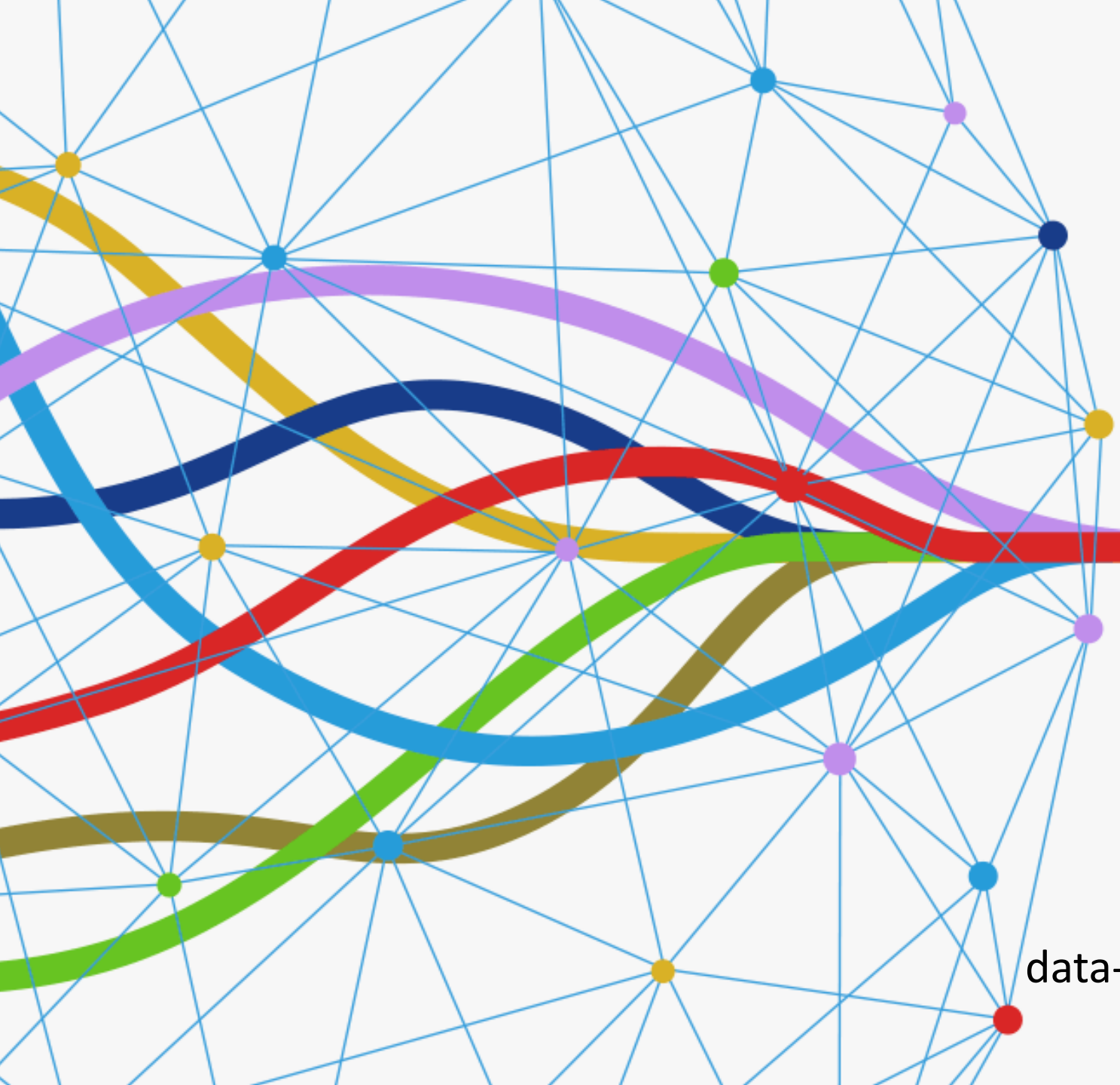
# BIG DATA INSTITUTE



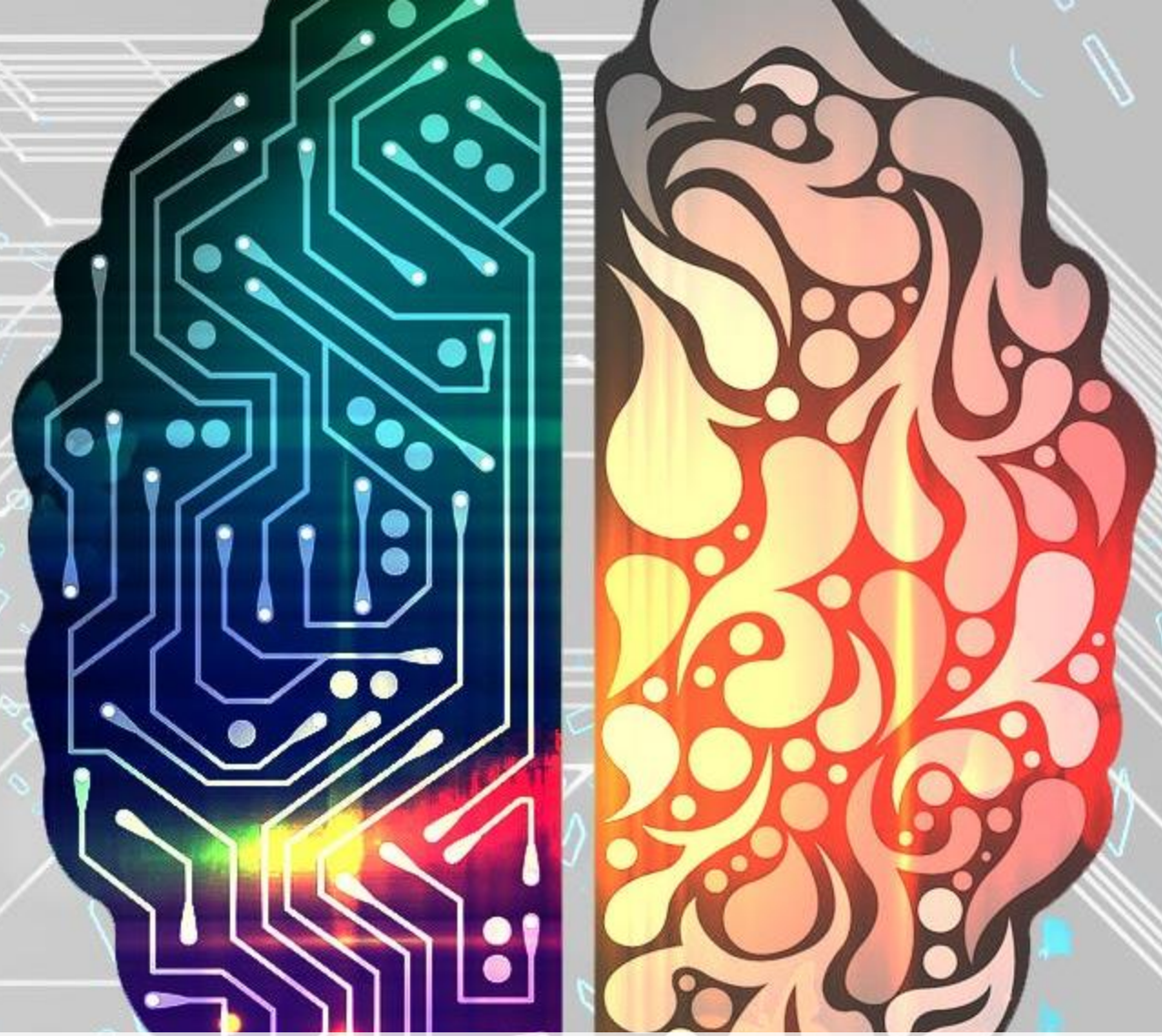
Data creates
competitive advantage.

Data driven nation =
data-drive organizations + data-driven society

# บทบาทหลักของ BDI

การส่งเสริม สนับสนุน และพัฒนาให้รัฐทำงานแบบบูรณาการร่วมกัน
ผ่านการเชื่อมโยงข้อมูล และสร้างให้เกิดความร่วมมือกับภาคเอกชน
โดยคำนึงถึงผลประโยชน์ที่เอกชนและประชาชนจะได้รับอย่างแท้จริง

# MACHINE LEARNING

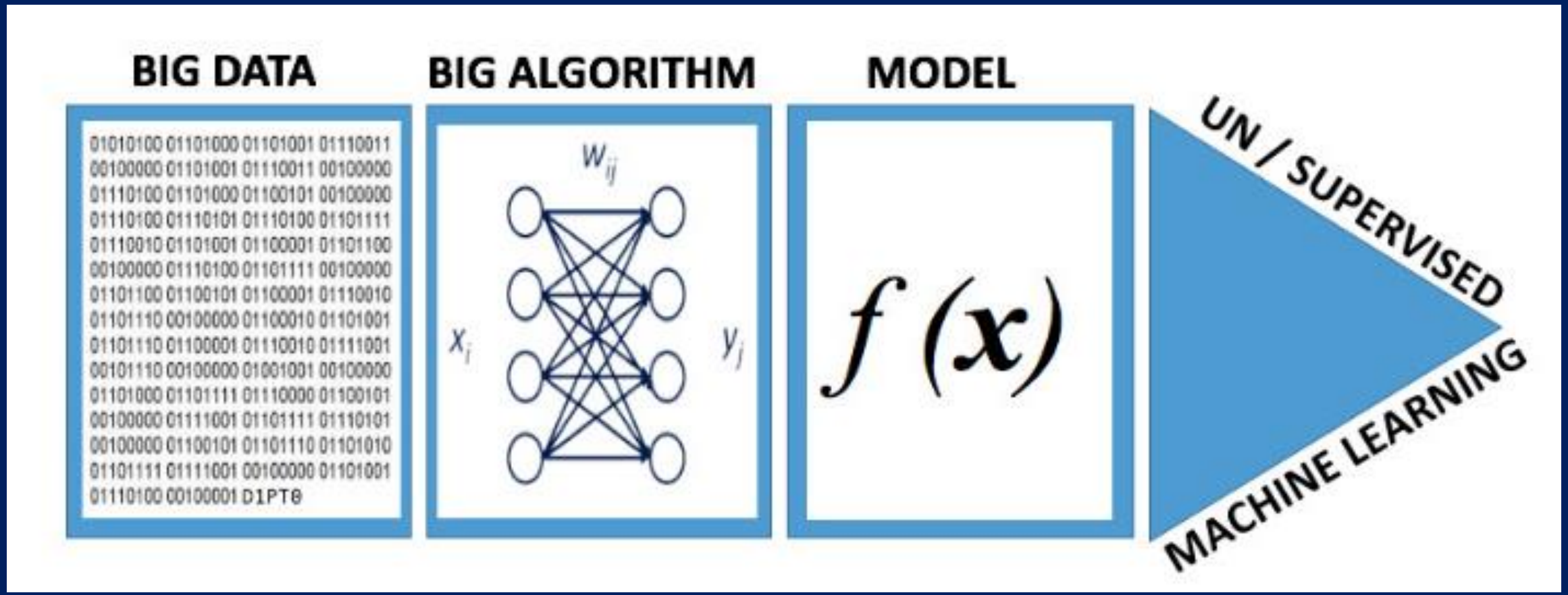


การให้บริการด้านการวิเคราะห์ด้วยเทคโนโลยีอุบัติใหม่โดยเฉพาะศาสตร์ทางด้านปัญญาประดิษฐ์และการประมวลผลข้อมูล

DESCRIPTIVE

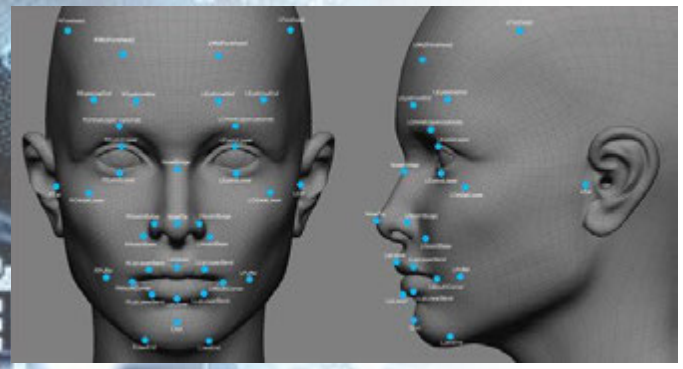
PREDICTIVE

PRESCRIPTIVE


BIG DATA
BIG ALGORITHM
MODEL
$w_{ij}$
$x_i$
$y_j$
$f(x)$
UN / SUPERVISED
MACHINE LEARNING

# Artificial Narrow Intelligence

## Face Recognition with AI




## Eigenface

Let **T** be the matrix of preprocessed training
can then be computed as **S** = **TT**$^{\mathsf{T}}$ and the e

$$\mathbf{S}\mathbf{v}_i = \mathbf{T}\mathbf{T}^T\mathbf{v}_i = \lambda_i\mathbf{v}_i$$

However **TT**$^{\mathsf{T}}$ is a large matrix, and if instea

$$\mathbf{T}^T\mathbf{T}\mathbf{u}_i = \lambda_i\mathbf{u}_i$$

then we notice that by pre-multiplying both s

$$\mathbf{T}\mathbf{T}^T\mathbf{T}\mathbf{u}_i = \lambda_i\mathbf{T}\mathbf{u}_i$$

Meaning that, if $\mathbf{u}_i$ is an eigenvector of $\mathbf{T}^{\mathsf{T}}\mathbf{T}$,
the matrix $\mathbf{T}^{\mathsf{T}}\mathbf{T}$ is a 300 × 300 matrix, which
the resulting vectors $\mathbf{v}_i$ are not normalised; i


87.0 bpm
93.4% SPO2
140/90 BP
36.7°C
98.0°F
John Smith
Weight: 173 lbs
Age: 76
Symptoms: Headache, fatigue, coughing, chest pain.
Diagnosis: Emphysema
Medication: Theophylline, Oxygen
Notes:
Last Checked-on: 7:49am (5 hrs ago)
View EHR
Augmented Reality
A DDA Company
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# Three Levels of Intelligence

## Artificial Narrow Intelligence

Commercialized Today

Specialized in one specific area.

## Artificial General Intelligence

Research Space

Specialized in all areas.

AI that can think, reason, perceive, infer– all the stuff humans can do.

## Artificial Super Intelligence

Distance Future

Smarter than human in every way.

# Three Levels of Intelligence

## Artificial Narrow Intelligence

Commercialized Today

### Analytics and Predictive Artificial Intelligence

applies generalizations from its learning to new situations

### Generative Artificial Intelligence

generate content by accessing stored information.

## Artificial General Intelligence

Research Space

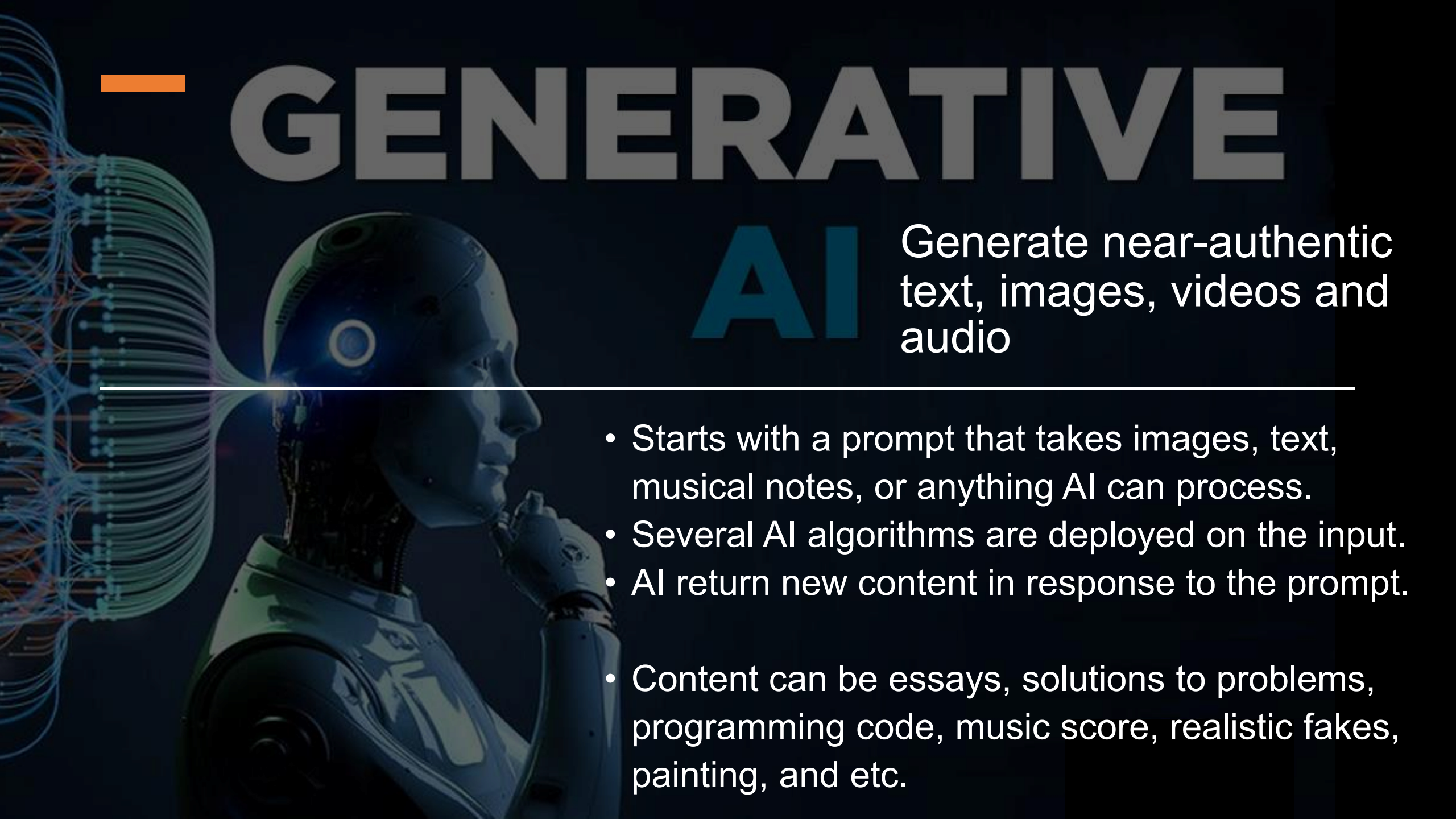
Specialized in all areas.

AI that can think, reason, perceive, infer– all the stuff humans can do.

## Artificial Super Intelligence

Distance Future

Smarter than human in every way.



# GENERATIVE AI

Generate near-authentic text, images, videos and audio

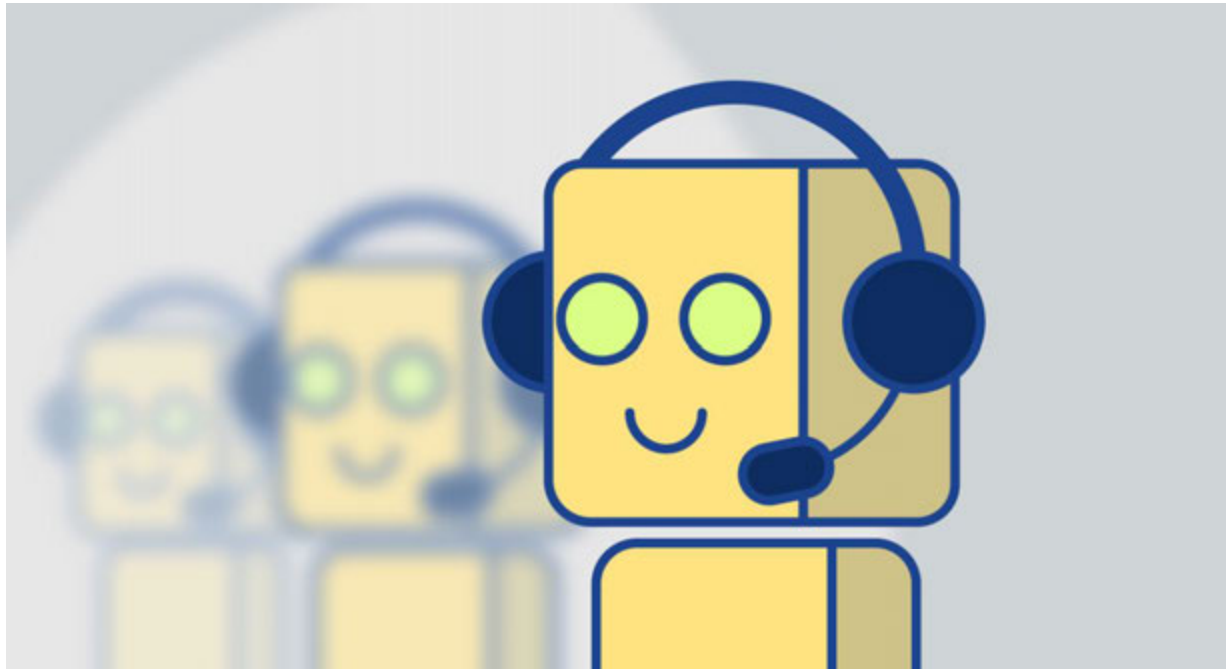
- Starts with a prompt that takes images, text, musical notes, or anything AI can process.
- Several AI algorithms are deployed on the input.
- AI return new content in response to the prompt.

- Content can be essays, solutions to problems, programming code, music score, realistic fakes, painting, and etc.

# Prompt Engineering

The process of structuring text that can be interpreted and understood by a generative AI model.

- A prompt guides the model to generate useful output
- Multiple formulations may be needed.
- Describe the task and the general setting
- Show the model what you would like to see




PRODUCT
INNOVATION


Health Summary

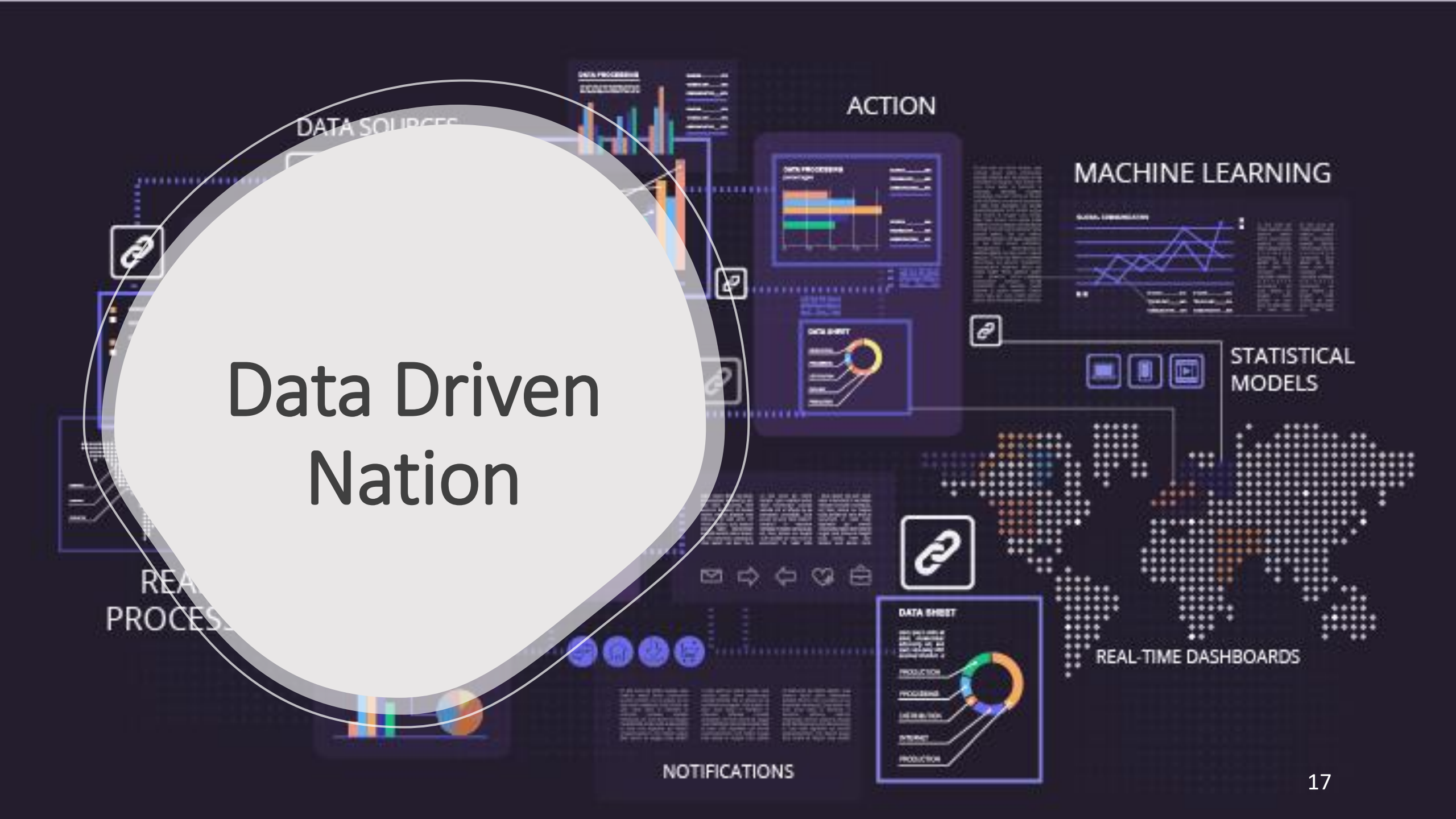

COMPLIANCE

# Bring Data Across Silos

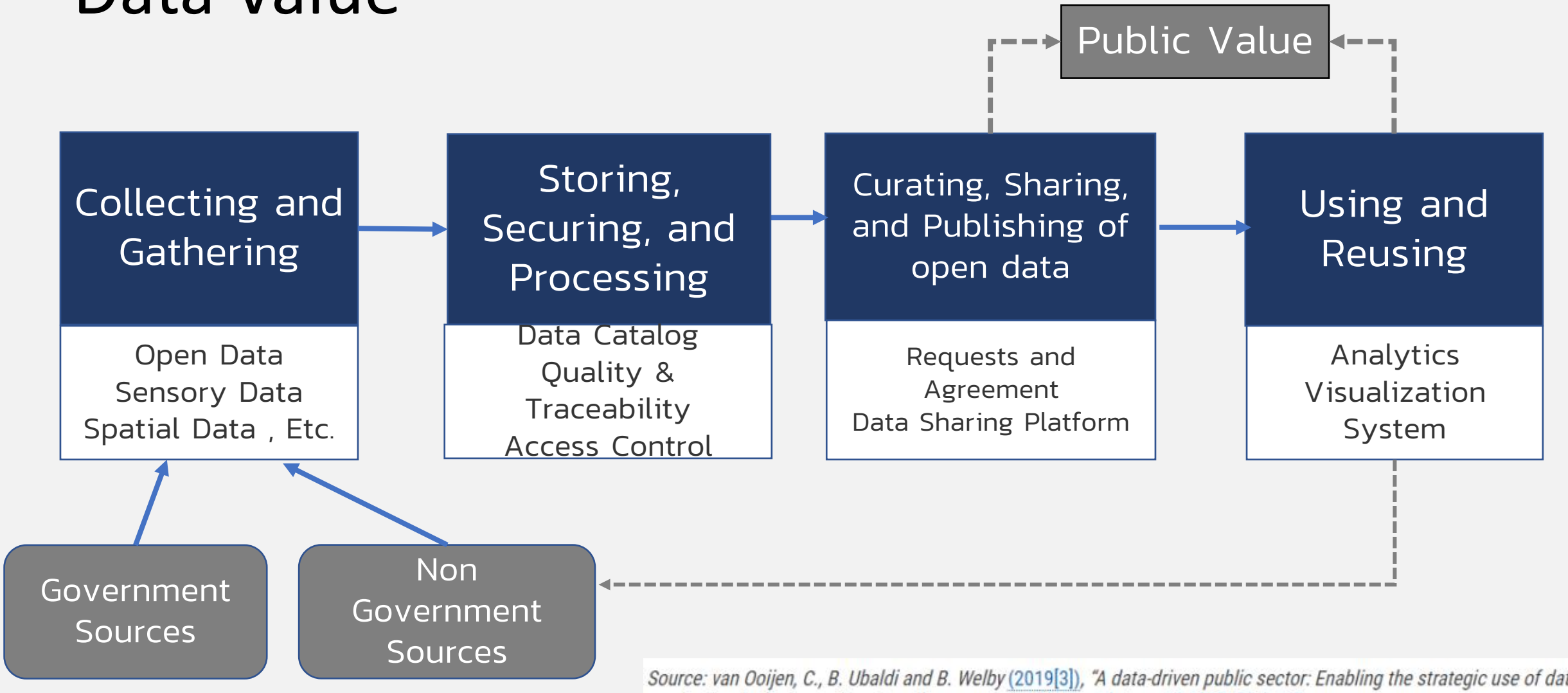
การสร้างแพลตฟอร์มที่บูรณาการและให้บริการข้อมูลสำหรับเรื่องที่สำคัญของประเทศ

# การพัฒนากำลังคนด้านข้อมูลและสร้างความตระหนักรู้ให้กับสังคมและประเทศ

# การส่งเสริม สนับสนุน และพัฒนาเทคโนโลยีด้านปัญญาประดิษฐ์ และการประมวลผลข้อมูล


Data Driven
Nation
ACTION
MACHINE LEARNING
STATISTICAL
MODELS
REAL-TIME DASHBOARDS
NOTIFICATIONS
DATA SHEET

# The Government Data Value

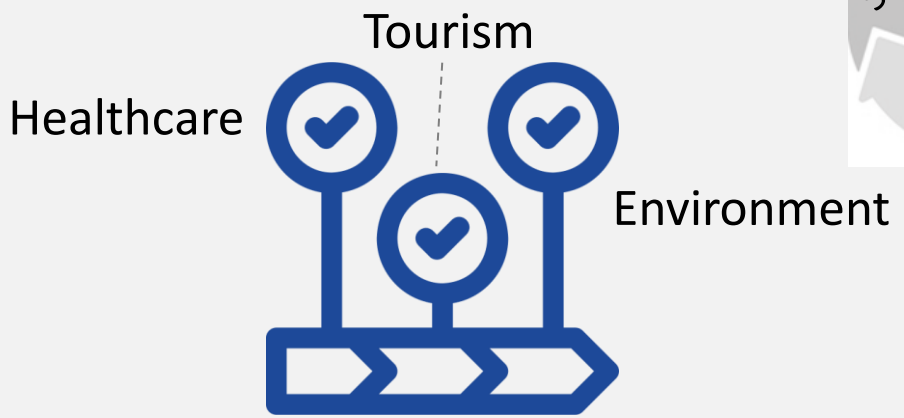



*Source: van Ooijen, C., B. Ubaldi and B. Welby (2019[3]), "A data-driven public sector: Enabling the strategic use of data for productive, inclusive and trustworthy governance", https://doi.org/10.1787/09ab162c-en.*

# From scattered data to systemic understanding

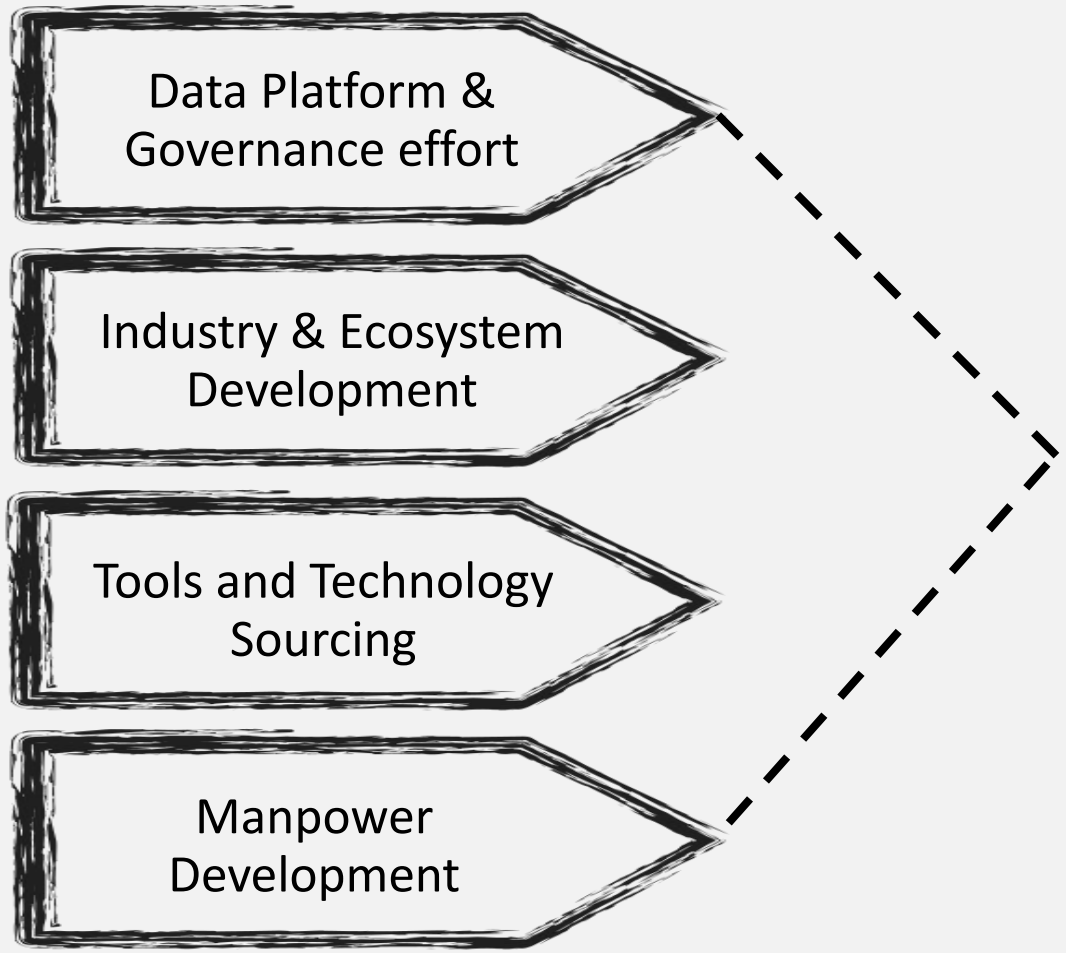
- Data Platform & Governance effort
- Industry & Ecosystem Development
- Tools and Technology Sourcing
- Manpower Development

| Collecting and Gathering | Storing, Securing, and Processing | Curating, Sharing, and Publishing | Using and Reusing |
|---|---|---|---|
| Open Data<br>Sensory Data<br>Spatial Data , Etc. | Data Catalog<br>Quality & Traceability<br>Access Control | Requests and Agreement<br>Data Sharing Platform | Analytics<br>Visualization<br>Access Control |




Enabling data to travel across the value chain of sectors

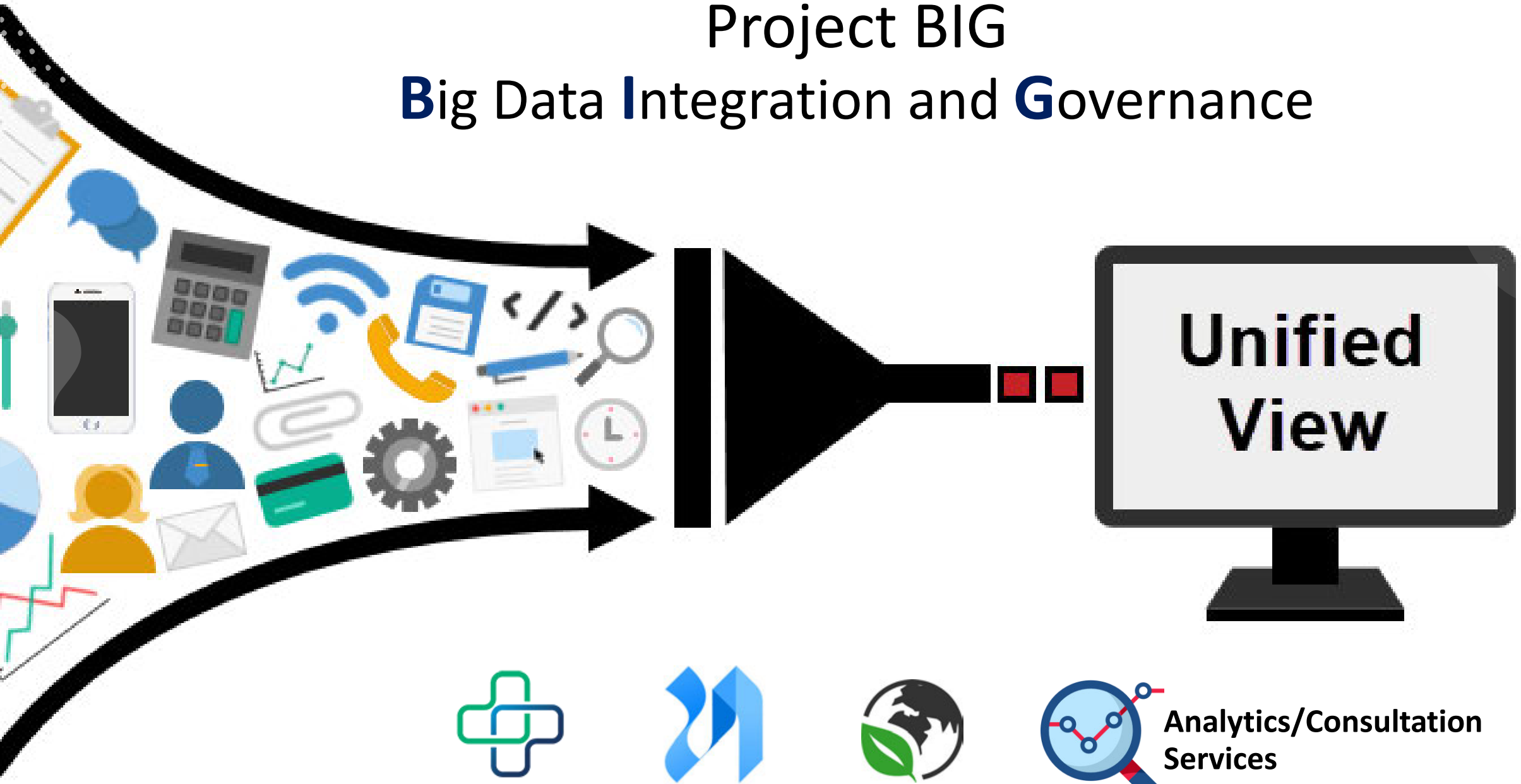

- Infographics
- Dashboard
- Open Data
- Recommender system
- Marketing Plan
- National Policy




- **Project BIG:** Develop sector-based/ area-based platform and provide analytics and consultation service.
- **Project Bridge:** Bridge the gap towards data-driven economy (with data ecosystem, Industry development and product/service innovation).
- **Project Learn:** Build necessary manpower through practiced-based learning and coaching platform.

# Project BIG

## **B**ig Data **I**ntegration and **G**overnance




Health Link

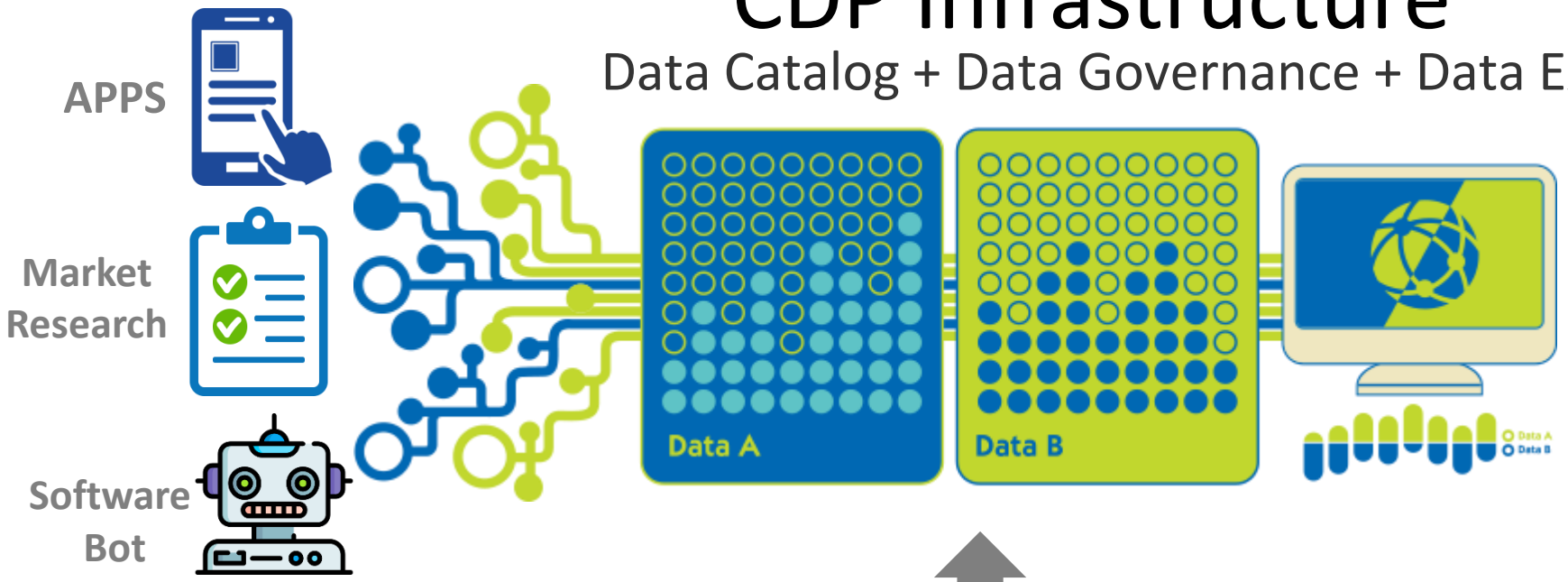
TRAVEL LINK

Envi Link

Analytics/Consultation
Services

# CDP Infrastructure

Data Catalog + Data Governance + Data Exchange Engine




Area based data Platform

Health Link

Travel Link

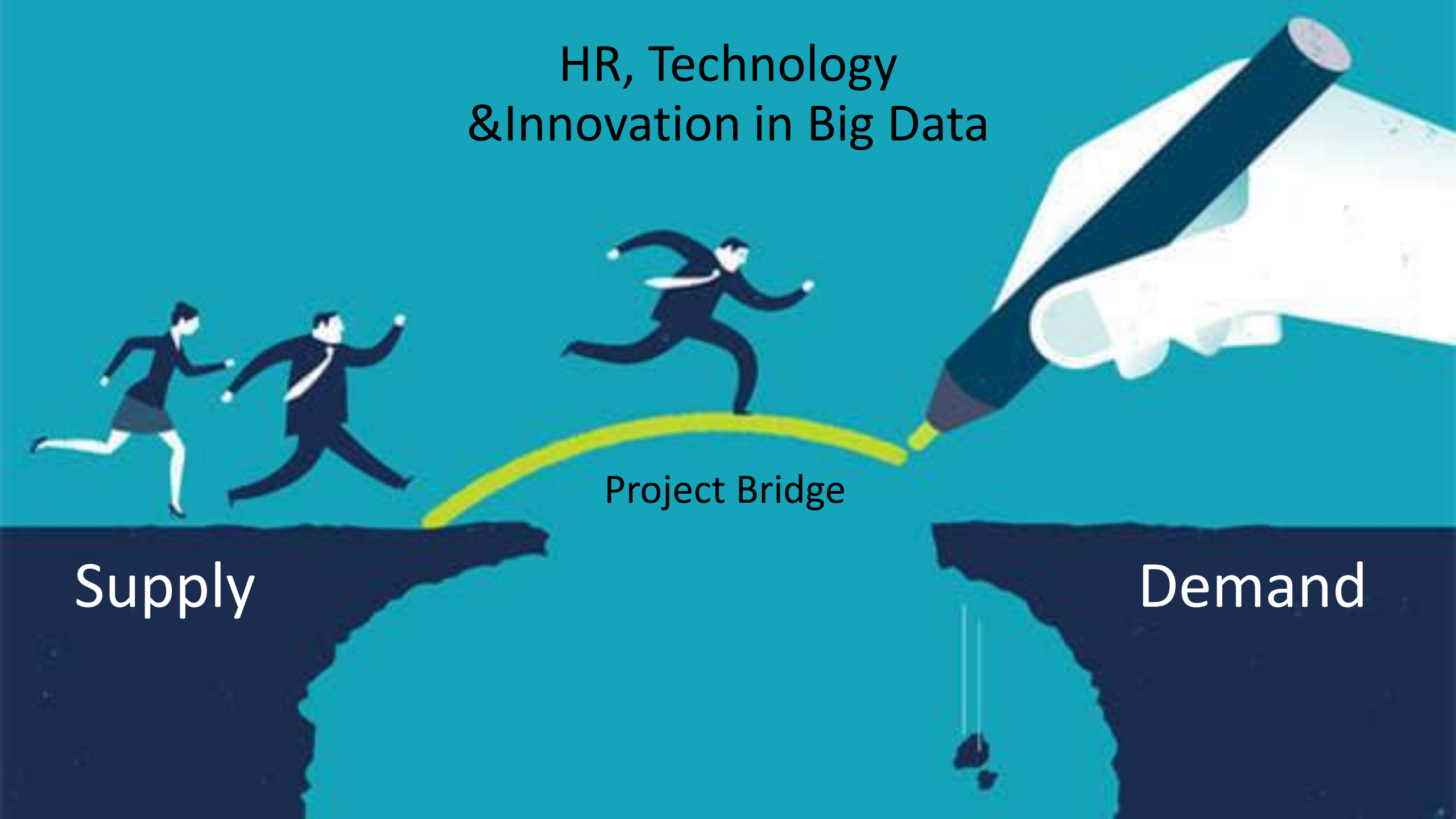
Envi Link

Welfare Link

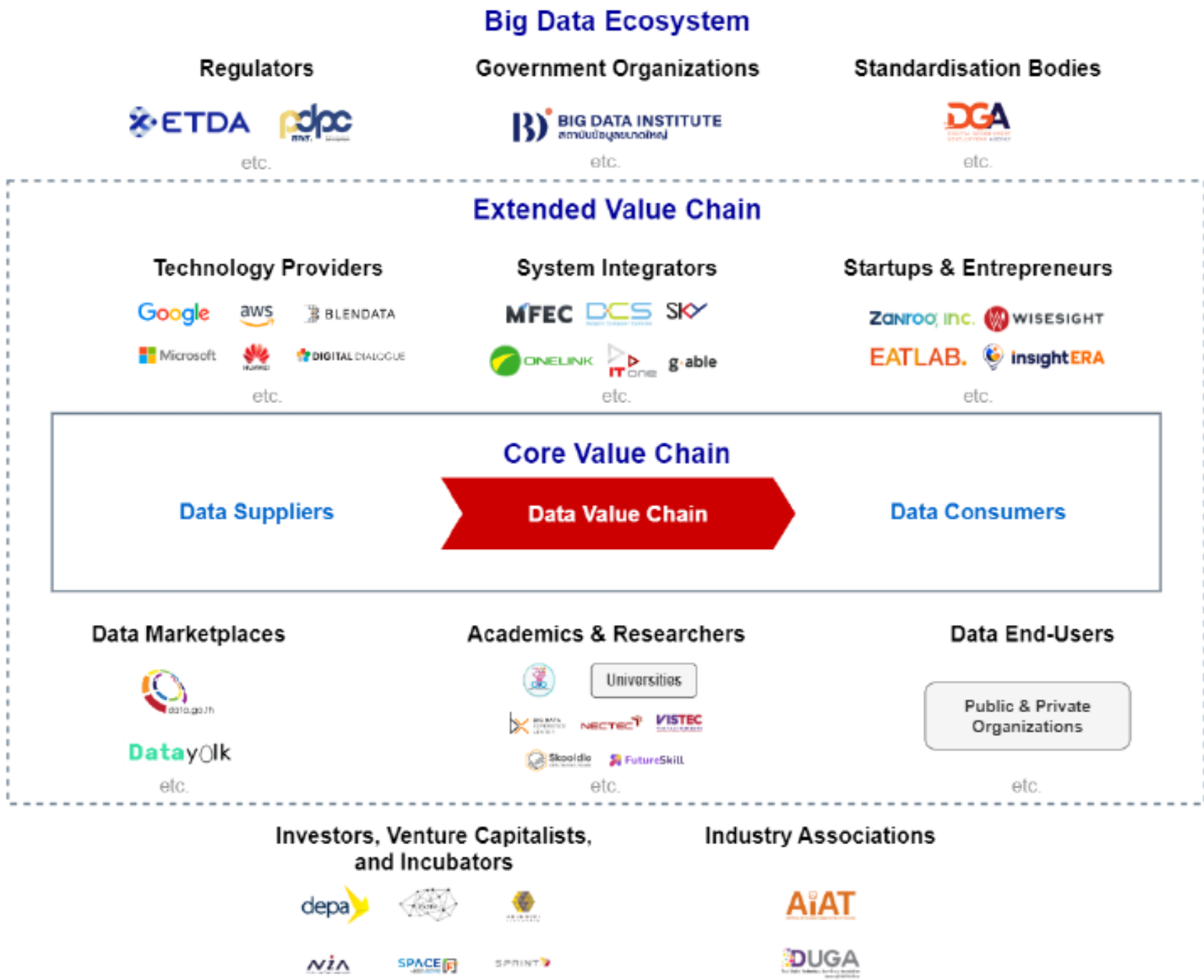
Sector based data Platform

**Cloud + Software**

# HR, Technology &Innovation in Big Data



# Example of Data Business Ecosystem in Thailand



# Project Learn

## Develop Data Skills and Knowledge through Micro-Credential

E-Learning Platform

Data Practice Platform

Work Integrated Learning Platform