Government Runs on AI
An Operating System for e-Gov!

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Evolution of **Technology**

Evolution of **Intelligence**

Evolution of **Products**

Evolution of **Platforms**

Evolution of **Society**

Evolution of **Governance**

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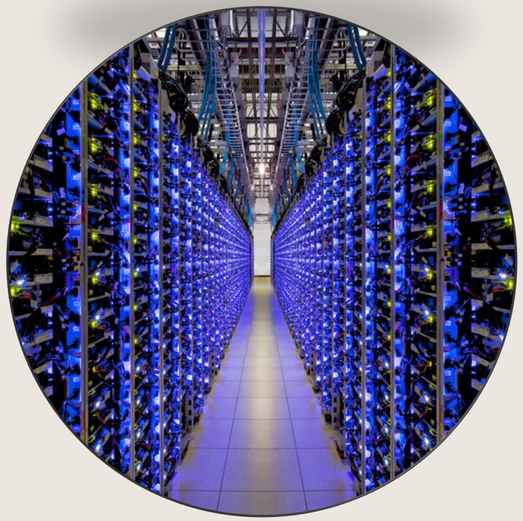
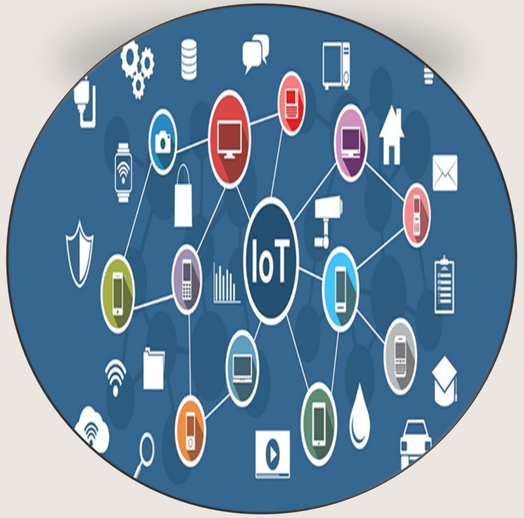
What is Technology?

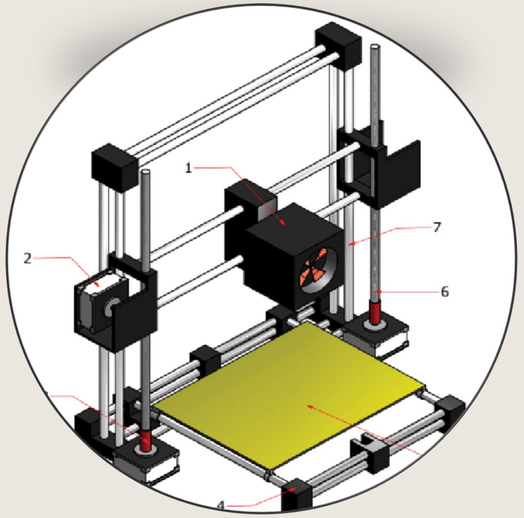
"Our **technology**, our machines, is **part of our humanity**. We created them to **extend ourselves,** and that is what is **unique** about human beings!".

-- *Ray Kurzweil*

Unprecedented Convergence of Technology?

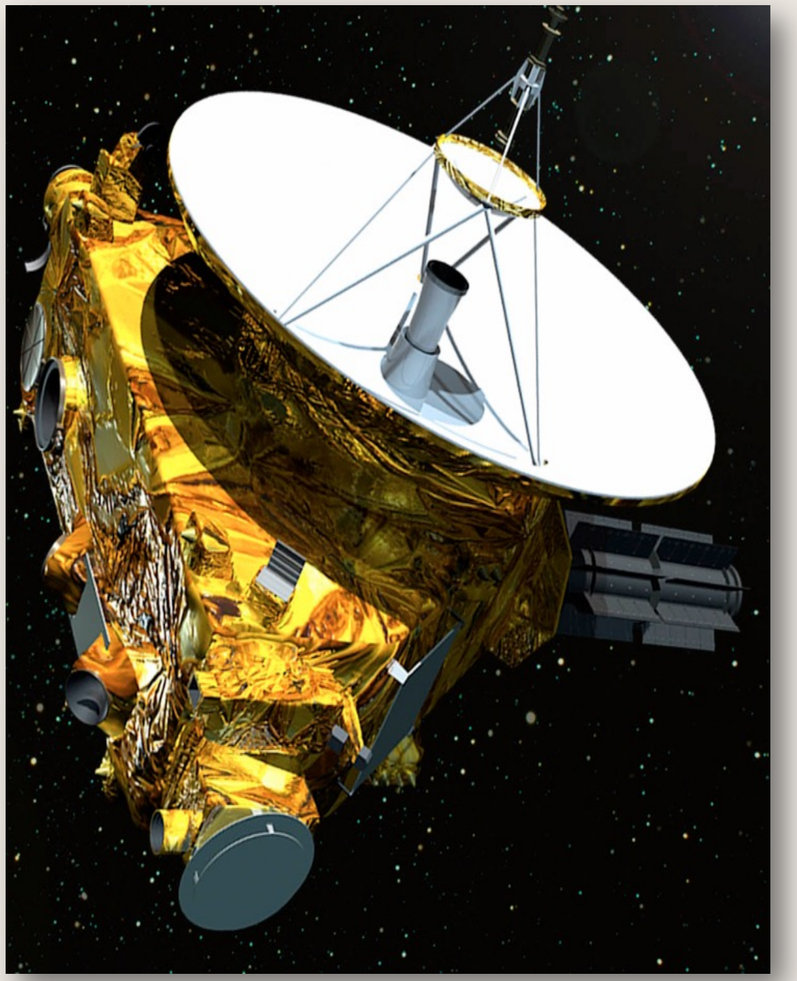




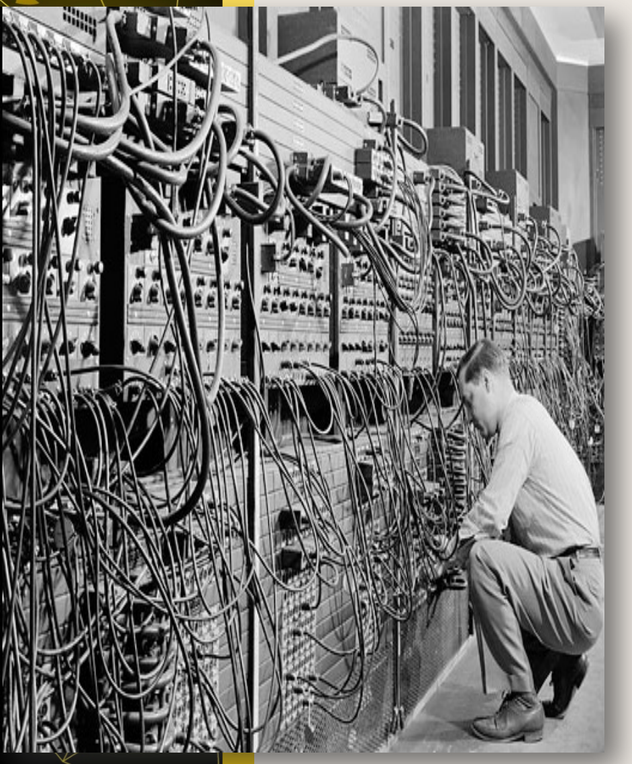


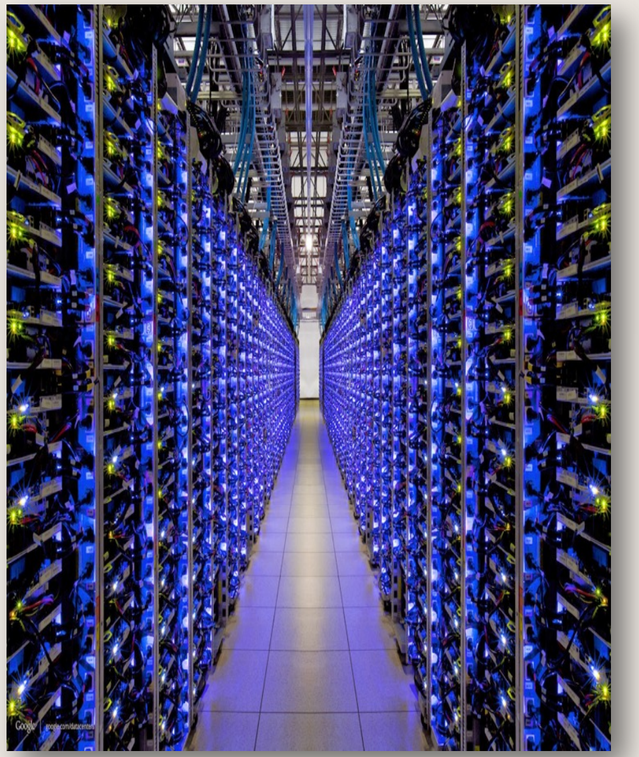
Evolution of Tools

Evolution of Sensors

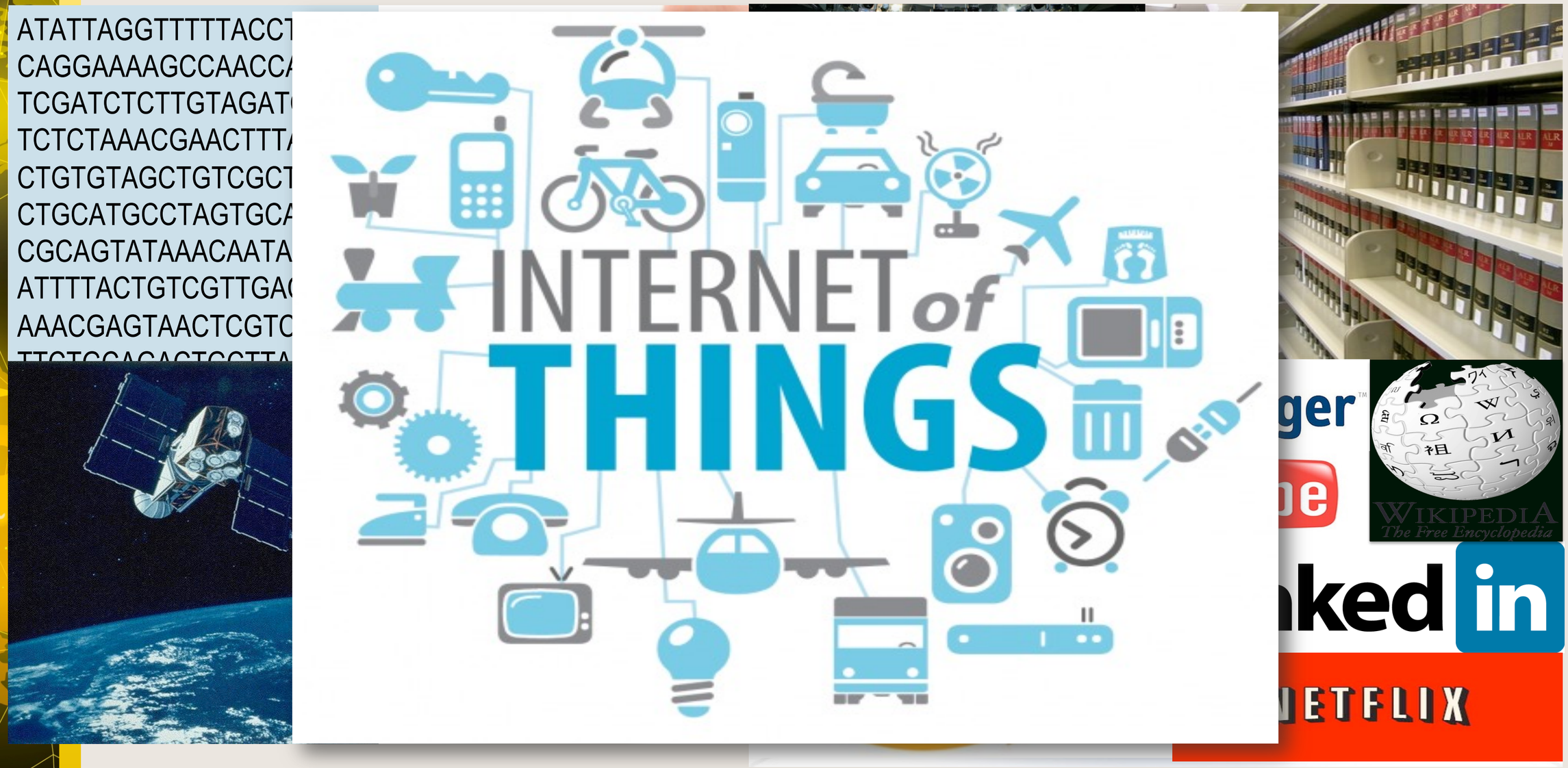


Evolution of Compute



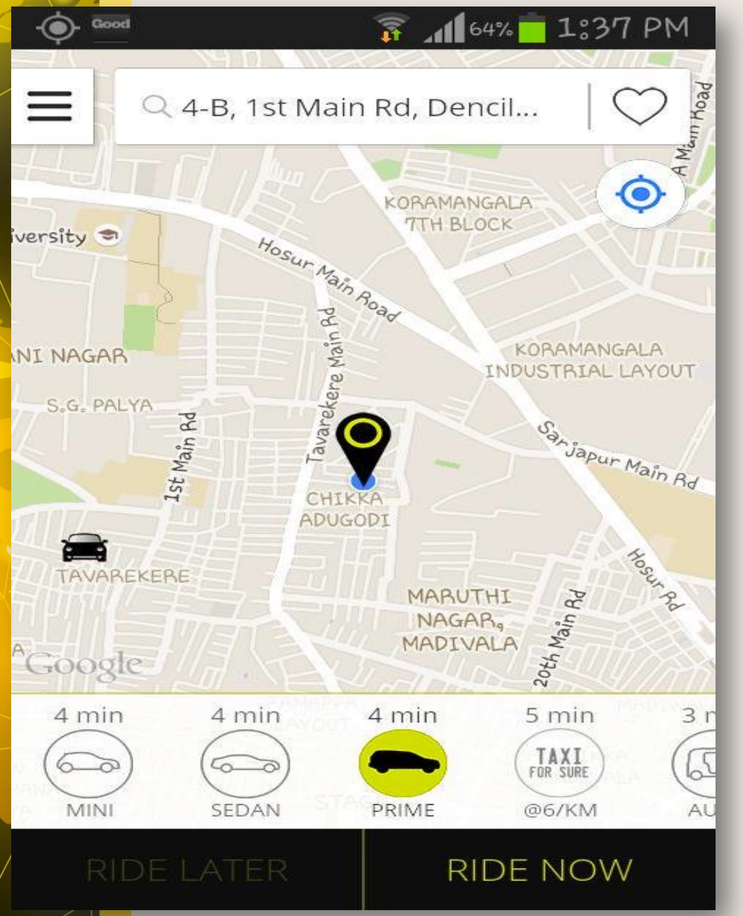


Evolution of Data

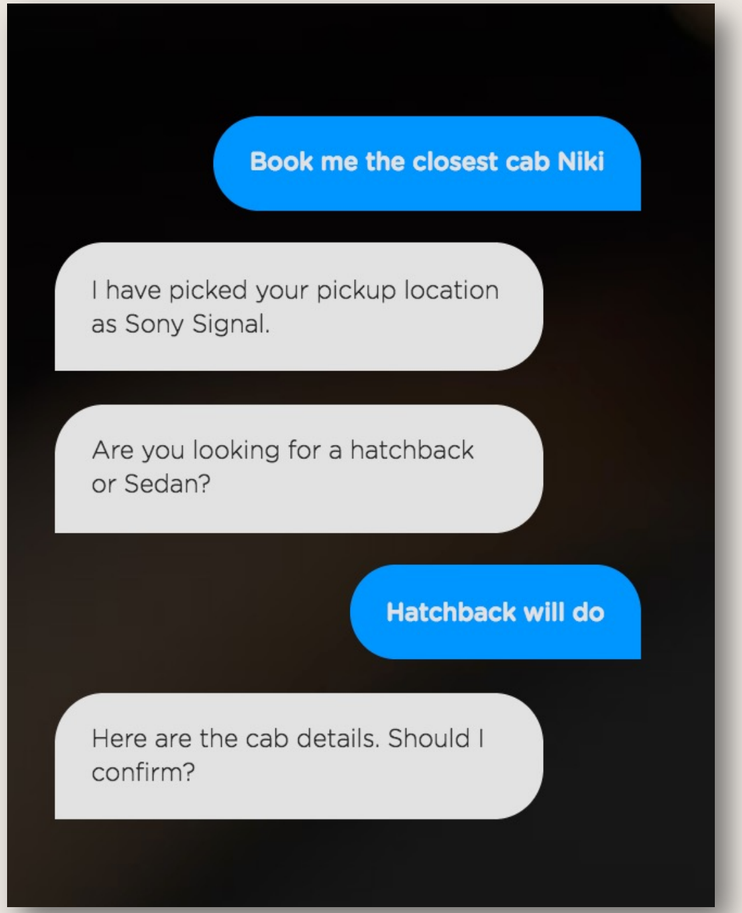


Evolution of Interfaces

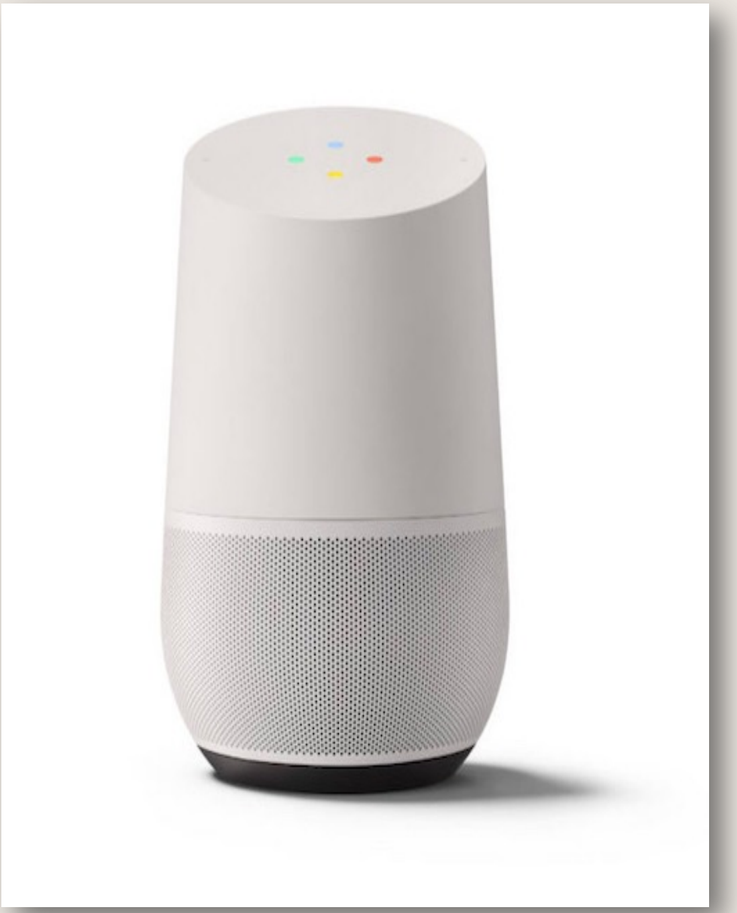
TOUCH



CONVERSATIONAL



SPEECH



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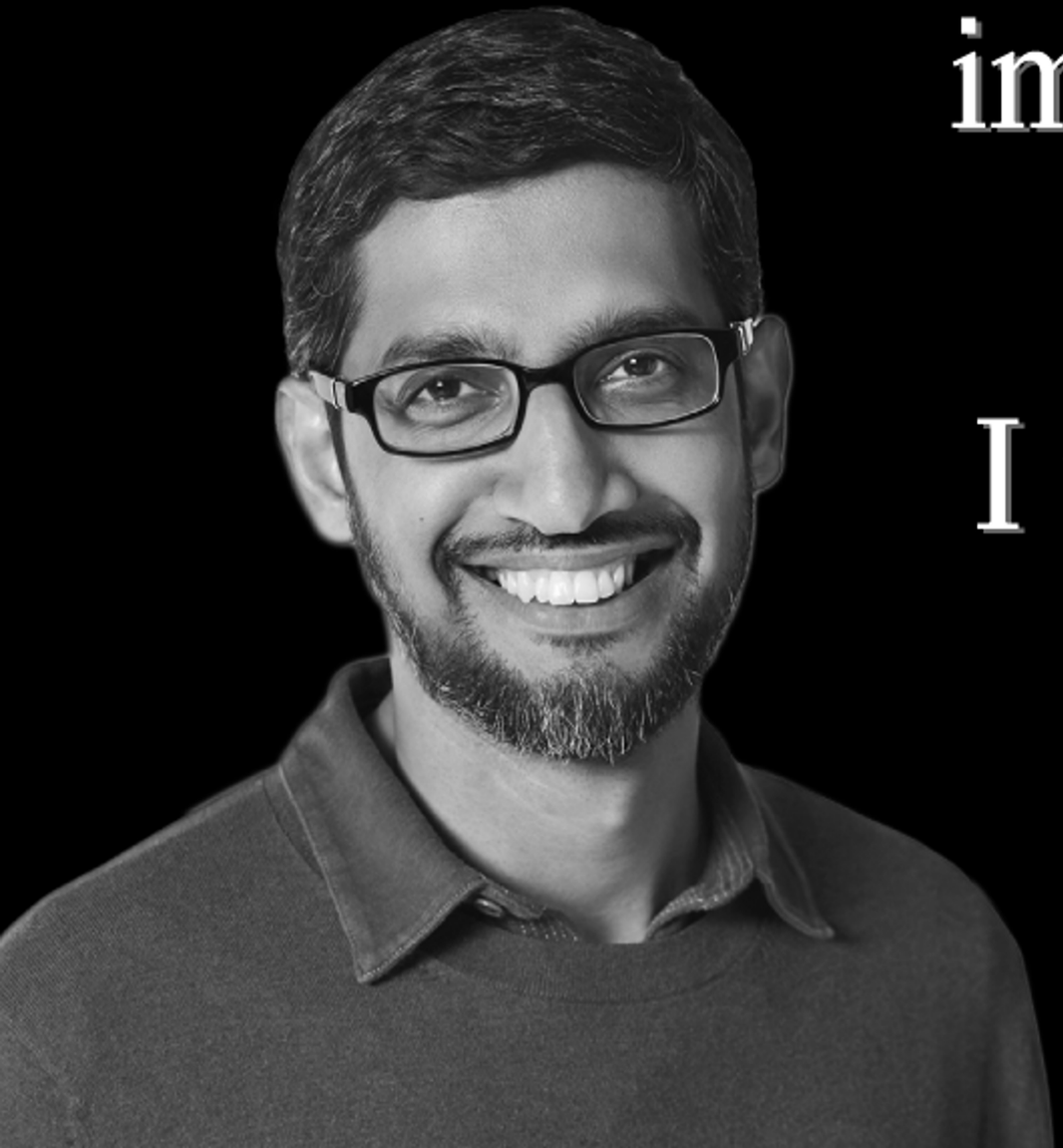


AI is probably the most important thing humanity has ever worked on. I think of it as something more profound than electricity or fire.

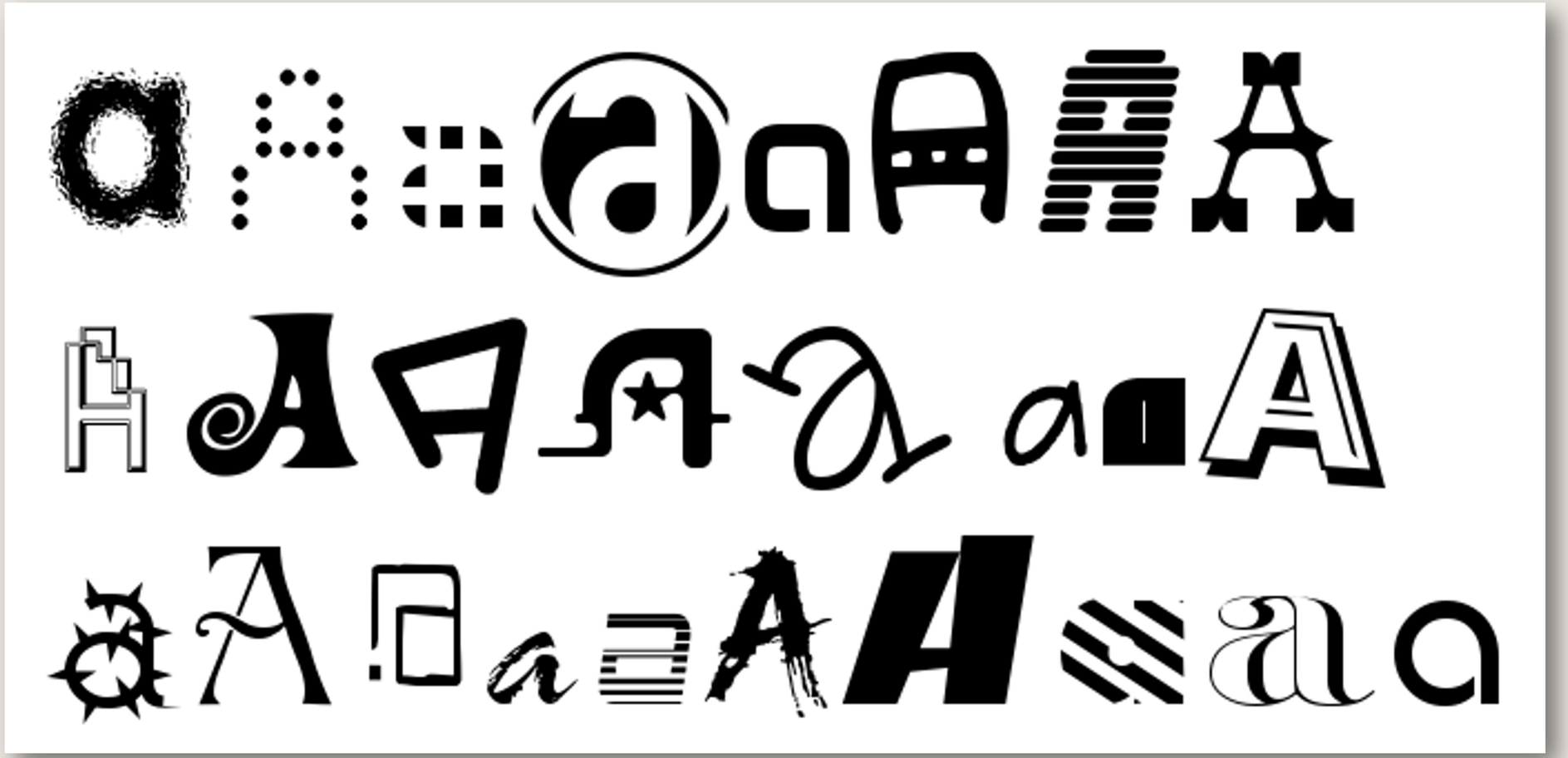
-Sundar Pichai

What is Intelligence?

Intelligence is the ability to...

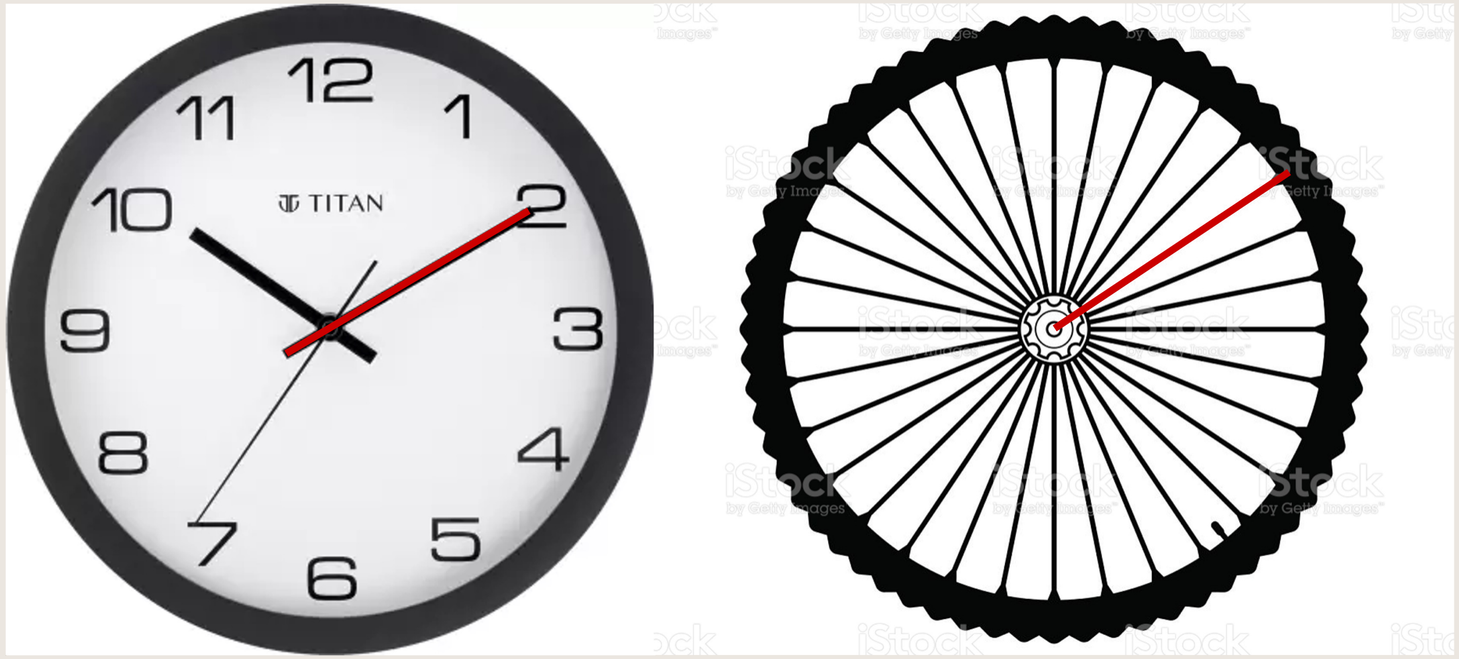
...become self aware (Sentient)

What is Learning?



Learning: Ability to **generalize** a **label** or **value** or **pattern** for a **new** observation based on the **model** built from **past experience**

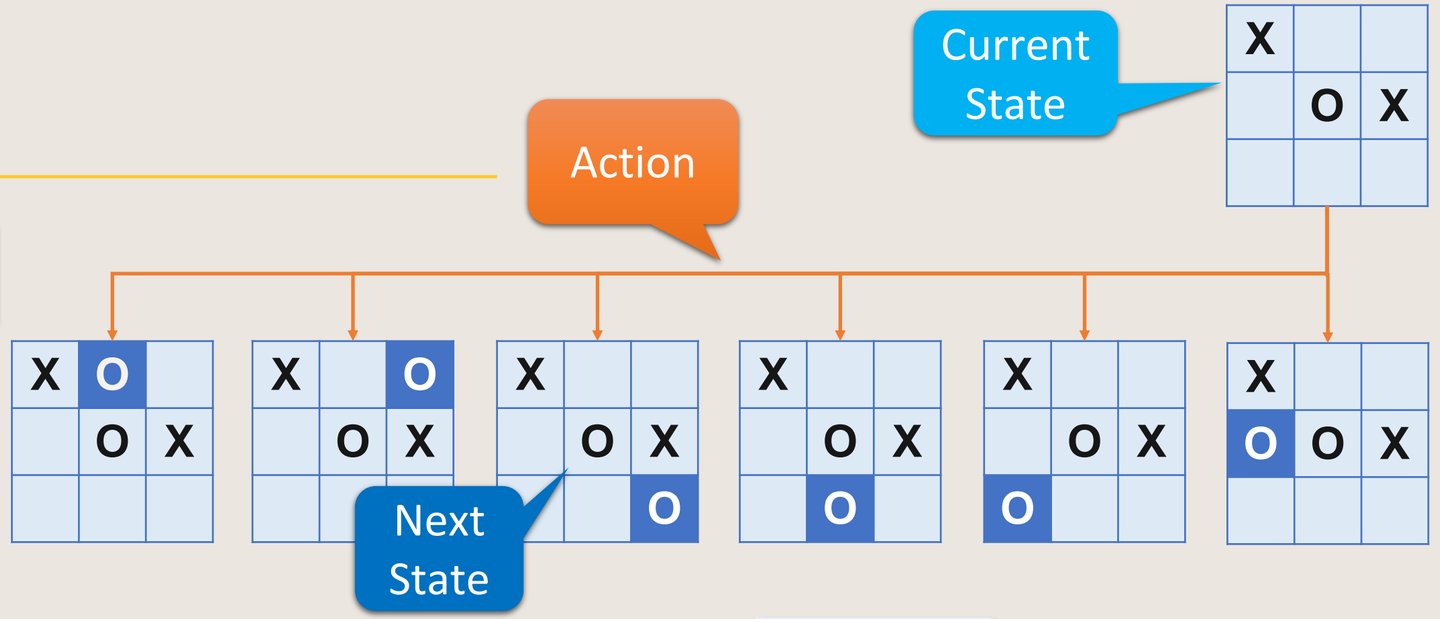
What is Understanding?

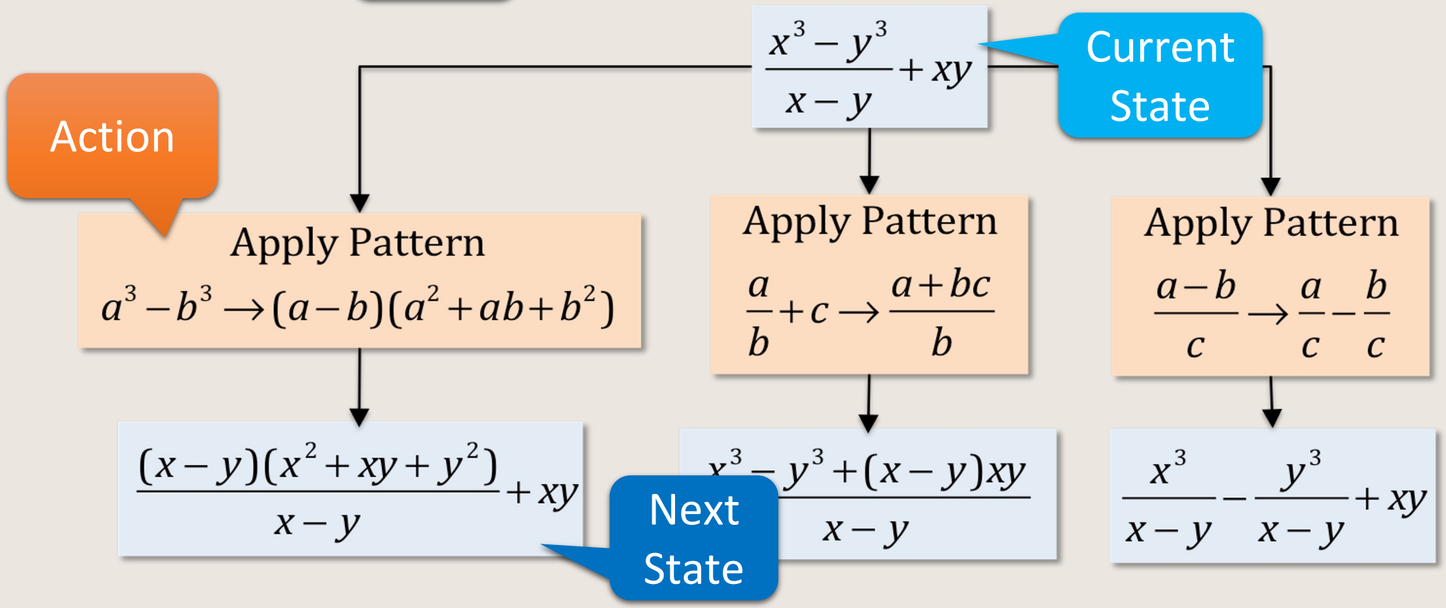


I was **right** to avoid a **suit** against **apple**
Man in **suit** on my **right** was drinking **apple** juice

Understanding
Ability to assign **meaning** to all the **parts** simultaneously based on the **context** so the **whole** and the **parts** makes sense **together**

What is Thinking?





- **Knowledge**: What are the **Feasible Actions** in the **current state**?
- **Reasoning**: What is the **Optimal Action** from among the **Feasible Actions** in the current state?

What is **Creativity**?

I was going walking in an empty parking lot.
[insert]
I safely returned home.

But do LLM's really **Understands**, e.g.

- "**suspicious**" or
- "**catch me**" or
- "**safely**" or
- "**parking lot**"

the way humans do?

I was going walking in an empty parking lot.

I saw a suspicious man who was walking towards me.

I turned around and ran the other way.

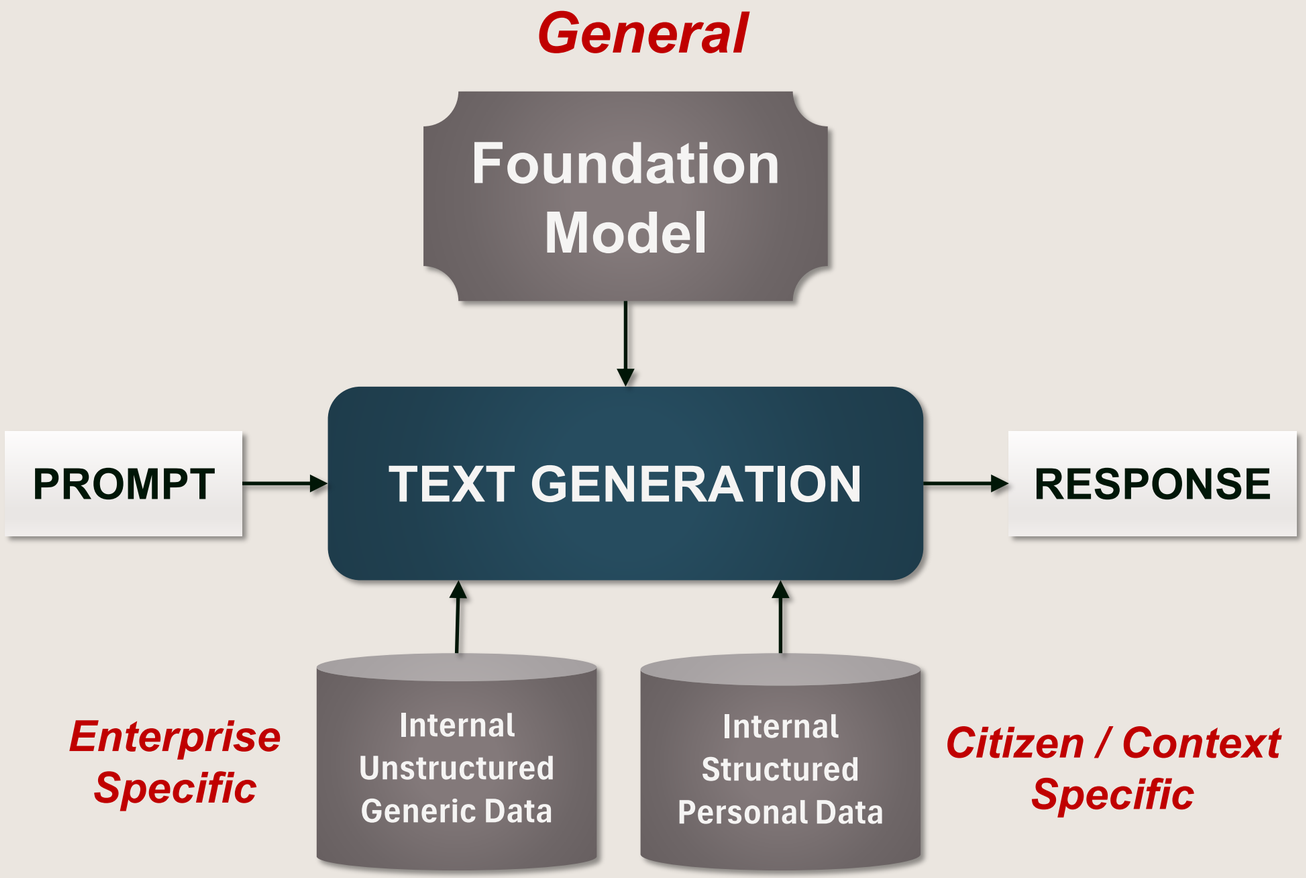
The man started running after me.

I ran as fast as I could.

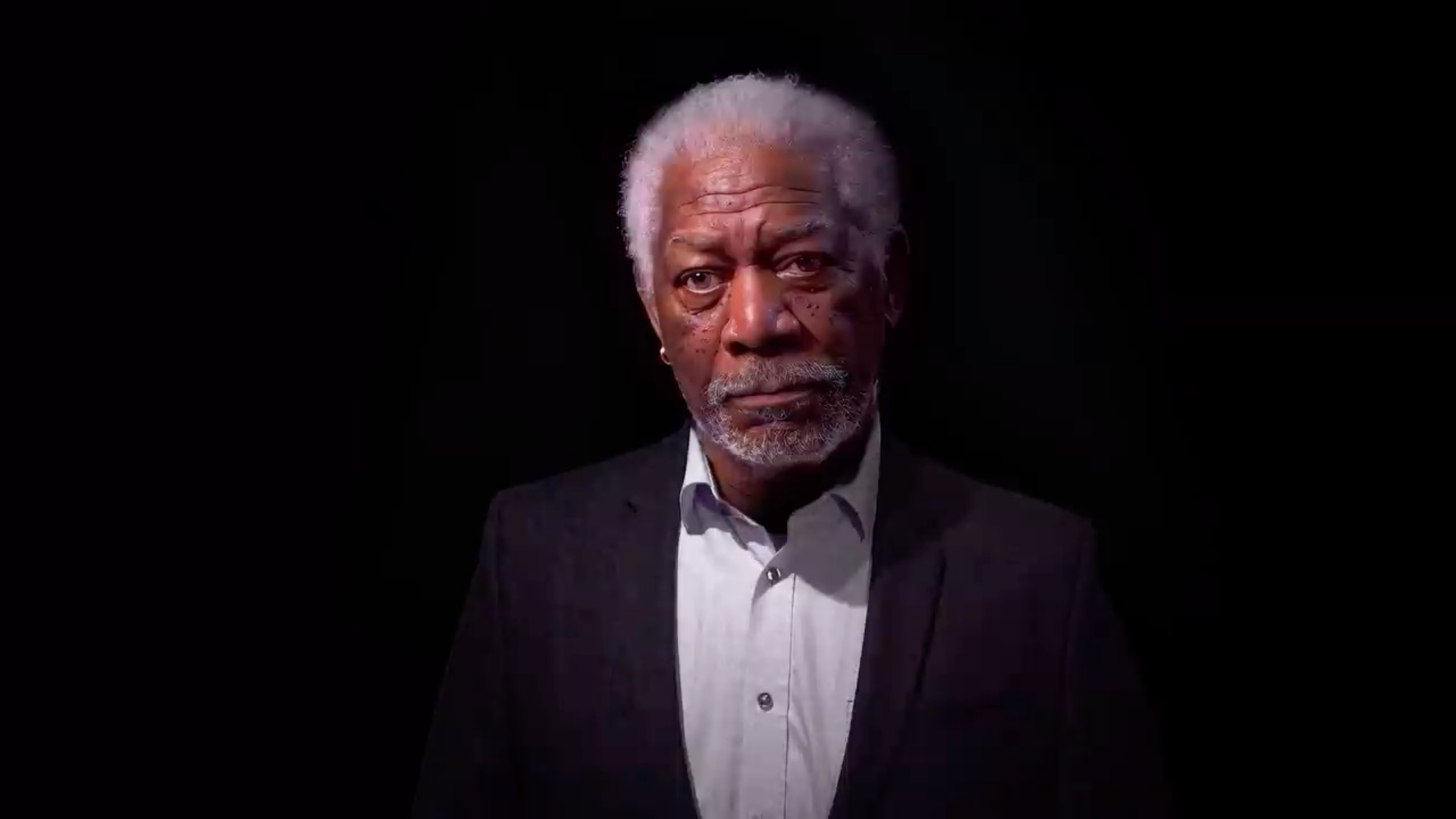
The man couldn't catch me.

I safely returned home.

What is Generation?



- CODE GENERATION
- IMAGE GENERATION
- AUDIO GENERATION
- VIDEO GENERATION
- AVATAR GENERATION



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What makes a great **Product**?

INFRASTRUCTURE	Built for the Planet, not for the PC
INTERFACE	Intuitive, Elegant, Natural, Inclusive
INTELLIGENCE	Continuously Learning and Improving
INSTANTANEOUS	Near Real-Time from Triggers to Decisions
INTEGRATED	Sense, Interpret, Predict, Think, Operate

Evolution of Products

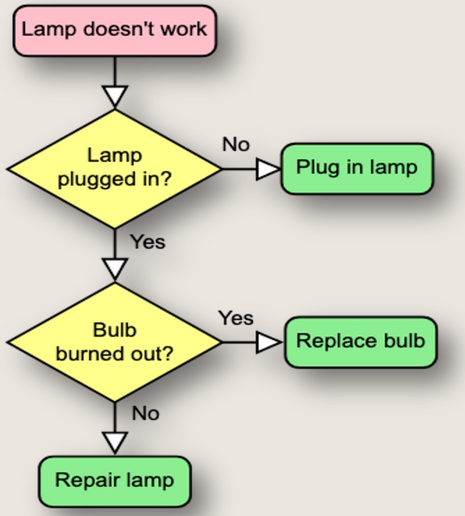
Google in

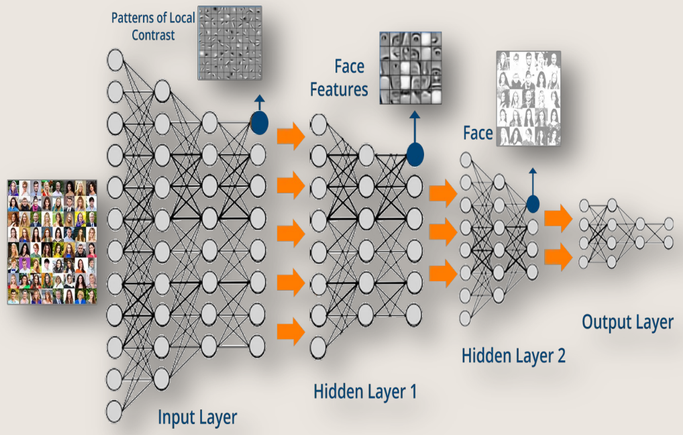
YouTube

PRODUCT 1.0
(Physical | Reliable)
PROGRAMMED INTELLIGENCE

PRODUCT 2.0
(Digital | Scalable)
CROWD INTELLIGENCE

PRODUCT 3.0
(Hybrid | Integrated)
ECOSYSTEM INTELLIGENCE





Ecosystems: Products of the next Decade

SMART CITIES

CONNECTIVITY

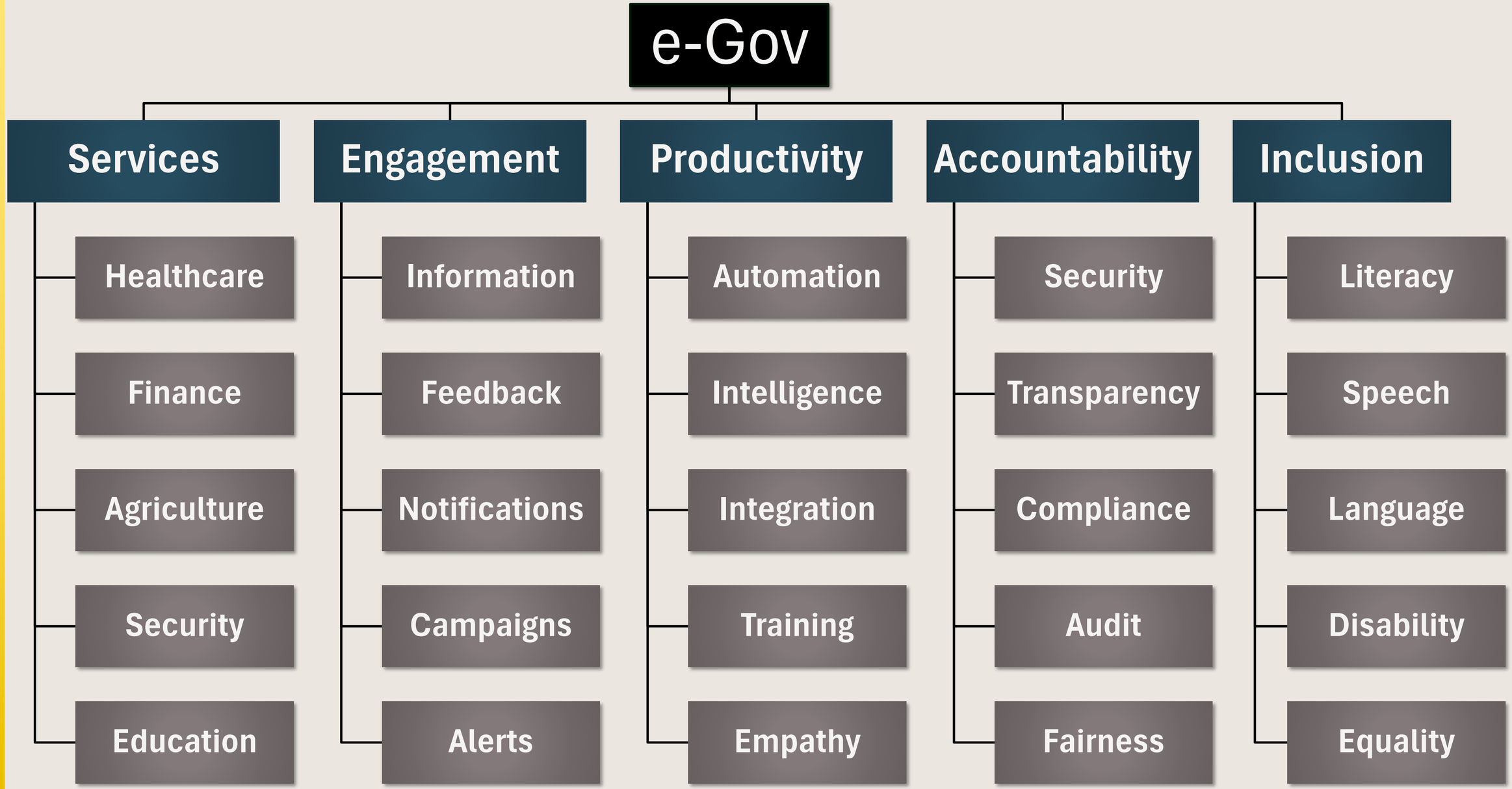
REFINERIES

AGRICULTURE

HEALTHCARE

E-COMMERCE

e-Governance is a Complex Ecosystem!



What makes ecosystems “Complex”?

ENTITY complexity

Ecosystems have billions of entities of hundreds of types:
Telecom: customer, tower, antenna, sector, grid, SIM, device, plan, people, homes, etc.

INTERACTION complexity

Ecosystems have trillions of daily asynchronous interactions of hundreds of types:
Retail: discover, order, pay, route, deliver, price, ads, campaigns, store visit, return, etc.

DATA complexity

Ecosystems capture & process wide variety of data from thousands of sensor types:
Time-series, Transactions, Audio, Text, Image, Video, Gene Sequences, Alarms, etc.

METRIC complexity

Ecosystems strive to optimize many inter-dependent metrics across all workflows:
Customer (experience), Operational (efficiency), Business (profitability) metrics.

DECISION complexity

Ecosystems make many real-time & batch decisions at scale across all workflows:
Customer (e.g. personalization, up-sell) and Operational (e.g. routing, pricing) decisions.

WORKFLOW complexity

Ecosystems execute many digital, physical, and digital-physical workflows.
Execution, Exception, Efficiency, Expansion, Explanation, and Evolution workflows.

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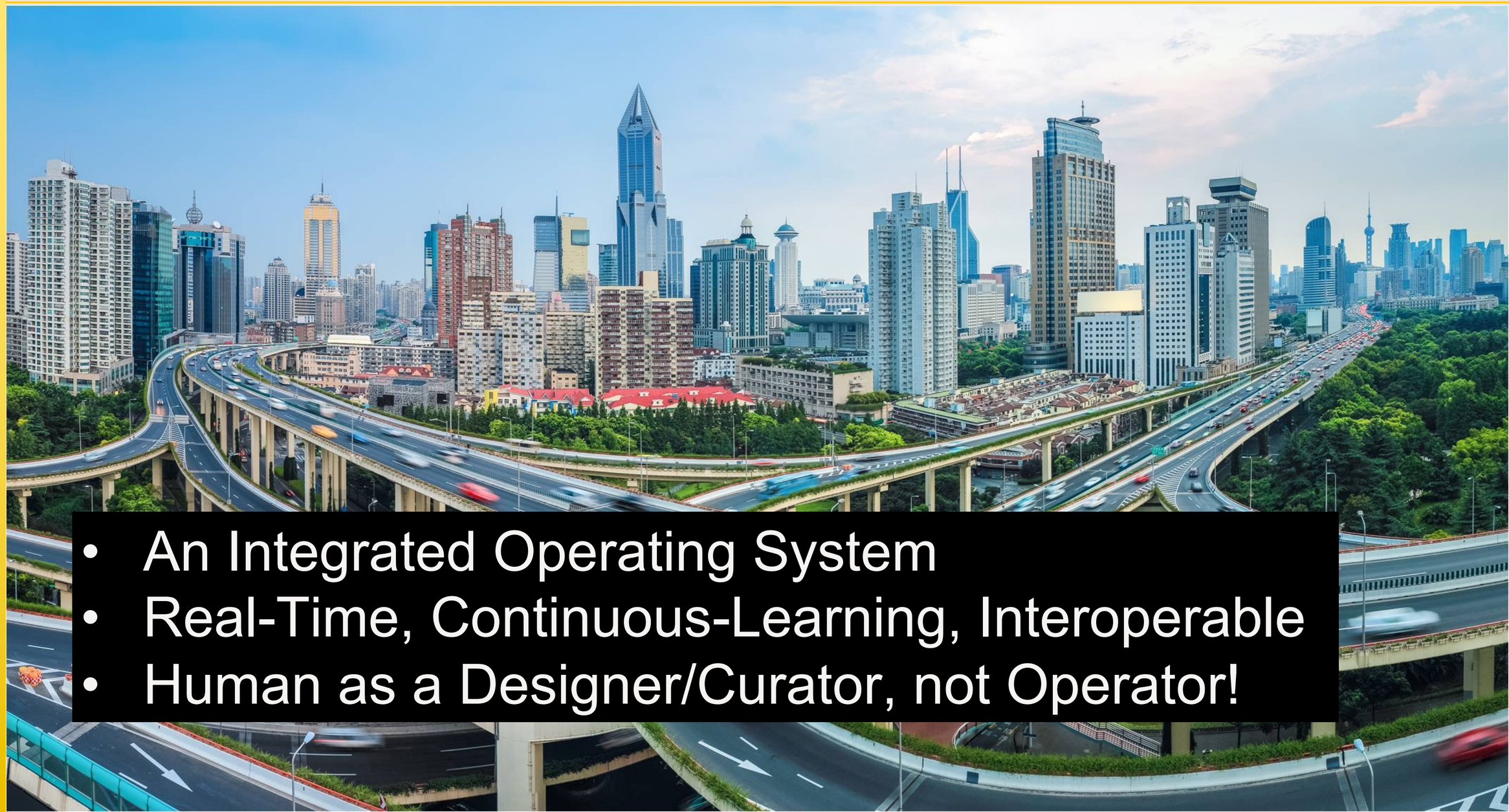
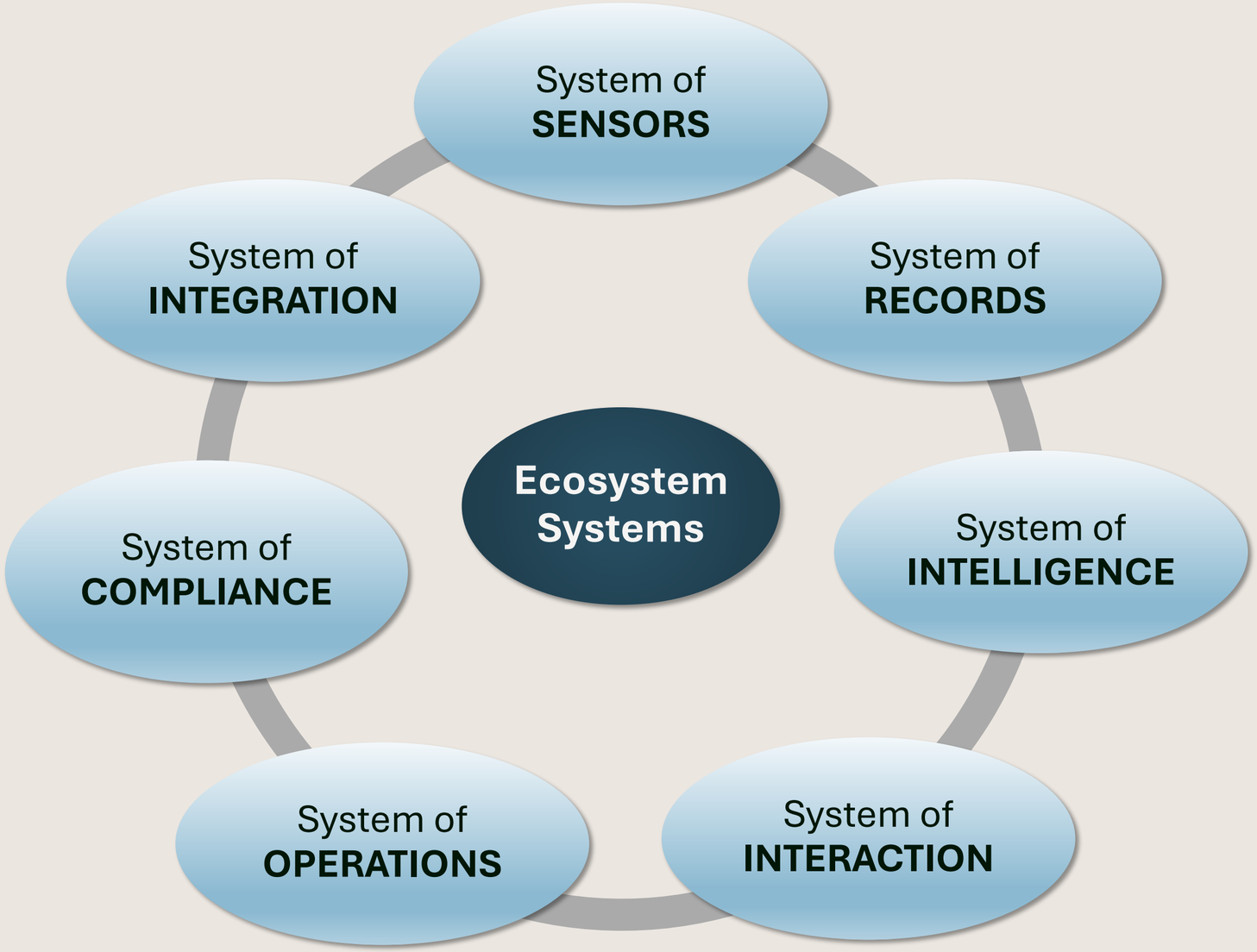
Most Enterprise Backend Systems are here...

Everyone wants to get here…

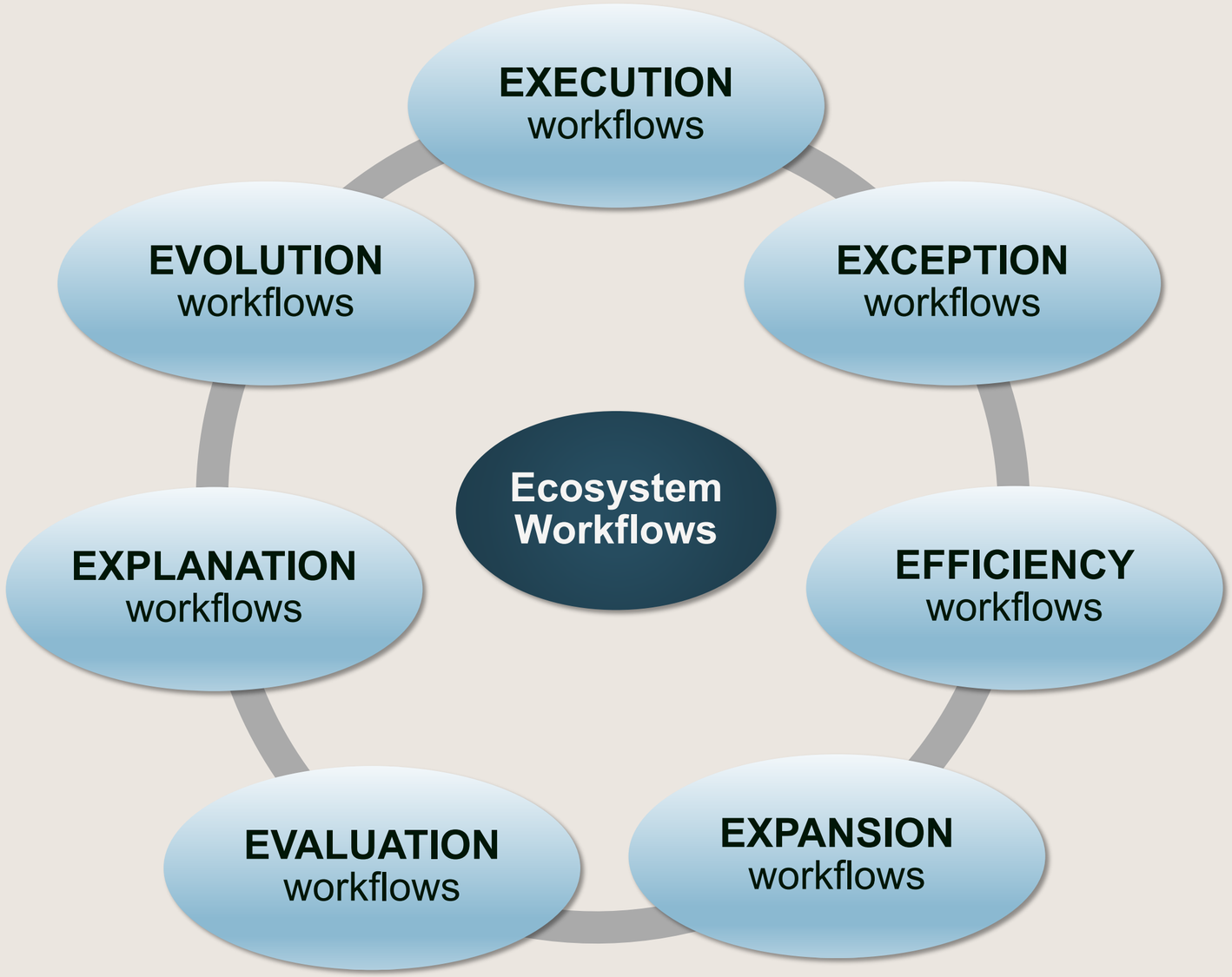


- An Integrated Operating System
- Real-Time, Continuous-Learning, Interoperable
- Human as a Designer/Curator, not Operator!

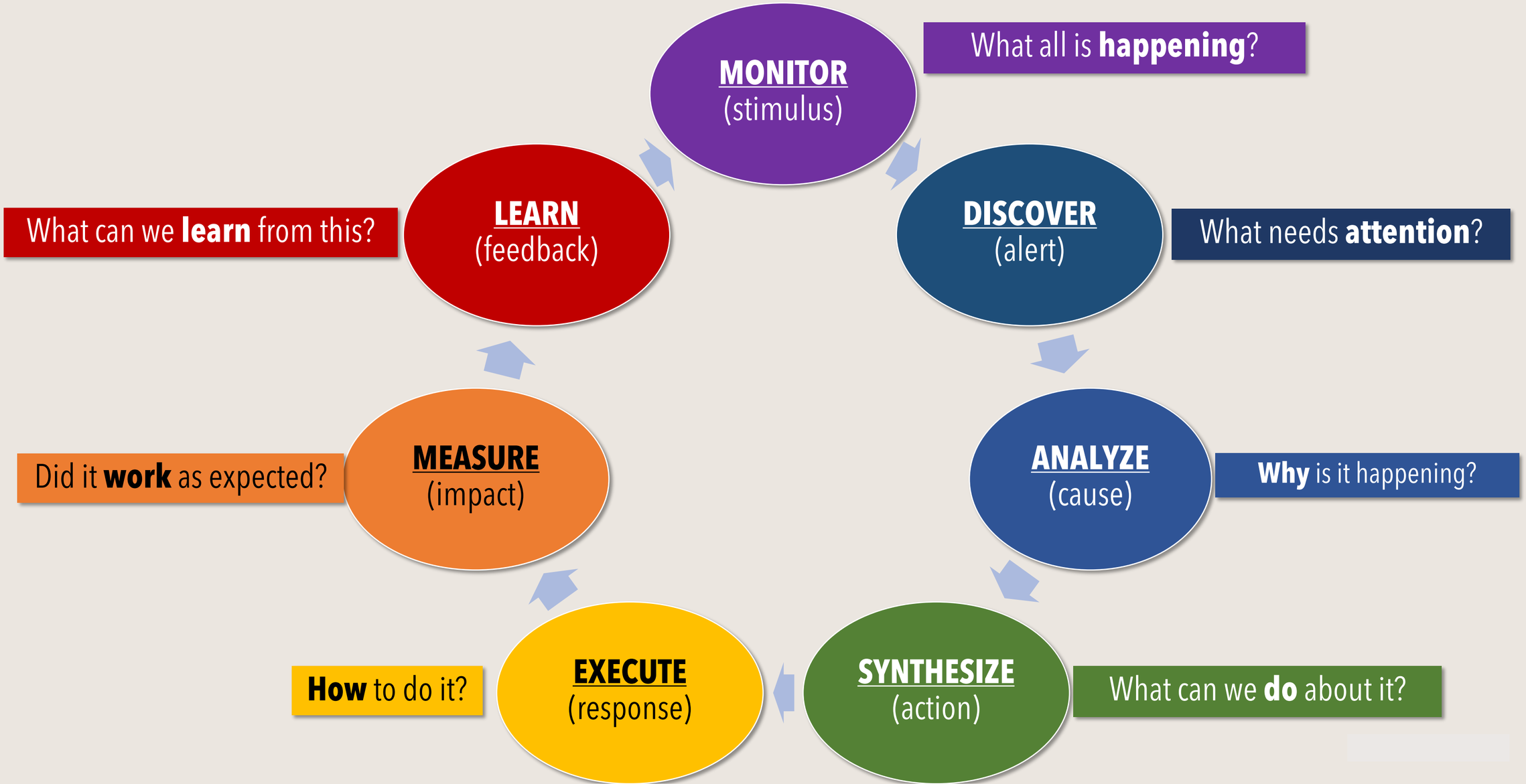
Ecosystems Contain Systems



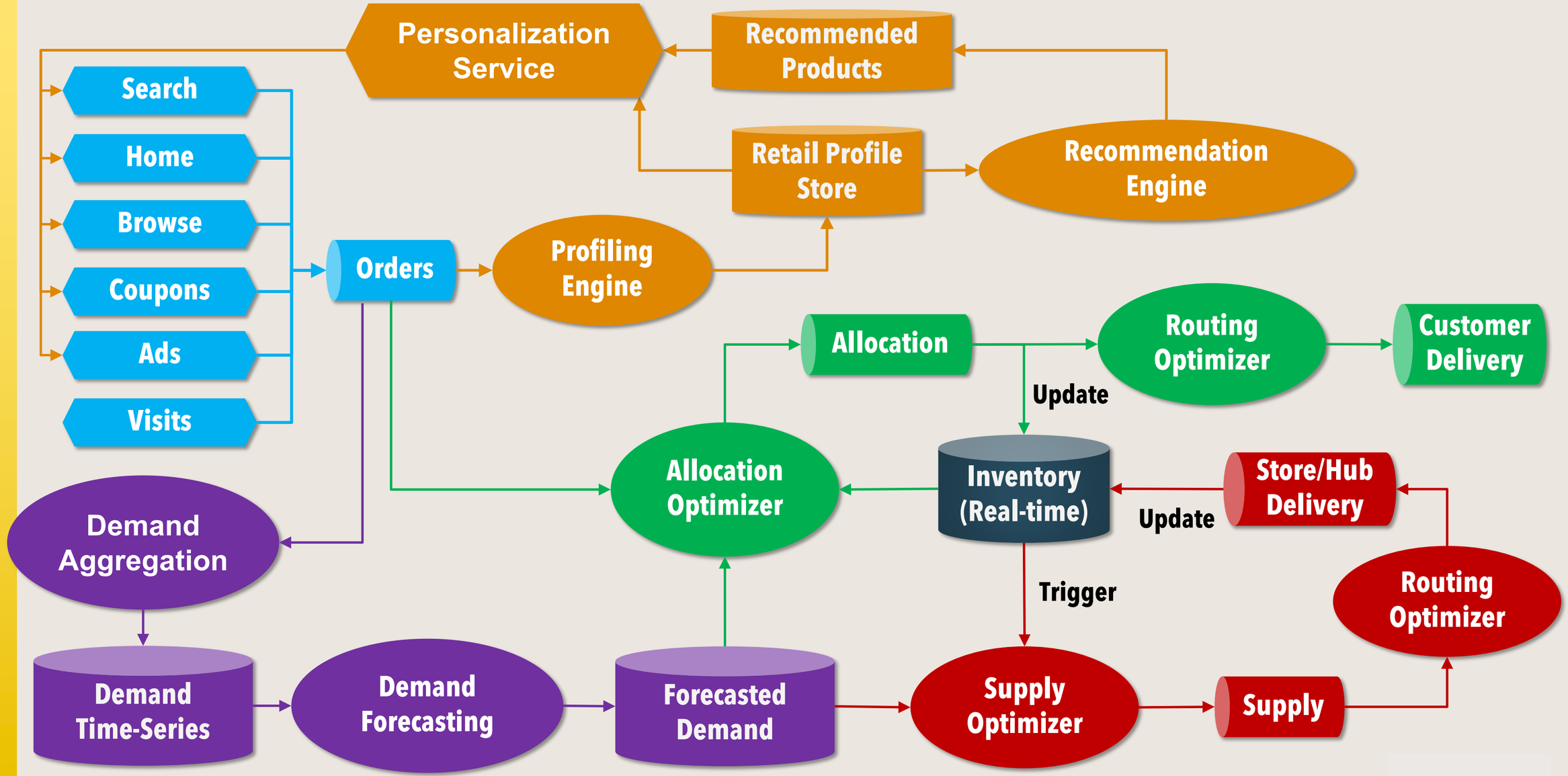
Ecosystems Orchestrate Workflows



Example: Exception Workflows



Example: Retail Execution Workflows



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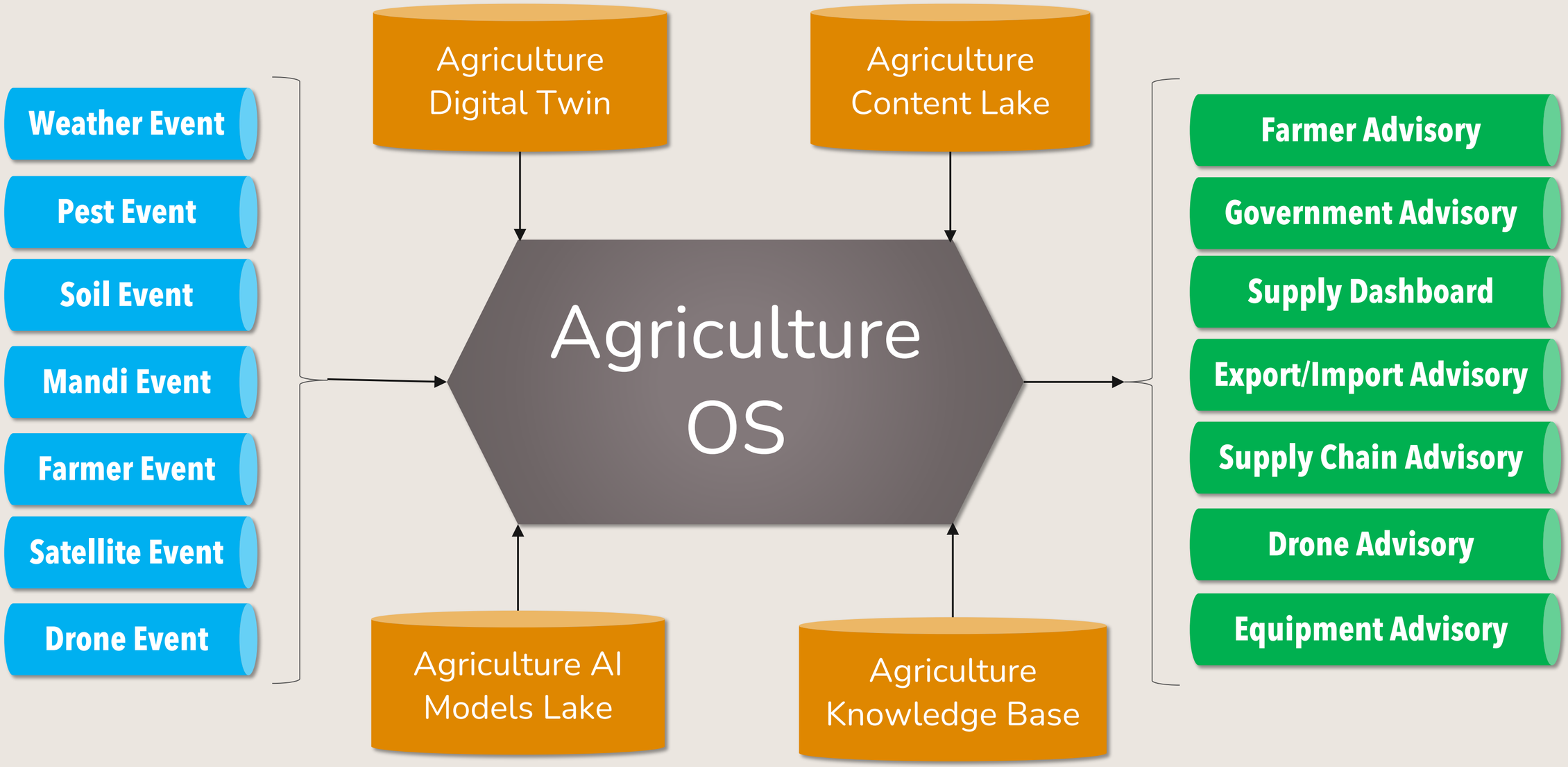
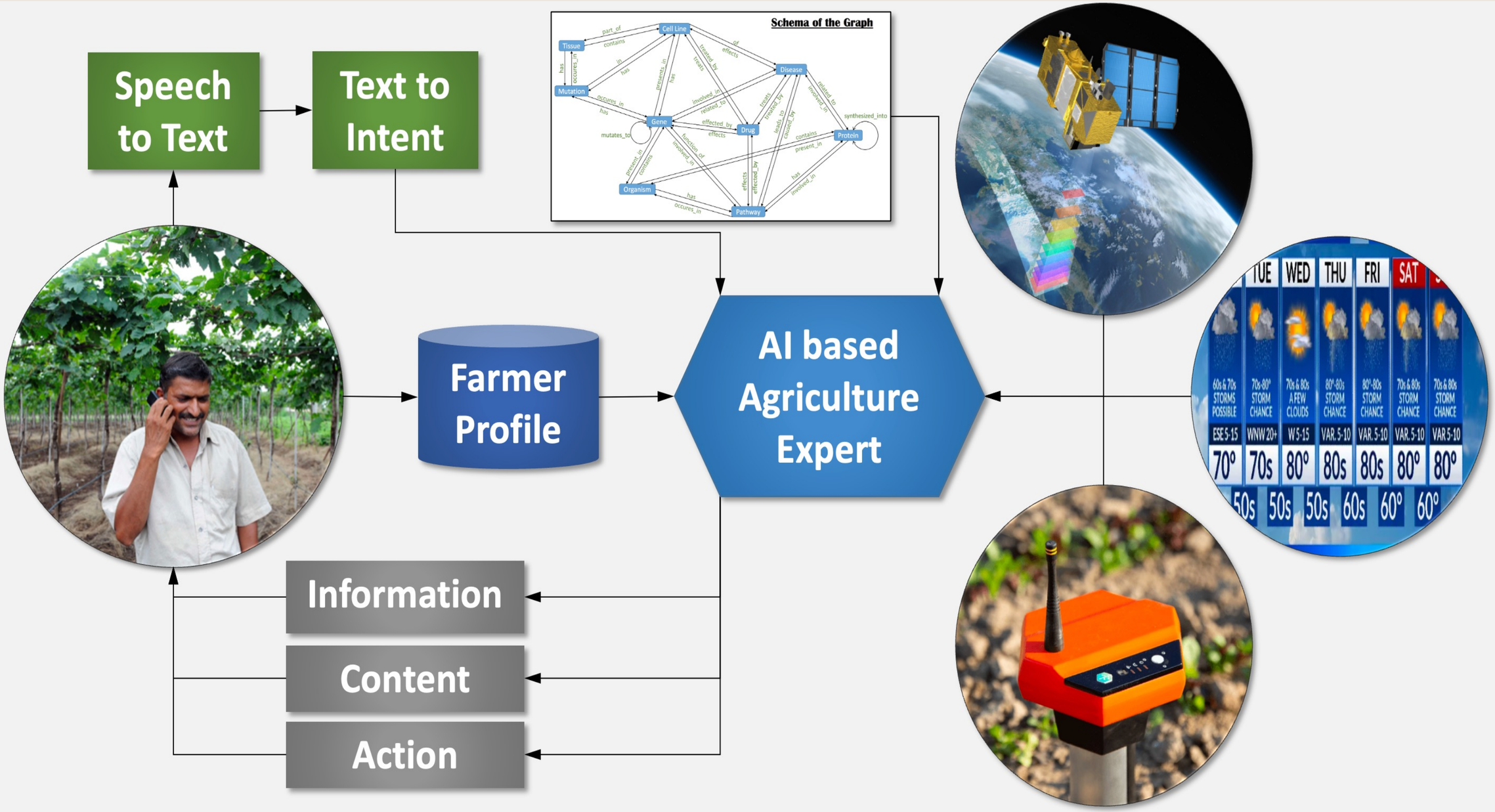
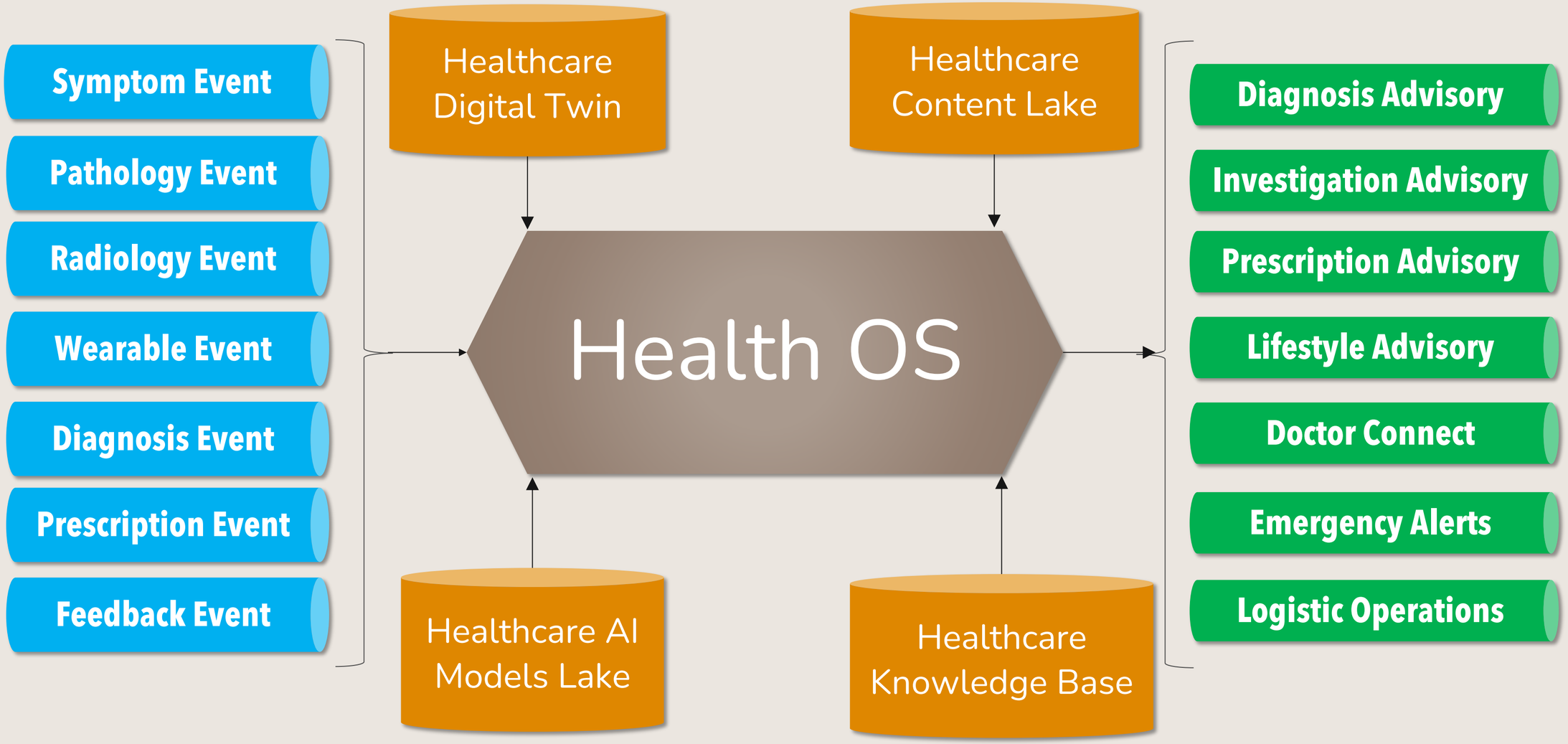
Agriculture Operating System



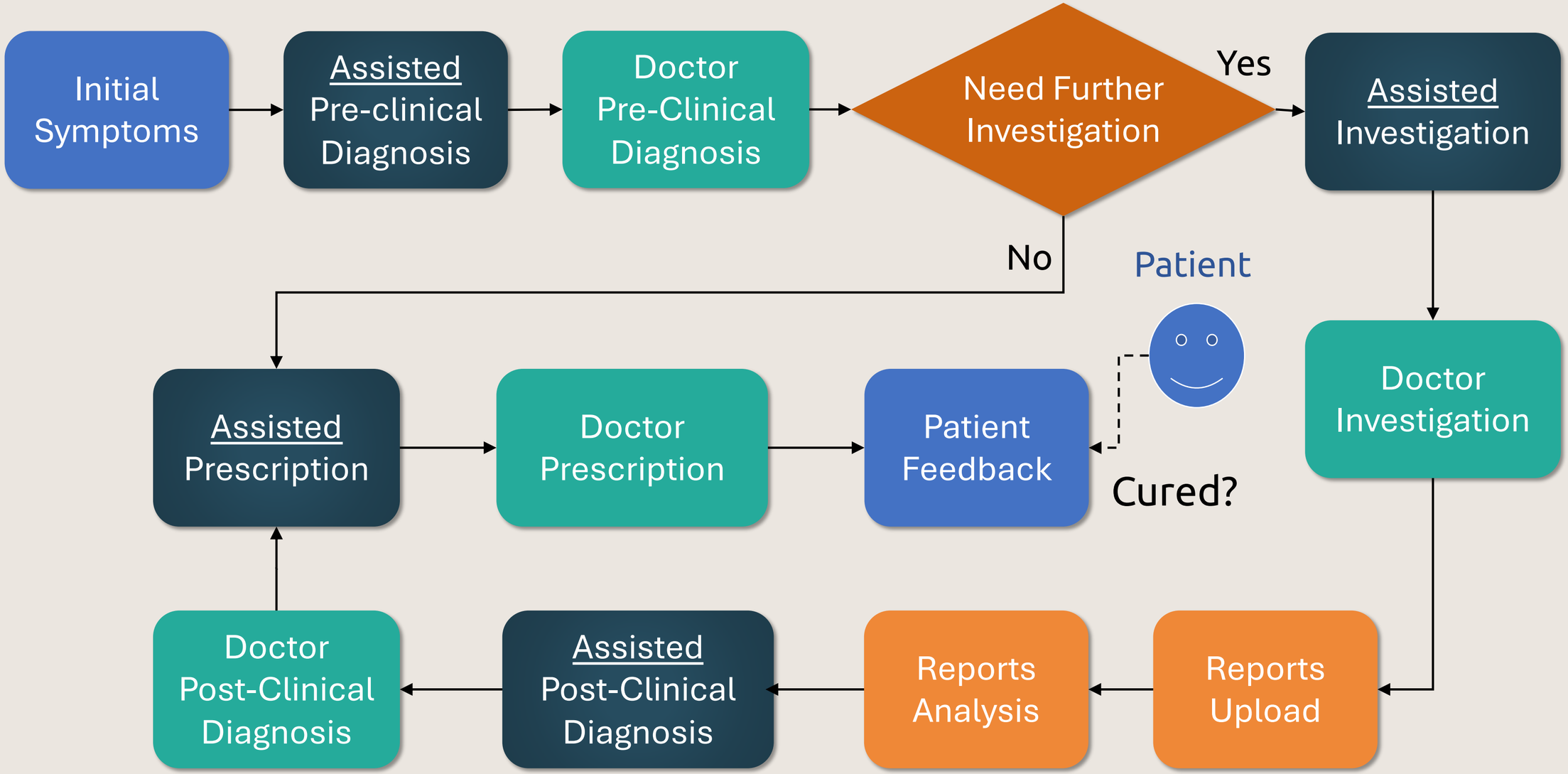
Example: Agriculture Super-App



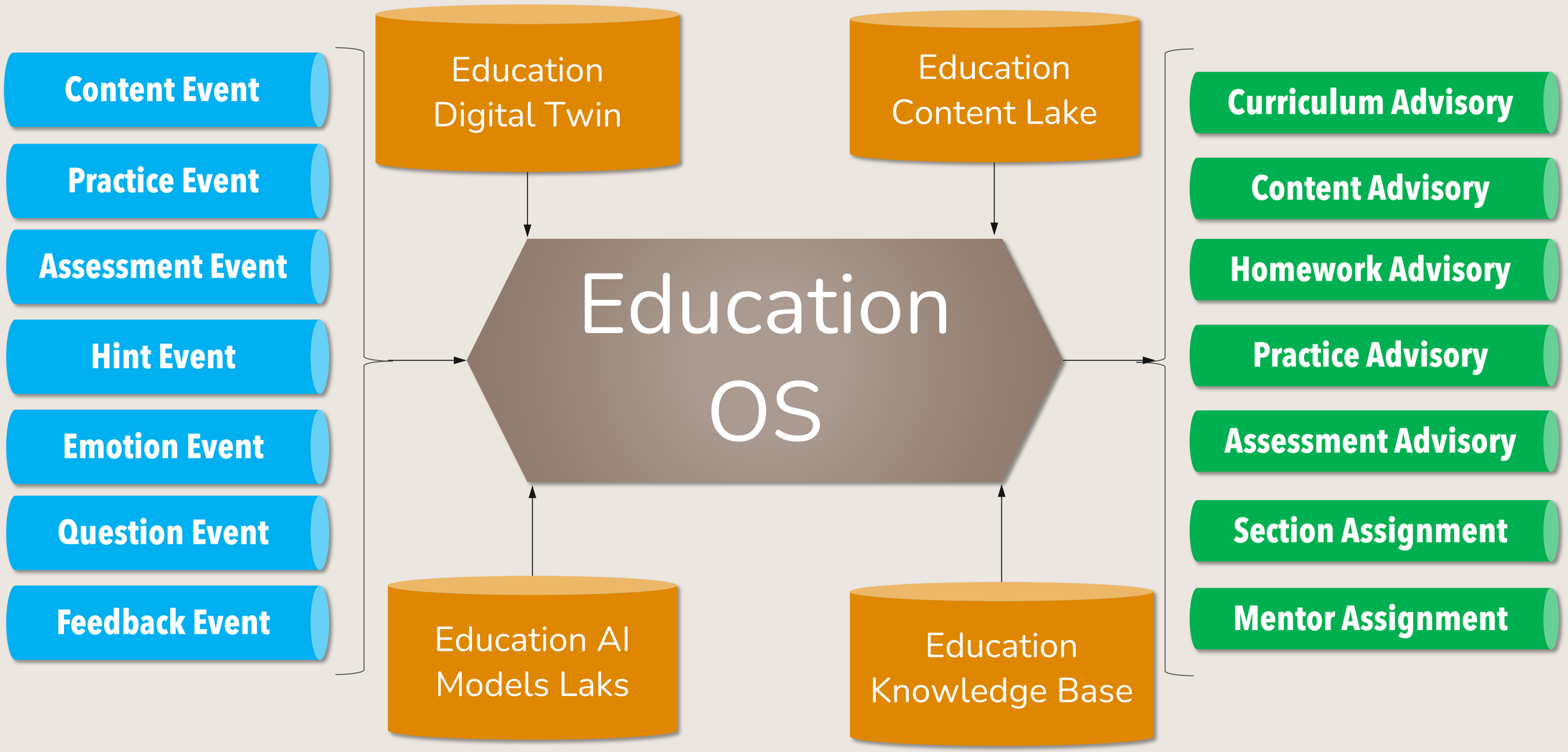
Healthcare Operating System



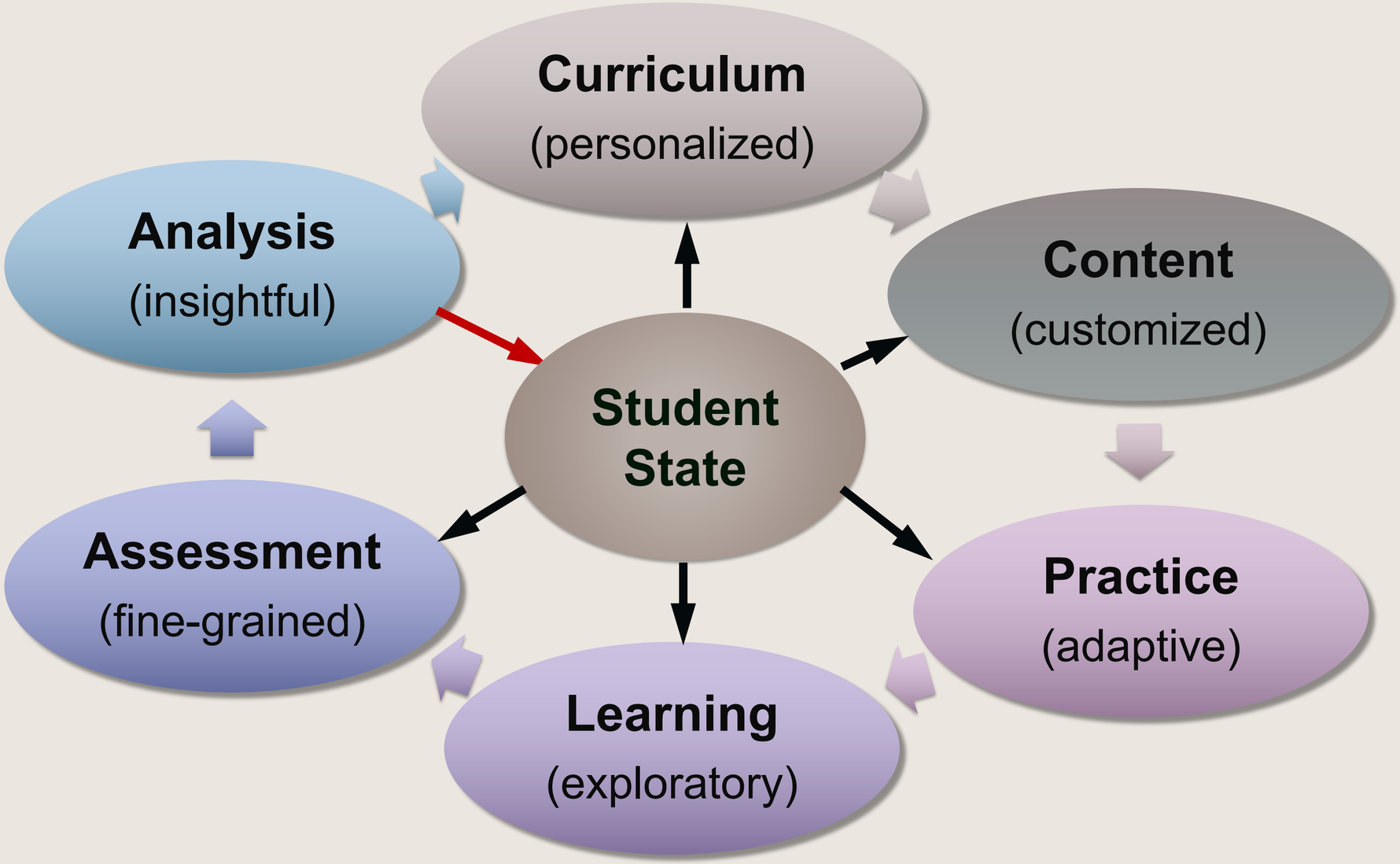
Example: Healthcare Symptom to Cure Workflow



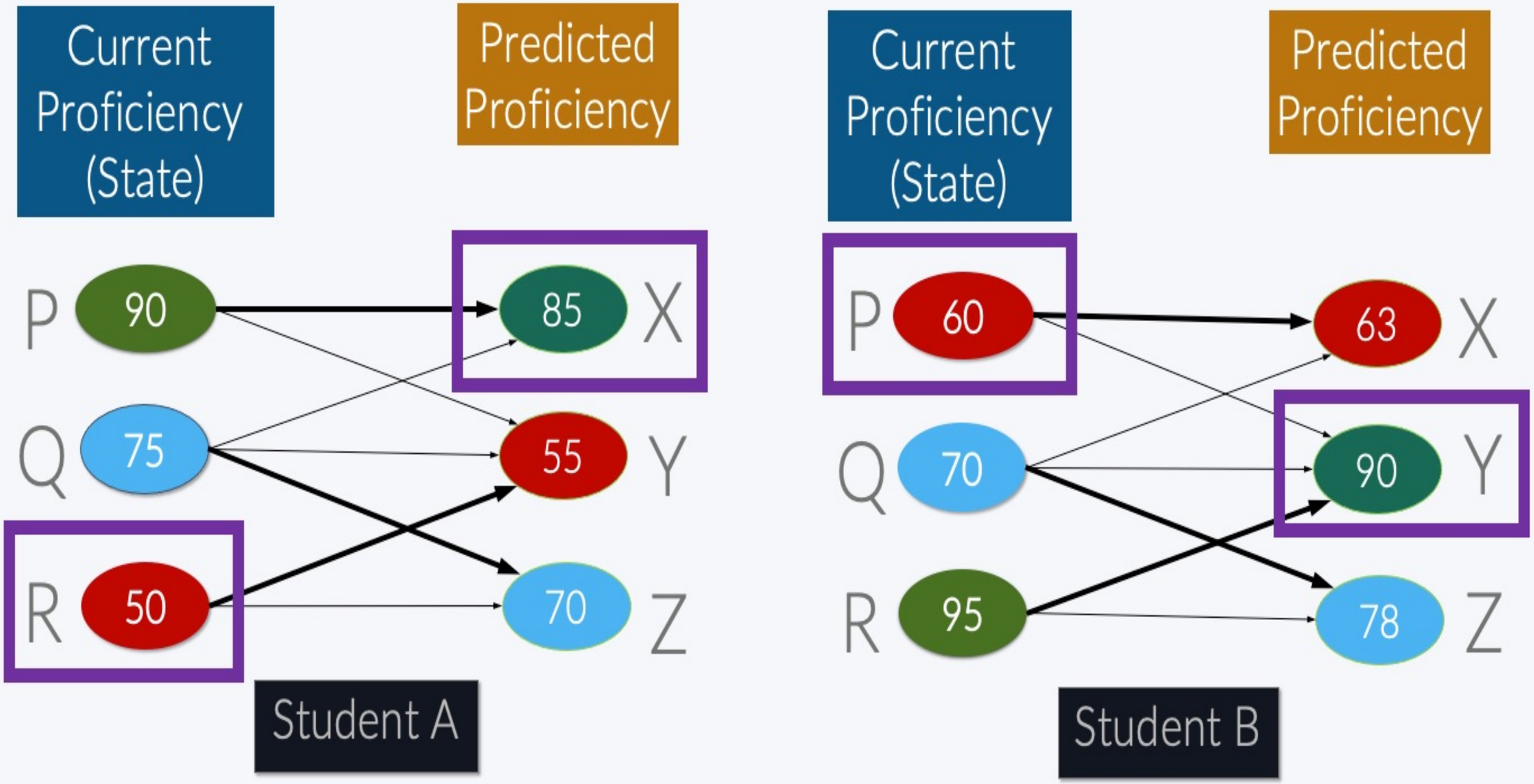
Education Operating System



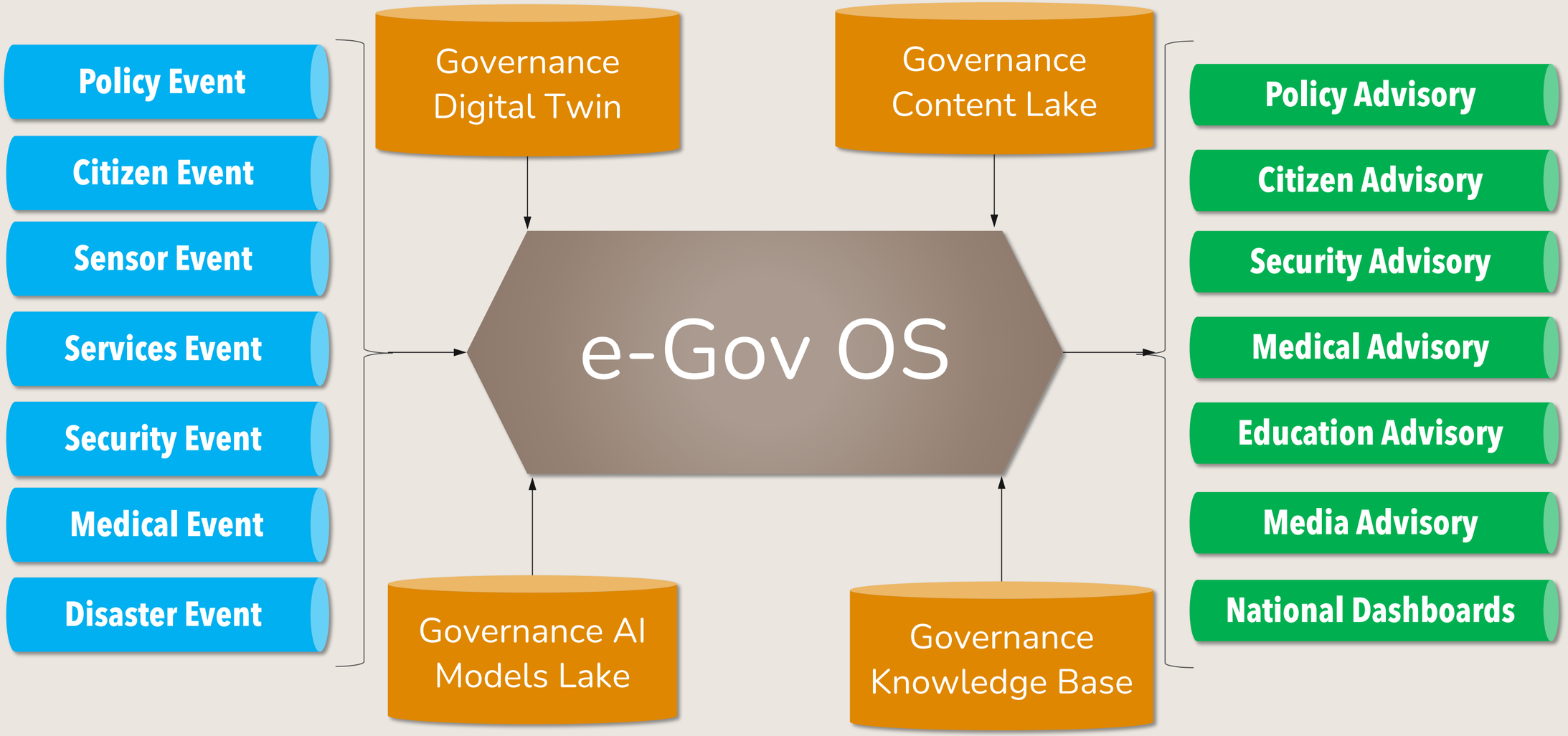
Example: Universal Teaching Machine!



Example: Curriculum Personalization



Citizen Operating System



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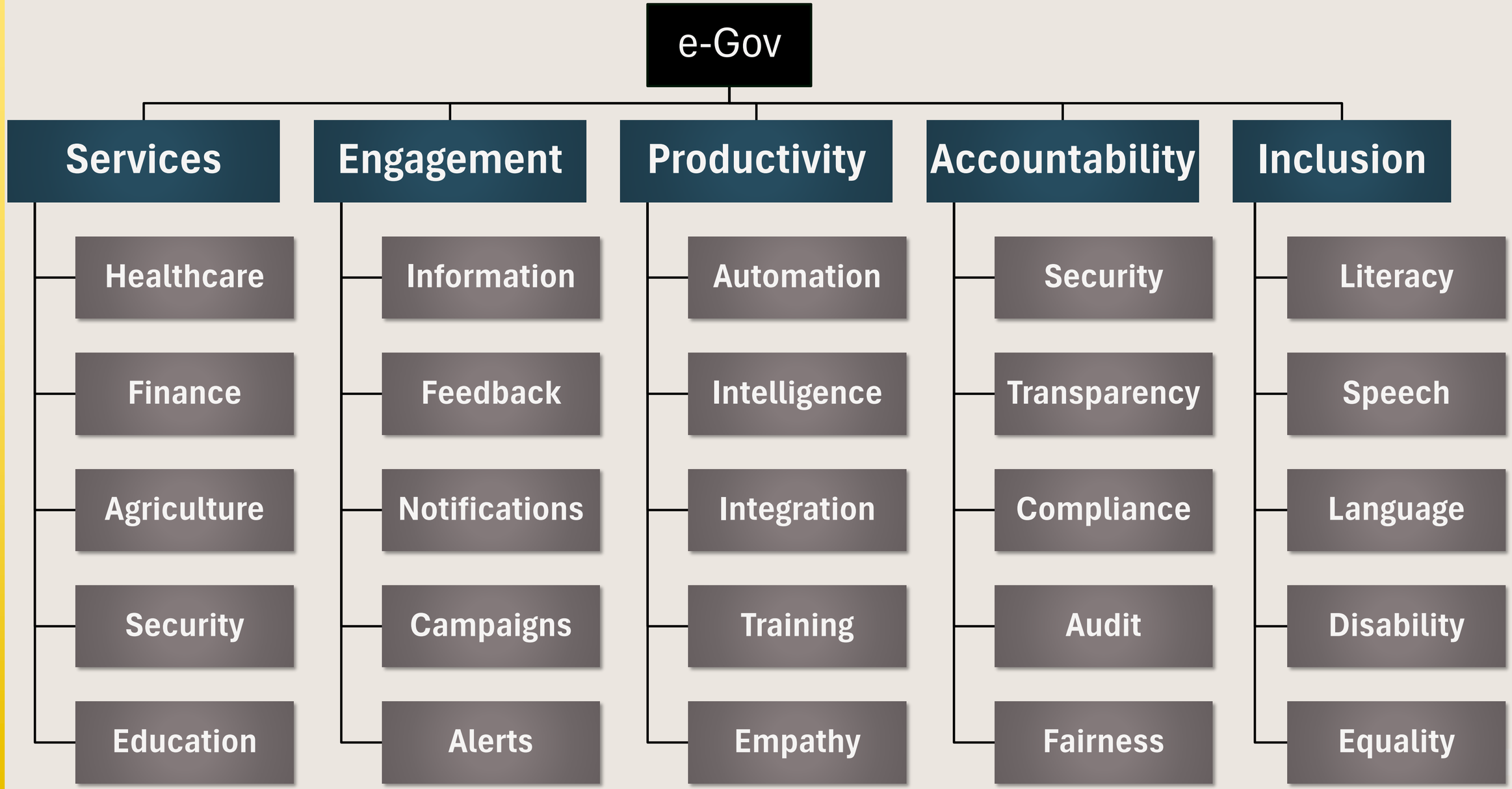
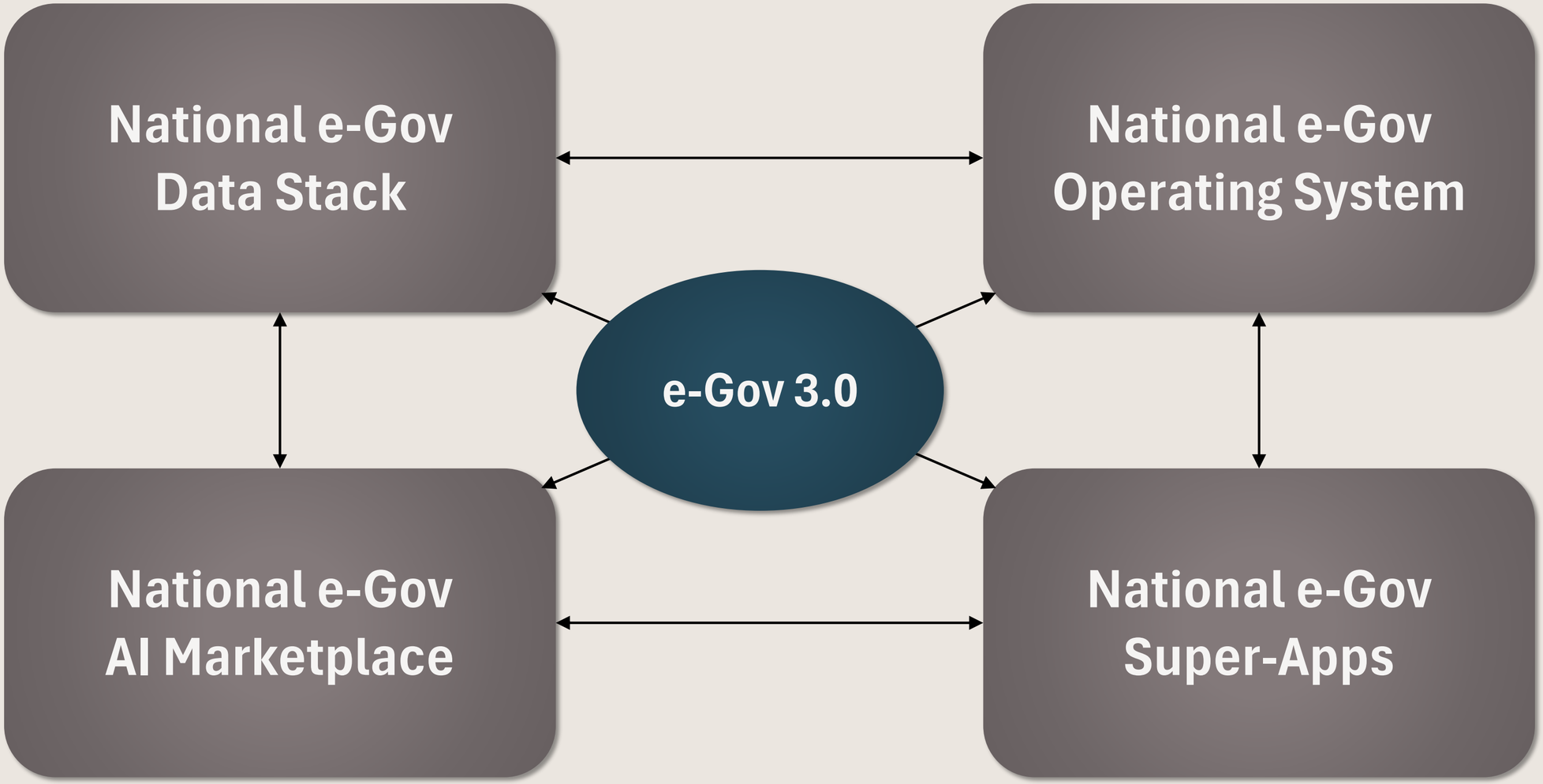
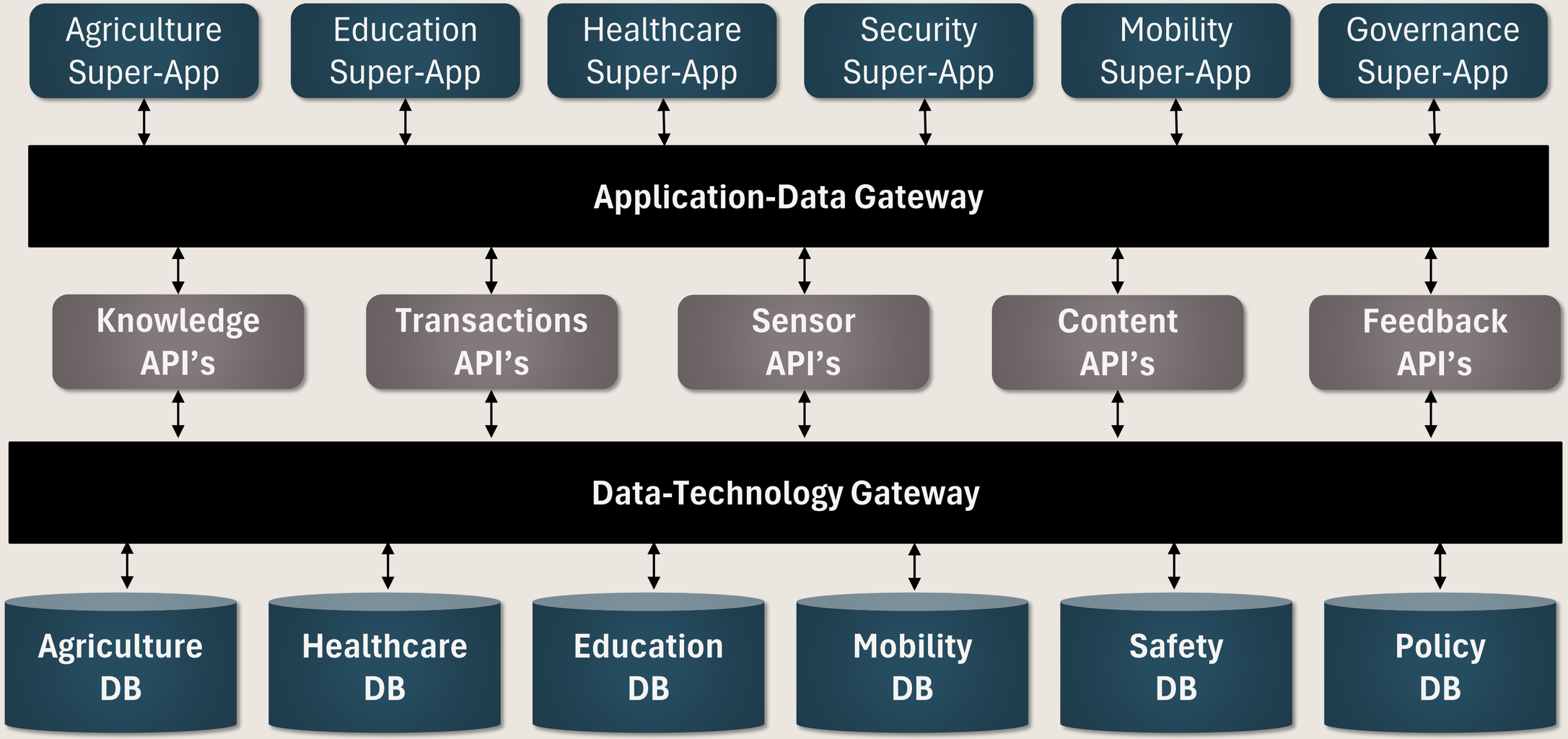
National e-Governance Stack



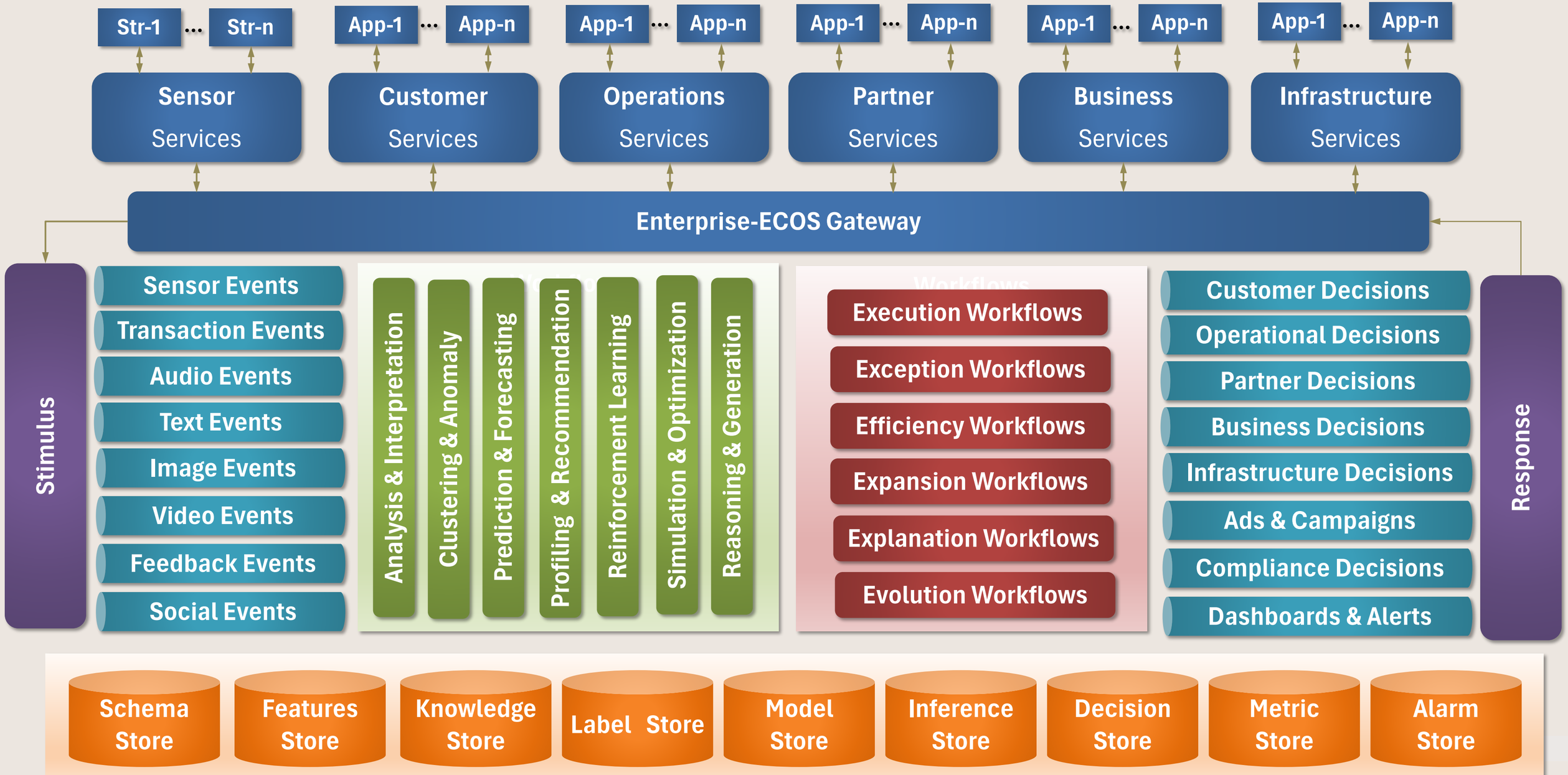
Four Core Foundations to e-Gov Platform



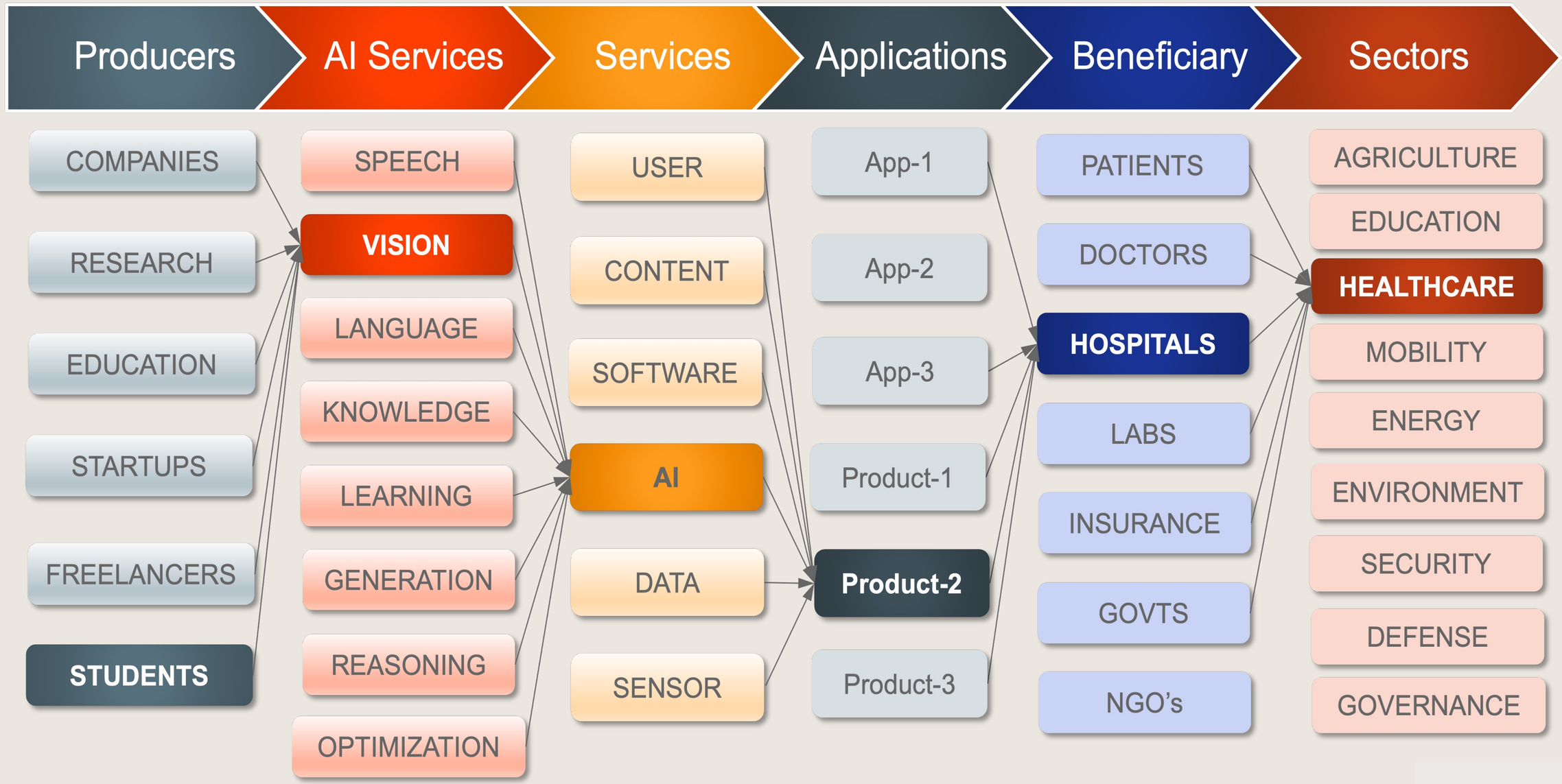
National e-Gov Unified Data Stack



Ecosystem Operating System Architecture



National e-Gove AI Marketplace



AI Marketplace bringing AI producers to consumers!

E-Gove AI-fication Guiding Principles!

DIGITIZATION	Digitize all data | AI is the first consumer of data, not humans!
STANDARDIZATION	Standardize all naming conventions & schema of every Component
ABSTRACTION	Decouple Interfaces (API's) from Implementations (Technologies)
AUTOMATION	Automate everything that can be automated. Set human out of the loop
INTELLIGENCE	Continuously monitor & improve all models with feedback close looping
INTEGRATION	Integrate all silos of data, models, decisions & operations via workflows
DEMOCRATIZATION	Everyone can consume & produce AI securely, fairly, and cost effectively
INCLUSION	Build all products & services for language & special abilities inclusivity
PERSONALIZATION	Products must adapt to the user, context, and constraints automatically
TRUST	Build trust via privacy, fairness, un-bias, explanability, and transparency

THANK YOU!

Contact

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