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Germany Briefing



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

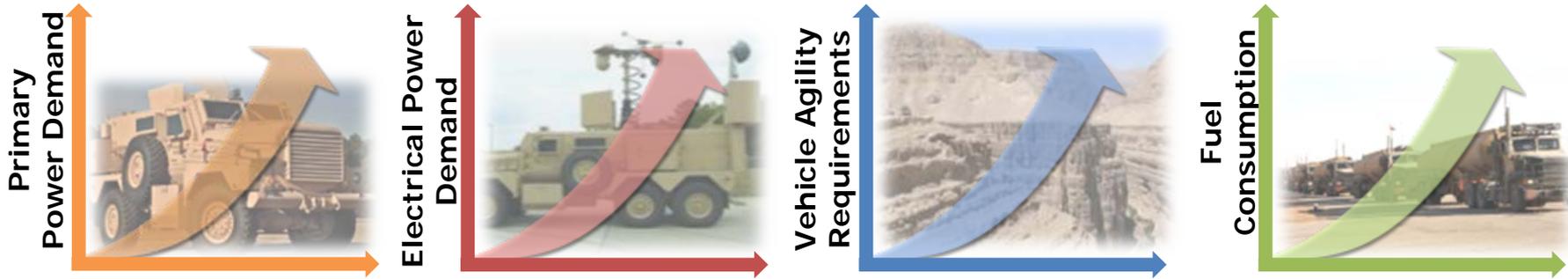
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Ground Vehicle Power and Mobility
27 July 2011

Report Documentation Page

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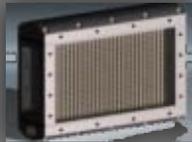
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Increasing demands, operational flexibility, and inter-relationships
Requires a Systems Engineering approach and investments in key technology areas



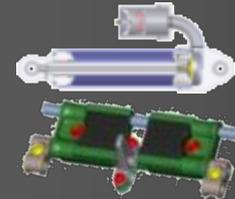
Propulsion & Thermal Management



Non-Prime Power Systems



Advanced Propulsion



Track & Suspension

Systems Level Analysis, Integration and Testing

Ground Vehicle Power and Energy Technology

Propulsion and Thermal Management

Diesel Engines

Turbine Engines

Transmissions

Advanced Radiators

Electrified Thermal Components

Advanced Electronics Cooling

Heat Recovery

Thermal Architectures

Non-Prime Power Systems

JP-8 Fuel Cell APU

Rotary Engine APU

Advanced Lithium Ion Batteries

Advanced Lead Acid Batteries

Capacitors

Li-Ion / Ultracap Hybrid Energy Storage

Advanced Propulsion

Integrated Starter Generator

Advanced Propulsion Systems

Traction Motor Testing

Advanced Propulsion Reliability Testing

High Temperature / Power SiC Power Electronics

Wide Band Gap Materials (SiC)

Track and Suspension

Track Systems

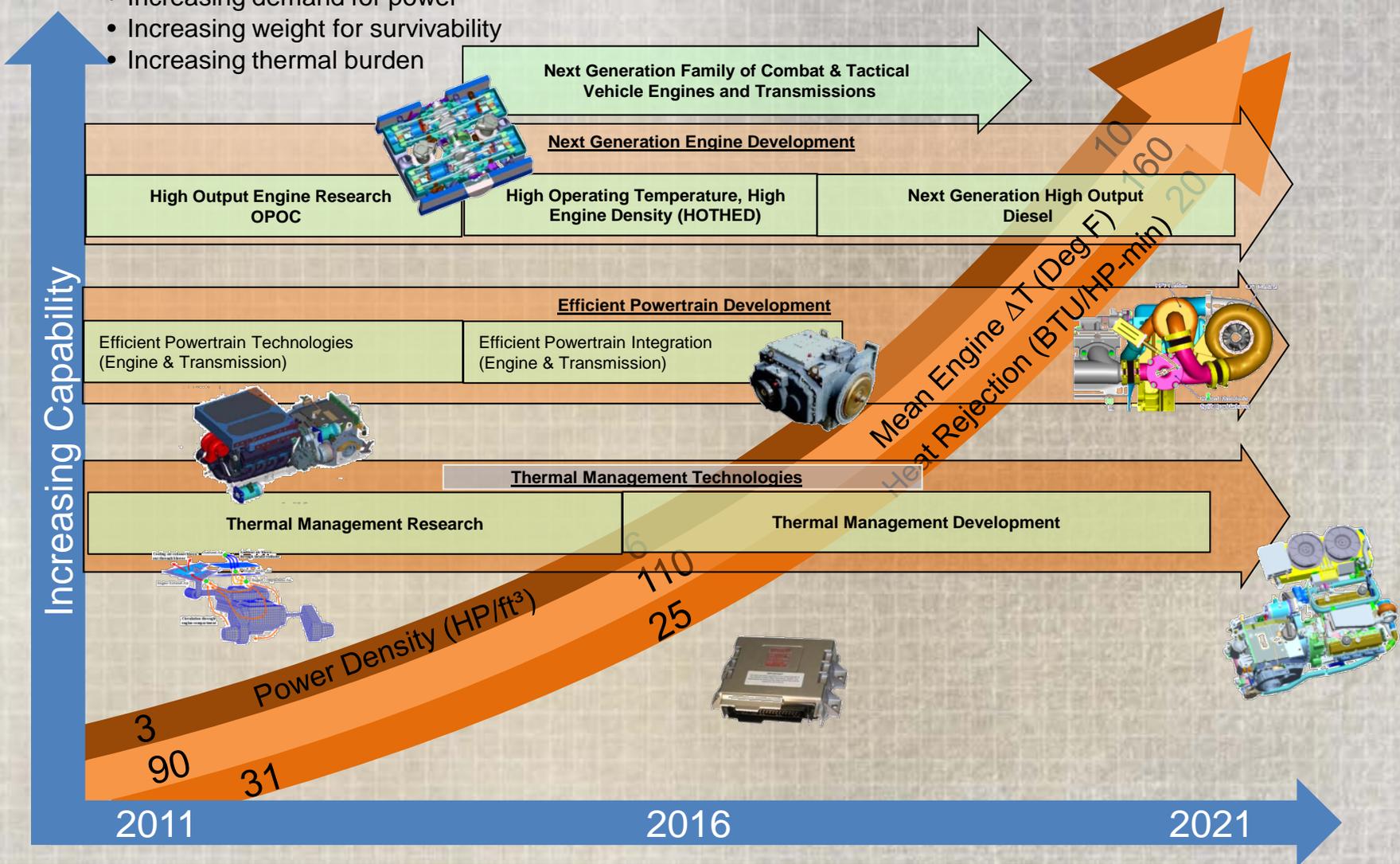
Suspension Systems

Electronic Stability Control

Track Elastomer Research

Challenges:

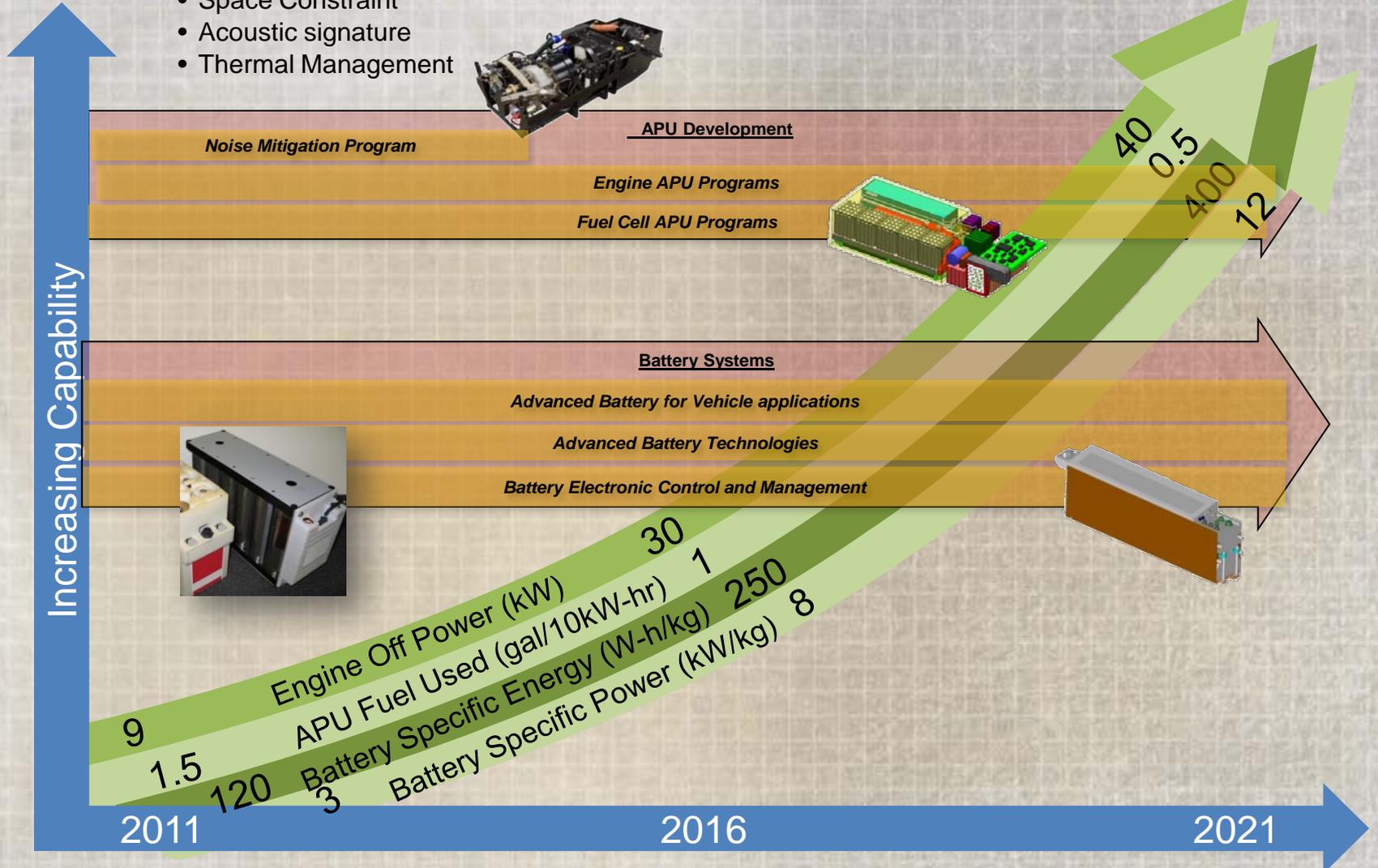
- Increasing demand for power
- Increasing weight for survivability
- Increasing thermal burden



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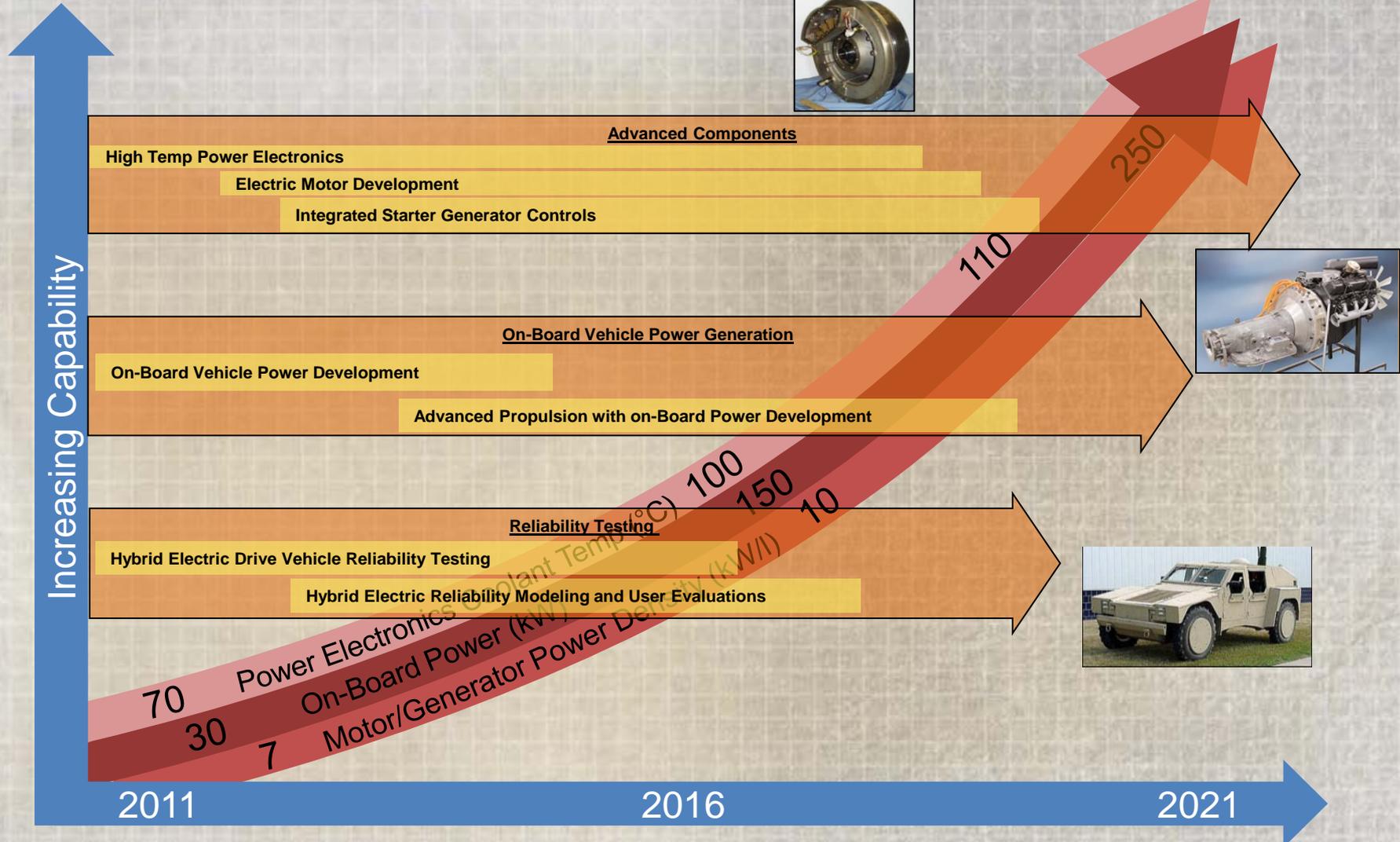
Challenges:

- Space Constraint
- Acoustic signature
- Thermal Management



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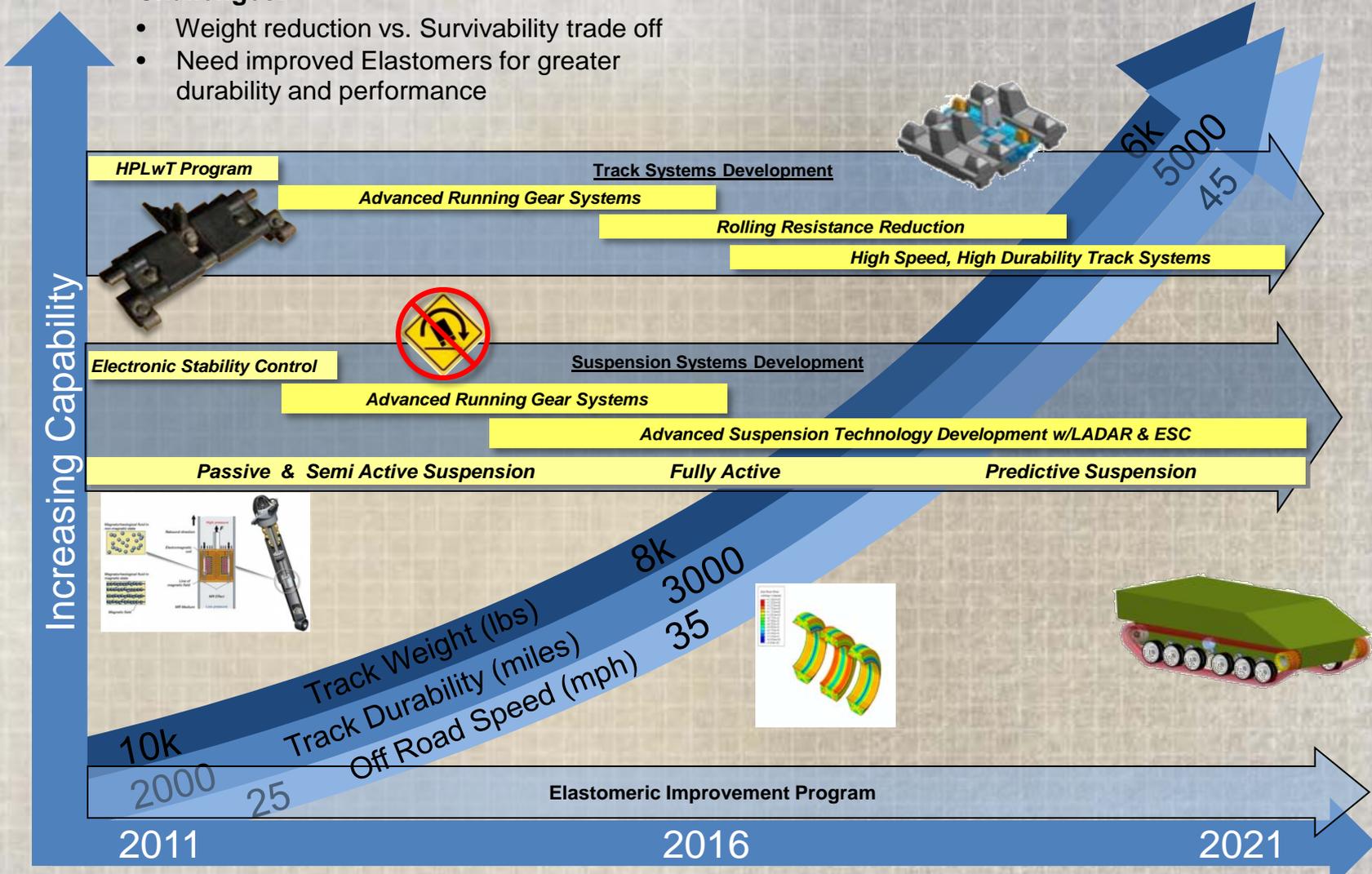
Challenges:



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Challenges:

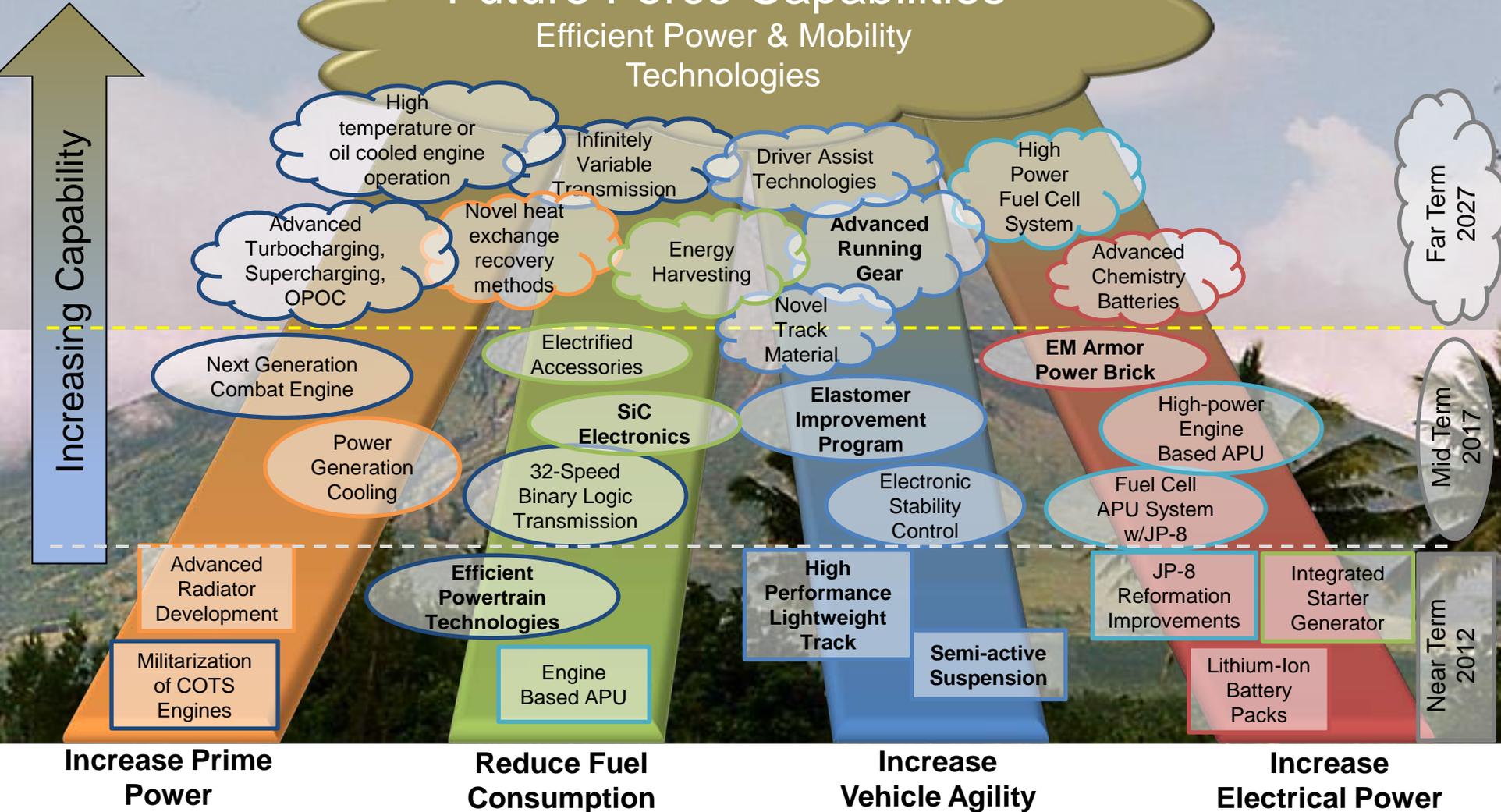
- Weight reduction vs. Survivability trade off
- Need improved Elastomers for greater durability and performance



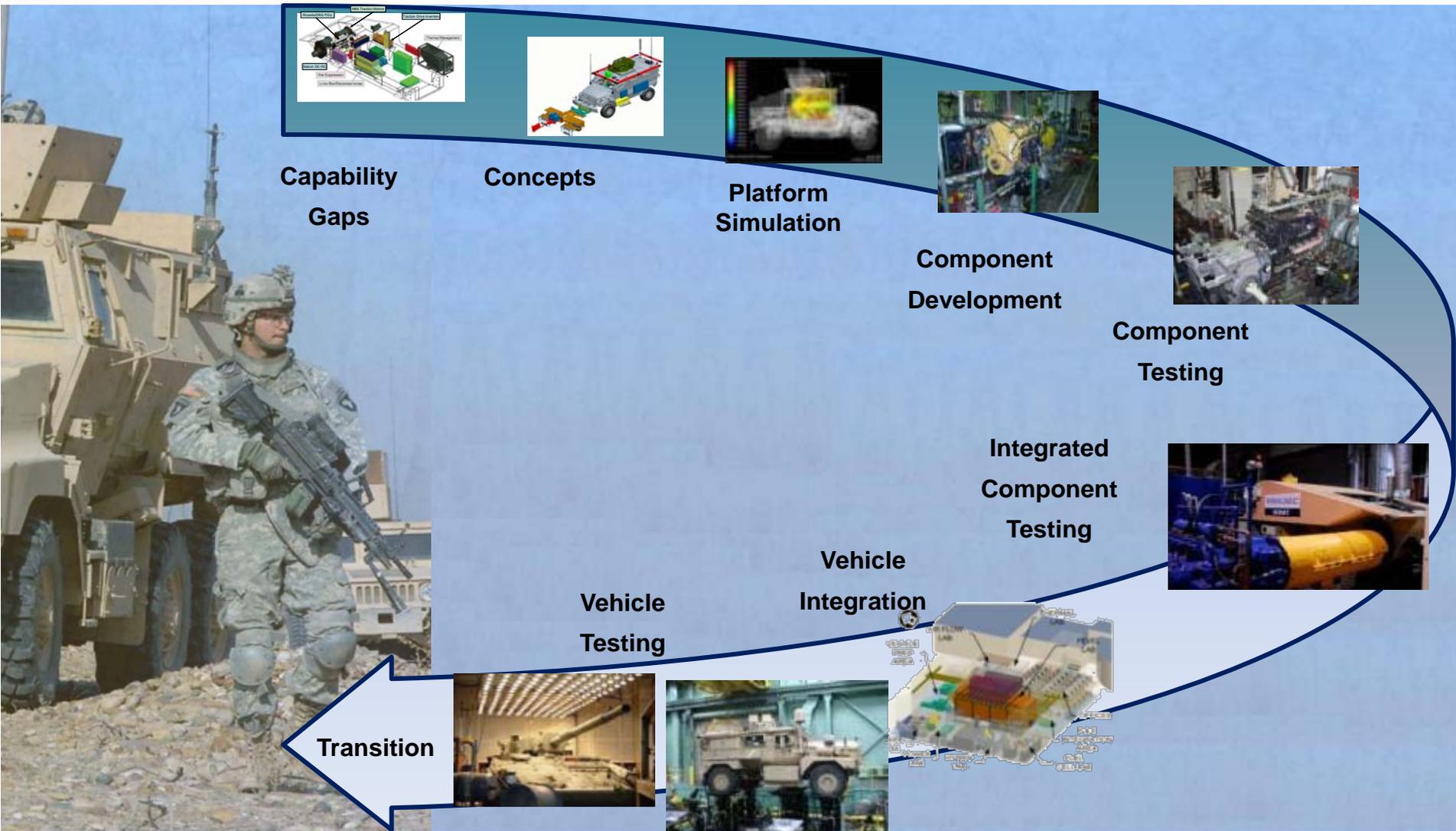
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Future Force Capabilities

Efficient Power & Mobility Technologies



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Enabling Warfighter Capability Through Technology Development & Integration

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It's all about...Supporting the Warfighter



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Back Up Charts





T-154



T-157i
T-161



T-158LL



T-150

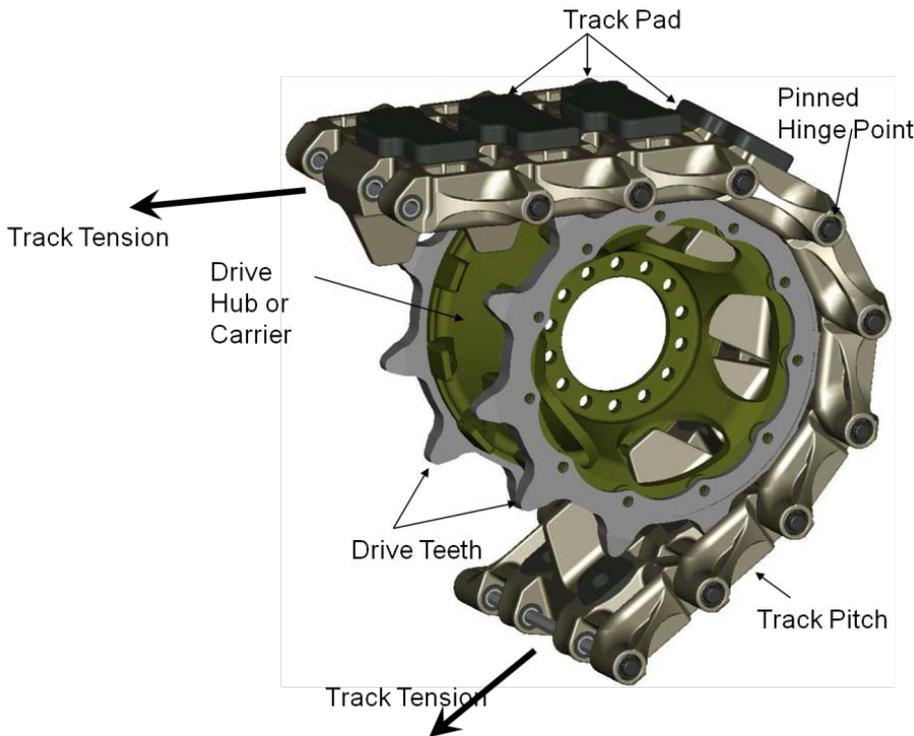


T-107 / T-160

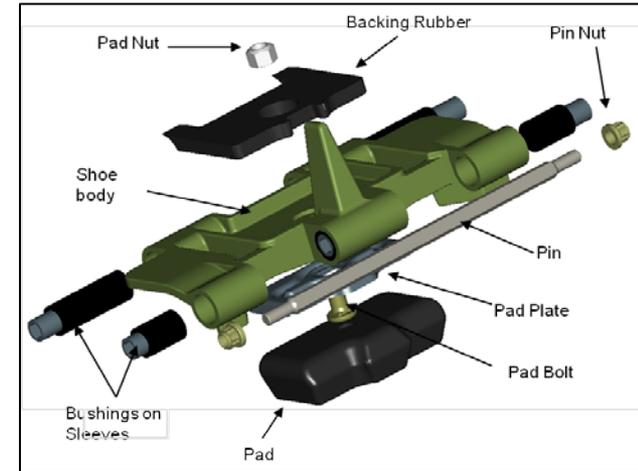
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Purpose of a Track System

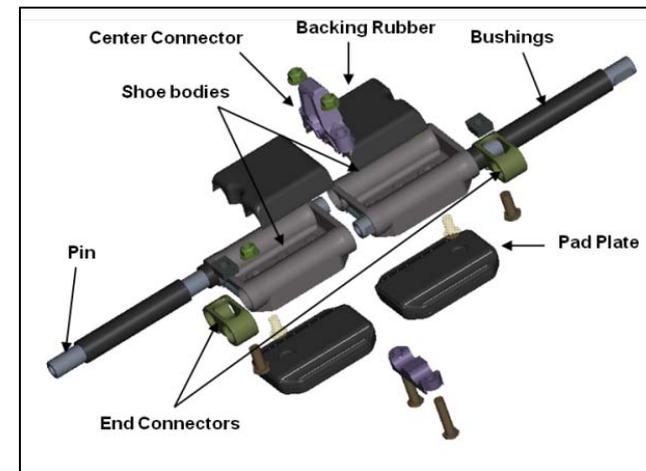
- Provides a transportable continuous, smooth road surface
- Supports vehicle load across large soft surfaces
- Enable large obstacle/gap crossing capability

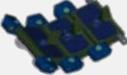
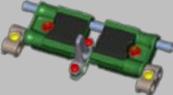
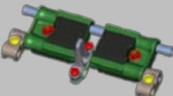
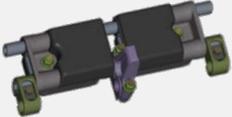


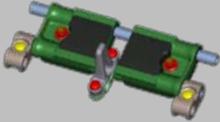
Single Pin Track



Double Pin Track



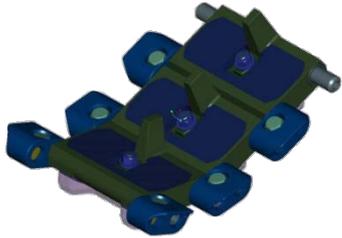
Class	Vehicle	Track	Max GVW (ton)	Weight (lb/ft)	Width (in)	Durability (Mi)
Light	M113 	T-130 (Replace by T150)	15	40	15	3000
		T-150 	15	45	15	10000
Medium	Bradley 	T-157i (Replace by T161)	32	68	21	2500
		T-161 	40	67	19.2	6000
	Paladin 	T-154 	32	62	15	5000
		PIM AMPV	T-161 	40	67	19.2
Heavy	M1 	T-158LL 	75	107	25	2100
	GCV					
	M88 	T-107 	75	102	28	1200
		XT-160 (In Qualification)	75	132	28	4000

Class	Vehicle	Track	Max GVW (ton)	Weight (lb/ft)	Width (in)	Durability (Mi)
Medium	Bradley		40	67	19.2	6000
	Paladin*					
	PIM					
	AMPV					
Heavy	M1		75	107	25	2100
	GCV					
	M88		75	132	28	4000

Three Track Systems Support Seven Vehicle Platforms

* Issues exist with increased track width

T150 Double Pin



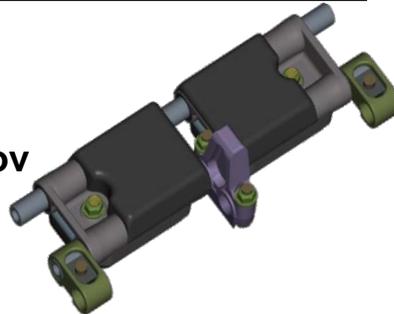
M113 fov
 15.0" Wide
 43.4 lbs/ft
 15-22 ton fov
 10,000 miles

T130 Single Pin



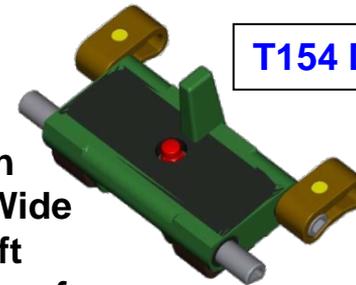
M113 fov
 15.0" Wide
 41.5 lbs/ft
 15-22 ton fov
 3000 miles

T158LL Double Pin



Abrams
 25.0" Wide
 110 lbs/ft
 56-75 ton fov
 2100 miles

T154 Double Pin



Paladin
 15.0" Wide
 58 lbs/ft
 25-30 ton fov
 5000 miles

T107 Double Pin



M88 fov
 28.0" Wide
 114 lbs/ft
 58-70 ton fov
 700-1100 miles

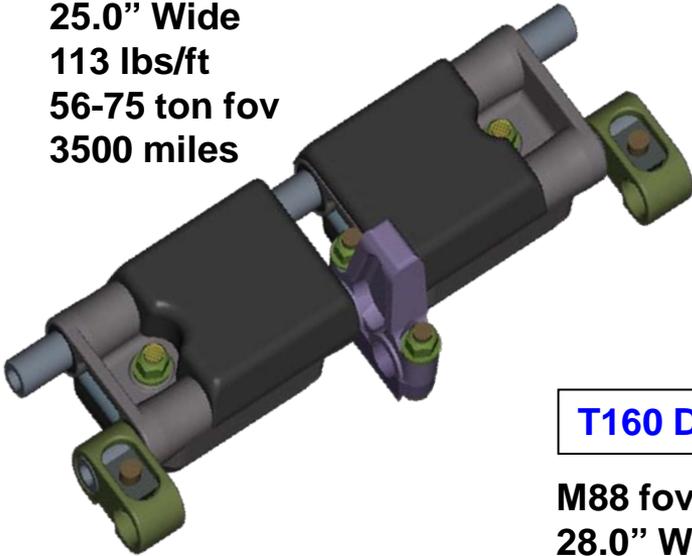
T157i Single Pin



Bradley fov
 21.0" Wide
 71.0 lbs/ft
 25-35 ton fov
 2400 miles

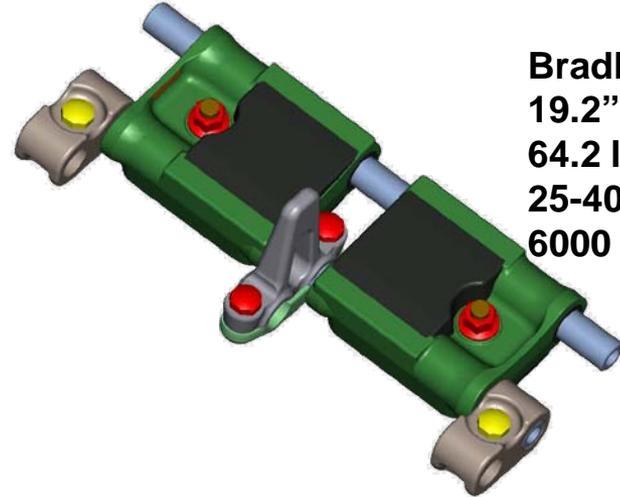
XT158IR Double Pin

Abrams
25.0" Wide
113 lbs/ft
56-75 ton fov
3500 miles



T161 Double Pin

Bradley fov
19.2" Wide
64.2 lbs/ft
25-40 ton fov
6000 miles



T160 Double Pin

M88 fov
28.0" Wide
135 lbs/ft
56-75 ton fov
3500 miles

