

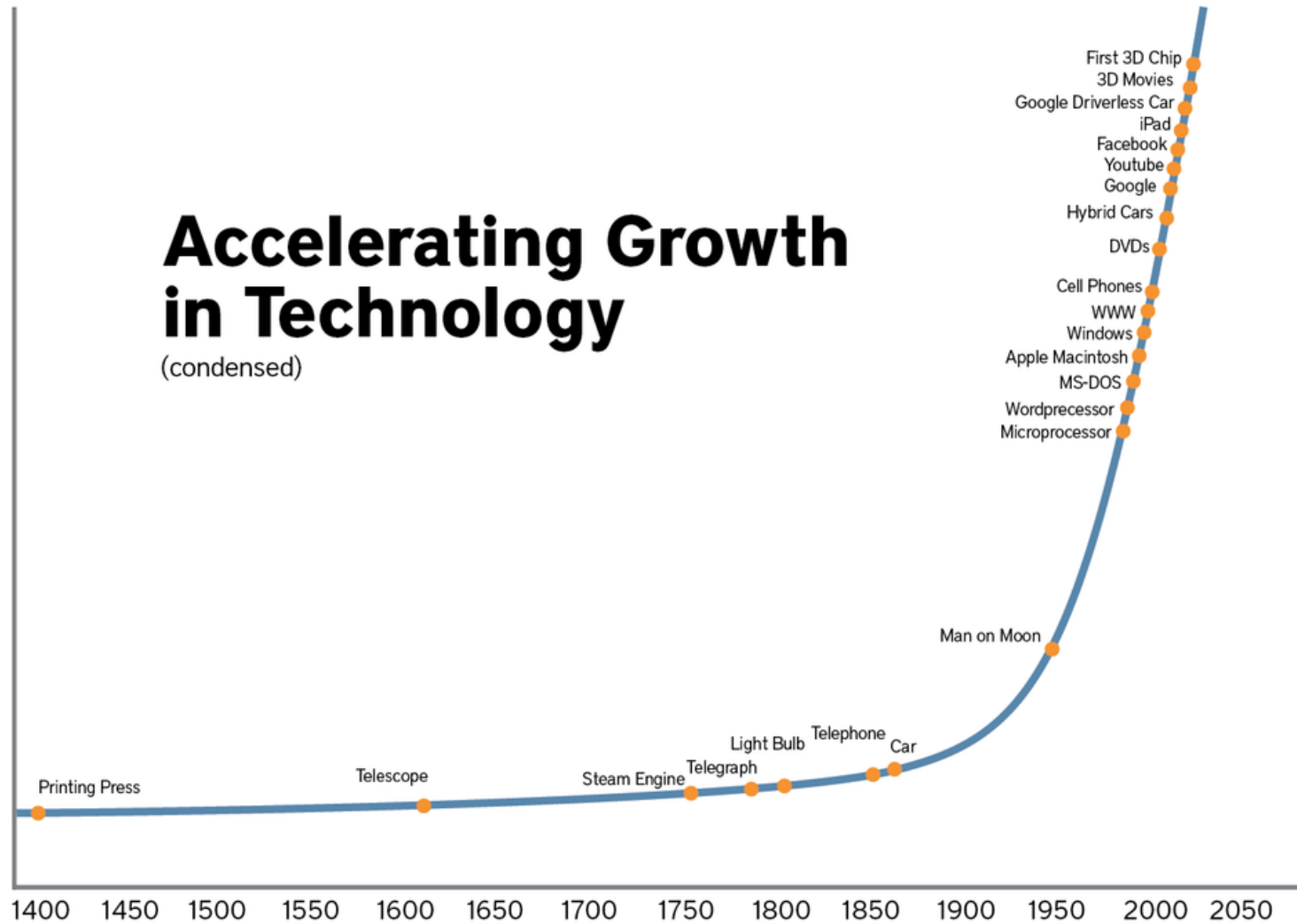


**Will technology save us ?**

# What is the 4th Industrial Revolution ?

- Technology
- Materials and dematerialisation
- Systems
- Communications
- Mobility
- Sharing
- Life style changes
- Consumption changes

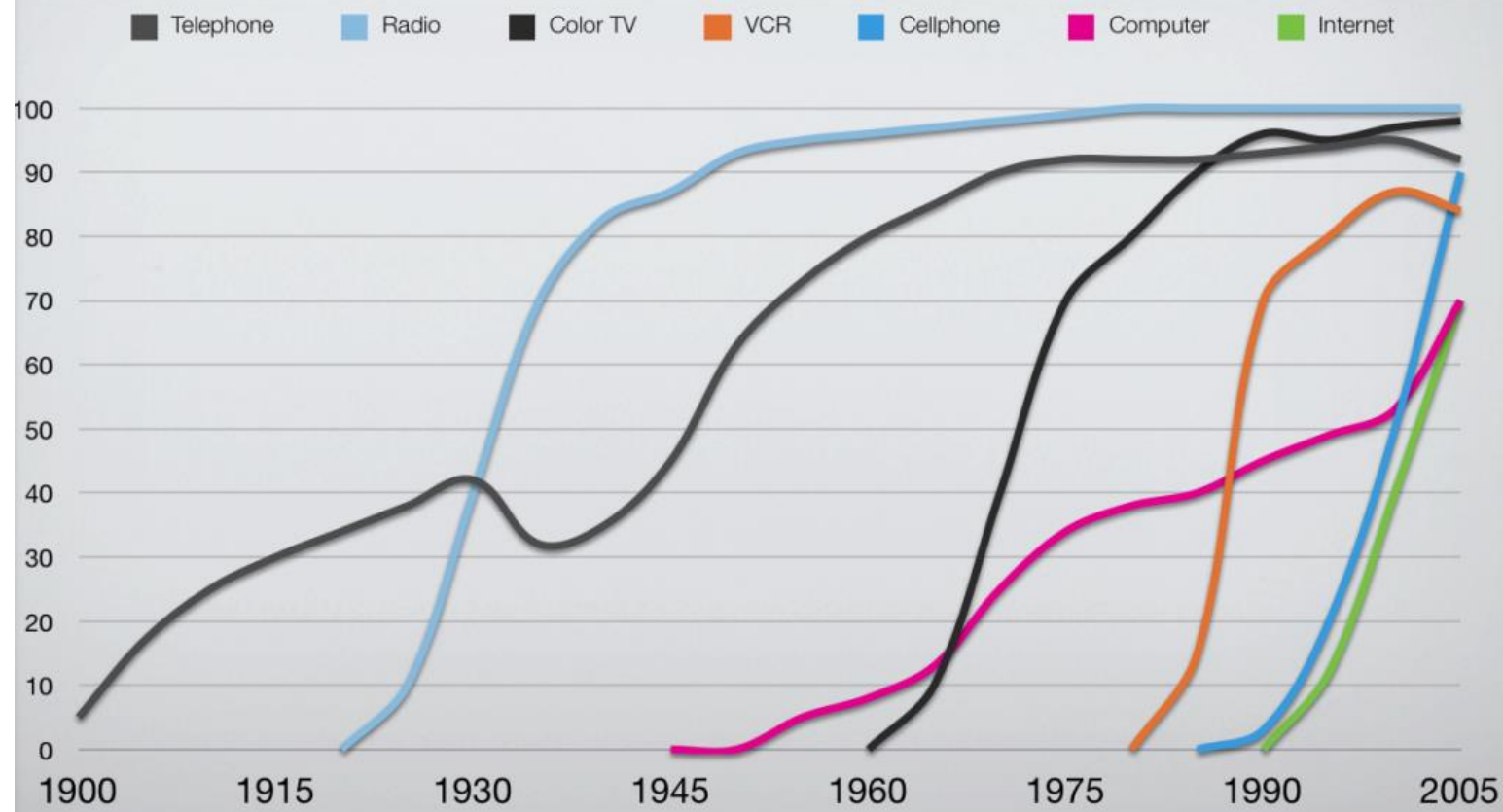
# Technology change is accelerating



# Adoption of new technologies is rapid and global

## Tech Adoption

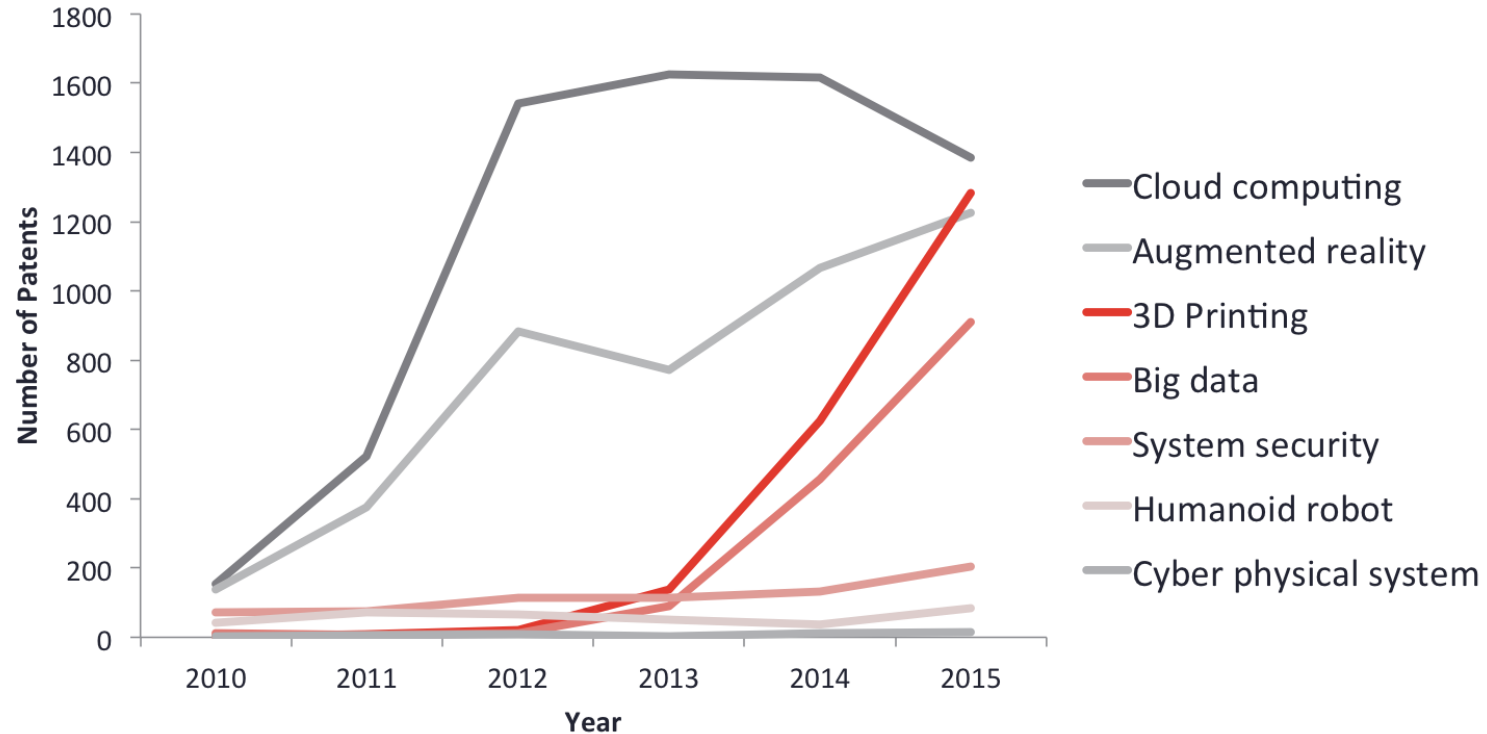
Historical adoption rates of communication technologies



# I.P. Protection increasing

IOT ANALYTICS

## Development of Annual Worldwide Patent Registrations for Selected Industrial Technology Fields (2010 - 2015)



Approximated annual patent registration numbers on a worldwide basis; retrieved by using technology fields as search terms

Source: European Patent Office – Espacenet: <http://worldwide.espacenet.com/>

# Which technologies are changing our lives and when ?

- Computing NOW
- Robotics SOON
- 3D printing NOW
- Big data UNPERCEIVED
- Artificial Intelligence SOON

# Computing

Say goodbye to

Magazines, books, newspapers, encyclopedias,  
Yellow Pages, Telephone Directories, Maps,  
Briefcases, Privacy

Driving, shopping malls, shopping outside of  
the house, restaurants, cinemas, talking to each  
other.....

Huge number of companies disappearing.

# Computing 2...

Say hello to

Online shopping, online maps, online reading, Kindle, Amazon, talking online, chatting, hiring, working, online dining

Huge number of new companies appearing

The gig economy

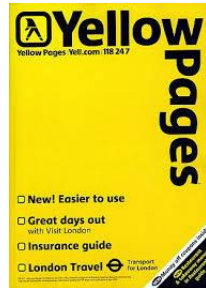
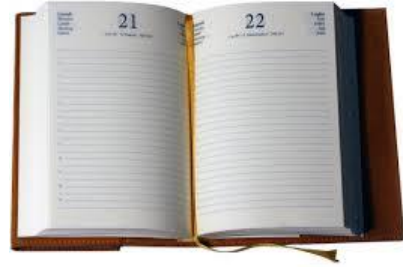


# How many products has your smartphone replaced ?

- 10 ?
- 15?
- 20 ?
- 25 ?
- 30 ?
- More than 30 ?

34 and counting

# The smartphone killer, goodbye to 34 products.....



a camera, a notepad, a newspaper, a credit card, a phone directory, a map, guides, a book, an encyclopaedia, a calculator, laptop, a mouse, photo album, flashlight, dating, gambling, Dictaphone, a dictionary, the Post, stamps, loyalty cards, boarding passes, tickets, calendars, games, cables, compass, phone boxes, mirror, watch.

# Robotics







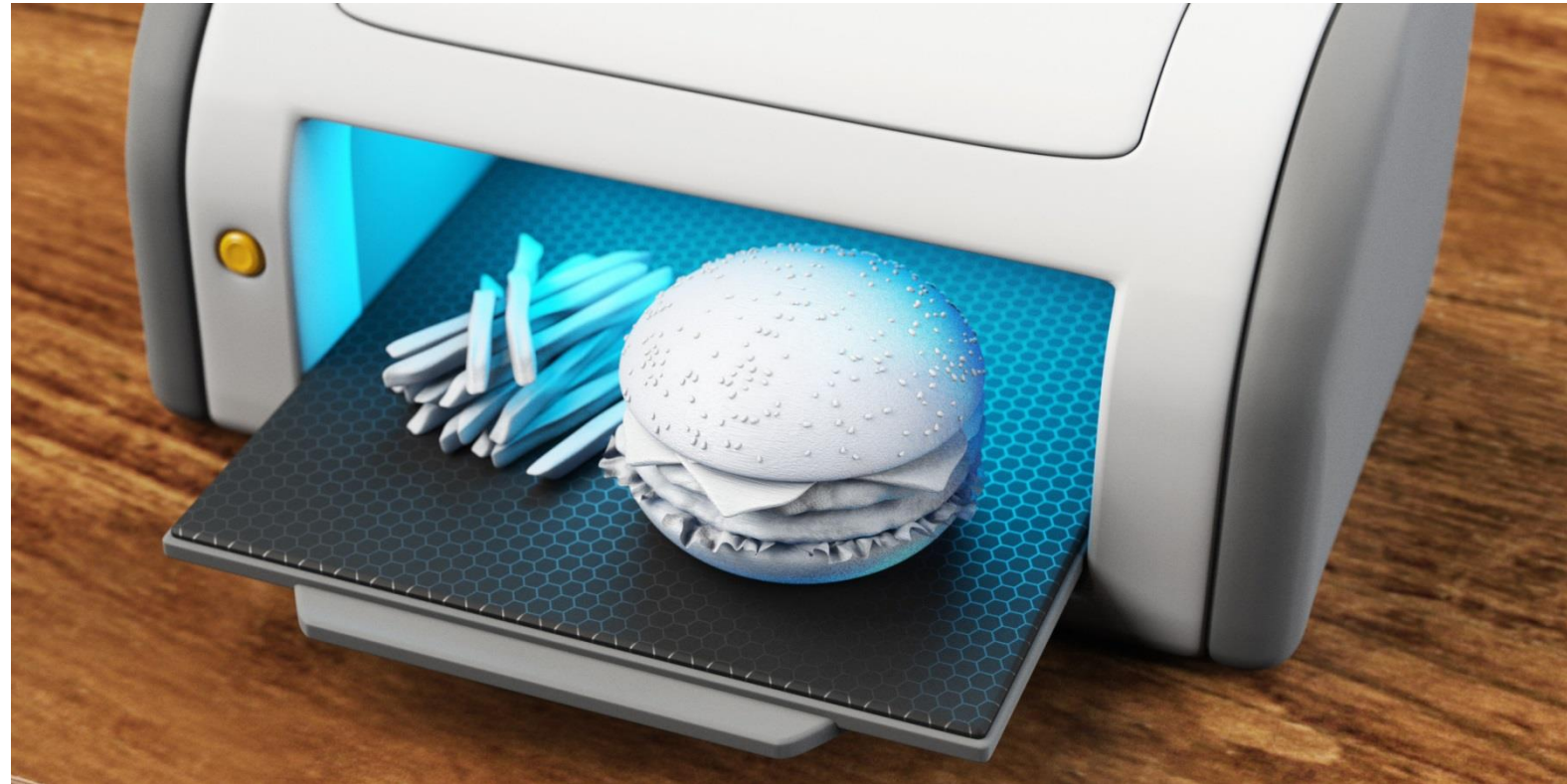
# Drones



# Robot Waste Collection



# 3D Printing

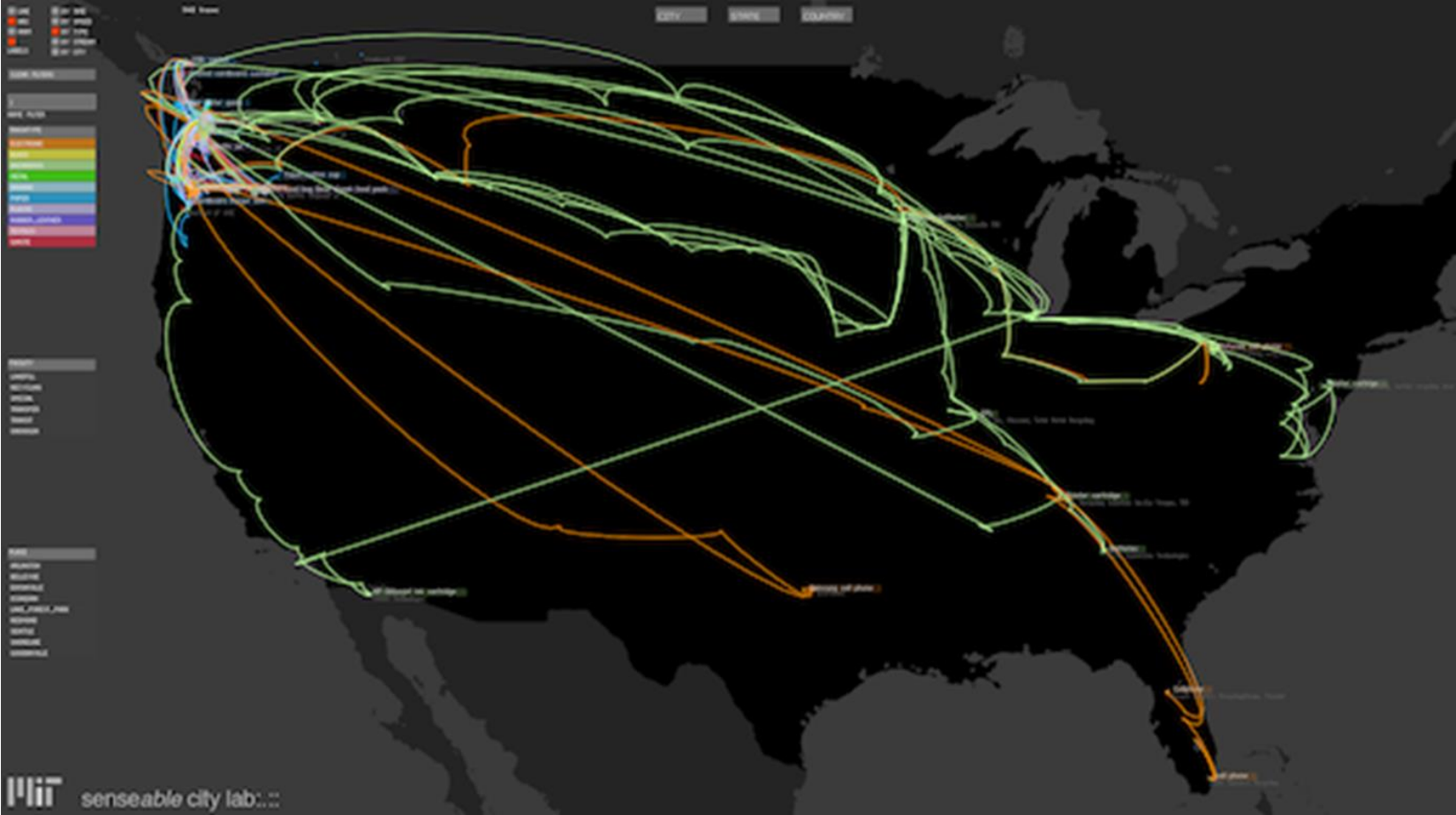




# Waste prevention in action ?



# Big Data



# Data used to rationalise collections

## Waste management by SmartBin



The image illustrates the SmartBin waste management system. On the left, a green waste collection truck is shown in a 3D rendering, with the text "general waste collection" below it. On the right, a collection of various green SmartBin containers is displayed, including different shapes and sizes, alongside a computer monitor showing a data dashboard and a mobile phone, representing the IoT-based monitoring system.

IoT-based Smart monitoring using Ultrasonic Level Sensor (UBi)

- most widely deployed fill-level sensor

SmartBin Live is the IoT game changer for collectors and distributors

- helps monitor containers
- plan for route optimization

Source: <https://www.smartbin.com/>

fppt.com

# Connecting trucks to computer controls

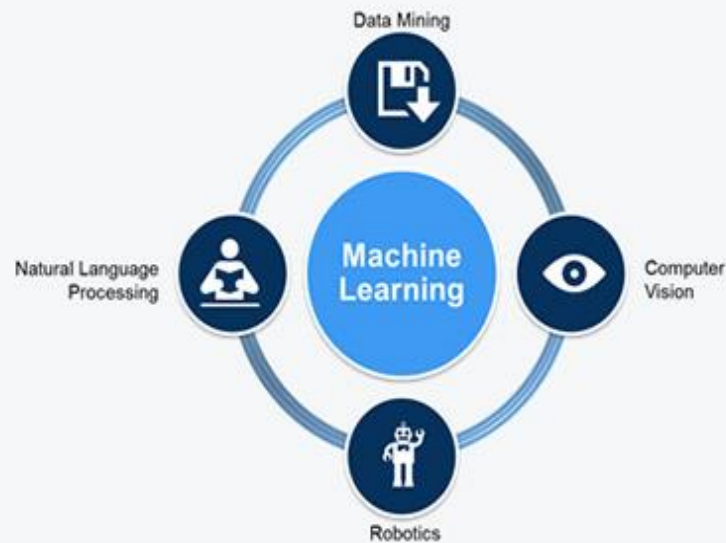


# Artificial Intelligence

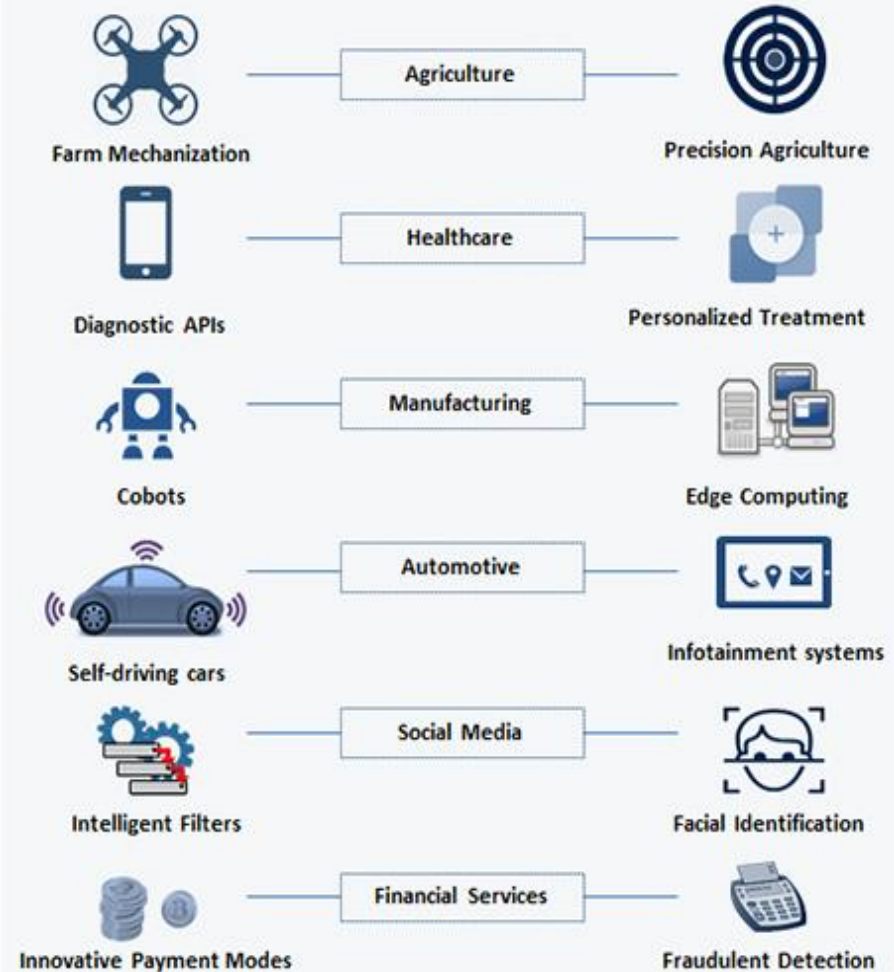


Artificial Intelligence could automate close to 50% of jobs in the Western world within the next two decades

## Main Applications of Machine Learning



## Future Applications Of Cognitive Intelligence



# Conclusions

New technologies are entering our world very quickly.

They will change the ways we produce, move, consume, spend, learn, entertain.

They have potential to reduce and rationalise resource and energy consumption

But how fast ?



# Questions and Discussion