Value-Driven Transformation Architecture Approach

Dassault Systèmes
Matthew Carter
David Haberman
Garrett Thurston
17 September 2021

GLOBAL PRODUCT DATA
INTEROPERABILITY
SUMMIT
2021
Virtual Sessions

Presenter Biographies

Garrett Thurston
Sr. Director, MBSE, Digital Transformation

At Dassault Systèmes, Dr. Thurston works with clients to maximize their delivered & shorten the time-to-realized value. Garrett leads the value-based architecture strategy & is a major contributor to evolving value-driven transformation.

Key focus areas include regulated context digital transformation, systems and software product lines, model-based enterprise.

- 35 years Aerospace, Defense, and Security Experience working with industry and DoD organizations
- Doctorate & MS in Engineering, BS in Chemistry with Minors in Business and Liberal Arts, including studies in Terrorism and Policy, Intelligence, and Secrecy.

David Haberman
Client Executive

At Dassault Systèmes, Mr. Haberman works with clients to understand the value that can be acquired with Dassault-based solutions.

Key experience includes physics based simulation and optimization.

He has worked for over 30 years with multiple aerospace and defense companies, including Boeing, Lockheed Martin, General Dynamics Electric Boat, and Raytheon Technologies.

He has a BS and MS in Mechanical Engineering with emphasis on optimization techniques and processes.

Matt Carter
Global Account Manager A&D

Matt Carter has led and managed a wide range of business and transformation initiatives in his career as an entrepreneur, founder and COO of technology and software startup and as an executive leader & CIO within established manufacturing interests. He has been an instrumental leader in driving efficiency in complex systems, recruiting and managing highly effective cross-functional teams and fostering continuous improvement through innovation

Mr. Carter directs Dassault Systèmes efforts to engage in value building as well as forging stronger partner relationships across companies and their Enterprise Value Network.

What we learned from the 2019 GPDIS Keynote Presentation…

80%
of Digital
Transformations

FAIL

Digital Transformations **FAIL TO TRANSFORM**:

- Customer experiences
- Operational processes
- Business models
- Culture
- Existing approaches
  (adding layers of cost by rebuilding old approaches)

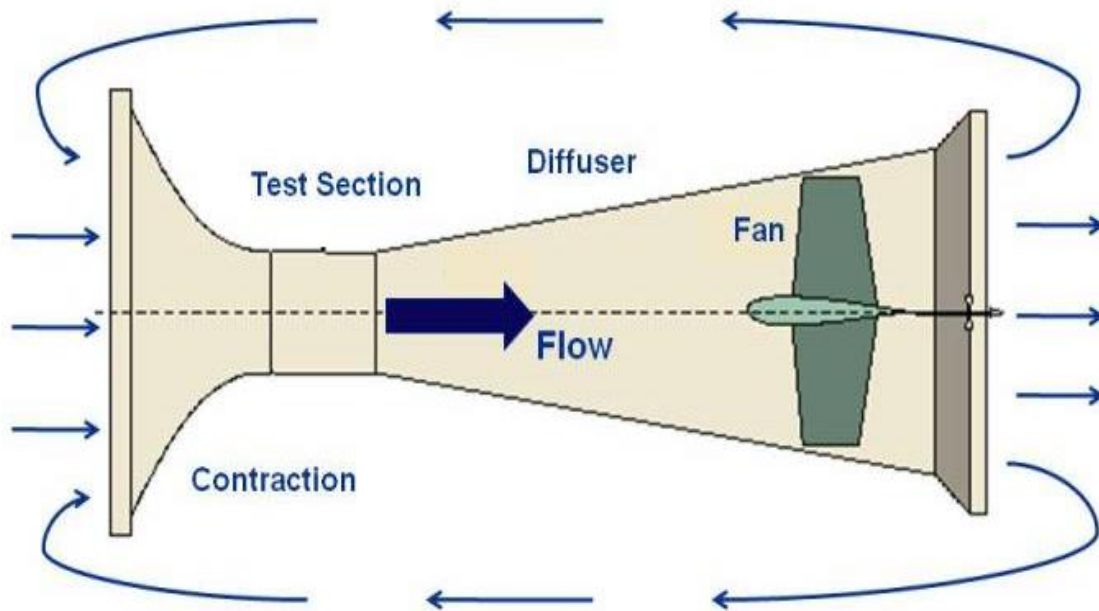Enterprise Transformation is traditionally a *"wicked"* problem

- Are there means and methods to be able to:
  - Improve, streamline & systematize transformation priorities
  - Develop roadmaps and plans
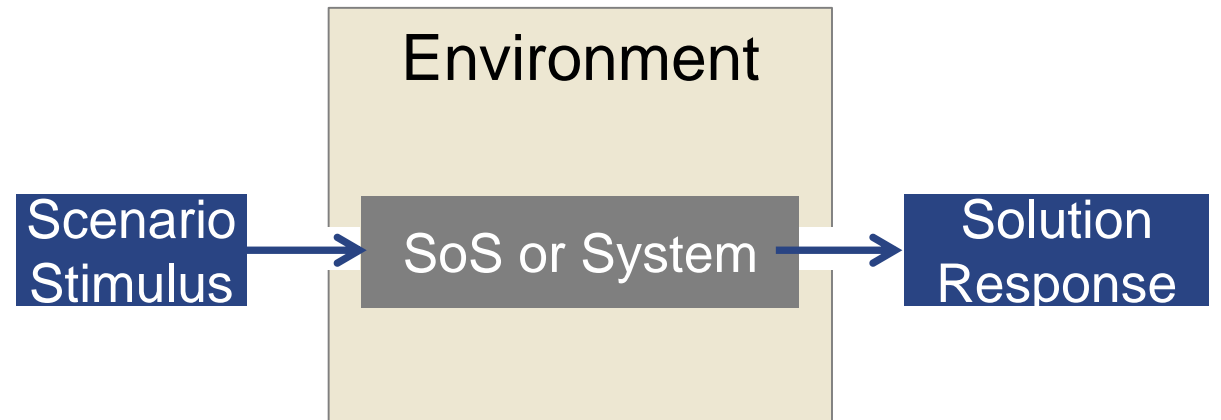 - Improve execution and adaptation

Standard way to **EVALUATE** and **ASSESS** architecture and implementation:

Scenario "Wind Tunnel" Representation
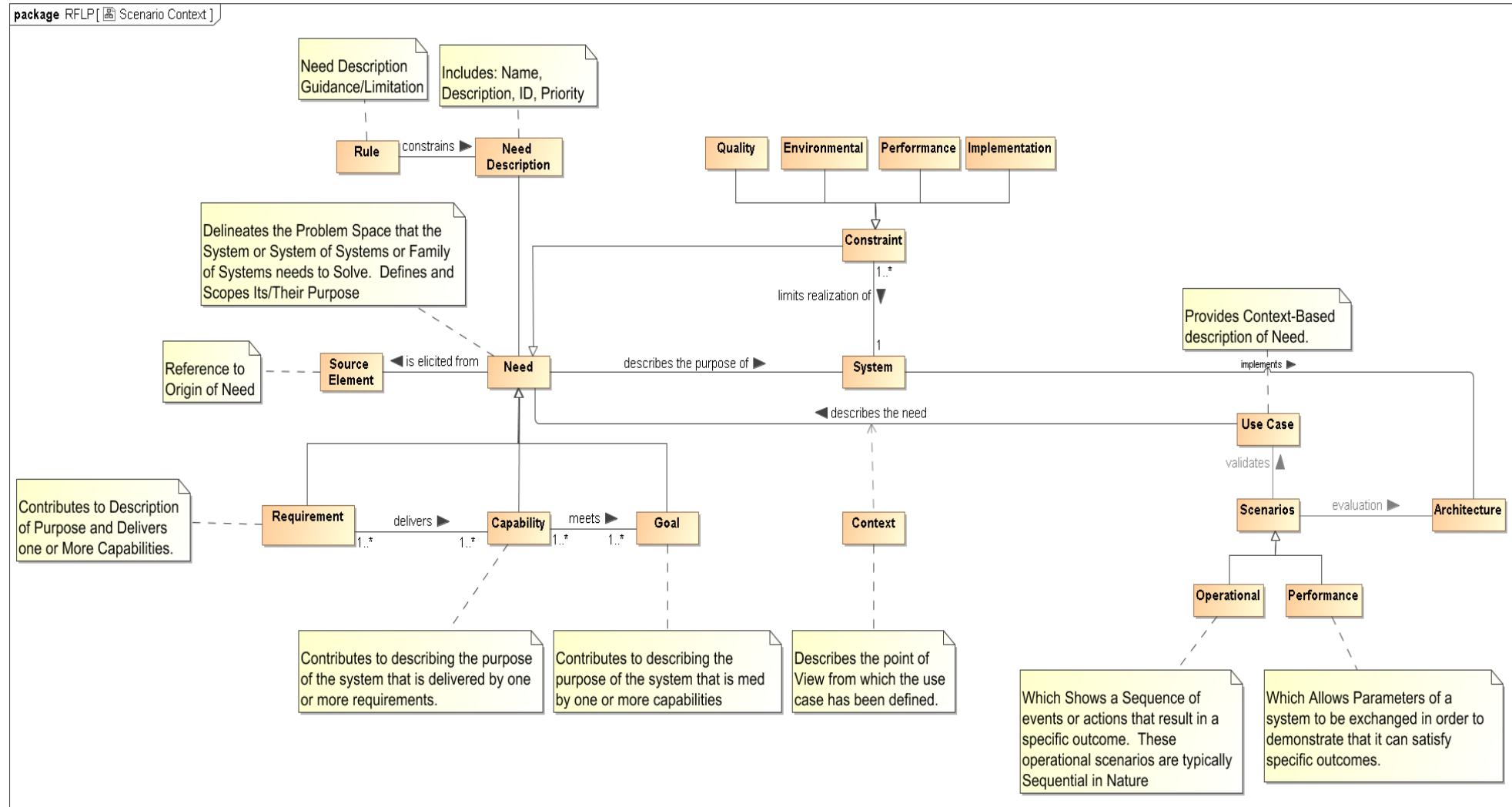
Structured Values are elicited through:

- Business Model Canvas
- Customer Value Model

- Enterprise Business Motivation Model are used in Architecture Synthesis and Evaluation
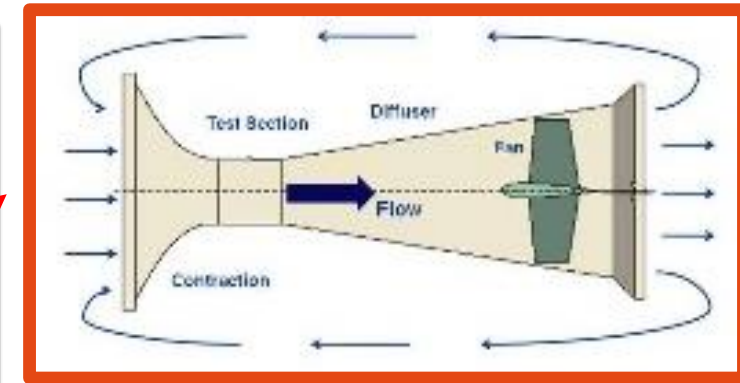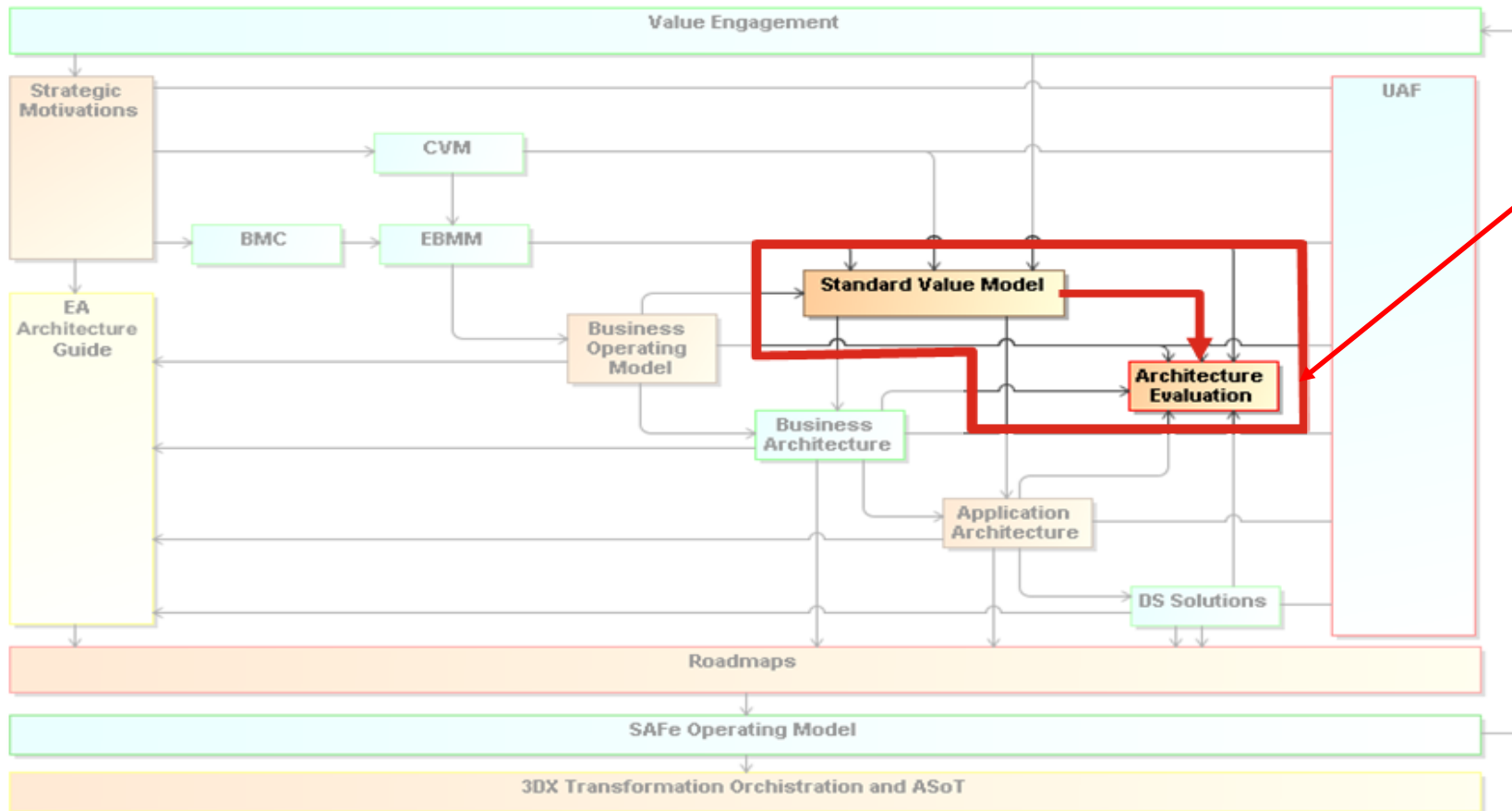
Futures Analysis:

- Rich outcomes based dialog
- Mapping outcome assurance strategies

Capability maturity and platform adoption supporting deployed value realization
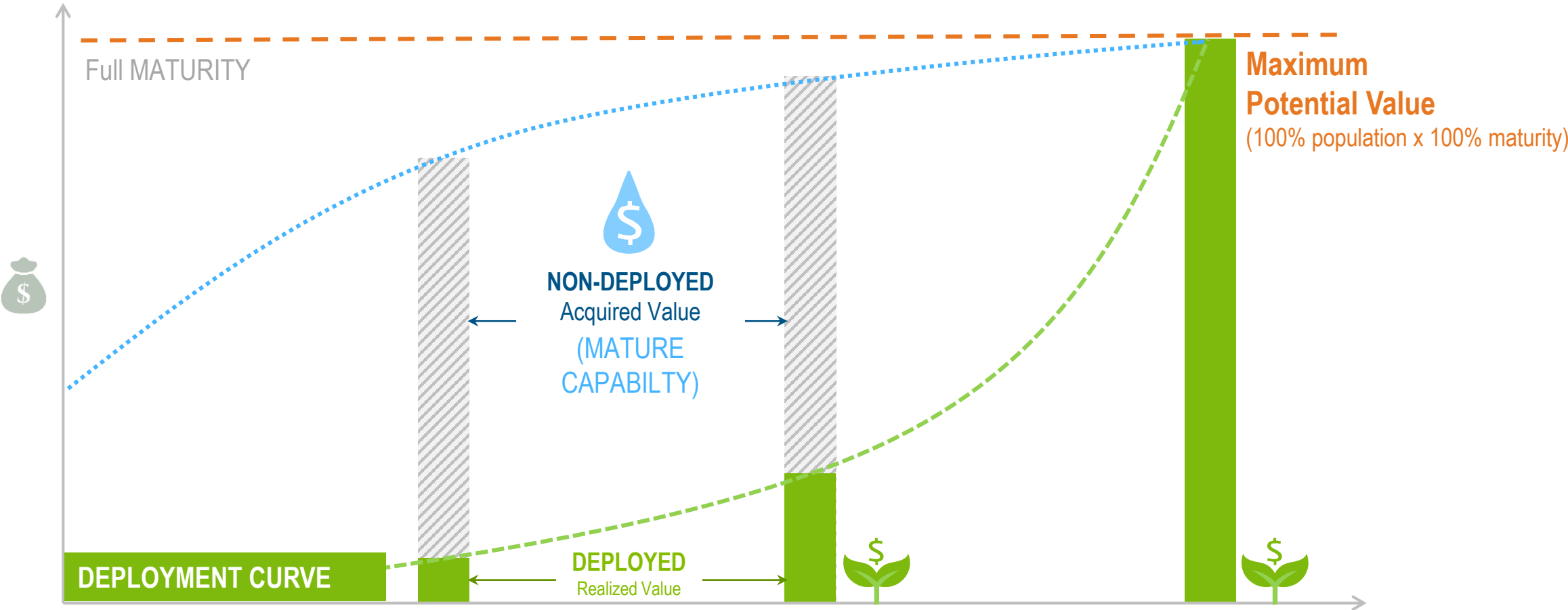
Full MATURITY

NON-DEPLOYED
Acquired Value
(MATURE CAPABILTY)

**Maximum
Potential Value**
(100% population x 100% maturity)

DEPLOYMENT CURVE

DEPLOYED
Realized Value

Strategic Business Capabilities (SBCs) have total Value Potential that is deprecated according to the available Capability Maturity to produce the Deployed Value

Business Capabilities

Strategic Business Capabilities

(SBCs)

Value Ratings Matrix
An agreed upon rating scale which categorizes SBC efficiency gains & overall impact to business
VALIDATED STANDARD MODEL

Evaluation
Approximates overall enterprise efficiency gains using usage metrics and assuming 100% in both platform maturity & enterprise readiness

Maximum Potential Value

100%

Deployed Value

Maturities Ratings Matrix
Defined five categories to assess platform maturity and enterprise readiness using a 1-5 rating scale system
VALIDATED STANDARD MODEL

Maturity Assessment
The maturity of SBC capabilities are then assessed by applying the ratings from the Maturity Rating Matrix

Acquired Value

The Virtual Wind Tunnel for Transformations (Maturities Rating Matrix)

Maturities Rating Matrix
Elements & Definitions

Provides semi-quantitative means by which maturity is estimated and evolved

Technical Readiness	Digital Continuity	Organizational Readiness	Operational Readiness	Deployment Readiness
Functional Performance	**Digital Thread**	**People Performance**	**Business Process Integration**	**Dev-Ops Performance**
• Create and ensure accurate and precise activities/outcomes • Quality of output and solution options enabled • Scalable across diverse populations and businesses	• Connect enterprise business data • Enable traceability • Full lifecycle and stakeholder collaboration	• Rapidly enable People to adopt transformed capability • Highlight areas in need of OCM Investment • Streamlines Program execution and generates higher Employee satisfaction • Accelerates realization of business goals	• Operationalize digital and model-based aspirations • Digitally connect model-based contexts of the market, i.e. product development • Absorb the digital, technical, and organizational changes	• Deploy solutions faster accelerating Value realization • Enable the release of high value & small/incremental changes • Increase confidence in deployed systems and enterprise services

• **Rating System:**
  o Technical Readiness Level
	• **Rating System:**
	  o Adapted specifically for the SVM
		• **Rating System:**
		  o Adapted specifically for the SVM
			• **Rating System:**
			  o Definition of Done
				• **Rating System:**
				  o Using established Deployment metrics for scoring

The Virtual Wind Tunnel for Transformations (Value Matrix)

Value Rating Matrix
Elements & Definitions

Future operational architypes have been identified to be able to transform operational dominance outcomes & total delivered value

Discrete Operational Patterns				Enterprise Impact	
Kitting	**Estimating & Forecasting**	**Automation**	**Optimization**	**Cost of Capability**	**Opportunity & Competitiveness Value**
Contextualization and Provisioning	Decision Support	Velocity through LEAN	Efficiency through Simulation	Total Cost of Ownership	Top Line Competitive Differentiation
Materiel Preparation	Information Analysis	Decision Facilitation	Action Implementation	Strategic Digital Architecture	Top Line Competitive Differentiation

Rudimentary-Perfunctory → Industrially Robust → Operational Dominance

Value Centric Framework:

1. Promotes rich evaluation of the future enterprise operating model.

2. Drives and enables multi-perspective and broad enterprise stakeholder engagement.

3. Provides a common connection and language into the business bridging strategic, transformational, and operational elements.

4. Supports scenario-based future state analysis and continuous improvement and refinement.

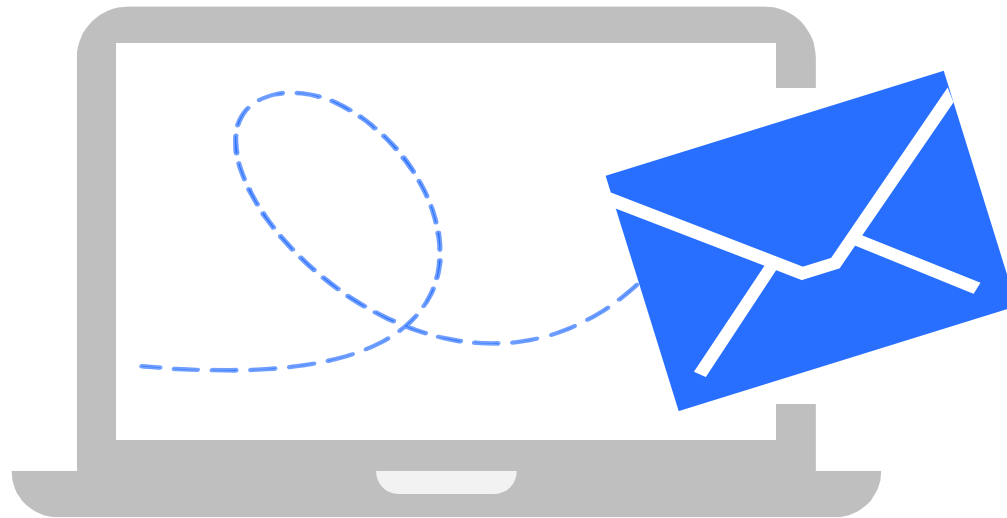5. Robustly supports and captures strategic roadmaps and planning to support execution.

Call to Action

To learn more and join the conversation, email:

- Matt Carter - matthew.carter@3ds.com
- Garrett Thurston – garrett.thurston@3ds.com
- David Haberman – david.haberman@3ds.com

Key Terms

- **Architype –** A pattern

- **Assessment –** Judgement of an entity against established criteria

- **Value –** Relative worth, utility, or importance of an entity

- **Evaluation –** Determination of value

- **Scenario –** A narrative typically involving a future-operating model or question that represents a significant business need or problem to help stakeholders reason about value delivery

- **Capability –** ability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks.
    - A capability is composed of all elements of DOTMLPF and all that implies.
- **Valuescape** – Value Class Maturity topology across the Capability Value Network
- **Futures Analysis** – Developing alternative views and narratives of internal and external alternative futures, to reason about a range of futures that might unfold.
- **Futurescape** – Value Delivery Opportunity topology across the Capability Value Network

Sources

- Art of the Long View – Peter Schwartz, Crown, 1996
- Scenario Planning in Organizations – Thomas Chermack, Berrett-Koehler, 2011
- Strategic Framing – Rafael Ramirez, et. al., Oxford, 2016
- Profound Impact of Product Line Strategy – Paul O'Connor, Adept Group, 2018
- Product Strategy – Michael McGrath, McGraw-Hill, 2001
- Structured Analytical Techniques for Intelligence Analysis, Richards Heuer, CQ Press, 2011
- Systems Engineering Demystified – Jon Holt, Packt, 2021
- Scenario Planning – Paul Schoemaker, Book Chapter, Palgrave, 2016
- Origins and Evolution of Scenario Techniques in Long-Range Business Planning – Ronald Bradfield, Futures, 2005
- Enhancing the Effectiveness of Balanced Scorecard with Scenario Planning – Rozhan Othman, 2007
- Business Architecture: Scenarios & Use Cases – TSG 2008
- Field Manual: Scenario Building – Sasha Meinert, 2014
- Guidance for Developing and Implementing Joint Concepts, CJCSI 3010.02E Current as of 16 Aug 2018
- Collaborating with the Enemy: How to Work with People you Don't Agree with or Like or Trust – Adam Kahane, 2018.
- Teaching Scenario Planning: Lessons from Practice in Academe and Business – George Wright, et. al. European journal of operational research., 194 (1). pp. 323-335.
- Capabilities for Joint Analysis in the DoD, Rethinking Support for Strategic Analysis Paul K. Davis, RAND, 2016.
- US DoS Planning Process: Components and Challenges – Michael J. Mazarr, et. al. RAND, 2019.
- The Delphi technique as a forecasting tool: issues and analysis, Gene Rowe, et. al. International Journal of Forecasting 15 (1999) 353–375
- Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis, 2009.
- Accelerating the Model-Based Engineering Ecosystem Through Cultural Transformation, Daniel W. Seal, S. Jason Hatakeyama, and Don Farr, NIS, 2020
- Value-Based Theory of Systems Engineering: Identifying and Explaining Dependencies – Barry Boehm, et. al. INCOSE, 2014.
- Value Engineering Handbook – Jay Mandelbaum, IDA September 2006.
- Why Strategy Execution Unravels and what to Do About It – Donald Sull, et. al., HBR 2015
- Financial Modeling and Valuation – Paul Pignataro, 2019
- Business Architecture Scenarios – William Ulrich, et. al., OMG, V3, 2010.
- Business Architecture Metamodel Guide, Thomas Bata, et. al. Business Architecture Guild, 2020.

- # Audience
  - ## IT and engineers from Boeing, LM, and other A&D companies

- # Objectives
  - ## Establish **standardized** value & maturity based ideas as a key piece of a successful enterprise transformation

- # Call to Action
  - ## If interested in these ideas call or email to join the conversation.