ONDAS
Holdings Inc.

ONDAS NETWORKS

AMERICAN ROBOTICS

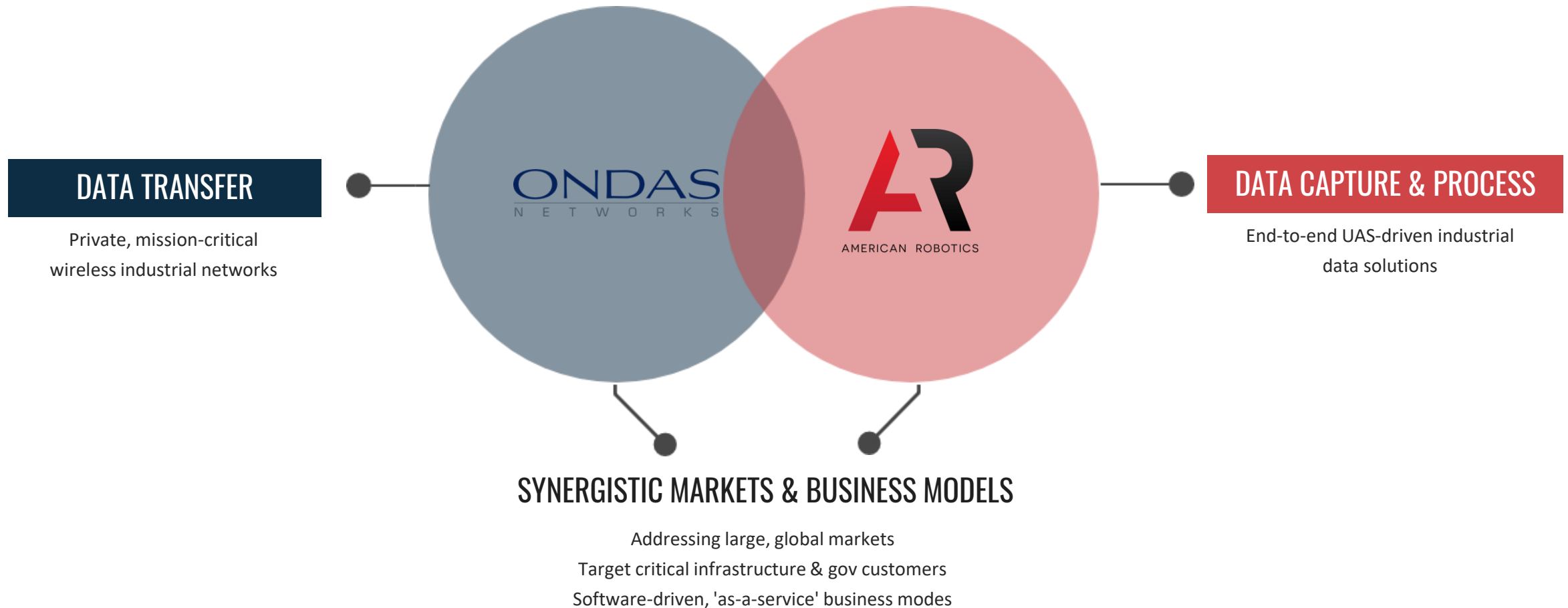ENABLING MISSION-CRITICAL IOT

INVESTOR PRESENTATION

May 2022

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Disclaimer

This presentation may contain "forward-looking statements" as that term is defined under the Private Securities Litigation Reform Act of 1995 (PSLRA), which statements may be identified by words such as "expects," "projects," "will," "may," "anticipates," "believes," "should," "intends," "estimates," and other words of similar meaning. Ondas Holdings Inc. ("Ondas" or the "Company") cautions readers that forward-looking statements are predictions based on its current expectations about future events. These forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and assumptions that are difficult to predict. The Company's actual results, performance, or achievements could differ materially from those expressed or implied by the forward-looking statements as a result of a number of factors, including, the risks discussed under the heading "Risk Factors" in the Company's most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission ("SEC"), in the Company's Quarterly Reports on Form 10-Q filed with the SEC, and in the Company's other filings with the SEC. The Company undertakes no obligation to publicly update or revise any forward- looking statements, whether as a result of new information, future events or otherwise that occur after that date, except as required by law.
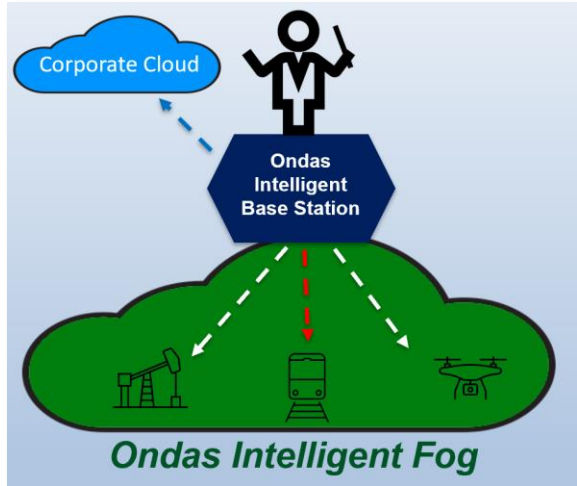
A POWERFUL INDUSTRIAL TECHNOLOGY PLATFORM

Technology platforms for the new era of industrial data

DATA TRANSFER

Private, mission-critical
wireless industrial networks

DATA CAPTURE & PROCESS

End-to-end UAS-driven industrial
data solutions

SYNERGISTIC MARKETS & BUSINESS MODELS

Addressing large, global markets

Target critical infrastructure & gov customers

Software-driven, 'as-a-service' business modes

Ondas Networks OVERVIEW

Next-gen, MC-IoT Industrial software-defined wireless broadband platform

FullMAX™ Connectivity

- IEEE 802.16 standards
- Enhanced capacity / flexibility
- Maximize low-band spectrum
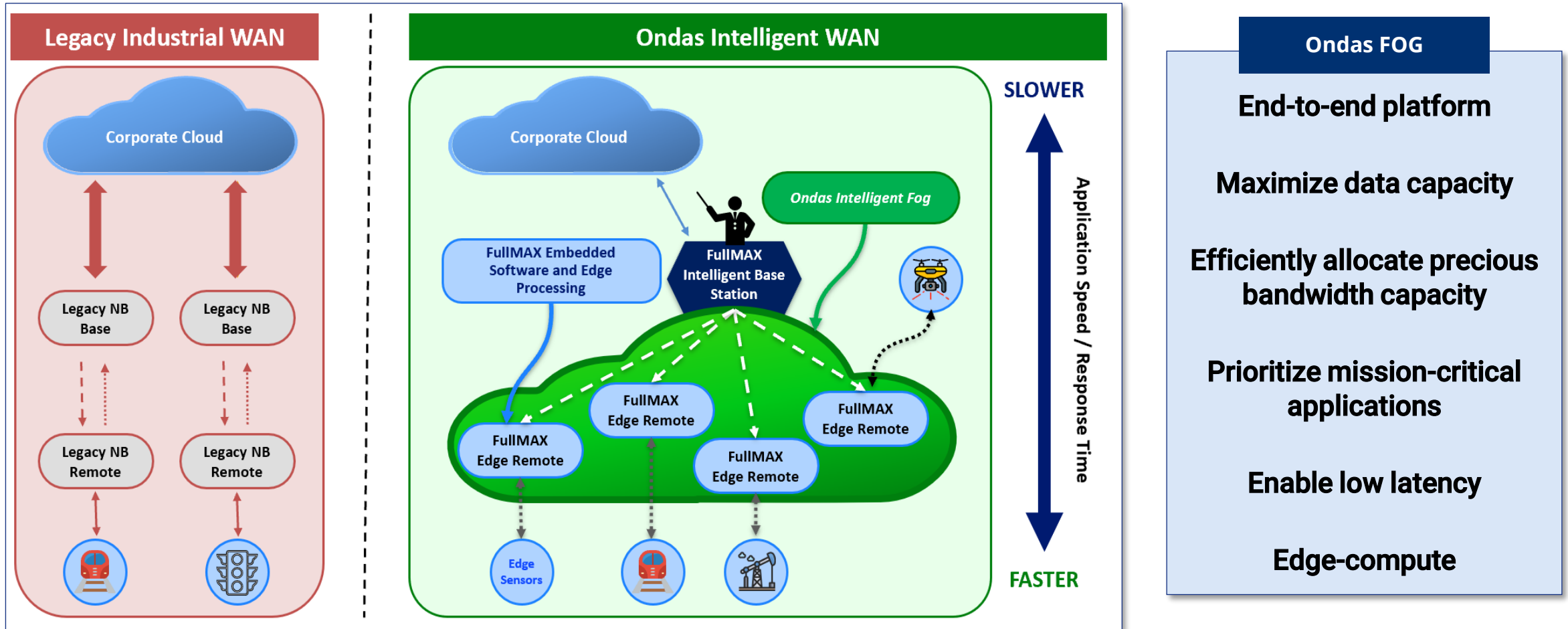- 7 patents (16 pending)

Large, Global Markets

- Critical infrastructure & public safety
- Massive private network upgrade cycle
- TAM in billions
- Capital-light financial model

Industrial Data Ecosystem

- Deploying intelligent systems across field area operations
- Edge compute applications
- Automation technologies
- Sensor technologies

FullMAX™ | Moving Cloud to the Edge

Legacy Industrial WAN

Corporate Cloud

Legacy NB Base — Legacy NB Base

Legacy NB Remote — Legacy NB Remote

Ondas Intelligent WAN

SLOWER

Corporate Cloud

Ondas Intelligent Fog

FullMAX Embedded Software and Edge Processing

FullMAX Intelligent Base Station

FullMAX Edge Remote

FullMAX Edge Remote

FullMAX Edge Remote

FullMAX Edge Remote

Edge Sensors

Application Speed / Response Time

FASTER

Ondas FOG

End-to-end platform

Maximize data capacity

Efficiently allocate precious bandwidth capacity

Prioritize mission-critical applications

Enable low latency

Edge-compute

Future proof software-defined network

The WIDE Industrial PIPE – Spectrum Harvesting

Ondas technology enables aggregation of scarce, low frequency spectrum
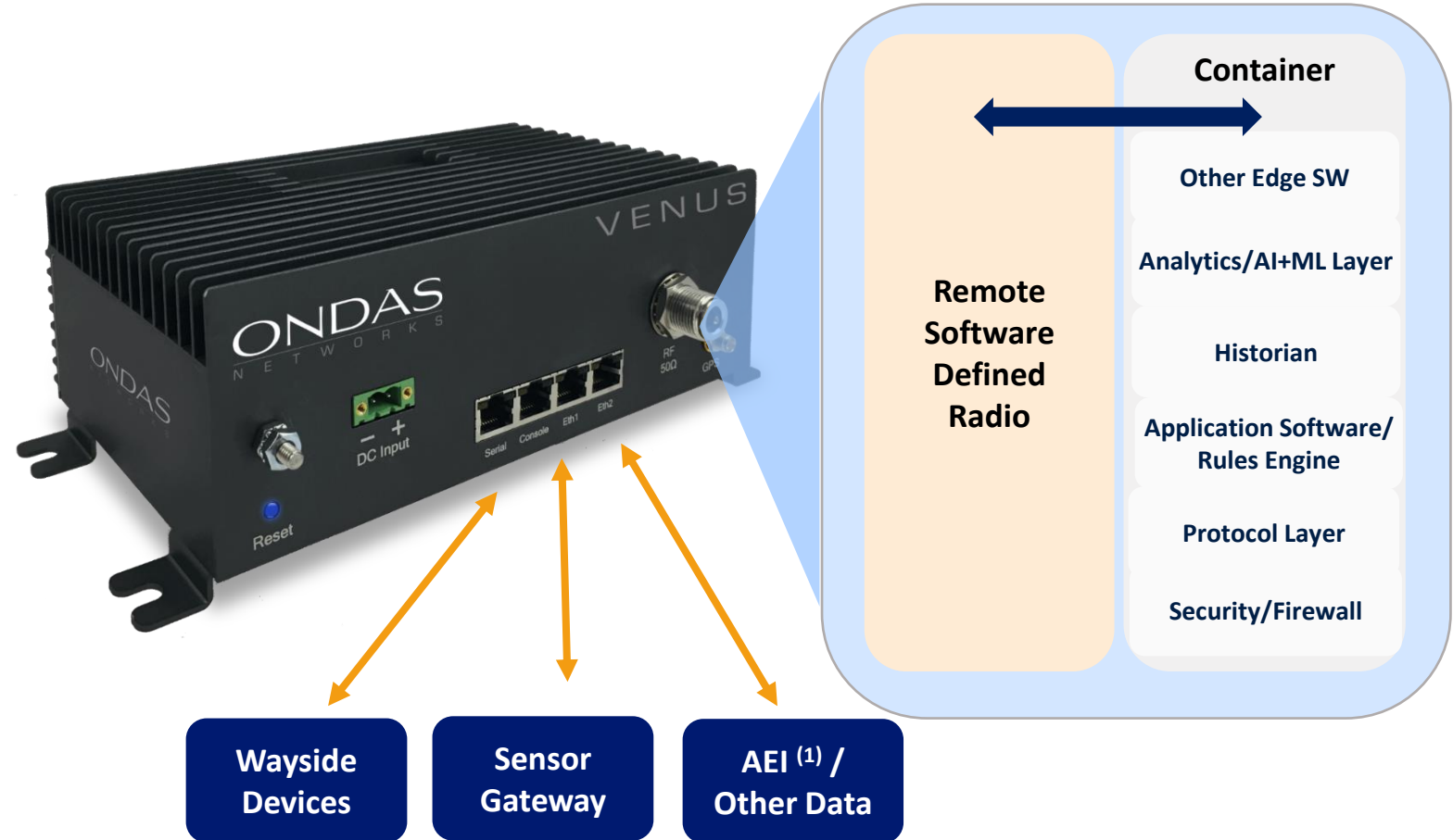

RADIO FREQUENCY SPECTRUM
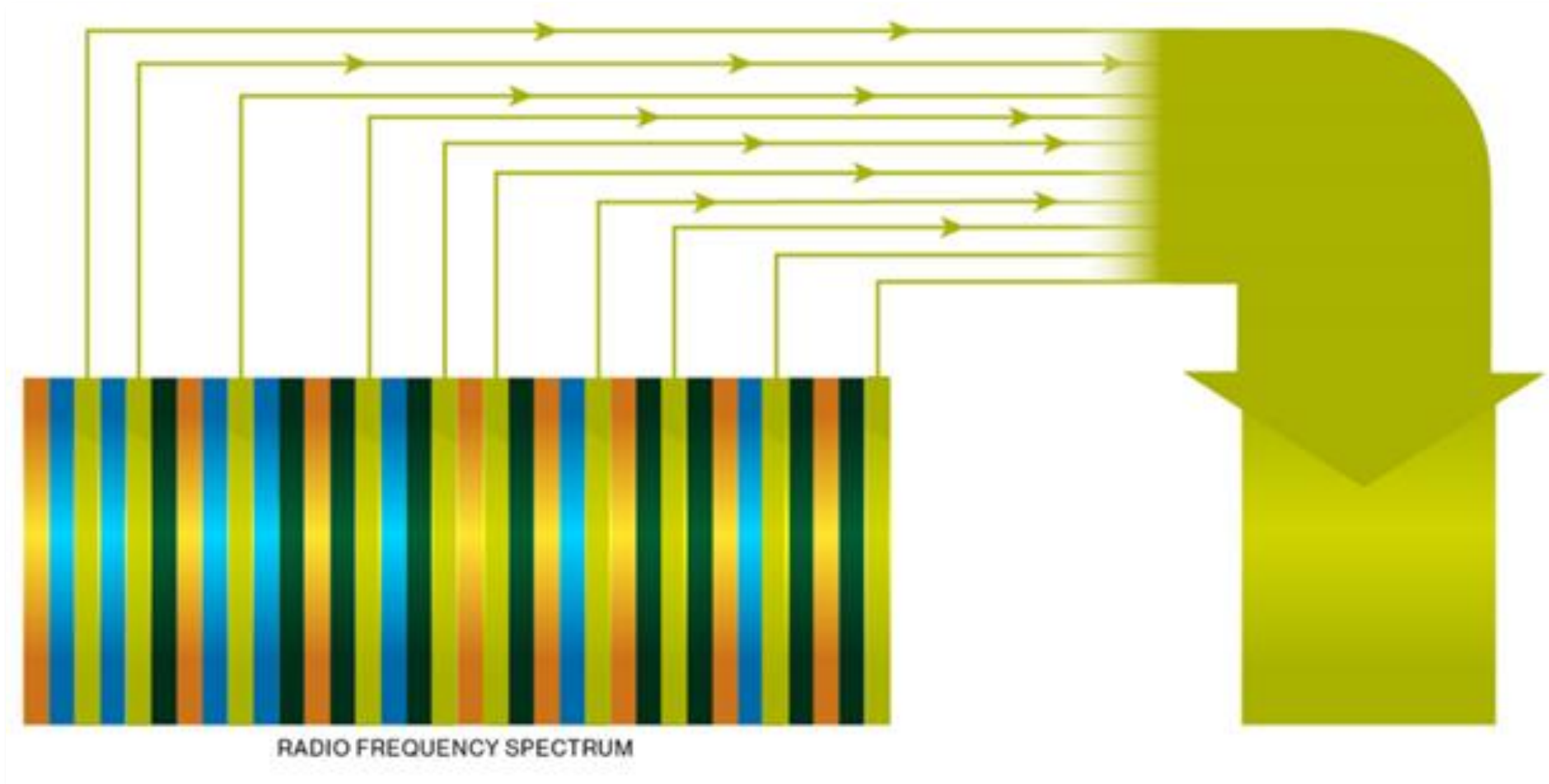
MC-IoT Connectivity and Integrated Edge Applications

MC-Edge Appliance

- Secure firewall
- Storage at the edge
- AI/ML analytics capable
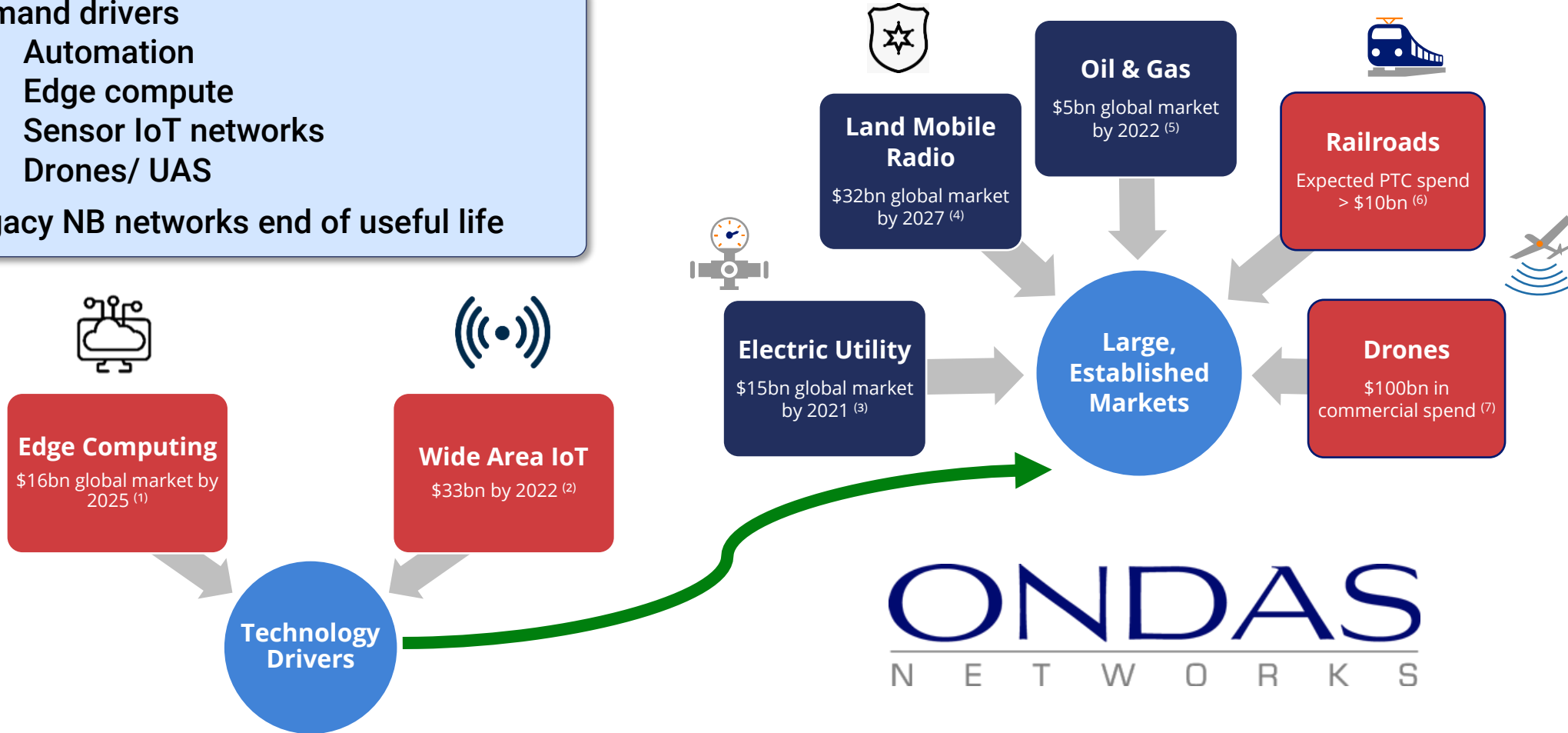- Local decision making

Tier 2 Network Integration

- LoRa Sensor Gateway
- SCADA, AEI
- Wi-Fi

Container

Other Edge SW

Analytics/AI+ML Layer

Historian

Application Software/
Rules Engine

Protocol Layer

Security/Firewall

Remote
Software
Defined
Radio

Wayside Devices

Sensor Gateway

AEI [1] / Other Data

Large End Markets – MC-IoT Upgrade Cycle

Demand drivers
- Automation
- Edge compute
- Sensor IoT networks
- Drones/ UAS

Legacy NB networks end of useful life

Edge Computing
$16bn global market by 2025 [1]

Wide Area IoT
$33bn by 2022 [2]

Technology Drivers

Land Mobile Radio
$32bn global market by 2027 [4]

Oil & Gas
$5bn global market by 2022 [5]

Railroads
Expected PTC spend > $10bn [6]

Electric Utility
$15bn global market by 2021 [3]

Large, Established Markets

Drones
$100bn in commercial spend [7]

ONDAS
N E T W O R K S

(5) "Oilfield Communications Market." MarketsandMarkets Research Private Ltd., April 2017.
(6) Federal Railroad Administration, 2009.
(7) PWC, May 2016

Industry Support for dot16 Platform

- ‣ IEEE 802.16s / .16t
- ‣ Participation by Rail, Utility & O&G sectors
  - ‣ .16s published in October 2017
  - ‣ .16t on path for ratification in 2023
- ‣ Ondas owns critical Intellectual Property


- ‣ Lab funded by AAR subsidiary TTCI, Inc.
- ‣ Initially established in Sunnyvale, CA
- ‣ Positions dot16 as central fabric of new "Digital Railroad" technology adoption
- ‣ Mechanism for testing future Digital Railroad technology roadmap

Class 1 Rails Offer Multiple Networks

Legacy Systems

FCC Upgrade Mandate

ATCS 900 MHz

Onboard Telemetry 450MHZ

Voice 160 MHz

PTC 220 MHz
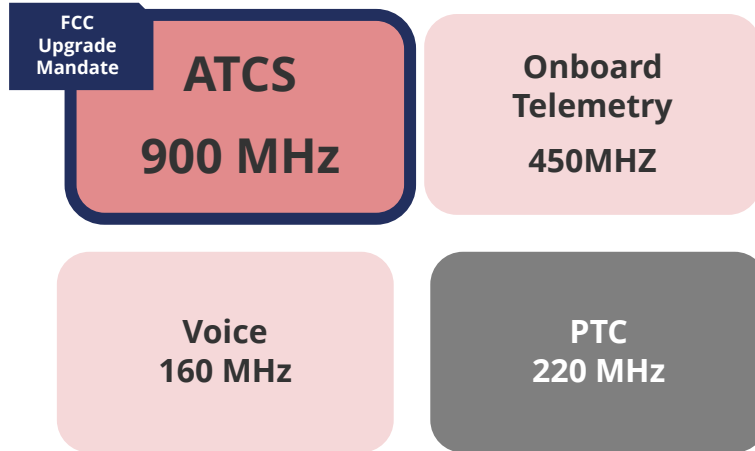
- Multiple, siloed, single-purpose networks
- Narrowband capacity
- Not upgradable
- Legacy applications
- Lower speed networks
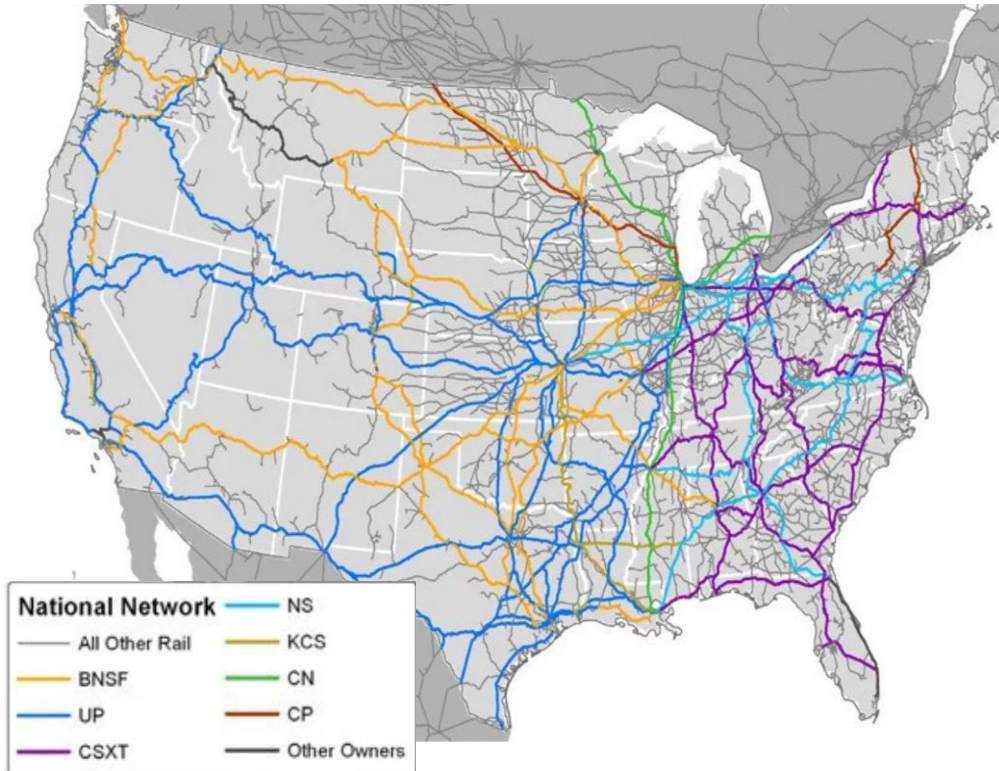- End of life systems

FullMAX™ Software Platform

Ondas Intelligent Fog

ATCS

PTC

Onboard Telemetry

Voice
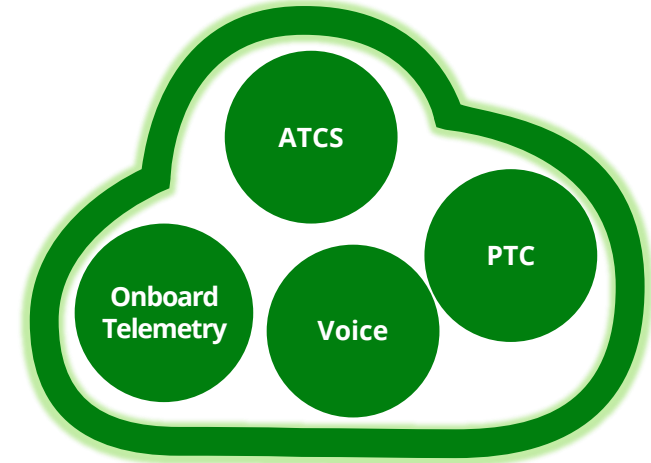
- Single, multi-band platform
- Broadband capacity
- Future-proof, upgradeable Edge
- New, MC-IoT applications
- Increased data rates / throughput
- More efficient network operations

Class 1 Freight Rail – Huge Footprint

Adoption of FullMAX™ by Rail infrastructure

Key Class 1 Rail Statistics

- Common network across all 7 Class 1 Rails

- 140,000 Miles of Track

- 40,000 Waysides

- 65,000 Rail Crossings

- 25,000+ locomotives / 1.6 million rail cars

- 900 MHz / 160 MHz total addressable market of >$800 million

~5% Productivity Increase → ~$4.5 billion Additional Revenue for Railroads

The North American MC-IoT Federated Rail Lab

Federated (*adjective*) – set up as a single centralized unit within which each state or division keeps some internal autonomy

▶ **Why a Lab?**

    ▸ Enables optimization of different network configurations

    ▸ Ensures interoperability / coexistence among the Class I Rails using shared licensed spectrum

    ▸ Allows for Next-Generation Application testing and integration in a controlled environment

    ▸ Expands to multiple networks, frequency bands (160/220/450)

    ▸ Rail Network Engineer training

dot16

▸ Lab funded by AAR subsidiary TTCI, Inc.

▸ Initially established in Sunnyvale, CA; expected to move to MxV Rail facility in August 2022

▸ Evergreen lab; additional labs expected at individual Railroads

▸ Positions dot16 as central fabric of new "Digital Railroad" technology adoption

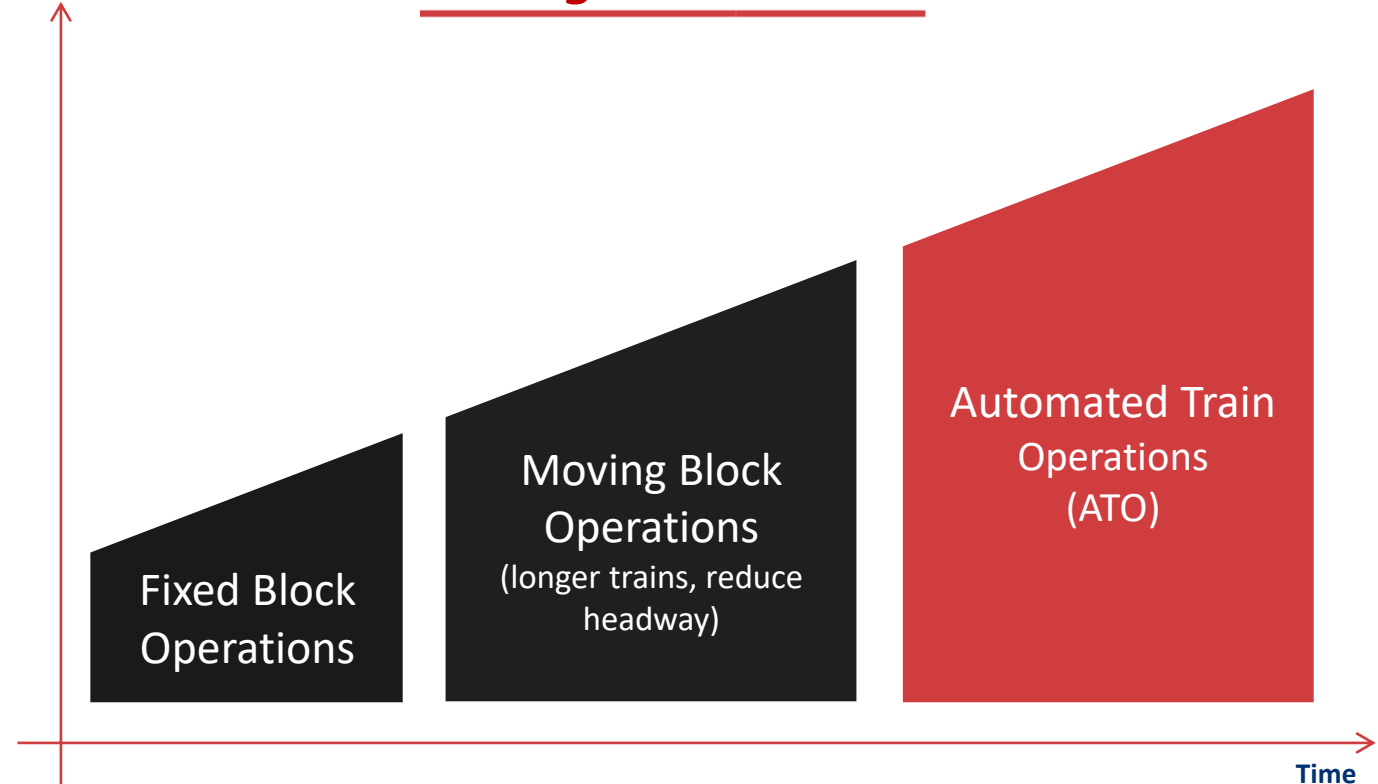# Integrated Technology Drives Train Automation

SIEMENS   ONDAS
                 N E T W O R K S

- Driving initial dot16 platform adoption beginning in 900 MHz

- Product integration enhances value of network and dot16 ecosystem
  - ATCS 900 MHz
  - HOT 450 MHz North America
  - HOT 450 MHz Asia
  - Major European development pending
  - TTCI 160 MHz in pipeline
- Multiple Joint-Development programs on roadmap

- Marketing expanding beyond Class I Rails
  - Transit – Asia - Europe
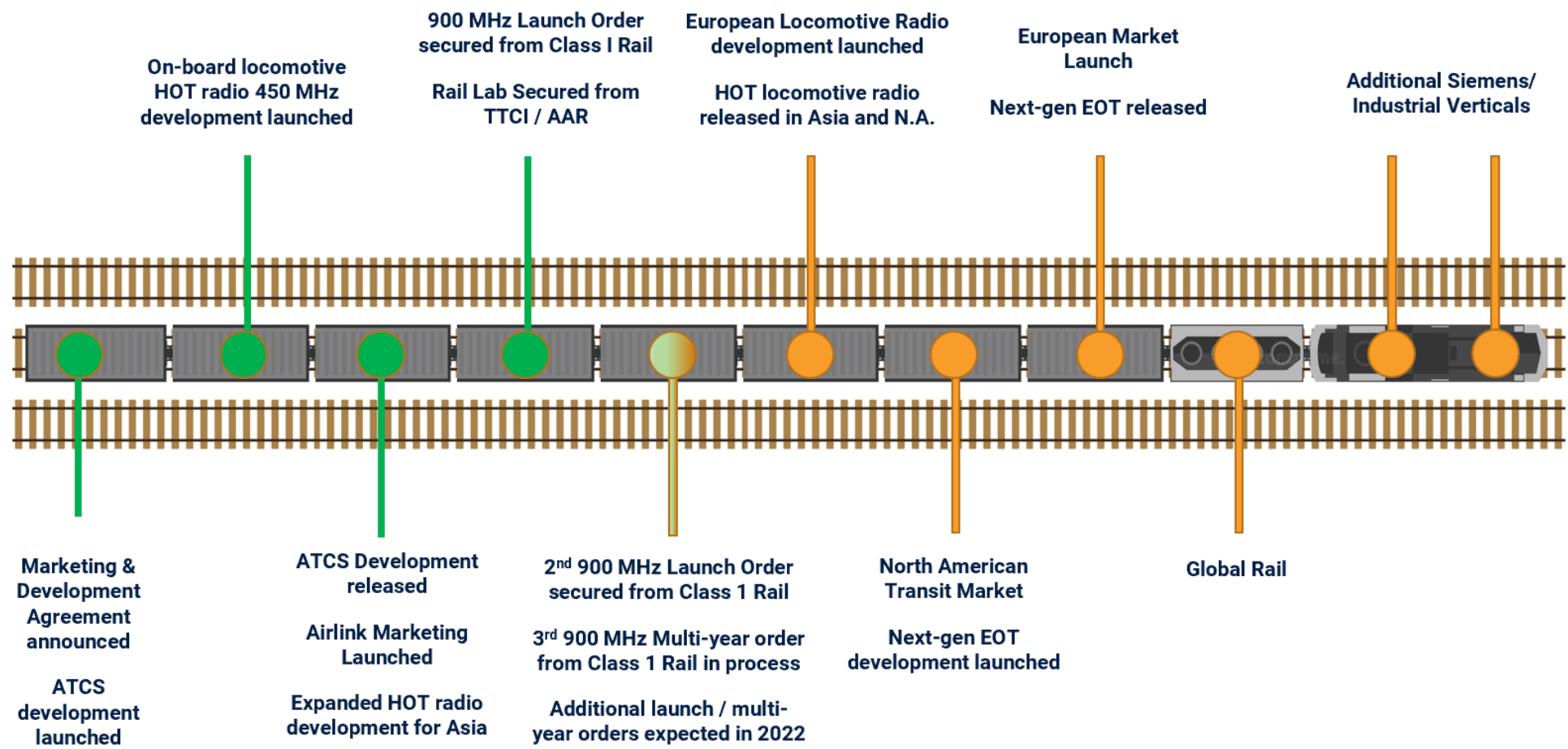
Communications Bandwidth

The Digital Railroad

Fixed Block Operations

Moving Block Operations (longer trains, reduce headway)

Automated Train Operations (ATO)

Time

FullMAX™ is critical communications platform

Siemens Partnership Broadening...

900 MHz Launch Order secured from Class I Rail

European Locomotive Radio development launched

European Market Launch

On-board locomotive HOT radio 450 MHz development launched

Rail Lab Secured from TTCI / AAR

HOT locomotive radio released in Asia and N.A.

Next-gen EOT released

Additional Siemens/ Industrial Verticals

Marketing & Development Agreement announced

ATCS development launched

ATCS Development released

Airlink Marketing Launched

Expanded HOT radio development for Asia

2nd 900 MHz Launch Order secured from Class 1 Rail

3rd 900 MHz Multi-year order from Class 1 Rail in process

Additional launch / multi-year orders expected in 2022

North American Transit Market

Next-gen EOT development launched

Global Rail

SIEMENS

ONDAS
N E T W O R K S

North America ▶ Asia ▶ Europe ▶ Global Rail Market

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CLASS 1 900 MHz Launching

Broader Deployments

**Applications expand beyond ATCS**

‣ Centralized Train Control (CTC)
‣ Interlocking Vital Links
‣ Highway Crossings
‣ Voice
‣ Positive Train Control (PTC)
‣ Drone C2, Hi-Rail, Sensors

Launch Orders

Processes being established with Rails and Siemens for:

‣ Production
‣ Purchasing
‣ Delivery scheduling
‣ Siemens packages
‣ Shipping

‣ Acceptance / Testing
‣ Engineer Training
‣ Installation Procedures
‣ System Maintenance
‣ Customer Support
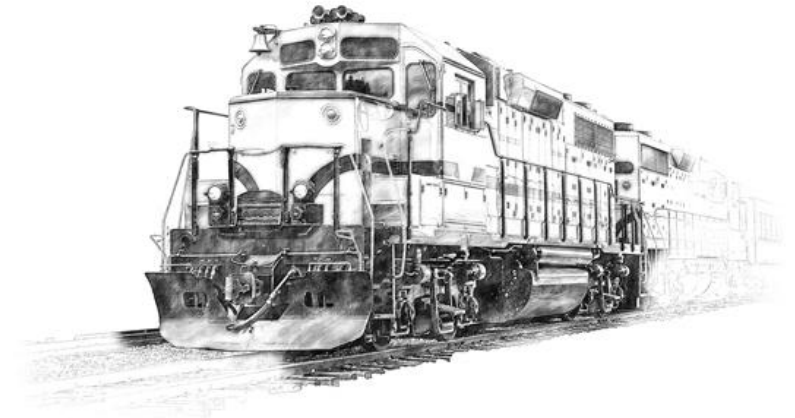
American Robotics OVERVIEW

FAA Approves First Fully Automated Commercial Drone Flights

"American Robotics will lay the groundwork for other advances and accelerated growth of the industry"

- ‣ Fully automated, end-to-end industrial-grade drone system
- ‣ Exclusive set of FAA approvals to operate autonomously without humans on-site
- ‣ High margin, recurring revenue Robot-as-a-Service (RAAS) business model
- ‣ Unique, full stack IP portfolio critical to real-world autonomy
- ‣ Deep customer pipeline in industrial and agricultural markets

World Class Talent	Blue Ocean	Attractive Model	Financial Strength
Carnegie Mellon, Stanford, Kiva Systems, AeroVironment, Ford, GE, CyPhy Works, and others	Huge commercial drone market in excess of $100 Billion[1] according to PwC offers high growth potential	Robot-as-a-Service (RaaS) model is a turnkey data solution for customers offering high margins and recurring revenue	Ondas Holdings offers strong balance sheet to support required investment for growth agenda

(1) PWC, 2016

Introducing the Scout System™

PLEASE WATCH
INTRODUCTORY VIDEO AT

Ondas-AR | ONDAS Networks
www.ondas.com/ondas-ar/

VIEW VIDEO ▸

THE WALL STREET JOURNAL.

FAA Approves First Fully Automated Commercial Drone Flights

"American Robotics will lay the groundwork for advances and accelerated growth of the industry"

Bloomberg   REUTERS   THE ROBOTREPORT

BUSINESS INSIDER   GIZMODO   Mashable
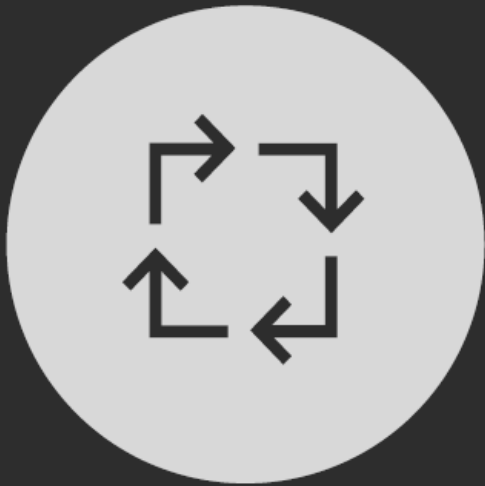
yahoo!news   The Washington Post   THE VERGE

The Leading Drone Platform

American Robotics has won the initial race.

END-TO-END

A full-stack, end-to-end data capture, process, and analyze solution to assure customer ROI.

AUTONOMOUS

True autonomy via AI-powered drone-in-a-box. No pilot or visual observer required on-site ever.

FAA-APPROVED

First company approved by FAA to operate automated drones. The critical requirement to scale.
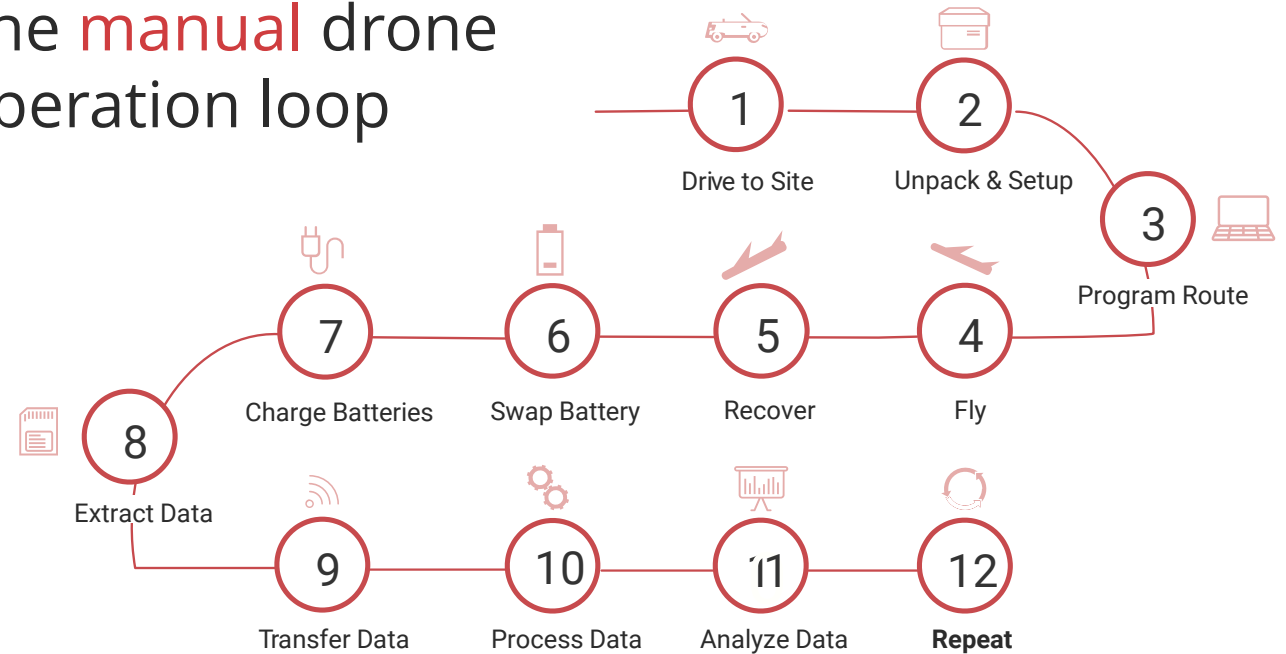
The Key Commercial Drone Problem Solved

Why is this huge market underpenetrated today?
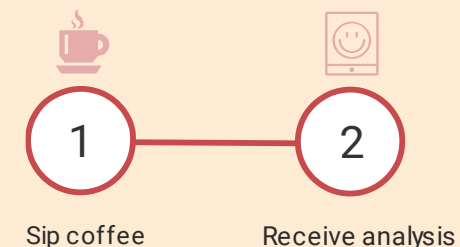
The answer is two-fold:

Problem 1: Manually operated drones are not practical

Problem 2: Default FAA regulations prohibit automated operation

The manual drone operation loop

1. Drive to Site
2. Unpack & Setup
3. Program Route
4. Fly
5. Recover
6. Swap Battery
7. Charge Batteries
8. Extract Data
9. Transfer Data
10. Process Data
11. Analyze Data
12. **Repeat**

The automated drone operation loop

1. Sip coffee
2. Receive analysis

Exclusive FAA Approvals Critical to Commercial Markets

First mover advantage defended by critical IP, trade secrets, and experience

FAA Approves Commercial Drone Flights with No On-Site Pilots

Flight Beyond-Visual-Line-of-Sight (BVLOS)

Key to permitting automated operation, the Scout System does not require a pilot to be on-site with eyes on the drone.

No on-site Visual Observers or Humans Required after installation

Unlike other technologies, the Scout system requires no humans of any kind to be present on-site while the drone is flying. Without this ability, automation is not possible.

In-Person Preflight Checks Not Required

In addition, humans are not required to be present during any other stage of operation, such as pre-flight visual inspections of the aircraft.

Flight Over Roads Permitted

Also critical, the Scout system is permitted to transit over roads in the areas in which we operate without on-site human supervision.

"This authorization marks a seminal legal milestone, one that paves the way for developers in the drone industry to expand operations for pilot-less aircraft."

The Scout System™

Fully-automated, AI-powered drone system capable of continuous, unattended operation.

CUSTOMER

SCOUTVIEW™
Secure customer web interface, mission scheduler, data viewer, analytics software, & API

SCOUT™ DRONE
Fully-autonomous, AI-powered drone with visual, multispectral, and thermal sensor payloads
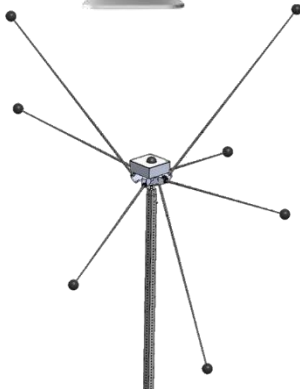
SCOUTBASE™
Weatherproof storage, docking, charging, data processing, and data transfer station

SCOUTOPS™
Remote operator's interface for oversight, maintenance, system diagnostics, and fleet administration

TASA™
Advanced ground-based air traffic detection sensor

Critical Scout System Features

Launch	Precision Landing	Mission Planning	Data Processing
Flight	Charging	Scheduling	Data Transmission
Imaging	Storage	Obstacle Avoidance	System Diagnostics

Automated Drone Flywheel

FAA approval kickstarts flywheel & drives <u>data moat</u>.

FIRST MOVER

Product Value Increase

Better AI increases customer ROI

Customer Adoption

More users added to the platform

Broader Analytics Portfolio

Better data unlocks better AI

Richer Data Libraries

Data autonomously collected every day

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Autonomy opens Vast Industrial Markets

Remote Storage Facilities

Solar Farms

Mining

Well Pump Inspection

UAS Markets Poised to Grow

*"Like the internet and GPS before them, **drones are evolving beyond their military origin to become powerful business tools**... They've already made the leap to the consumer market, and now they're being put to work in commercial and civil government applications from firefighting to farming. That's creating a **market opportunity that's too large to ignore**."*

– Goldman Sachs
Drones: Reporting for Work

Market Opportunity

A $100+ Billion[1] Addressable Market

$68.1 Billion

INDUSTRIAL MARKET

Sub-Markets: Oil & Gas, Solar, Nuclear, Hydro, Coal, Utilities, Construction, Ports, Railways, Prisons, Warehouses, Factories, Stockpile Yards, Mining, Delivery

Use Cases: O&M, Asset Inspection, Asset Tracking, Asset Security, Safety & Regulatory Compliance

$25.6 Billion

AGRICULTURE MARKET

Sub-Markets: Corn, Soybeans, Vineyards, Cranberries, Vegetables, Tree Fruits, Tree Nuts, Nurseries, Corporate Research, Seed Farms, Golf Courses, Hemp, Livestock

Use Cases: Weed Detection, Disease Detection, Pest Detection, Plant Counting, Irrigation Optimization, Harvest Planning, Phenotyping & Research

$20.2 Billion

DEFENSE MARKETS

Markets: Border Security, Base Security, FOB Security, Embassy Security, Vehicle Security

Use Cases: ISR, Perimeter Surveillance, Scouting

(1) PWC, 2016

Robot-as-a-Service (RaaS)

True automation allows for a complete solution and attractive business model

- Bundled hardware, software, operations, and maintenance:
  - Lowers the annual cost of data acquisition by 90%.
  - Provides AR with recurring software-like margins.
- Allows for:
  - Software upgrades, and new features monetizable through tiered pricing and app store-like concept.
  - Continuous improvements in user experience and potential for increased revenue per unit over time.

Advantages for Customers

ANNUAL SUBSCRIPTION FOR SERVICE

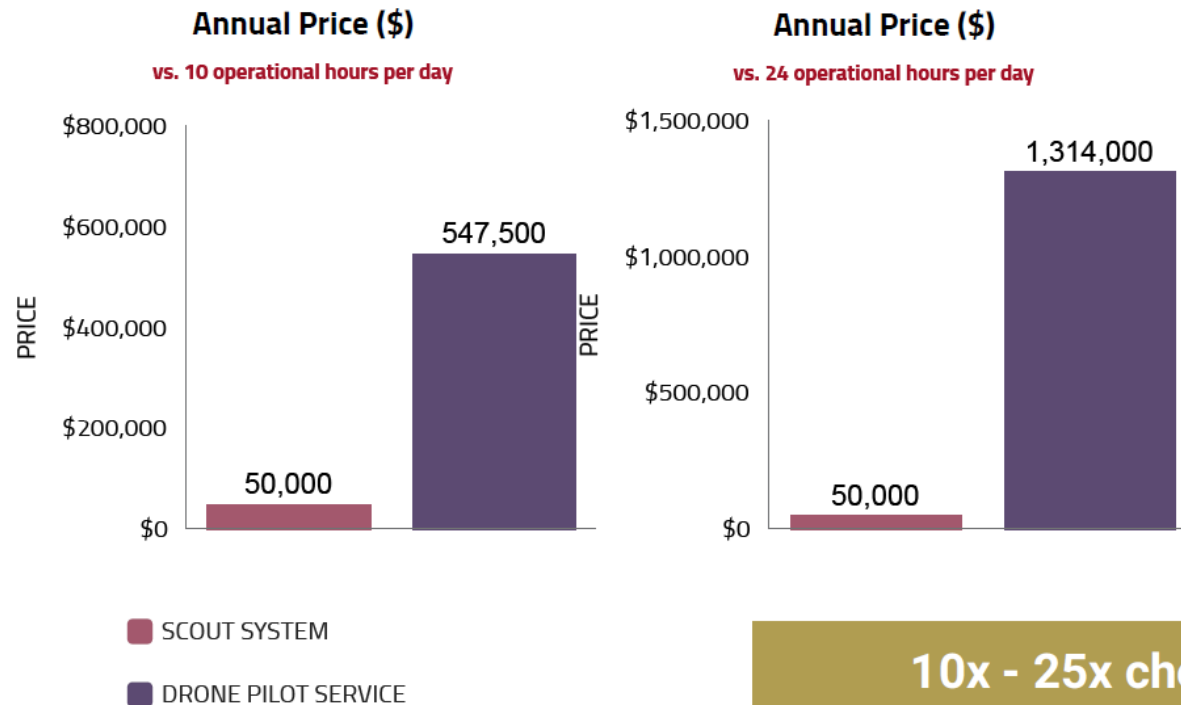**REAL-TIME AUTOMATED OPERATION**

LOW UPFRONT CAPITAL COSTS

NO LONG-TERM RISK

NO MAINTENANCE RESPONSIBILTIES

NO CUSTOMER PILOT TRAINING

AMERICAN ROBOTICS

The Economics of Automation

Average cost of drone pilot service in US, ~**$150/hour**[1]

Pilot cost ranges from $100 to $500 per hour. Source: DroneDeploy[1]

Annual Price ($)
vs. 10 operational hours per day

547,500

50,000

Annual Price ($)
vs. 24 operational hours per day

1,314,000

50,000

■ SCOUT SYSTEM
■ DRONE PILOT SERVICE

(1) DroneDeploy: How to Price Your Drone Mapping Services, 2017

Performance Difference

In addition to cost reduction, the Scout System works around the clock, 24 hours per day. Between flight missions, each unit is:
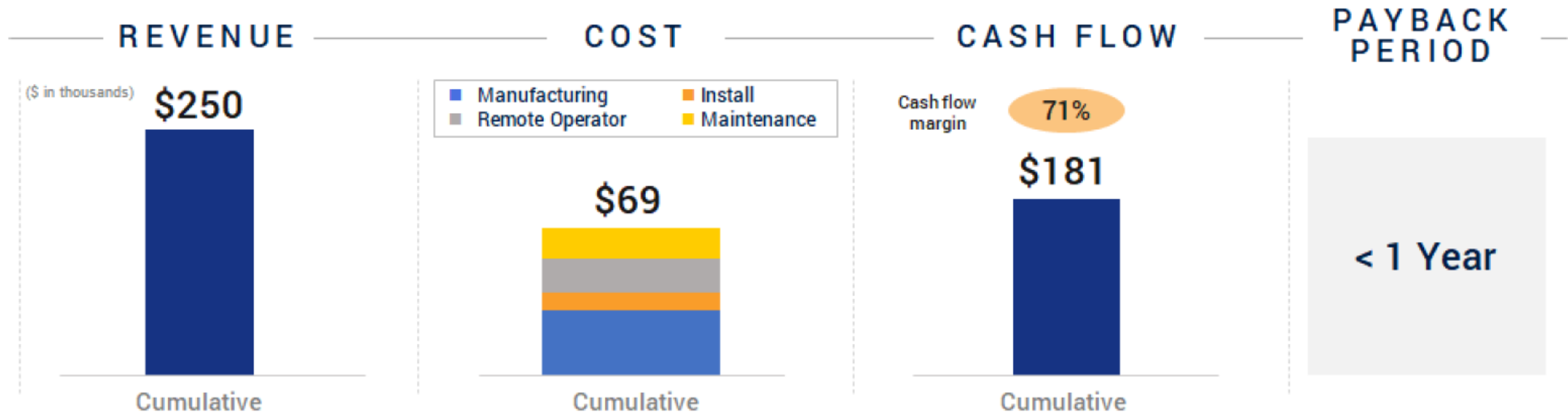
- Charging the drone
- Path planning next mission
- Processing customer data
- Analyzing customer data
- Storing customer data
- Transferring customer data
- Monitoring system health
- Monitoring airspace

10x - 25x cheaper than manual drone services

Scout System™ | Unit Economics

REVENUE

($ in thousands)

$250

Cumulative

COST

- Manufacturing
- Install
- Remote Operator
- Maintenance

$69

Cumulative

CASH FLOW

Cash flow margin — 71%

$181

Cumulative

PAYBACK PERIOD

< 1 Year

[1]Annual revenue number is estimate of average annual subscription rate, collected over an estimated service life of 5 years. Actual rates will vary based on system configuration and other factors.
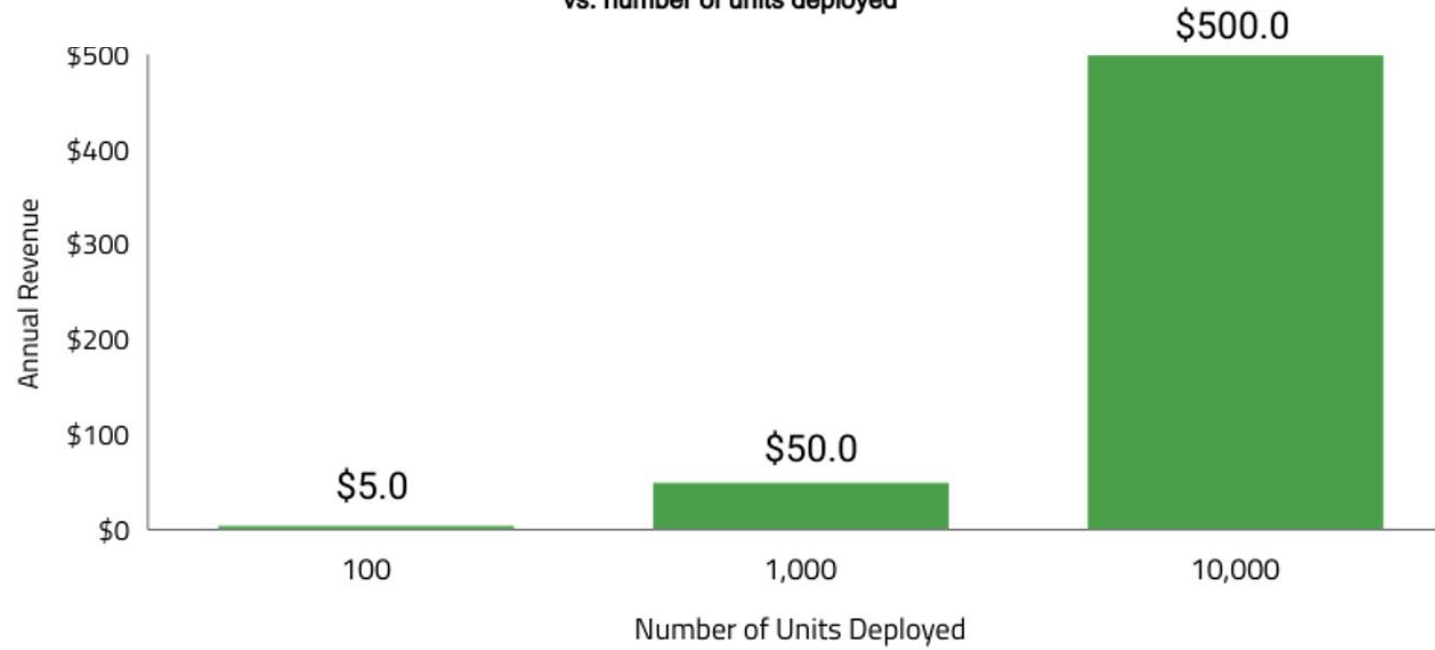
[2]Manufacturing costs are estimated based on projected increases in volume and manufacturing efficiencies as of 2023

[3]Remote Operator costs project a ratio of 1 remote operator per 20 drones as of 2023

[3]Note: Non-GAAP analysis, focused on cash returns; for GAAP purposes, the RAAS model results in initial deferred revenue and capitalized costs which are recognized over the life of a contract. the Scout System sale is capitalized as an asset on balance sheet and depreciated over the life of the contract

Source: Management estimates

AMERICAN ROBOTICS

Annual Recurring Revenue (ARR)
vs. number of units deployed

Annual Revenue (y-axis): $0, $100, $200, $300, $400, $500

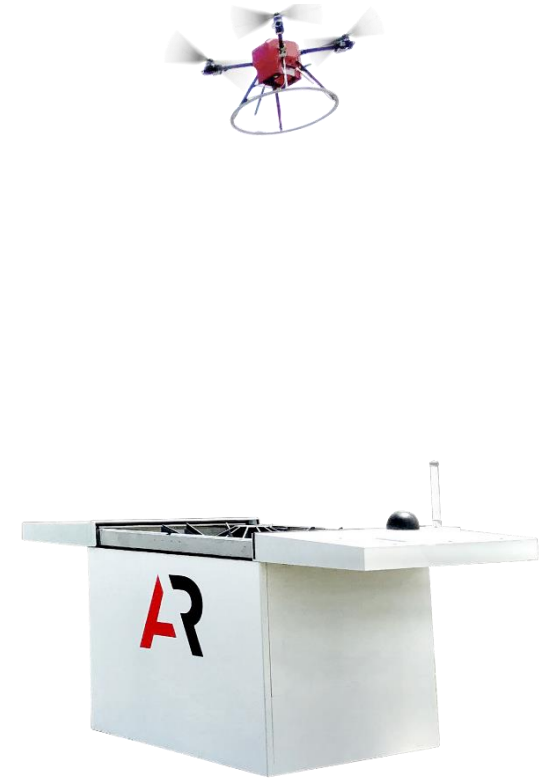| Number of Units Deployed	Annual Revenue
100	$5.0
1,000	$50.0
10,000	$500.0

TAM%

Number of units as % of estimated Global TAM

| 0.005% | 0.05% | 0.5% |

SALES ACTIVITY

Engaged with blue-chip customers on path to fleet deployments. Building close relationships to ensure long-term growth and success.

STOCKPILE REPORTS — **>100** potential units

ConocoPhillips — **>1,000** potential units

Chevron — **>1,000** potential units

Top 10 O&G Corp — **>1,000** potential units

Top 10 O&G Corp — **>1,000** potential units

Top 10 Rail Corp — **>1,000** potential units

Many more.... — **>1,000** potential units

Sales & Pipeline Activity

▸ Received purchase order from **Chevron**; initial Scout Systems™ delivered.

▸ Received purchase order from **ConocoPhillips;** initial Scout System™ delivered.

▸ Completed product integration with **Stockpile Reports;** next phase of installations are planned for Q2.

▸ Additional Fortune 500 industrial companies are expected to purchase units for delivery in Q2, Q3, and Q4.

▸ Expect customer **backlog** to build in the coming months as we continue building up our manufacturing, installation, and operations capacity.

▸ Engaging in **safety and risk analyses** with customers to prepare for wide-scale fleet deployments

▸ These franchise customers represent the ability to purchase and utilize **fleets** of Scout Systems across the United States and the world.

ONDAS
Holdings Inc.

Strategic & Financial REVIEW

Key Priorities and Accomplishments for
Ondas Networks and American Robotics

PROGRESS ON KEY PRIORITIES

Launch orders mark transition to platform delivery

▸ Launch orders secured in preparation for initial 900 MHz deployments
▸ 900 MHz use case expansion beyond ATCS
▸ MC-IoT Rail lab delivered for MxV Rail (AAR)
▸ Siemens partnership continues to broaden
▸ Contract manufacturers and supply chain vendors qualified

Position company to be long-term leader of industrial drones

▸ Progressing through initial deployments with Fortune 100 customers
▸ Maturing operations and manufacturing capacity to support 100s and eventually 1000s of units
▸ Cementing leadership position within industry and with regulators
▸ Investing in valuable payloads, AI, and software feature sets
▸ Attracting key talent to join team

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DYNAM.AI INVESTMENT

American Robotics establishes partnership with dynam.AI, a software developer for complex artificial intelligence and machine learning projects.

▸ American Robotics entered into a joint development, services and marketing agreement with Dynam.AI

▸ Partnership supported by Ondas Holdings equity investment in Dynam.AI

▸ Funds used to support Dynam's proprietary Vizlab™, an AI/ML platform - an advanced developer toolkit for data scientists

▸ Expand and enhance AR's IP library and analytics capabilities with artificial intelligence based on physics-based algorithms

ARDENNA ACQUISITION

Ardenna accelerates Rail platform opportunity

- Estimated $6.85B TAM within rail

- Over 200,000 miles of track and 100s of rail yards in North America

- Leading provider of data analytics for rail inspection

  - Unmatched data library – Over 28,000 miles of track imaged, 30+ TBs

  - Domain expertise – 7+ of R&D development with Class 1 Rail

  - AI talent – Coveted expertise in AI, ML, and computer vision

- Blue chip customer pipeline – BNSF and others

- Opportunity to both integrate within Scout System and market as standalone product
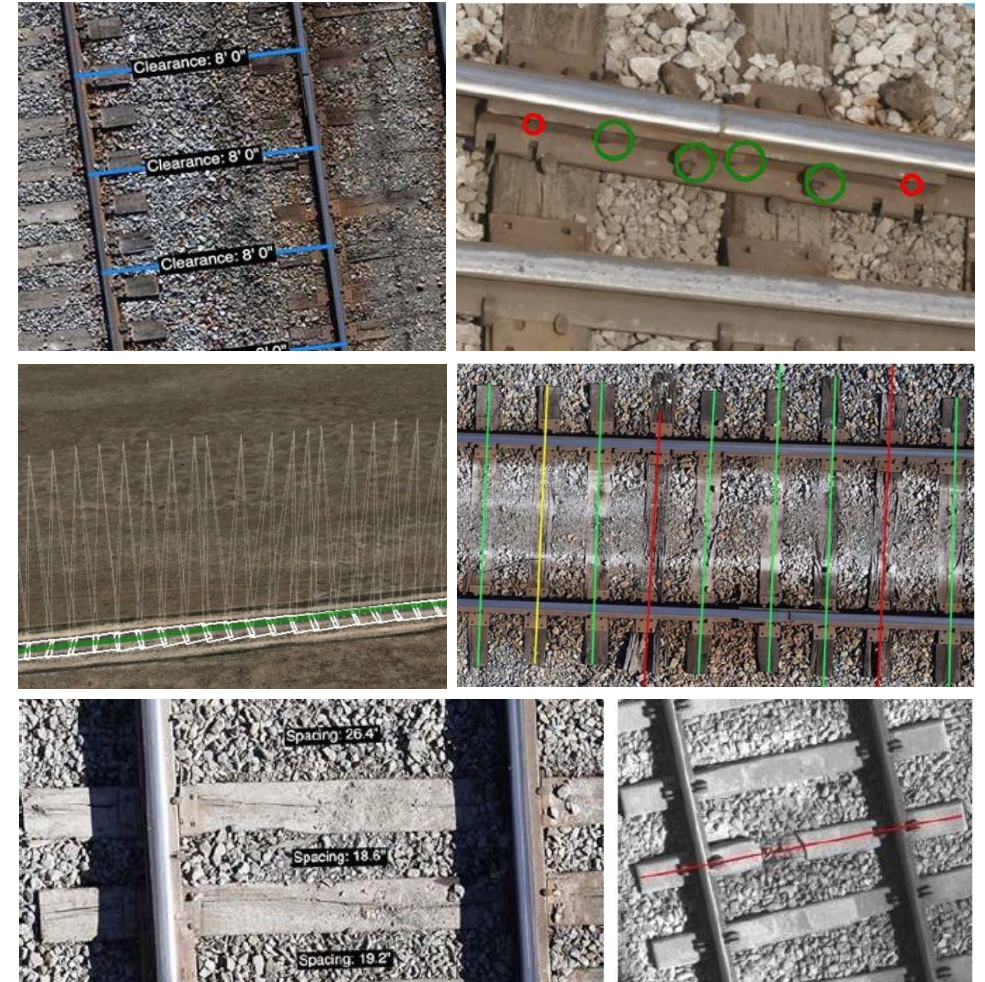
FINANCIAL REVIEW | Q1 2022

SELECT P&L DATA
(Unaudited)

	Three Months Ended March 31,	
	2022	**2021**
Revenues, net	$ 410,198	$ 1,164,764
Cost of goods sold	287,932	555,350
Gross profit	122,266	609,414
Operating expenses:		
General and administration	5,524,717	2,408,854
Sales and marketing	681,663	187,372
Research and development	3,907,219	894,576
Total operating expenses	10,113,599	3,490,802
Operating loss	(9,991,333)	(2,881,388)
SUPPLEMENTAL INFO:		
Depreciation & Amortization	1,063,855	149,754
Stock-based Compensation	1,328,395	1,348,462
	2,392,250	1,498,216

Key Takeaways:

- ▸ P&L reflects preparation for larger commercial rollouts in 2022 for Ondas Networks and American Robotics

- ▸ OPEX increase reflects addition of American Robotics post-acquisition

- ▸ OPEX, includes non-cash expenses of $2.4 million for Q1 2022 and $1.5 million for Q1 2021

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FINANCIAL REVIEW | Q1 2022

SELECT CASH FLOW DATA

(Unaudited)

	Three Months Ended March 31,	
	2022	**2021**
Net cash used in operating activities	$ (7,101,930)	$ (3,066,199)
Net cash used in investing activities	(1,562,295)	(148,281)
Net cash provided by financing activities	(90,237)	1,179,934
Increase (Decrease) in cash	(8,754,462)	(2,034,546)
Cash and cash equivalents, beginning	40,815,123	26,060,733
Cash and cash equivalents, end	$ 32,060,661	$ 24,026,187

Key Takeaways:

‣ Balance sheet healthy

‣ Investments reflect upfront leasehold improvements paid in Q1 2022 and building of Scout Systems

‣ Businesses are capital light from a CapEx perspective

‣ ATM in place to support broadening of customer solutions

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AMERICAN ROBOTICS

ENABLING MISSION-CRITICAL IOT

May 2022