

It's Watson's World: We Just Live in It

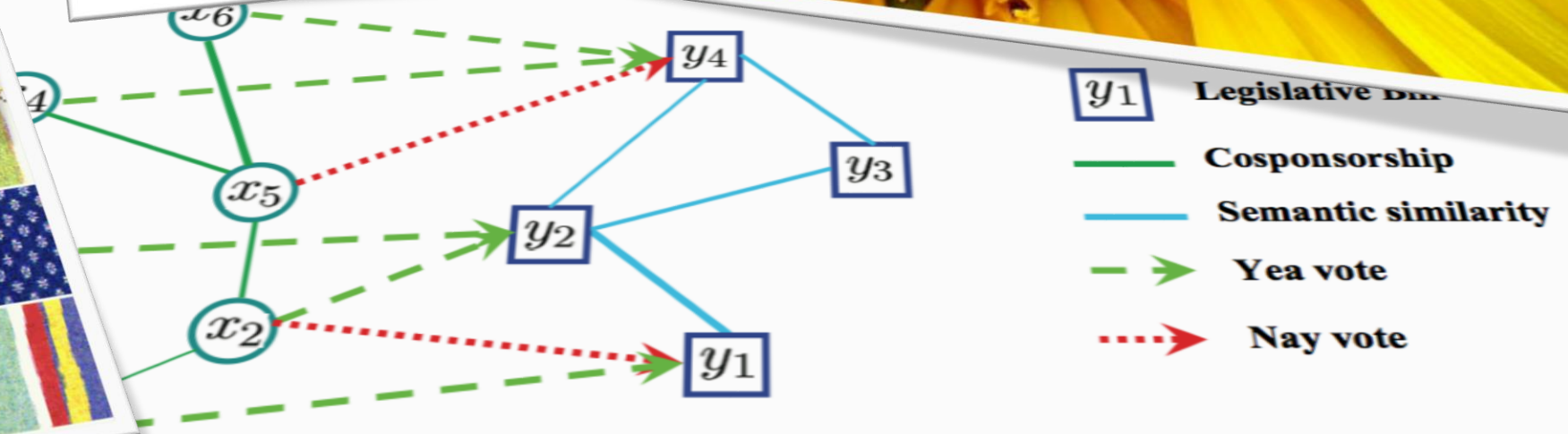
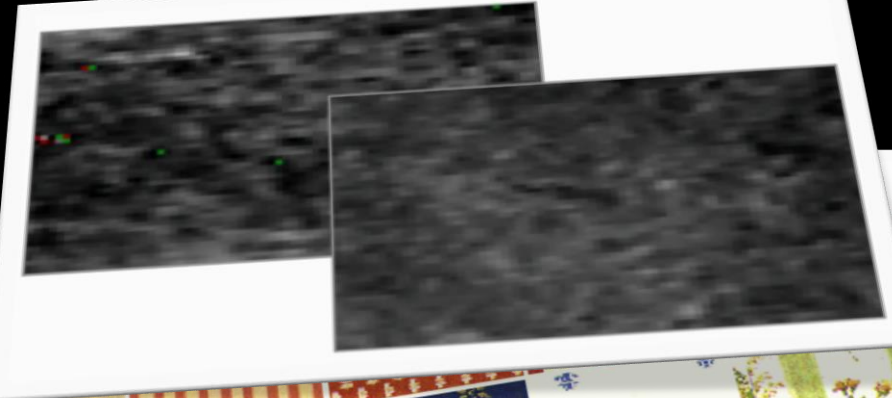
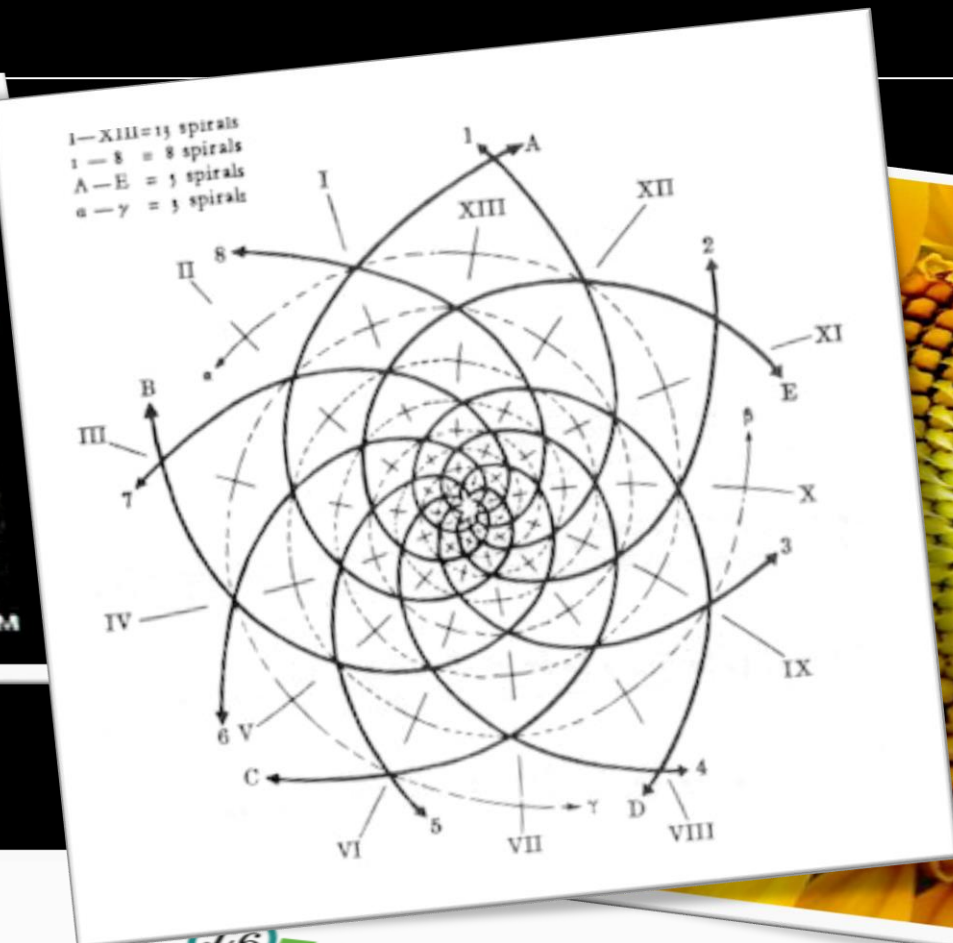
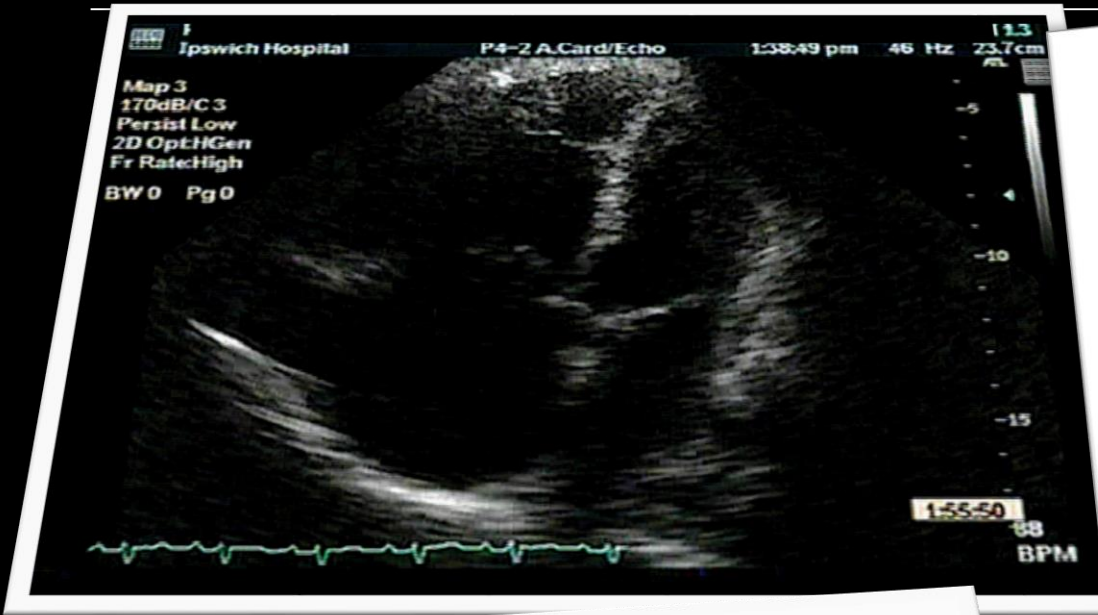
The Age of Data & The New Era of Computing

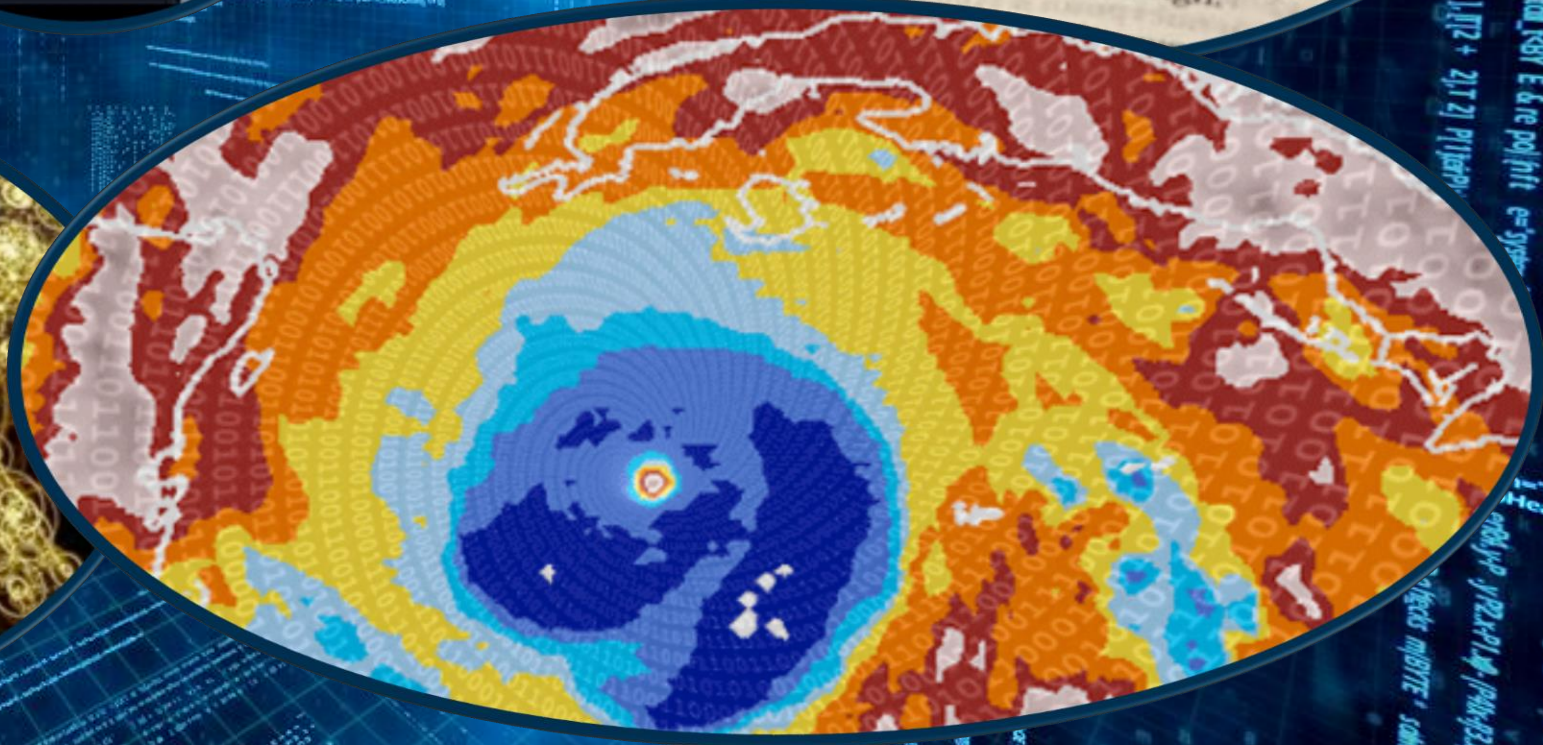
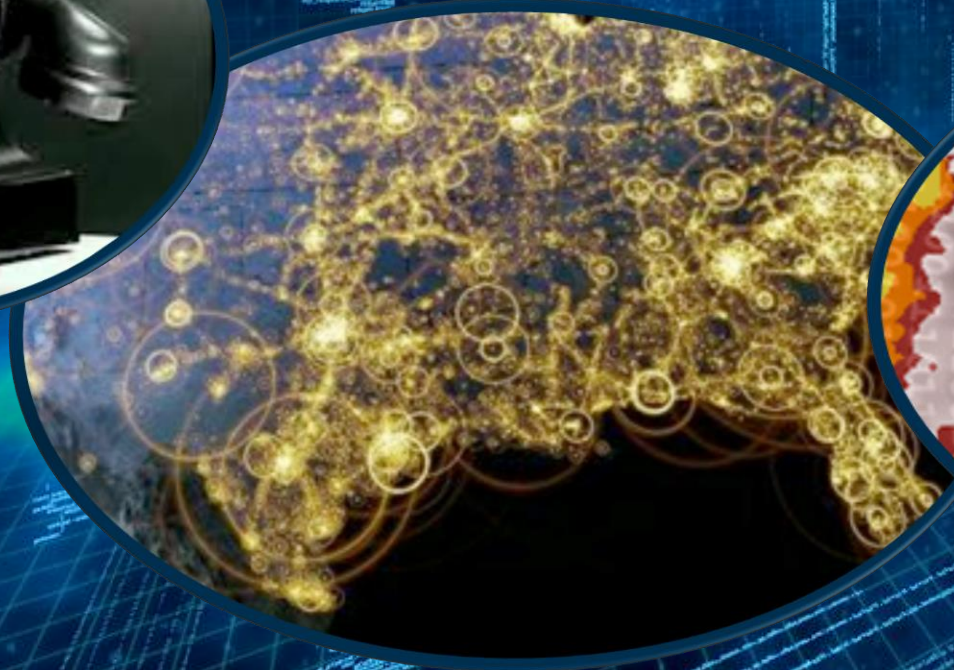
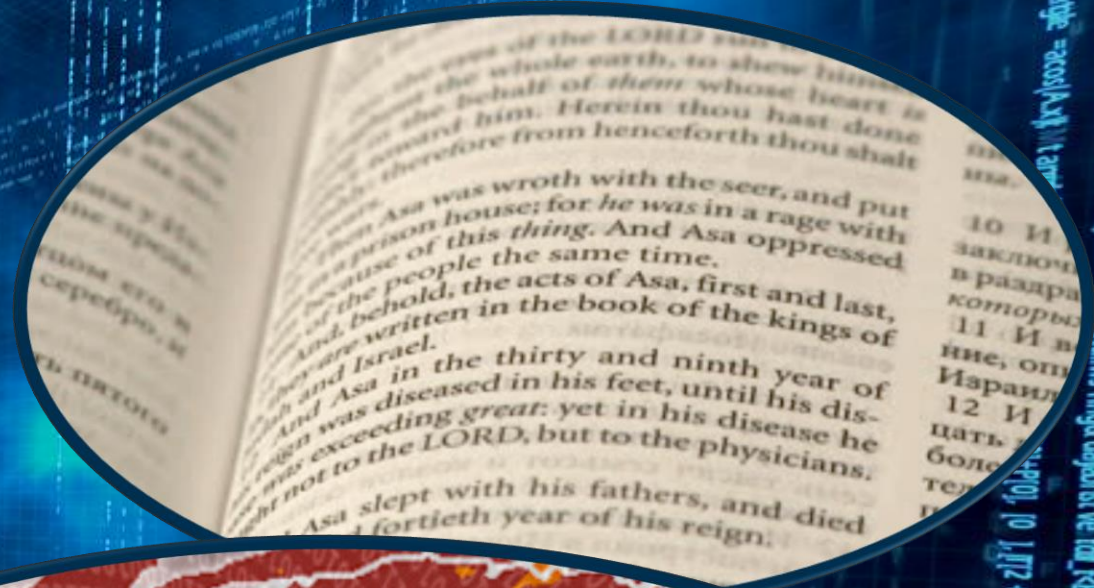
Aleksandra (Saška) Mojsilović
IBM Fellow & Manager Data Science, IBM Research

IBM Research

3000 scientists, 6 Nobel Laureates, 5 National Medals of Science, 6 Turing Awards, 11 Inductees in National Inventors Hall of Fame, 10 US National Medals of Technology, 21 years of patent leadership









**IBM
Research**

**Renewable
Energy
Integration**



**Precision
Agriculture**



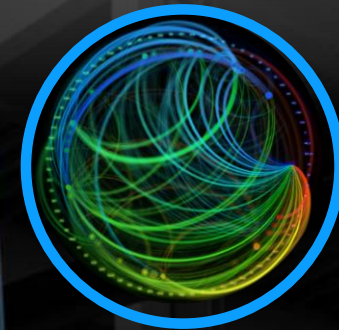
Public Good



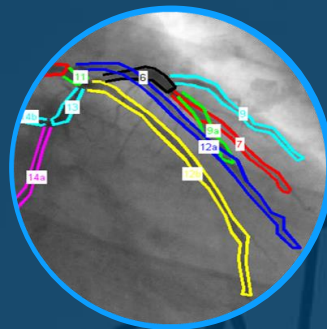
**IoT Asset
Management**



SyNAPSE



Smarter Cities



**Genomic
Medicine**



**Advanced
Dialogue &
Reasoning**



**Foundations
for Education**



Micro Cloud



**Environmental
Prediction &
Modeling**



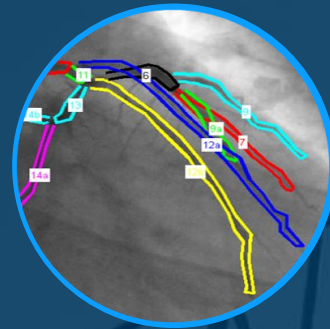
Renewable
Energy
Integration



Public Good



Smarter Cities



Foundations
for Education



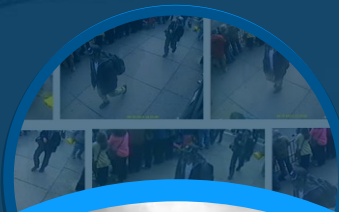
IBM
Research



Renewable
Energy
Integration



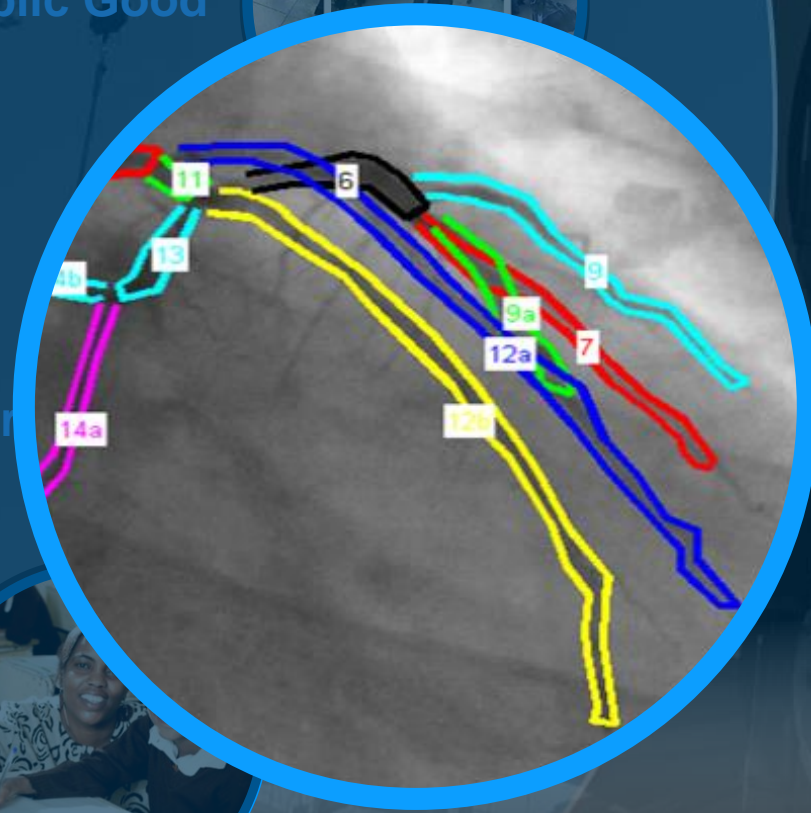
Public Good



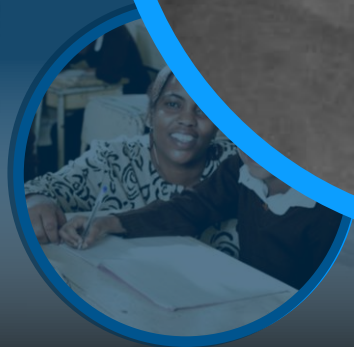
IBM
Research



Smart



Foundations
for Education

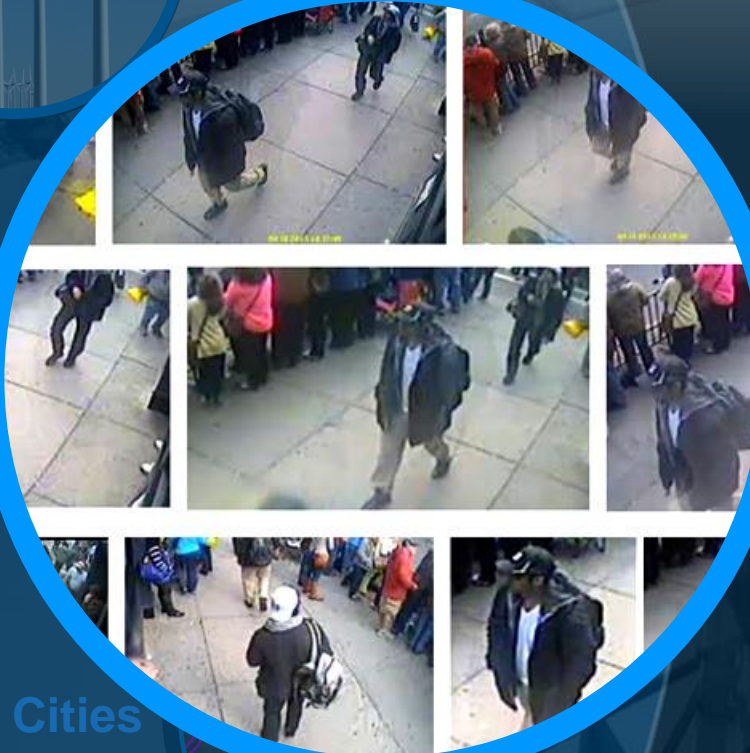


Smarter
Cities

Renewable
Energy
Integration



Public



Public Good

Smarter Cities

Foundations
for Education



IBM
Research



Date

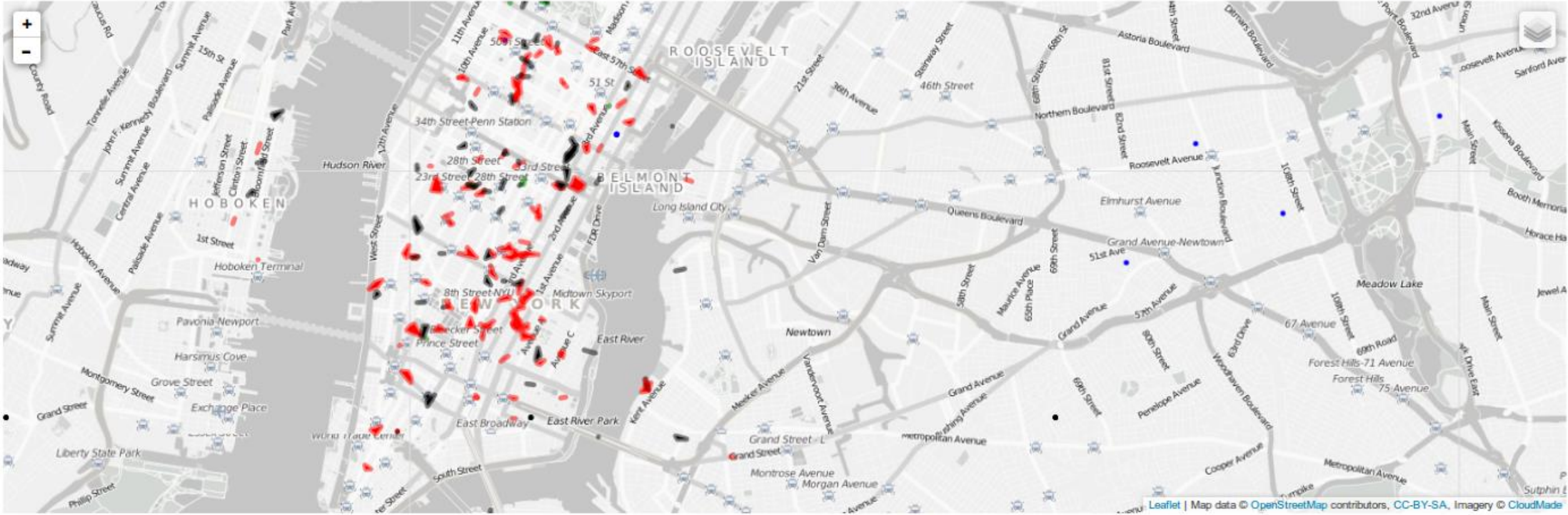
2012-10-30

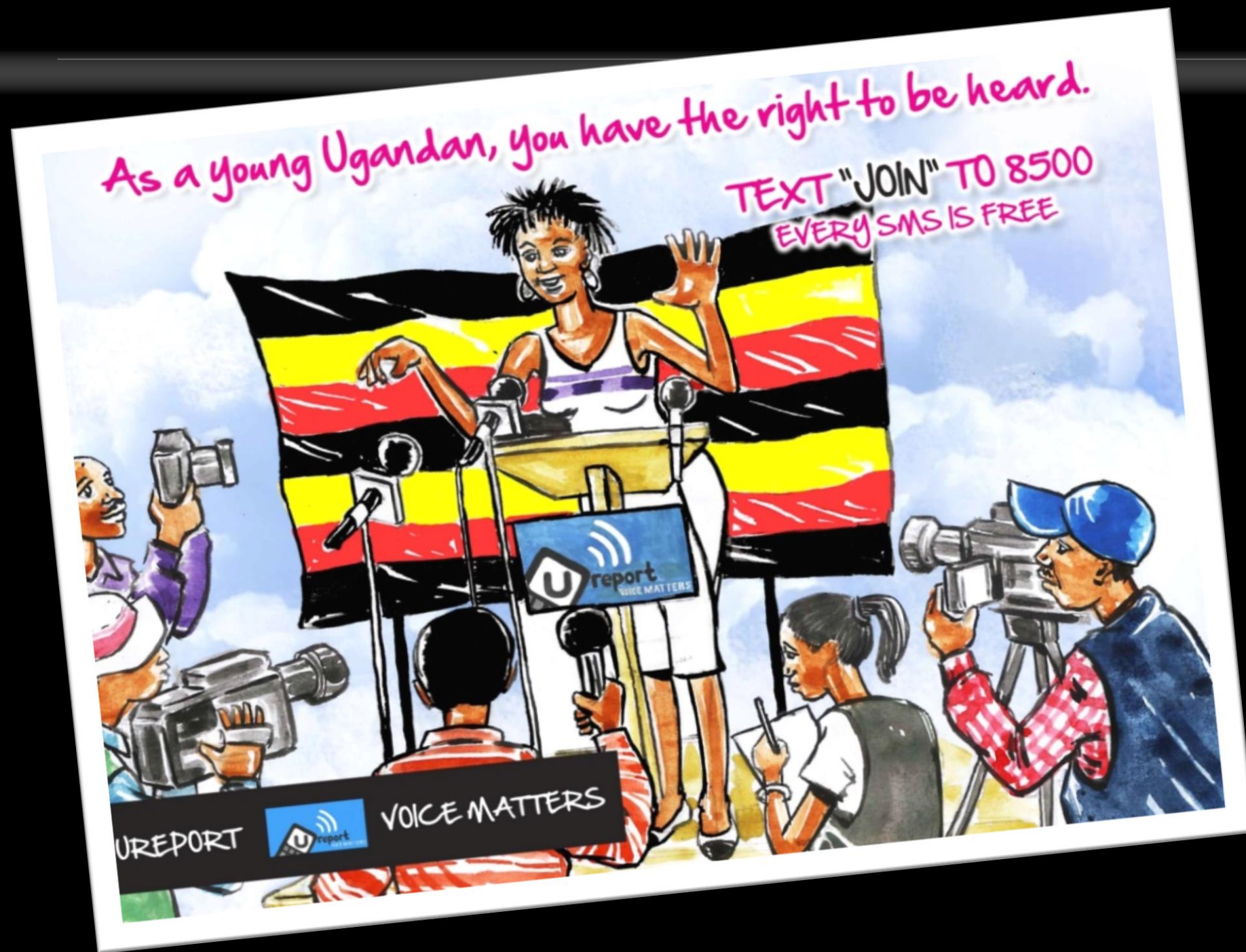
Incident Category

ALL

Cluster Category

ALL





U-Report systems receives
1000
text messages
per day

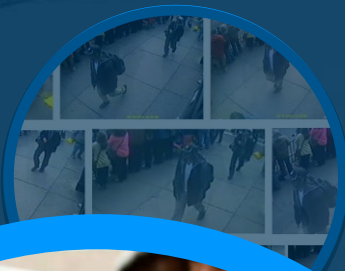
"I am u reporter in Lira my wife has Hepatitis B positive. I am not able to treat her and imunise my chn. Please help me UNICEF i cry to you."

85%
accuracy in classifying text
messages based on their
content

Renewable
Energy
Integration



Public Good



IBM
Research

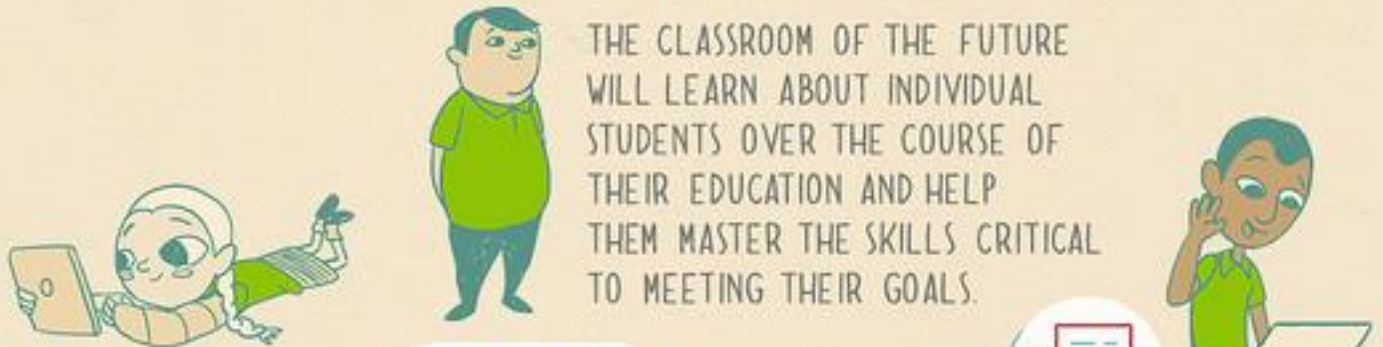


Foundations for Education



In five years, the classroom will learn you.

TODAY, NEARLY 2 IN 3 ADULTS WORLDWIDE HAVEN'T ACHIEVED THE EQUIVALENT OF A HIGH SCHOOL EDUCATION.



THE CLASSROOM OF THE FUTURE WILL LEARN ABOUT INDIVIDUAL STUDENTS OVER THE COURSE OF THEIR EDUCATION AND HELP THEM MASTER THE SKILLS CRITICAL TO MEETING THEIR GOALS.

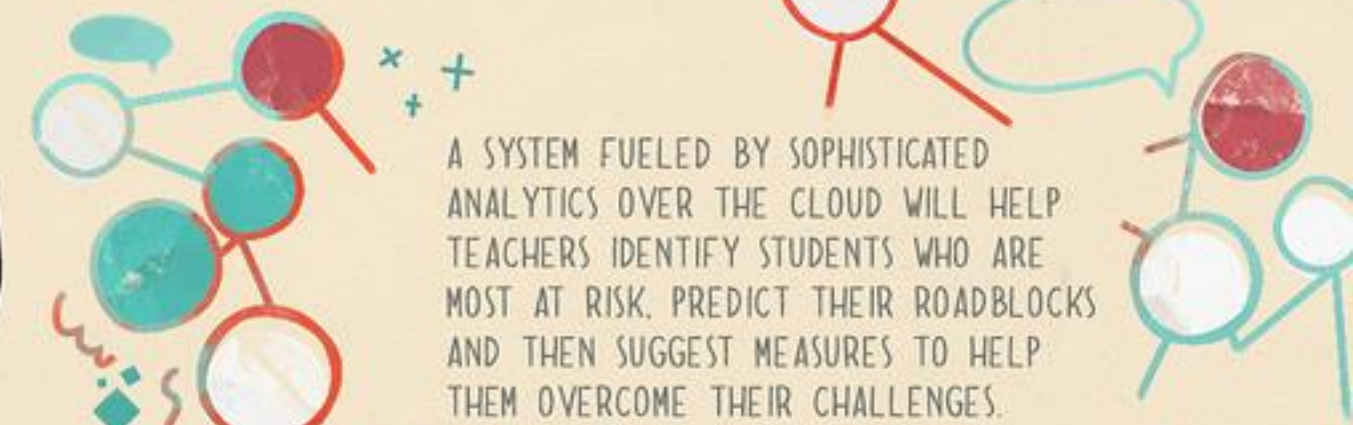
THE CLASSROOM WILL CREATE A SYLLABUS BASED ON INDIVIDUAL LEARNING STYLE AND PACE, NOT ON AN ARBITRARY TEACHING SCHEDULE.



THIS SYSTEM WILL LEVEL THE PLAYING FIELD BY ENSURING THAT BARRIERS TO EDUCATION BECOME LESS OF A FACTOR FOR SUCCESS.

“IN FIVE YEARS, THE CLASSROOM WILL LEARN ABOUT EACH INDIVIDUAL STUDENT, AND PROVIDE A TAILORED CURRICULUM FROM KINDERGARTEN THROUGH HIGH SCHOOL AND TOWARD EMPLOYMENT.”

DR KATHARINE FRASE
CTO EDUCATION, IBM



A SYSTEM FUELED BY SOPHISTICATED ANALYTICS OVER THE CLOUD WILL HELP TEACHERS IDENTIFY STUDENTS WHO ARE MOST AT RISK, PREDICT THEIR ROADBLOCKS AND THEN SUGGEST MEASURES TO HELP THEM OVERCOME THEIR CHALLENGES.

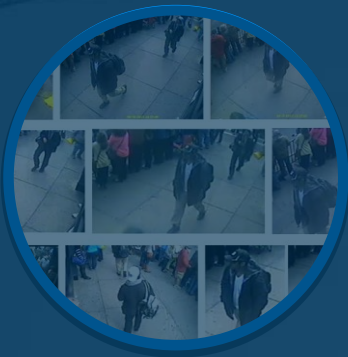


IBM Research

Renewable Energy Integration



Precision Agriculture



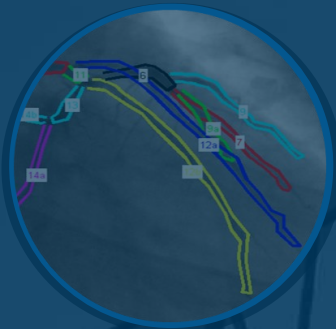
Public Good



IoT Asset Management



Genomic Medicine



Smarter Cities



Micro Cloud

Foundations for Education



Environmental Prediction & Modeling

Renewable
Energy
Integration



Precision
Agriculture



Public Good

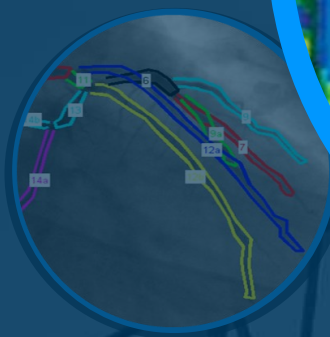


**Genomic
Medicine**



**IBM
Research**

Smarter Cities



Foundations
for Education



Environmental
Prediction &
Modeling



To analyze ONE person's brain tumor, doctors need to sequence

800 Billion

base pairs of DNA

23 Million

medical research articles with relevant findings

Cancer strikes

14.1 Million

patients each year causing

8.2 Million deaths

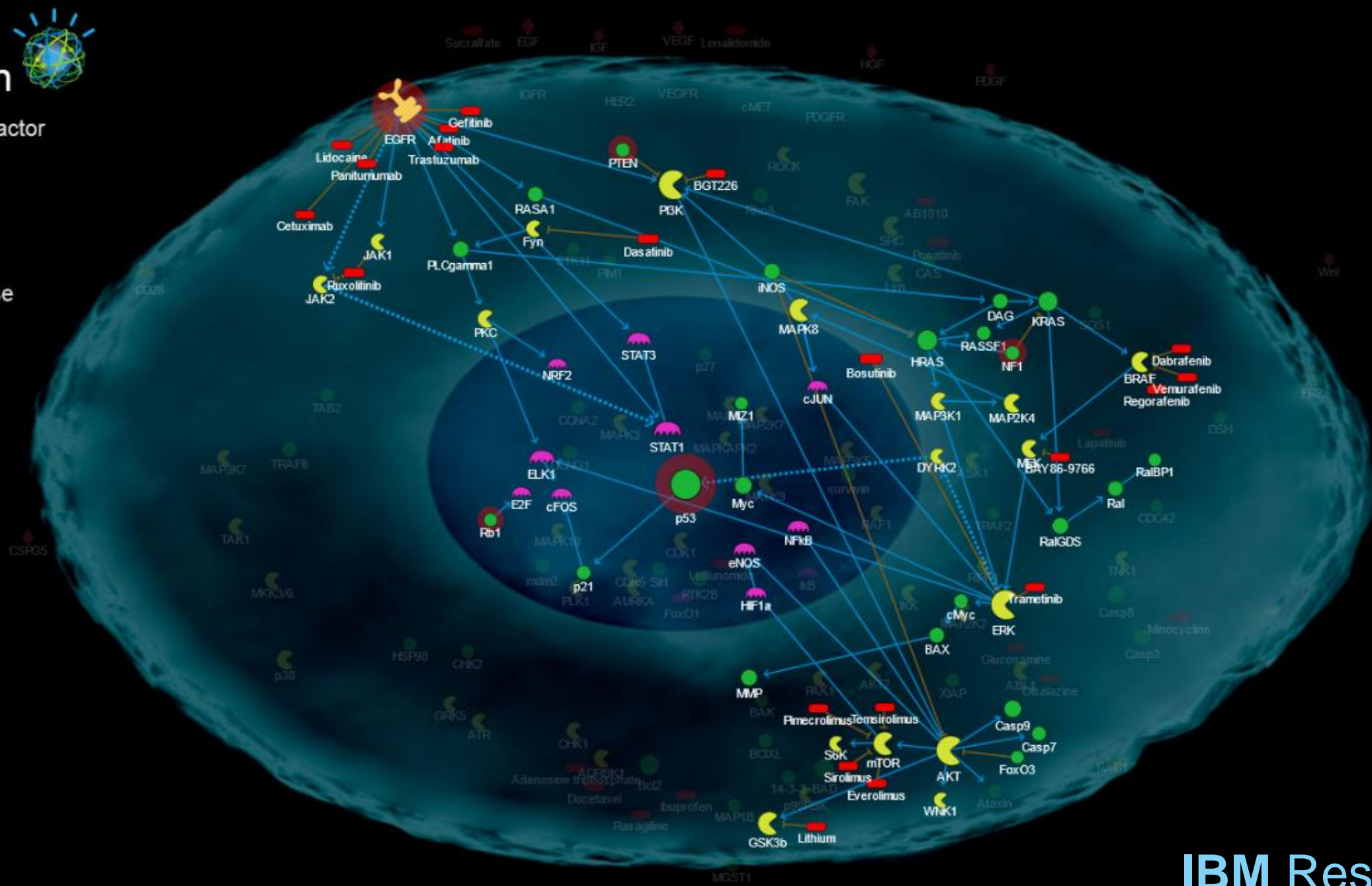
IBM Watson



- transcription factor
 - growth factor
 - receptor
 - receptor kinase
 - generic
 - kinase
 - drug
 - GPCR
-
- ON MUTATION OFF
 -
 - DRUGS

Information:

entity : p53
 type : protein
 family : generic
 localization : nucleus

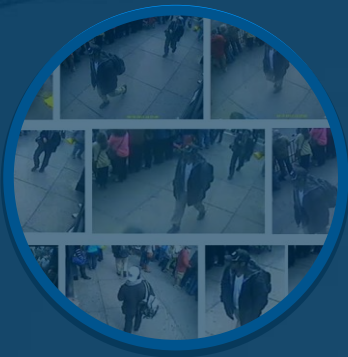




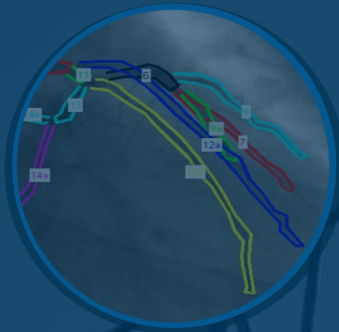
Renewable
Energy
Integration



Public Good



Smarter Cities



Foundations
for Education



Micro Cloud



Environmental
Prediction &
Modeling



Precision Agriculture



Genomic
Medicine

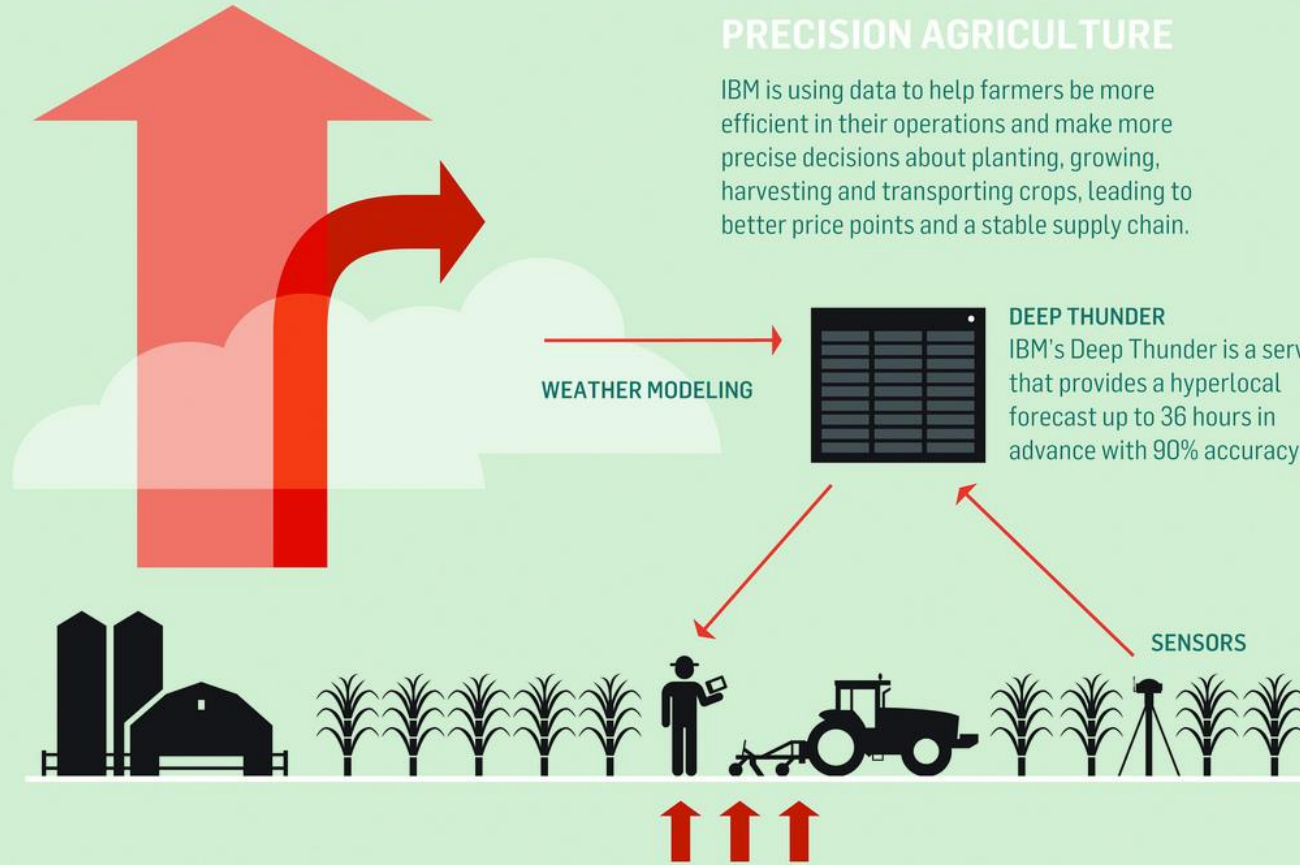


INCREASING CROP YIELDS

90%

of all crops losses are due to weather.

Weather-related crop damage could be reduced by 25% using predictive weather modeling and precision agriculture techniques.



PRECISION AGRICULTURE

IBM is using data to help farmers be more efficient in their operations and make more precise decisions about planting, growing, harvesting and transporting crops, leading to better price points and a stable supply chain.

DEEP THUNDER
IBM's Deep Thunder is a service that provides a hyperlocal forecast up to 36 hours in advance with 90% accuracy.

SENSORS



GROWING 70%

of fresh water worldwide is used for agriculture purposes.

If farmers know when and where it's going to rain they can better schedule their irrigation and know when they should put down fertilizer, to avoid run off.

FEEDING FUTURE GENERATIONS

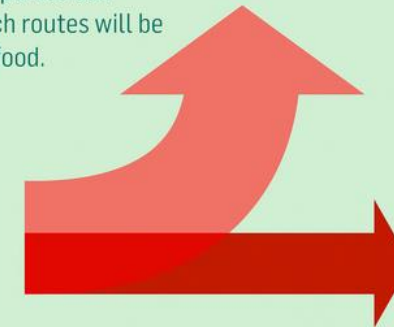
How weather affects agriculture and what IBM can do with precision weather forecasts to help farmers

TRANSPORTATION

50%

of food ready for harvest never reaches the consumers mouth.

By understanding the effect of weather on transportation networks, companies can make better decisions on which routes will be the fastest to transport their food.

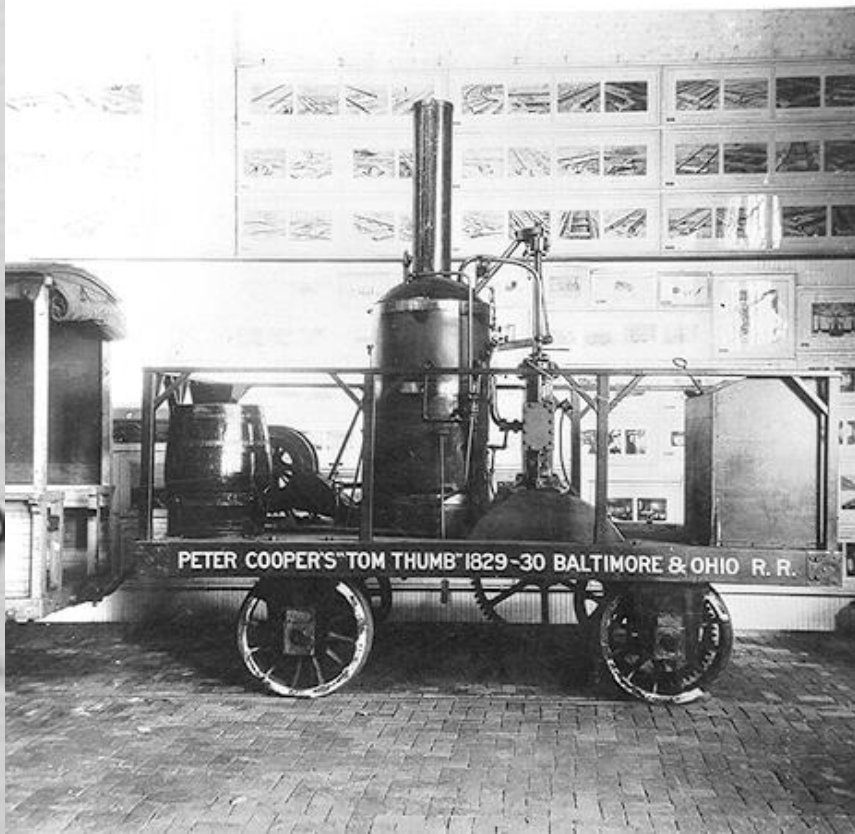
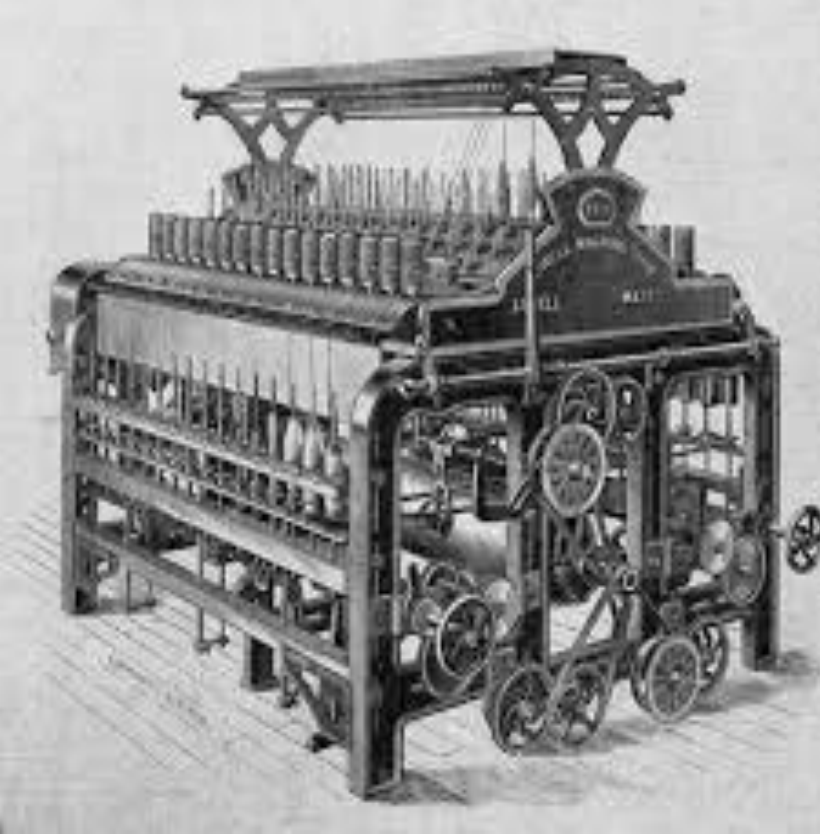
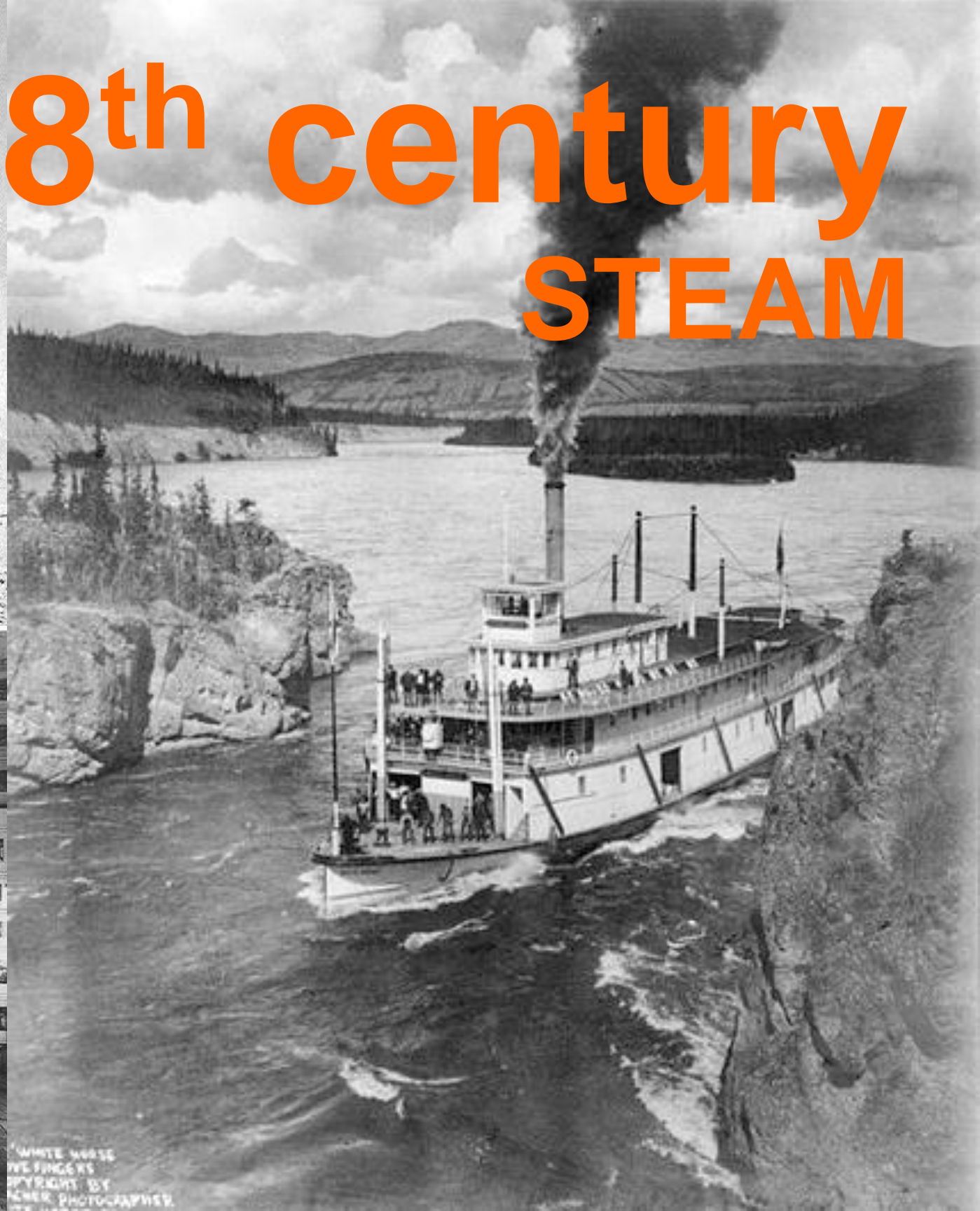
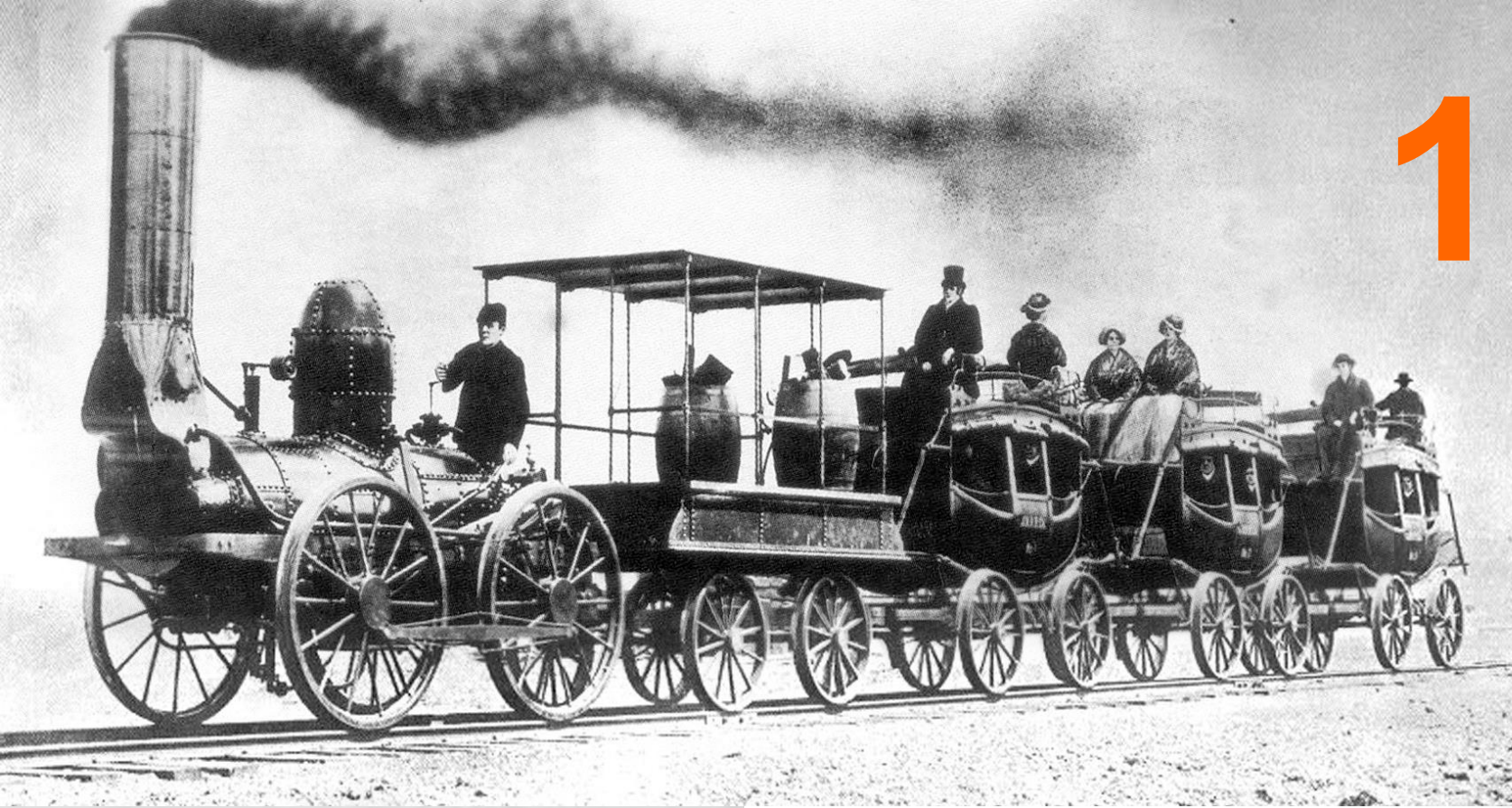


THE IMPACT

As farmers reduce waste and increase crop yields, consumers will feel the positive economic impact at the grocery store.

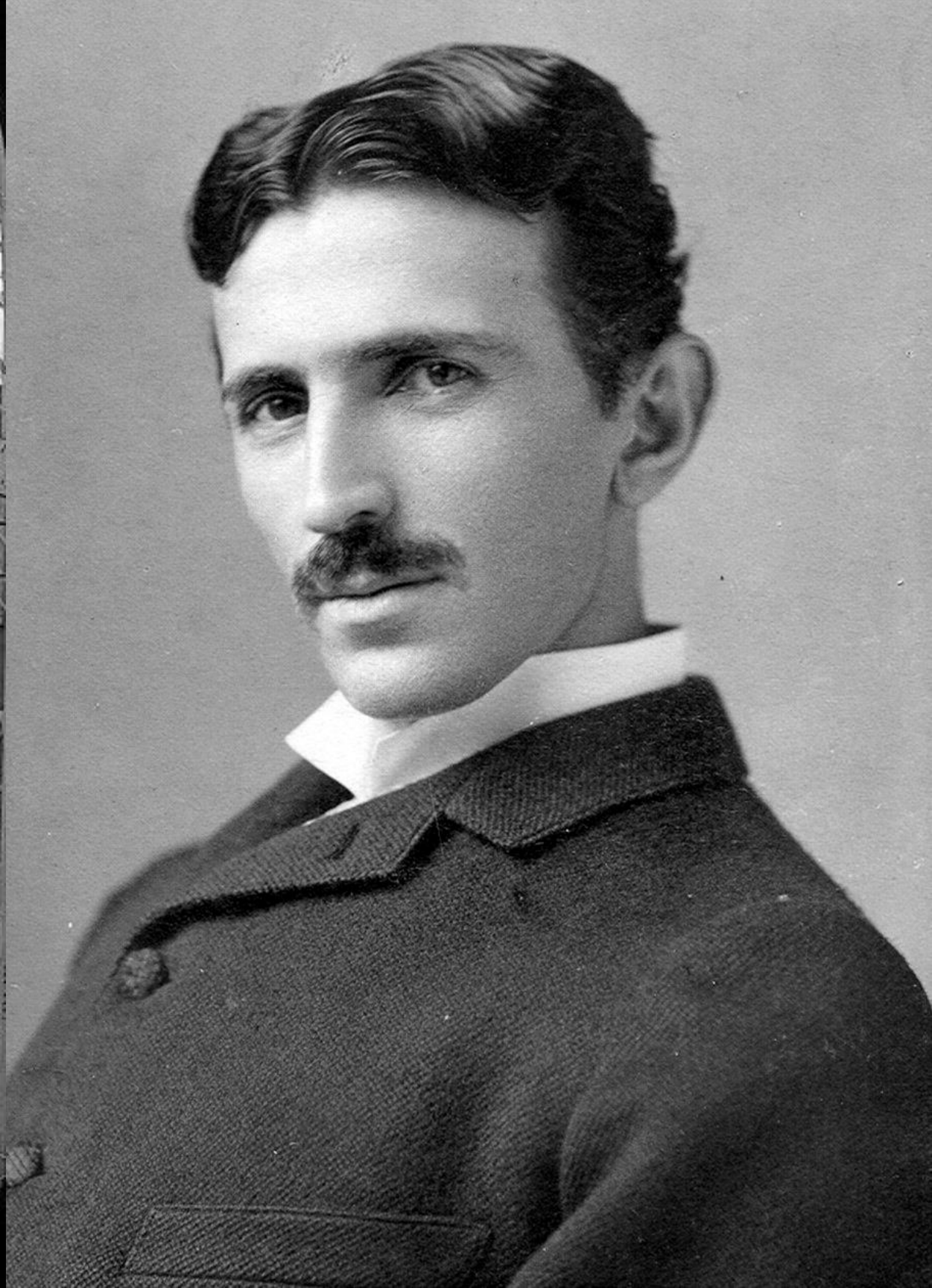
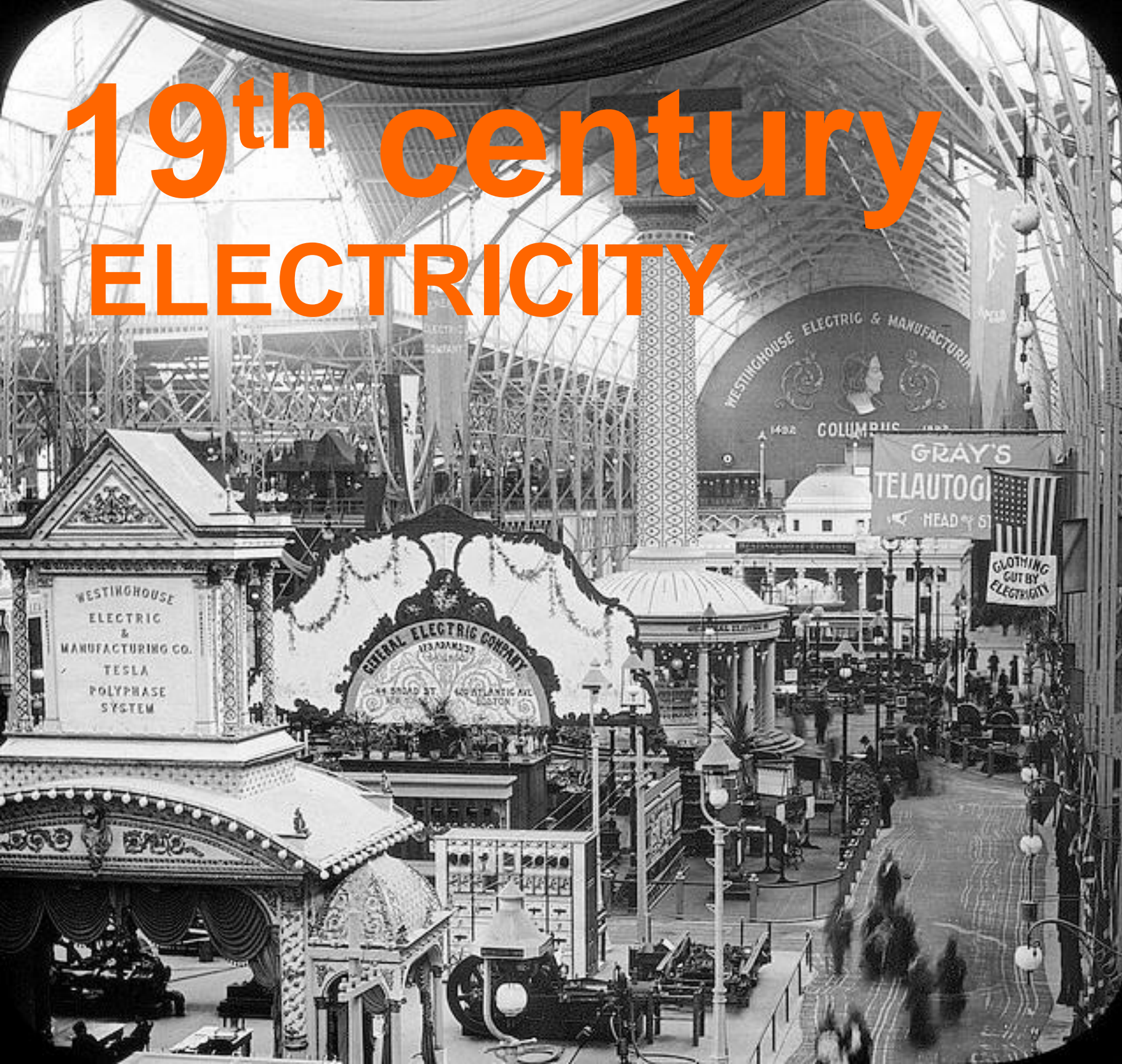


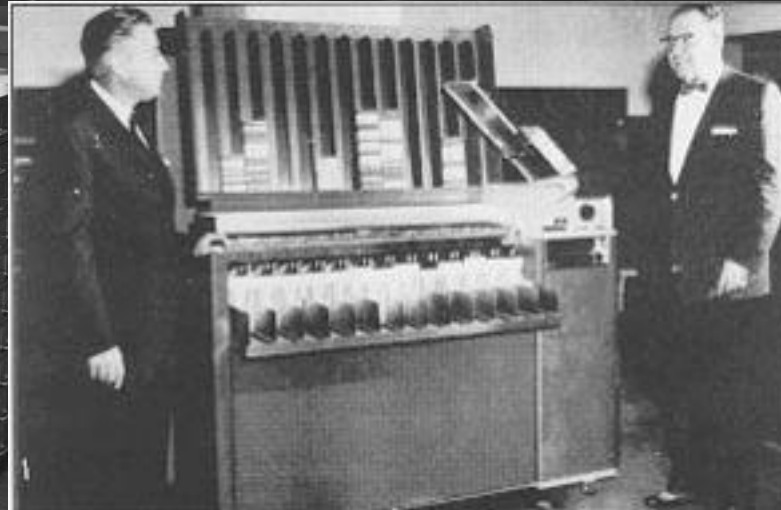
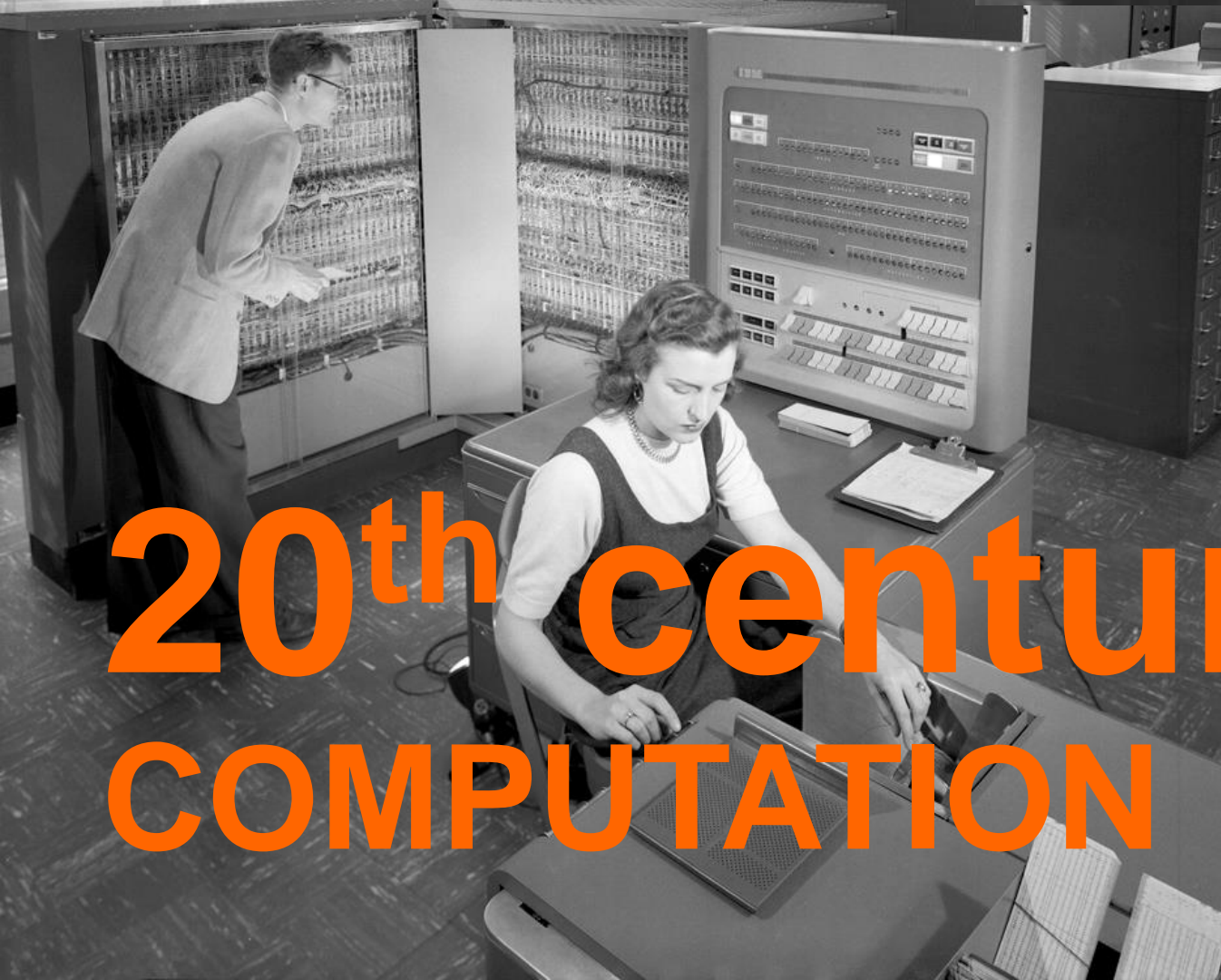
18th century STEAM



WHITE HOUSE
WE FINGER'S
COPYRIGHT BY
SCHER, PHOTOGRAPHER

19th century ELECTRICITY





20th century COMPUTATION





21st century DATA



1944
Mark-1

1946
ENIAC

1948
IBM SSEC

1953
IBM 701

1959
IBM 7000

1964
IBM
System/360

1981
IBM PC

2004
IBM
BlueGene

2011
IBM
Watson

IBM Research

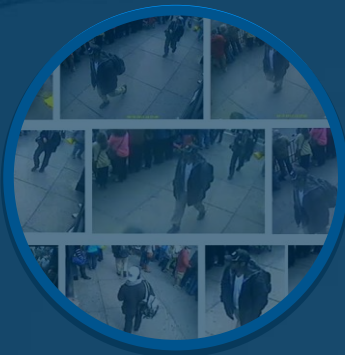
Renewable Energy Integration



Precision Agriculture



Public Good



IoT Asset Management



SyNAPSE



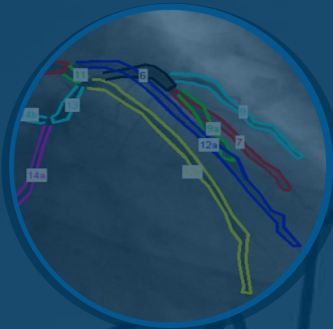
Genomic Medicine



Advanced Dialogue & Reasoning



Smarter Cities



Micro Cloud



Foundations for Education



Environmental Prediction & Modeling



Renewable Energy Integration



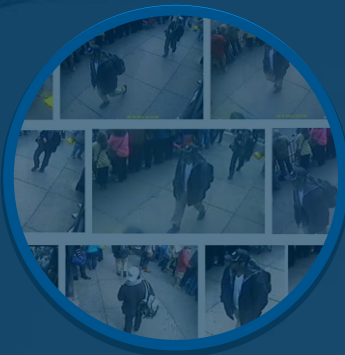
Precision Agriculture



IoT Asset Management



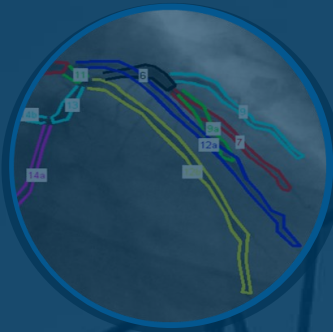
Public Good



Advanced Dialogue & Reasoning



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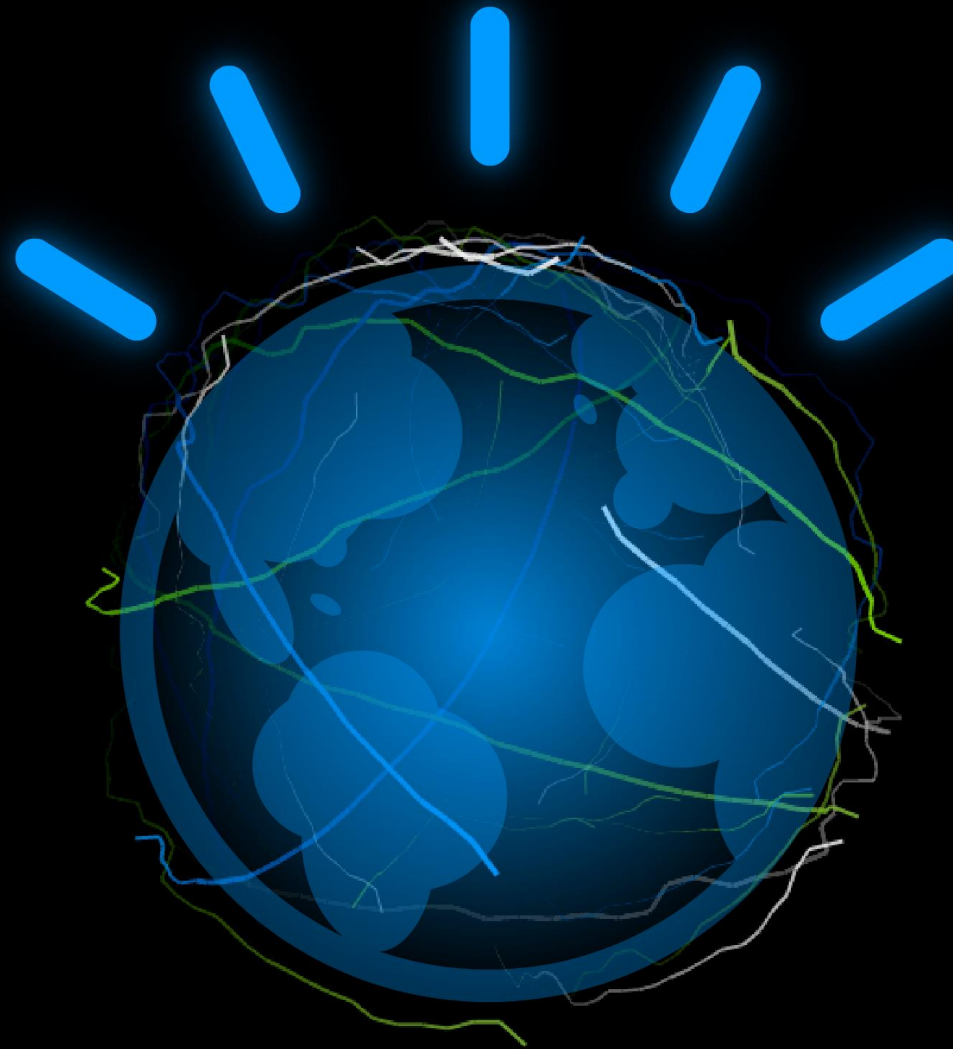
The sale of violent video games to minors should be banned

PRO

Exposure to violent video games results in increased physiological arousal, aggression related thoughts and feelings as well as decreased social behavior.

Violent video games increase childrens aggression.

IBM Research
The Debater



CON

Violence in video games is not causally linked with aggressive tendencies.

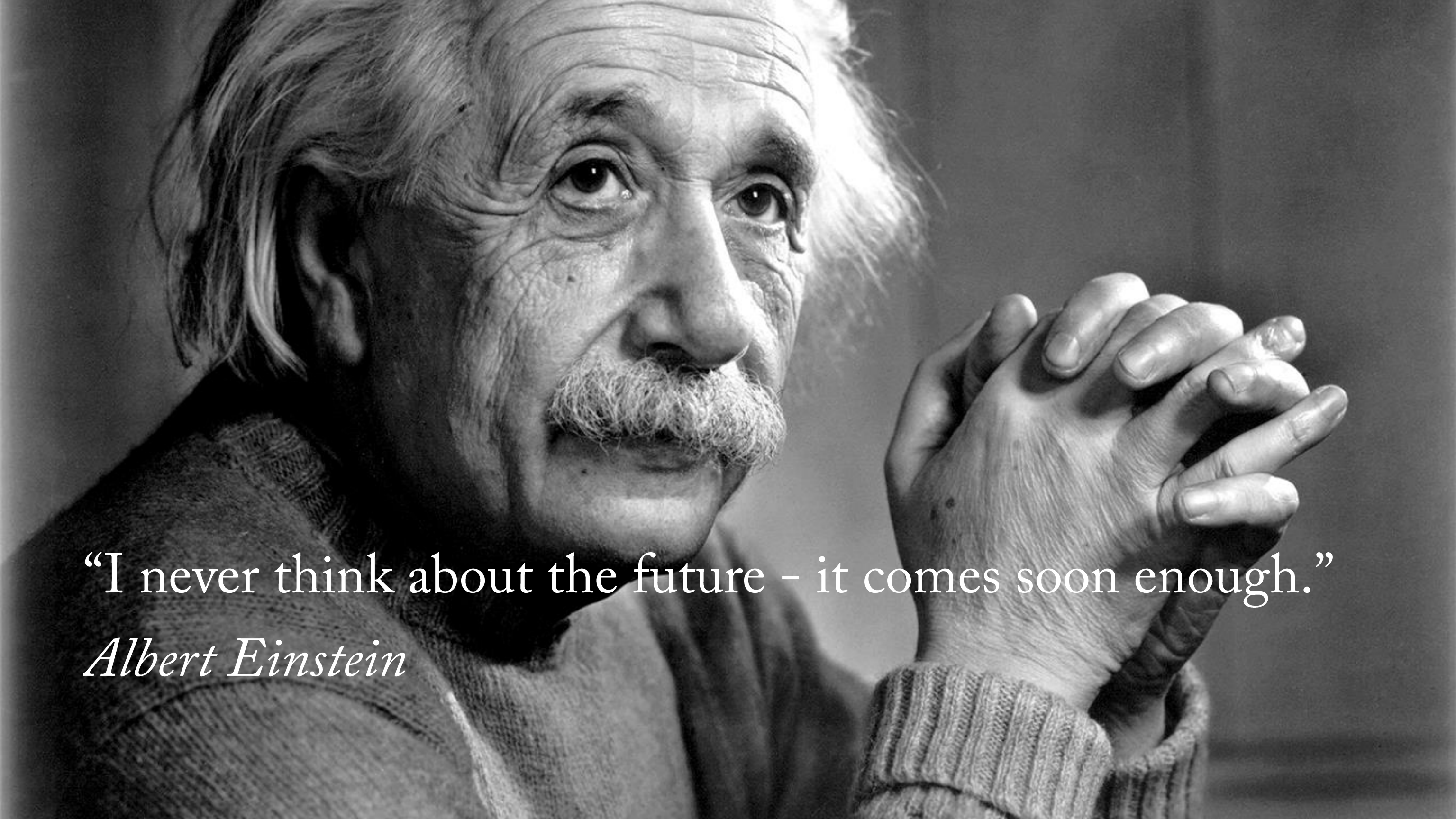
Most children who play violent video games do not have problems.

Video game play is part of the adolescent boy normal social setting.

D A T A I S

G A M E S

A N G R E



“I never think about the future – it comes soon enough.”

Albert Einstein

Banks now hold up robbers.

IBM used analytics to help a financial services firm stop crimes from and save \$1 million a month. ibm.com/smarterplanet

IBM

Food is now followed from farm to fork.

IBM is helping Manitoba reduce Canada's 13 million tonnes of food going to landfills every year by tracking the freshness of meat. ibm.com/smarterplanet

IBM

Buildings bring down their own energy costs.

Energy costs will consume 14% of a building's total operating costs in 2020. IBM helped reduce that number in 2014 with smart buildings. ibm.com/smarterplanet

IBM

Cities now work for citizens.

In Peru, IBM helps Lima's citizens deliver services to over 50,000 homes, monitor traffic lights and cameras, and prioritize the problems. ibm.com/smarterplanet

IBM

Trains now queue for passengers.

By sending empty trains to full platforms, IBM helped Netherlands railways save €20 million a year. ibm.com/smarterplanet

IBM

Now more suitcases find their way home.

IBM helps Amsterdam Airport Schiphol move 20 million more bags every year with a smarter baggage system. ibm.com/smarterplanet

IBM

Drivers can see traffic jams before they happen.

IBM helped Singapore predict traffic with 90% accuracy to anticipate and prevent congestion. ibm.com/smarterplanet

IBM

Clues track down detectives.

In NYC, smarter analytics helped the NYPD cut crime by 35%. ibm.com/smarterplanet

IBM

Now cars sniff out their own pollution.

When IBM helped Controlar test the emissions from Sao Paulo's traffic, the equivalent of 522,000 vehicles' worth of pollution disappeared in just one year. ibm.com/smarterplanet

IBM

Now every doctor knows you personally.

IBM helped Servicio Extremo de Salud offer more personalized care and raise efficiency 10% by sharing patient files in all its clinics. ibm.com/smarterplanet

IBM