



Global AI Trend and Strategy

최윤석 전무 / yschoi@microsoft.com
CSE(Commercial Software Engineering) Lead
Microsoft Korea

Industrial Revolution 4.0



Water/Steam,
Mechanical
Production
equipment

1784

Steam engine patent



Electricity
Mass Production
Division of Labor

1870

Commercial generator



Electronics
IT, Automated
production

1969

First Internet
ARPANET(Early packet switching network
which was initially funded by United
States Department of Defense)

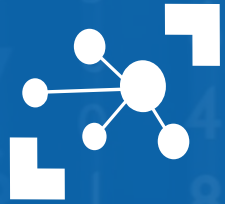


Blurring the
physical and the
virtual divide

“Data-driven”

2016

In the year 2025...



80 Billion
Device Connected

800억 개의 다양한 디바이스가 서로 연결



180
Zettabyte Data

180ZB = 1TB 개인용 하드디스크 180조 개

The 4th Industrial revolution Powered by Data

Data
Growth engines

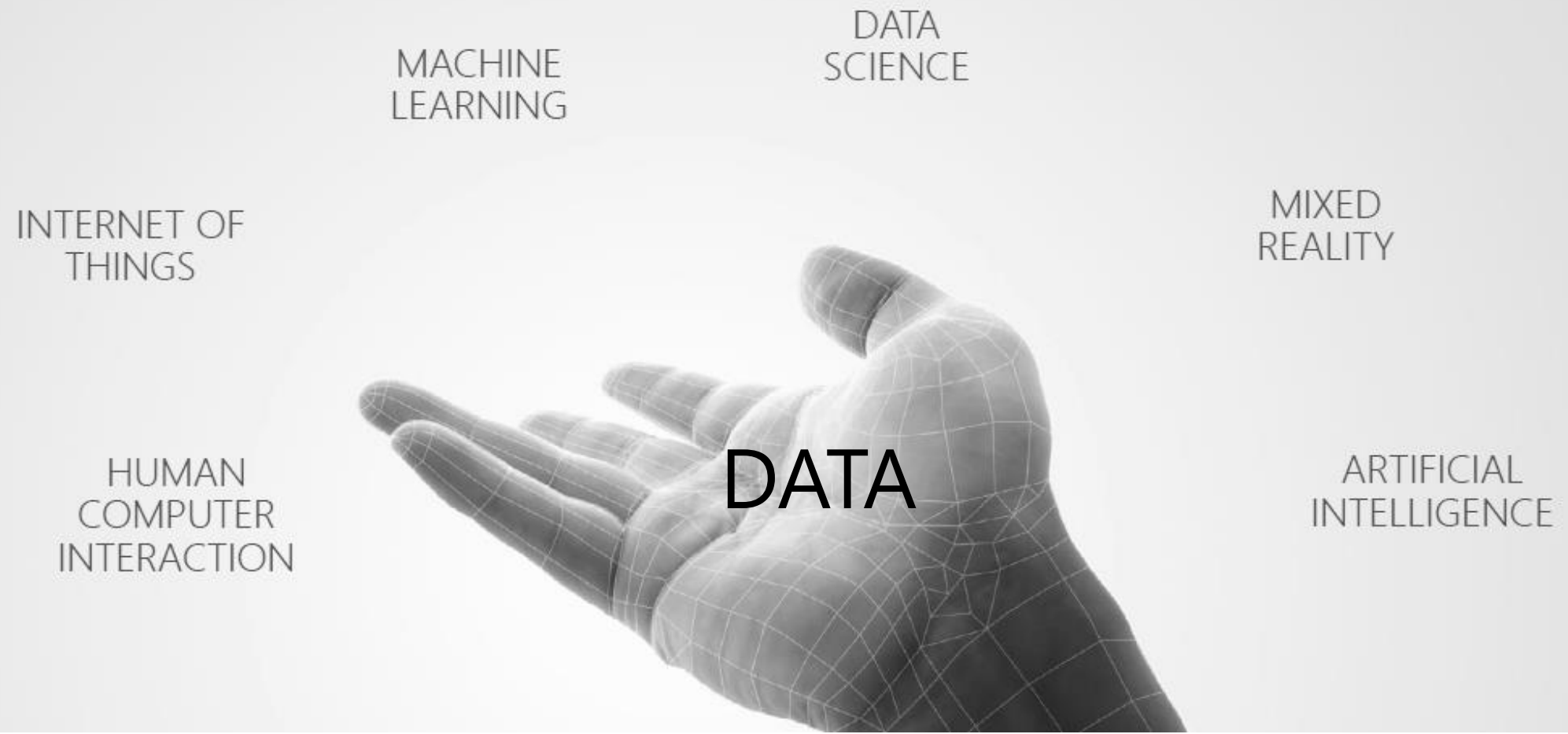


Data
Core asset

Data
New business model



Continued blurring of the boundary between “virtual” and “physical life”



AI Is Making Break-through!

Microsoft Research shows a promising new breakthrough in speech translation technology



Posted November 8, 2012 By Steve
This is a guest post from Rick

Facebook's DeepFace facial recognition technology has human-like accuracy

Join thousands of others, and sign up for Naked Security's newsletter

you@example.com

Do it!

Don't show me this again

by Lee Munson on February
FILED UNDER: Facebook, Fe

Facial recognition technology has been around for many years. The vast majority of people have eyes, a mouth and a nose, pretty much the same basic recognition relationships.

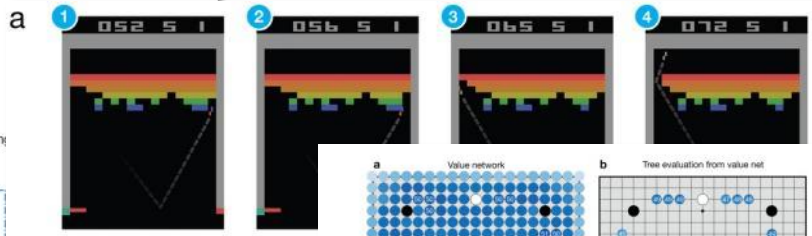
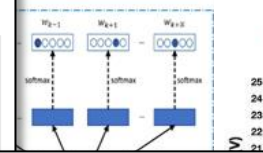
Total accuracy, however, has not come by - even us humans can only positively identify a subject 97.53% of the time.

Certain groups have a higher accuracy that exceed that level of accuracy.



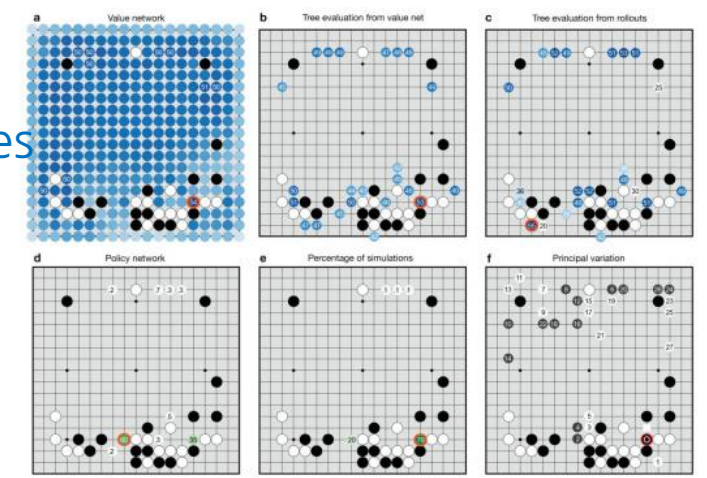
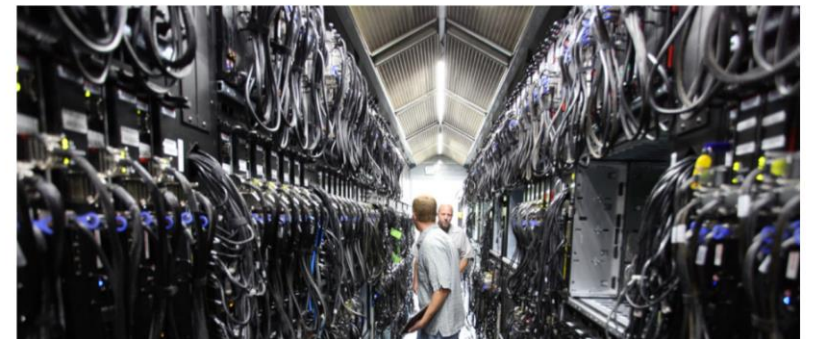
Emerging Technology From the arXiv
June 12, 2015
Deep Learning Machine Beats Humans in IQ Test

... at answering the type of questions found in IQ tests. Now a deep learning machine is doing that.



Atari Games

BIG DATA
Microsoft researchers say their newest deep learning system beats humans – and Google
JORDAN NOVET FEBRUARY 9, 2015 8:00 PM
TAGS: ARTIFICIAL INTELLIGENCE, DEEP LEARNING, GOOGLE, MICROSOFT, MICROSOFT RESEARCH, PROJECT ADAM



AlphaGo vs. Sedol Lee

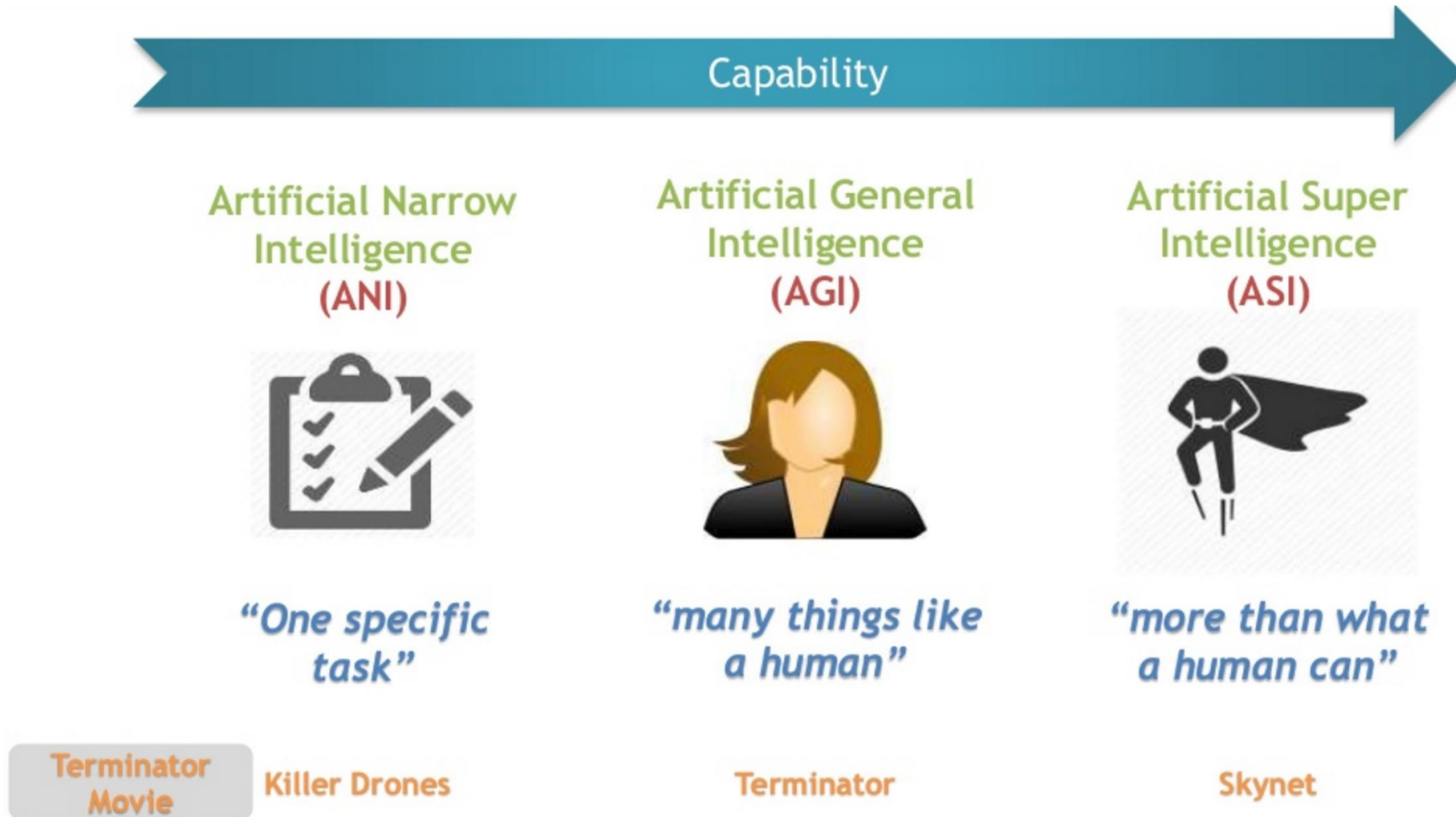


-	30299 × 10 =	302990
■	798 × 50 =	39900
	17 × 200 =	3400
	6 × 400 =	2400
	3 × 800 =	2400
	1 × 1600 =	1600
	40 × 100 =	4000
	40 × 200 =	8000
	33 × 500 =	16500
	43 × 700 =	30100
	48 × 1000 =	48000
	47 × 2000 =	94000
	89 × 5000 =	445000

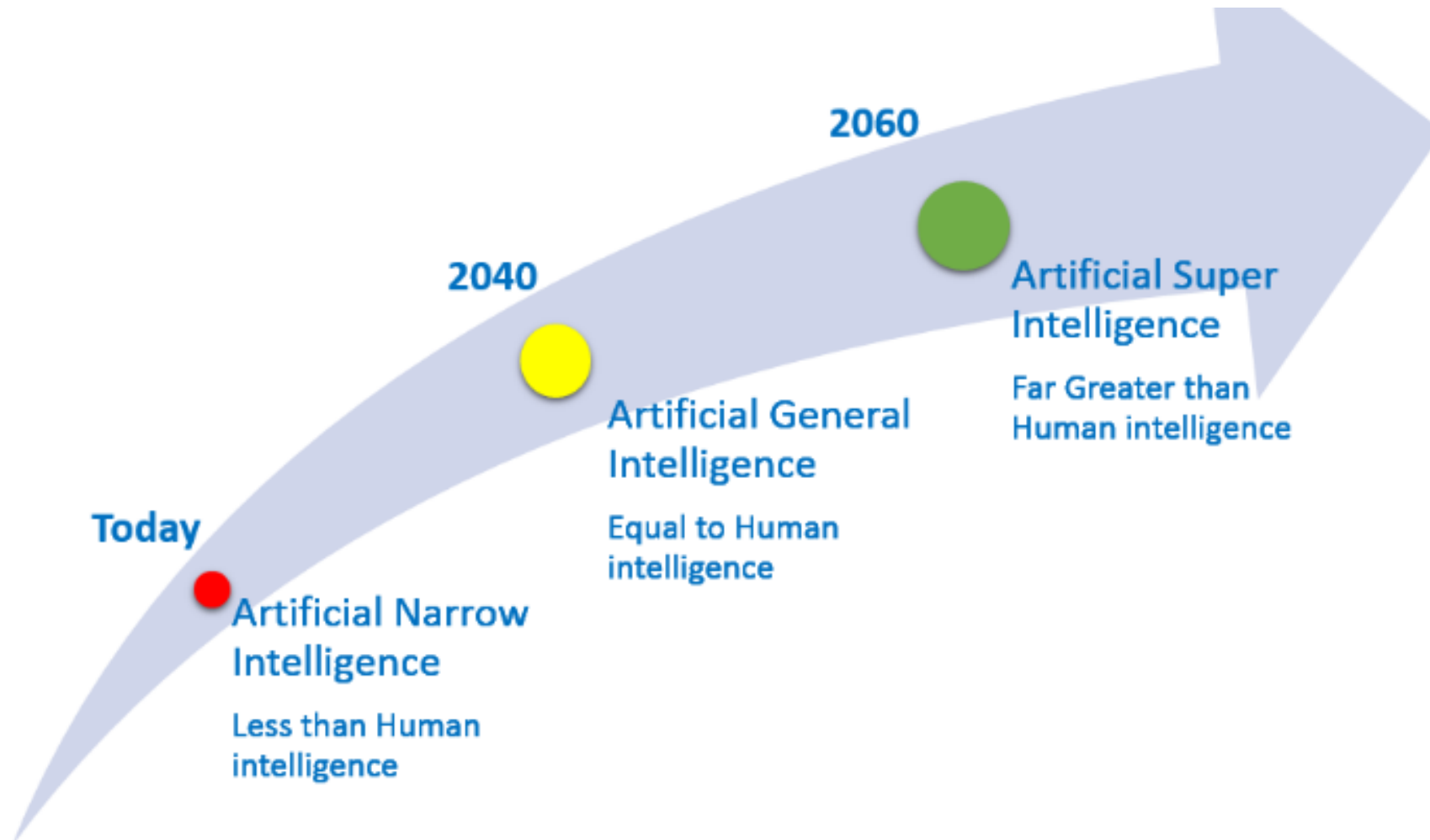
998290

Level: 200

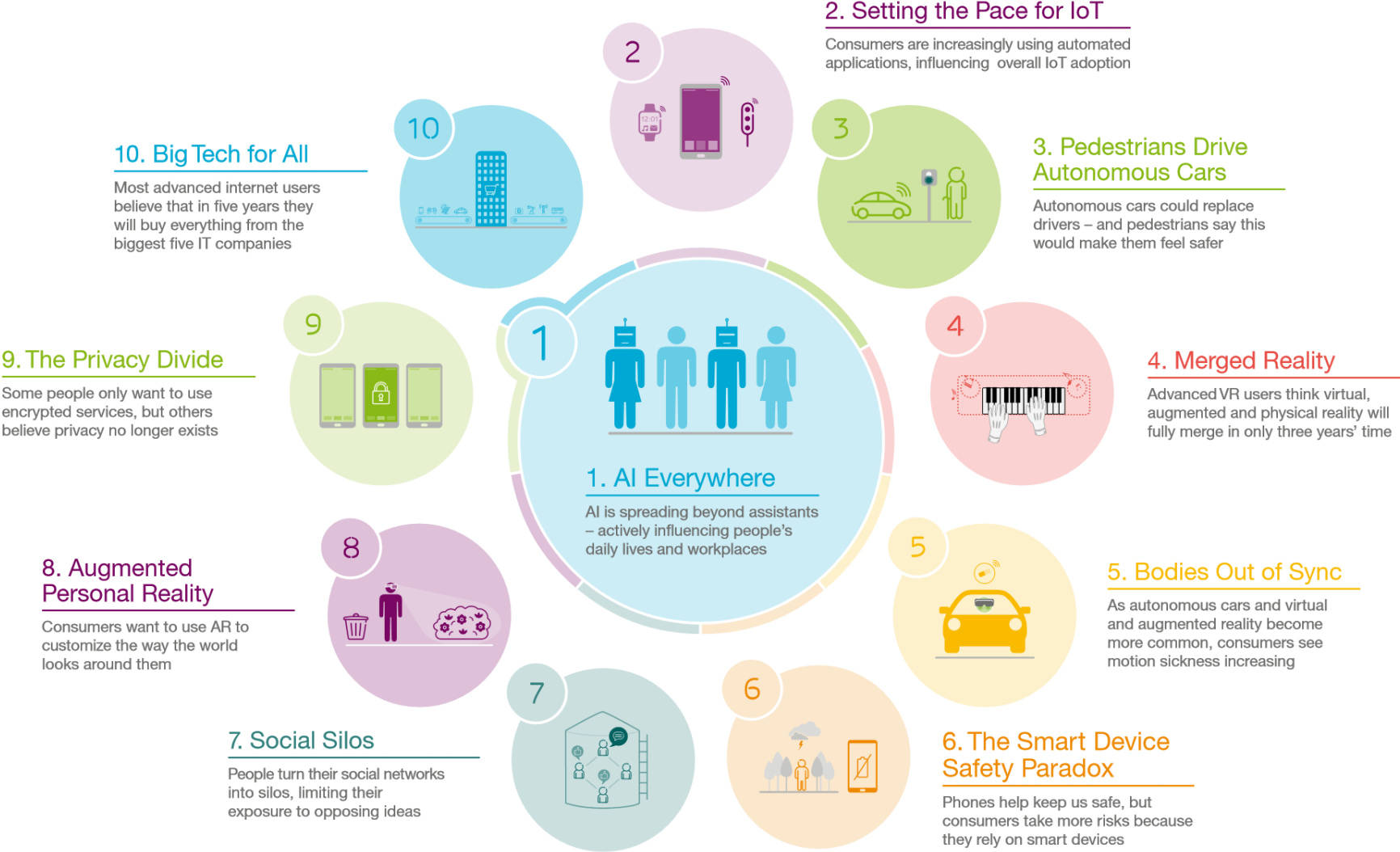
Progression of Artificial Intelligence (AI)



Progression of Artificial Intelligence (AI)



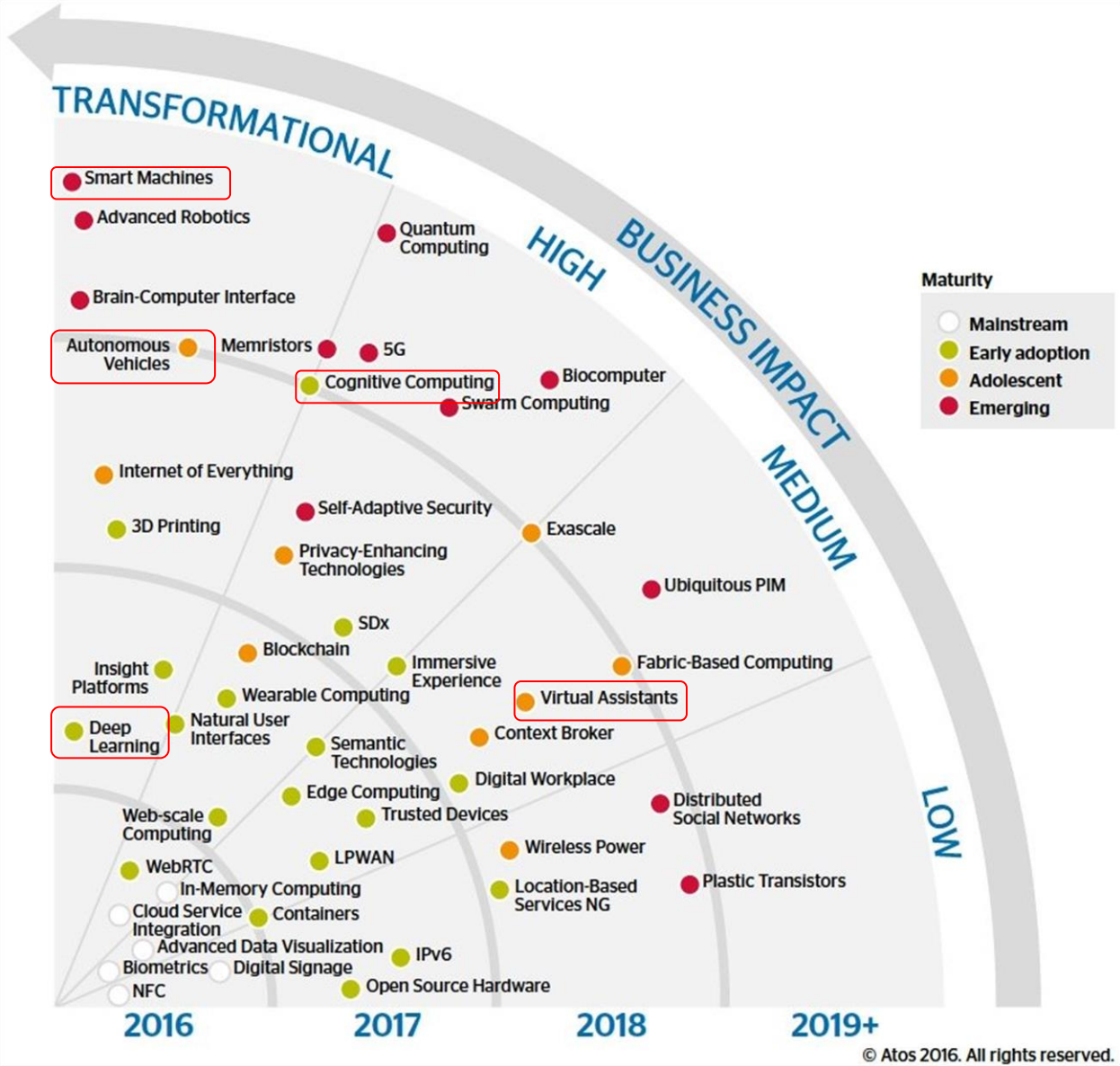
Hot Consumer Trends 2017



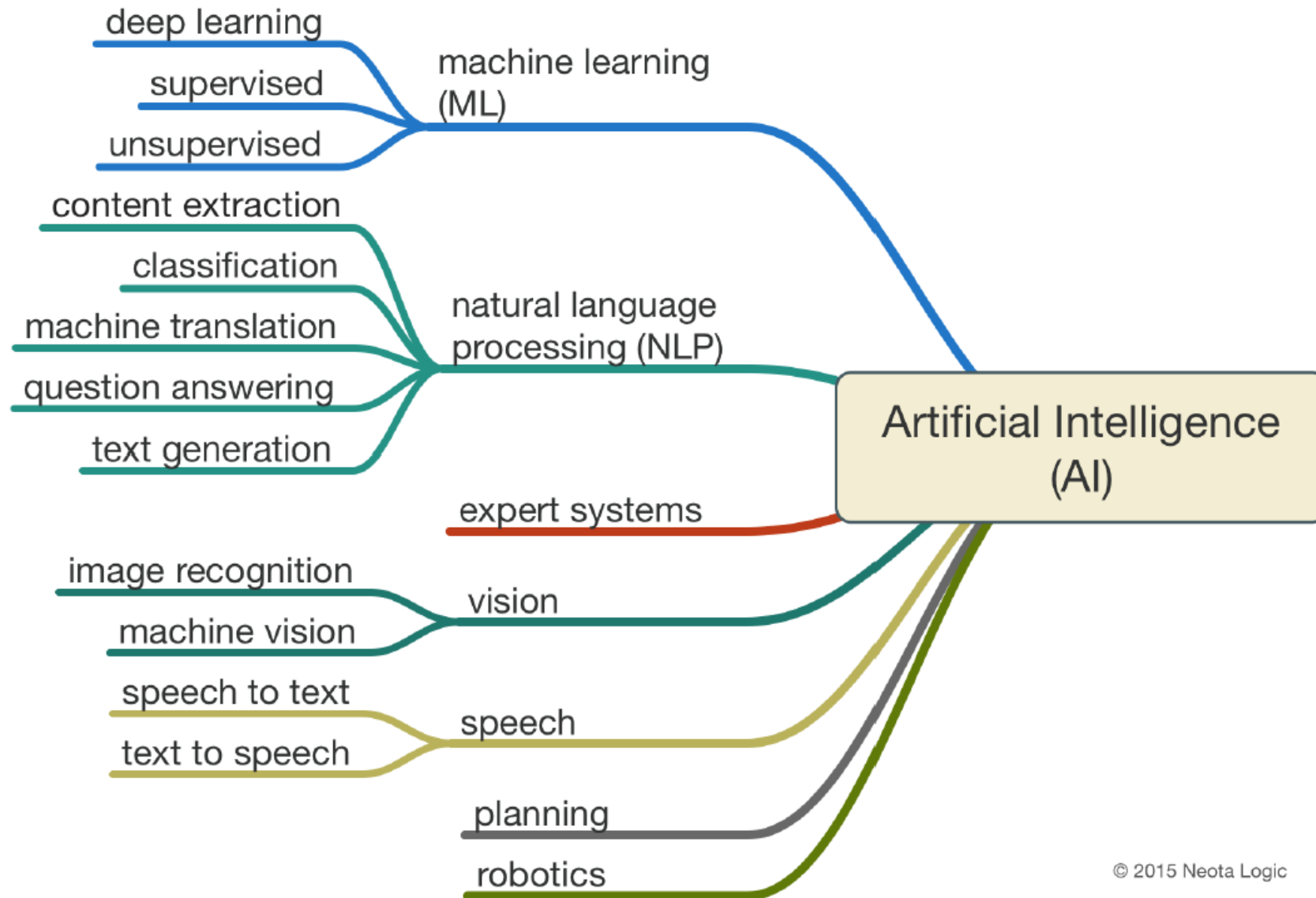
Forrester's Top 15 Emerging Technologies To Watch, 2017-2021



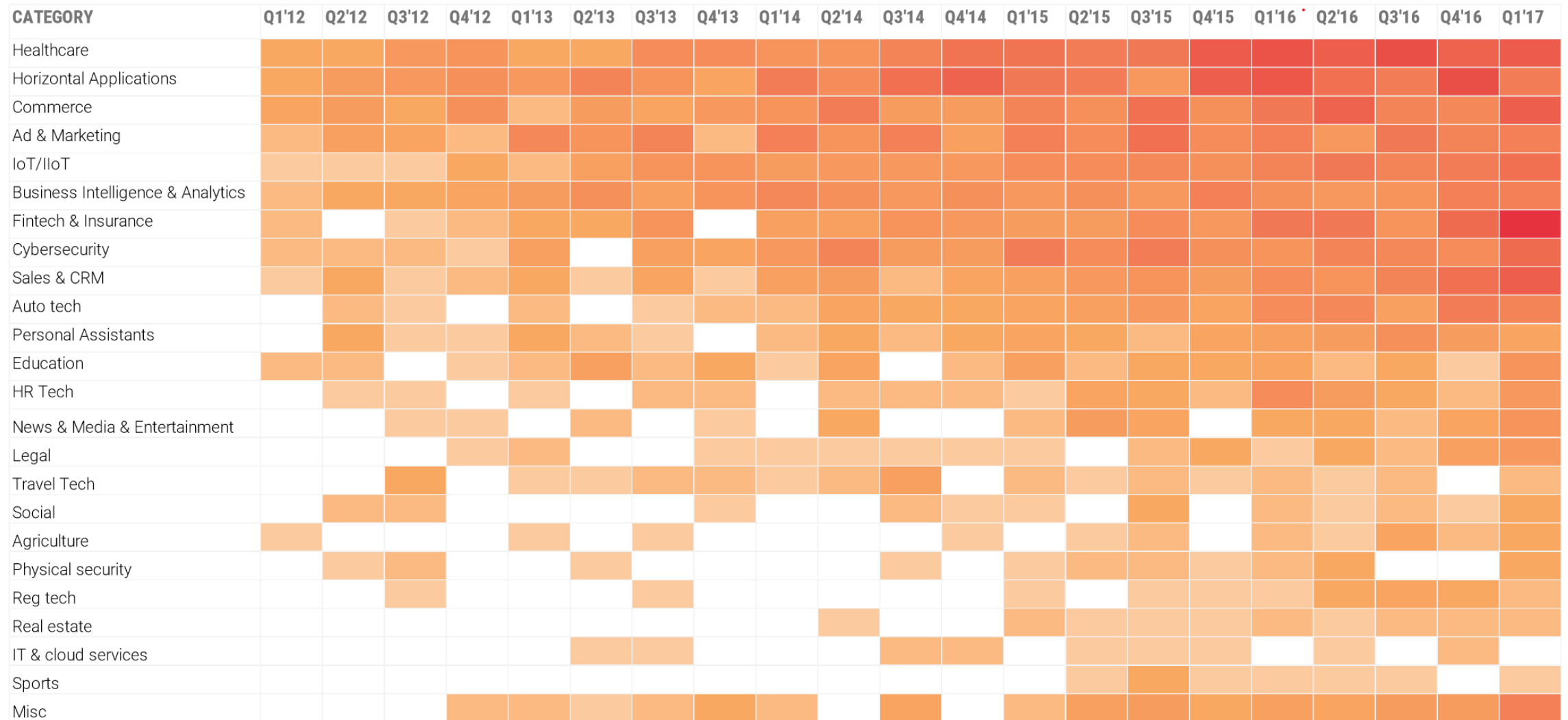
Tech Trends that will impact your business in the next 4 years



AI = Machine Learning + Cognitive Service + Robotics + ...

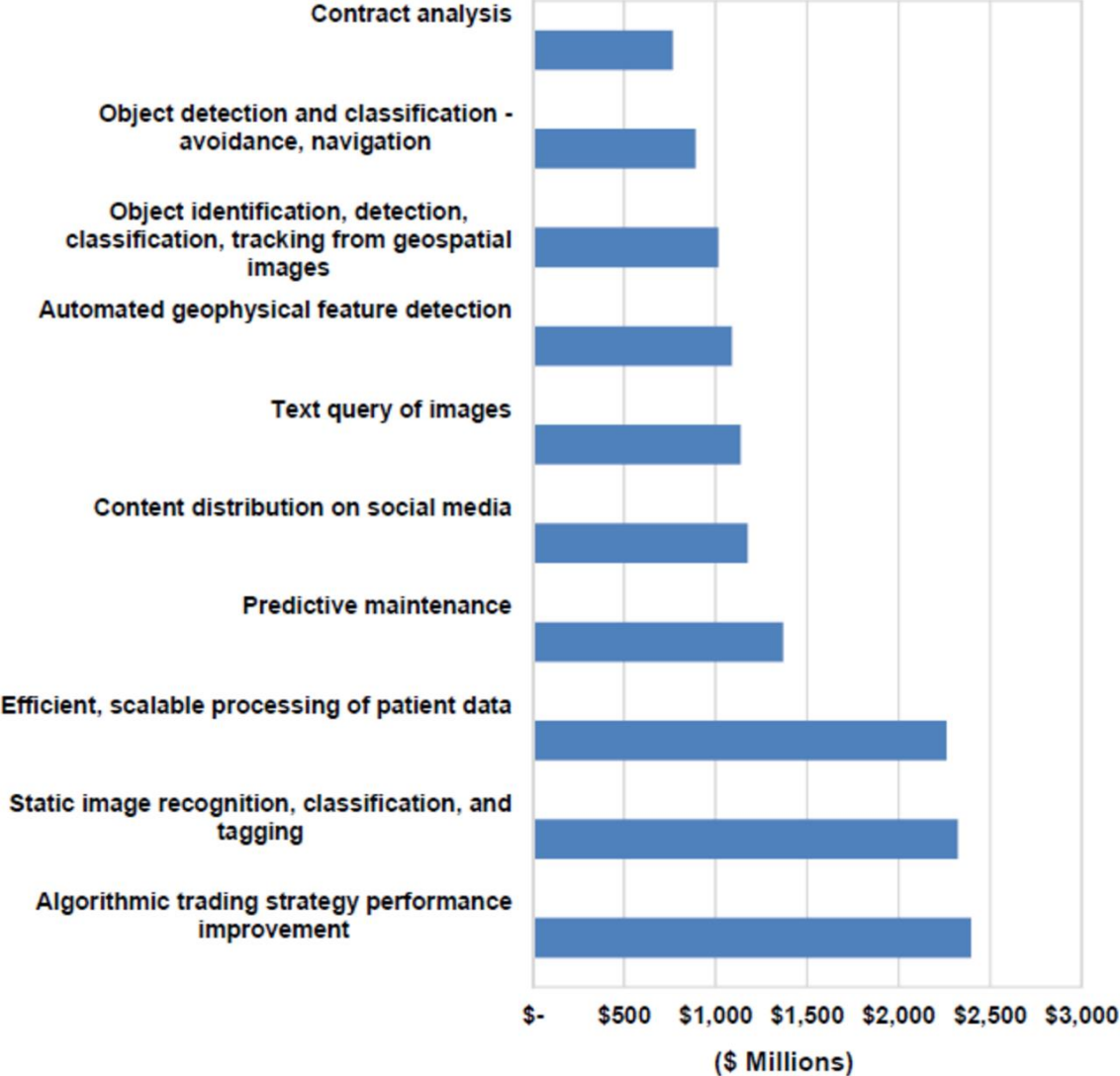


AI Heatmap: Deals Distribution by Category



Low deal saturation High deal saturation

Artificial Intelligence Revenue, Top 10 Use Cases



Source: Tractica

Use Cases for Various Industries

금융

- 투자상품 어드바이저 및 추천
- 금융 이상거래 분석 및 조사
- 클레임처리 자동화
- 자동 청구 프로세싱
- 유형 자동탐지 및 방지 시스템



유통

- 자동화된 고객 서비스 에이전트
- 지능형 어드바이저 및 상품추천
- 옴니 채널 상품화 기획



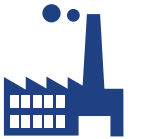
통신

- 가상 비서(Virtual Agents)
- 디지털 광고
- 위험 자동 탐지 및 방지 시스템



제조

- 조립라인 품질검증
- 사전 품질 관리
- 장치오류 분석 및 AS 시기예측



의료

- 진단 및 처방
- 의약품 연구 개발
- 의료비 청구 관리
- 개인화 건강 진단 서비스



석유화학

- 원전분석
- 에너지 개발 및 수요량 예측



공공 서비스

- 위험 인텔리전스 및 예방
- 국방, 대테러 감시 및 수사
- 공공 안전 관리 및 긴급 출동 서비스
- 맞춤형 학습관리



Agents & Bots

Natural &
Conversational
user interfaces

Mixed Reality



Mobile-first



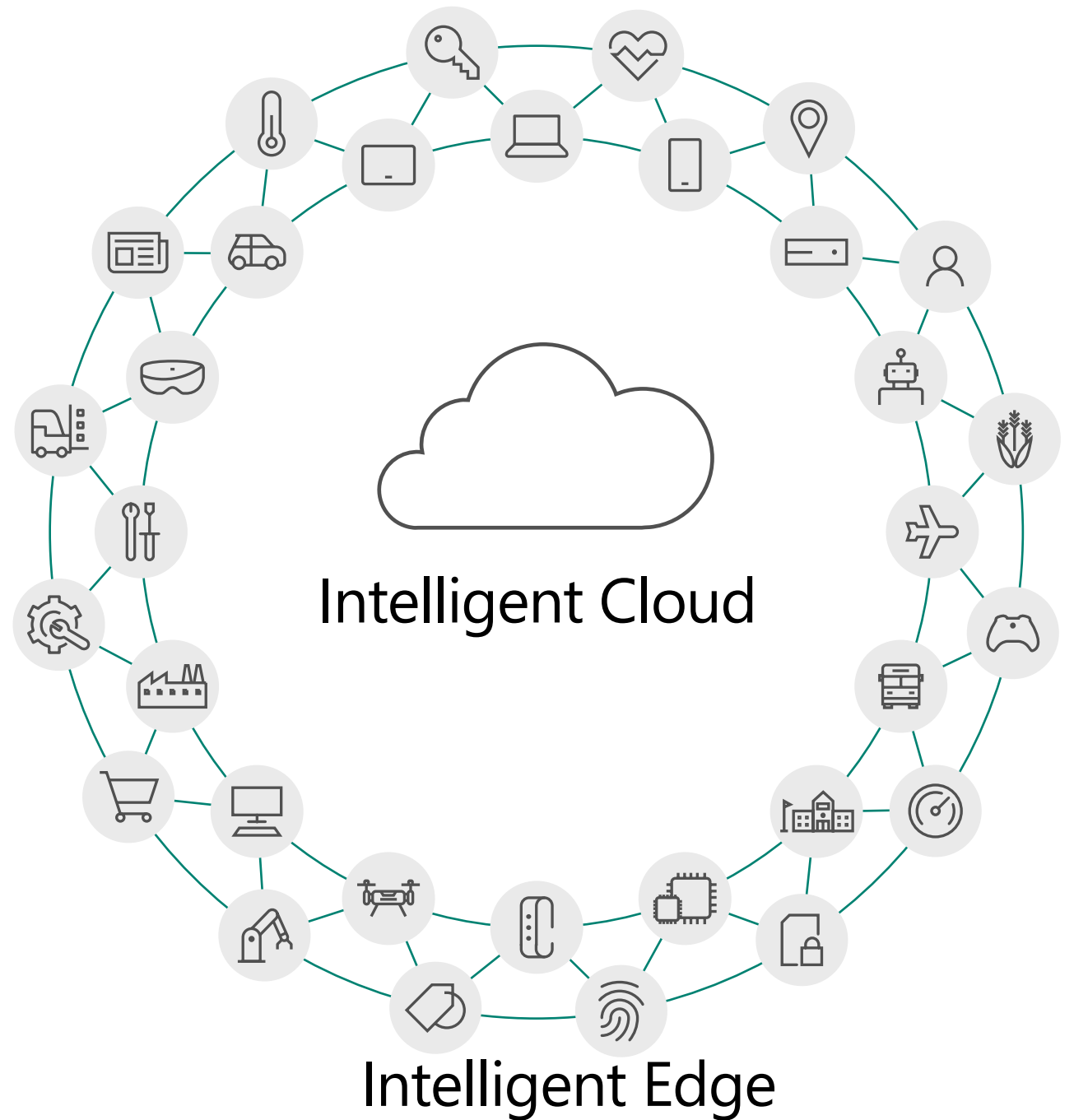
Cloud-first

Artificial
Intelligence

Advanced Analytics
& Workflows

Internet of
Things (IoT)

Extending AI to the Edge



Microsoft Artificial Intelligence



Vision

From faces to feelings, allow your apps to understand images and video



Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



Language

Process text and learn how to recognize what users want



Knowledge

Tap into rich knowledge amassed from the web, academia, or your own data



Search

Access billions of web pages, images, videos, and news with the power of Bing APIs

Cognitive Services



Vision



Language



Speech



Search



Knowledge

Computer vision

Face

Emotion

Content Moderator

Video

NEW

Video Indexer

NEW

Cognitive Services Labs

Text analytics

Spell check

Web language model

Linguistic analysis

Translator

Speaker recognition

Speech

Web search

Image search

Video search

News search

Autosuggest

Academic knowledge

Entity linking service

Knowledge exploration

Recommendations

QnA maker

NEW

Custom

Vision Service

Custom

Language
Understanding

Custom

Speech Service

NEW

Custom

Search

NEW

Custom

Decision Service

Democratizing AI

For every person and every organization



Agent

Cortana

Knows you | Knows your work + life

Knows the world

Across all your devices

145 million users | 17 billion questions



Applications

Office 365 and Dynamics 365

Know how you work | your org |
your business processes

Deeper knowledge + insight +
action

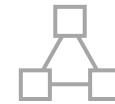


Services

Cortana Intelligence Suite

Bot Framework

Cognitive Services



Infrastructure

Azure

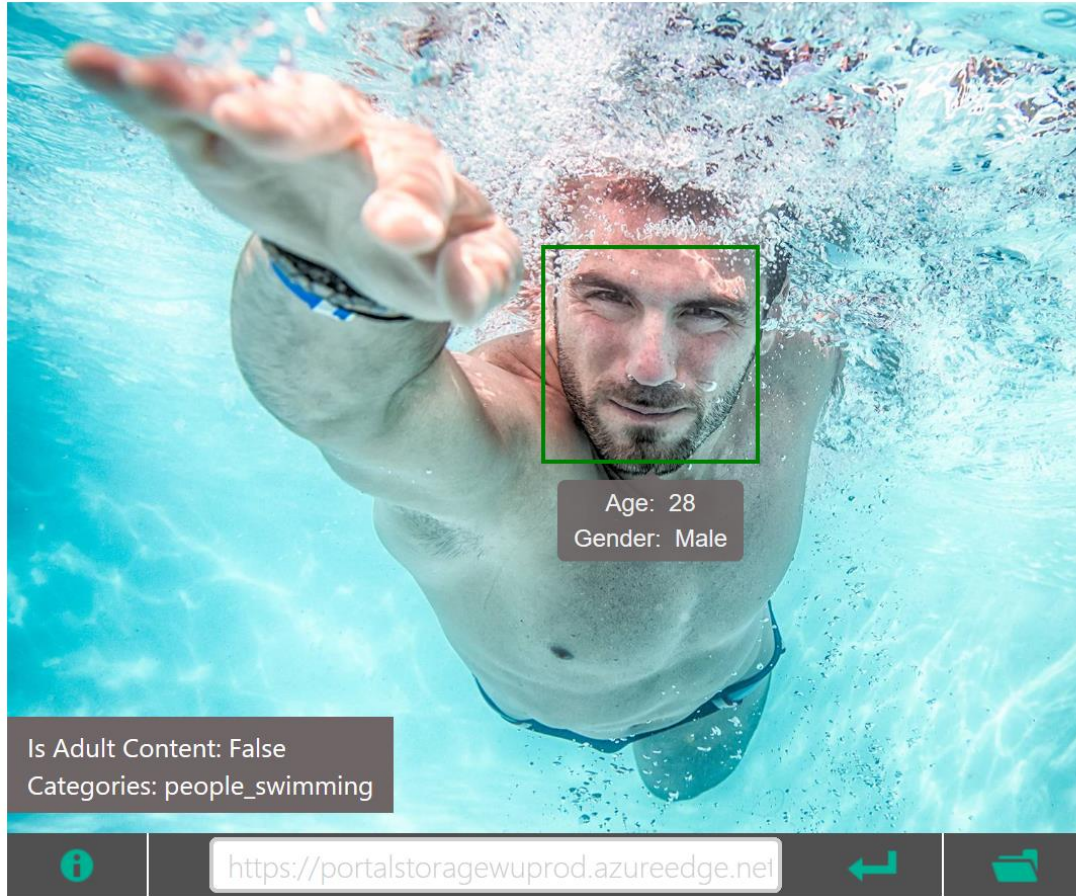
Global

Trusted

Intelligent

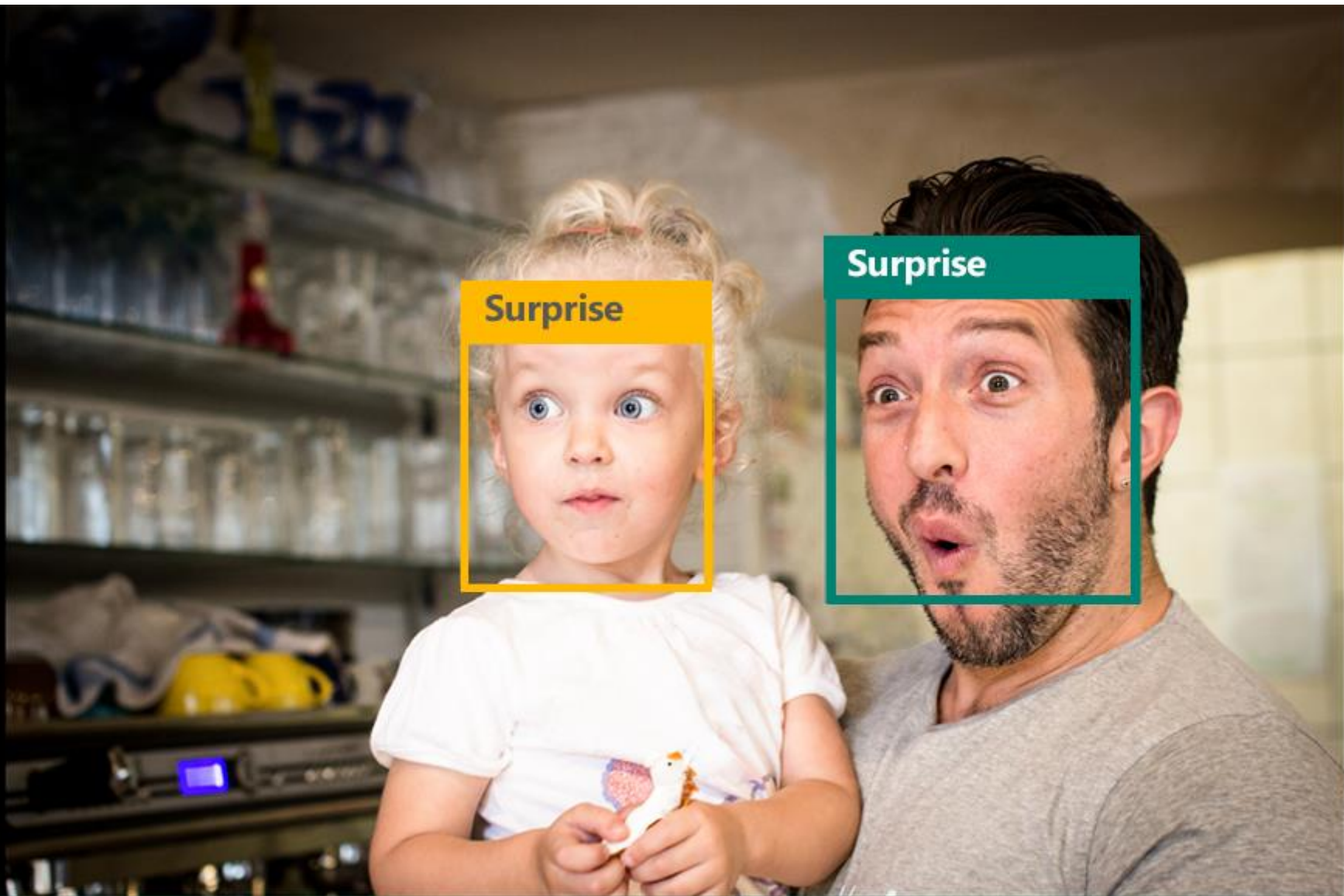
From silicon to cloud

Microsoft Cognitive Services – Computer Vision API



Features:

Feature Name	Value
Description	{ "type": 0, "captions": [{ "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 }] }
Tags	[{ "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062818288803101, "hint": "sport" }, { "name": "pool", "confidence": 0.8787588477134705 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" }]
Image Format	jpeg
Image Dimensions	1500 x 1155
Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-LineDrawing
Black & White Image	False



Get started for free at projectoxford.ai



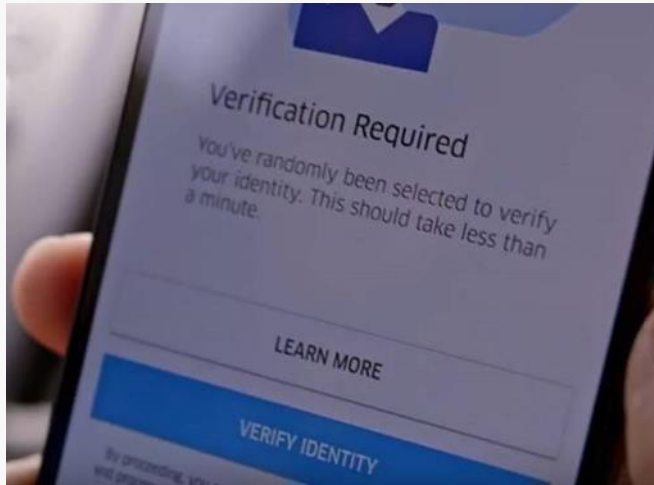
flowers by

40 OLD TOWN
BIRKSEN
(020) 76226466

40 OLD TOWN
BIRKSEN
(020) 76226466

ROU-

UBER



Microsoft Cognitive Service helping
Uber's security precautions for its drivers and passengers

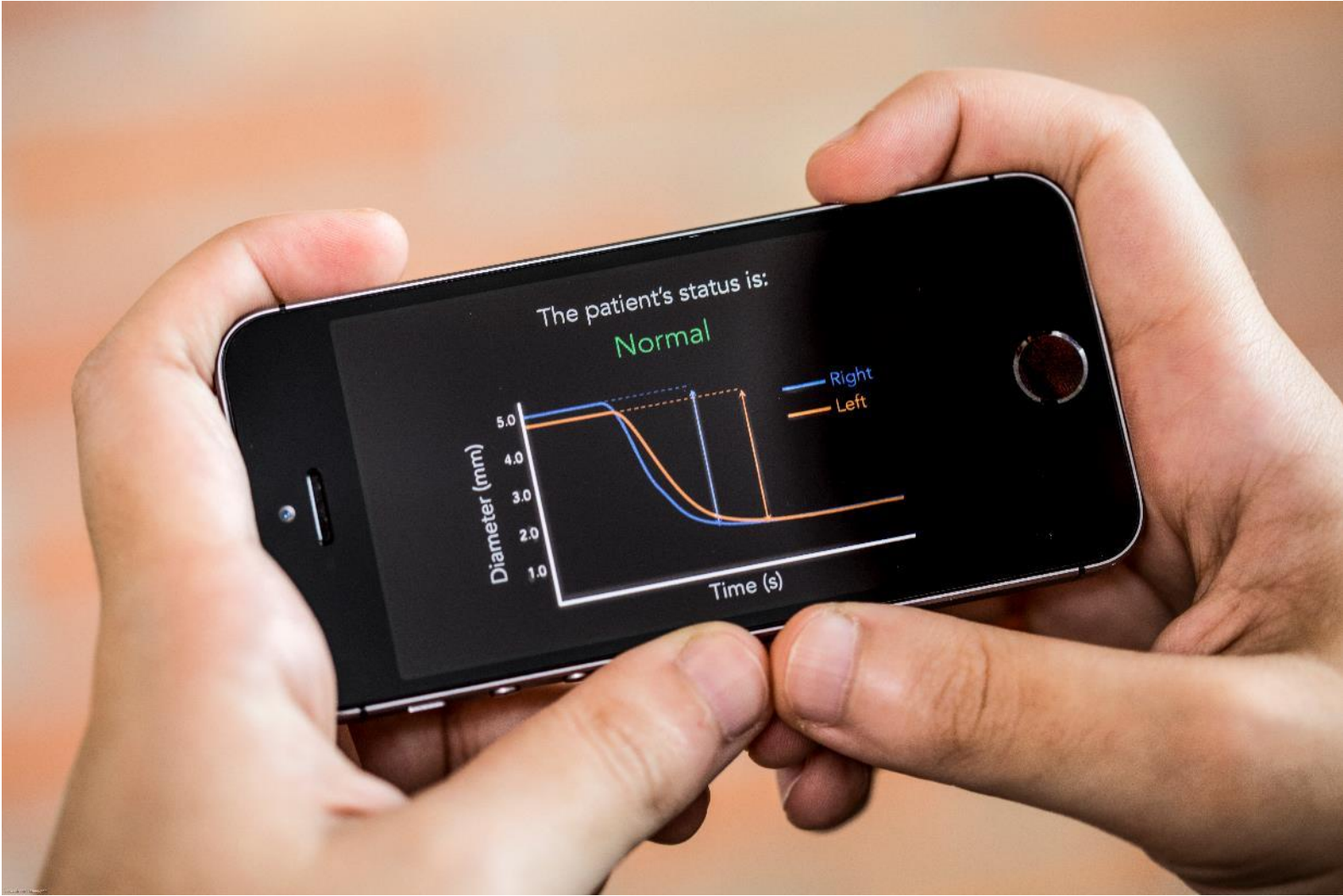
Identify Rare Diseases with a Selfie



Deep Learning Algorithm Diagnoses Skin Cancer Better than Human Dermatologists



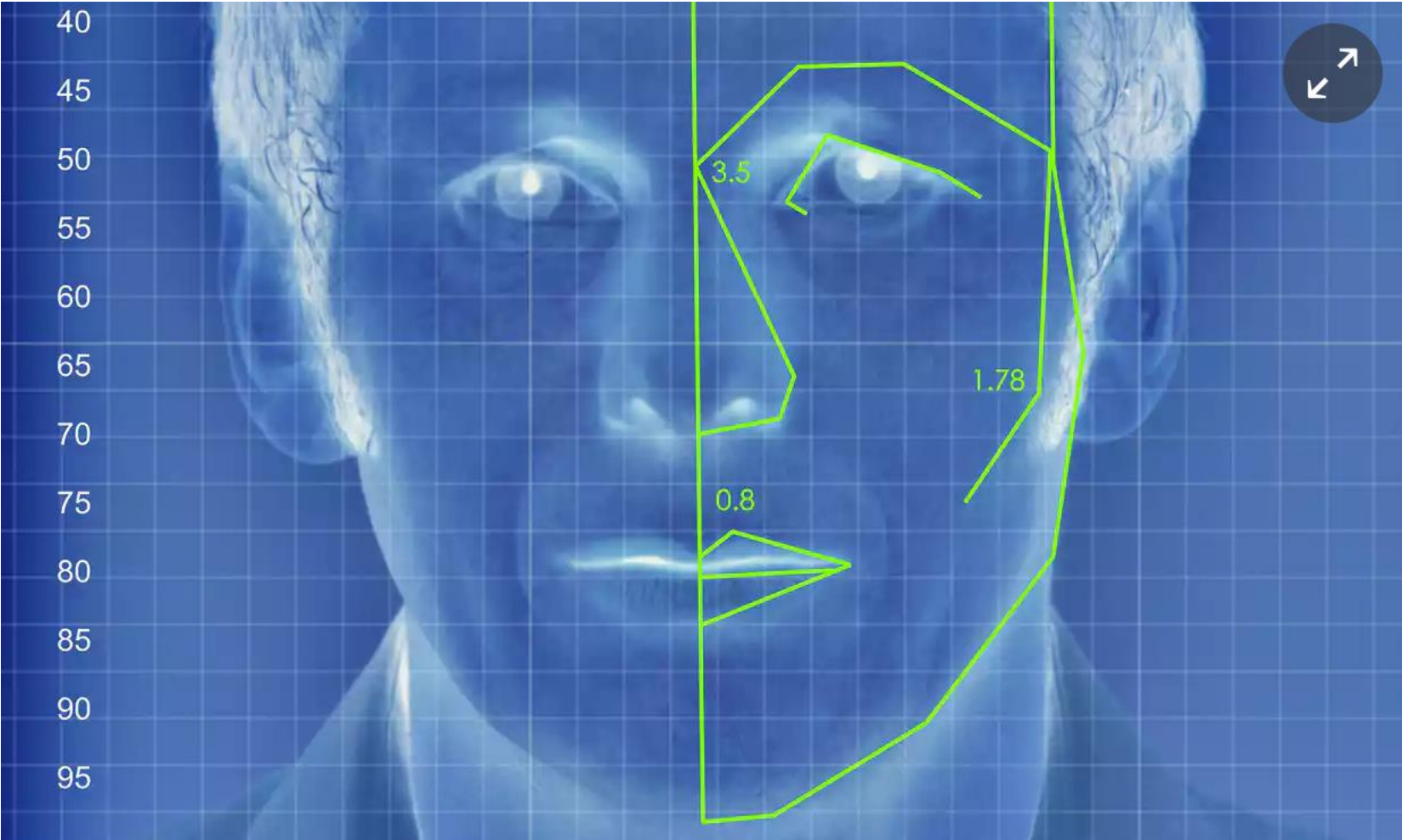
Detect concussion, brain injuries with a smartphone



MIT neural network translates pictures of food into recipes



AI can guess whether you're gay or straight from a photograph



AI for workplace safety

At the Build conference in May, Microsoft showcased how AI might make a construction site safer and more productive



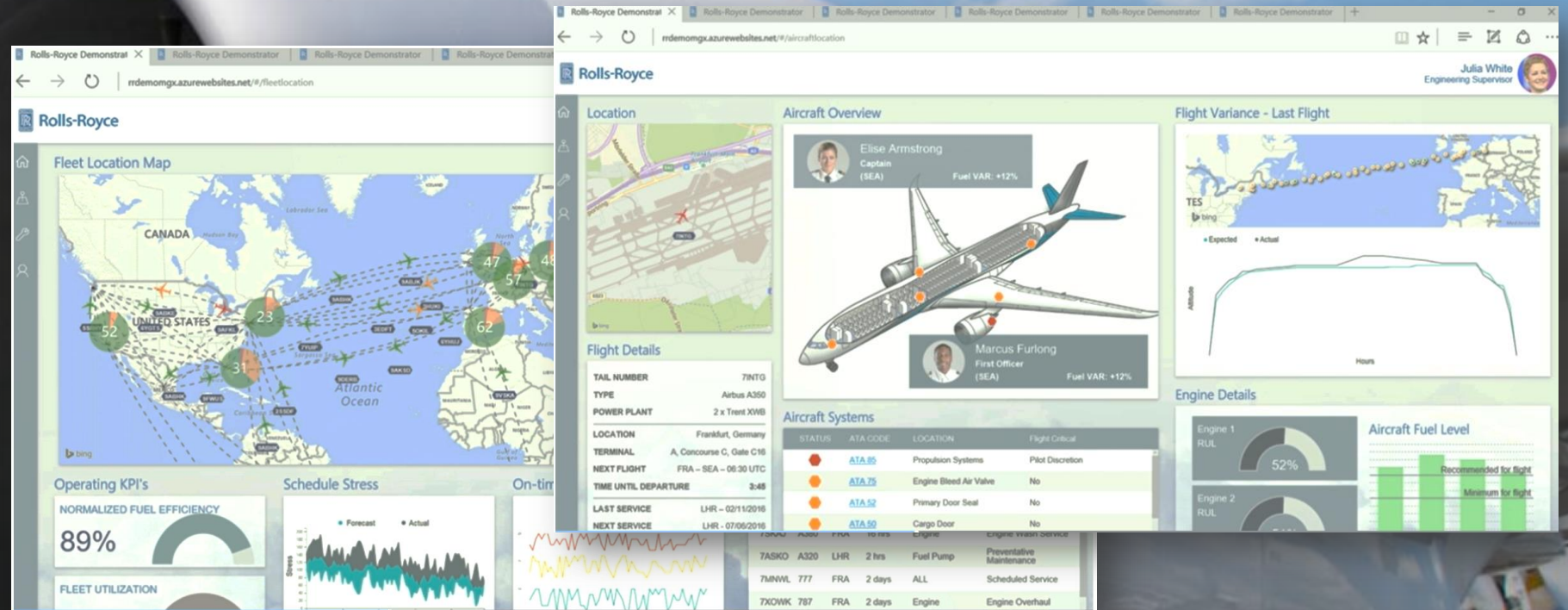


Rolls Royce TotalCare® Digital Program



- ROLLS ROYCE

Through 'Totalcare Digital program', ROLLS ROYCE analyses the engine problem in advance, prevents the unexpected flight delay and minimizes the fuel consumption



Challenge

- Improve aircraft efficiency.
- Increase aircraft availability.
- Reduce engine maintenance costs for airlines.

Strategy

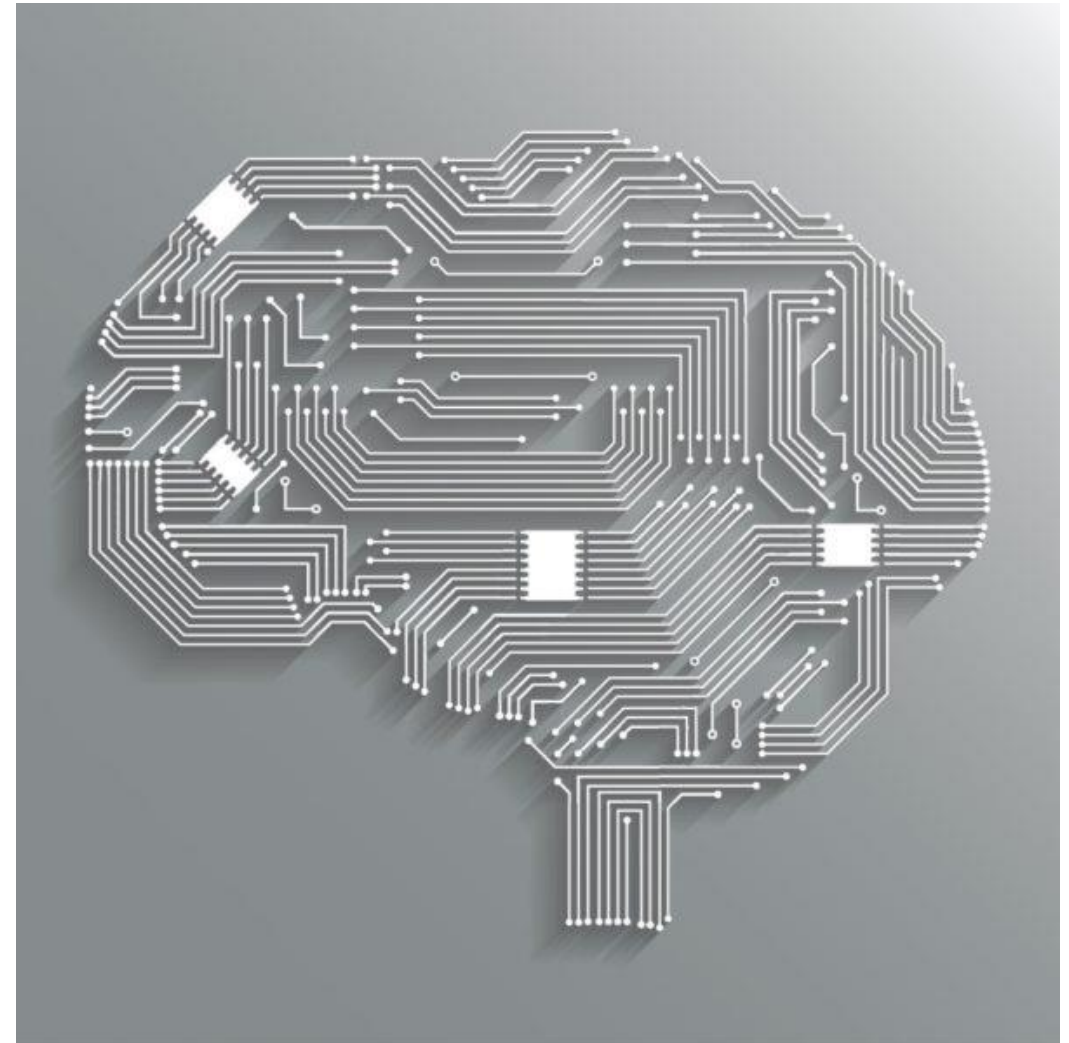
- Aggregated data from engines remotely with Azure IoT Suite.
- Utilized **Cortana Intelligence Suite** to assess health and detect operational anomalies.

Results

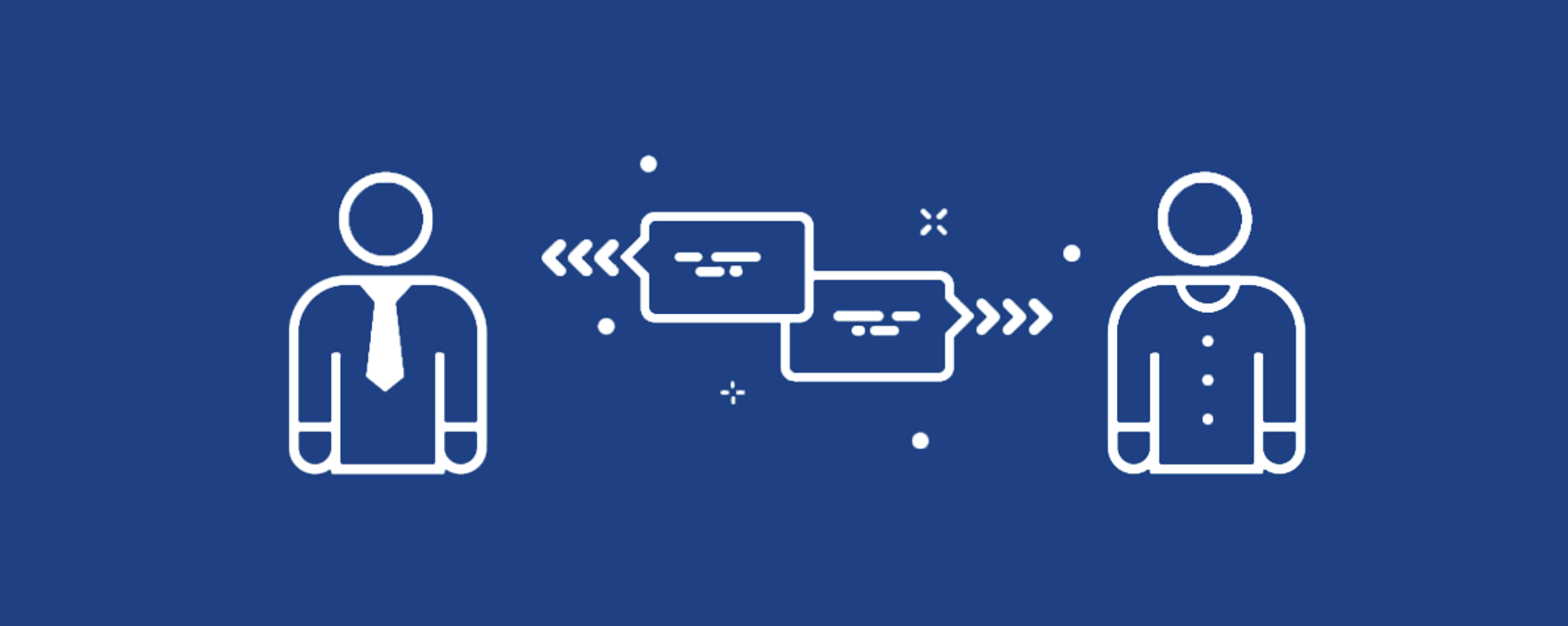
- Retain asset value throughout an engine's life cycle.
- Reduce flight disruptions.
- Potential cost savings of millions of dollars per year.

5 predictions for artificial intelligence in 2017

1. The movement towards conversational interfaces will accelerate
2. Design will begin to evolve to increase our trust in AI
3. We'll start talking about how AI systems talk to each other
4. AI will take a hit due to imbedded bias
5. Enterprises will start to demand ROI from their AI



Conversational Economy



The UK's National Health Service is testing out a medical chatbot as a non-emergency helpline

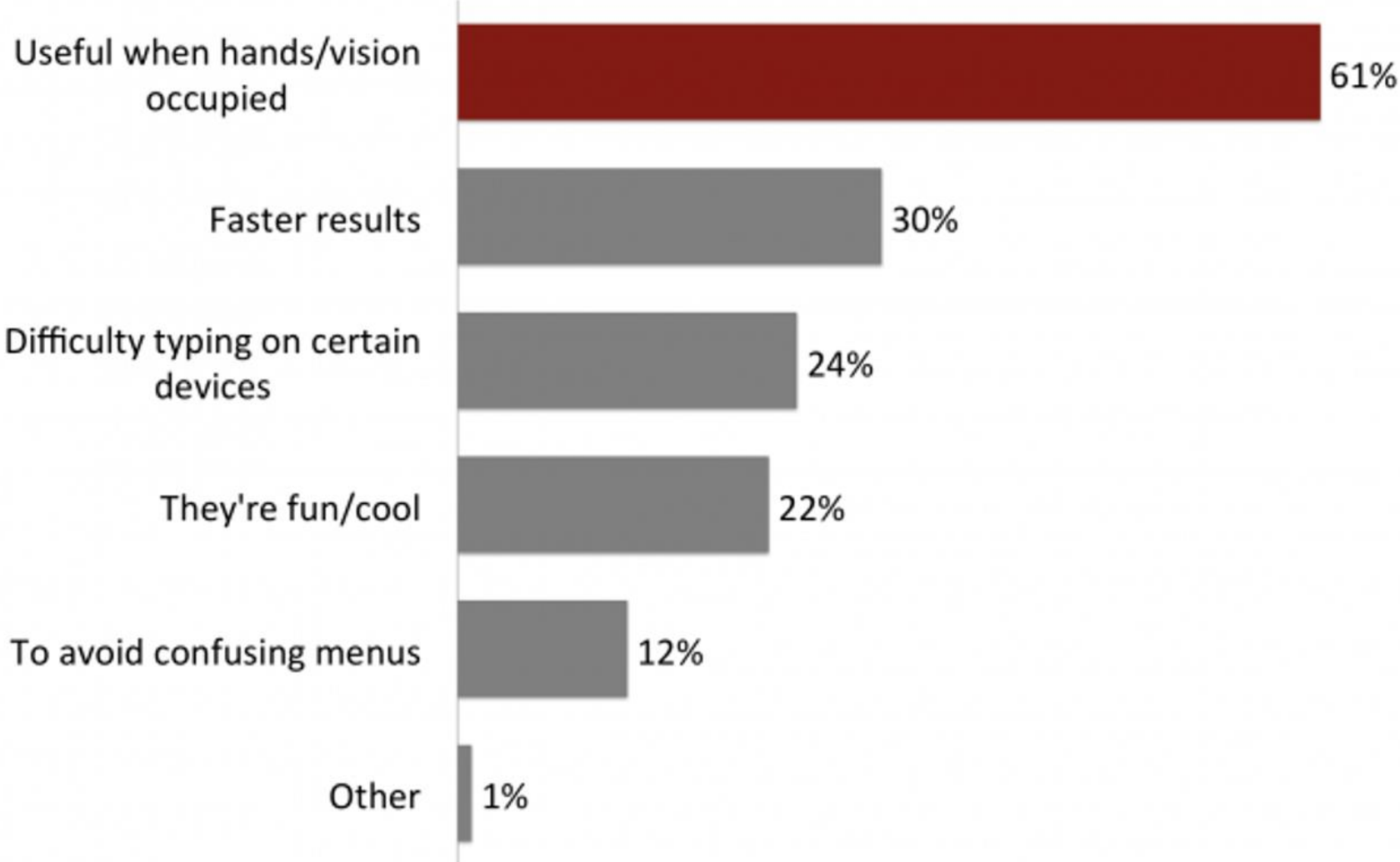


현대자동차 코나 챗봇 서비스



Challenge	Strategy	Results
<ul style="list-style-type: none"> 향후 2~3년 이내 디지털 마케팅 환경 마련을 위한 유연하고 확장가능한 AI 플랫폼 필요 고객경험과 새로운 제품과 서비스 향상, 빠른 의사결정을 위한 AI 기술 필요 	<ul style="list-style-type: none"> 신경망 기반 번역 및 자연어 처리 '루이스' 기반의 AI 챗봇 서비스 개발 한국어 지원으로 사용자의 의도를 파악해 이에 맞는 서비스를 제공 	<ul style="list-style-type: none"> 현대자동차의 디지털 마케팅을 위한 AI 플랫폼 구축 완료 챗봇을 통해 마케팅 전략을 신속하게 확산 가능 호주 및 북미까지 챗봇 서비스 확장 예정

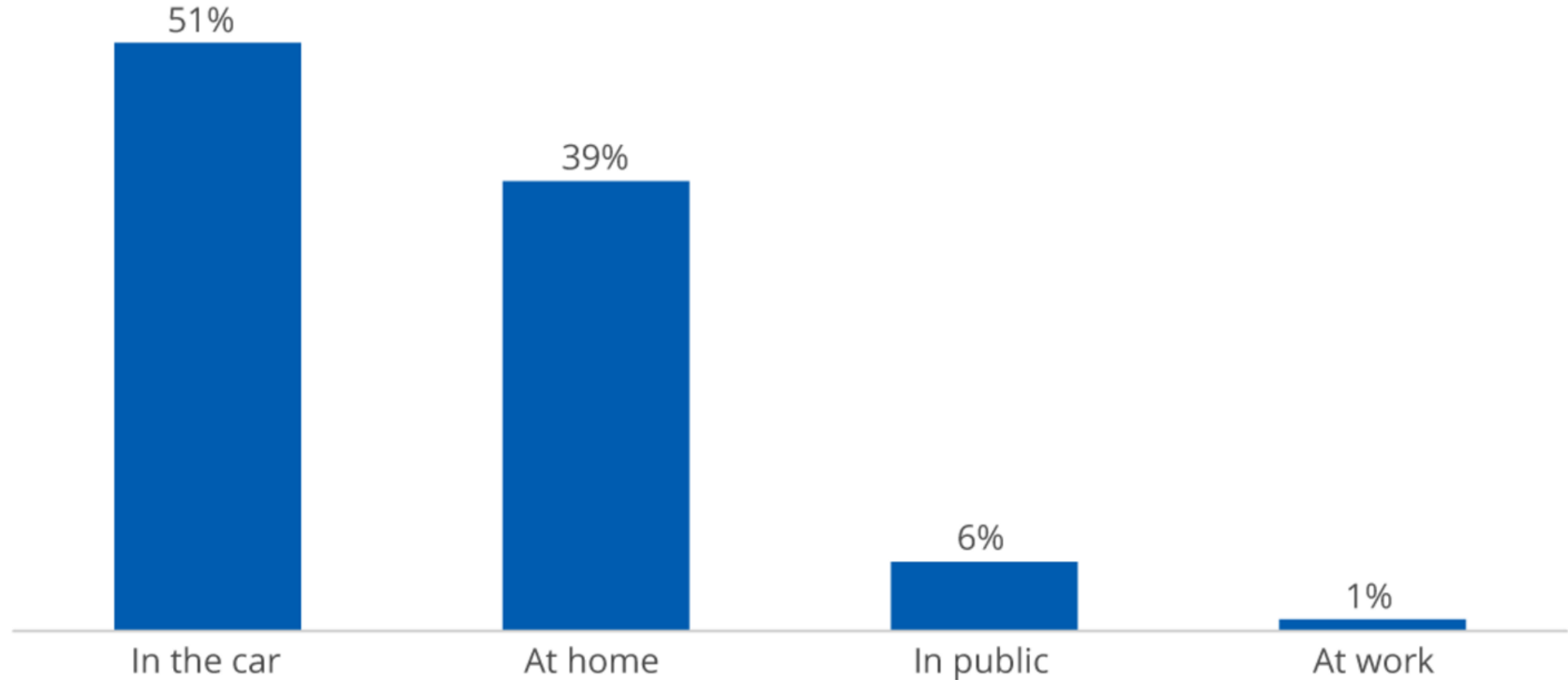
Primary Reason For Using Voice Assistants



Source: MindMeld, Q1 2016

Where People Use Voice Assistants

Users of smartphone-based assistants who use them in the following locations



SKT NUGU vs. KT GiGA Genie

당신이 원한다면
누구라도 되어줄
인공지능 음성인식 디바이스
NUGU

NUGU는 끝없이 학습하고 성장하고 발전하는 인공지능 디바이스입니다.
여러분의 관심과 참여로 NUGU의 잠재력을 끌어내 주세요





Introducing

harman/kardon[®]

I N V O K E

with Cortana by Microsoft

COMING FALL 2017

Microsoft Connected Vehicle Platform

Source: CES 2017



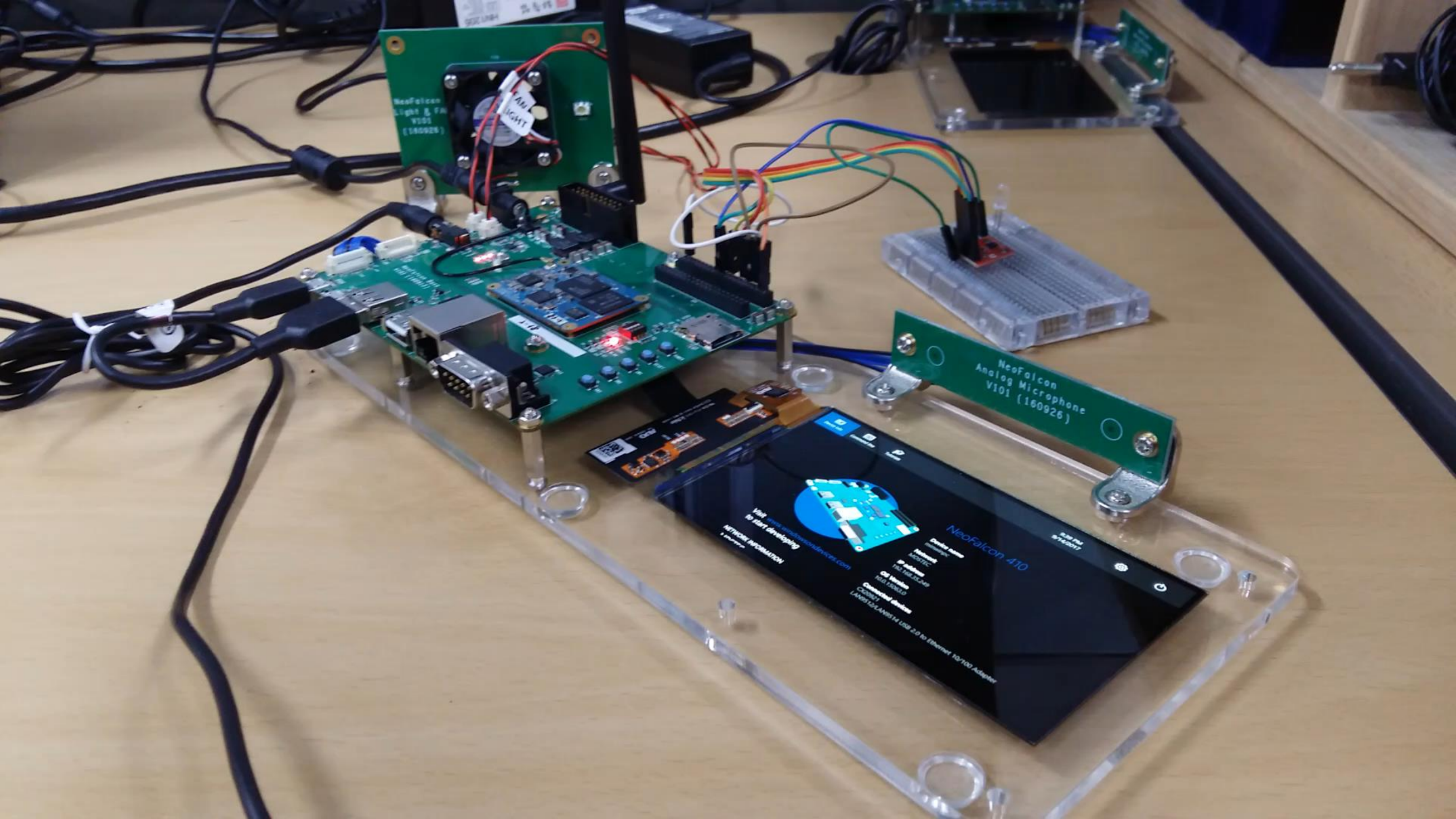
Microsoft Azure & Renault-Nissan connected car

Microsoft Azure is ingesting huge volumes of sensor and usage data from connected vehicles, and helping automakers apply that data in powerful ways



Cortana as personal assistant for BMW cars

Drivers can check out their schedule, add new reminders, manage their upcoming events, or just hear a random joke from the personal assistant



NeoFalcon
Light & Fan
V101 (160926)

FAN LIGHT

NeoFalcon
Analog Microphone
V101 (160926)

NeoFalcon 410

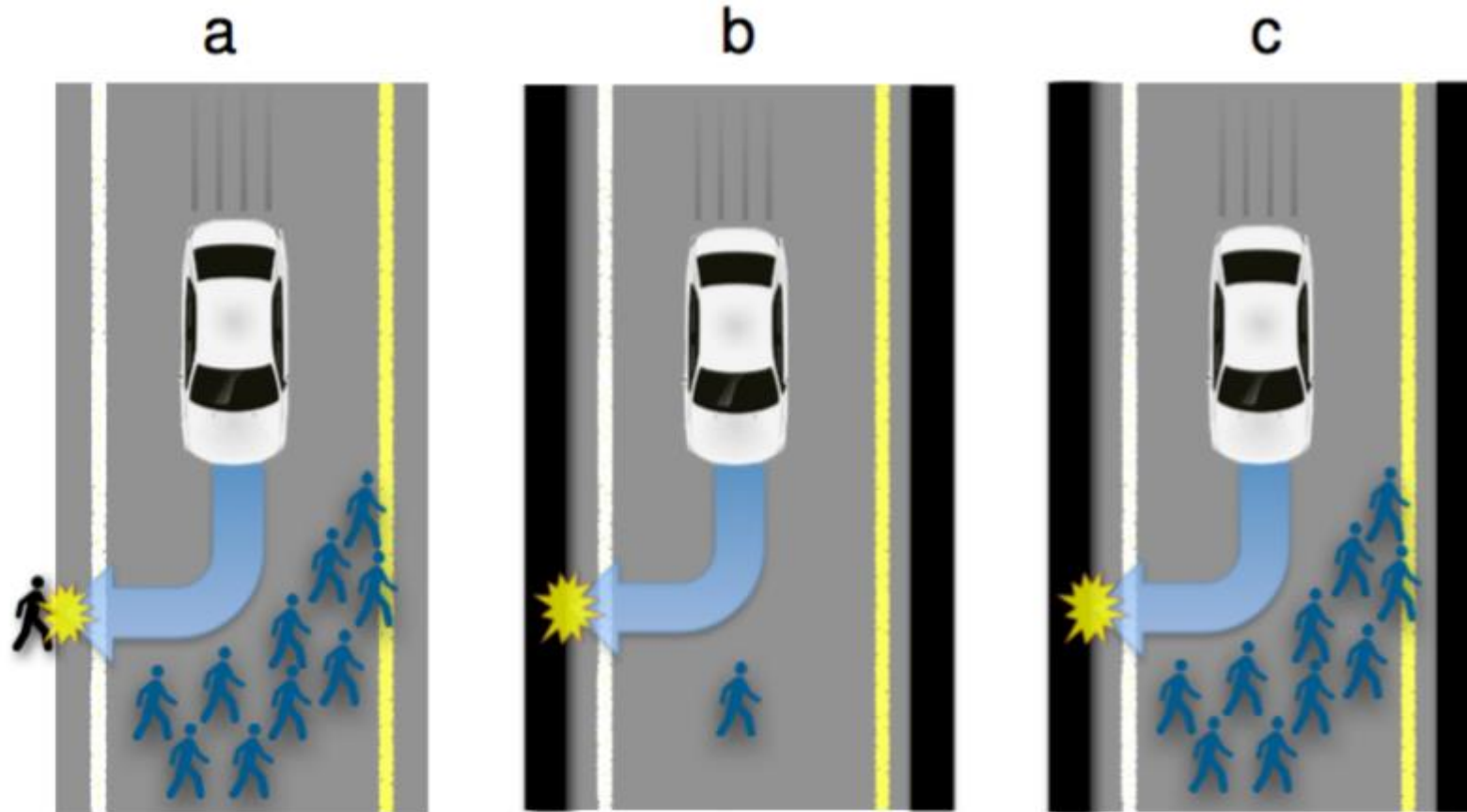
Device name	NeoFalcon
IP address	192.168.2.149
OS version	Android
Connection details	COMPUTER LAN8720LAN8720M USB 2.0 to Ethernet 10/100 Adapter

NeoFalcon 410

Visit www.neo-falcon.com
to start developing

NEOFALCON PROMOTION

Why Self-Driving Cars Must Be Programmed to Kill



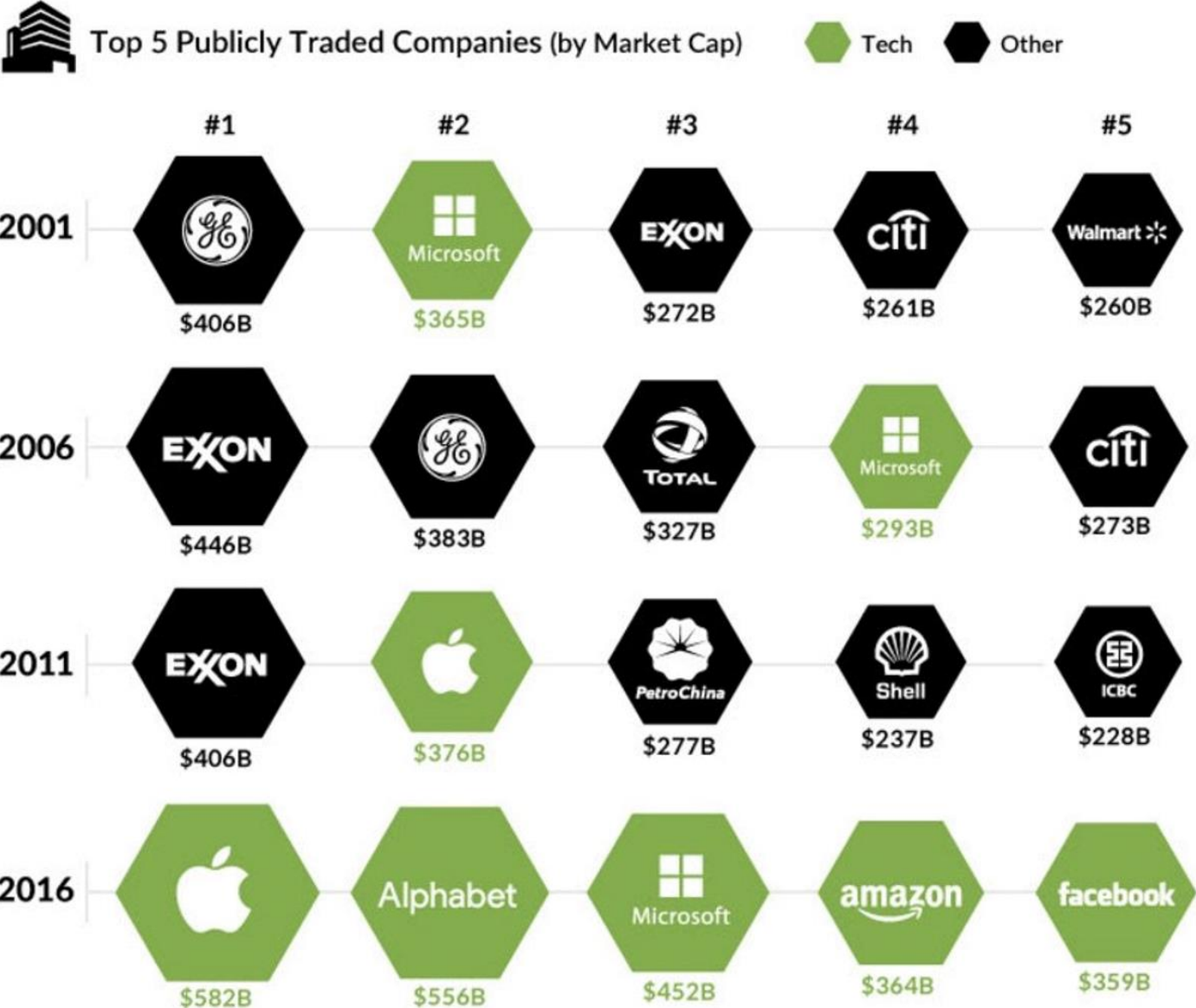
"Autonomous Vehicles Need Experimental Ethics: Are We ready for Utilitarian Cars?"(Bonneson et al., 2015)

Moral Machine – <http://moralmachine.mit.edu/>



**MORAL
MACHINE**

Dominance of Tech Companies



Source: visualcapitalist.com

Dyson opens new Singapore tech center with focus on R&D in AI and software



Disrupt or be disrupted

Industry vertical



Banking



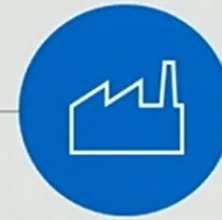
Health



Retail

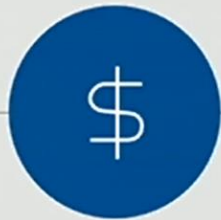


Telco



Manufacturing

Business process



Sales



Marketing



Customer support



HR



Recruiting

“The best way to predict the future is to invent it.”

– Alan Kay