

February 2020

MILITARY BASE OF THE FUTURE

NORM BALCHUNAS

Honeywell



AGENDA

- 1. Introduction**
- 2. Current State of Technology**
- 3. Honeywell Forge for Defense**
- 4. Digital Depot**
- 5. Airfield Ramp Management**
- 6. Voice Solutions**
- 7. Asset Management & Tracking**
- 8. Energy Management**
- 9. Building Controls & Management**

**TODAY MODERN
MILITARIES SEEK TECH
SUPERIORITY TO OUT-
INNOVATE ADVERSARIES.**

Military bases and processes from the 1970s are ready for a refresh. Enter the base of the future, which harnesses seamless connectivity across military operations to create a strategic edge that can make the difference between mission success and failure.



CONNECTED TECHNOLOGIES

Commercial

CONNECTED AIRCRAFT

130K Total Aircraft

CONNECTED VEHICLES

100M Global Installed Base

SMART WORKERS

550M Global PPE Users

SMART HOMES

150M Global Installed Base

SMART PLANTS

10K+ Global Installed Base

SMART BUILDINGS/CITIES

10M Global Installed Base

DIGITAL SUPPLY CHAIN

Large Global Installed Base



Defense

C6ISR Command, Control, Computers, Communications, Cyber-Defense, and Combat Systems and Intelligence, Surveillance, and Reconnaissance

CONNECTED Aircraft

CONNECTED Battlefield

DIGITAL MAINTENANCE:
Health & Usage Monitoring, Diagnostic, Prognostic

DIGITAL Aircraft Carriers

HONEYWELL Forge Ramps

DIGITAL Airfields

DIGITAL Depots

ENTERPRISE APPROACH

Platform Management

- Connected Maintenance
- Diagnostic/Prognostic
- Digital/Smart maintainers
- Ground Handling
- Cargo management (cradle to grave)
- Asset management

Command and Control

- Real Time/Near-Real Situational awareness
- Platform tracking
- Command and Control Platform (CoP)
- World-wide connectivity
- Resiliency



Smart Buildings, Cities, Bases, Factories, Hangars

- Digital Airfield Ramps
- Smart workers/people
- Energy Efficiency
- Facility Management

Digital Depots

- Logistics management
- Persistent Logistic chain visibility
- Asset management
- Voice solutions
- Digital technical orders

SOLUTIONS

DIGITAL DEPOTS

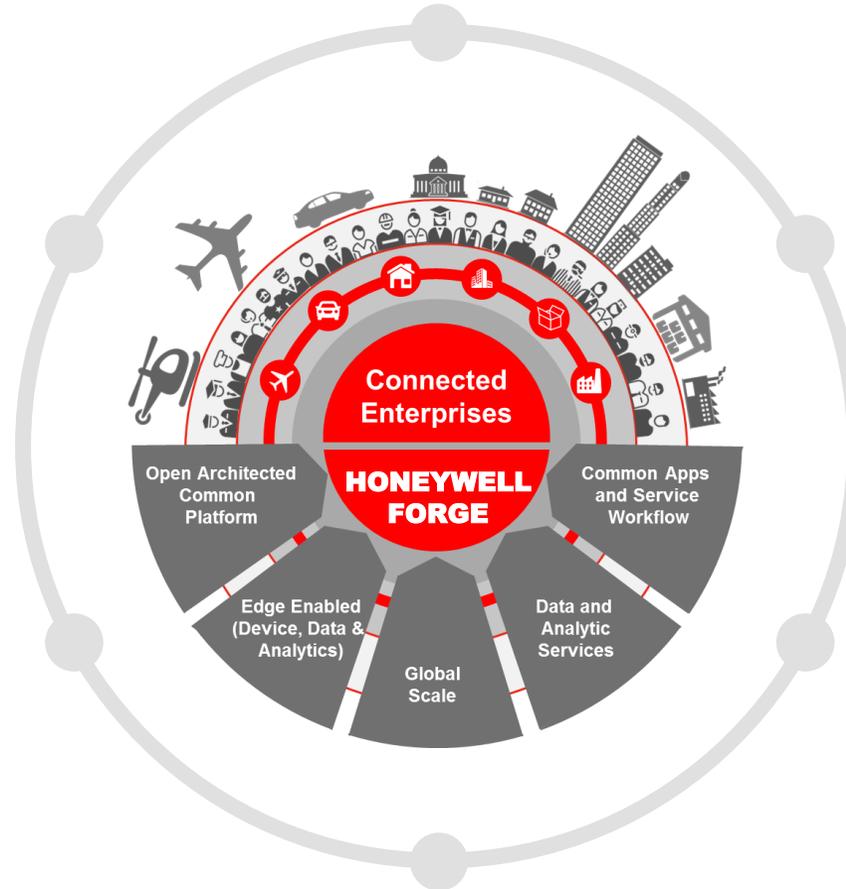
Tailored Solutions

ASSET/WORKER TRACKING

Passive RFID
Active RFID
Connected Freight

AIRFIELD RAMP MANAGEMENT

Honeywell Forge Ramp



BUILDING CONTROL AND MONITORING

Tridium - Niagara

VOICE SOLUTIONS

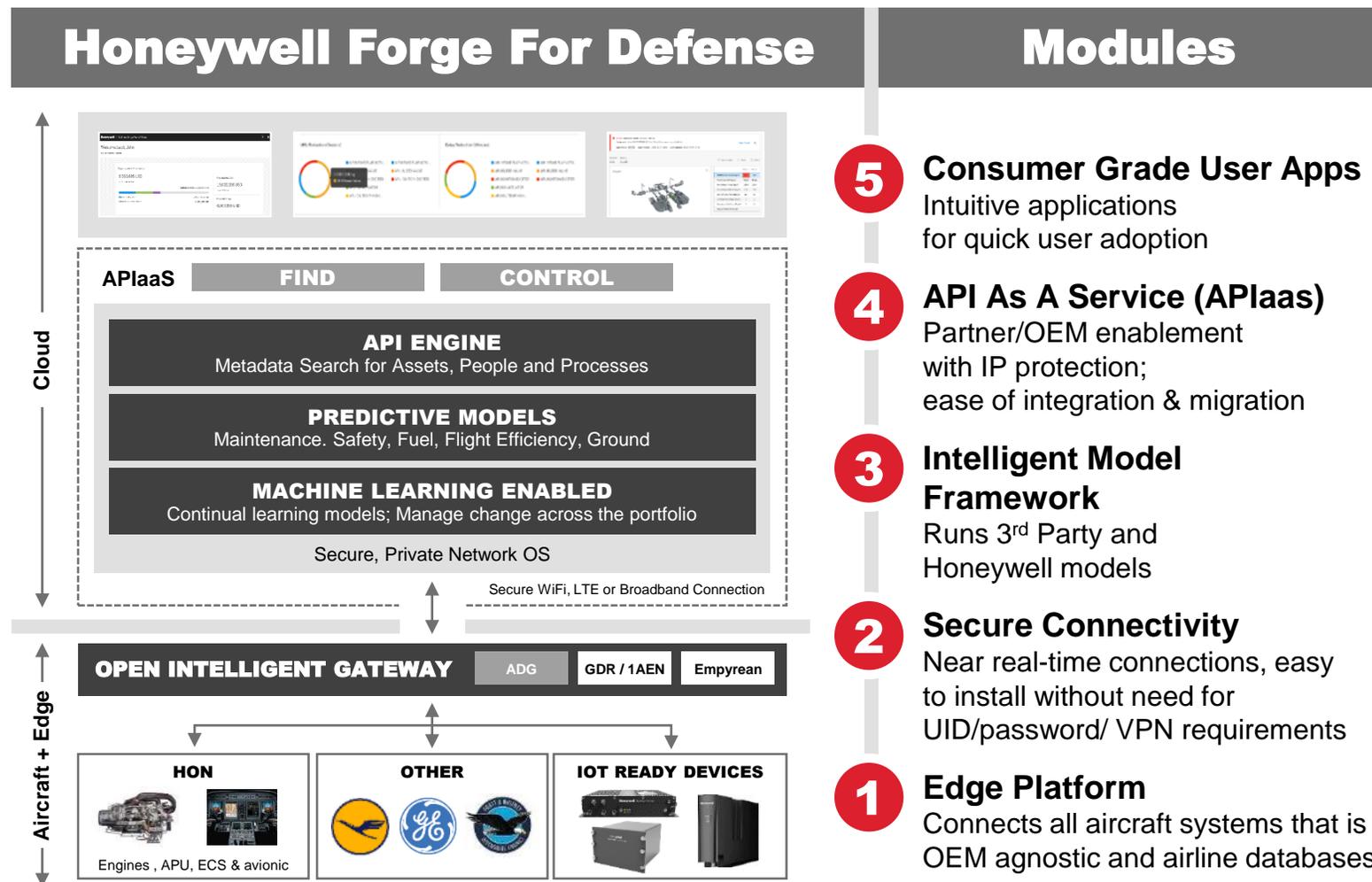
Voccollect
Smart Workers

ENERGY MANAGEMENT

Connected Buildings | Energy Efficiency

HONEYWELL FORGE

How It Works | High Level Technical Overview



Defense Value

- **BLUF:** Hardware and Software Agnostic
- Closed loop execution; quick and reliable worker training and safety
- Open APIs extend the solution to customers' and partners' own applications
- More accurate advisory and benchmarking; cross-industry; reliable operations decision making
- Eliminate IT need to manage connections across fleet
- Protect your current investments with the only truly open solution
- **Action-oriented:** Alerts to engineering; insight to dispatch; customer queries & dashboards

DIGITAL DEPOT

What's in the box

Accelerate Aircraft Turnaround Times And Reduce Mission Delays!

Track assets, automate workflows for material, labor and overhead inventory cost optimization

Asset volume based software subscription tiers. Consultation & parts track hardware infrastructure support. Aero grade RFID systems

Integrated asset tracking solution across logistics value chain with cloud based data analytics, ERP integration for actionable insights¹⁴



What's Included?

- Honeywell FORGE as the connective tissue
- Fully agnostic approach – Software/Hardware
- Asset tracking software platform (web /and mobile)
- Highly scalable software modules for incremental deployment
- Application Programming Interfaces for ERP integration
- Honeywell Forge based cloud data analytics for actionable insights
- Command and Control Platform (Service-wide CoP / Command Wall)
- Parts tracking hardware infrastructure (Aero grade RFID systems)
- Training & Customer Support
- Consultation Services

HONEYWELL FORGE **RAMP**

Provides actionable information to ramp operators and ground crew to
**ACCELERATE AIRCRAFT TURNAROUND TIMES
AND REDUCE MISSION DELAYS.**



**Resource
Management**



**Turn
Management**



**Equipment
Management**



**Ground
Support**

Real Time Asset Management and Optimization

VOICE SOLUTIONS

Honeywell | Voice



Strategic Advantage

What makes our solution unique and differentiated?

5+ GENERATIONS

Over 25+ years of expertise in voice recognition hardware & software

SPEECH RECOGNITION

World-class built for noisy environments

SOLUTION CHOICE

Wired & Wireless headset, chargers, and accessories

CRAFTSMANSHIP

Ruggedized, better than military grade

CRAFTSMANSHIP

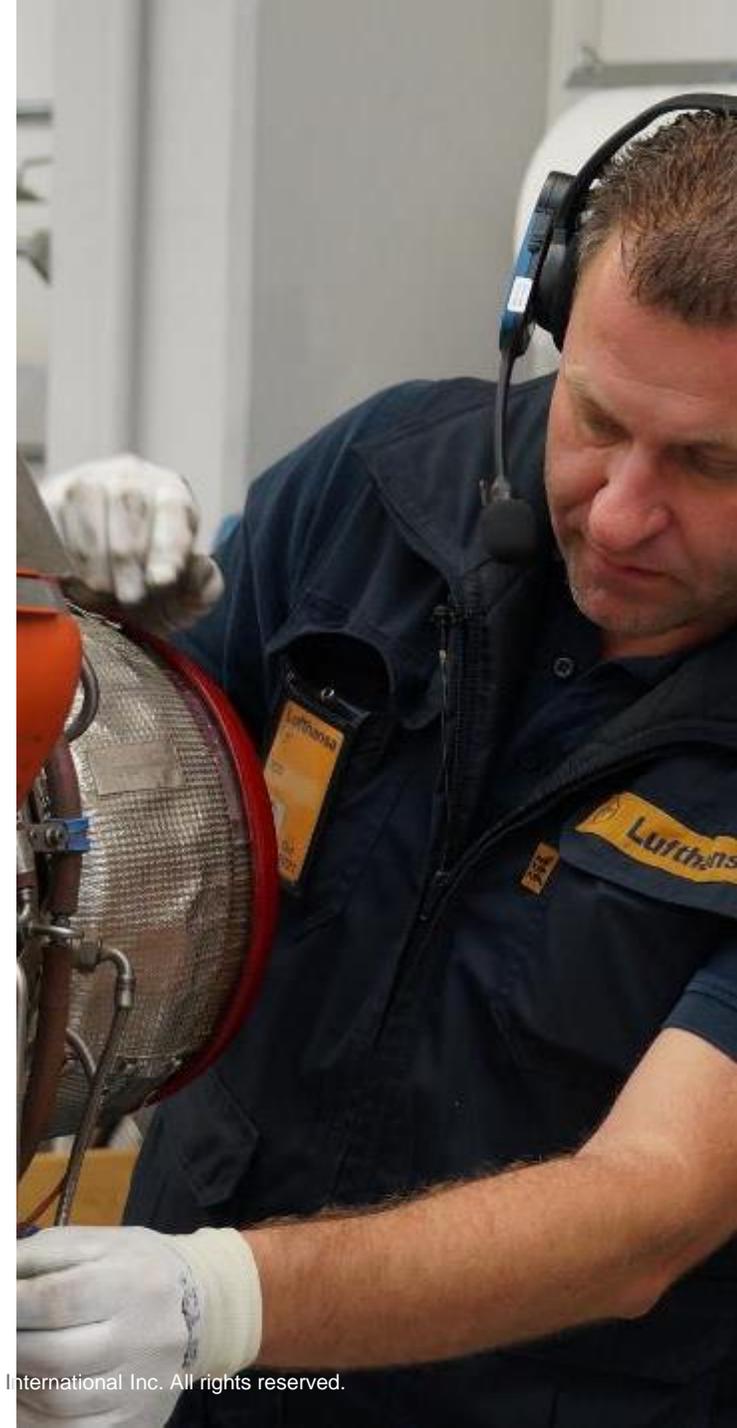
Ruggedized, better than military grade

WMS EXPERTISE

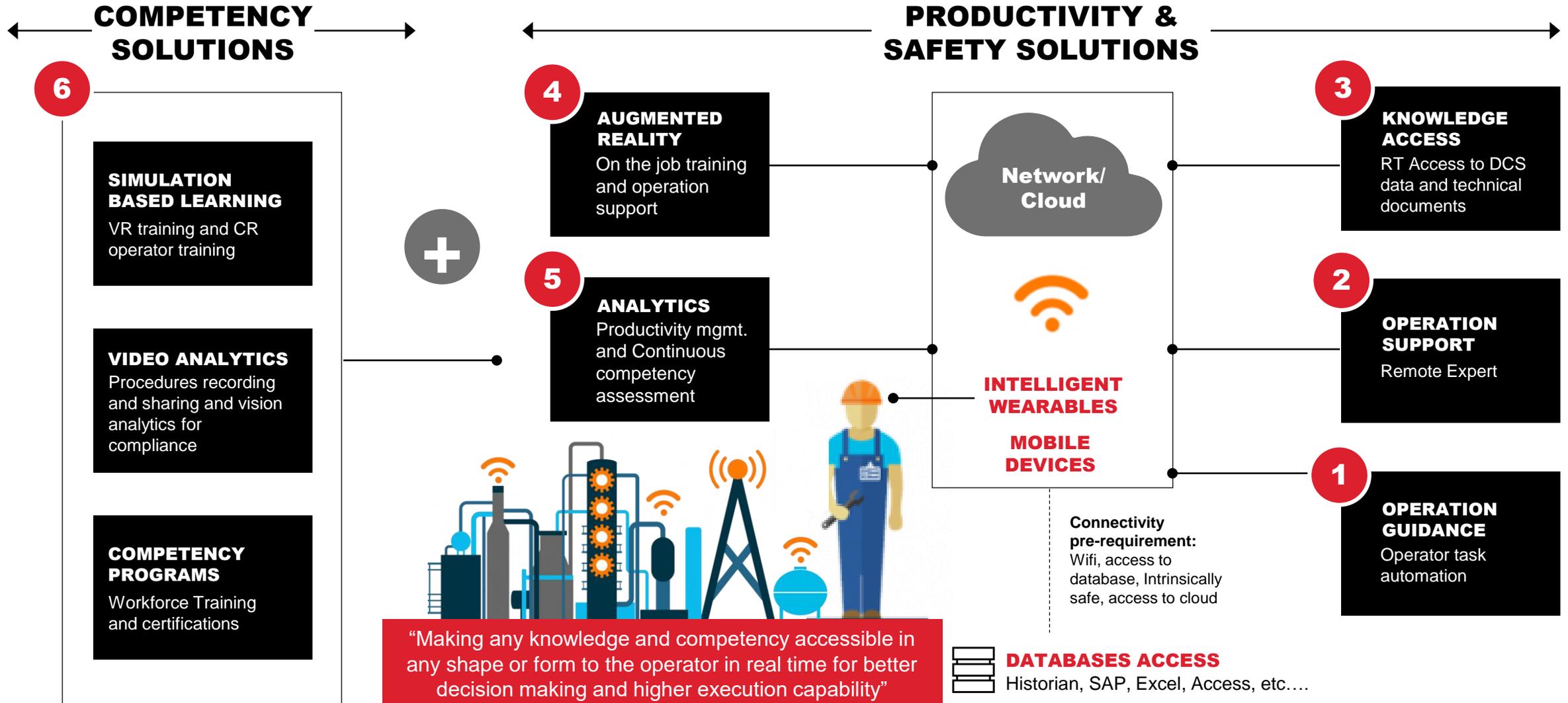
Integration & Know How

CUSTOMER EXPERIENCE

24x7 Tech Support & Professional Services



CONNECTED WORKER AND PEOPLE

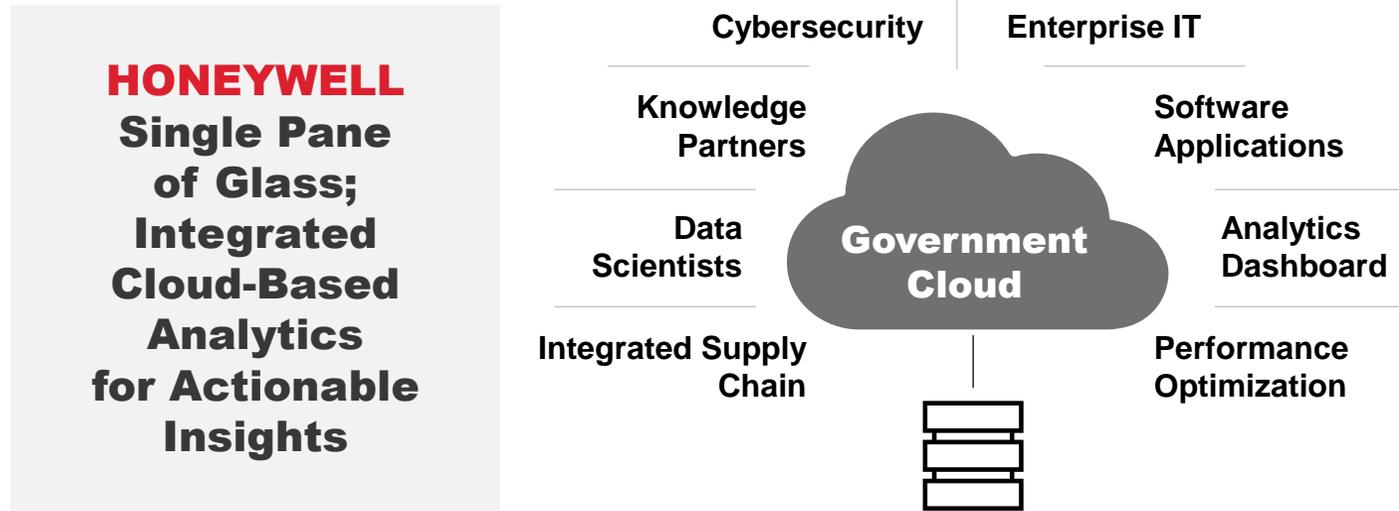


CONNECTED LOGISTICS

- **A comprehensive asset** tracking and logistics data capture solution
- **Employs multiple tracking** and productivity technologies, such as RFID, Bluetooth, telematics, and Voice collection – from simple part tracking to multiple asset types
- **Integrates multiple tracking solutions** into a single user interface (dashboard) to provide customized metrics and analytics
- **Provides the ability to integrate** with existing ERP systems to maximize automation
- **Fully secure**
- **Compatible with other Honeywell Connected Aircraft solutions**, such as GoDirect Connected (predictive) Maintenance
- **Enables operators to reduce labor**, overhead and material costs associated with sub optimized asset tracking and lack of digital information for analytics and actionable insights

**DIGITAL TRANSFORMATION OF YOUR PHYSICAL ASSETS
TO ENABLE INDUSTRIAL INTERNET OF THINGS (IIOT)
INFORM & CONTROL - RIGHT PARTS AT THE RIGHT PLACE AT THE RIGHT TIME**

CONNECTED LOGISTICS



HON TRACKING SOLUTIONS	WAREHOUSE & PARTS LOGISTICS	MRO	WORKERS, DEVICES & DOCUMENTS	MOBILE FREIGHT	AIRPORT, CARGO & PAX. OPERATIONS	FLIGHT OPERATIONS
GoDirect™ Passive RFID	✓	✓	✓		✓	✓
GoDirect™ Active RFID	✓	✓	✓		✓	
GoDirect™ Active RFID w/ GPS	✓	✓	✓	✓	✓	
Connected Freight (Bluetooth)	✓	✓		✓	✓	
GoDirect™ GSE Telematics				✓	✓	
Operational Intelligence™	✓	✓	✓	✓	✓	
Honeywell Aero Edge Node						✓
Vocollect™ Voice	✓	✓	✓		✓	

CONNECTED BUILDINGS

Energy Management



Tinker Solution

Tinker has partnered with Honeywell to implement a series of Energy Savings Performance Contracts (ESPCs) to upgrade infrastructure and equipment. ESPCs help fund upgrades, using annual energy and operational savings generated by more efficient systems and processes. Honeywell guarantees the savings, eliminating the need for taxpayer dollars or upfront capital investment by the Air Force.

The most recent ESPC project is set to save the Air Force more than \$649 million in energy and operational costs over the life of the contract.



The Benefits

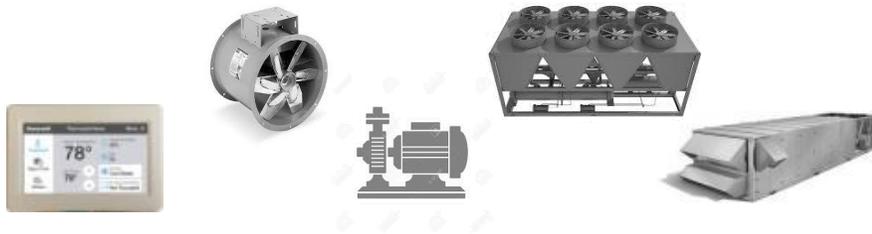
- Reduced energy consumption 23% - \$20.5M annual savings
- Net operational cost savings improve OC-ALC's rate structure and competitive position
- Enhanced production reliability in critical steam-fired processes, compressed air systems, and painting facilities.
- High-efficiency infrastructure, including lighting, heating, ventilation, and air conditioning.
- Upgraded building controls provide a more holistic view of facility-wide operations.
- Improved work environment

BUILDING CONTROLS AND MANAGEMENT

THE NIAGARA FRAMEWORK IS AN “OPEN” RMF COMPLIANT AUTOMATION INFRASTRUCTURE USED IN HUNDREDS OF THOUSANDS OF FACILITIES AROUND THE WORLD.

Niagara helps institutions address energy savings, resource planning, usage and threat management (“lockdown events”) in one secure software platform that sets the standard across diverse entities.

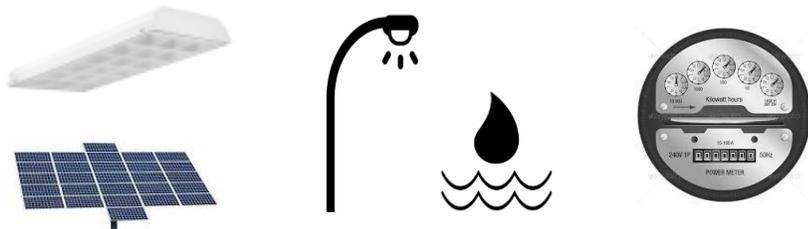
HVAC



SAFETY AND ACCESS



LIGHTING, POWER AND WATER



OCCUPANCY, USAGE AND CONDITION



DIGITAL DEFENSE – VOC AND USE CASES

Keep Systems Operational, Effective And Safe



**DIRECTOR OF
MAINTENANCE**

“Some of our processes are from 1950s”



**MAINTENANCE
ENGINEER**

“I have a system and a process today but it’s down 30% of the time and it doesn’t integrate with ERP”

“I don’t know what my inventory level should be”



**FINANCE
LEADER**

“For a base our size, we spend too much on energy?”

Ensure Rate Readiness



**DIRECTOR OF
MAINTENANCE**

“I have 200 hours a year allocated to trying to find parts on base”



**MAINTENANCE
ENGINEER**

“I don’t know when I’m going to get my parts: has the supplier even shipped them?”

“I have 15% - 25% location error today”

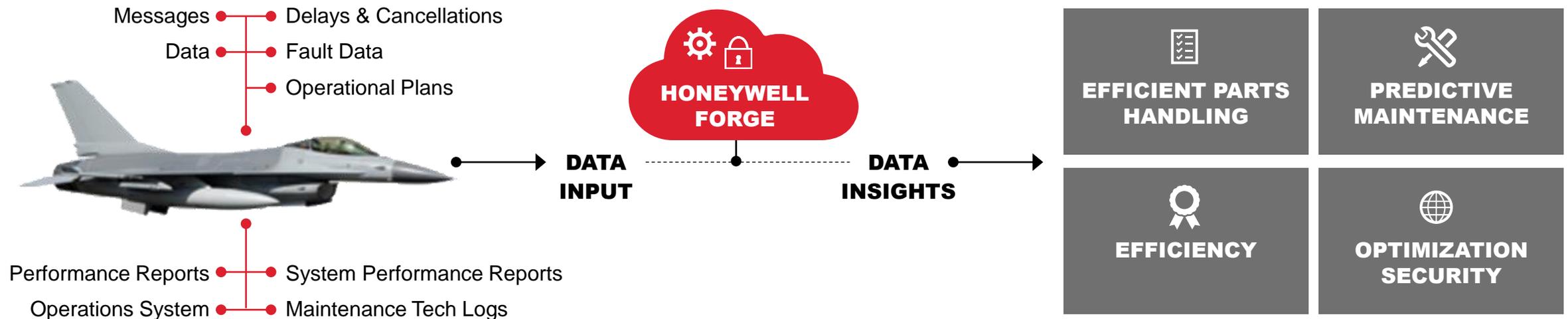


**FINANCE
LEADER**

“I will never hit 80% rate readiness if I can’t find the parts”

HONEYWELL FORGE **PREPARED** TO IMPLEMENT FOR US MILITARY

HONEYWELL FORGE FOR DEFENSE is a secure and robust nose-to-tail data ingestion platform for supply chain processes that analyzes and unlocks critical performance and operational indicators in operations maintenance, safety, depots, warehouses and RMO facilities, enabling services to rapidly make improvements to operational inefficiencies.



Q&A



Honeywell