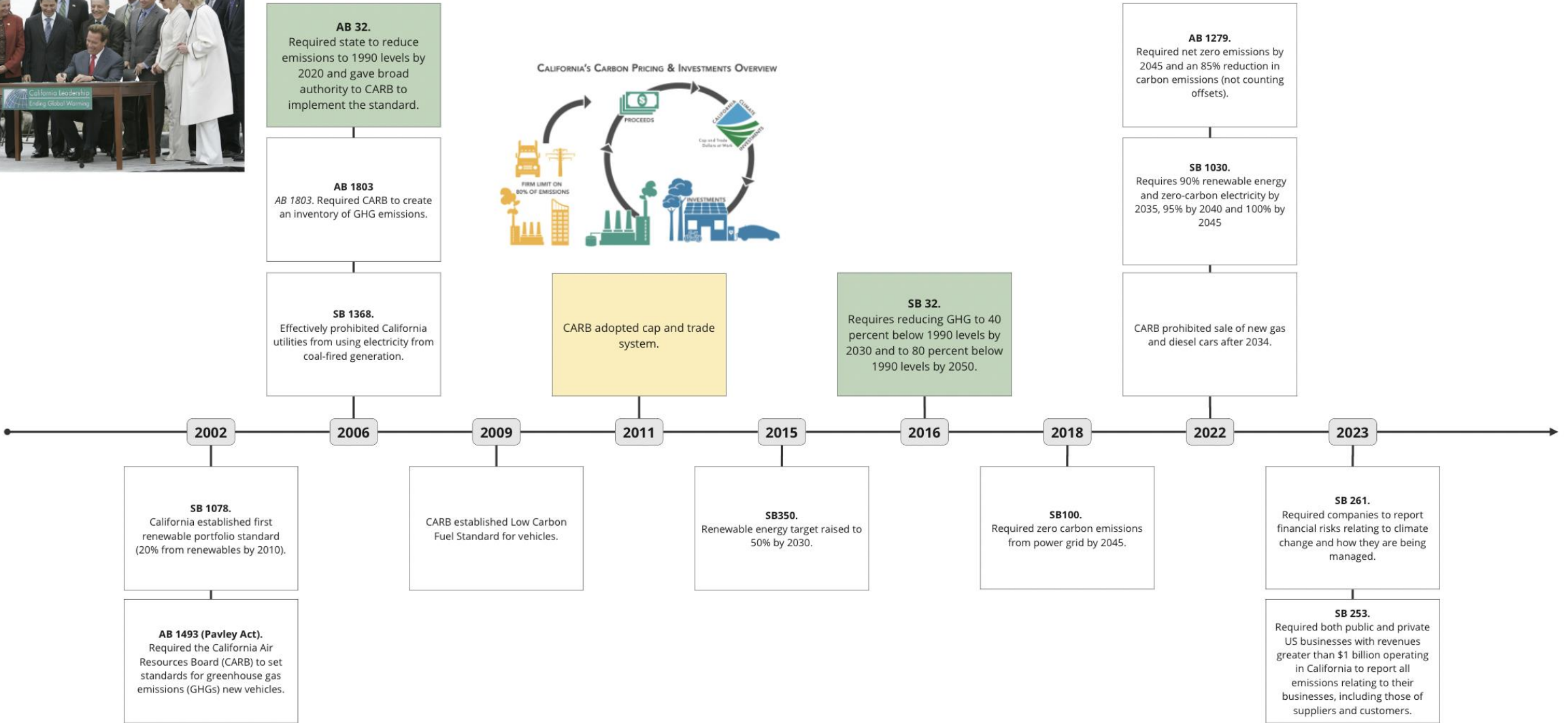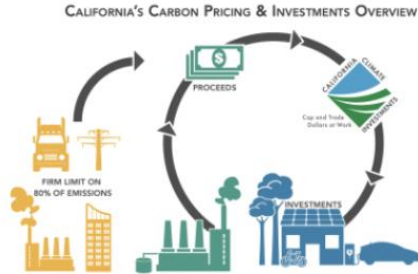# California's Climate Agenda ... and how to advance sustainability through Smart Tech and AI

Randell Iwasaki

President & CEO Iwasaki Consulting Services, Inc.
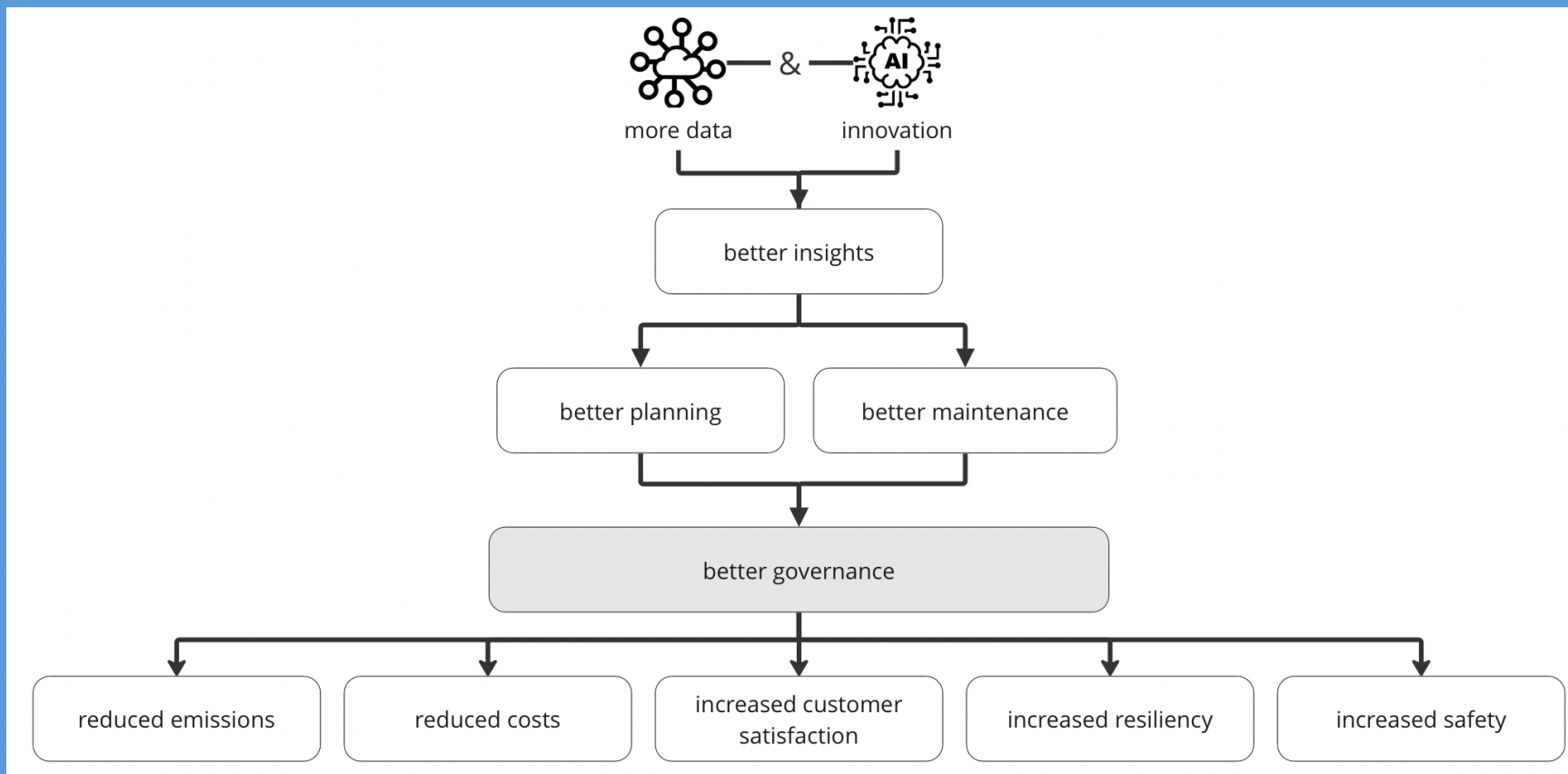
April 18th, 2024
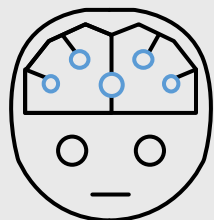
TIMELINE CALIFORNIA's CLIMATE LAWS & ACTIONS

CALIFORNIA'S CARBON PRICING & INVESTMENTS OVERVIEW

AB 32.
Required state to reduce emissions to 1990 levels by 2020 and gave broad authority to CARB to implement the standard.

AB 1803
AB 1803. Required CARB to create an inventory of GHG emissions.

SB 1368.
Effectively prohibited California utilities from using electricity from coal-fired generation.

CARB adopted cap and trade system.

SB 32.
Requires reducing GHG to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.

AB 1279.
Required net zero emissions by 2045 and an 85% reduction in carbon emissions (not counting offsets).

SB 1030.
Requires 90% renewable energy and zero-carbon electricity by 2035, 95% by 2040 and 100% by 2045

CARB prohibited sale of new gas and diesel cars after 2034.

2002 — **2006** — **2009** — **2011** — **2015** — **2016** — **2018** — **2022** — **2023**

SB 1078.
California established first renewable portfolio standard (20% from renewables by 2010).

CARB established Low Carbon Fuel Standard for vehicles.

SB350.
Renewable energy target raised to 50% by 2030.

SB100.
Required zero carbon emissions from power grid by 2045.

SB 261.
Required companies to report financial risks relating to climate change and how they are being managed.

AB 1493 (Pavley Act).
Required the California Air Resources Board (CARB) to set standards for greenhouse gas emissions (GHGs) new vehicles.

SB 253.
Required both public and private US businesses with revenues greater than $1 billion operating in California to report all emissions relating to their businesses, including those of suppliers and customers.

Infrastructure Investment & Jobs Act (IIJA)
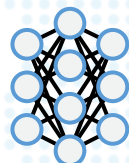
Smart Tech

AI Tech

What is it?

Artificial intelligence (AI)

Any technique that enables computers to mimic human intelligence using logic,
if-then statements, and machine learning (including deep learning)
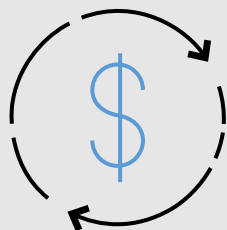
Machine learning (ML)

A subset of AI that uses machines to search for patterns in
data to build logic models automatically

Deep learning (DL)

A subset of ML composed of deeply multi-layered neural networks that
perform tasks like speech and image recognition

The reach of ML is growing

INCREASED SPENDING

By 2024, global spending on artificial intelligence will reach $110 billion

—IDC

IDC, "Worldwide Spending on Artificial Intelligence," https://bit.ly/3mpQac2.

FROM PILOTING TO OPERATIONALIZING

By the end of 2024, 75% of enterprises will shift from piloting to operationalizing AI

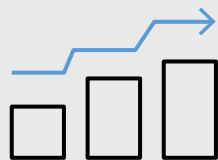—Gartner

Gartner, "Gartner Identifies Top 10," https://gtnr.it/3Bln3uU.
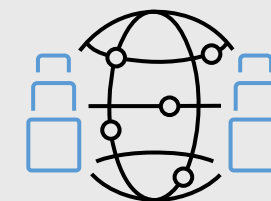
AI TRANSFORMATION

57% said that AI would transform their organization in the next three years

—Deloitte

Deloitte, "Thriving in the Era of Pervasive AI," https://bit.ly/3CtGDqf.

IRF GLOBAL

75 YEARS
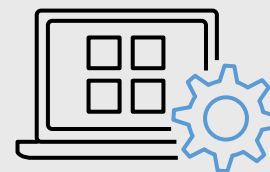
Business impact of machine learning

OPTIMIZING BUSINESS WITH NEW EFFICIENCIES

Create greater efficiency through sophisticated demand planning and forecasting models
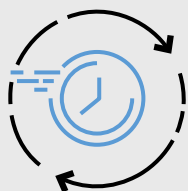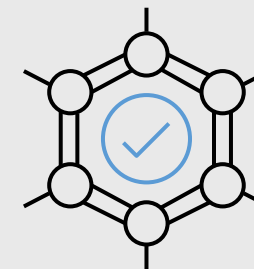
MAKING SMARTER, FASTER DECISIONS

Make more informed, faster decisions to act on opportunities sooner and get better results

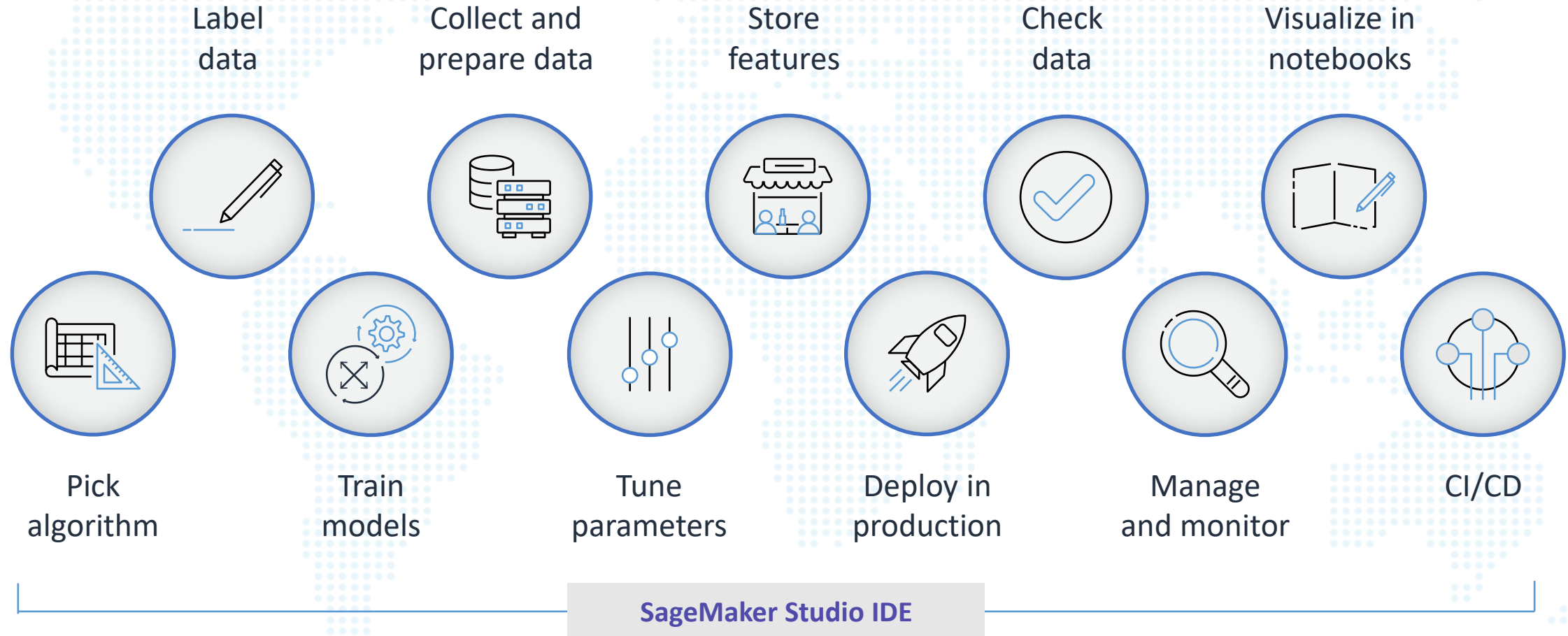## ADDING NEW CAPABILITIES TO EXISTING PRODUCTS

Enrich existing product to improve customer engagement and attract new users through deeper experiences

INVENTING NET-NEW PRODUCTS

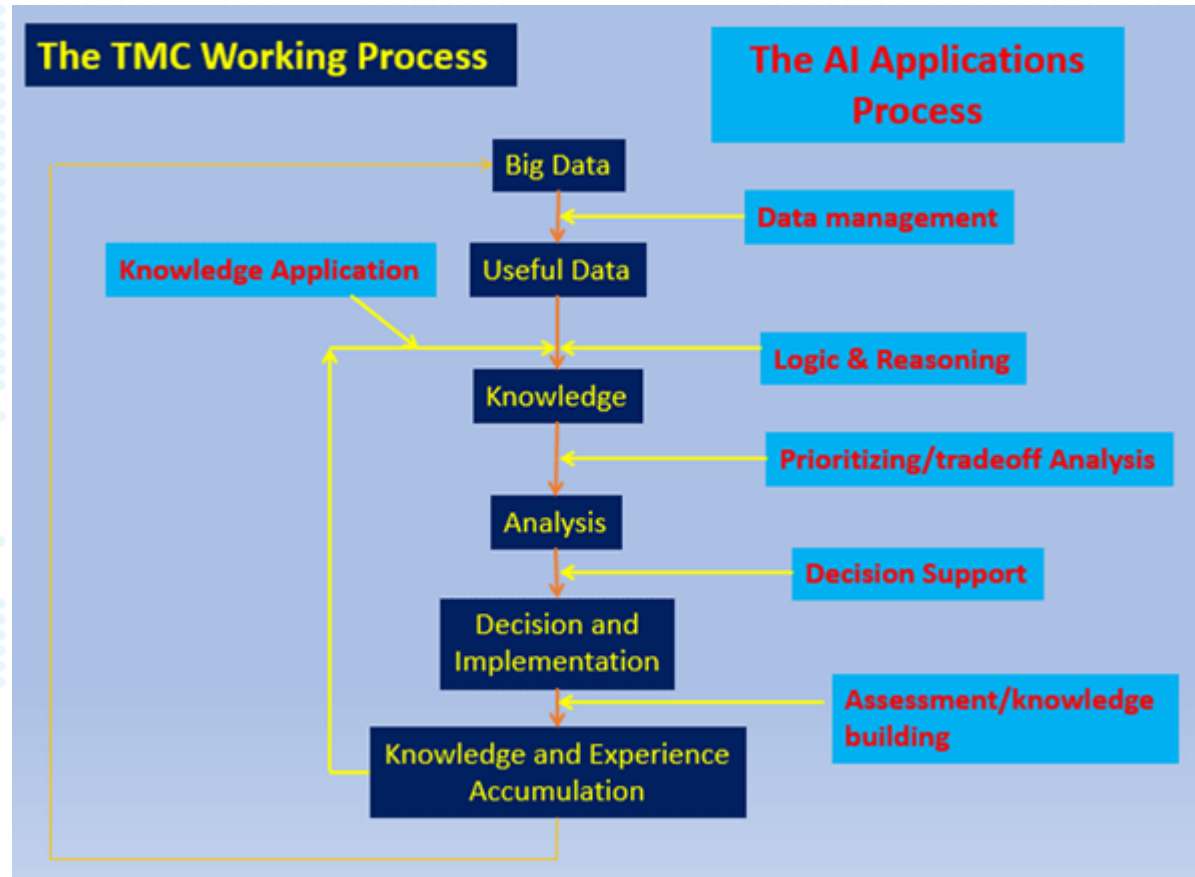Use data to develop innovative ideas and bring new products to market

IRF GLOBAL

75 YEARS

Tools are built to make ML more accessible

Label
data

Collect and
prepare data

Store
features

Check
data

Visualize in
notebooks

Pick
algorithm

Train
models

Tune
parameters

Deploy in
production

Manage
and monitor

CI/CD

SageMaker Studio IDE

Department of Transportation

https://ops.fhwa.dot.gov/publications/fhwahop19052/chap4.htm

Department of Transportation

https://www.fhwa.dot.gov/publications/research/ear/22026/22026.pdf
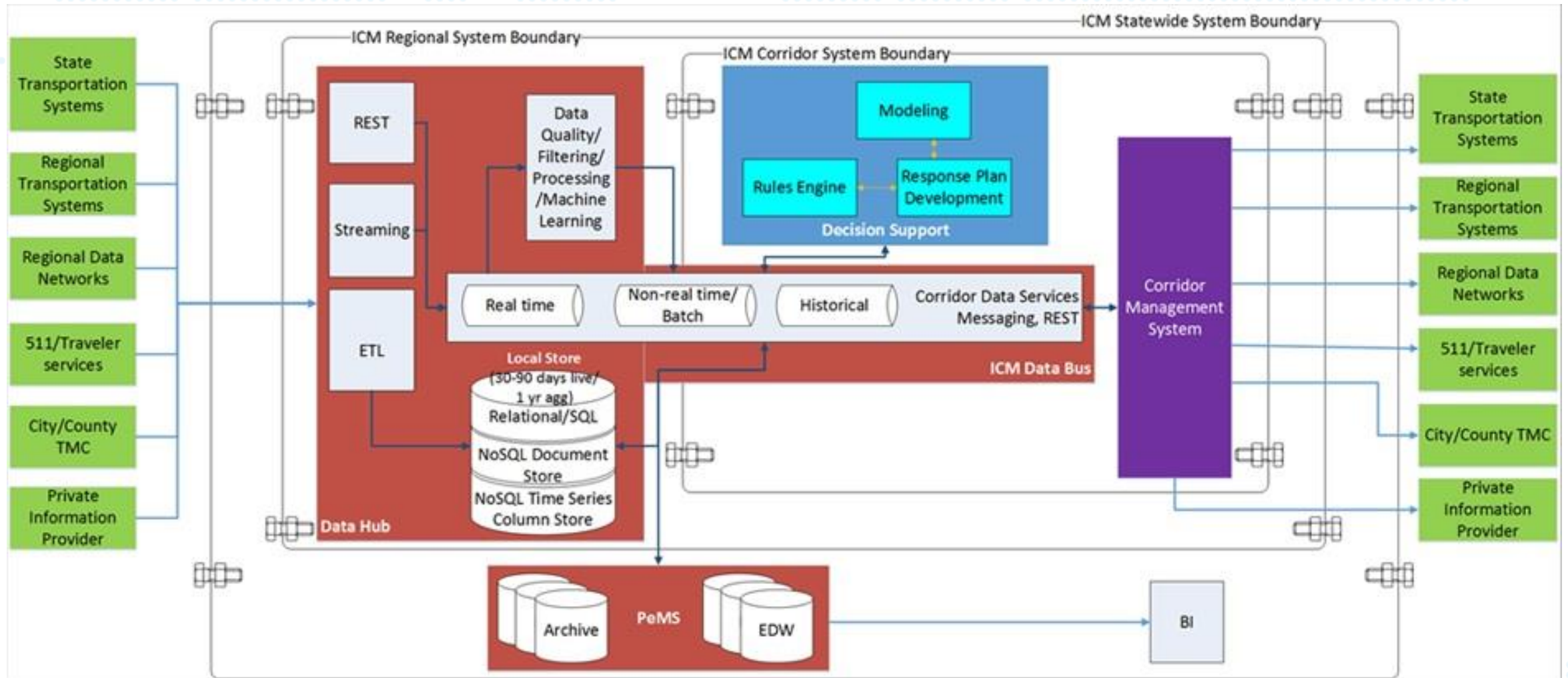
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Edge Computing

Bringing computer vision to the edge

AWS Panorama CV model and application support

BUILD

BUY

TRY

Custom models

Train custom models anywhere with support for major ML frameworks and neural network architectures

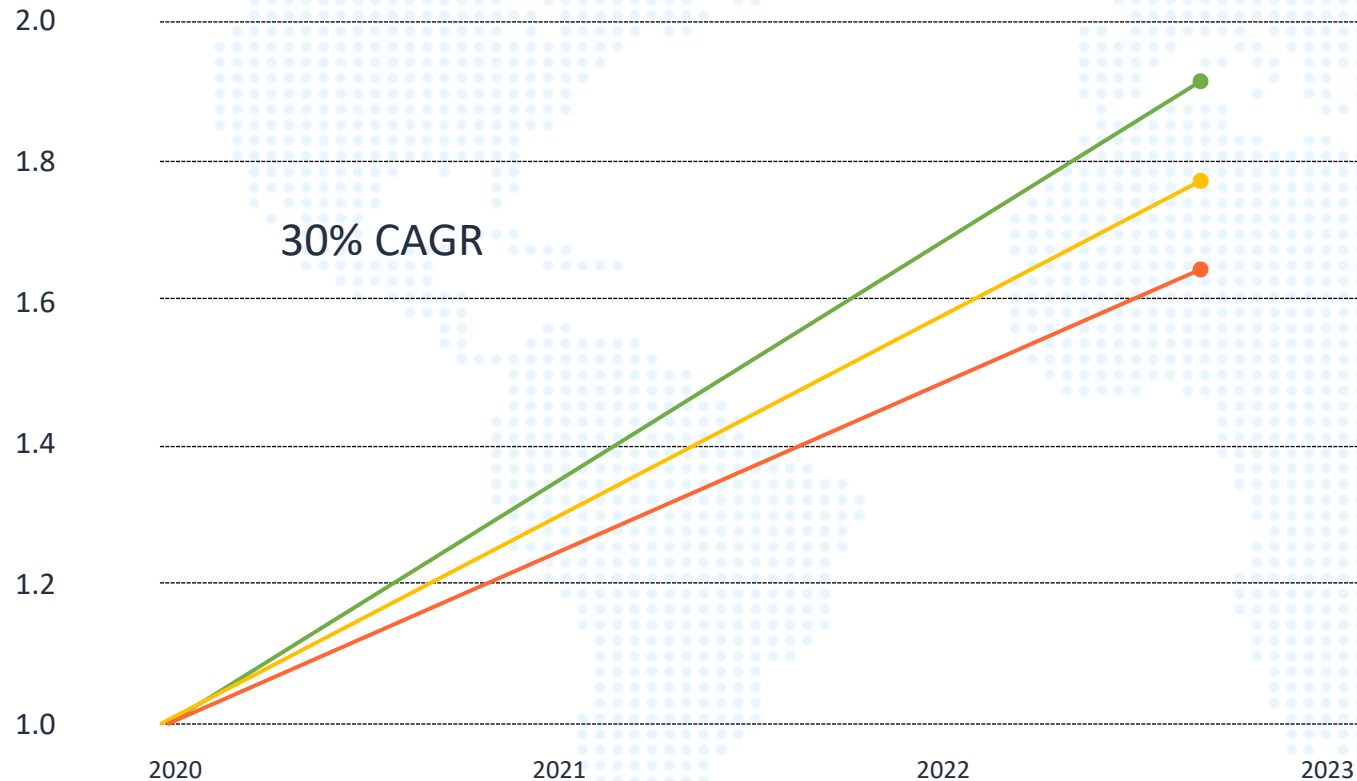## ISV models and apps

Retail analytics

Yard management

Restaurant ops.

Smart cities

AWS Panorama sample Github

IRF GLOBAL®

75 YEARS

Visual data from IP cameras is doubling every 2.5 years

30% CAGR

3,500 PB daily data from IP cameras

$13.4B video analytics market

175M enterprise IP cameras

However, **98%** of recorded footage is **never analyzed**

Source: Market Research Future: Global Surveillance Storage Market, and Global Market Insights: IP Camera Market Report

Intertraffic, Amsterdam
Towards Net Zero: Paving the Way for a Greener Future

Computer vision can automate a variety of tasks
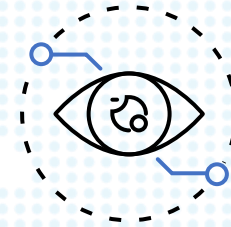
Detect, count, and track movement of objects

Classify objects based on color, condition, and type

Measure distance and proximity

Read text and numbers

Recognize gestures and physical activities

Smart Tech

TSP

AVL/Litter

Smart Sweeping

Verizon 5G MEC

Private 5G Network

What will the future look like?

Thank you

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in Randell Iwasaki