



Sandia  
National  
Laboratories

Exceptional service in the national interest

# ENABLING INNOVATION IN ALL ASPECTS OF THE ENTERPRISE



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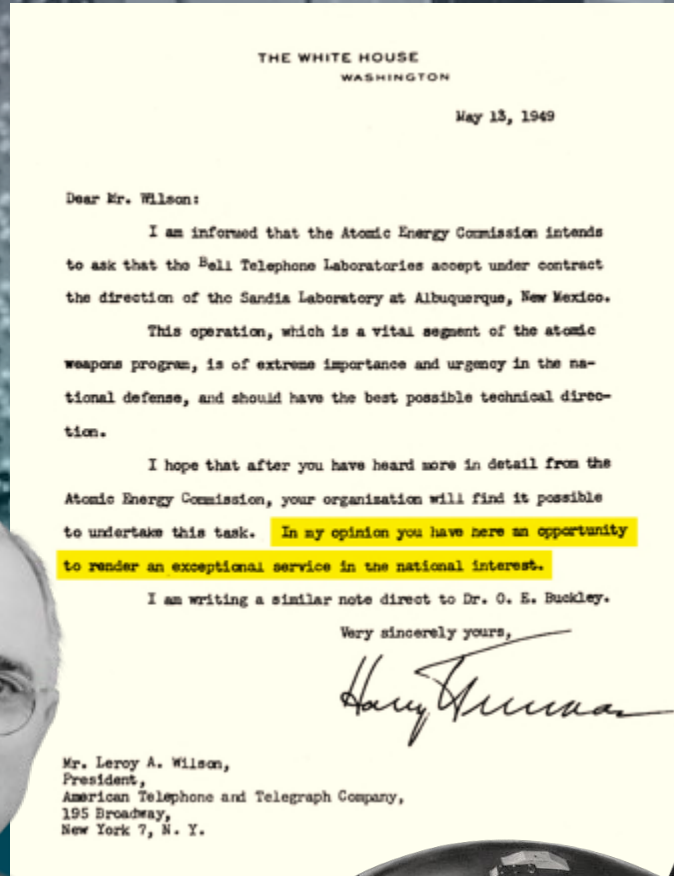
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# Agenda

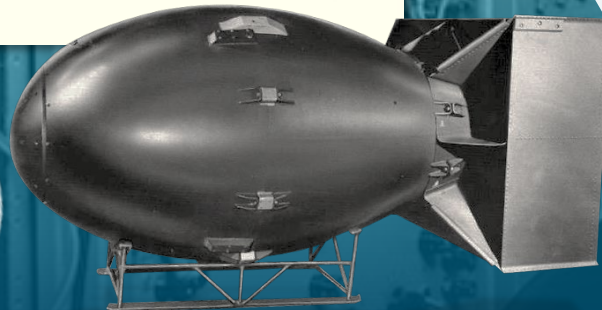
- Sandia National Laboratories Overview
- Key Principles for Enabling Innovation
  -  Drive from the top
  -  Empower the workforce
  -  Reward and recognize behaviors
  -  Drive a spectrum from formality to daily innovation
  -  Embed in all areas of the business
- Questions



# OUR HISTORY IS TRACED TO THE MANHATTAN PROJECT



- July 1945: Los Alamos creates Z Division
  - Nonnuclear component engineering
  - Federally Funded Research and Development Center
  - November 1, 1949: Sandia Laboratory established
  - March 8, 1956: Sandia California officially opened
  - AT&T: 1949-1993
    - Martin Marietta: 1993-1995
    - Lockheed Martin: 1995-2017
    - Honeywell: 2017-present

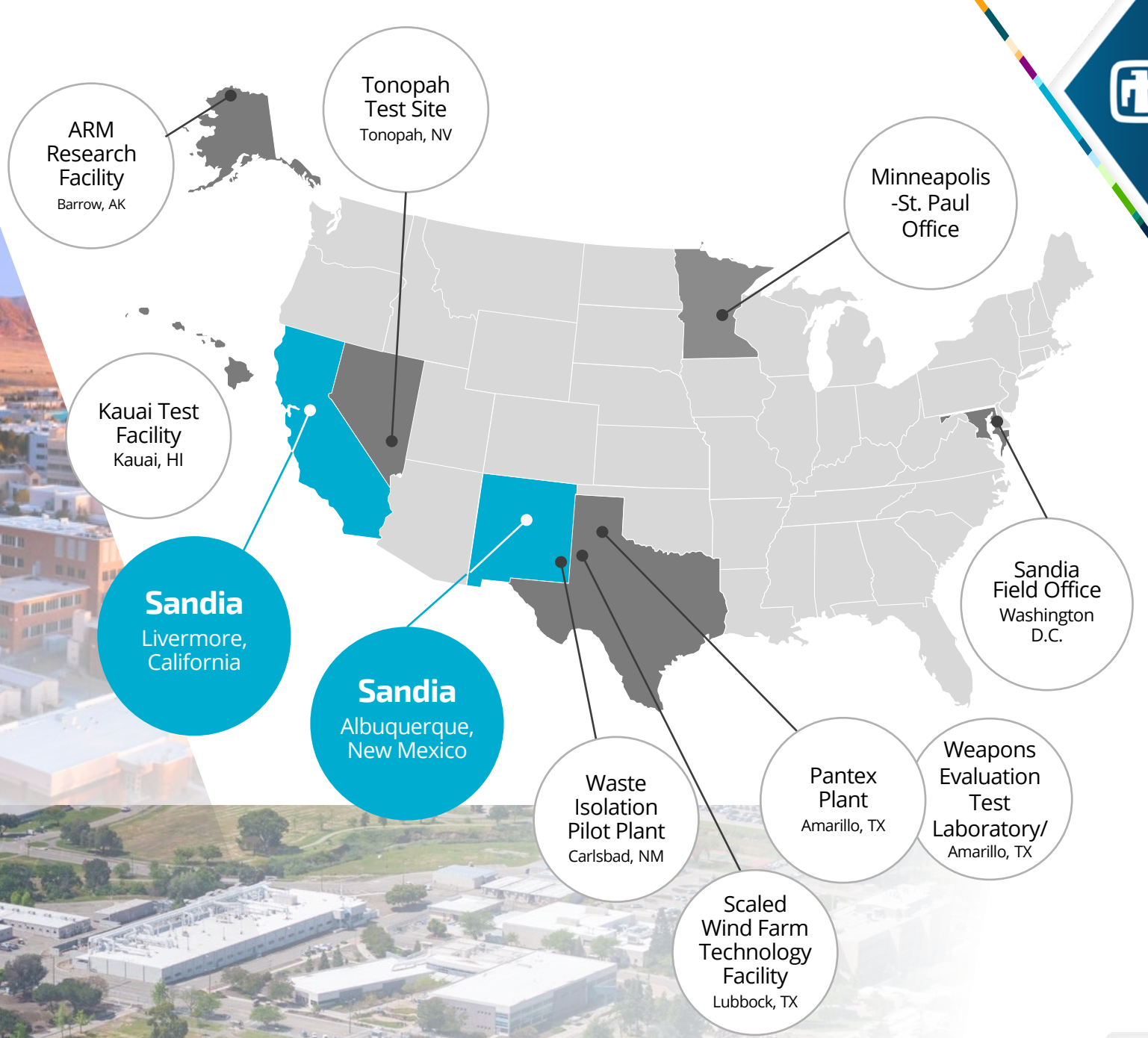




- Facilities Across the Nation
- 15900 Employees
- \$4.4B Annual Budget

### Main Sites:

Albuquerque, New Mexico  
Livermore, California

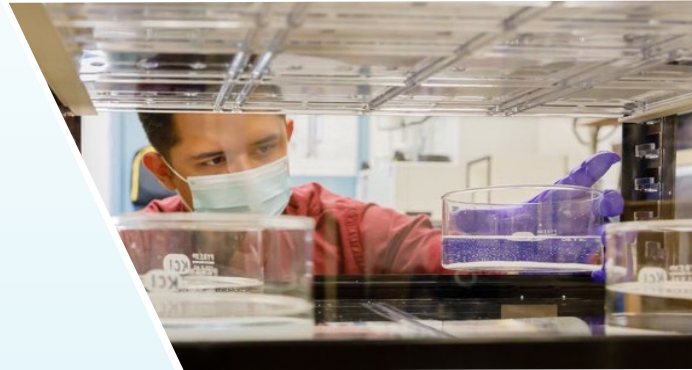




# NATIONAL SECURITY IS OUR MISSION



Sandia delivers essential science and technology to address the nation's most challenging security issues



## PURPOSE

We render exceptional service in the national interest

## VISION

We make Sandia a leader in keeping the world safe and secure

## MISSION

We use innovative science and engineering to anticipate and solve the most challenging national security problems

## OBJECTIVE






In 10 years, we will have unleashed high-velocity engineering to counter global threats



# SANDIA HAS FIVE MAJOR PROGRAM PORTFOLIOS



# Key Principles for Enabling Innovation

-  Drive from the top
-  Empower the workforce
-  Reward and recognize behaviors
-  Drive a spectrum from formality to daily innovation
-  Embed in all areas of the business





# Drive From The Top

- NNSA's Enhanced Mission Delivery Initiative to significantly improve efficiency and effectiveness of ND programs
- Sandia's Strategic Goals:
  - Accelerate Innovation
  - Modern Engineering
- Leadership commitment at all levels
- Accountability
- Innovation call to action by the Laboratory Director







# Drive From The Top



LABS STRATEGY GOAL

## Accelerate Innovation

By FY27, Sandia will be a **leader in scientific, engineering and operational innovation** and an employer of choice for highly innovative and creative talent.

### WHY innovation?

To counter threats, Sandia must be nimble in generating and applying novel ideas.

### HOW will we accelerate innovation?

Elements to achieve this Goal:

- Innovation Strategies
- Innovation Tools
- Innovation Skill-Building
- People & Culture
- Innovation Pilots
- Exemplars

### WHAT is innovation?

Innovation is developing and applying an idea, expert knowledge, or technology in a novel way to address a specific challenge and achieves value for the laboratories or our partners.

Highly innovative and creative talent has courage to challenge the status quo and is enabled by an environment and culture that supports and celebrates risk-taking and failure in pursuit of new and improved solutions to business and technical challenges.



# Empower the Workforce



## Unleash Excellence: Excellence vs Perfection Behaviors

When focused on excellence rather than perfection, Sandia employees have more opportunities to take intelligent risks, challenge the status quo, experiment, fail as a means of learning and suggest red tape-cutting efforts.







# Empower the Workforce

Unleash Excellence: Crowdsourcing for Ideas

- System for all members of the workforce to submit ideas for cutting red-tape and increasing the efficiency and effectiveness for how we do work.
- Over 300 ideas submitted to date, approximately 20% being implemented.



## People and Culture Strategy

- Aimed at maximizing the success of our people and is focused on the continued care of our people and the maximization of organizational performance.
- Four pillars aimed at examining and enhancing key elements that impact success of every MOW.



Workforce  
Capabilities



Workforce  
Effectiveness



Organizational  
Culture

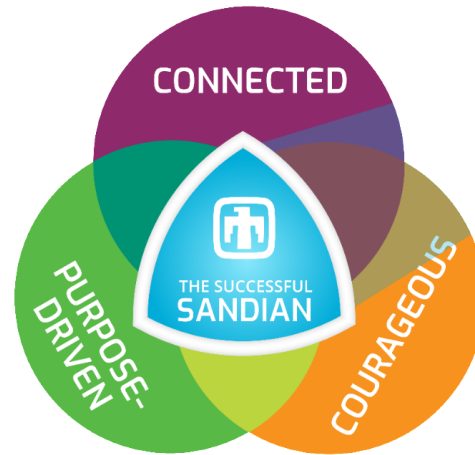


Employee Health  
and Well-Being

# Reward and Recognize Behaviors



New recognition categories added for Innovation and Operational Excellence.



Behaviors as part of the performance management system:  
Courageous: innovative solutions; intelligent risk taking



All 3 behaviors are essential.



New recognition categories added:

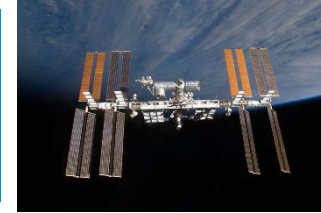
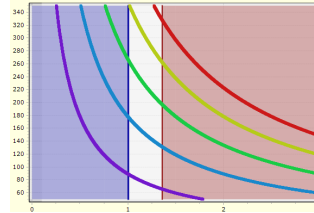
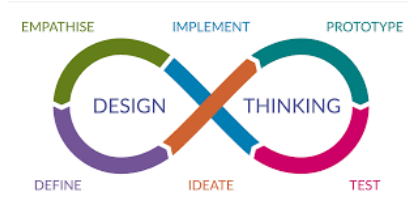
Innovation Mindset – creates value by applying novel solutions to meaningful problems

Intelligent Risk Taker – embraces critically thought out risk to bring added value to the Labs.





# Drive a Spectrum From Daily to Formal Innovation



Increased Level of Formality

Individual Daily  
Innovation

Design Thinking

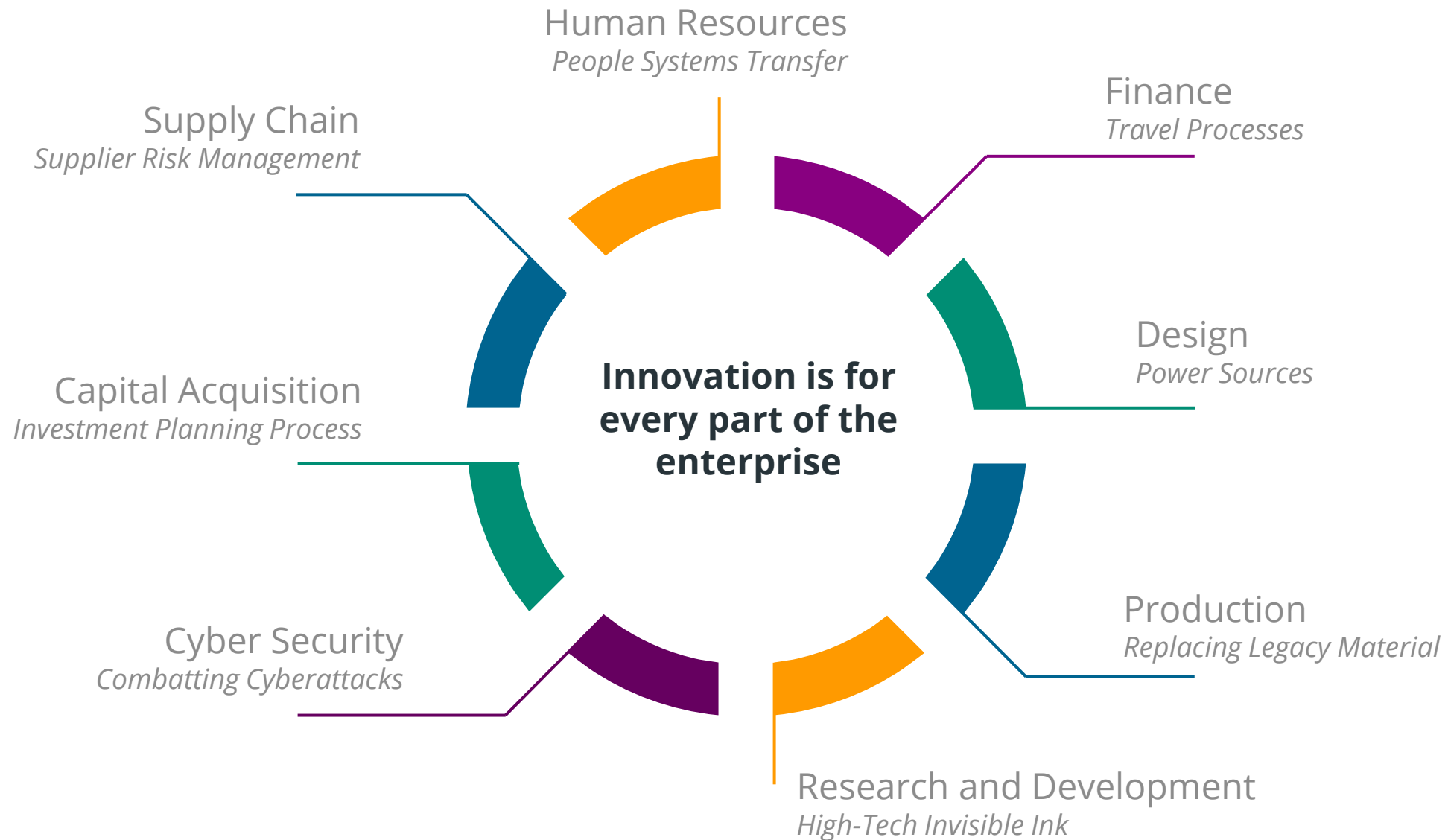
Lean Product  
Development

Unleash  
Excellence

Laboratory  
Directed  
Research and  
Development

Patents and  
Copyrights

# Embed in All Aspects of the Business





# Finance - Travel Processes



How might we improve the business travel experience?

## Problem

- Booking travel is painful

## Approach

- Removal of excess approvals
- Policy redesign with a user focus
- Streamlined reporting and reimbursement processes
- Additional booking options
- Case management

## Result

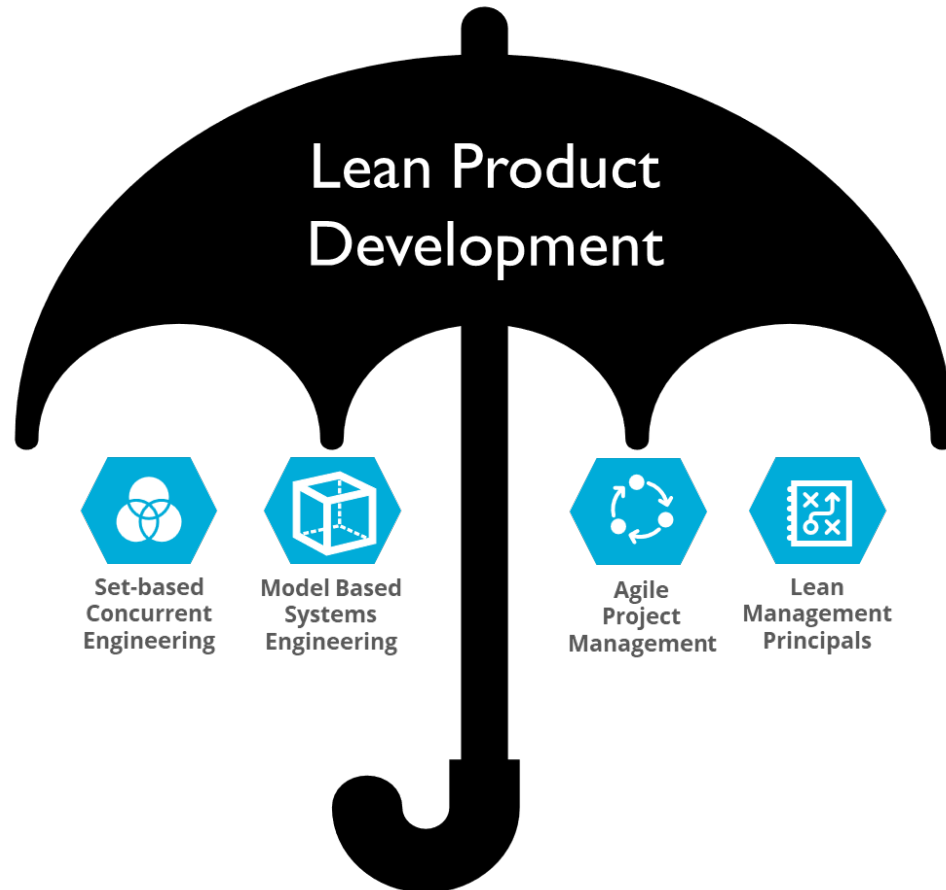
- Increased travel satisfaction



# Design – Power Sources



Increase speed and flow of product development from idea generation to successful delivery



## Problem

It takes too long to yield a good design

## Approach

Set Based Concurrent Engineering  
Successes for power sources

## Result

- Producing designs in half the time
- Evaluating and assessing design options faster (75-90% reduction in time)

# Cyber Security – Combatting Cyber Attacks



Cyberdefense for military aircraft against a machine learning system trained to break it

## Problem

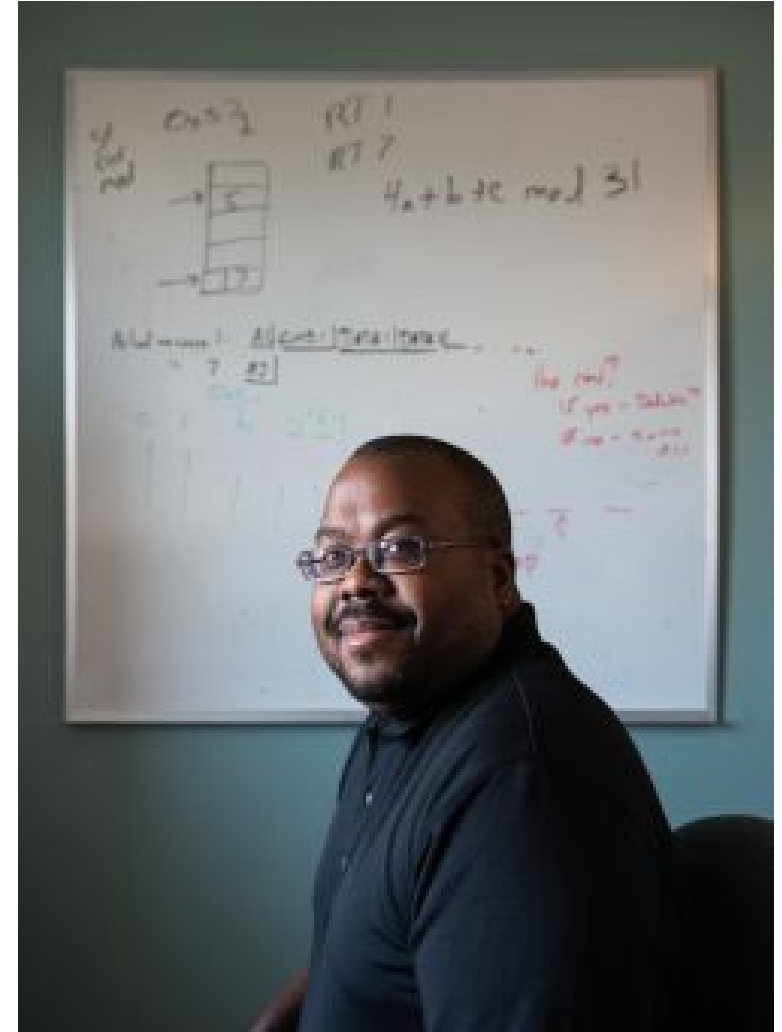
- Securing military networks is a national security imperative
- Unique cyber security challenge are small networks

## Approach

- Build a big wall
- Detect
- Moving target

## Result

- Randomization combating machine learning





# Production – Replacing Legacy Material



Build a culture of innovation where there is high complexity and high consequence if we get it wrong

## Problem

Legacy material will no longer be manufactured

## Approach

Design Thinking

## Result

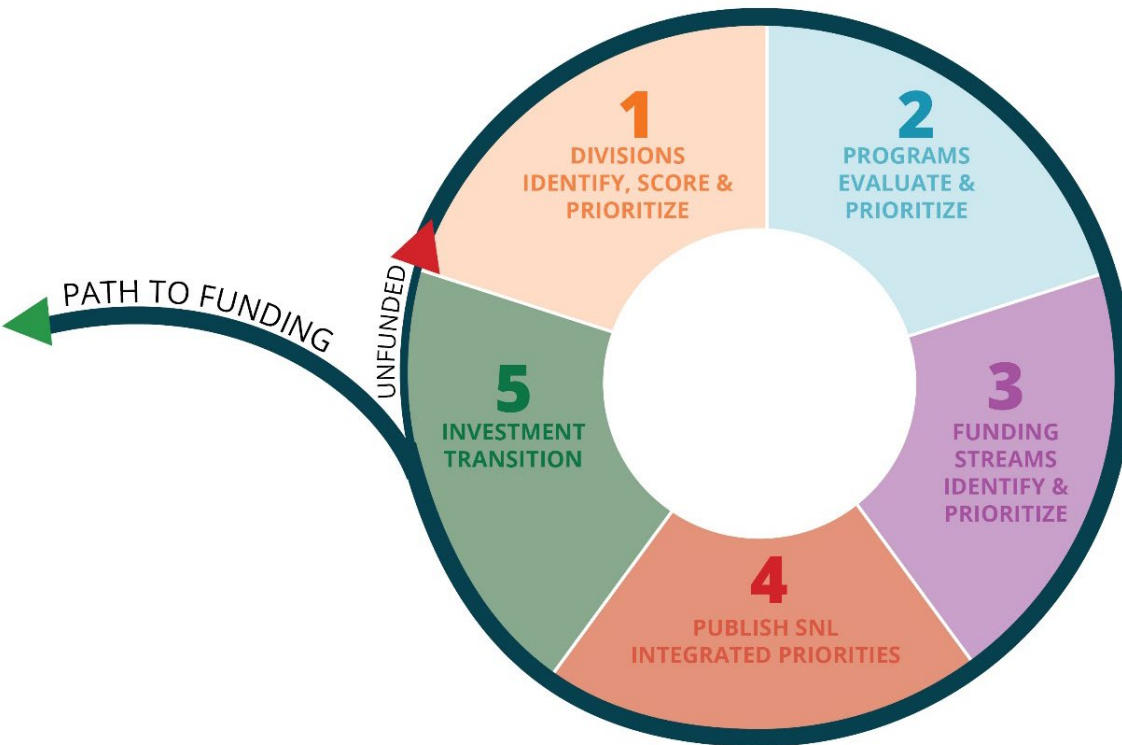
- Proven example of applying innovation
- Better, cheaper replacement material



# Capital Acquisition - Investment Planning Process



Goal: Create a single prioritized list of facilities and infrastructure needs



## Problem

There are 30 data calls and investment and the enterprise is not getting its capital acquisition needs met.

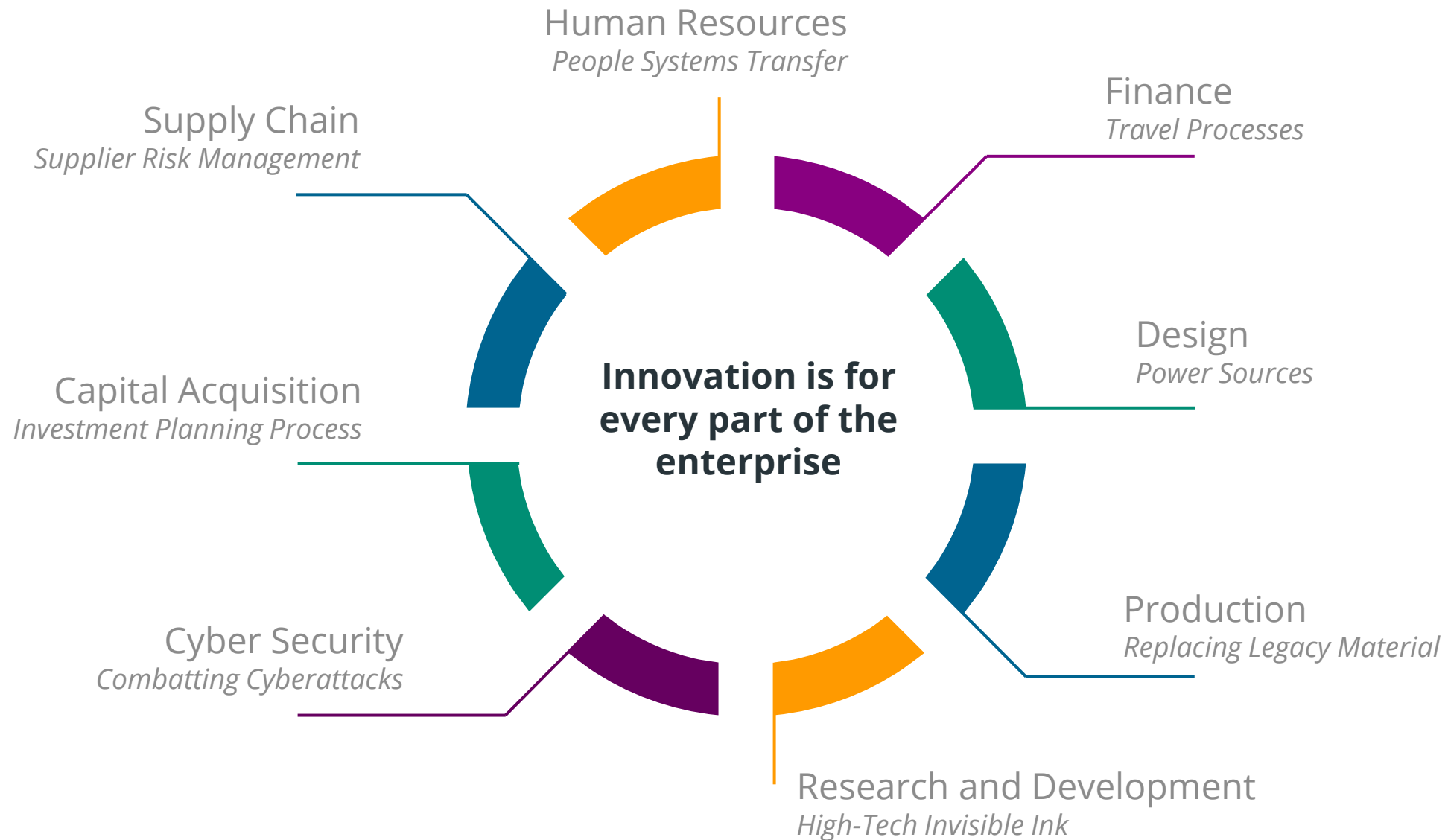
## Approach

- Structured Problem Solving
- User Centered Design






## Result

Effectively embedded a sustained innovative and lean culture, including lean leadership behaviors and the team iteratively designing with the user in mind

# Embed in All Aspects of the Business



# Key Principles for Enabling Innovation

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# Questions?



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