

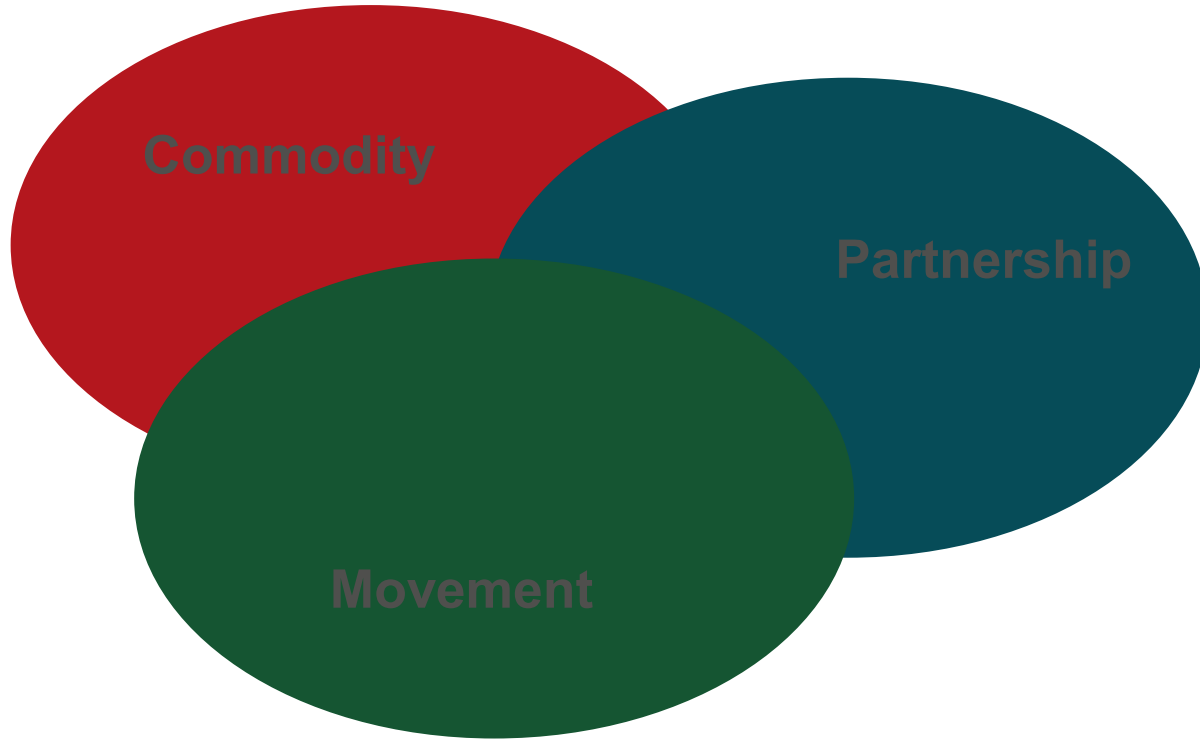


MAKING AUTONOMOUS OPERATIONS POSSIBLE

Mike McNair, Innovation Manager

August 2019

What is On-Demand Mobility?



It's about an emerging and growing Eco-System

SCALABILITY

MODALITY

AWARENESS

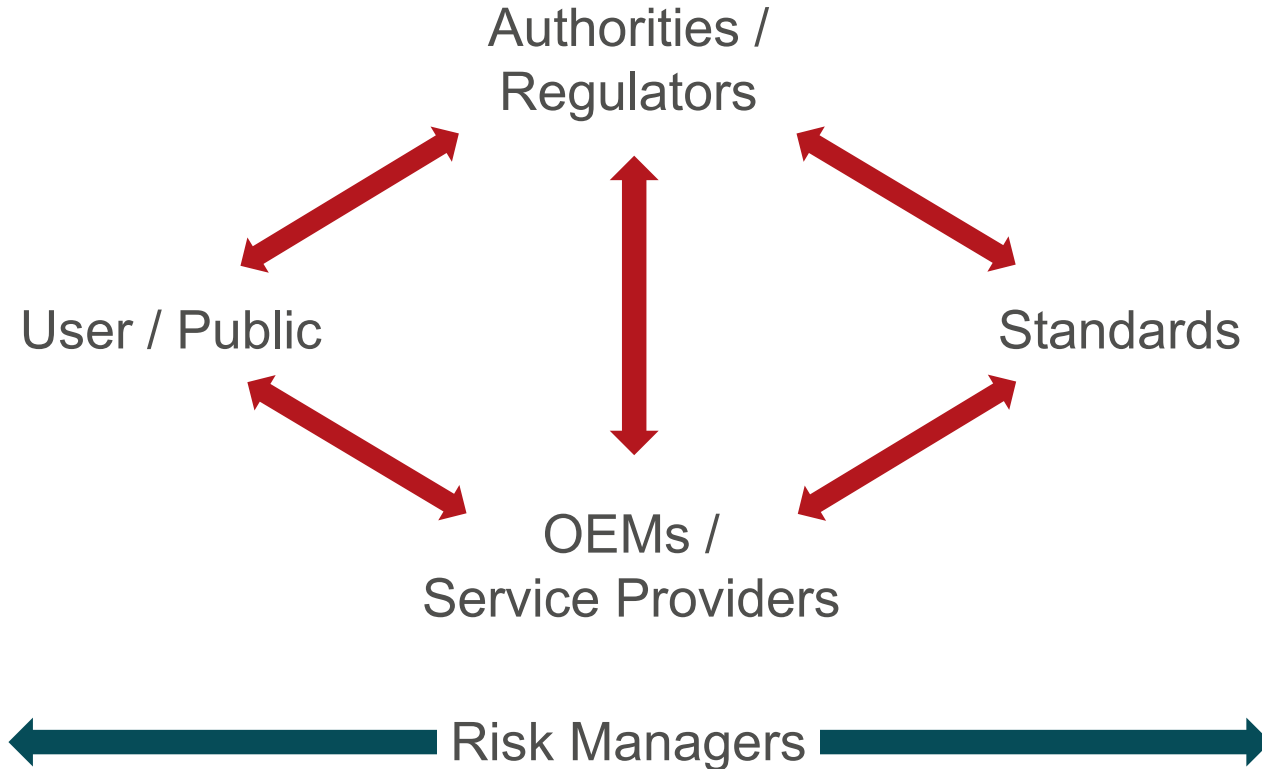
**TRAFFIC
DENSITY**

**SYSTEM
INTEGRITY**

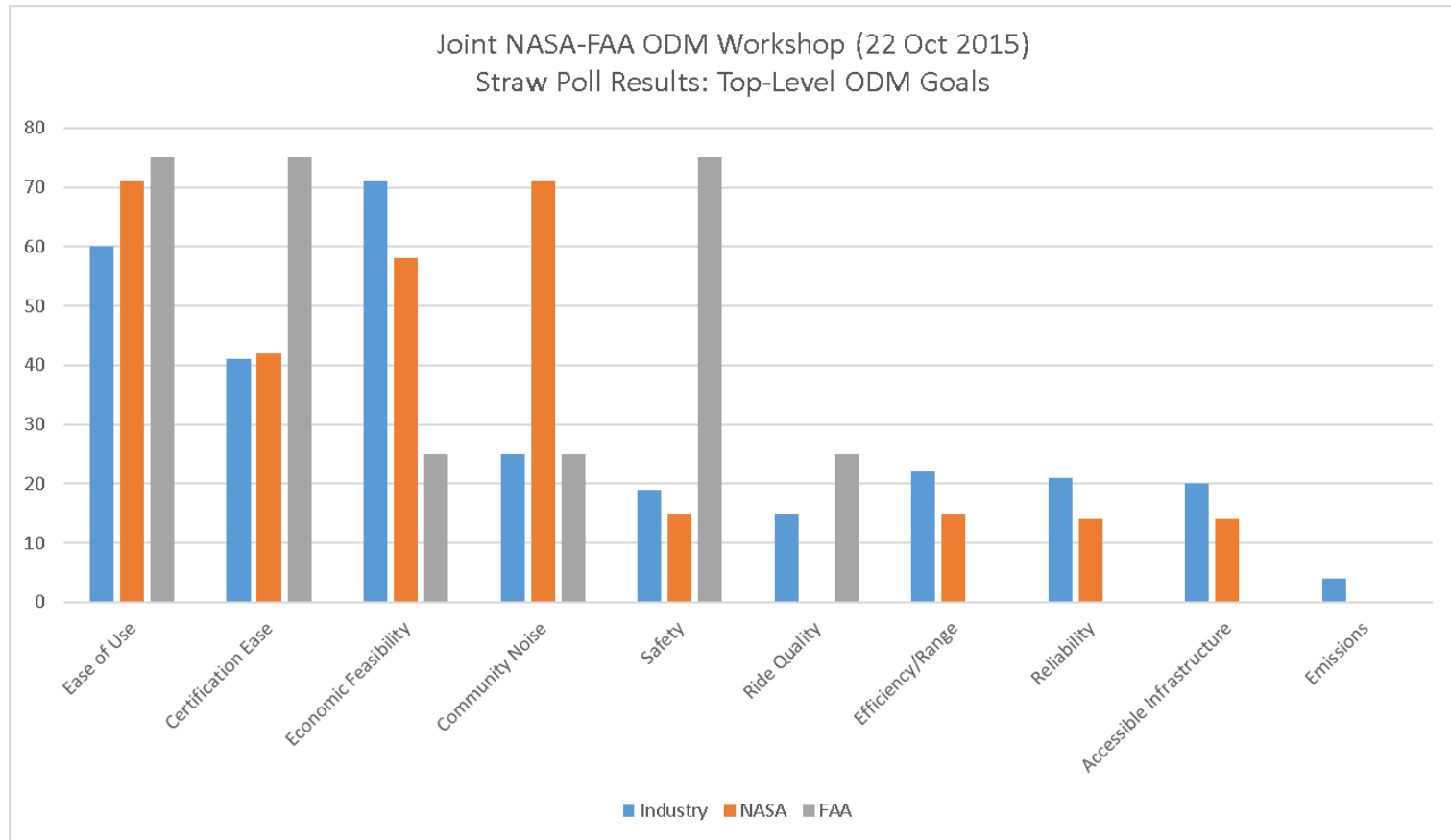
**TO/L
LOCATIONS**

**PASSENGER/
PAYLOAD
DISTRIBUTION**

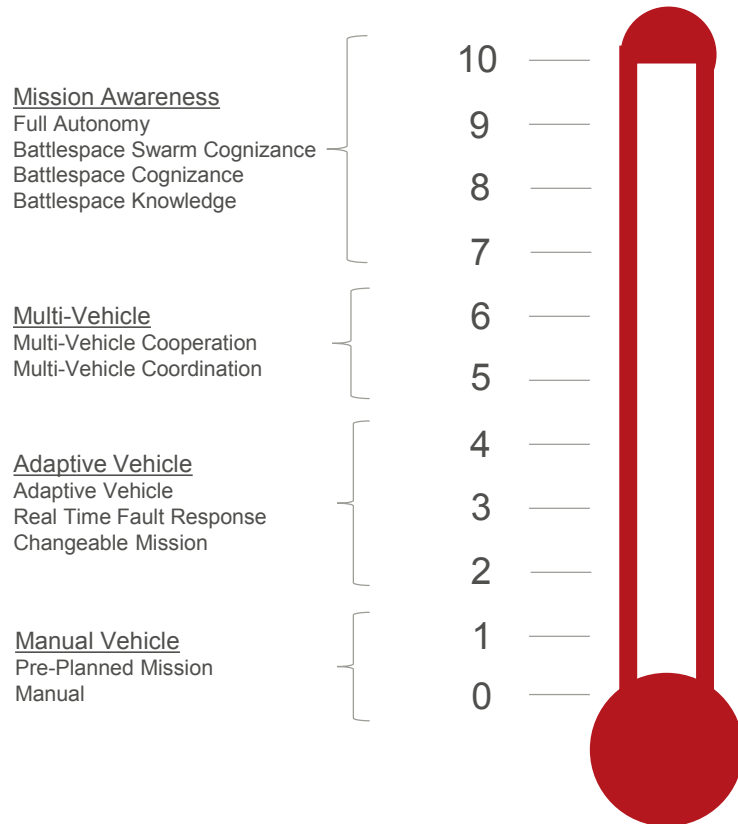
Many of the changes are not new; just magnified in new ways!



What We Want In An ODM Program



Technical Maturity vs Level of Autonomy



What is the right amount of autonomy?

Wrong Question ...

“When can I have full autonomy?”

More Appropriate Question ...

“When can I get the autonomy I need?”

Needed for ...

- Safety
- Quality
- Interoperability
- Verification
- Qualification
- Certification
- Risk Reduction

Do We Need Industry-Wide ...

- Common Architectures?
- Common Toolsets?
- Common Operating Environments?
- ... Other?

Where do we really need consensus?

What's Missing? What Needs To Be Improved?

Closure on Vehicle and Infrastructure

- TO/L, Ditch Options
- Traffic Density Increase
- Failsafe Response
- Lanes & Routes
- Increased Sensing Range
- Automated GB Services
- Smaller SWaP-C
- Heterogenous Airspace
- Updated Certification Process
- Supporting Standards

- *... and more*

Accelerate Everything Else

- Multi-OEM Interoperability
- Non-Determinism
- Human-Machine Interaction & Collaboration / User Experience
- Displaced Situational Awareness
- Nomenclature / Taxonomy
- 1:1 to m:n Operations
- Security
- Multi-LOA Integration
- Degraded Operations
- Certification Tools

- *... and more*

What (Where) Is The Right Track?

“We only know we are on a track; We know it’s a right track when we reach the destination”

Think: Self-Assessment (Am I carrying the right ticket?)

- Metrics
- Data Collection
- Interoperability
- Demonstrations



Think: Big Picture (Am I taking the right vacation/trip?)

- More than the vehicle and infrastructure
- More than integration and interoperability
- This is part of a grand transportation concept

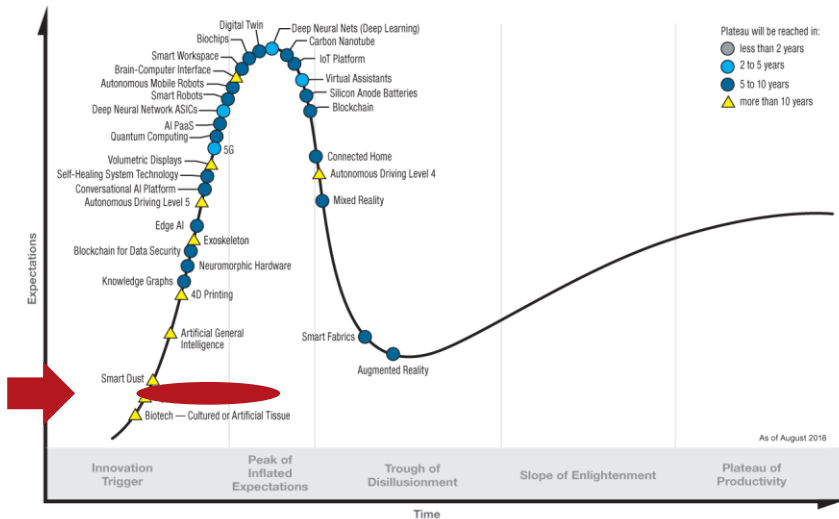


Think: Purpose (Am I enjoying the view / Am I achieving the experience?)

- Service Engagement
- Modalities and expected use
- Seamless transition between modalities
- ROI



Hype Cycle for Emerging Technologies, 2018



gartner.com/SmarterWithGartner

Source: Gartner (August 2018)
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Gartner.

Near-Term

- Safety Pilots
- Data Collection
- Visibility
- Perception

Longer-Term

- Push through the Hype Curve; including the trough
- Expect multi-phase roll-out
- Expand beyond vehicle and infrastructure
- Understand and implement training, maintenance, repair

THANK YOU