

Cargo Scanning & Solutions Overview

Practicing Speedy Innovation

Geoff Neiley, Sr. Mechanical Engineering Manager, 2/28/24

CARGO SCANNING & SOLUTIONS

RAPISCAN SYSTEMS | AS&E — PART OF THE OSI SYSTEMS FAMILY OF SECURITY COMPANIES



Broad Product Offering

Portal



Eagle P60



Eagle P60 ZBx



Z Portal for Trucks



Z Portal for Cars



Sentry Portal



Sentry + Z Portal



Eagle P25



CarView

Gantry



Eagle G60



OmniView Gantry



OmniView ZBx



Eagle C25

Mobile



Eagle M60



Eagle M60 ZBx



Eagle M25



ZBV Line

Trailer



Eagle T60



Eagle T25

Rail



Eagle R60



Eagle R90

Air Cargo



Eagle A25

Handheld



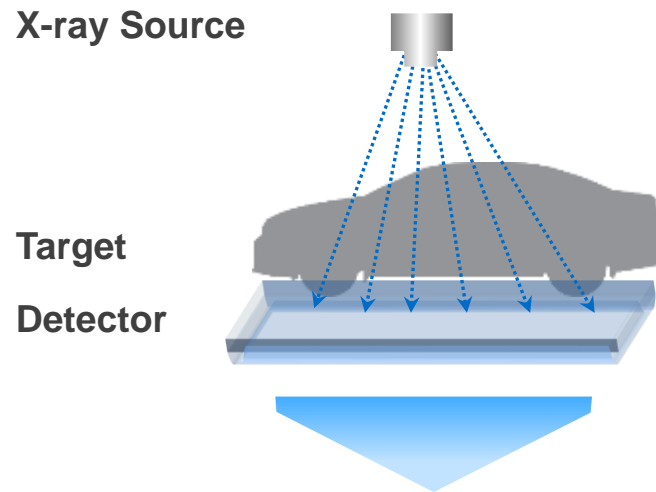
MINI Z

Complementary Detection Technology:

Transmission X-rays and Z Backscatter X-rays

Transmission Tx

X-rays detect by passing an X-ray beam through a target to a detector on the far side.

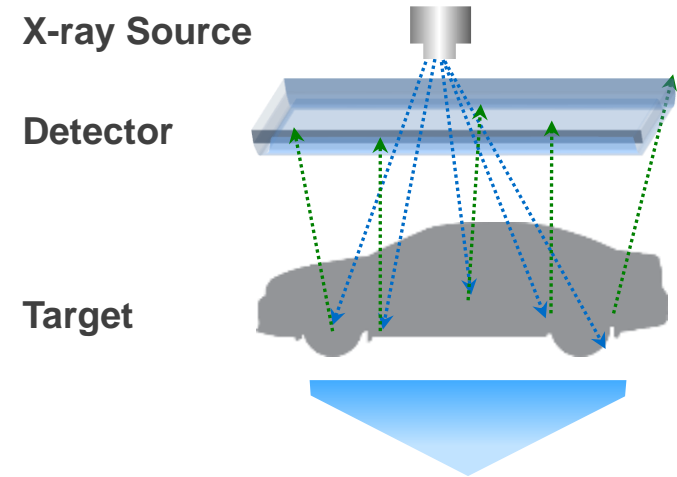


The transmission image reveals an artillery shell in the trunk of the vehicle

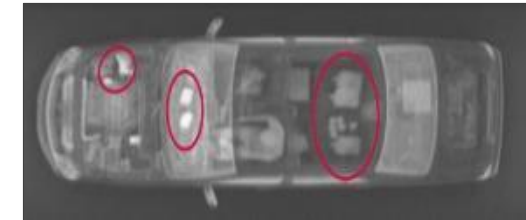


Z Backscatter Bx

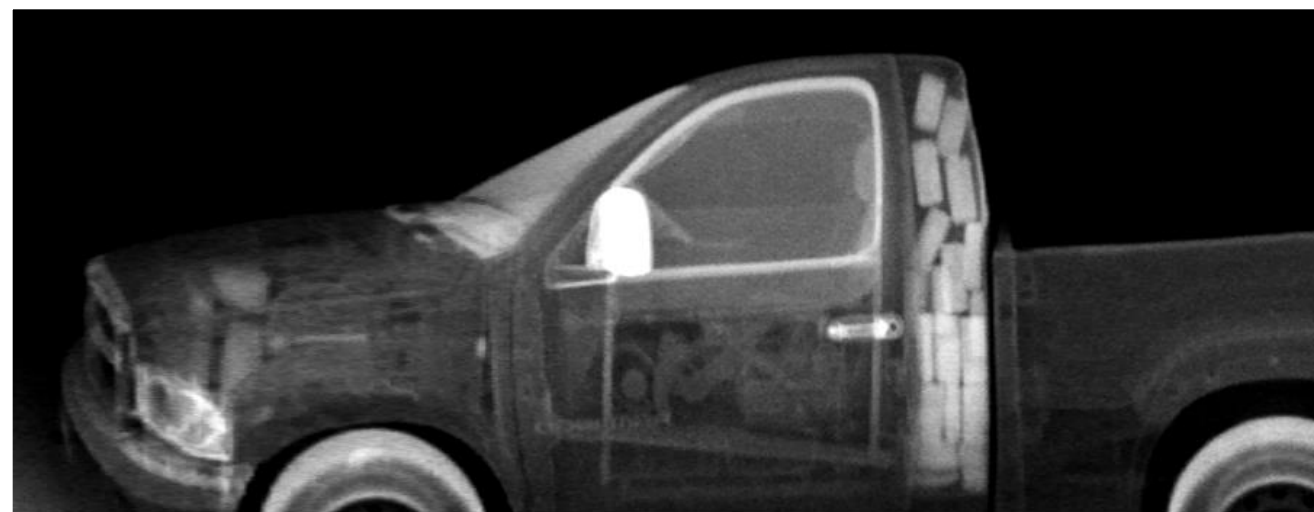
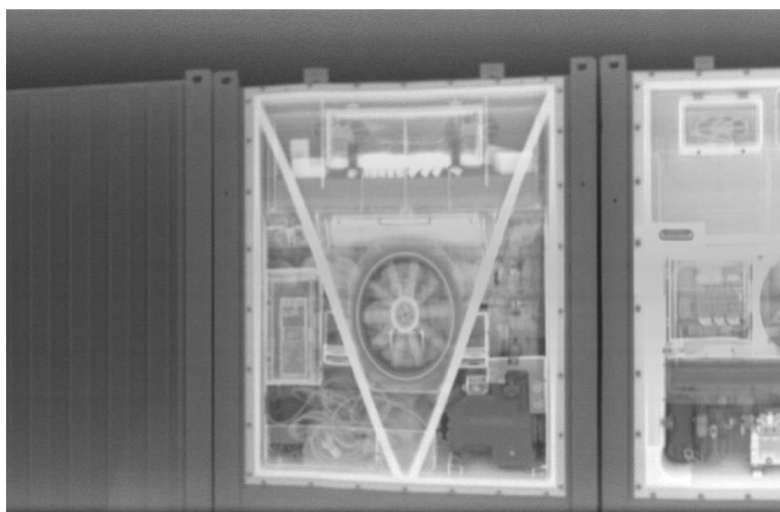
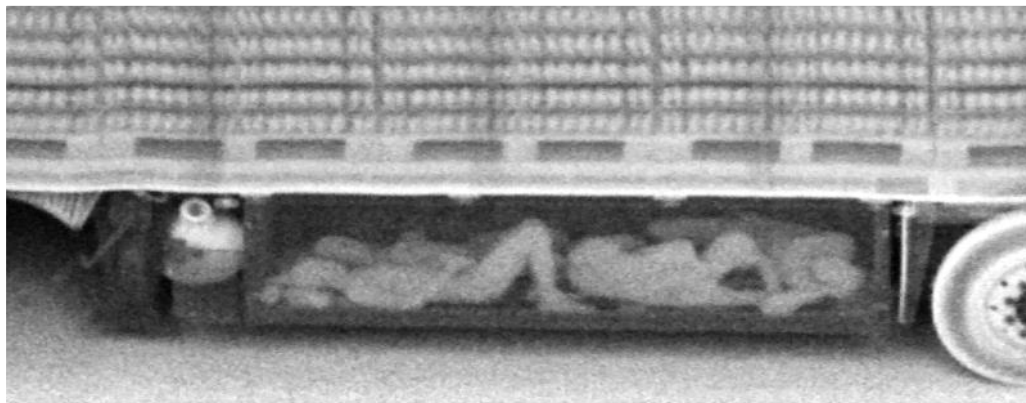
X-rays detect by reflecting an X-ray beam from a target to a detector on the near side, creating a photo-like image that is easy to interpret.



The Z Backscatter image of the same vehicle reveals hidden drugs and currency



ZBV Bx Images



Tx and Bx Compliment



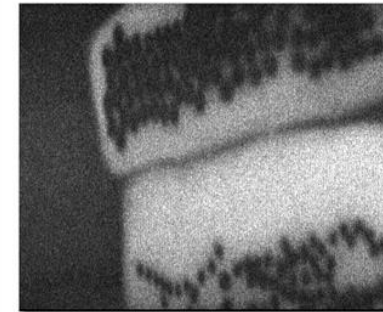
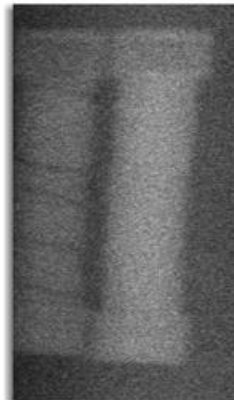
The Idea

- Can we take this... ... and make it... ... like this?



Proof of Technology (NVP – Not Viable Product)

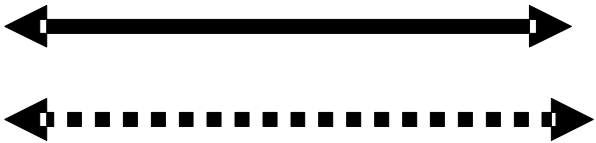
- **Building Security:** The device can also be used as to investigate for contraband or explosive hidden behind walls and in suspect bags:



But can we make it like this?



Scanner Module



Communication Link
(Wireless & Wired)



Operator Interface Module
Tablet PC w/ASEInspection Software



Two Li Ion Batteries

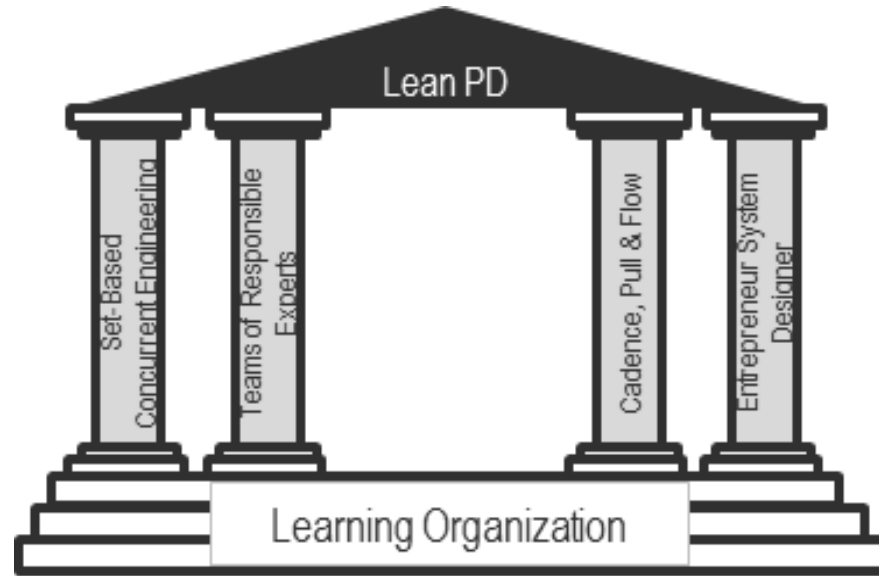


COTS Battery Charger



Carrying Case

Lean Product Development Process - Foundation

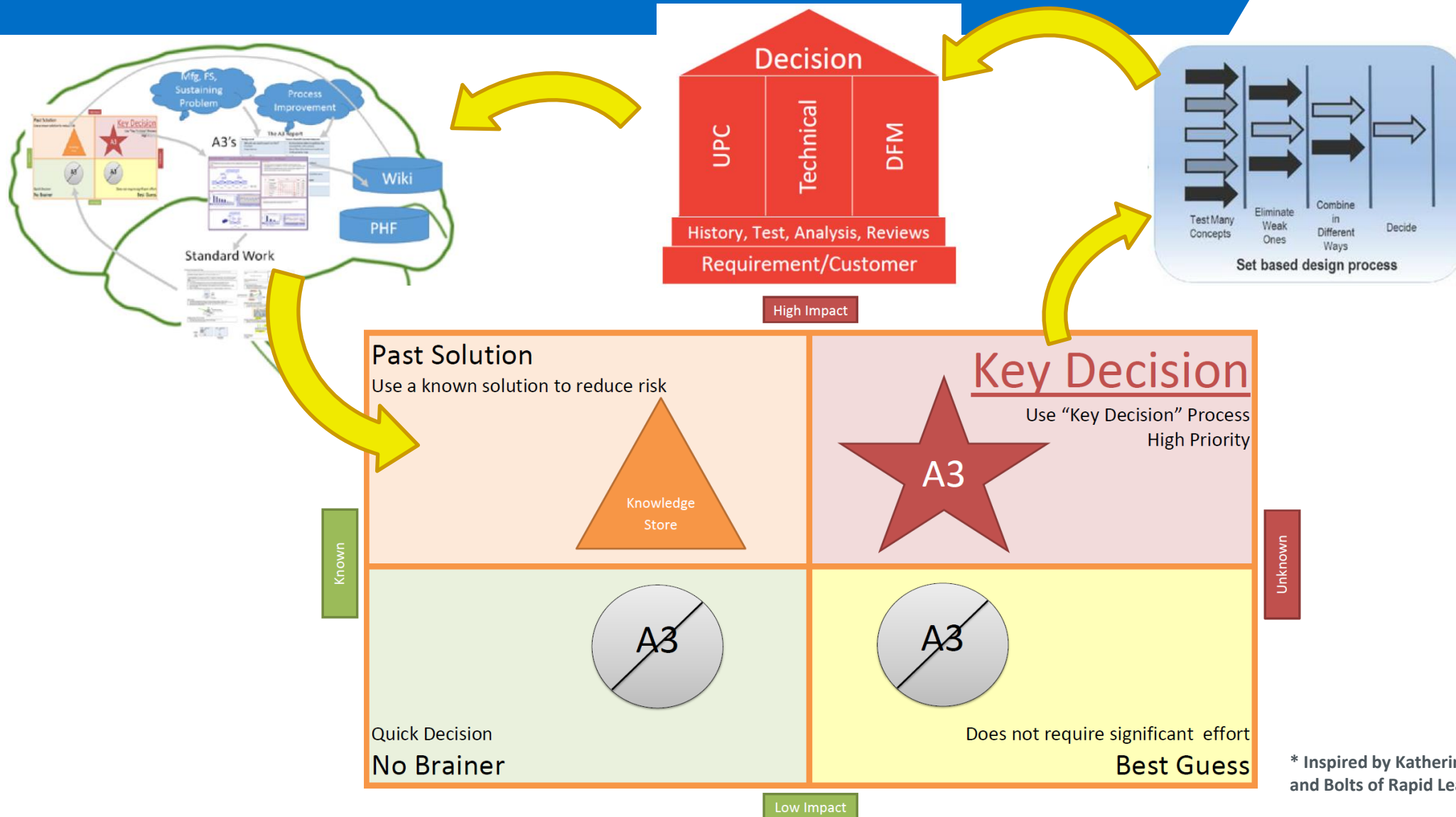


Phase 1
Key Decisions

ONE WAY →

Phase 2
Success Assured

Lean Product Development Process – Phase 1



* Inspired by Katherine Radeka, Presentation: The Nuts and Bolts of Rapid Learning Cycles, LPPDE-NA, 9/22/14

First - Key Decisions

- Can we get here?
- What knowledge do we need to decide???

**Management
and Marketing
want this...**



First - Key Decisions

Decision	High Impact?	Unknown Solution?
What will the form factor be?	YES	YES
Does it need an on-board screen?	YES	YES
What plastic technology will we use?	YES	YES



Key Decisions – Knowledge Gaps

Knowledge Gaps

What are some analogous products?

How small do we think we can make it?

How much do we think it will weigh?

10 lbs (4.5 kg)

What is its primary function?

What market (or “look”) do we want?

Key Decisions – Knowledge Gaps

Knowledge Gaps

What are some analogous products?



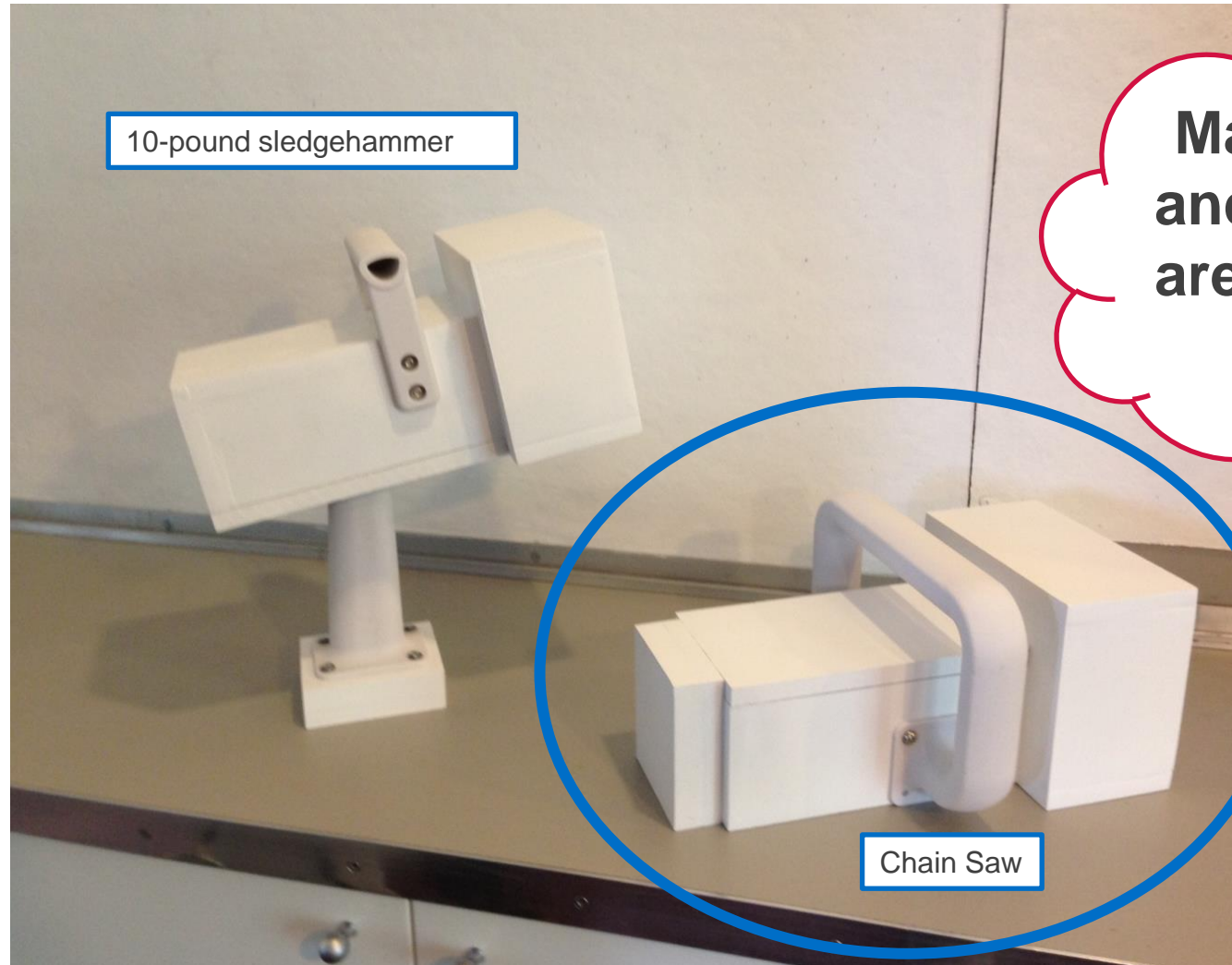
No single-handed tool
is over 4 lb (1.8 kg)



Rapid Prototyping and Feedback



Weighted Mockups



Final Set: Down select on Market Positioning

Scientific



Unified



Cylinder

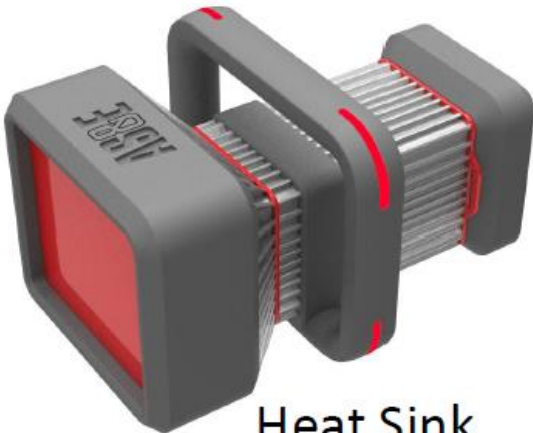


Roll Cage

Set-Based
Innovation



Reveal



Heat Sink

Industrial

Design for Manufacturing

How do we want to make it?

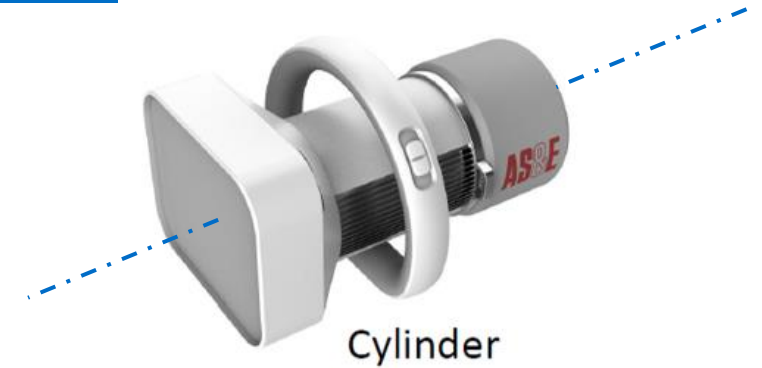
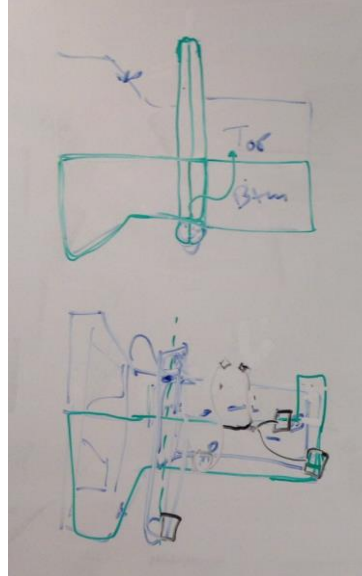
- Injection molder preference

Ease of mold design –
Assemble along axis

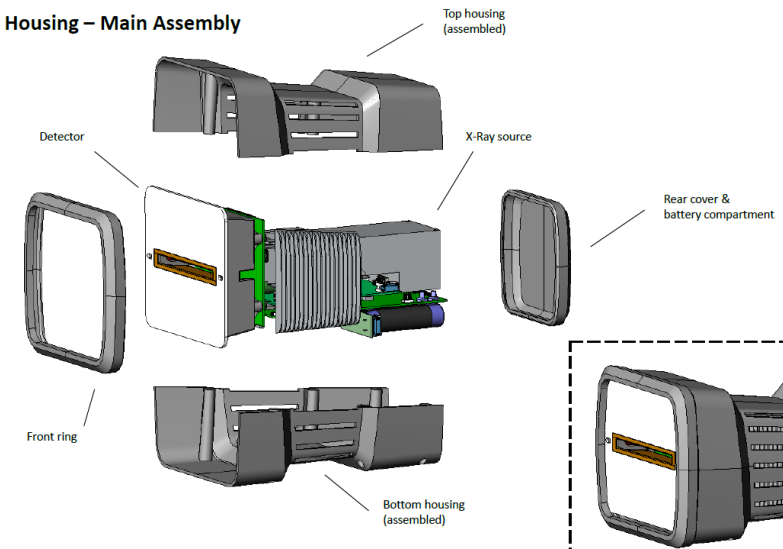
How do you want to build it?

- AS&E Manufacturing

Ease of assembly and test –
Split down the middle

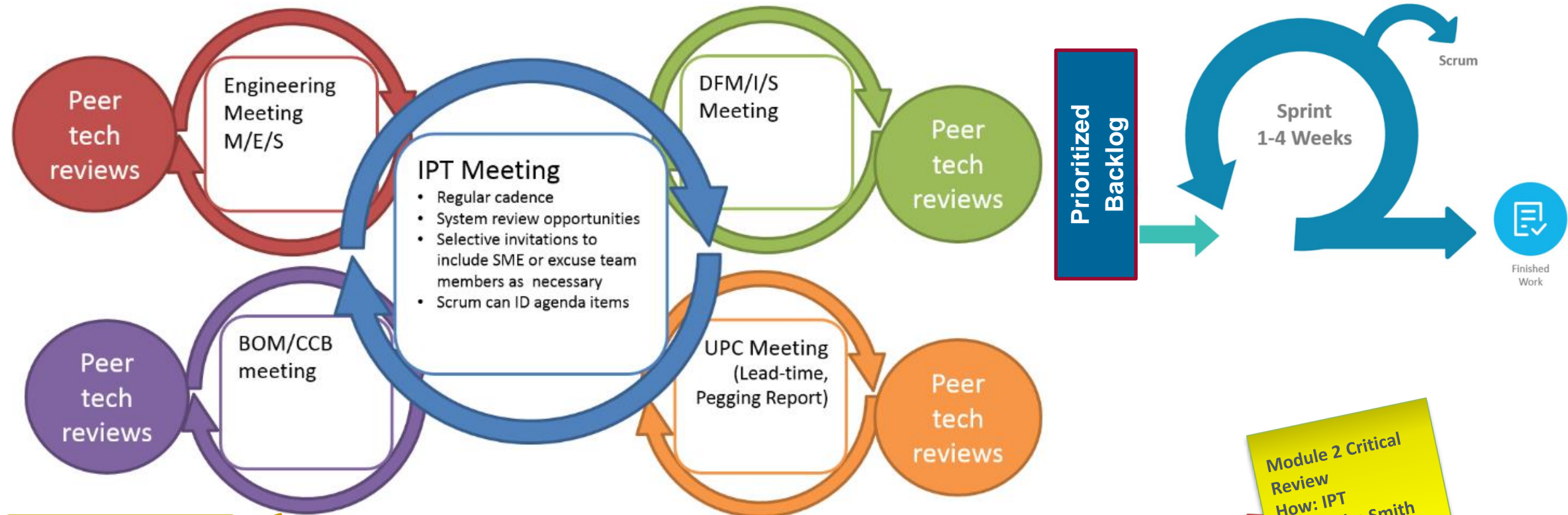


Housing – Main Assembly



Confidential – This is a draft and has not been approved by the client

Lean Product Development Process – Phase 2

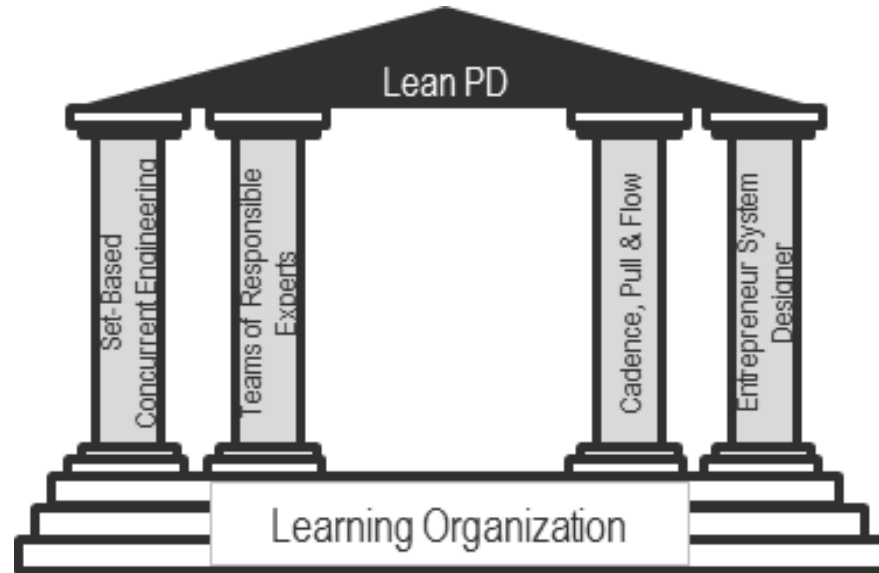


Focus Meetings

Design Maturity Board						
Subject	Concept	Preliminary	Critical	Doc Check	Release	validate
System	IPT ●	IPT	IPT	IPT	IPT	
Module 1	IPT ●	Peer ●	Peer ●	Peer	IPT	
Module 2	Peer ●	Focus	IPT	Peer	IPT	
UPC	IPT ●	IPT ●	IPT	Peer	IPT	
Manf Plan	IPT ●	IPT ●	IPT	X	IPT	
BOM	IPT ●	IPT ●	IPT	Peer	IPT	

Module 2 Critical Review
How: IPT
Who: John Smith
When: 4/1/15

Lean Product Development Process - Foundation

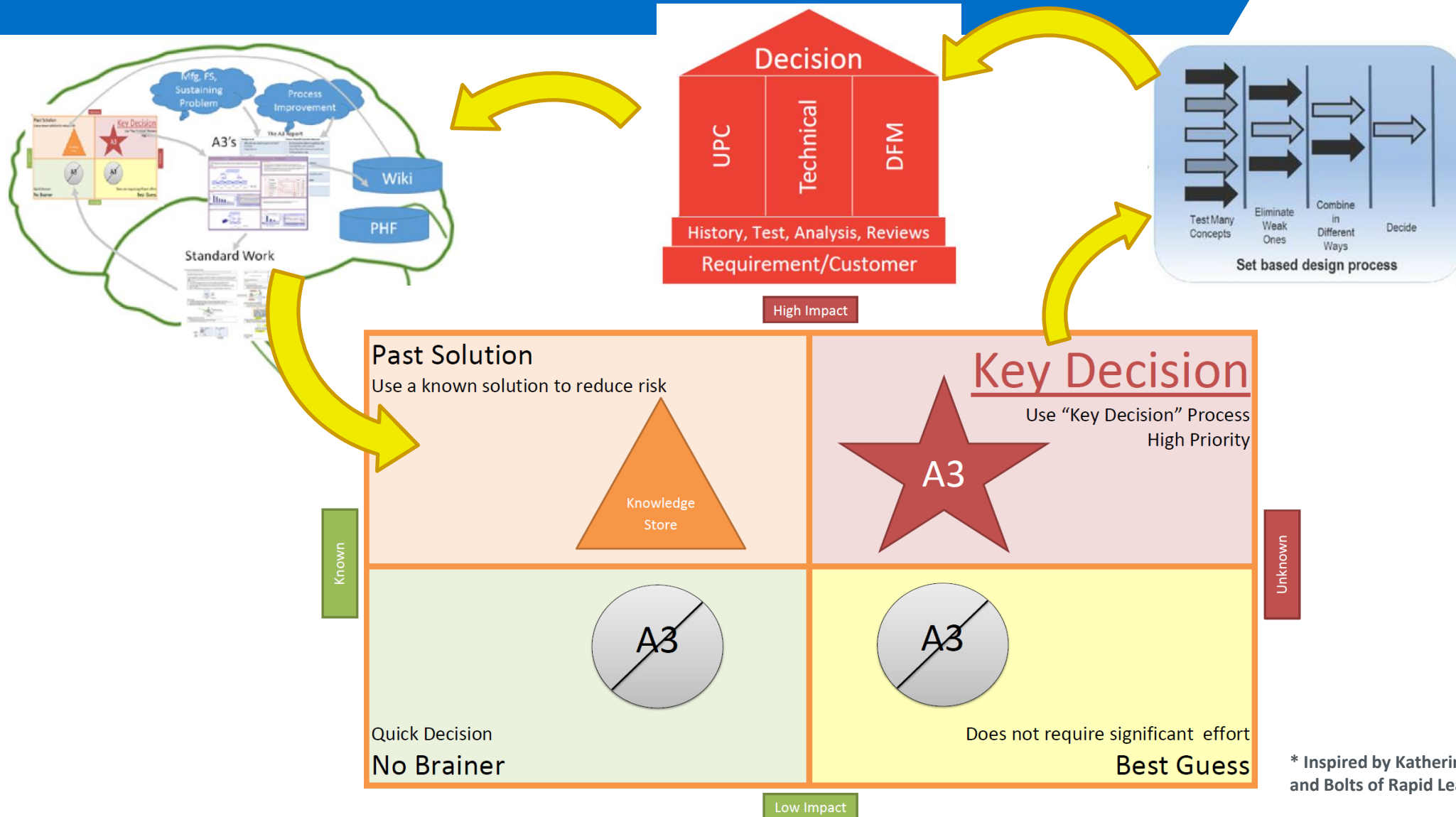


Phase 1
Key Decisions

ONE WAY

Phase 2
Success Assured

Lean Product Development Process – Phase 1



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Final Product – First of its kind in the market



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MVP – Development Cycles

- You've got to start somewhere...



Thank You!

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