

ART OF THE POSSIBLE

INNOVATION & TECHNOLOGY ACROSS THE AVIATION INDUSTRY

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18TH AIRLINE MARKETING WORKSHOP, 1st MARCH 2018



LEADING INNOVATION

OPEN

INNOVATION WITH DISRUPTERS



IDEATE

IATA INDUSTRY GROUPS
OTHER INDUSTRY GROUPS
IATA INDUSTRY THINK TANKS
OTHER INDUSTRY THINK TANKS
IATA INTERNAL
IATA PARTNERS



DEVELOP & TEST

HACKS
DEV PORTAL
PROTOTYPING (IATA/PARTNER)
ITG CONCEPTUALIZATION SPRINT

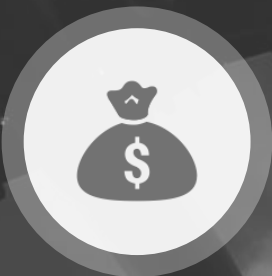
ACCELERATE

INNOVATION THROUGH INCUBATION & FUNDING



INCUBATE

IATA INCUBATION
PARTNER INCUBATION



FUND

IATA INNOVATION FUND
COMPETITION PRIZES
HACKS PRIZES
PARTNER FUND
IATA R&D BUDGET

DELIVER

INNOVATION TO MARKET WITH SPEED



IMPLEMENT

IATA TRANSF PROJECTS
NewGen ISS
NDC
ONE ORDER
CROSS-BORDER PAYMENT



GROW

PILOTS
MOBILIZATION & ADOPTION
INDUSTRY CAMPAIGNS

COMMUNICATIONS & PARTNERSHIP

WHATS ON THE RADAR

ARTIFICIAL
INTELLIGENCE



BLOCKCHAIN
TECHNOLOGY



DRONE & UAV
TECHNOLOGY



AUGMENTED &
VIRTUAL REALITY



CRYPTO
CURRENCIES



BIOMETRICS &
DIGITAL IDENTITY



AUTONOMOUS
VEHICLES



RENEWABLE
ENERGY



BLOCKCHAIN TECHNOLOGY

**Unique
Solution**



**Disintermediation
Effect**



**Data
Security**



**Continuous
Availability**



WHAT IS THE BLOCKCHAIN?



“A decentralized system that let's a group of computers maintain a ledger guarantying its integrity, and availability”

“Underlying technology of digital currencies such as Bitcoin and Ether”



UNDER THE HOOD

User Identity
Management

Order of
Entries/Blocks

Asymmetric
Cryptography

Cryptographic
Hashing

Advanced Ledgers
“Blockchains”

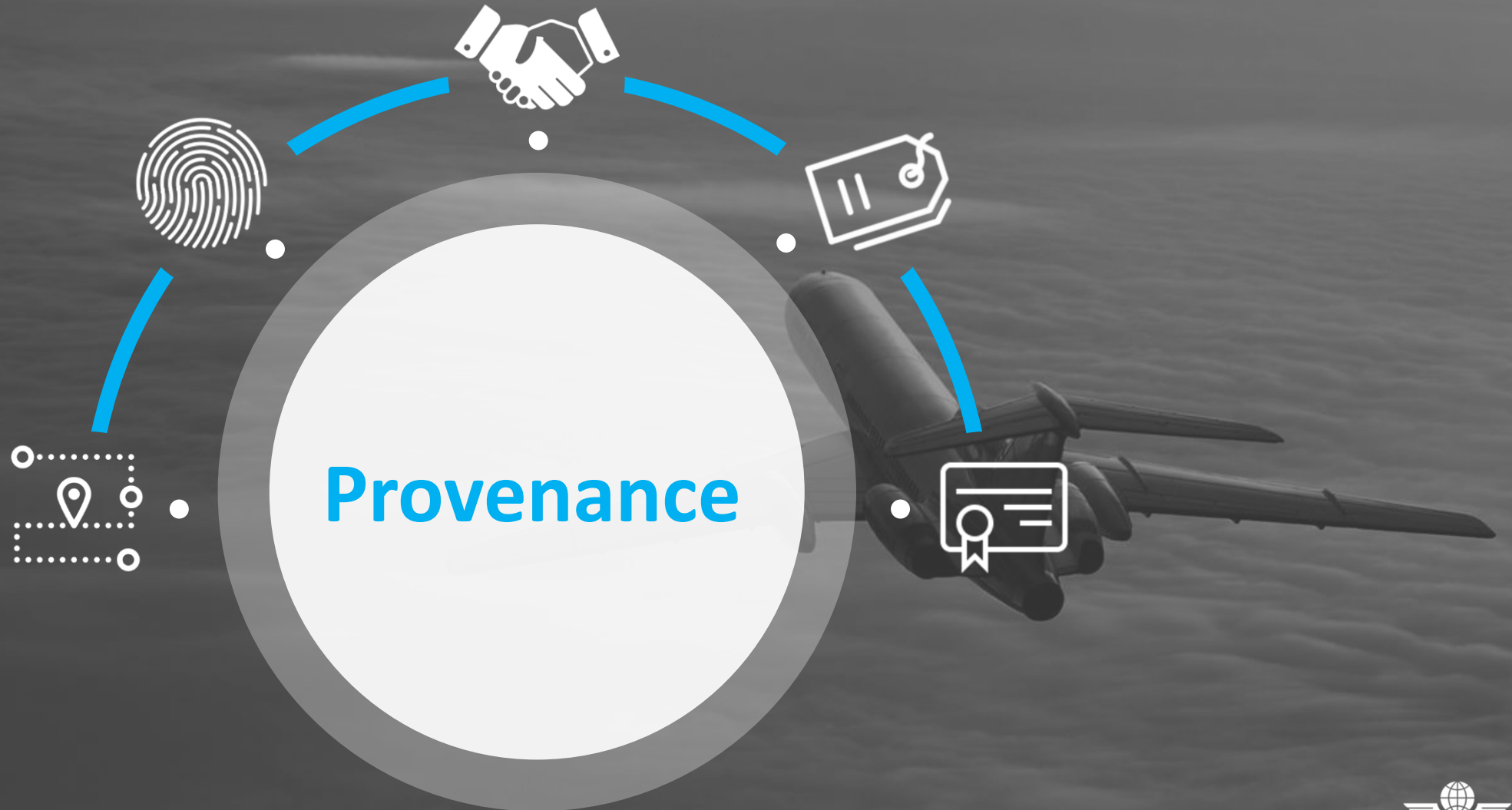
Public

Private

Permissionless

Permissioned

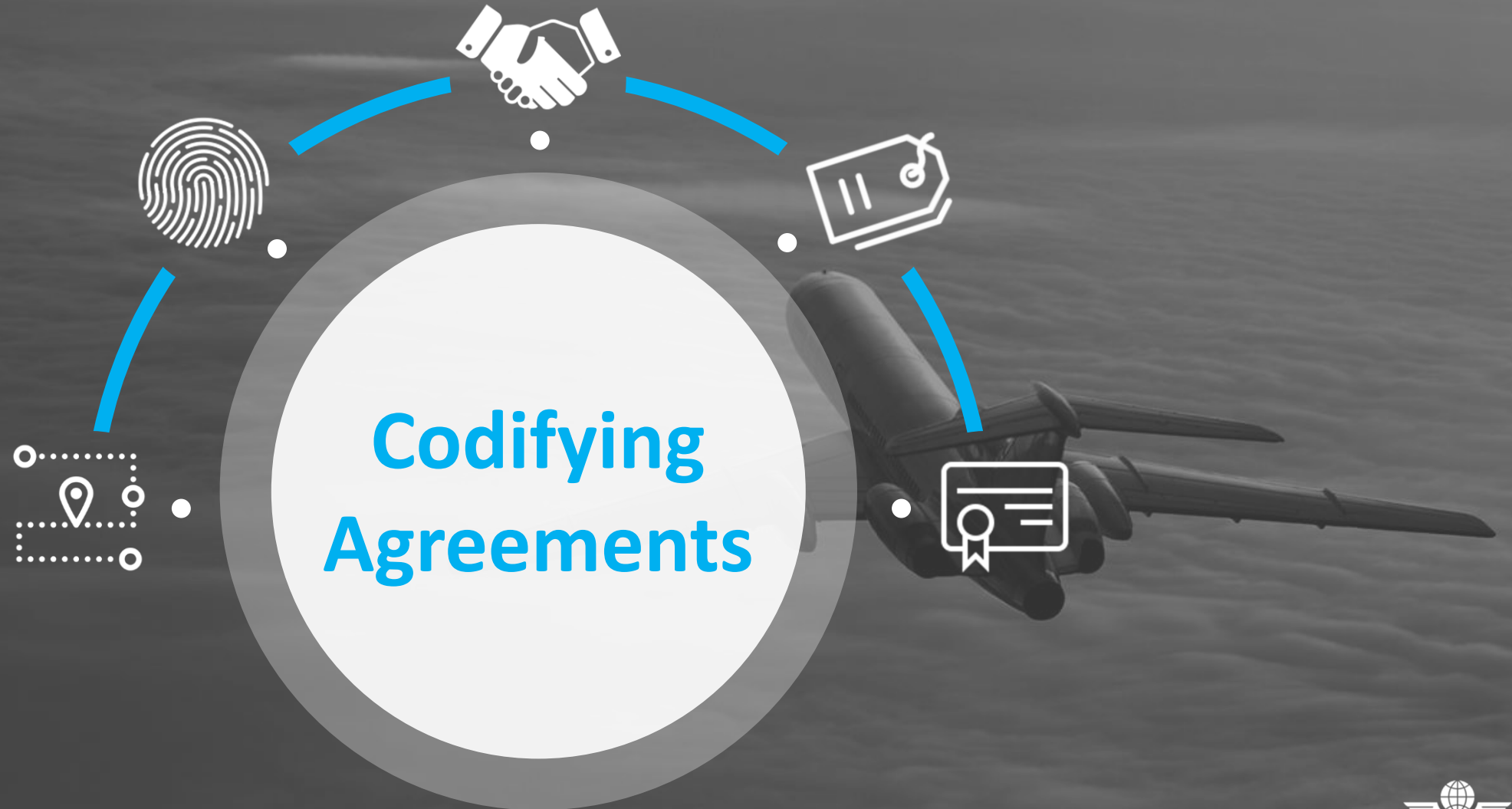
BLOCKCHAIN AREAS OF APPLICATION IN AVIATION



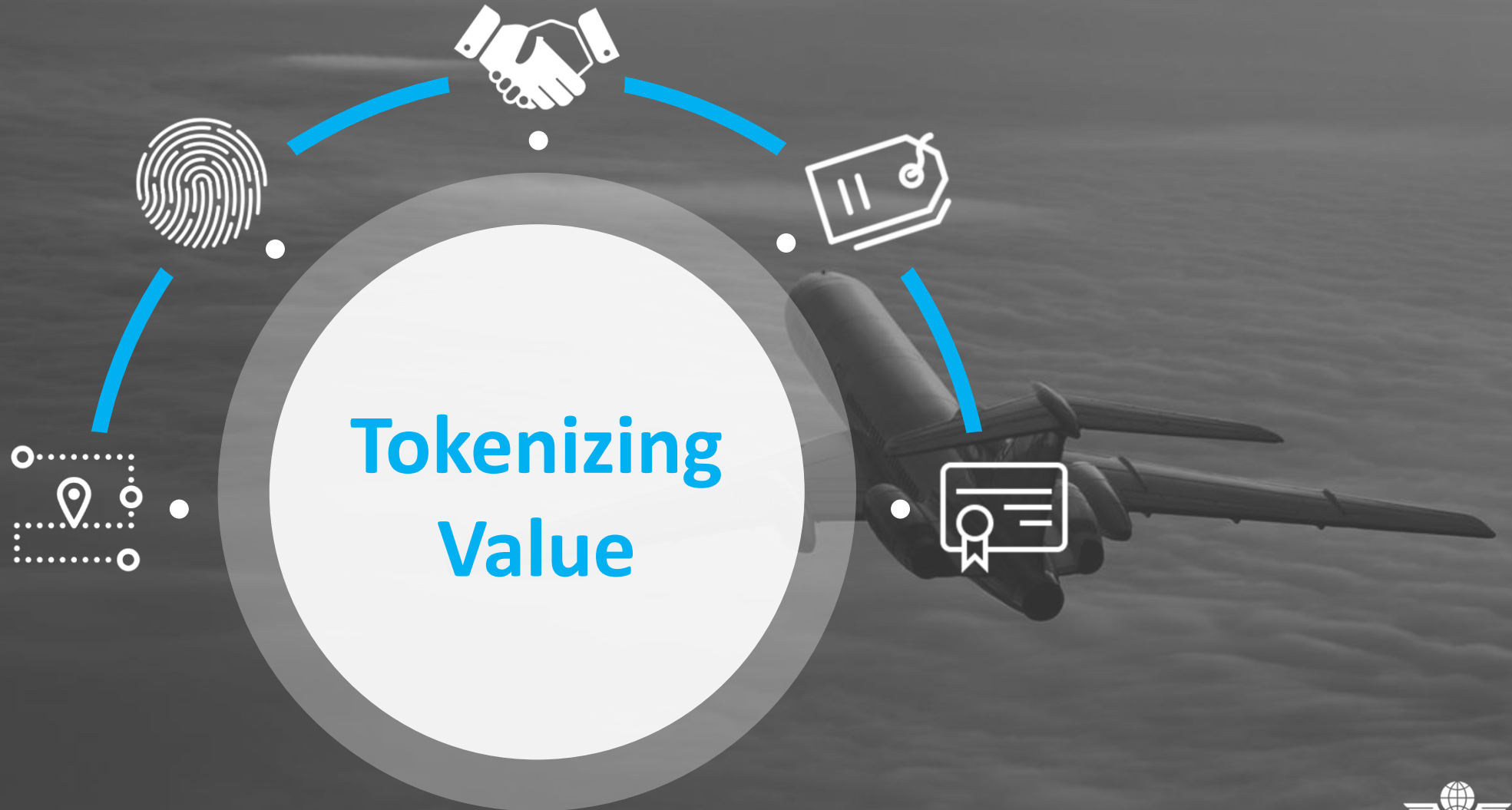
BLOCKCHAIN AREAS OF APPLICATION IN AVIATION



BLOCKCHAIN AREAS OF APPLICATION IN AVIATION



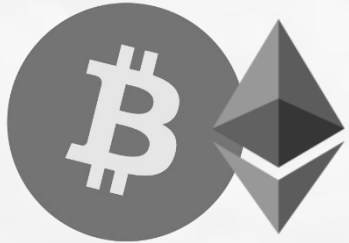
BLOCKCHAIN AREAS OF APPLICATION IN AVIATION



BLOCKCHAIN AREAS OF APPLICATION IN AVIATION



BLOCKCHAIN CHALLENGES



Governance
Structure



Regulatory
Compliance



Scalability
Performance



Crowd
Dependency

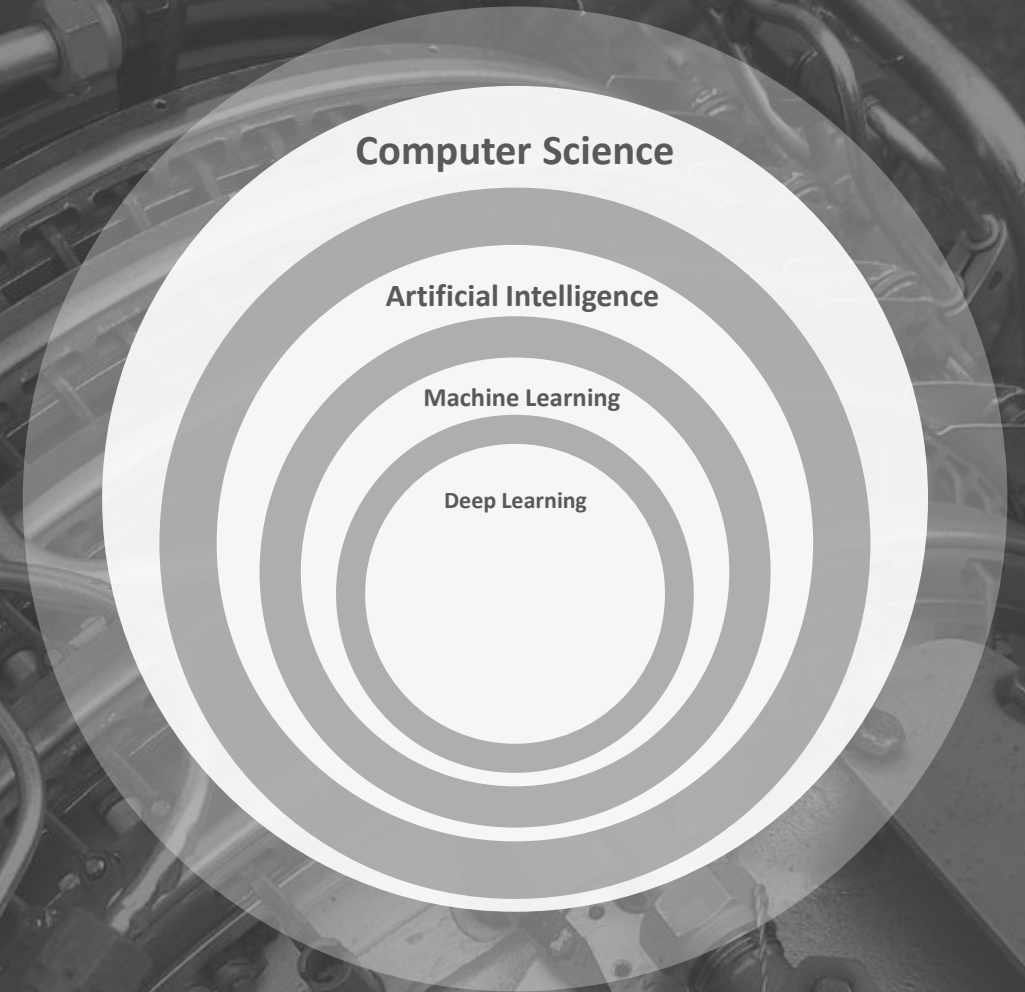


Developer
Community

ARTIFICIAL INTELLIGENCE (AI)

“Field of study that gives computers the ability to learn without being explicitly programmed.” Samuel, Arthur L. (1959)

- **Computer + human-like intelligence**
- **Logical reasoning**
- **Problem solving**
- **Learning**
- **Embodied (e.g. Robots)**
- **Disembodied (e.g. Siri, Google Now)**



WHAT IS INTELLIGENCE?

To understand and analyze the evolution of AI; one requires to define it across some simplified dimensions. The 4 dimensions below are inspired by DARPA's perspective on AI.

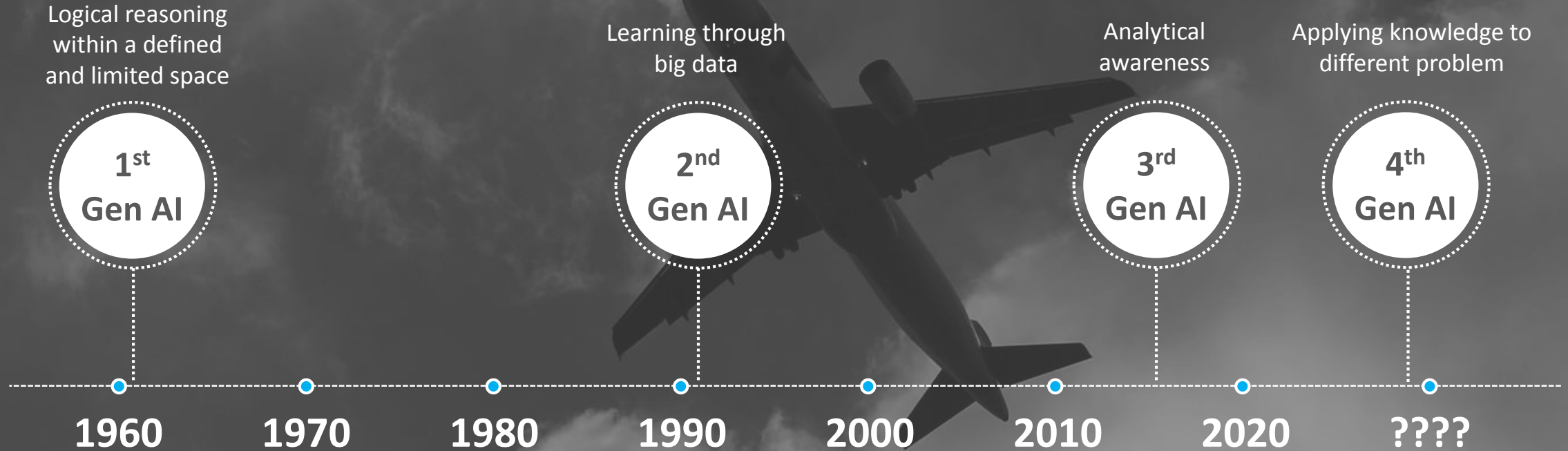
Analysis & Conclusion

Perceiving Outside World

Abstraction of Knowledge

Learning from Experiences

EVOLUTION OF AI



AI 1st GEN: RULE DRIVEN REASONING



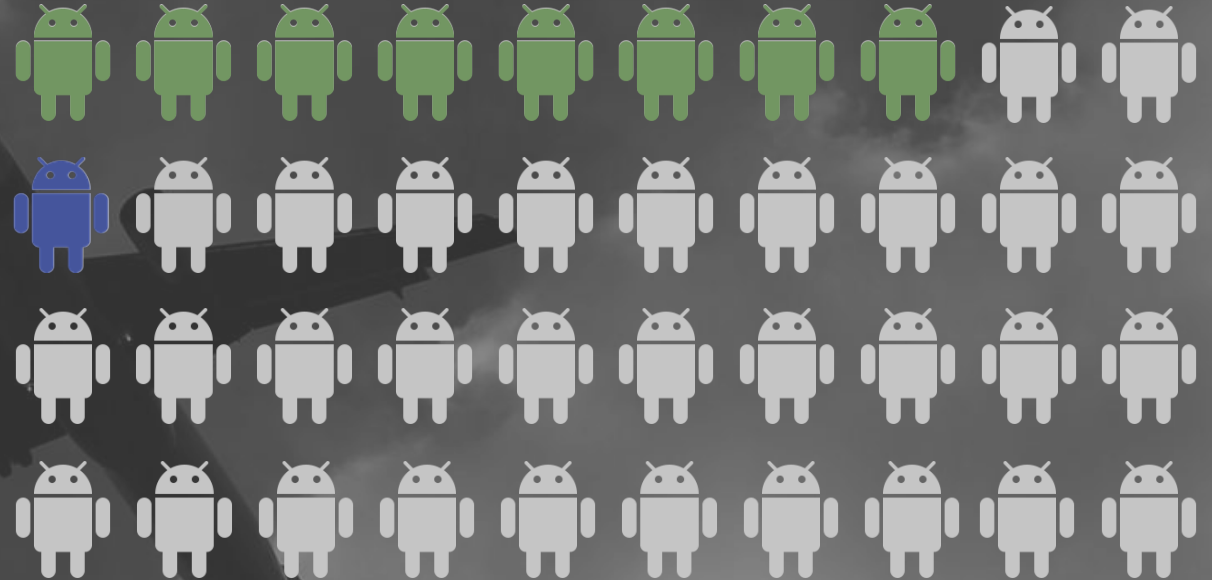
Logical reasoning
within a defined
and limited space

Analysis & Conclusion

Perceiving Outside World

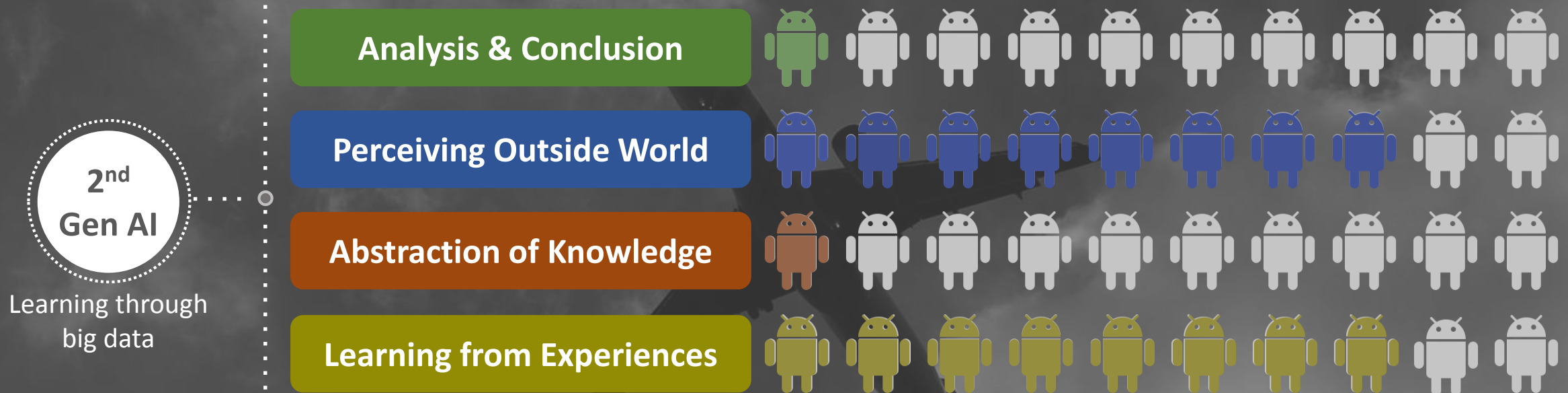
Abstraction of Knowledge

Learning from Experiences



- **Flight management** computer systems used in some aircraft to assist the pilot.
- **Autopilot:** To steer the aircraft along a predefined trajectory without pilot intervention.
- **Auto cabin pressurization** to ensure the environment is safe and comfortable.

AI 2nd GEN: LEARNING THROUGH BIG DATA



- Analysis and prediction of **passenger behavior/demand**.
- **Seamless airport security processes**, through facial recognition and biometrics.
- **Optimization of revenue management**, route network, fleet management.

AI 3rd GEN: ANALYTICAL AWARENESS



Analysis & Conclusion

Perceiving Outside World

Abstraction of Knowledge

Learning from Experiences

- 3rd Gen AI doesn't **need to see thousand example images** of different aircraft damage, to be able to detect one on an aircraft.
- Why? *"because the data says so"*

AI 4th GEN: CONTEXTUAL AWARENESS



- Self-flying planes.
- AI driving **optimization of revenue management**, route network, fleet management.
- **Autonomous** in-flight services.

AREAS OF OPPORTUNITY

CUSTOMER TOUCH-POINT CAPABILITIES



- INTELLIGENT BOT ERA
- DYNAMIC RESOURCE ALLOCATION
- PERSONALIZED FULFILLMENT
- DISRUPTION DAMAGE CONTROL
- COMPLAINTS & CLAIMS AI DRIVEN
- IDENTITY MANAGEMENT
- TOKENIZING LOYALTY REWARDS

OPERATIONAL CAPABILITIES



- OUTCOME & IMPACT PREDICTION
- CORRELATIONS OF DATA
- AGILE AND ADAPTABLE OPERATIONS
- AUTONOMOUS VEHICLES
- MACHINE LEARNING
- ASSET PROVENANCE
- SMART CONTRACTS

SUPPORT & MANAGEMENT CAPABILITIES



- VALUE CHAIN RISK MANAGEMENT
- ASSET (AIRCRAFT) PROTECTION
- MAINTENANCE & SAFETY CHECKS
- SUPPLY CHAIN RISK MANAGEMENT
- FRAUD & DEFAULT MANAGEMENT
- CERTIFICATION

THANK YOU!



 [linkedin.com/in/houmang](https://www.linkedin.com/in/houmang)