

Industry Day- Energy Sector Workshop

Nov. 21st 2019



Eddie Lee (Moxa)
Mark Atkinson (Itron)
Travis Gehri (DXC)



Agenda and Workshop Activities



09:00am Welcome and introductions

09:10am Workshop activities explained

09:15am Introduce the Test Drive concept and explain IIC/IOTAA collaboration

09:30am Energy Adaptive Network's Test Drive (Michael Enescu via web)

10:00am Discussion /Ideation

10:30am Coffee Break

11:00am Collect industry challenges and opportunities in form of problem statements

11:15am Validate and prioritize problem statements as candidates for Test Drives

11:45am Reflection and next steps (Travis)

12:00pm Break for Closing Plenary



Ground Rules



-
- We will start and end on time, with agenda items kept to the running time
 - Mobiles and lap-tops parked at the door

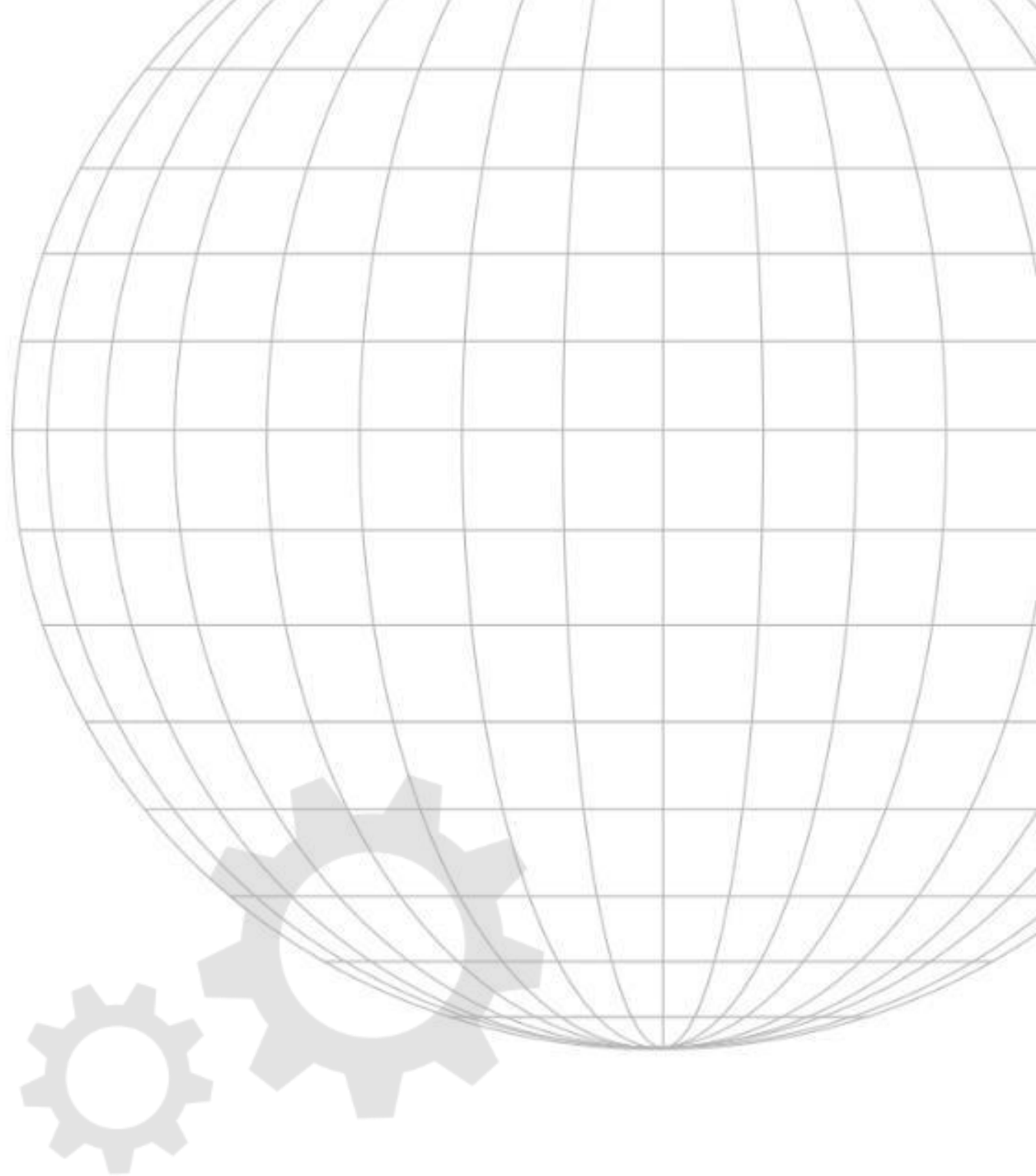
 - Listen, try to understand other views, all participants' inputs are equally valued
 - Be honest, say if you don't understand or don't agree
 - Focus discussions and criticisms on interests and not on people/ groups

 - A 'Parking Lot' will be used to park issues to be resolved
 - Try to stay within the subject matter, all cross-subject opportunities are to be parked.

IIC Frameworks, Testbeds and Test Drives

Eddie Lee

IIC Energy Task Group Co-chair

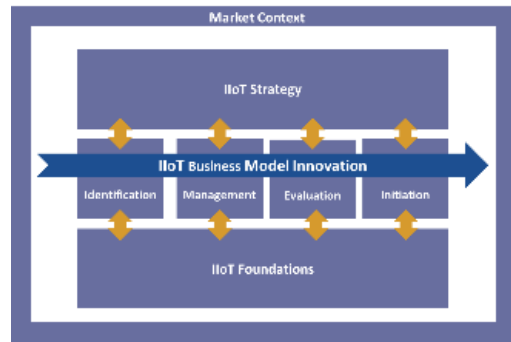




IIC Frameworks

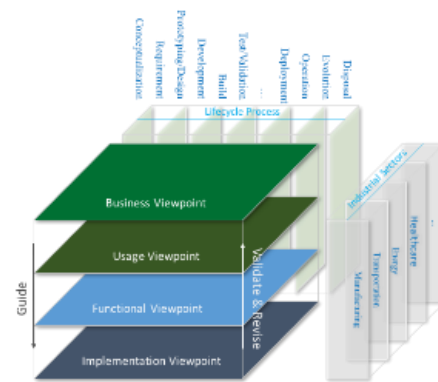


Framework provide guidance for the planning, design, implementation and operation of IIoT solutions. They are a set up best practices from IIoT practitioners for user organizations to help them with IIoT adoption.



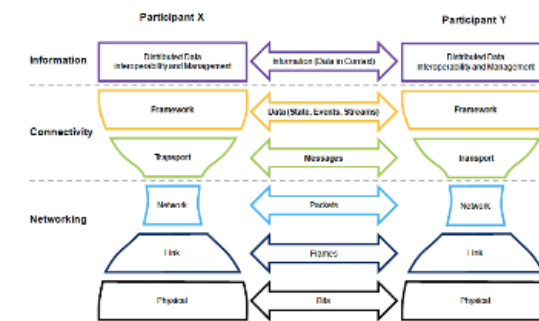
Business Strategy and Innovation Framework (BSIF)

Approach for the strategic introduction of IIoT into an organization.



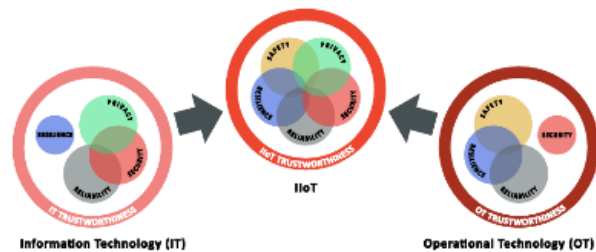
Industrial Internet Reference Architecture (IIRA)

Provides a blue print for the design of an IIoT system.



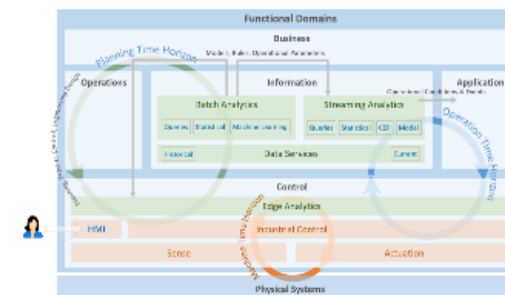
Industrial Internet Connectivity Framework (IICF)

Describes relevant connectivity standards and their usages scenarios.



Industrial Internet Security Framework (IISF)

Defines best practices to secure an IIoT system.



Industrial Internet Analytics Framework (IAF)

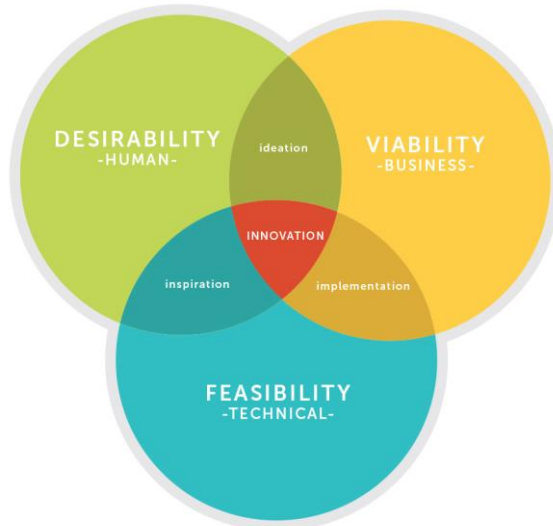
Describes application of analytics in a IIoT system.



IIC Testbeds



Testbed results are the cornerstones of a feedback loop from concept to reality and back to guidance for further innovation. They allow to verify solution ideas on multiple dimensions.



- Testbeds are the IIC approach to co-innovation
- **Not all participants need to be IIC members**
- Partners co-invest in proofing the feasibility of IIoT solutions
- Testbeds need to comply with the IIRA and IISF
- Public and private testbeds
- Horizontal and vertical testbeds





IIC Test Drives



-
- Short-term, rapid-engagement pilots solving problems brought forth by industry users
 - Speeding the path between ideation and pilot: 3-6 month design phase
 - Assisting with ideation, identifying technologies, selecting partners, defining a project and delivering a pilot
 - Producing validated, market-ready solutions to be rolled out throughout the enterprise
 - Reducing uncertainty around IIoT and the IIoT journey



Test Drives



Why are they formed?

- To stimulate IIoT adoption across industry through accelerated implementation and learning
- To offer to industry a rapid engagement approach to our neutral platform for developing innovative solutions
- To foster a vibrant end-to-end solution development ecosystem

For whom are they formed?

- Technology end users exploring IIoT solutions, interested in developing short-term pilots as an initial step in adopting IoT technologies
- Vendors and system integrators wishing to develop, test and provide solutions to end users

Benefits of Participation

- Gain advantage through neutral platform innovation within a partner ecosystem
- Innovate with a strong customer and go-to-market focus
- Achieve tangible results fast
- Rapidly develop field-deployed pilot



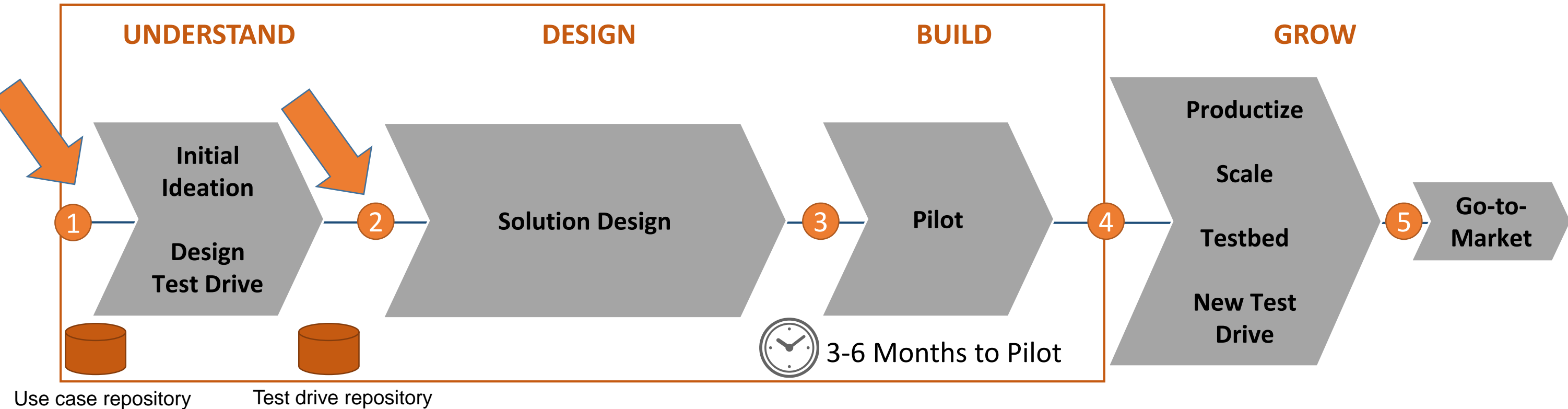
Test Drives vs Testbeds



	Short term pilot focused, 3 to 6 month pilot	New technology development focused	End user driven, solution oriented	Experimentation focused, standards development and evaluation, interoperability	Leverage partners from the IIC ecosystem
Test Drive	●		●		●
Testbed		●		●	●



Co-Creation: Test Drive Process



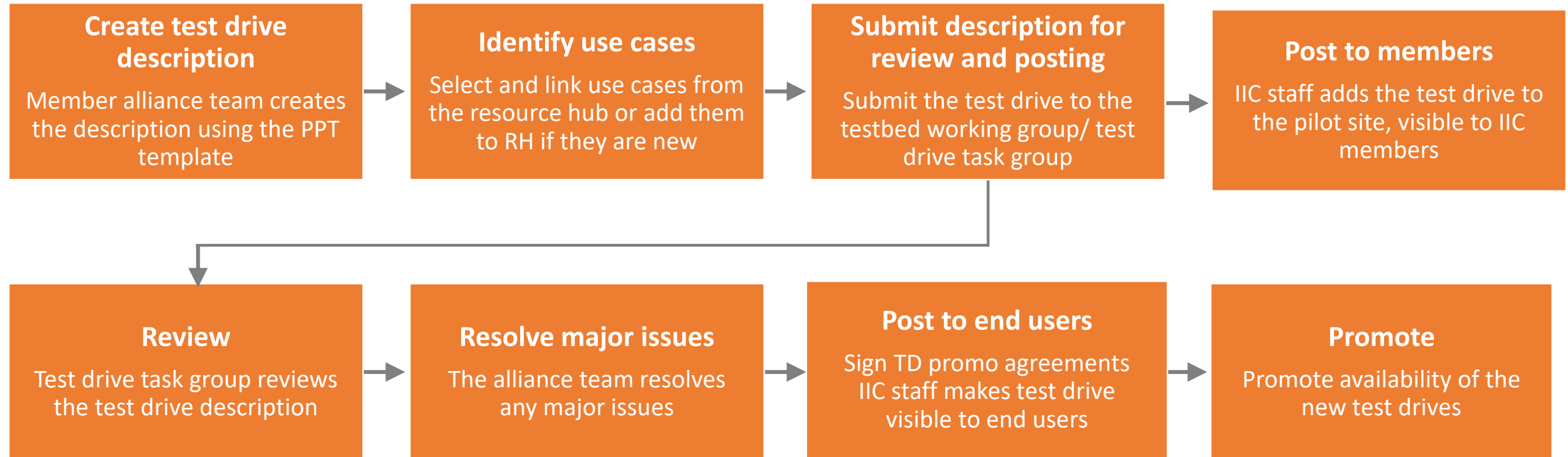
- 1 Starting Point 1: Initial Customer Commitment
- 2 Desirability Check I + Alternate Starting Point 2: Solution partners w/ Customer
- 3 Desirability Check II + Solution Design
- 4 Desirability Check III + Pilot in Production + Test Drive Repository
- 5 Start of production w/ minimum viable product



Adding a test drive proposal into the test drive repository

Member Alliance Team creates a test drive description and submits for review

Create test drive description

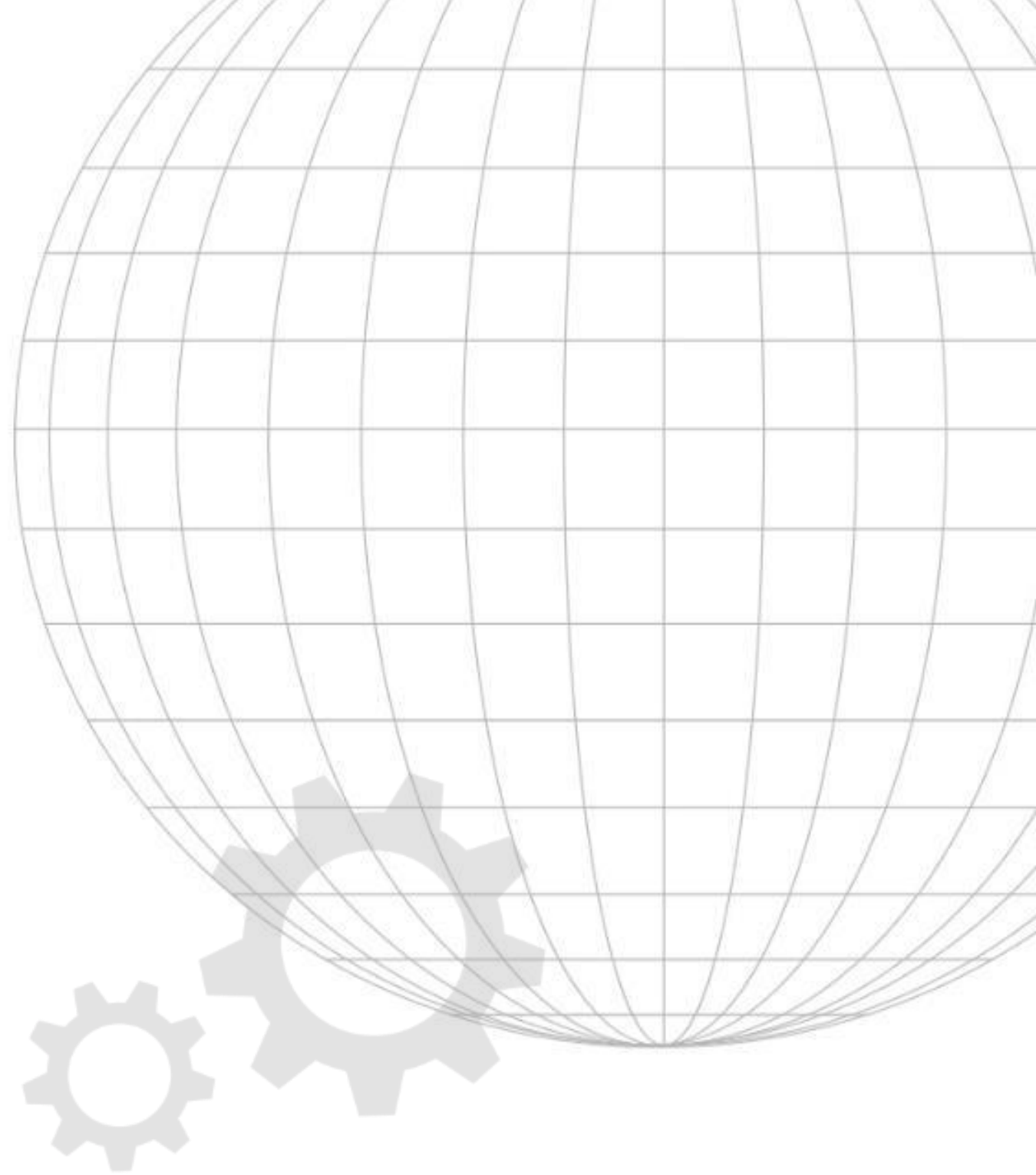


Lightweight review of test drive description

DER Analytics Test Drive Proposal

Michael Enescu

Energy Adaptive Network (EAN)





Analytics for Distributed Energy Resources (DER)



A key utility pain point is decision making on collected sensor data at the endpoint in very short time scales, sometimes even milliseconds or sub-millisecond. Development of design guidelines on data architecture and processing that make sense for Energy operations is needed. The use cases considered could be source modelling, monitoring and control, as well as forecasting, resource capacity calculation and resource planning.



DER Analytics Test Drive Proposal- Problem Statement



To address problems of

- Optimal Power Flow
- Dynamic control of loads
- Frequency Stability

Solution require distributed analytics methods that converge within sub-milliseconds.

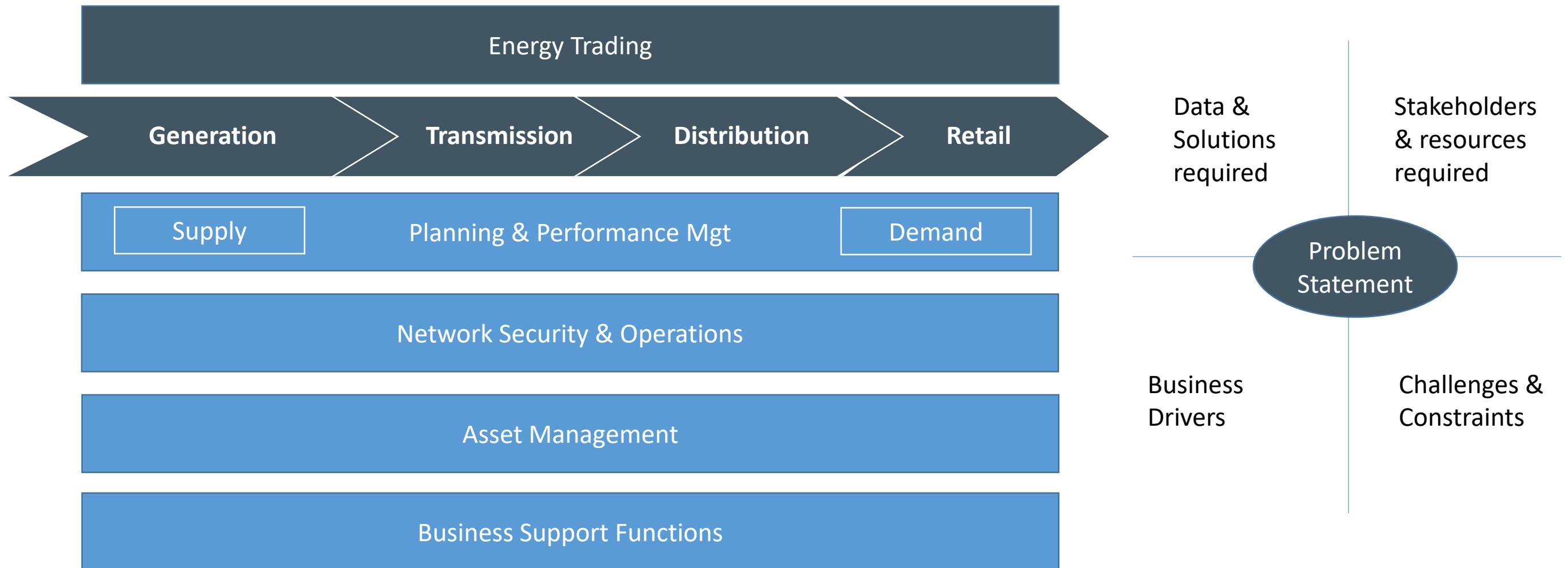
The method needs to take advantage of physics of Electricity so that grid itself helps with the computation of ideal solution.



Discussion/ Ideation

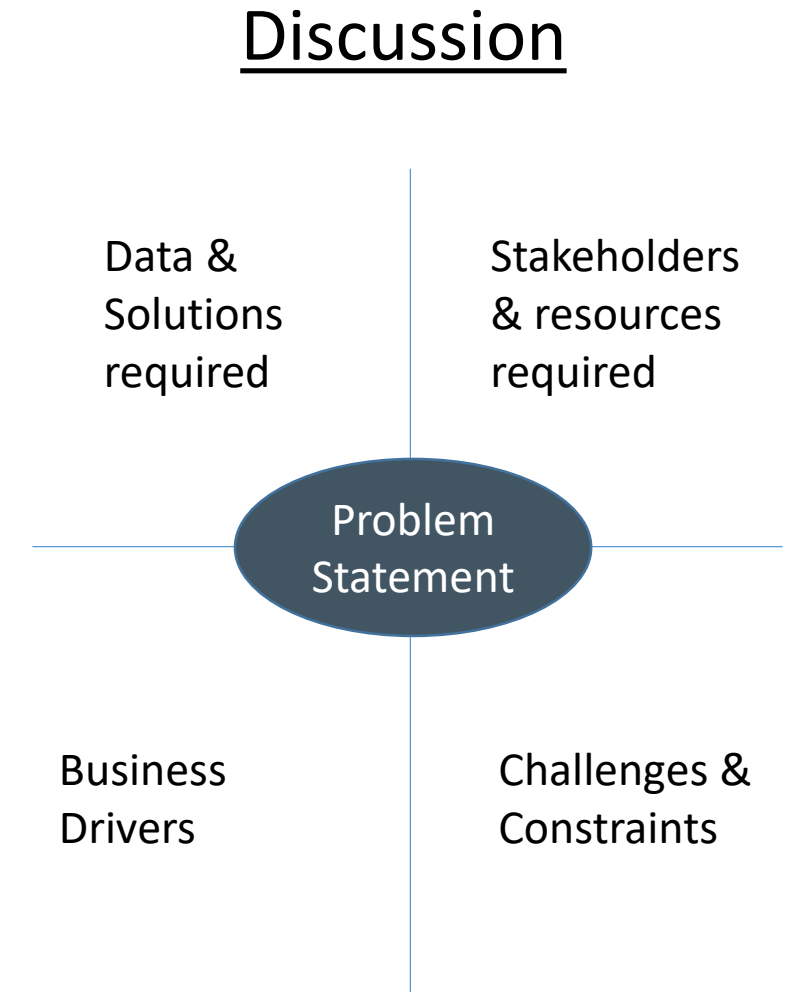
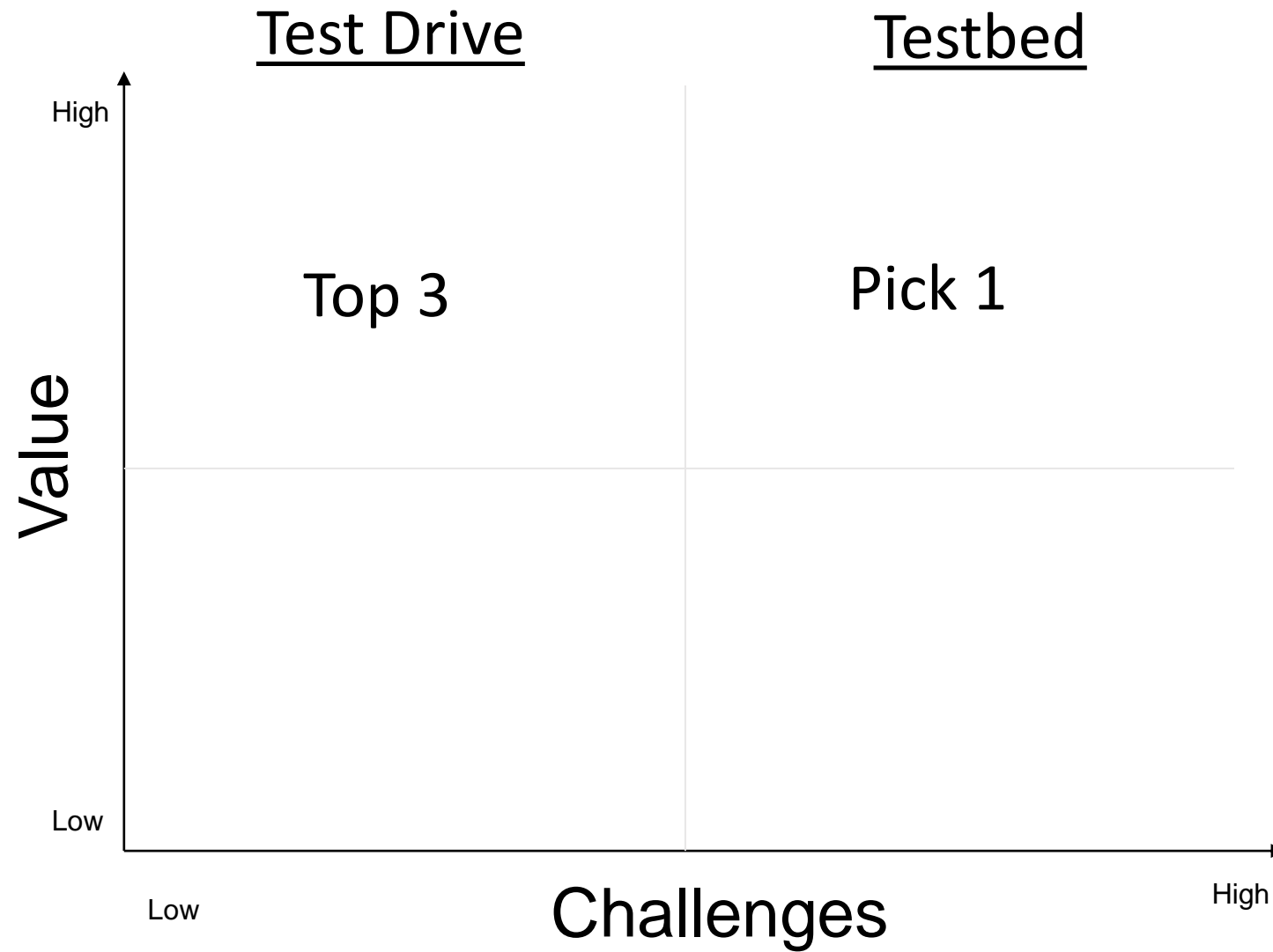


Break-out into discussion groups, centred around sections of the Energy Utility Value Chain





Validation and Prioritisation





Reflection and Next Steps



-
- Nominate replay team for plenary
 - Progression of Ideas into Test Drive proposals
 - Next Steps?