

Lean Startup Method (LSM) and Agile (Scrum) for Initial Project Planning (IPP)

*“Getting It Right,
Right From the Start!”*



Michael E. (Mike) Pafford
Past President, INCOSE Chesapeake Chapter
Co-Chairman, INCOSE Object-Oriented Systems Engineering
Method (OOSEM) Working Group
Co-Chairman, INCOSE System and Software Interface (SaSI) WG
JHU Instructor (Software Systems Engineering)

LSM/Agile IPP Presentation slides are posted:

- In **INCOSE CONNECT:**
 - at the **Object-Oriented Systems Engineering Method (OOSEM) Working Group** site.
- In **Dropbox:**
 - <https://tinyurl.com/ycmsdlbo>



LSM/Agile Presentation Topics

Topics for this LSM/Agile IPP Presentation:

- Where Lean Startup Method (LSM) and Agile (Scrum) fits in Initial Project Planning (IPP).
- Introduce LSM/Agile IPP artifacts, or Focus Mechanisms:
 - ‘Six Hats’ and Agile (Scrum) for selecting the right IPP Perspectives and IPP Team
 - ‘Systems Thinking Round Table’ for vetting Project Title and Purpose
 - LSM and Agile (Scrum) Product Backlog Item (PBI) for Detailed IPP Artifacts:
 - ‘Product Vision Board Extended (PVBE)’
 - Product ‘Persona’ (i.e. Stakeholder Groups) Templates/Cards
 - ‘Product Canvas’
 - Project ‘Epic’ (i.e., Title-level) User Stories

LSM/Agile: Right, Right From The Start – Or Else

WALLY, WE DON'T HAVE TIME TO GATHER THE PRODUCT REQUIREMENTS AHEAD OF TIME.



www.unitedmedia.com

S. Adams

I WANT YOU TO START DESIGNING THE PRODUCT ANYWAY. OTHERWISE IT WILL LOOK LIKE WE AREN'T ACCOMPLISHING ANYTHING.

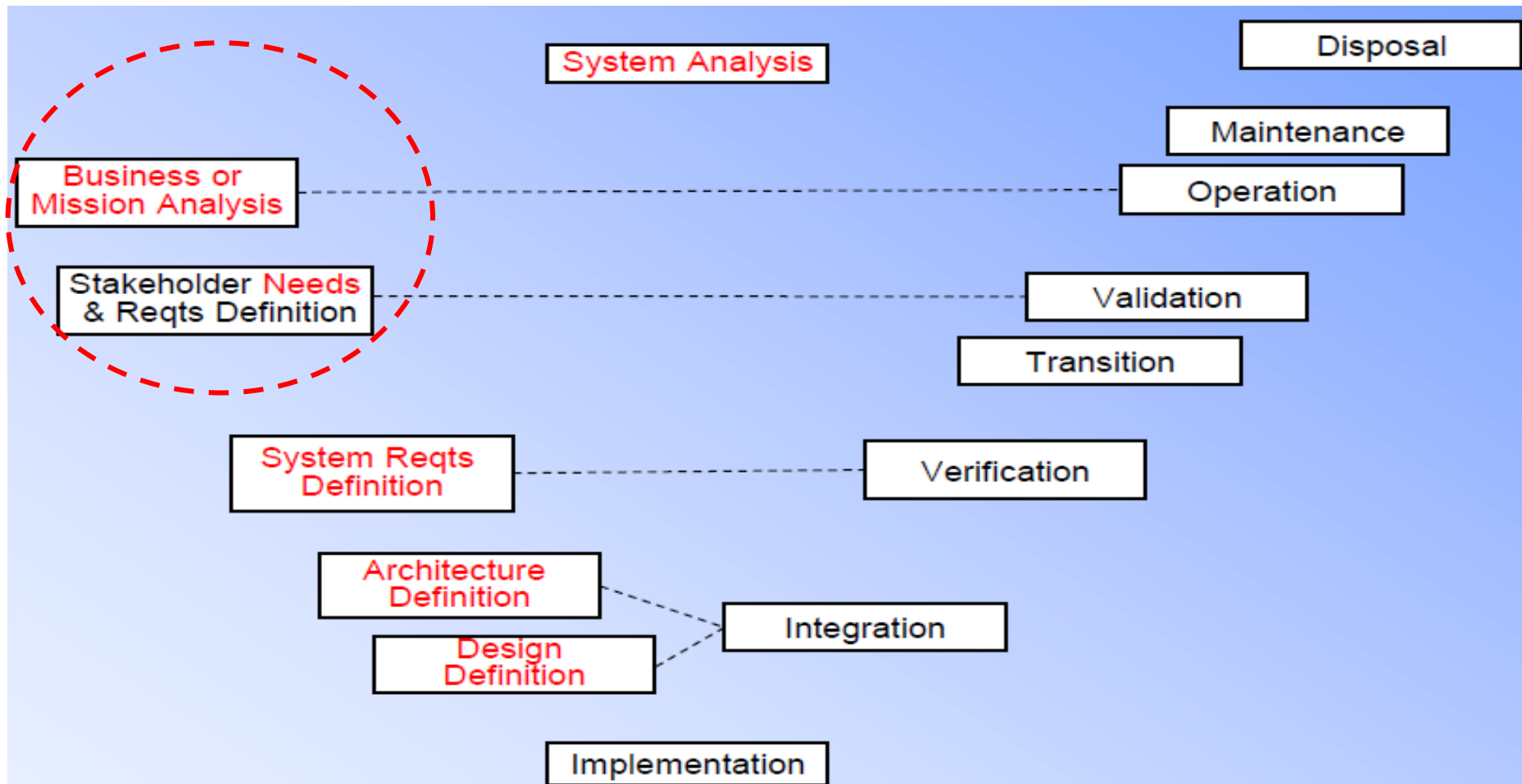


5/9/97 © 1997 United Feature Syndicate, Inc.

OF ALL MY PROJECTS, I LIKE THE DOOMED ONES BEST.



IPP in the INCOSE Systems Engineering Life Cycle



Copyright by John Clark based on INCOSE SE Handbook V4.0, February 15, 2016.

IPP in the NASA Systems Engineering Life Cycle

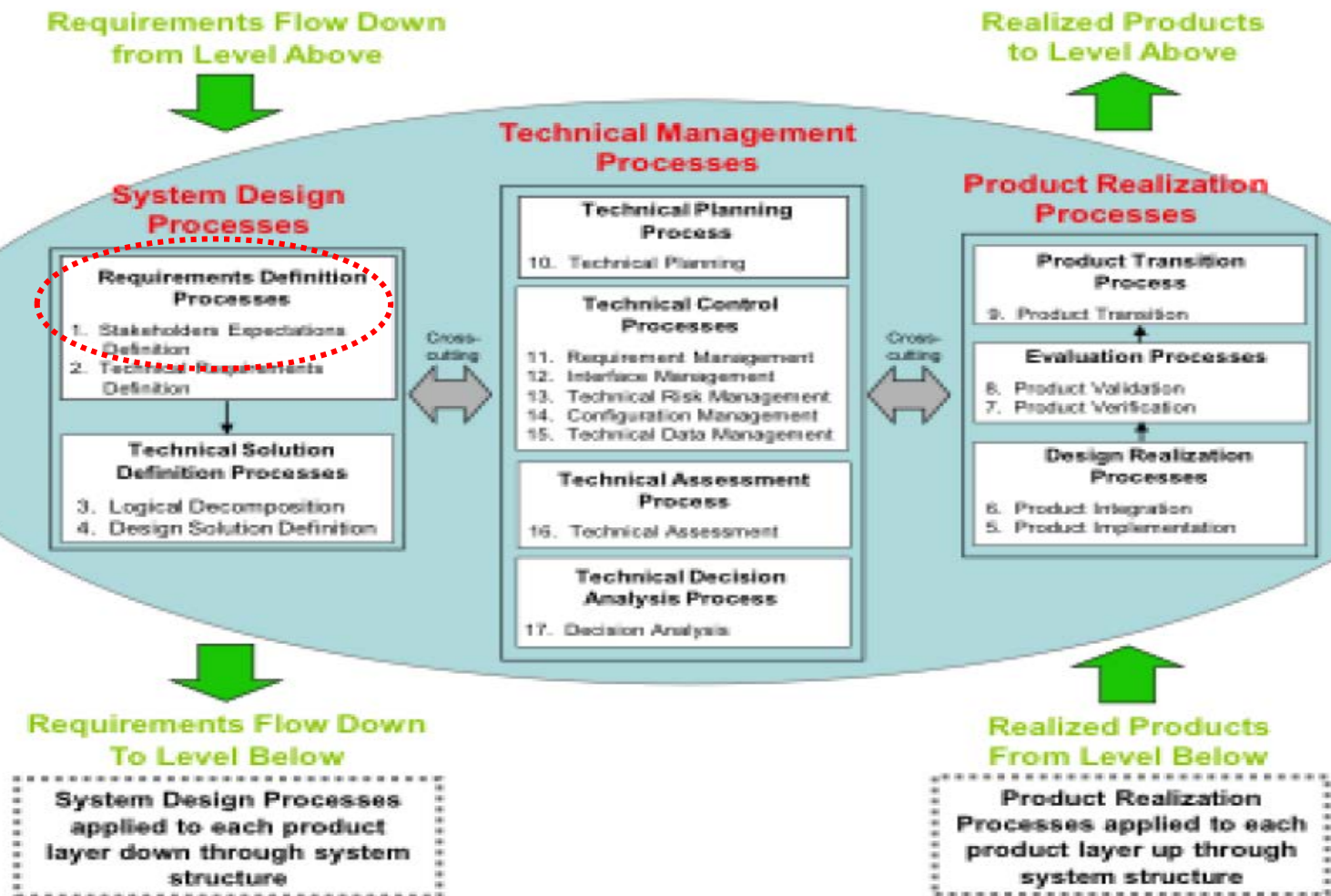
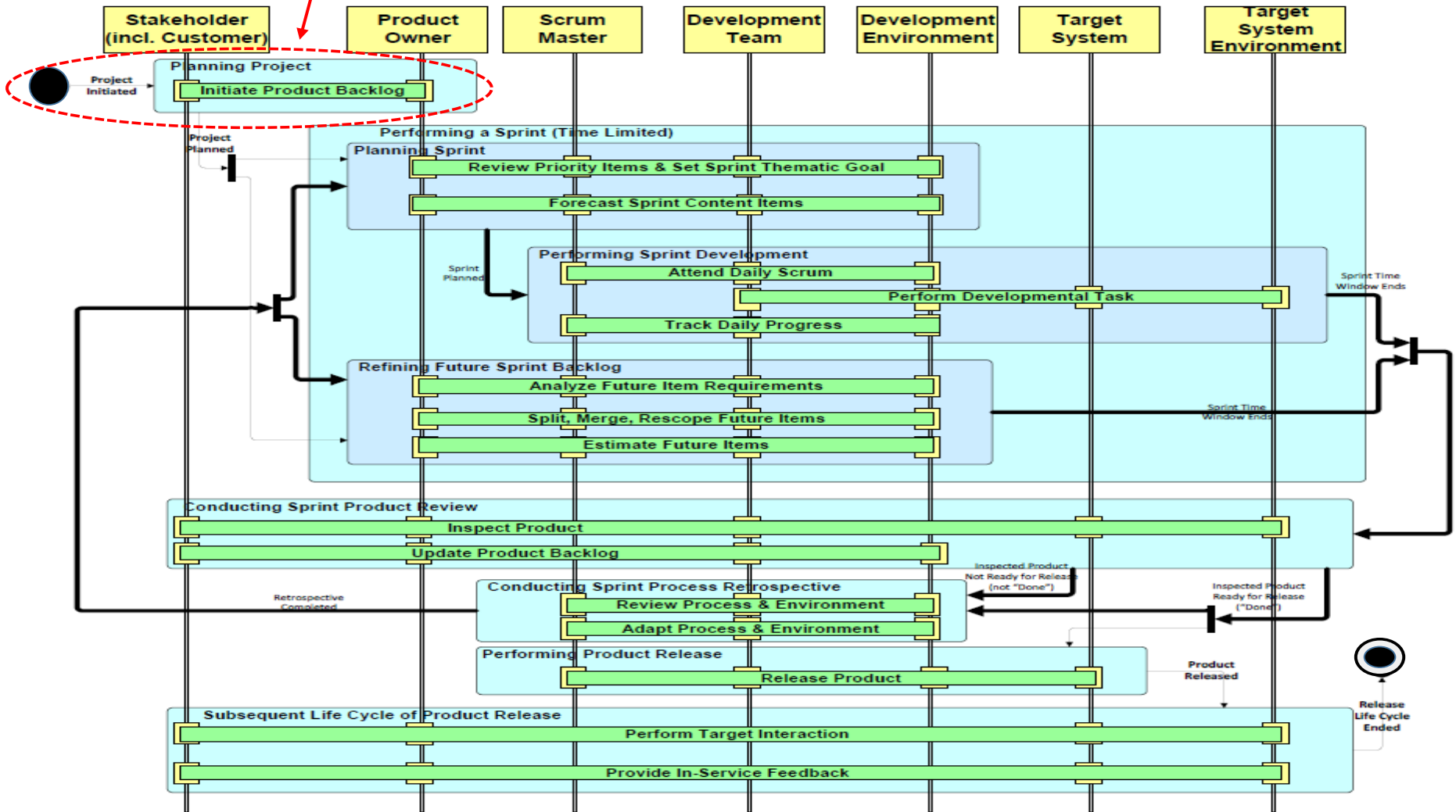


Figure 3 1 - Systems Engineering (SE) Engine

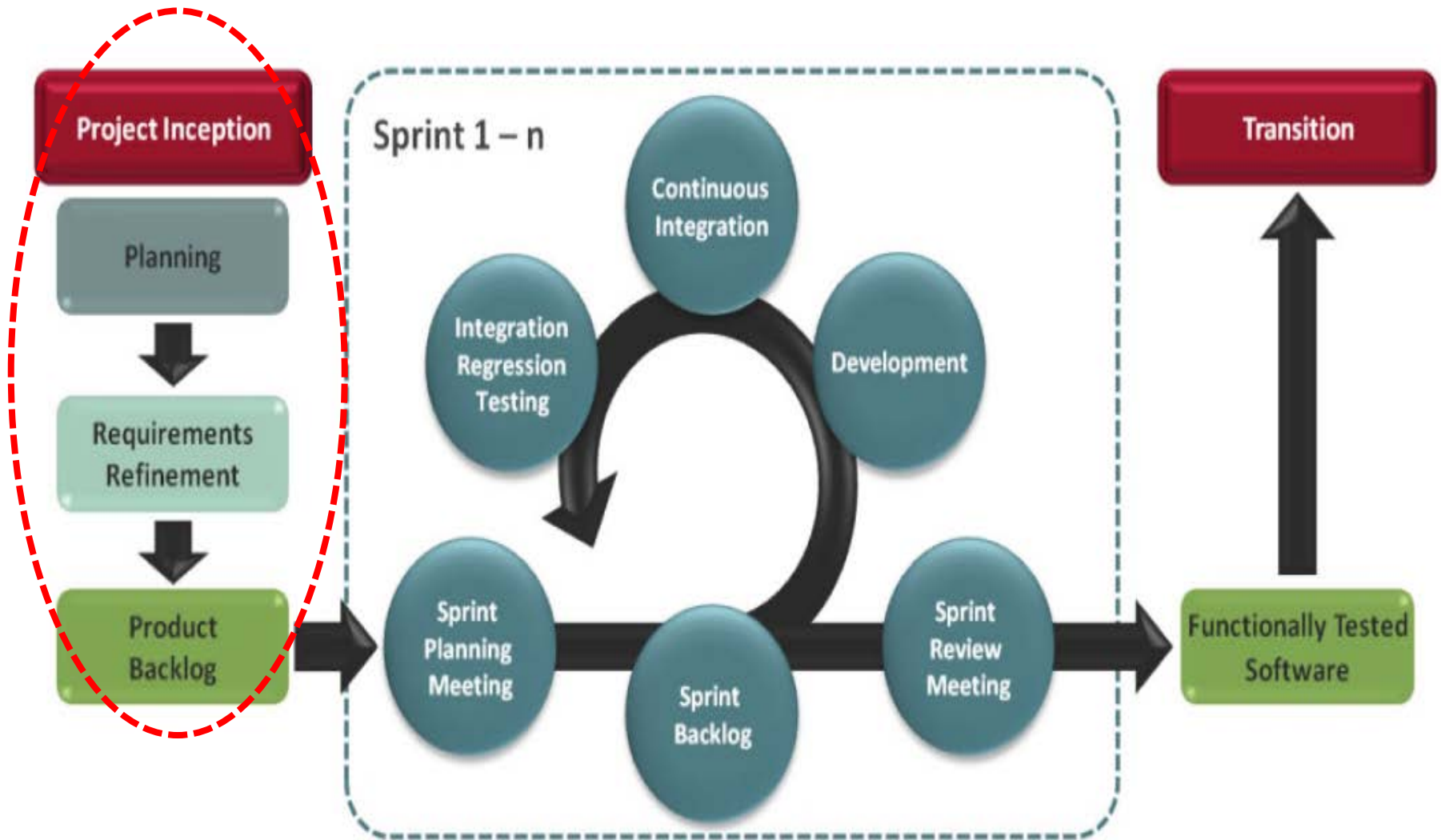
https://snebulos.mit.edu/projects/reference/NASA-Generic/NPR_7123_1B.pdf

IPP in the Agile (Scrum) Lifecycle

Focus of Research

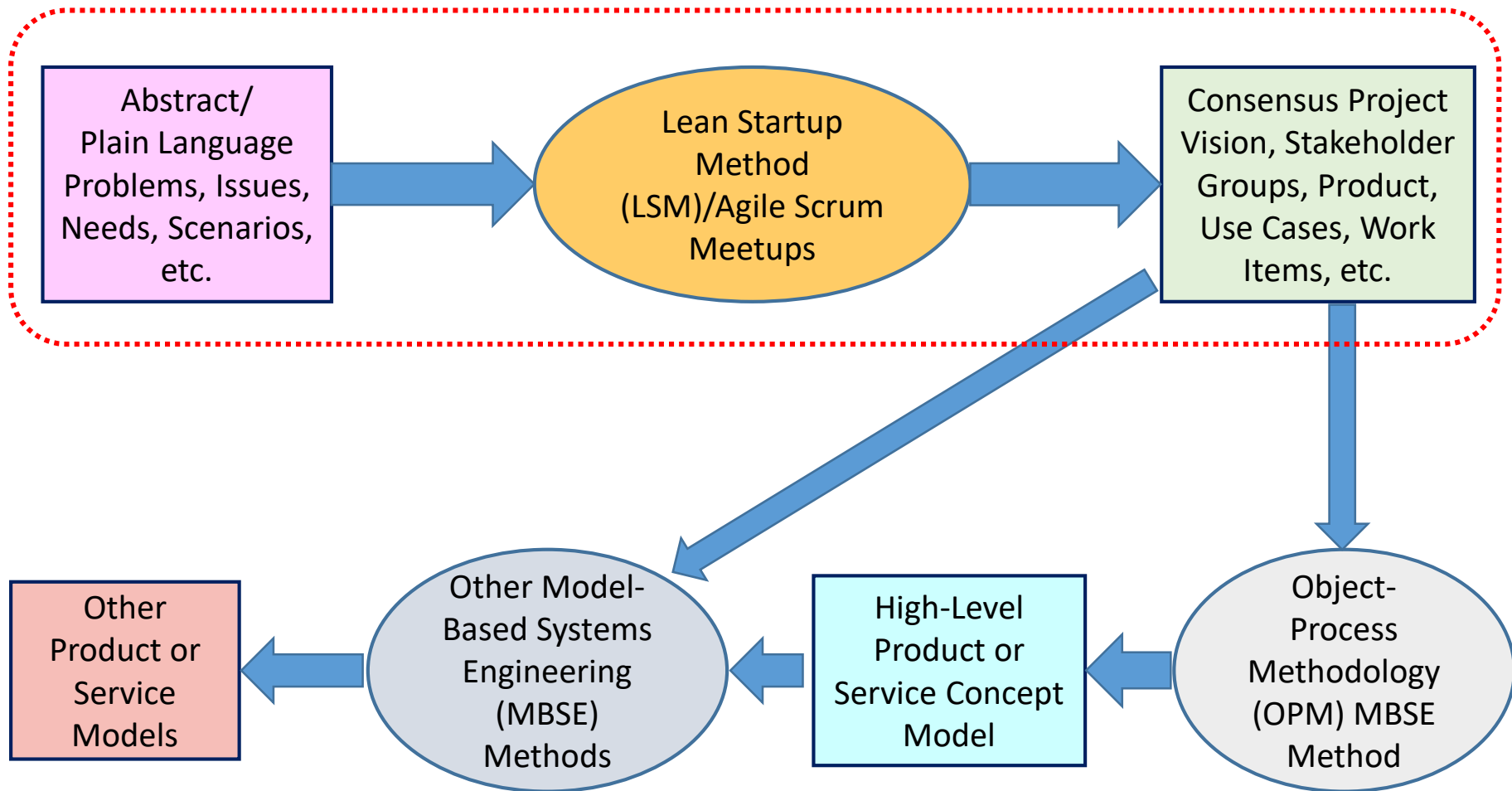


IPP in the Agile (Scrum) Life Cycle



<https://tinyurl.com/y83g9vvl>

LSM/Agile IPP In MBSE Roadmap



LSM/Agile IPP Approach – Stages

Hybrid LSM/Agile Scrum IPP Approach **Three Stages:**

1. Meetup:

- IPP Team collaboratively develops the 'raw' IPP Artifacts.
 - 'Brainstorming' using Flip Charts, Whiteboards, Stickie Notes, etc.
- Output is pictures of Meetup Raw IPP Artifacts.

2. Clean Up:

- IPP Team (along with Project Development Team) collaboratively 'cleans up' the Meetup Raw IPP Artifacts in something like Microsoft® Office.

3. Post Up:

- The Project Development Team (consulting with IPP Team) finalizes IPP Artifacts, then posts them into repository-based Collaboration Tools.

LSM/Agile IPP Approach – Focus Mechanisms

LSM/Agile Scrum IPP Approach **Seven Focus Mechanisms:**

FM1: Project '**Perspectives**' ('**Hats**' or '**Product Owners**')

FM2: Project '**Title**' and '**Purpose**' Statements.

FM3: Project '**Product Vision Board Extended (PVBE)**'.

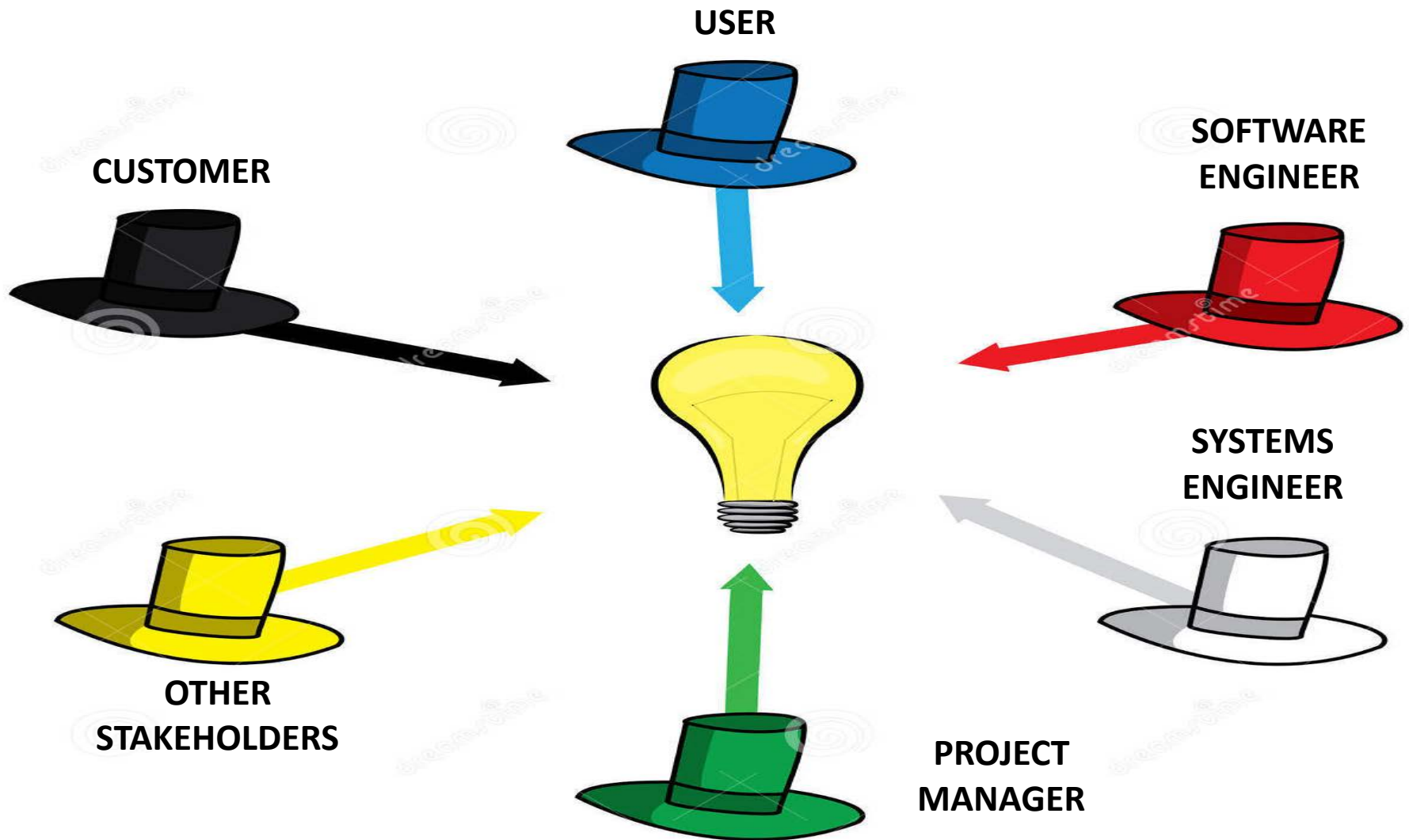
FM4: Project '**Persona List**'.

FM5: Project '**Persona Templates/Cards**'.

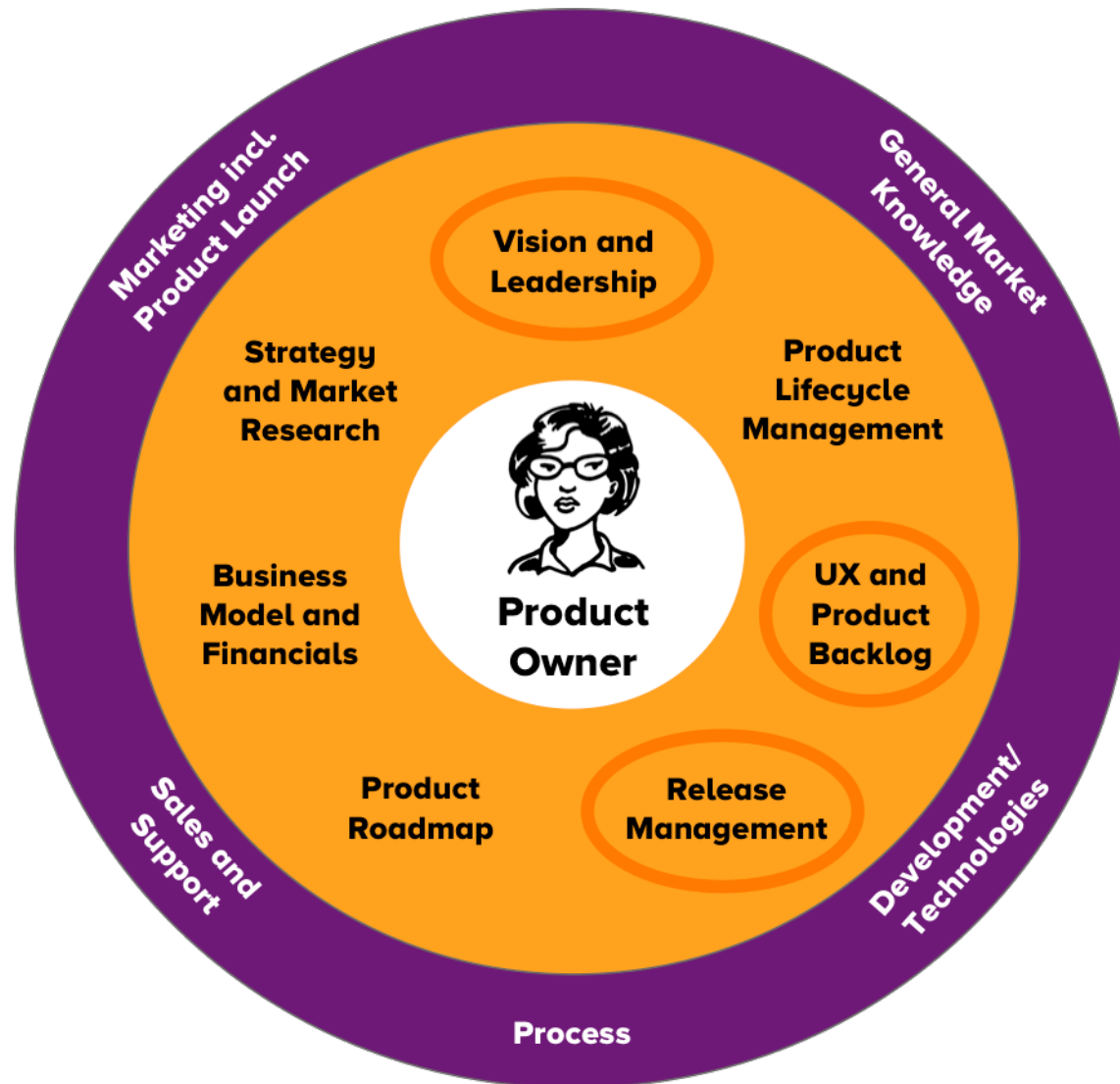
FM6: Project '**Product Canvas**'.

FM7: Project '**Initial Solution-Ready Work Items**'.

LSM/Agile IPP - FM1: 'HATS'



LSM/Agile IPP - FM1: Agile (Scrum) Product Owner



LSM/Agile IPP – FM1: ‘HATS’ (Examples)

Eight uGrid RM MBSE Project ‘HATS’

Project Lead

Consumer

(Hospital, etc.)

Customer

(County, etc.)

Engineers

(Systems, Software, etc.)

System Integrator

Producer

Infrastructure

Ops Manager

(County, etc.)

LSM/Agile IPP – FM2: Project Title and Purpose

Info: sgabriele@gemslearning.net SYSTEMS THINKING ROUNDTABLE

FACILITATOR GUIDE (300 words: 2.5 minutes read aloud)

At __:00 a.m. begin. Don't read words in parentheses.)

1. Welcome, to our Systems Thinking RoundTable (RT). My name is __, and I am today's facilitator. The RoundTable Guide is in front of you. (Be sure new people have RT Guides). We propose to suspend judgment and experience this together without stopping for 45 minutes today. Let's take one minute and go around the room for initial introductions--about three words: e.g., your first name, **role/title, school.** (Cue the person on your left).
2. Thank you and welcome again to everyone. For our reflection today, I'll suggest the topics __ (see bottom of page) for everyone to comment on. While we each consider the topics for a few minutes, I'll ask for volunteers to read aloud the RoundTable Guidelines on the right. Will __ read OUR FORMAT?... OUR PURPOSES?... GUIDELINES FOR LISTENING?... GUIDELINES FOR SPEAKING?... GUIDELINES FOR RESPONDING?..

(At __:05 a.m. please read...)

3. Did anyone come in after the introductions?... Welcome! (Option: Ask for 3-word intro and offer RT Guide).
4. Again, today's suggested topics are: __*. I would like to hear everyone's thoughts about these topics or anything else that is on your mind. Let's each take about (__) minutes to speak. I will use a timer to help us stay on time. Please speak so that everyone can hear. What you say is important to us. (Options: I will start, or we'll start with __) and continue around the circle. (If time permits: a 2nd, 3rd full round.)
5. (If there is time) Anyone who hasn't spoken who is ready to speak now?

(At __:45 a.m. please read...)

6. It's time to close.
7. Thank you all for coming today. We hope to see you at a future session. If you have something more to say, ask a colleague to listen to you on your way out.

READINGS: RoundTable Guidelines (300 words: 2.5 min.)

OUR FORMAT. Our unique format is a new best practice in systems thinking. We spend 5 minutes listening to short readings and the suggested topics. We then spend 40 minutes on individual comments, time divided equally among all present (e.g. 22 people = 2 minutes each). Each session is facilitated by a different volunteering facilitator chosen from those in attendance.

OUR PURPOSES. We use a facilitator guide/script and basic readings--RoundTable Guidelines--for many reasons: 1- We pack in a great deal of information in a very short time, thus leaving maximum time for each of us to present our ideas. 2- The result is we hear everyone's point of view on a topic. 3- We experience some new real-time effortless practices in equal participation: including rotating, distributed leadership; equal time; as well as a simple scaffold to facilitate conscious self-guided evolution. 4- We have found that just as we break the sound barrier when we travel faster than the speed of sound, we break the communication barrier when we hear 20 authentic viewpoints in 45 minutes--and a different facilitator at each session.

GUIDELINES FOR LISTENING. Listening to the 5 minutes of readings allows us the opportunity to quiet our minds and silently reflect on the topics, the readings, our inner thoughts, and our work and lives. Listening to each other's comments, we hear a great variety of viewpoints. We consciously shift our attitudes from "evaluation" to "valuation," from critiquing to appreciating, from problem-solving to ideal-seeking -- towards one another and towards ourselves.

GUIDELINES FOR SPEAKING. At your turn, please say your name again. Then say something about today's topic, or anything else that is on your mind. Let's each take only one turn to speak and limit our time, so we can offer everyone a turn. Or, if you prefer, pass your turn and just listen today.

GUIDELINES FOR RESPONDING. The facilitator may say "thank you" after you speak. In the interest of time and purpose, we will save all other responses to each other until after the session. We don't want to divert others, or be diverted, from our own individual learning. If someone says something that you want to build on, you may want to make a note of it so you can do so during your turn.

LSM/Agile IPP – FM2: Project Title/Purpose (Example)

Project Title:

***“Microgrid (uGrid)
Reference Model (RM)
and Application Process”***

Project Purpose:

***“Use LSM to Produce
Initial Work Items
for uGrid RM Project”***

Lean Startup Method (LSM): Introduction

- Also called, “**Lean Launchpad**”
- A philosophy and methodology based on 1980s **Lean Manufacturing**.
- A learnable and shareable **stakeholder-centric** method to quickly and iteratively start to develop a new product or service, or update existing products or services.
- Developed in its current form by American entrepreneur **Eric Ries**, founder and CEO of the Long Term Stock Exchange (LTSE).
 - A former student of **Steve Blank**, who pioneered the **Lean Startup Movement** with his **Customer Development** concept.

Understanding Stakeholders and Stakeholder Feedback are at the center of successful use of LSM for Initial Project Planning.

Who's Using LSM?

- **National Science Foundation (NSF) Innovation Corps (I-Corps)**
 - https://www.nsf.gov/news/special_reports/i-corps/index.jsp
- **National Geospatial Intelligence Agency (NGA)**
 - <https://federalnewsradio.com/fed-access/2017/10/innovation-at-the-nga/>
- **National Security Agency (NSA)**
 - <https://www.acast.com/leanstartup/7-season-3-how-lean-startup-coaches-support-department-of-defense-innovation>
- **Office of Naval Research (ONR)**
 - <https://steveblank.com/2017/10/10/office-of-naval-research-onr-goes-lean/>
- **U.S. State Department**
 - <https://steveblank.com/2016/10/31/the-state-department-gets-schooled-hacking-for-diplomacy/>
- **U.S. Government “FedTech”**
 - <https://www.fed-tech.org/>
- **Dropbox, Wealthfront, Grockit, imvu, Votizen, Aardvark**
 - <http://theleanstartup.com/casestudies#dropbox>



LSM/Agile IPP: Process Flow

"PROBLEM VALIDATION"

Product Vision Board Extended (PVBE)

Vision What is your vision, your overarching goal for creating the product?			
Target group Which market segment does the product address? Who are the target users and customers?	Needs How does the product create value for its users? What problem does it solve? Which benefit does it provide?	Product What product is it? What makes it desirable and special? Is it feasible to develop the product?	Business Goals How is the product going to benefit the company? What are the business goals? Which one is most important?
Competitors Who are product's main competitors? What are their strengths and weaknesses?	Revenue Sources How can you monetise your product and generate revenue? What does it take to open up the revenue sources?	Cost Factors What are the main cost factors to develop, market, sell and service the product? What resources and activities incur the highest cost?	Channels How will you market and sell the product to the customers? Do the channels exist today?

www.romanpichler.com

- Compliant with Lean Business Model Canvas (BMC)
- Can be shared in tools like Atlassian 'Confluence'

"USER VALIDATION"

Persona Templates

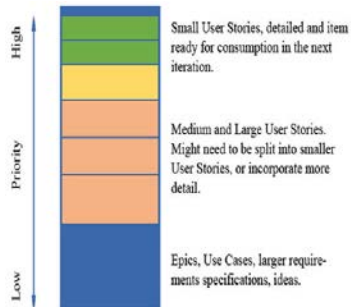
PICTURE & NAME	DETAILS	GOAL
What does the persona look like? What is its name? Choose a picture and a name that are representative, and that allow you to develop sympathy for the persona.	What are the persona's relevant characteristics and behaviours? Consider demographics, job, lifestyle, spare time activities, attitudes, and common tasks, for instance.	Why would the persona want to buy or use the product? What problems should the product solve? What benefits does the persona want to achieve? If there are multiple problems or benefits, identify the main one and put it at the top.

<http://www.romanpichler.com/>

- Can be shared in tools like Atlassian 'Confluence'

"SOLUTION-READY PBIs"

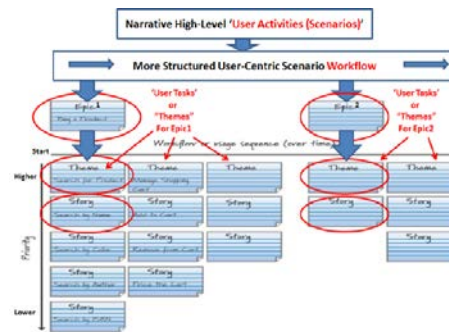
Initial Product Backlog Items (PBIs)



- Can be linked/shared in tools like Atlassian 'Confluence' & 'Jira'

"SOLUTION BUILDING BLOCKS"

User Story Workshop/Story Mapping



- Can be linked/shared in tools like Atlassian 'Confluence' & 'Jira'

"SOLUTION VALIDATION"

Product Canvas

Name	Goal	Metrics
The name of the product.	The reason for creating the product.	The measures to determine if the goal has been met.
Target Group The users and the customers with their needs. Personas are a great way to describe the target group.	Big Picture The desired user experience (UX): the user journeys, the product functionality, the visual design, and the nonfunctional properties. Epics, scenarios, storyboards, workflows, design sketches, mock-ups, and constraint stories are helpful techniques.	Product Details The goal of the next iteration with specific personas aims to reach the goal. The items are ordered from one to n, and may be repeated as detailed user stories.

<http://www.romanpichler.com/>

- Can be shared in tools like Atlassian 'Confluence'

“PROBLEM VALIDATION”

Product Vision Board Extended (PVBE)

 Vision What is your vision, your overarching goal for creating the product?			
 Target group Which market segment does the product address? Who are the target users and customers?	 Needs How does the product create value for its users? What problem does it solve? Which benefit does it provide?	 Product What product is it? What makes it desirable and special? Is it feasible to develop the product?	 Business Goals How is the product going to benefit the company? What are the business goals? Which one is most important?
 Competitors Who are product's main competitors? What are their strengths and weaknesses?	 Revenue Sources How can you monetise your product and generate revenue? What does it take to open up the revenue sources?	 Cost Factors What are the main cost factors to develop, market, sell and service the product? What resources and activities incur the highest cost?	 Channels How will you market and sell the product to the customers? Do the channels exist today?

www.romanpichler.com



- Compliant with Lean Business Model Canvas (BMC)
- Can be captured and managed as a ‘Confluence Space’

LSM/Agile IPP – FM3: PVBE (Meetup Example)

Notes:

Facilitate a model-based systems approach to develop microgrids.

TARGET GROUPS:

- System Integrator
- Customer

NEEDS:

- Challenge to reconcile multiple stakeholder concerns & emerging threats
- Improved Collaborative decision-making for acquisition and development.

PRODUCT

- Common Vocabulary
- Multiple Views
- Decision-making ^{Crit} _{eria}
- Scalable Scope
- Composable
- Configurable

MISSION GOALS

- 1 Optimize Development
- 4 Improved Planning
- 2 Risk Reduction
- 3 Improved Comms

COMPETITORS:

- Legacy Methods (AD HOCERY)
- Non-Profits
- Commercial Enterprises
- Governments

REV. SOURCES:

- Governments
- Crowd Resources
- Non-Profits
- Venture Capitalists
- Commercial Enterprises

COST FACTORS

- Maintenance
- Schedule
- Training
- Tools
- Labor (Volts vs Profs)

CHANNELS

- Professional Societies (Journals, etc.)
- Conferences (ET, etc.)
- News Media
- Government Comms

LSM/Agile IPP – FM3: PVBE (Clean Up Example)

VISION: Facilitate a Model-Based Systems Approach to Develop Micro-Grids

TARGET GROUP

- System Integrator
- Customer

NEEDS

- Challenge to reconstruct multiple stakeholder concerns and emerging threats.
- Improved collaborative decision-making for acquisition and development.

PRODUCT

- Common vocabulary
- Multiple views
- Decision-making criteria
- Scalable scope
- Composable
- Configurable

MISSION/GOALS

- 1 Optimize Development
- 2 Risk Reduction
- 3 Improved Comms
- 4 Improved Planning

COMPETITORS

- Legacy Methods
- Non-Profits
- Commercial Enterprises
- Governments

REVENUE SOURCES

- Governments
- Crowd Resources
- Non-Profits
- Venture Capitalists
- Commercial Enterprises

COST FACTORS




- Maintenance
- Schedule
- Training
- Tools
- Labor (Vols vs Professionals)

CHANNELS

- Professional Societies
- Conferences
- News Media
- Government Communications

“USER VALIDATION”

Persona Templates

 PICTURE & NAME	 DETAILS	 GOAL
<p>What does the persona look like? What is its name?</p> <p>Choose a picture and a name that are representative, and that allow you to develop sympathy for the persona.</p>	<p>What are the persona's relevant characteristics and behaviours?</p> <p>Consider demographics, job, lifestyle, spare time activities, attitudes, and common tasks, for instance.</p>	<p>Why would the persona want to buy or use the product?</p> <p>What problems should the product solve?</p> <p>What benefits does the persona want to achieve?</p> <p>If there are multiple problems or benefits, identify the main one and put it at the top.</p>

<http://www.romanpichler.com/>



-- Can be captured and managed as a ‘Confluence Space’

LSM/Agile IPP – FM4: Persona List (Meetup Example)


	Personas
- Ricky the Risk Manager	
- Logan the Logistician	
- M+M the model maintainer	- Carl the City Planner
- Eddie the Environmentalist	- Rob the Economics analyst
- Nigel the NW Engineer	- Sam the SWE
- AL the Standards and Governance Specialist	- Tony the Terrorist
- Fred the Tester.	- Tom the Threat Analyst
- Ted the Toolsmith	- Mike the System Integrator
- Paul the Power Provider	- John the County Planner
- Wally the Wire Guy	- Larry the Insider
- Kitty the Configuration Mgr	- Harry the Hacker
- Nat the Natural Resource Provider	- Sarah the Campus Facilities mgr.
	- Victoria the Venture Capitalist

LSM/Agile IPP – FM4: Persona List (Clean Up Example)


uGrid RM Personas (Stakeholder Groups)	
Ricky the Risk Manager	Carl the City Planner
Logan the Logistician	Rob the Economics Analyst
Mike the Model Manager	Sam the Software Engineer
Eddie the Environmentalist	Nigel the Network Engineer
Alan the Standards & Governance Specialist	Tony the Terrorist
Fred the Model Tester	Marty the Systems Integrator
Ted the Toolsmith	Tom the Threat Analyst
Paul the Power Provider	John the County Planner
Wally the Wire Guy	Larry the Insider (Threat)
Kitty the Configuration Manager	Harry the Hacker
Nat the Natural Resource Provider	Sarah the Campus Facilities Manager
Victoria the Venture Capitalist	Rita the Systems Engineer

LSM/Agile IPP – FM5: Persona Template (Meetup Example)

Example Persona Template







Picture/Name/ Title/ Role	Details	Goals
<p>Sandy</p>  <p>Ubrid Rm modeler</p>	<ul style="list-style-type: none">- Expert MBSE Modeler.- Systems Engineer- SE Tool(s) Expert- Highly motivated- (see Resume/CV)	<ul style="list-style-type: none">- Demonstrate Value of MBSE in General and Ubrid Rm in particular.- Promote using Models for Decision-making.- Convey thinking and give direction to Modeling Team.- Demonstrate a real potential solution for real-world problems.

LSM/Agile IPP – FM5: Persona Template (Clean Up Example)

PICTURE/NAME/TITLE	DETAILS	GOALS
<p>Samantha</p>  <p>uGrid RM Modeler</p>	<ul style="list-style-type: none">-- Expert MBSE Modeler-- Systems Engineer-- Systems Engineering Tools Expert-- Highly Motivated-- (See Resume and CV)	<ul style="list-style-type: none">-- Demonstrate value of MBSE in general and uGrid RM in particular.-- Promote using models for decision-making.-- Convey thinking and give direction to modeling team.-- Demonstrate a real potential solution for real-world problems.

LSM/Agile IPP – FM6: Product Canvas

“SOLUTION VALIDATION” **Product Canvas**

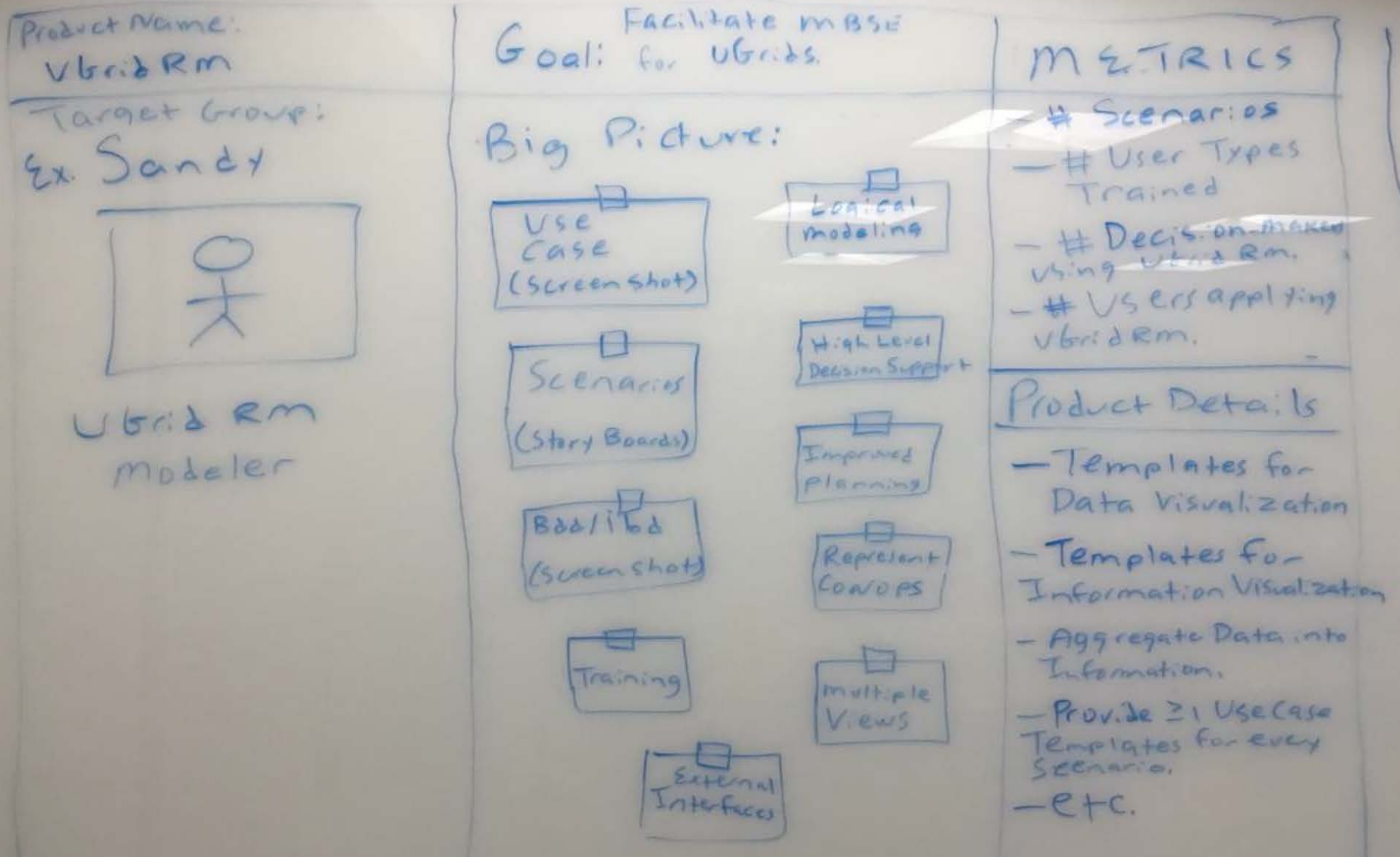
 Name The name of the product.	 Goal The reason for creating the product.	 Metrics The measures to determine if the goal has been met.
 Target Group The users and the customers with their needs. Personas are a great way to describe the target group.	 Big Picture The desired user experience (UX): the user journeys, the product functionality, the visual design, and the nonfunctional properties. Epics, scenarios, storyboards, workflows, design sketches, mock-ups, and constraint stories are helpful techniques.	 Product Details The goal of the next iteration with specific actionable items to reach the goal. The items are ordered from one to n, and may be captured as detailed user stories.

<http://www.romanpichler.com/>




-- Can be captured and managed as a ‘Confluence Space’

LSM/Agile IPP – FM6: Product Canvas (Meetup Example)



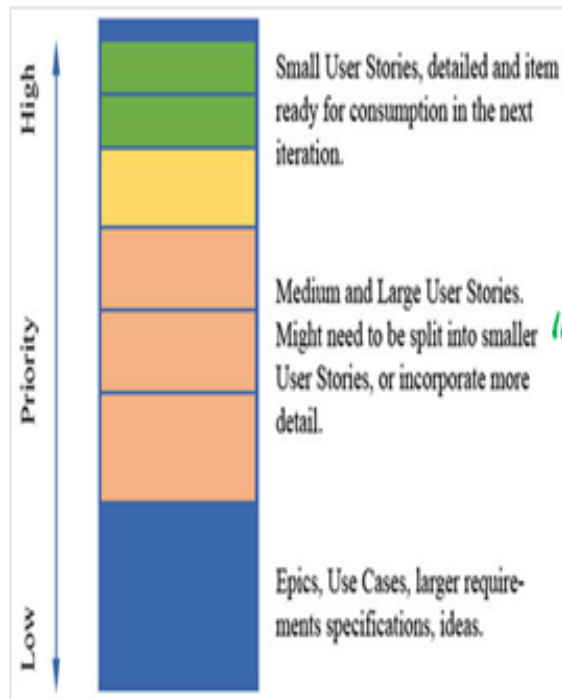
LSM/Agile IPP – FM6: Product Canvas (Clean Up Example)

Product Name: <i>uGrid RM</i>	GOAL: <i>Facilitate MBSE for uGrids</i>	Metrics:
<p>Target Group:</p> <p>Ex. Samantha</p>  <p>uGrid RM Modeler</p> <p>(Other Personas as decided in this Target Group)</p>	<p>Big Picture:</p> <div> <div>Use Cases</div> <div>Logical Modeling</div> <div>Scenarios (Story Boards)</div> <div>High Level Decision Support</div> <div>External Interfaces</div> <div>Improved Planning</div> <div>Training</div> <div>Multiple Views</div> </div>	<ul style="list-style-type: none"> -- # of Scenarios -- # of User Types Trained -- # of Decisions Makers using uGrid RM -- # Users Applying uGrid RM <hr/> <p>Product Details:</p> <ul style="list-style-type: none"> -- Templates for Data Visualization -- Templates for Information Visualization -- Aggregate Data into Information -- Provide at least One Use Case Template for every Scenario -- etc.

LSM/Agile IPP – FM7: Initial Work Items

“SOLUTION-READY PBIs”

Initial Product Backlog Items (PBIs)

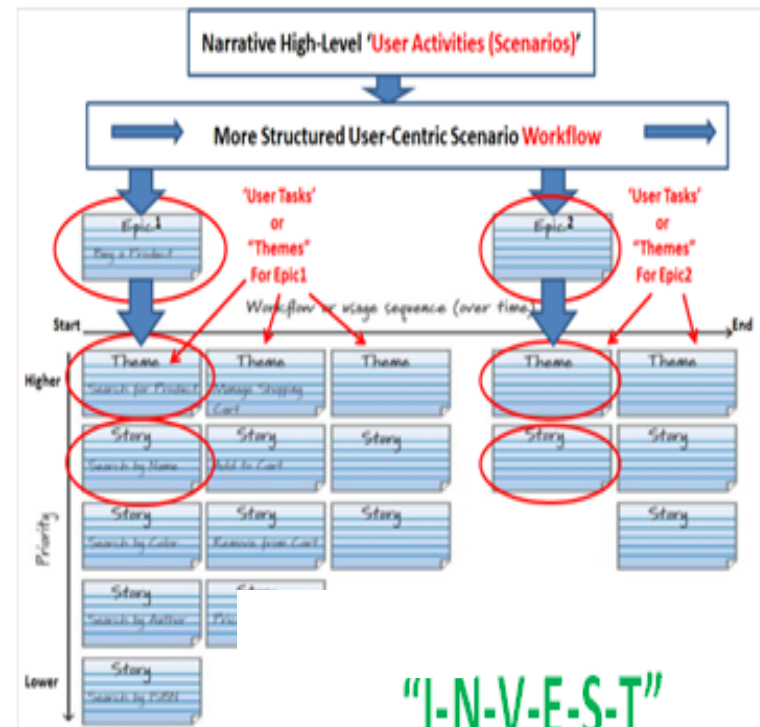


“D-E”

-- Can be linked/shared in tools like Atlassian 'Confluence' & 'Jira'

“SOLUTION BUILDING BLOCKS”

User Story Workshop/Story Mapping



-- Can be linked/shared in tools like Atlassian 'Confluence' & 'Jira'

LSM/Agile IPP – FM7: Initial Work Items (Meetup Examples)

U Grid RM 'EPICS'

Reflect
External UGrid
Interfaces

Reflect
Internal UGrid
Interfaces

Re present
ConStraints

Enable
Model
Instantiations

Depict
Real-Life
UGrid
Domain

Reflect
UGrid
Infrastructure

Follow
Established
Modeling
Guidelines

Ref Model Use 'Epic'
As Project Lead -
Want a RM to
reflect comprehensive
Architecture & Behavior
of a Typical Microgrid

For Customer (Hospital)
Hospital
Equipment, presently
the UGrid shall provide
AC 470 power at the
quantities needed for
24/7/365.
Describe
Electric Power

SE/SWE
- DESCRIBE LOGICAL
COMPONENTS
- DESCRIBE PHYSICAL
COMPONENTS
- DESCRIBE LOGICAL
ARCHITECTURE
- DESCRIBE PHYSICAL
ARCHITECTURE

Take
New
INPUTS

Produce
Products

LSM/Agile IPP – FM7: Initial Work Items (Clean Up Examples)

**Reflect External
uGrid Interfaces**

**Reflect Internal
uGrid Interfaces**

**Represent
Constraints**

**Enable Model
Instantiations**

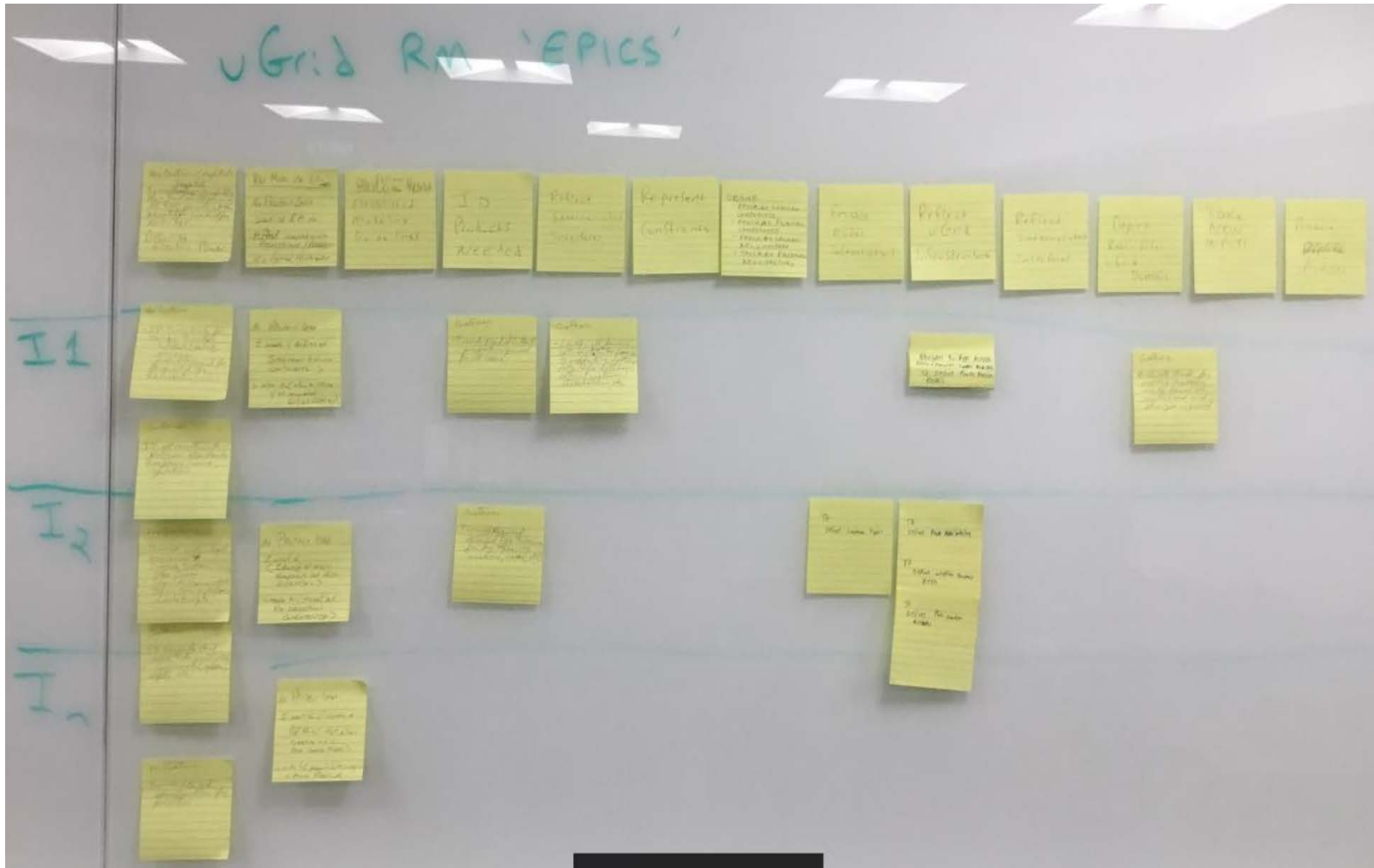
**Follow
Established
Modeling
Guidelines**

**Depict Real-Life
uGrid Domain**

**Reflect uGrid
Infrastructure**

**Describe uGrid
Logical and
Physical
Components**

LSM/Agile IPP – FM7: Initial Work Items (Meetup Examples)



LSM/Agile IPP – FM7: Initial Work Items (Clean Up Examples)

	uGrid RM 'Epics' – Iterations Work								
Work Flow	Describe Electric Power	Reflect Arch. Behavior	Follow Model Guides	ID Products Needed	Reflect External Interface	Reflect Limits	Describe Model Parts	Enable Mods	Depict uGrid Domain
I1	ID Specific Needs	ID Simulate Needs		ID all User Needs	Review all Use Cases			ID Changes Required	ID all Hazards
	ID all Policy Limits								
I2	ID all Scenarios	ID all Sub Systems		ID all Ops Processes		ID Power Available			
I3	ID all Power Mediums			ID all Customer Types		ID all Weather Limits			

LSM/Agile IPP: Key Points

- This **Hybrid Lean Startup Method (LSM)/Agile (Scrum) Product Backlog Item (PBI) Development Approach to Initial Project Planning (IPP)** has proven itself to be an effective approach to help projects, “Get It Right, Right From the Start”.
- A small group of Decision Makers and Subject Matter Experts (SMEs) can use this approach in a series of off-site style Meetups to quickly and efficiently develop together an actionable set of **IPP Focus Mechanisms** that any Development Team can use throughout the life cycle of any system solution project:
 - ‘Hats’ or ‘Product Owners’ project perspectives/insights
 - Project Title & Purpose
 - Product Vision Board Extended (PVBE)
 - Persona List
 - Persona Templates/Cards
 - Product Canvas
 - Initial Set of Solution-Ready Work Items

MBSE, LSM, and Agile References

- **MBSE Book:** *Don't Panic! The Absolute Beginner's Guide to Model-Based Systems Engineering*; **Jon Holt** and **Simon Perry**; 2017; ISBN 978-0-9934857-1-8
<http://tinyurl.com/y8bazggw>
- **LSM Book:** *The Lean Startup*; **Eric Ries**; 2011; ISBN 978-0-670-92160-7
<http://tinyurl.com/y7nvq66c>
- **LSM Book:** *The Lean Product Playbook*; **Dan Olsen**; 2015; ISBN 978-1-118-96087-5
<http://tinyurl.com/yc9ucoox>
- **Agile Project Management Book:** *Agile Product Management with Scrum*; **Roman Pichler**; 2011; ISBN-13: 978-0321605788
<https://tinyurl.com/y856stnk>
- **Agile User Story Book:** *User Story Mapping: Discover the Whole Story, Build the Right Product 1st Edition*; **Jeff Patton**; 2014; ISBN-13: 978-1491904909
<https://tinyurl.com/yby2esm9>



LSM/Agile IPP: Presentation QR Codes

07Jun18 NDIA LSM/Agile QR Codes



07Jun18 Info
In Dropbox



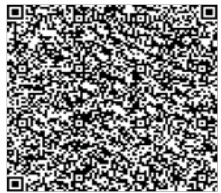
Eric Ries
LSM URL



Mike Pafford
Contact Info



Steve Blank
LSM URL



LSM Use
URLs



"Six Hats"
URL



BMC/MMC
URL



Roman Pichler
Agile Blog URL



Atlassian
Confluence
URL



Gartner
Agile
URL



Persona
Cards
URL



Agile Scrum
Guide URL



MBSE, LSM,
Agile Refs

THANK YOU!!

Michael E. (Mike) Pafford

Past President, INCOSE Chesapeake Chapter

Co-Chairman, INCOSE Object-Oriented Systems Engineering Method Working Group

Co-Chairman, INCOSE System and Software Interface Working Group

Instructor, Johns Hopkins University, Software Systems Engineering

Trainer; Lean Startup Methods (LSM)/Agile for Initial Project Planning

mepafford@verizon.net

<https://www.linkedin.com/in/mikepafford/>

