta data

Unstructured Data

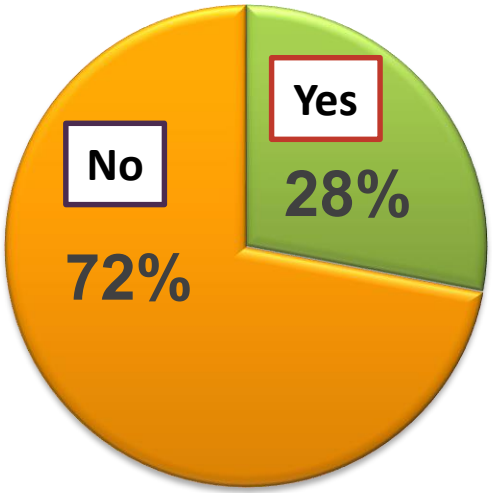
Print, email, video, audio, multimedia

Source: Smart Data Collective

Align data to a business strategy

Does your organization have a CDO?

Israel



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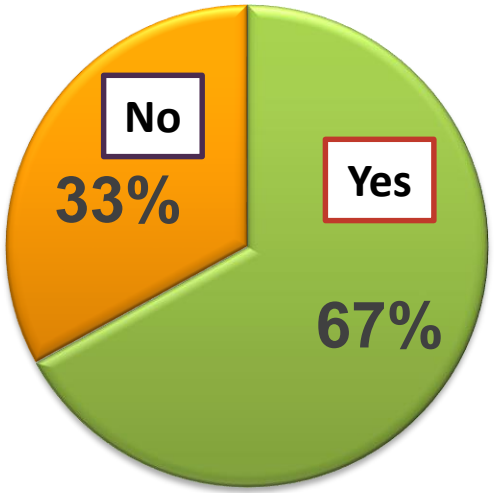
WW



CDO club 2017

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Summary

The meteor shower of **new technologies** and methodologies is flooding the IT sky

"Digital natives seinapmoc "are not only offering competitive services in a **cheaper and more efficient way**, but they are staying completely **under** the regulation radar

In order to meet the competition, traditional organizations will need to develop a **mechanism** in order to adopt this technology - what works, what is right for us, an innovation lab which allows us to **experiment and fail** at a low price

ITOs will need to **re-examine** all existing work methods:
Data governance and **SW development** will be the first ones to be changed

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That’s it. Thank you!

Have a
Coffee Brake

We Back in 30 Minutes

Galit Fein

STKI EVP &
senior analyst
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15:30 - You are invited to
Israeli Products & Services positioning 2017