



Lets Talk Digital



Keynote: #AI is changing the future today

Sachin Lulla

EY Principal
Digital Transformation

IoT and

GTA Technology Summit 2019
Artificial Intelligence: Shaping Tomorrow Today
May 13th, 2019



EY

Building a better
working world



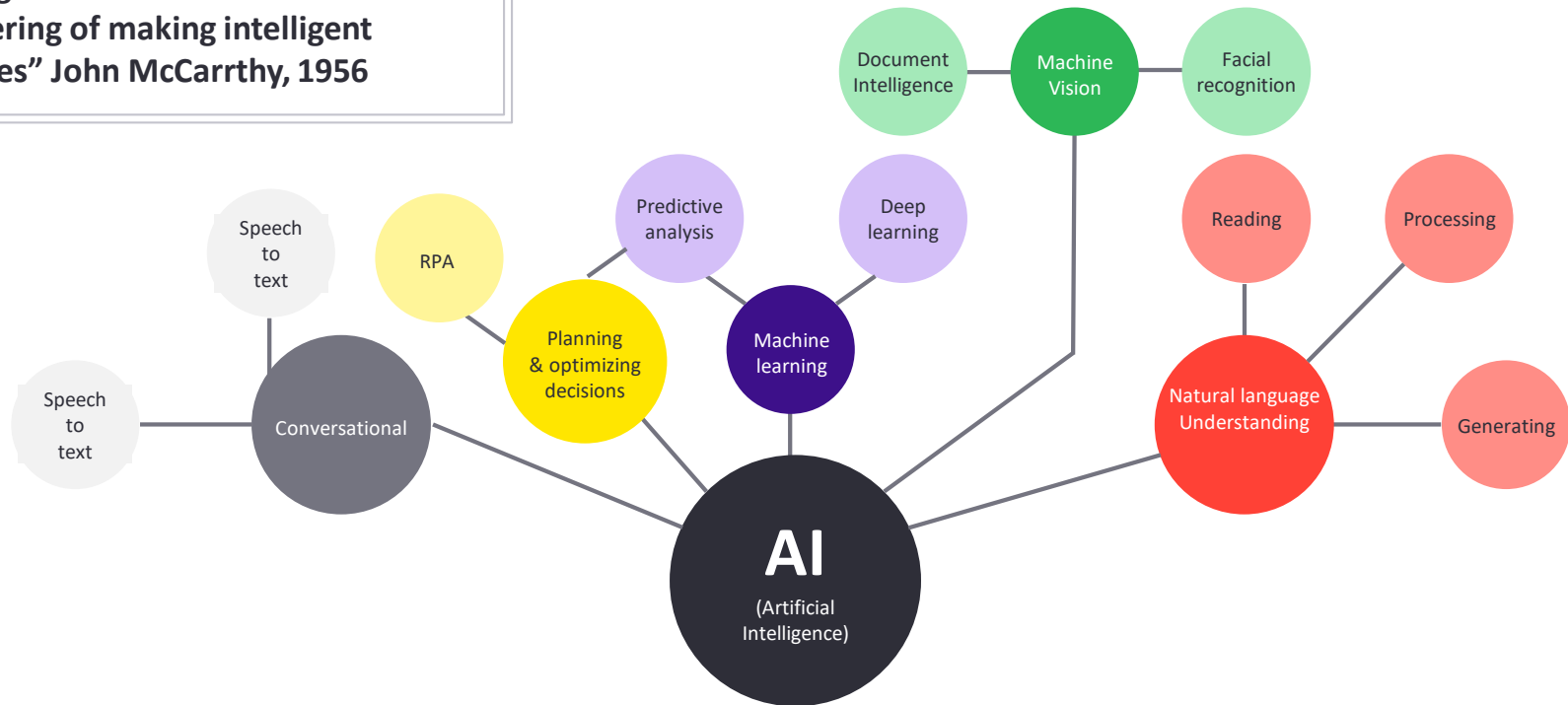
“

**Artificial
Intelligence (AI)**
gives machines
human like
abilities.”

Great American Teach
In (GATI)
Nov, 2018

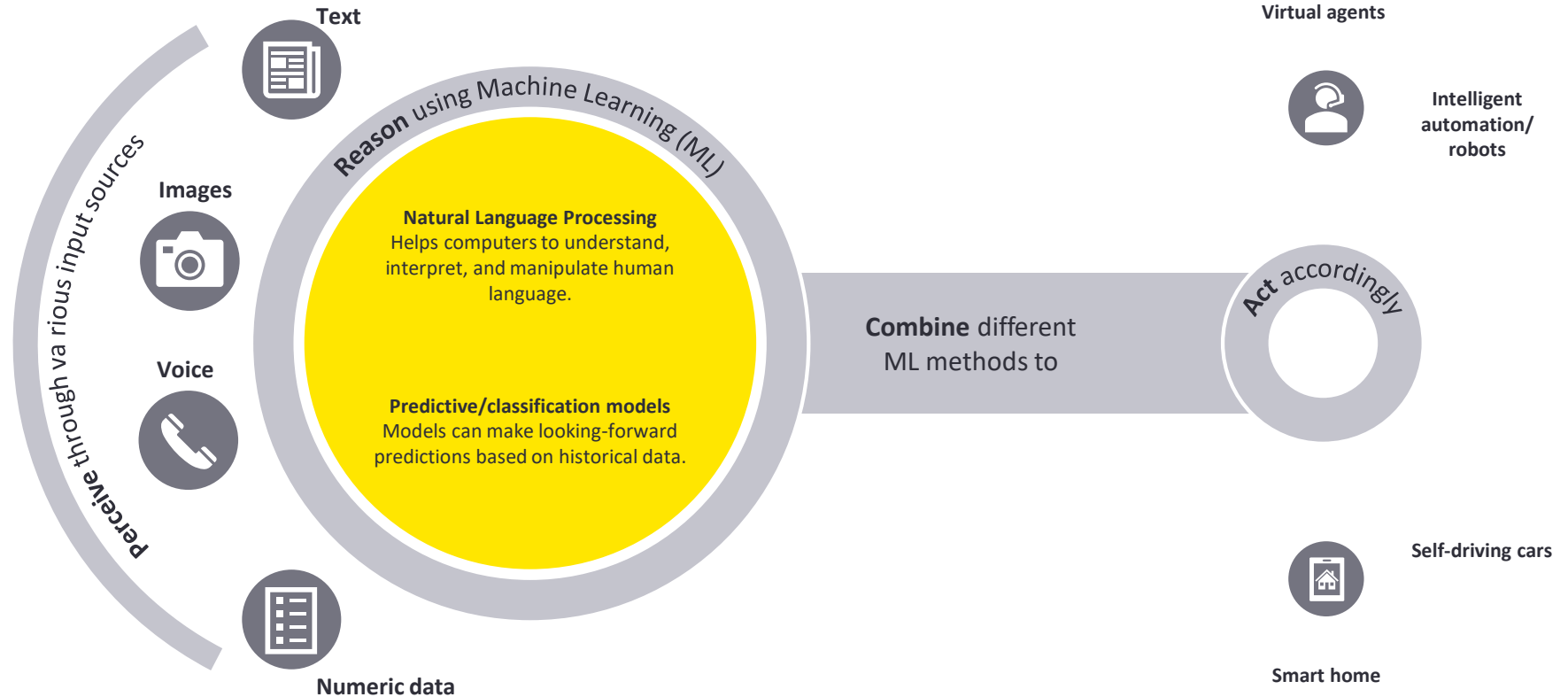
AI is a spectrum of methods

Defining AI – “the science and engineering of making intelligent machines” John McCarthy, 1956

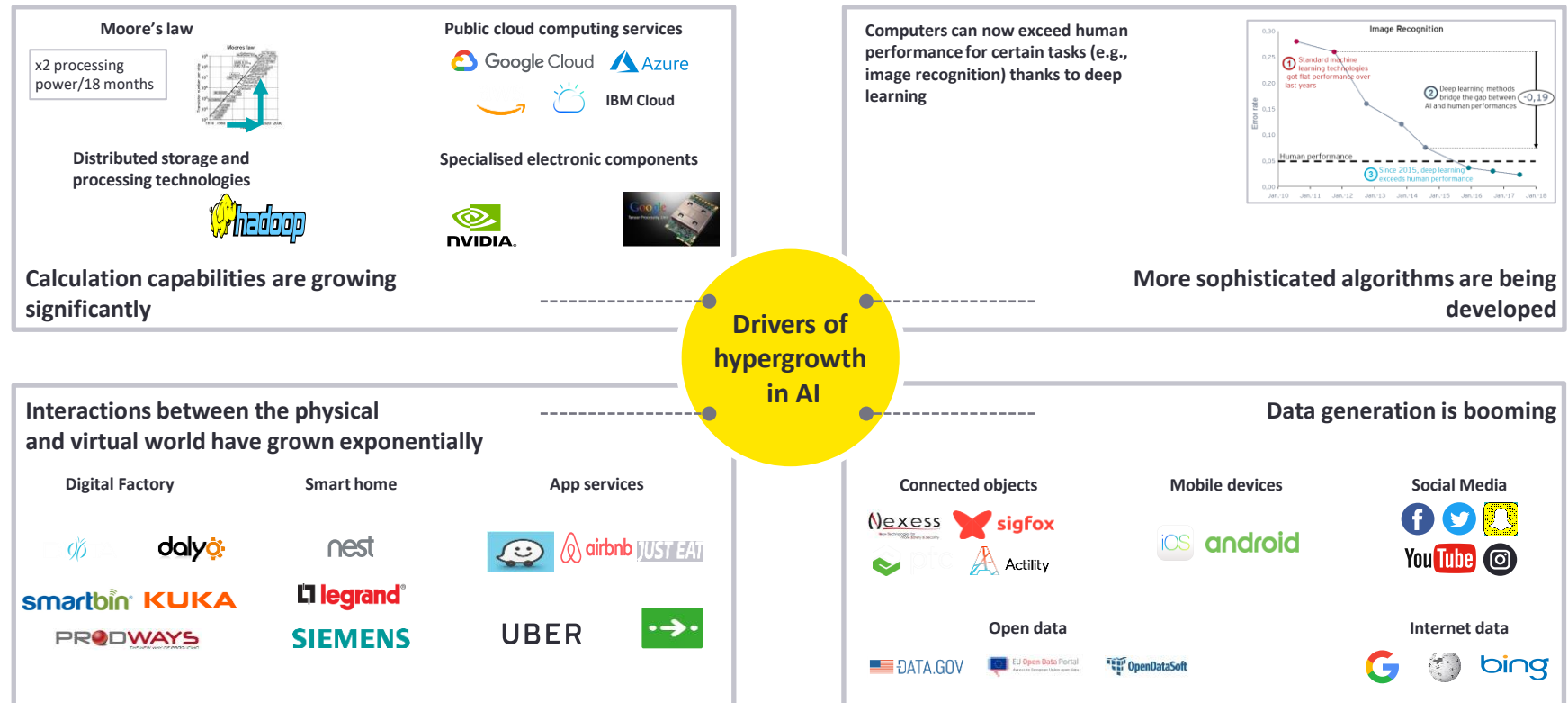


AI outcomes: perceive, reason, and act at massive scale

Perceive, Reason, and Act



Driving forces are converging





*Consumers are shifting
their preferences from
buying products and
services to buying
experiences*

#Olli by Local Motors — June 2016



#AccessibleOlli by Local Motors — Jan 2018



Source: Local Motors (see appendix)

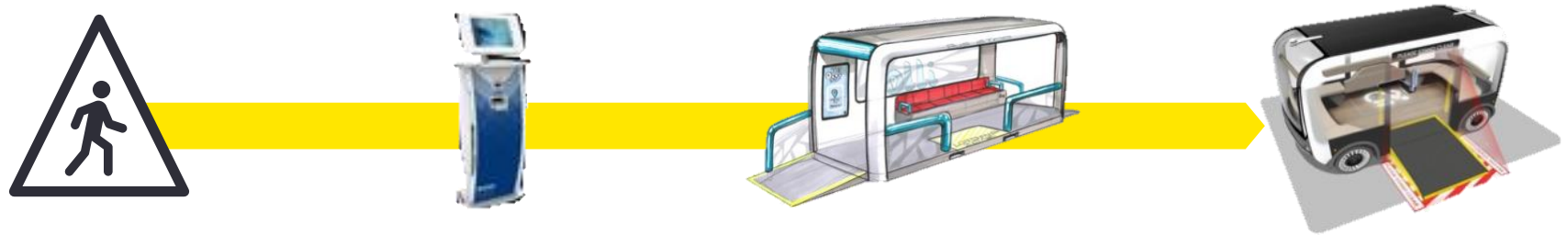


#AccessibleOlli by Local Motors — Jan 2018



Source: Local Motors (see appendix)

#AccessibleOlli is an example of hyper-personalization delivered



Erich



Brent



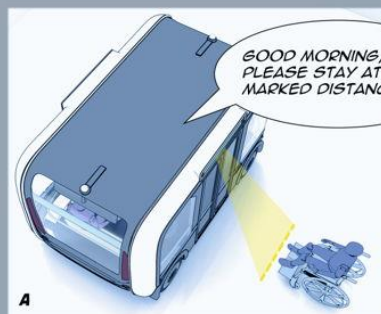
Katherine



Grace

Source: Local Motors (see appendix)

OLLI MOBILITY SOLUTIONS



The technologies applied on this concept, are currently in use by bus transportation in London, the light projection has been applied to concepts such as Minicooper next 100.



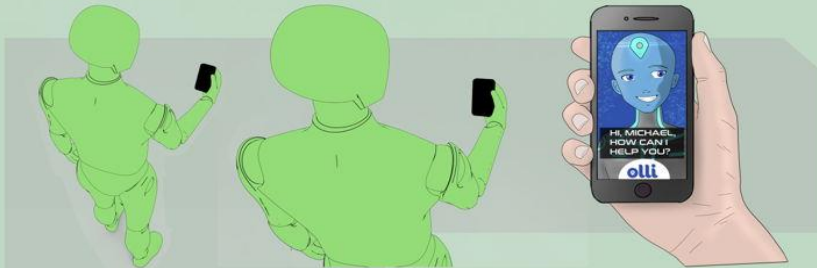
- A** Light projection on the floor to estimate safe distance
- B** First part of the sliding ramp
- C** Second part of the ramp will slide under the first part
- D** Real time instructions for designated spaces



Ilel David **LM labs** Launch Forth

Source: Local Motors (see appendix)


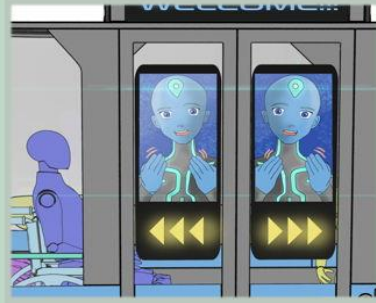
OLLI HEARING SOLUTIONS



For people with hearing disabilities, the app will provide clear written instructions.

The olli personal assistant will have sign language outside the vehicle


The addition of the earbuds will help people with limited hearing



Inside the vehicle the user will be able to interact with olli via the olli app.

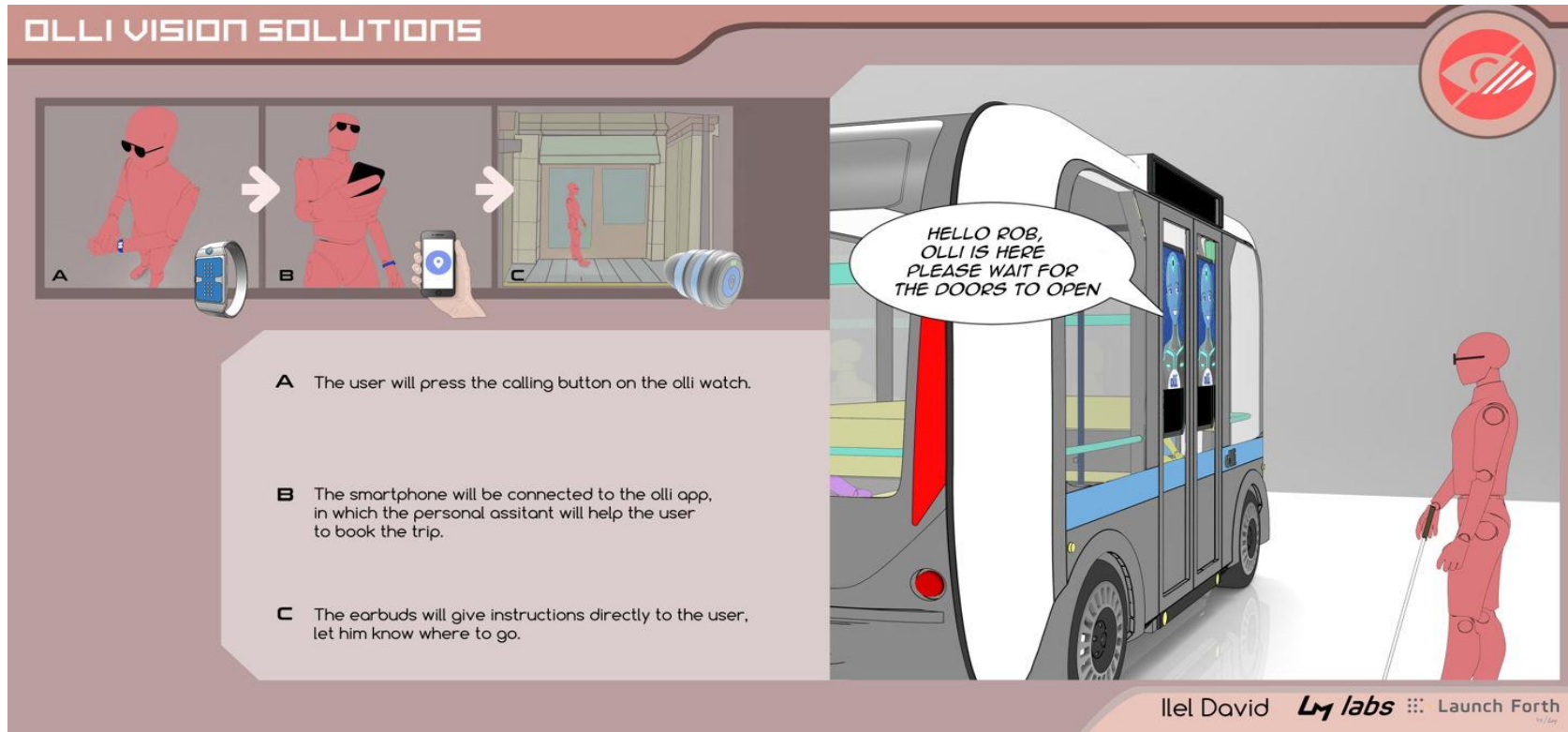
It will be possible for the user to make stops and obtain necessary information related to the trip.

The screens inside olli will display clear information for the users.



Illel David **LM labs** Launch Forth

Source: Local Motors (see appendix)



Source: Local Motors (see appendix)

Artificial Intelligence will be infused in everything

↳ (AI is math at enormous scale)

↳ (in private and public sectors)

Applied towards five different objectives

Hyper-personalize
Experiences

Generate
Insights

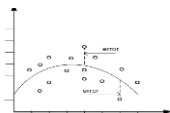
Optimize
Performance

Expand
Automation

Sustain
Trust

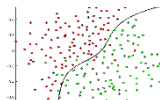
Applied to answer four different questions

Predict a number
Regression



How **Many?**

Predict a class
Classification



What **Category?**

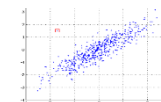
Find groups/patterns
Clustering



In what **Group?**

Find unusual items

Anomaly detection



Is it **Weird?**



AI is transforming every industry in the private sector

Honda, IBM create Dave to solve recall riddle.

Automotive News

Honda Recall Lookup

Our Company puts a high priority on the safety of our products. This website provides information about safety recalls announced in the past 15 calendar years; older recalls are not included.

For additional recall assistance, click the Ask Dave button. If you are dissatisfied with your vehicle performance or have a product complaint, please contact Honda Automobile Customer Service at (800) 999-1036.



Select one of your vehicles

Select vehicle...



CHECK FOR RECALLS

[or search for a different vehicle](#)

“Dave -- for Digital Assisted Virtual Engineer -- is a virtual online agent Honda created in conjunction with IBM's Watson artificial intelligence system.”

“The concept of this was to say if we want to really service our customers in general, what is the gap?”

By Tony Gomes, AVP- Technical Division, Honda, 01 April 2017

Source:

<https://www.autonews.com/article/20170401/MOBILITY/304039963/honda-ibm-create-dave-to-solve-recall-riddle>

Artificial intelligence may stop Netflix account sharing.

NewsHub



“Currently, Netflix customers can share their password with friends and family, but new software from a United Kingdom start-up Synamedia looks ready to put an end to that by determining where users are logging into their accounts”

Source:

<https://www.newshub.co.nz/home/entertainment/2019/01/artificial-intelligence-may-stop-netflix-account-sharing.html>

Uber uses artificial intelligence to figure out your personal price hike

ZDNet



“Uber system is based on AI and algorithms which estimate fare rates that groups of customers will be willing to pay depending on destination, time of day, and location.”

Source:

<https://www.equipmentjournal.com/tech-news/caterpillar-signs-mou-robotic-bricklayer/>

AI is transforming every industry in the private sector

Walmart's Robotic Shopping Carts Are The Latest Sign That Automation Is Eating Commerce

Robotics



“ [Look] how rapidly **automation** is moving into shopping and warehouse.

“ Automated shopping carts may be a gimmick, but stores and warehouses are rapidly being transformed by automation.

By Will Knight, 15 June 2016

Source:

<https://www.technologyreview.com/s/601704/walmarts-robotic-shopping-carts-are-the-latest-sign-that-automation-is-eating-commerce/>

Flippy, the hamburger cooking robot, gets its first restaurant gig.

TechCrunch.com



“ Today at Disrupt SF, we got our first look at Flippy in its final form. Miso Robotics has been showing off its burger-flipping “robotic kitchen assistant” for several months now, but today’s food robotics panel marks the first time we’ve actually seen it put to work in a real-world kitchen.

By Brian Heater, 17 Sept 2017

Source:

<https://techcrunch.com/2017/09/19/flippy-the-hamburger-cooking-robot-gets-its-first-restaurant-gig>

Caterpillar signs MOU with robotic bricklayer.

Equipment Journal



“ On July 2, the Australia-based Fastbrick Robotics announced it is entering a Memorandum of Understanding (MOU) with Caterpillar. The MOU lays the groundwork to develop a “potential framework for collaboration” to develop, manufacture, sell and service its robotic bricklaying technology.

5 July 2017

Source:

<https://www.equipmentjournal.com/tech-news/caterpillar-signs-mou-robotic-bricklayer/>

AI is transforming every industry in the private sector

Chinese ecommerce giant shows off its first ever 'robot warehouse'.

TECHinASIA



A Chinese tech giant has opened its first fully automated sorting center where robots and machines handle 9,000 online shopping orders per hour – with hardly a human in sight.

By Steven Millward, 5 Sept 2017

Source:

<https://www.equipmentjournal.com/tech-news/caterpillar-signs-mou-robotic-bricklayer/>

Shake Shack's new chatbot can answer 300 customer questions.

DigiDay



Shake Shack has launched a chatbot that will answer customers' most burning questions, such as whether their local Shake Shack is open at 10 p.m. or if its burger patties are organic.

By Ilyse Liffreing, 11 Aug 2017

Source:

<https://digiday.com/marketing/shake-shacks-new-chatbot-can-answer-300-customer-questions/>

World's largest hedge fund to replace managers with artificial intelligence

The Guardian



The world's largest hedge fund is building a piece of software to **automate** the day-to-day management of the firm, including hiring, firing and other strategic decision-making.

By Olivia Solon, 22 Dec 2016

Source:

<https://www.theguardian.com/technology/2016/dec/22/bridgewater-associates-ai-artificial-intelligence-management>



Only a handful of publicly listed technology sector firms mention AI to analysts on earnings calls

2017



2014

Over 1000 publicly listed companies mention AI during earnings calls when explaining their growth plans and market performance.



*How can governments
create value from AI
today?*



1.2 bn

Hours

Is the potential amount of person-hours saved by tasks automation in the **U.S** public sector

Source: NewStatesman (2018)



0.8 to 1.4

Percentage points

Is the possible addition that AI technology could bring to **China's** annual GDP growth depending the speed of adoption

Source: Ejinsight (2017)



10.3 %

Is the possible growth of **U.K's** GDP as a result of AI due to product enhancements, consumer demand stimulation, increased personalization and affordability

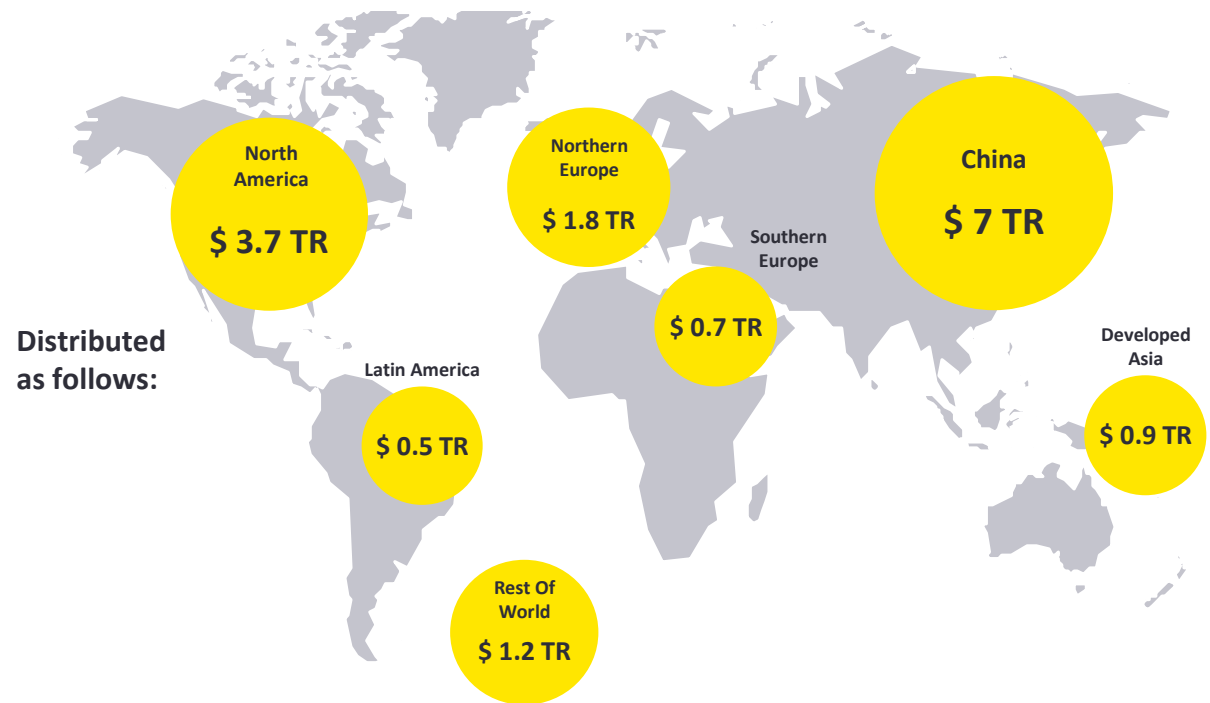
Source: NewStatesman (2018)

AI will add:

**\$ 15.7
trillion**

wealth

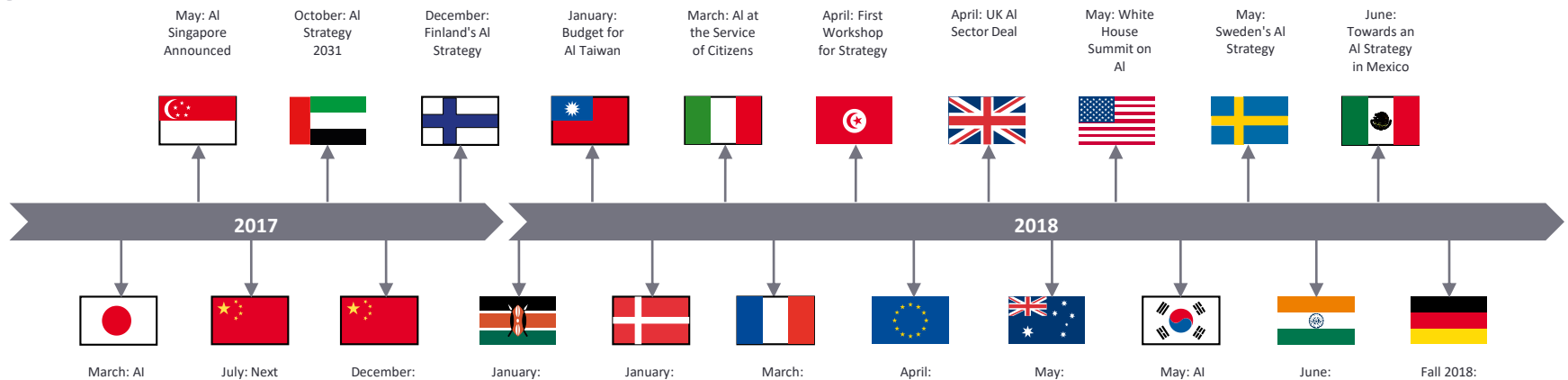
By 2030



Source: Visual Capitalist (2017)

Governments are ramping up efforts and investments on AI

Artificial Intelligence Strategies



No country on earth has published a National AI Strategy or Action Plan

2018
↑
↓
2016

36 COUNTRIES & REGIONS
for formally announced AI taskforces and programs

Governments are ramping up efforts and investments on AI

Vladimir Putin: Leader in artificial intelligence will rule world

NEWS Sep 01, 2017 Hamilton Spectator



"The one who becomes the leader in this sphere will be the ruler of the world."

Russian President Vladimir Putin,

Source: <https://www.thespec.com/news-story/7532679-vladimir-putin-leader-in-artificial-intelligence-will-rule-world/>

China launches open-source platform as part of its quest to become AI world leader by 2030

The open source platform will help Chinese scientists develop a new generation of Artificial Intelligence.

TECH Updated: Mar 10, 2018 13:40 IST

Indo Asian News Service



AI can help governments deliver value in 5 key areas

Customer Experience

1

*Making it easier to use
government services*

Public Value

2

*Improving productivity,
tackling fraud,
preventing corruption
and policy making*

Citizen and National Security

3

*Keeping people,
information and
strategic interests safe*

Future Workforce

4

*Supporting Education
and Research, Jobs and
Training*

Smart Infrastructure

5

*Optimizing
infrastructure and
transportation*

Digital India: Power to Empower #InclusiveGrowth

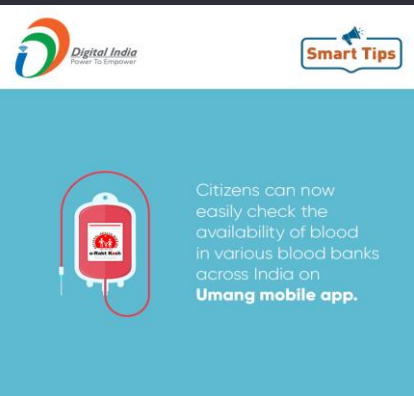
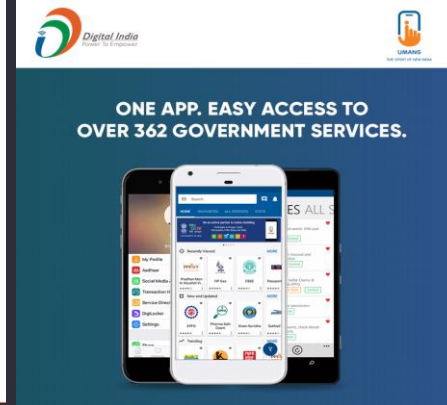
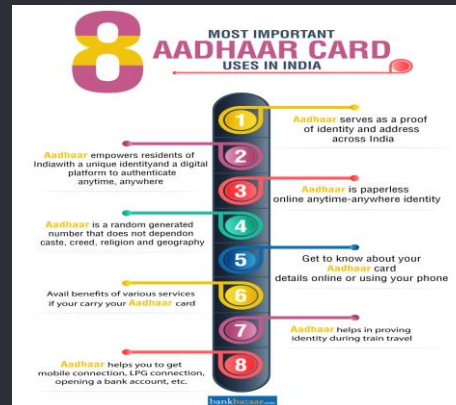
How the world's largest democracy is leveraging AI and Digital technologies



1

Customer Experience

Making it easier to use government services



2

Public Value

Improving productivity, tackling fraud, preventing corruption and policy making



3

Citizen and National Security

Keeping people, information and strategic interests.





NATIONAL SCHOLARSHIP PORTAL
Ministry of Electronics & Information Technology,
Government of India

SCHOLARSHIPS DIRECTLY TO STUDENTS' BANK ACCOUNTS

- National Scholarship Portal- one stop solution for 64 Scholarship Schemes
- Scholarships given to 2.49 crore students, in their bank accounts, in last 3 years



NAMUMKIN AB MUMKIN HAI




CBSE CLASS XII RESULTS 2019 ANNOUNCED

Students can now check their results on UMANG App.



Future Workforce



Supporting Education and Research, Jobs and Training



Smart Tips


Farmers can achieve many things with the help of Soil Health Card scheme, by:

- Keeping a check on essential nutrients their soil is lacking.
- Investing more in the right kind of crops and fertilizers.





PMGDISHA
A New Age Literacy programme has benefitted **1 Crore Women**



HAPPY WOMEN'S DAY

@PMGDISHA @PMGDISHA www.pmgdisha.in

Railways' big initiative! Now access free Wi-Fi at 500 stations across India

RailTel is one of the largest and fastest public Wi-Fi networks in the world. The PSU has made a record by providing free Wi-Fi service to 500 stations in just seven days.

BusinessToday In New Delhi Last Updated: April 6, 2019 | 10:37 IST



Smart Infrastructure



Optimizing infrastructure and transportation



Initial outcomes:

- ▶ 99% of Indians over 18 now have Aadhaar cards and hence a digital identity
- ▶ 350 million new bank accounts with “zero balance” were opened to directly receive government aid with zero leakage
- ▶ Government identified 225,000 shell companies that were setup with low activity and high value transfers to avoid tax liability
- ▶ The process of starting and liquidating a business is today far simpler than it has ever been, as evidenced by India having become the world’s third-largest ecosystem for start-ups.
- ▶ India jumped 65 places in the Ease of Doing Business Index of the World Bank



- Government agencies are already using intelligent chatbots in call centers or customer service functions. They can automate the process of managing calls involving fairly basic, repeat questions or routine reports – answering queries, providing information, receiving and reporting information and guiding citizens through an application process.
- AI is used to sift through and analyze user feedback and measure citizen happiness. This insight is used to improve the design of services.

Case examples

HIS HIGHNESS SHEIKH MOHAMMED BIN RASHID AL MAKTOUM ADOPTS SMART DUBAI HAPPINESS AGENDA FUELLING THE CITY'S TRANSFORMATION WITH A GLOBALLY UNIQUE FOCUS ON HAPPINESS



RTA LAUNCHES WORLD'S FIRST AI HAPPINESS METER

SHARE: [f](#) [t](#) [p](#) [o](#) [v](#)



The Indian EXPRESS

In I&B, tool to monitor real-time public sentiment

A team of technical experts drawn from ITTs and ITMs and working from the office of I&B minister kept a watch on public sentiment on various other announcements in the Budget, sources said.



AI for governments monitoring citizen happiness

By Emma Reynolds | Updated on 10/10/2017 | AI, artificial intelligence, data science, ethics, Google, government, innovation



Smart cities - the future of happiness

By Estienne Veiret
Published October 30, 2017

Every day Dubai is one step closer to becoming a fully-fledged smart city, as an increasing number of devices become connected, and as governments continue to implement projects with services that strip away the old ways of getting things done. Our lives are becoming more intertwined with smart solutions that save us time and effort on administrative tasks, allowing us to focus on things that make us happy. It's no surprise then that the smarter a city is, the happier its residents are.





- Automating routine tasks- NLP and text analytics can summarize thousands of pages of legal documents within minutes, a task that would take a human several days and offer a higher risk of errors.
- Optimizing public finance management and resource allocation- detecting irregular financial activities such as money laundering, terrorist financing and fraud; and predicting the likelihood of corruption in government.

Case examples

Coca-Cola and US government use blockchain to curb forced labor

The tech would give workers a secure registry to enforce their rights.



Singapore to use intelligent 'chatbots' to deliver public service

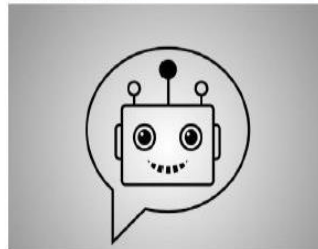
In partnership with Microsoft, the Infocomm Development Authority will use conversational computing to deliver selected public services under a new initiative called 'Conversations As a Platform'.



Chatbots Debut in North Carolina, Allow IT Personnel to Focus on Strategic Tasks

If successful, the experiment could be expanded to several other areas within the state — and ultimately allow people to do more meaningful and valuable work.

BY JUSTINE BROWN / OCTOBER 12, 2016



Experts optimistic that AI could save government billions of hours through automation

By freeing workers from mundane tasks, officials and analysts say artificial intelligence could enable government to focus more closely on its mission.



Japan exploring use of artificial intelligence for nation's parliament

It can help officials draft responses and answer policy-making queries.





- Facial and image recognition software can help analyze huge volumes of crime video footage, narrowing down the search and showing where people should focus their attention. It helps free resources up for urgent, feet-on-the-ground tasks.
- AI is also used to manage crime scenes, simulate training, predict those at risk of committing crimes, detect criminal behavior, manage real-time surveillance and identify future crime spots.

Case examples

Robot police officer goes on duty in Dubai

© 24 May 2017



Dubai Police have revealed their first robot officer, giving it the task of patrolling the city's malls and tourist attractions.

Chinese authorities nab fugitive in a crowd of 60k thanks to facial recognition AI

by TRISTAN GREENE — 13 days ago in ARTIFICIAL INTELLIGENCE



Indian government to detect tax evasion using analytics on traditional data and social media information

Serious Fraud Office hires 'artificial intelligence lawyer'

The technology was used to automatically spot legally privileged information among 30 million documents in the Italy-Royce case.

10:22 AM
Wednesday 11 April 2018



The SFO has hired an 'artificial lawyer' to analyse documents



The Impact of the EU's New Data Protection Regulation on AI

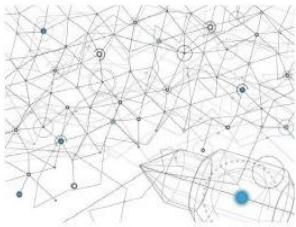


- Unmanned drones provide sustained surveillance, remote communication and swift attacks on targets, and small robots are used to disarm improvised explosive devices.
- AI offers cybersecurity options as a response to malware, phishing and brute-force attacks on data centers and government websites.

Case examples

China, Russia and the U.S. are running neck-and-neck in an AI military arms race.

As software eats the world, a dramatic shift is underway in both the technology and the doctrine of war.



China testing unmanned tank in latest foray into AI military technology



Video footage showed a Type 59 based tank, seemingly controlled via a computer terminal

UK Government unveils its own AI to detect terrorist content online



Written by [Jamie Davies](#) 13 February 2018 @ 15:46



Google Is Helping the Pentagon Build AI for Drones

Kate Conger and Del Cameron
3/16/18 10:15am • Filed in: [GOOGLE](#)

11.3K 65 2



New bill would prepare US for artificial intelligence threat

By: [Joe Gould](#) and [Aaron Mehta](#) March 21





- Intelligent tutoring systems (ITS) use software to mimic the role of a human tutor and provide personalized learning and guidance to students. Monitoring the student's performance enables the system to customize learning programs based on performance, ambitions and needs.
- AI can automate basic activities such as admissions, counseling and the grading of assignments, freeing up teachers' time for higher-value tasks such as lesson planning and one-to-one tuition.

Case examples



Apple partners with British government on 'Year of Engineering' educational effort

By Stephen Silver
Tuesday, April 24, 2018, 09:45 am PT (09:45 am ET)
The "Year of Engineering" Partnership that is currently underway will include AI coding in all U.K. Apple Stores at the behest of the country's government.



AI Learning Robot "Musio" Makes Its Way Into Japan's Private and Public Schools

"1 Musio per student" environment expected to increase students' language learning achievements

NEWS PROVIDED BY
AKA Intelligence →
Nov 14, 2017, 10:51 ET

AI to help students recognise their skills



Artificial intelligence dawns on UAE education sector

Schools, colleges begin using machines to predict dropout rates, graduates' employability, other patterns





- New jobs/industries/markets are being created through new opportunities between AI and humans. Some of the fastest growing job opportunities across all industries include data analysts, software developers and social media specialists. Plus jobs that require “human skills” like sales and marketing, innovation and customer service are also expected to increase in demand.
- AI is playing a greater role in talent acquisition by researching through data and gathering insights about a potential candidate to meet the organizational fit.

Case examples



New A.I. or Robotic Developers Can Utilize R&D Tax Credits

China's brightest children are being recruited to develop AI 'killer bots'

TECH NEWS

Thursday, 8 Nov 2018
3:30 PM MYT



By Stephen Chen



Up to £50m to develop world leading AI talent in the UK

31 October 2018

The Government has committed further investment to the UK's Artificial Intelligence (AI) sector by announcing an additional £50 million to attract and retain the world's top talent.

The announcement within this week's budget builds on the AI Sector Deal, worth up to almost £1bn, launched earlier this year. As part of the Government's modern Industrial Strategy, the sector deal set out how the UK will be at the forefront of the AI and data revolution.

Working with the Alan Turing Institute, up to £50m will be invested in new Turing AI Fellowships to help bring the best global researchers in AI to the UK. The funding will allow the



Credit: Mike MacKenzie. Image via <http://www.vpnsrus.com>



- AI is used to optimize routes and scheduling systems for public transport operators. It enables accurate predictive models of individuals' transit movements and preferences to ease congestion.
- AI can also help in construction, repairs and maintenance. It can also be used for predictive infrastructure to improve public safety.

Case examples



DEEP DIVE
This AI traffic system in Pittsburgh has reduced travel time by 25%

am smart erdam city New open source tool to map traffic density and destination



Introducing Replica, a next-generation urban planning tool
Anonymized location data can help answer key transportation questions – from a regional level all the way down to a city block.

China launches Alphaba public self-driving bus



The Alphaba bus can transport 15 people. Photo: Weibo

Copenhagen Pioneers Smart Electric-Bike Sharing

The city hopes people will zip around on electric bikes instead of clogging the streets with cars

By Lucas Laursen

Copenhagen, the city that popularized bike sharing in the 1990s, is replacing its coin-operated clunkers with electric motor-assisted bicycles with their own touch-screen instrument panels. The bikes, which the city beta-tested this past September and October, house motors that can provide up to



Germany Drafts World's First Ethical Guidelines for Self-Driving Cars

18 AUGUST

The German government has published a list of ethical guidelines for self-driving cars. The rules focus on the preservation of human life and preventing human injury over other concerns. However, there's a catch: none to discuss in the world of AI ethics.



WRITTEN BY
David Berger
Illustration: [unintelligible]



Digital government

So what are you going to
do with AI?



The better the question. The better the answer.
The better the world works.

ey.com/consulting



EY
Building a better
working world

Olli by Local Motors – Multiple Sources for pages 8-13

1. "Local Motors is crowd sourcing your next car", Harvard Business School, <https://digit.hbs.org/submission/local-motors-is-crowd-sourcing-your-next-car/>, accessed April 2019
2. "About us – Local Motors", Local Motors website, <https://localmotors.com/company/>, accessed April 2019
3. "Enterprise co-creation stories – The story of Local Motors", Slide Share, <https://www.slideshare.net/EnterpriseCoCreation/local-motors-co-creation-case-epmd-13-july2011-v4>, accessed April 2019
4. "Steering the Drive with Co-creation: Local Motors Case Study", Medium, <https://medium.com/@nidhi.titus/steering-the-drive-with-co-creation-local-motors-case-study-b4fe7a1ffe>, accessed April 2019
5. "Local Motors Launches Software-as-a-Service Division", Modern Machine Shop, <https://www.mmsonline.com/news/local-motors-launches-software-as-a-service-division>, accessed April 2019
6. Launch Forth website, <https://launchforth.io/how-it-works/>, accessed April 2019
7. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&ved=2ahUKEwiK8PKJJbIAhVmiOAKHYqsAfMQFjALegQIAxAB&url=https%3A%2F%2Fwww.ibm.com%2Fblogs%2Finternet-of-things%2Faccessible-olli%2F&usg=AOvVaw3eSLCONvMJ32KBOIEB93We>