CER Data Exchange Industry Co-design

Workshop 1

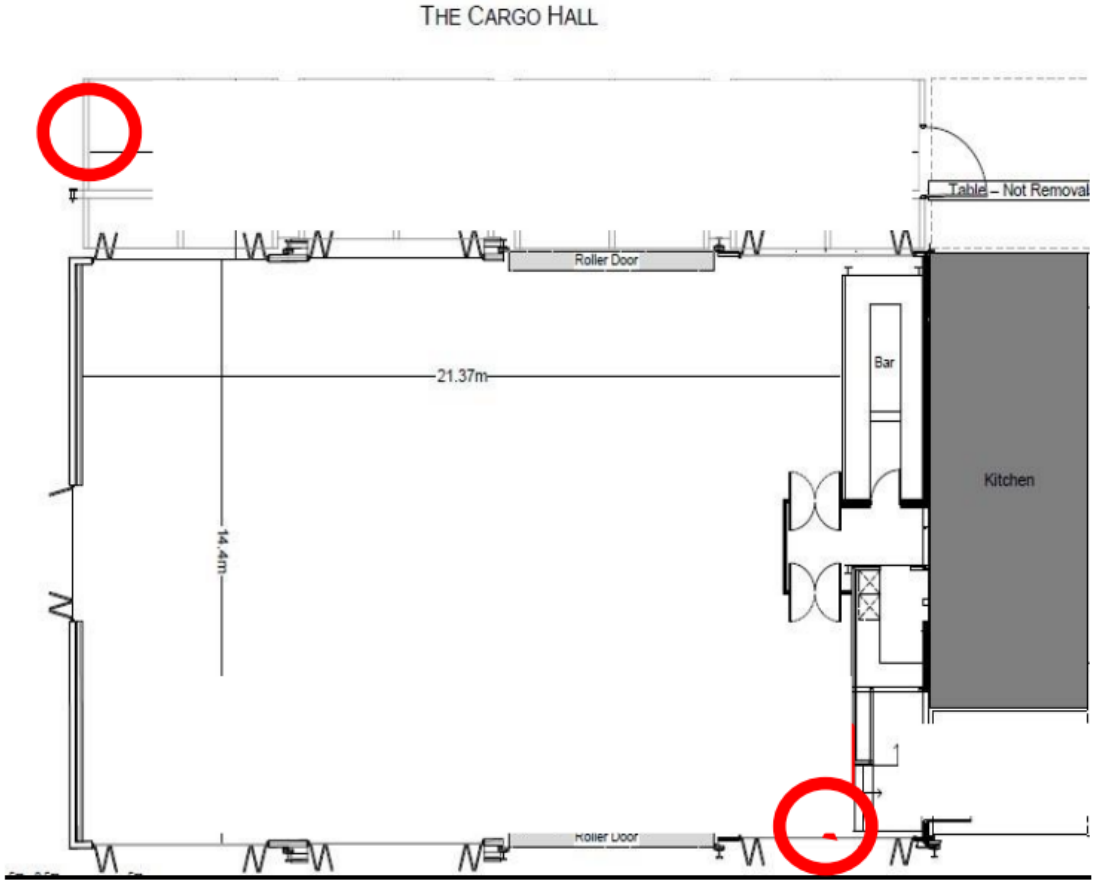
6 August 2024

Housekeeping and venue safety

Emergency Exits

Two emergency exit points:

- Guest entry on the river side
- Entry door on Dukes Walk



Emergency Muster Points:

- In front of Novatel Car Park Entry
- Towards Webley Bridge

Broad range of industry participation at Workshop 1

Stakeholder Groups

Consumer advocates

DNSP

Government and Market Bodies

Retailer and Generator

Equipment manufacturers

Aggregator

Academia and Industry Body

Other (Metering and Consultants)

Workshop agenda

#	Description
1	**Registration**
2	**Welcome & Introduction**
3	**Macro Context Setting** - **SURVEY GROUP DISCUSSION** - **TABLE ACTIVITY** - Placemat
4	**Morning Tea Break** - Networking - Contribute to the Ideas Wall & Parking Lot
5	**Use Case Deep Dives** - **TABLE ACTIVITY**
6	**Lunch**
	Panel Discussion
7	**Use Case Deep Dives 2.0** - **TABLE ACTIVITY**
8	**Afternoon Tea Break** - Networking - Contribute to the Ideas Wall & Parking Lot
9	**Evaluation Considerations & Design Preferences** - **TABLE ACTIVITY** - Actor role play
10	**Large Group Sharing and Synthesis, Outcomes & Next Steps**
11	**Closing Remarks**

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay respect to their Elders past, present and emerging.

Video messages

Gavin Dufty

National Director – Energy Policy and Research
St Vincent de Paul Society

Before we start …

A word of thanks

We had help from a group of experts

22 members
8 broad stakeholder groups

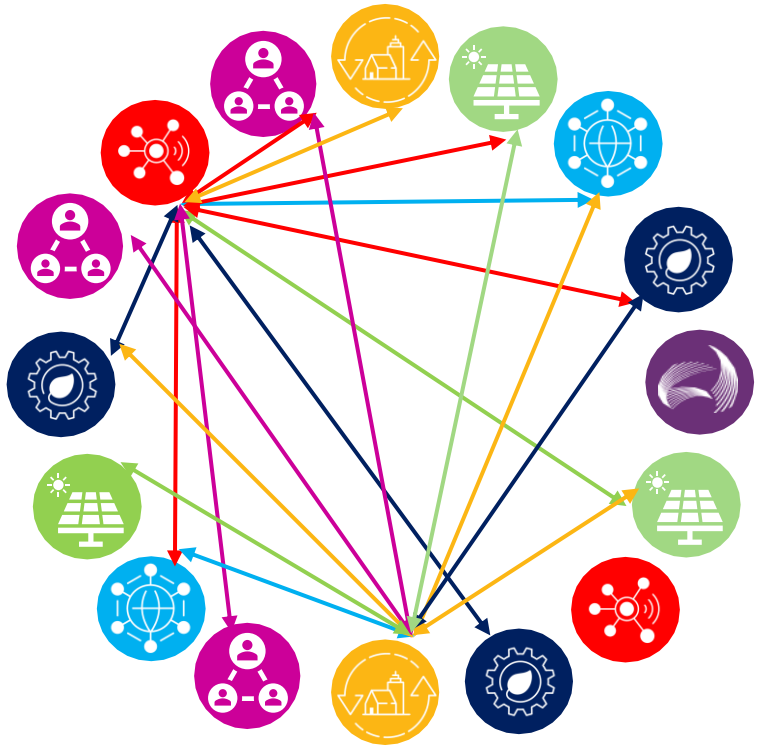
4 x EWG meetings
8 hours of collaborative discussion

- Shaped how we structure our workshop today
- Very active, robust, and constructive discussions on use cases
- Tested two of the use cases we're exploring today

Why do we need a CER Data Exchange?

But first, what is a data exchange?

Current CER organisation-to-organisation arrangements



Legend

Retailers | Aggregators | DNSPs | OEMs | AEMO | 3rd party integrators | Customer / device agent

Australia is not alone in thinking about this

United Kingdom

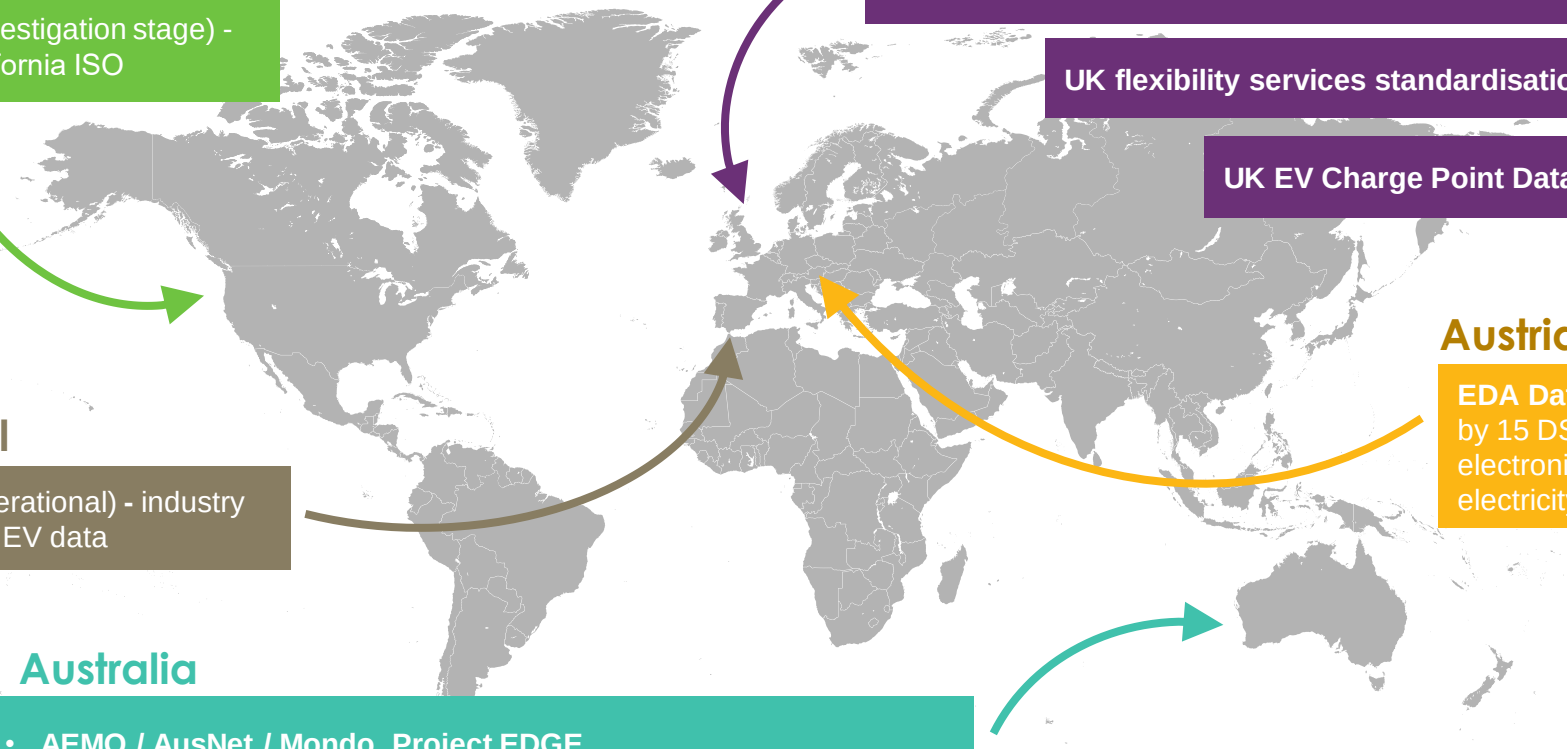
UK Digital Spine (feasibility study phase) - enables plug and play options, encouraging whole system interoperability and standardised data sharing.

UK flexibility services standardisation (development phase)

UK EV Charge Point Data Hub (procurement phase)

United States

'Digital Spine' (early investigation stage) - US Dept of Energy, California ISO



Austria

EDA Data Exchange Platform (Est. 2012, owned by 15 DSOs) - create a uniform, decentralised, electronic data exchange for the Austrian electricity and gas sector.

Portugal

MOBI.E (operational) **-** industry data hub for EV data

Australia

- **AEMO / AusNet / Mondo, Project EDGE**
- **Western Power/Synergy/AEMO, Project Symphony**
- **RACE for 2030: National Charge Link -** Public-good EV Data Hub
- **Greensync, Decentralised Energy Exchange (deX)**

Other industries have already implemented a data exchange

New Payments Platform

A distributed switch of individual 'Payment Access Gateways' that route and exchange financial messages between each other.

Australia's Digital ID System

Delivered by a number of organisations who work together to provide a safe, secure and convenient way to prove identity online.

Australian Agricultural Data Exchange

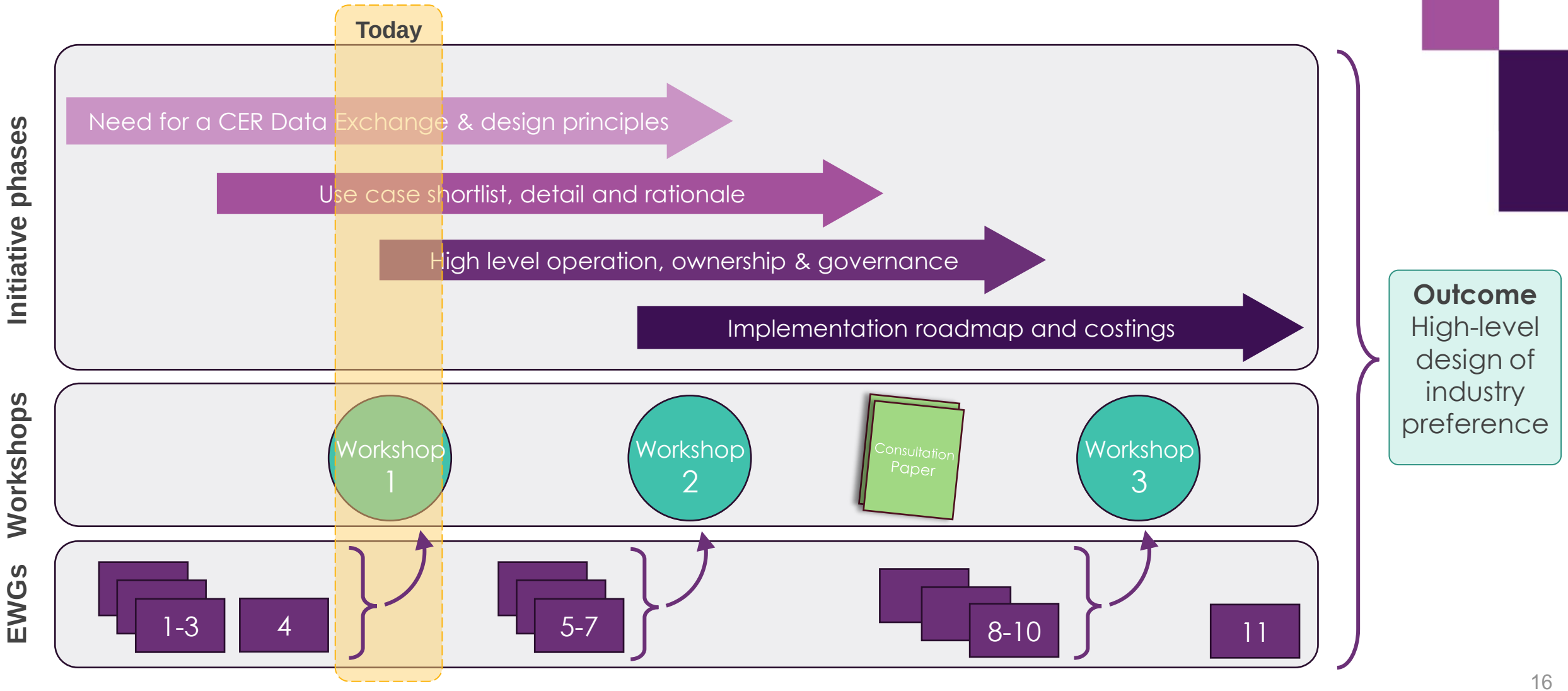
Enables participants to share and use data from disparate systems in a secure cloud environment.

European Health Data Space

Common European data space allowing for wider availability, improved quality and re-usability of data held by private and public sectors.

Today’s workshop

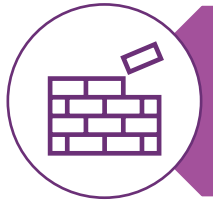
Where is the co-design process at?



Public workshop 1 – our goal and target outcomes

Our target outcomes

Build awareness on the need for a CER Data Exchange



Develop foundations for future workshops

Share our preliminary view of CER Data Exchange use cases

Equip industry to respond to the upcoming consultation paper

What we are not doing

- Achieve 100% agreement – we are seeking feedback and input on what we need to achieve
- Detail designs and discuss technology choices
- Determine participants' roles and responsibilities

Let's make this a positive workshop

Be open to different perspectives

Outcome focused – focus on the problem we are trying to solve, but we can't solve everything

Welcome constructive questions

What's in store today?

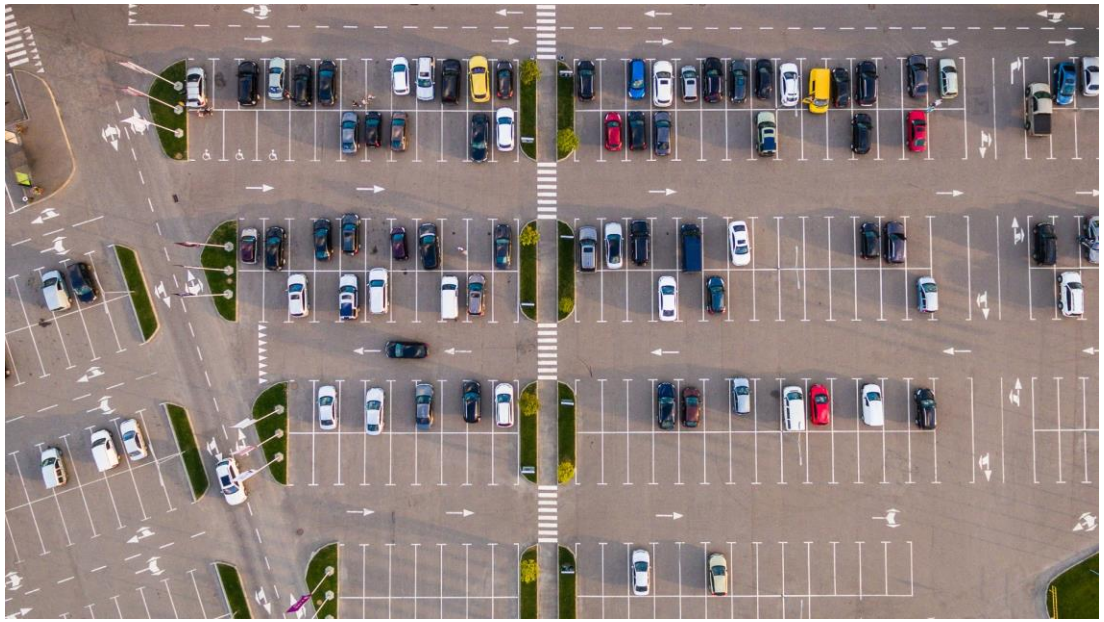
Table discussion and input

Surveys

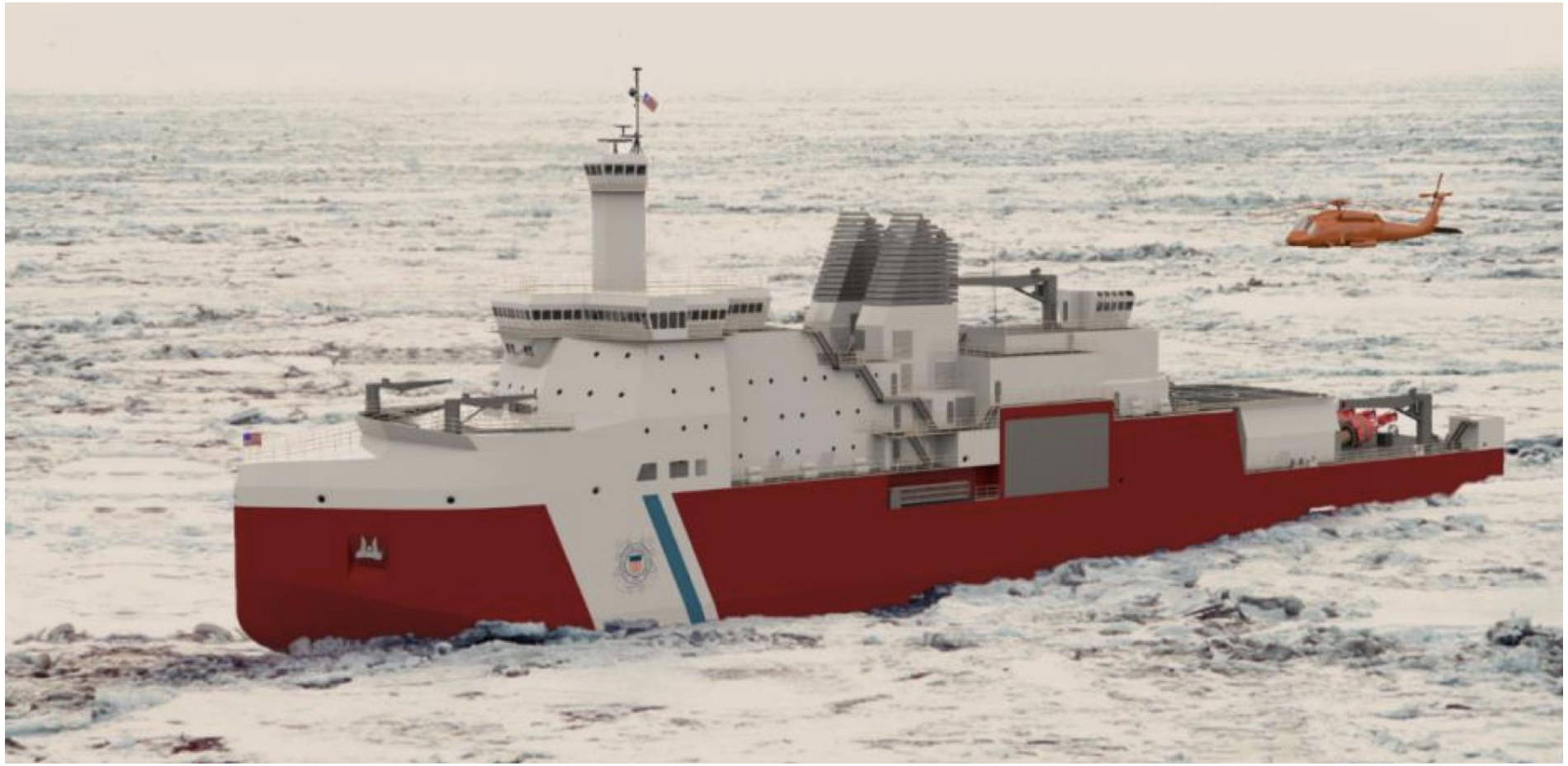
Panel discussion

Ideas wall and Parking Lot

Capturing all our ideas today



Ice Breaker



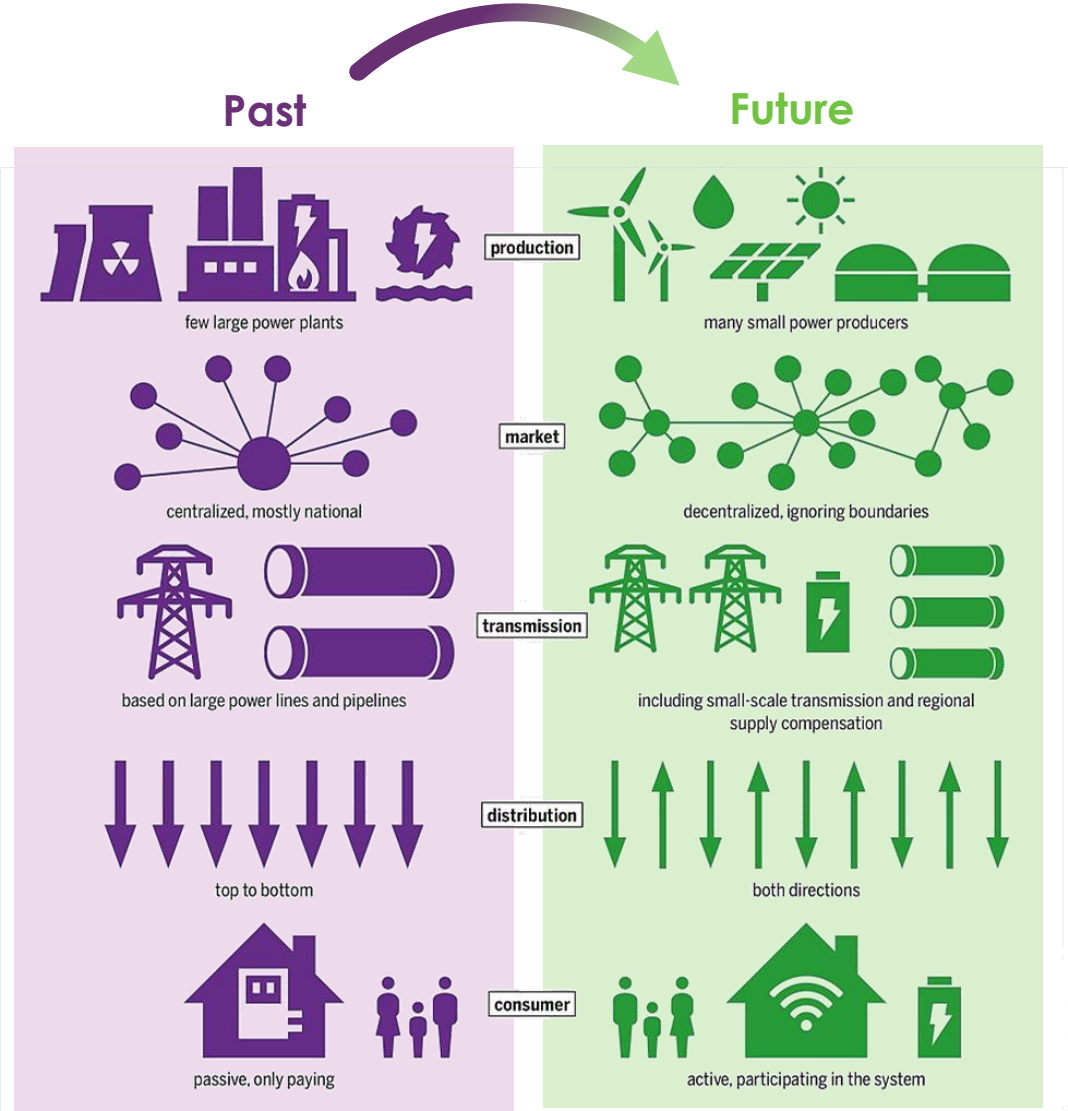
Speed date x 3!

- Who are you, and where are you from?
- What is your favourite CER technology?
- What do you hope to get out of today?

Case for change

What is the macro story?

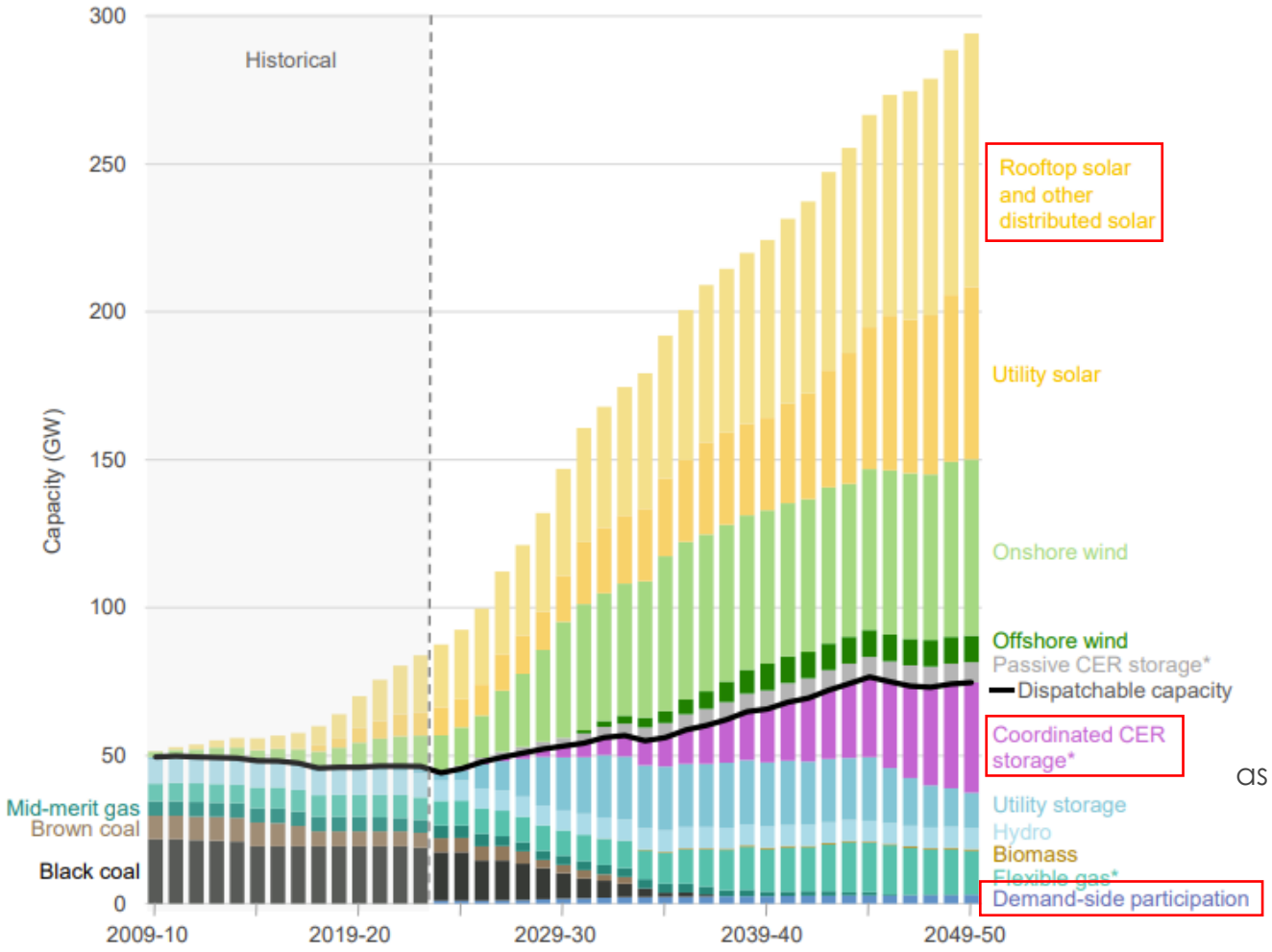
As we transition to net zero, the power system requires increasing flexibility and coordination



Drivers of flexibility and coordination needs of the future grid

- Inherently weather dependent with faster response times
- Driven by many customer choices and behaviours
- Need to make best use of generation, network, and consumer assets

CER can provide a material source of system flexibility – benefiting all consumers – if we coordinate it



By 2050, CER is forecast to…

Increase in capacity by

5x

Provide

45%

of all dispatchable capacity

Distributed solar PV
forecast to increase by

4x

or 12 million homes

Residential batteries
forecast to increase by

7x

or 3 million batteries

Electric vehicles ownership
as a portion of the road fleet up to

97%

or 19 million vehicles

Save

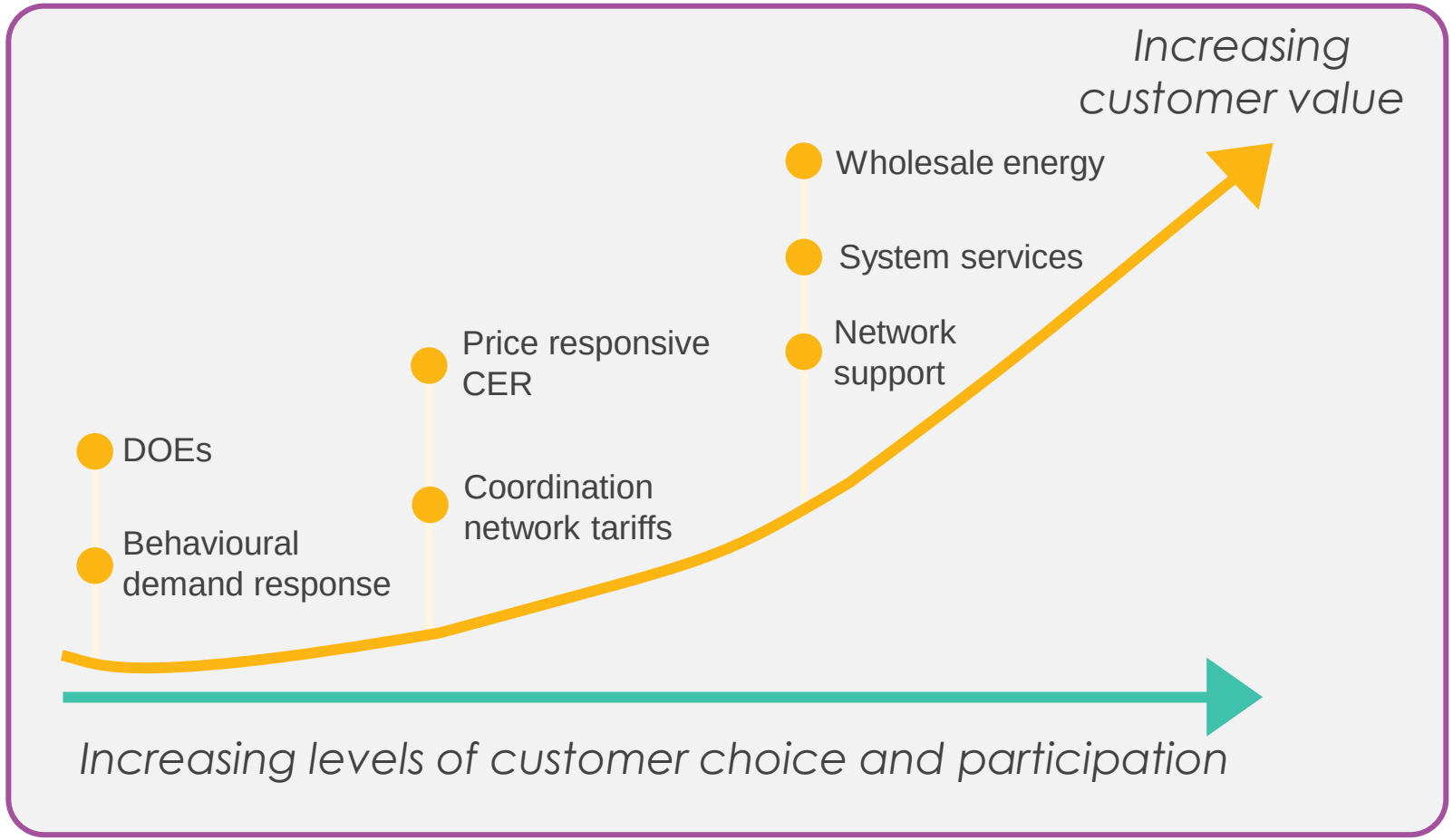
$4.1b

In additional grid-scale investment, if consumer batteries are effectively coordinated

AEMO 2024 Integrated System Plan (ISP)

Customers have choice in the flexibility of their CER

Industry needs to create an environment that facilitates customers activating these choices – which could all change over the course of a day

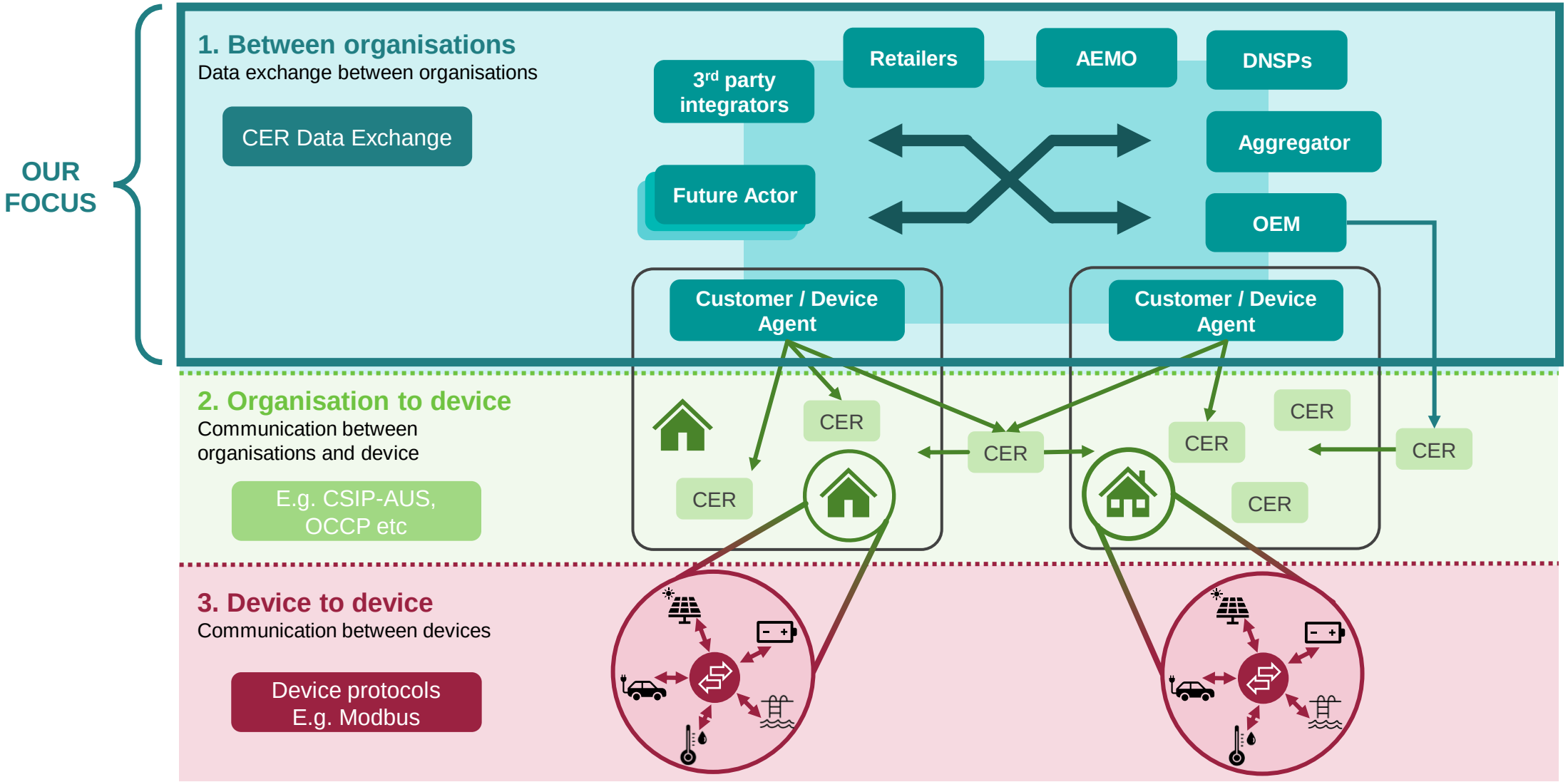


CER-provided flexibility requires the exchange of data at gigawatt scale

'Step change' assumes multiple layers of flexibility and coordination in the system for it to continue working – and coordinating the flow and access of data is crucial to achieving this at scale

Each consumer, CER asset, and organisation will need to consume and produce data – multiplying the number of relationships and exchanges of data required to coordinate CER by an exponential rate.

Gigawatt scale exchange of data can be broken down into three distinct but interrelated layers



How data is exchanged between organisations today will limit the value of CER in the future

Australian CER trials and international experience (UK) have shown that a streamlined and secure data exchange between organisations is a critical enabler of CER integration and coordination at GW-scale

So what?

There is a fundamental gap in the CER ecosystem for common data sharing infrastructure between organisations – and it should not be in the too hard basket.

It is too risky, costly and potentially unstable to continue down this path.

Changing course will reduce the overlapping investments required to make sub-optimal organisation to organisation data exchange processes work at scale – reducing time and duplication of effort to set up, coordinate, and maintain, with better customer choice.

CER Data Exchange is a foundational element we need now

Through this process, we will work collaboratively with stakeholders to define what a national data exchange for CER will deliver for all consumers

Key benefits of an exchange

- Support greater choice
- Support entry and innovation
- Reduce cost to serve
- Flexible foundation for future needs

Data Exchange

What it does not do

- Control devices
- Create a single repository
- Make tech decisions
- Force one way to exchange
- Absorb systems and functions

Survey and group discussion

The survey says …

WORKSHOP ACTIVITY #1

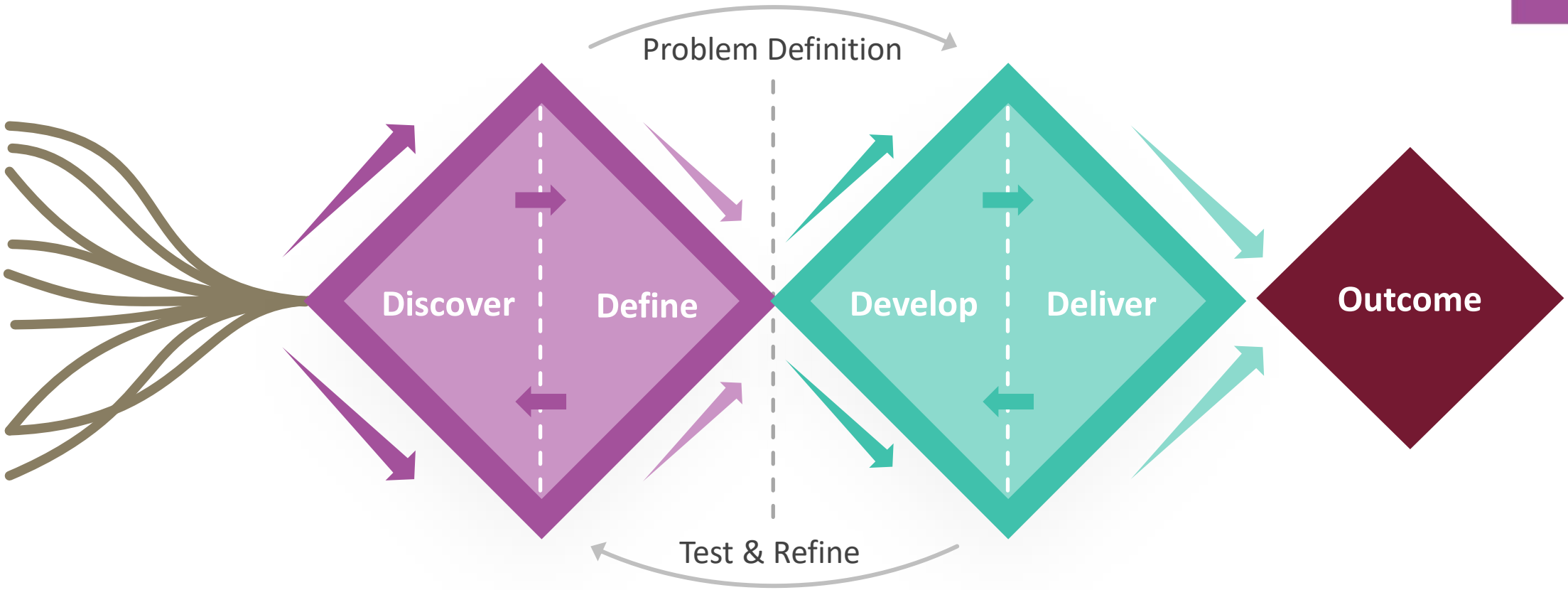
Mentimeter

Join at menti.com |
use code **7431 7621**

Preference Setting

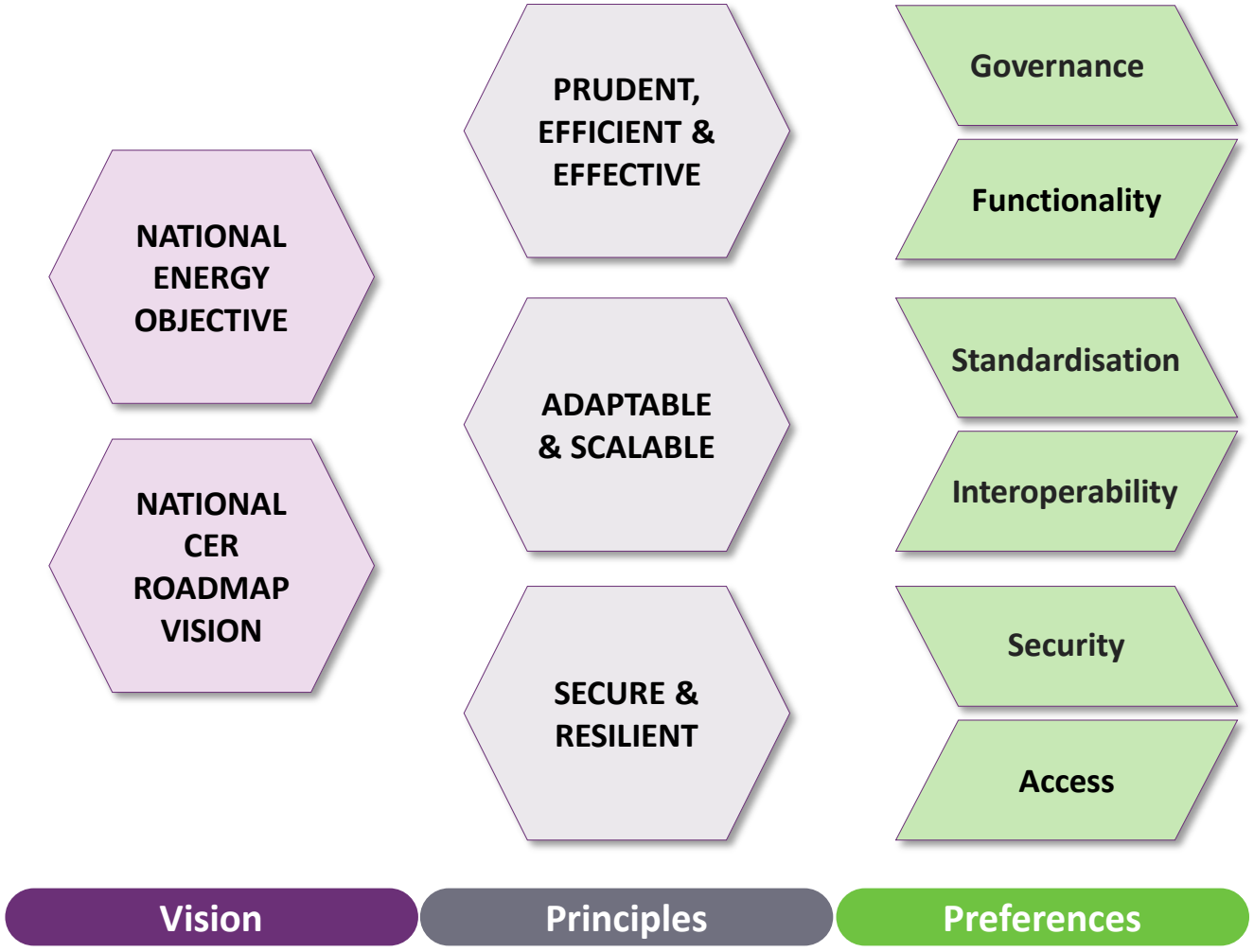
Take 2

Codesign Engagement Framework



Challenge | Discover | Define | Develop | Deliver | Outcome

Table Activity #2:
Preference Setting



Vision

"Consumer Energy Resources are an integral part of Australia's secure, affordable and sustainable future electricity systems, delivering benefits and equitable outcomes to all consumers through efficient use which smooths the transition, rewards participation and lowers emissions."
National Consumer Energy Resources Roadmap

ACTIVITY TASK: How should this vision apply to the CER Data Exchange?

Principles

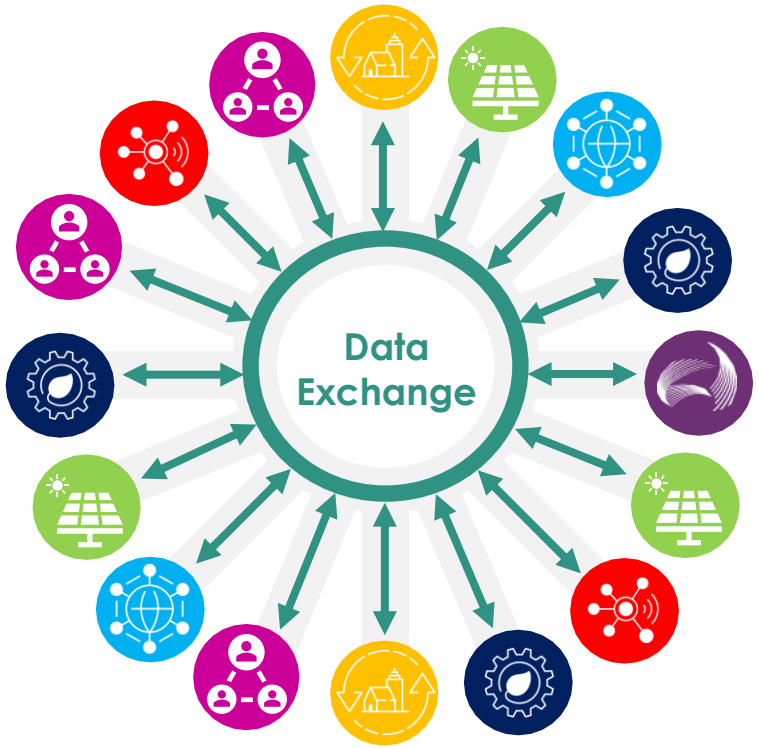
ACTIVITY TASK: Consider, comment, change or refine these overarching guiding principles.

Preferences

ACTIVITY TASK: Consider the 'must haves' and 'deal breakers' by role playing alternative perspectives.

CER Data Exchange

Considering alternative perspectives



Potential value to customers

- Cost savings lower energy cost
- Operational efficiency faster service
- Reduce risk and increase confidence
- Easy scaling of diverse options
- Lower barriers to entry
- Promote innovative solutions
- Flexible foundation for future needs
- More local renewable energy

Legend

Retailers | Aggregators | DNSPs | OEMs | AEMO | 3rd party integrators | Customer / device agent

Placemat Overview

CER Data Exchange: Preference Setting

Future State Vision

"Consumer Energy Resources are an integral part of Australia's secure, affordable and sustainable future electricity systems, delivering benefits and equitable outcomes to all consumers through efficient use which smooths the transition, rewards participation and lowers emissions." National Consumer Energy Resources Roadmap

ACTIVITY TASK: How should this vision apply to the CER Data Exchange?

Response

Proposed Principles

- PRUDENT, EFFICIENT & EFFECTIVE
- ADAPTABLE & SCALABLE
- SECURE & RESILIENT

ACTIVITY TASK: Consider, comment, change or refine these overarching guiding principles?

Response

Preferences: Deal Breakers

ACTIVITY TASK: Role play to consider alternative perspectives

Must Haves

Morning tea break

Use cases deep dive

Testing the usefulness of a CER Data Exchange through exploring use cases

Group activity to explore use cases

Purpose

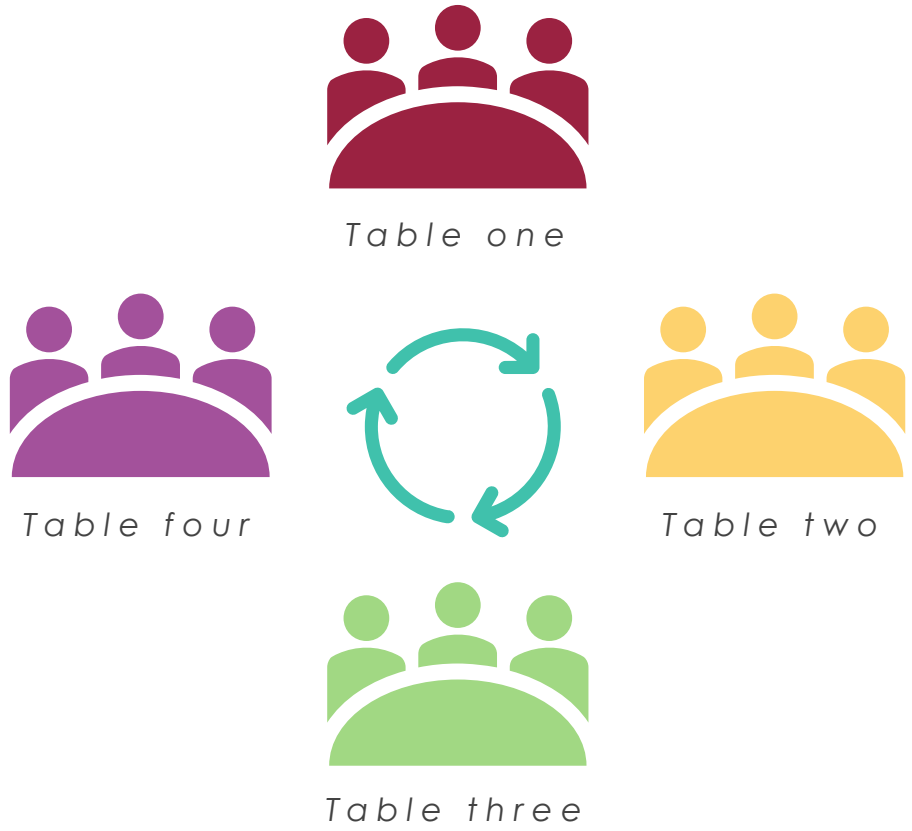
Explore key use cases through a rapid and structured group activity

Goal

Develop a shared understanding of how key use cases could work in the future

Out of Scope

Design or solve use cases, selecting which use cases the CER Data Exchange should adopt



Process to explore use cases

Part of the presentation

Part of the group activity

1. How does the use case work today?

- What data?
- Who has access today?
- Who needs access?
- How are they getting access?
- What is out of scope?

2. What is the problem statement?

- How is this going to work?
- What is the case for change?

3. How can the CER Data exchange provide value?

- What is the solution? E.g.:
  a. Current arrangements
  b. Incremental change
  c. CER Data exchange
- Will it work in the future?
- How?

Input and feedback from EWG

Placemat that we're using for the group activity

CER Data Exchange Industry Co-Design Project
Industry Workshop 1: Use case exam questions

What use case?	Table number

1) What's the problem?
Reflect on the current state and consider what are the core issues faced? What contributes to these challenges? Who is impacted?

2) How could a CER Data exchange provide consumer value here?
List the key benefits to the use case that a CER Data Exchange would provide

3) What would the CER Data exchange need to do to deliver this value?
Brainstorm the potential functions or characteristics of a CER Data Exchange that are required to deliver this use case

Use case categories

System Operation & Security

- Exchange of information for securely managing power flows and risks.
- Help organisations coordinate more efficiently to deliver electricity and CER services.

Communicating DOEs to multiple parties

Facilitating local network support services

Market Efficiency & Performance

- Exchange of information for CER energy market participation and service provision.
- Enables organisations to provide trading services that value stack CER assets.

Retailer flexibility requests

Sharing market and network prices

Customer, Asset, & Agent Records

- Exchange of information on customer participation choices.
- Ensures organisations can engage with and deliver services per customer preferences.

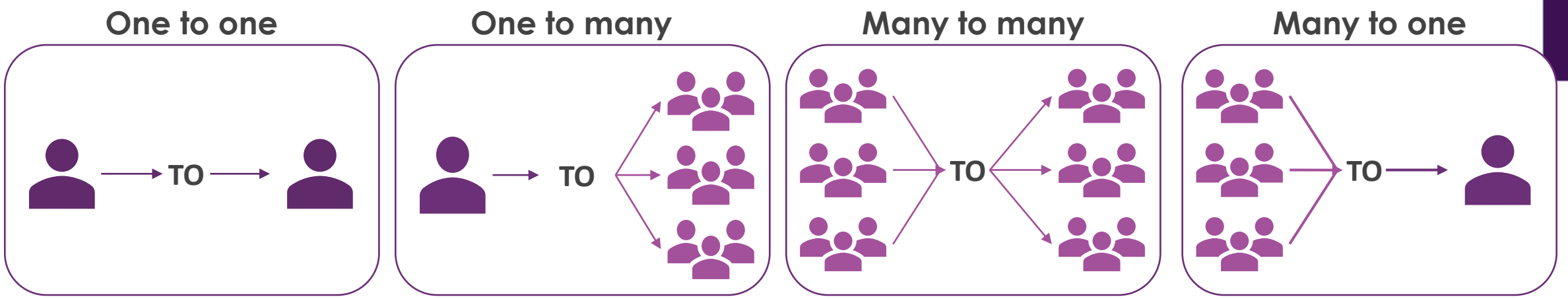
Visibility of customer choices

NMI and DER Standing data

Non-functional Requirements

Use cases related to the characteristics or functions that must be performed to deliver any one of these use cases.

Use case patterns



Sending a text message with a photograph to one person

Sending an email with a document to a group of people

Using a social media platform to like, comment, subscribe to other people's posts

Receiving feedback from customers through a survey response

Preliminary use case selection criteria

Creates customer value

- Does the use case create customer value today?
- If the use case is emergent, is it at least likely to provide customer value in the future?
-

Prevents customer lock in

Decreases sharing costs

Enables innovation

Provides transparency

Relevant to market need

- Does the use case address a current market need?
- If the use case is emergent, is it at least likely to address a future market need?

Part of the broader CER coordination picture

Organisations performing their current or future roles

Feasible and needs scale

- Is the use case technically and physically feasible?
- Does the use case need scale to maximise customer value?

Within exchange guardrails

Economically feasible

Needs a critical mass

Can generate scale and scope economies

Supports an orderly transition

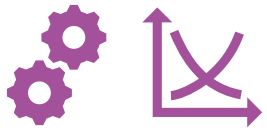
- Does the use case support the orderly transition to a more decarbonised CER-rich energy system?

Facilitates integration of CER

Decarbonisation sector convergence

Priority use cases at this stage

System Operation & Security



Communicating DOEs to multiple organisations

Communication of dynamic limits by one DNSPs to one and/or many organisations

One-to-one
One-to-many

Market Efficiency & Performance

Retailer flexibility requests

Communication of requests for CER / many organisations to respond to market price signals by one retailer

Many-to-one

Customer, Asset, & Agent Records

Visibility of customer choices

Recording choices that customers have made for organisations to provide services, that can notify or is discoverable by other organisations

Many-to-many
One-to-one

Wildcard

Use cases provided by workshop participants today.

Could be from any category or be any type of pattern.

Group activity on use cases

Use case #1: Visibility of customer choices

What is the goal of the use case?

- Enable visibility of customer choices regarding service providers and service levels.
- Customer agents (service providers) can get access to the data and information that they need to perform their role.
- Facilitate more efficient switching between different customer agents and updates to relevant systems.

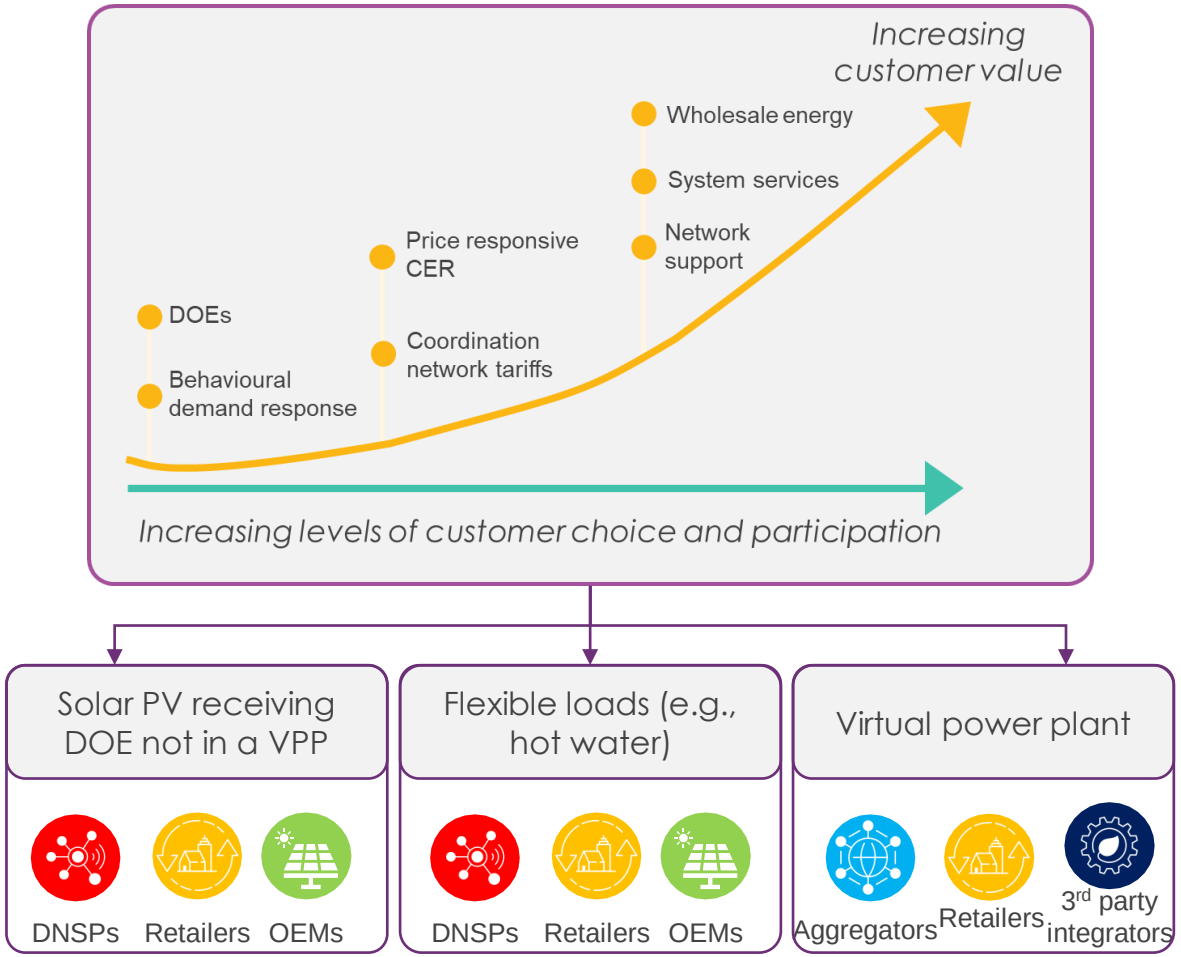
What are the current barriers?

- No current system to enable visibility of customer choices.
- Emergent arrangements are creating information silos and asymmetry between customer agents.

Variety of customer choices to be enabled

Different service choices

Different potential agents



Enabled by different types of customer agents

- Many organisations need to collaborate to deliver customer value in a high CER world
- Different organisations can be a 'customer agent':
  - The Retailer or FRMP.
  - The DNSP (e.g., native DOEs)
  - The aggregator or VPP.
  - OEMs or 3rd party integrators.
- At GW-scale, multiple organisations besides the primary customer agent may need access to and visibility of customer, asset, actor data.

Use case #2: Communicating DOEs to multiple organisations

Which part of the process are we focusing on?

- Communication of dynamic limits by one DNSP to one site, multiple organisations at a site, or in aggregate to other organisations
- How multiple parties receive and maintain visibility of DOEs from multiple DNSPs
- Enable secure grid operations and customer choice of service providers

How does it work today?

- DNSP publishes the site DOE to their utility server
- Each customer agent establishes connection with each DNSP for each CER asset at a single end point (device, gateway, or cloud)
- Separate integration required for visibility of site (or aggregate DOEs) for other entities that need it

Steps involved in communicating DOEs to multiple organisations

Our focus today

1. Sign up to receive a DOE

Steps involved

- DOE readiness and initial connection
- Identity and access check
- Portfolio check and integration
- Maintenance of access point

2. Publish the DOE

Steps involved

- DNSP publishes the DOE
- DOE distributed to the right organisations based on role-based access controls
- The right organisation receives the DOE

3. Switching and information maintenance

Steps involved

- Manage and update portfolio and identity information
- Notify DNSP of updated information
- Use the updated information

Lunch break

Panel discussion

Use Case Deep Dives 2.0

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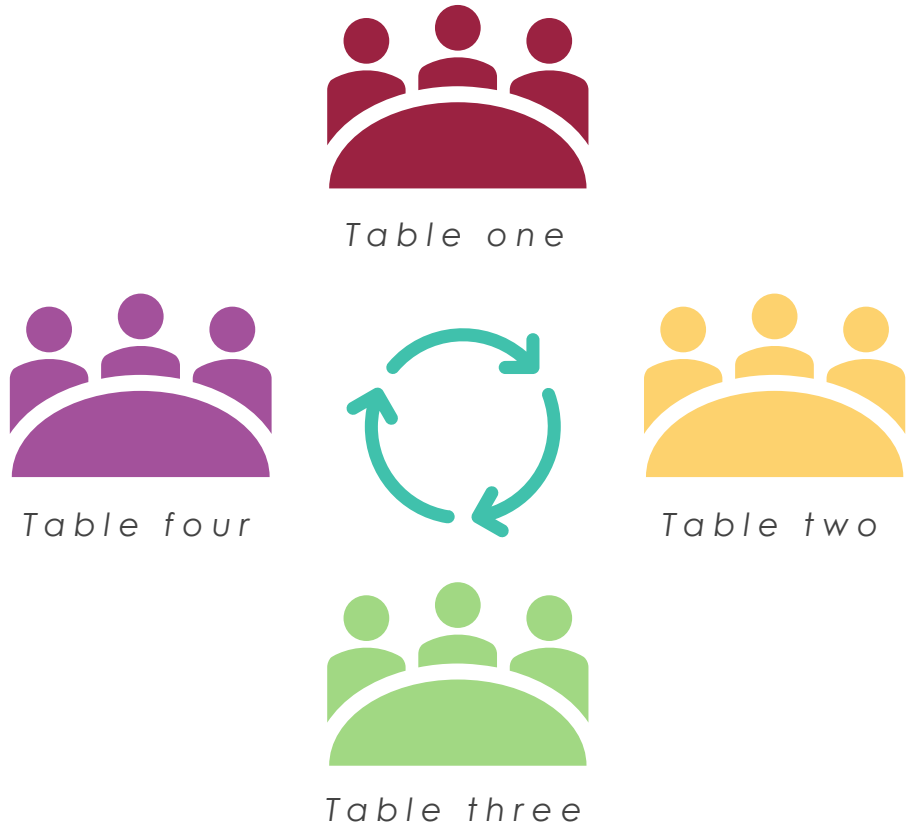

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Brainstorm the potential functions or characteristics of a CER Data Exchange that are required to deliver this use case

Group activity on use cases 2.0

Use case #3: Retailer flexibility requests

Which part of the process are we focusing on?

- Communication of structured flexibility requests for many organisations to respond to market price signals using CER, sent by one retailer
- How to send/receive requests to respond to wholesale market prices - regardless of customer switching
- Also providing visibility of services to network and system operators

How does it work today?

- Retailer sends request through existing integrations that are incomplete portions of their customer base
- To increase scale the retailer could integrate with many other 3rd parties and aggregators or DNSP utility servers

Steps involved in retailer flexibility requests

Our focus

1. Sign up for flexibility requests

Steps involved

- Retailers connecting with customer agents
- Identity verification and portfolio registration
- Validation of information
- Maintenance of access point

2. Broadcasting flexibility requests

Steps involved

- Retailer sends a broadcast to the exchange for the flexible response request, for customer NMIs that have signed up to flex response product
- Customer agents receive the broadcast request from retailers and respond to the request

3. Switching & info. maintenance

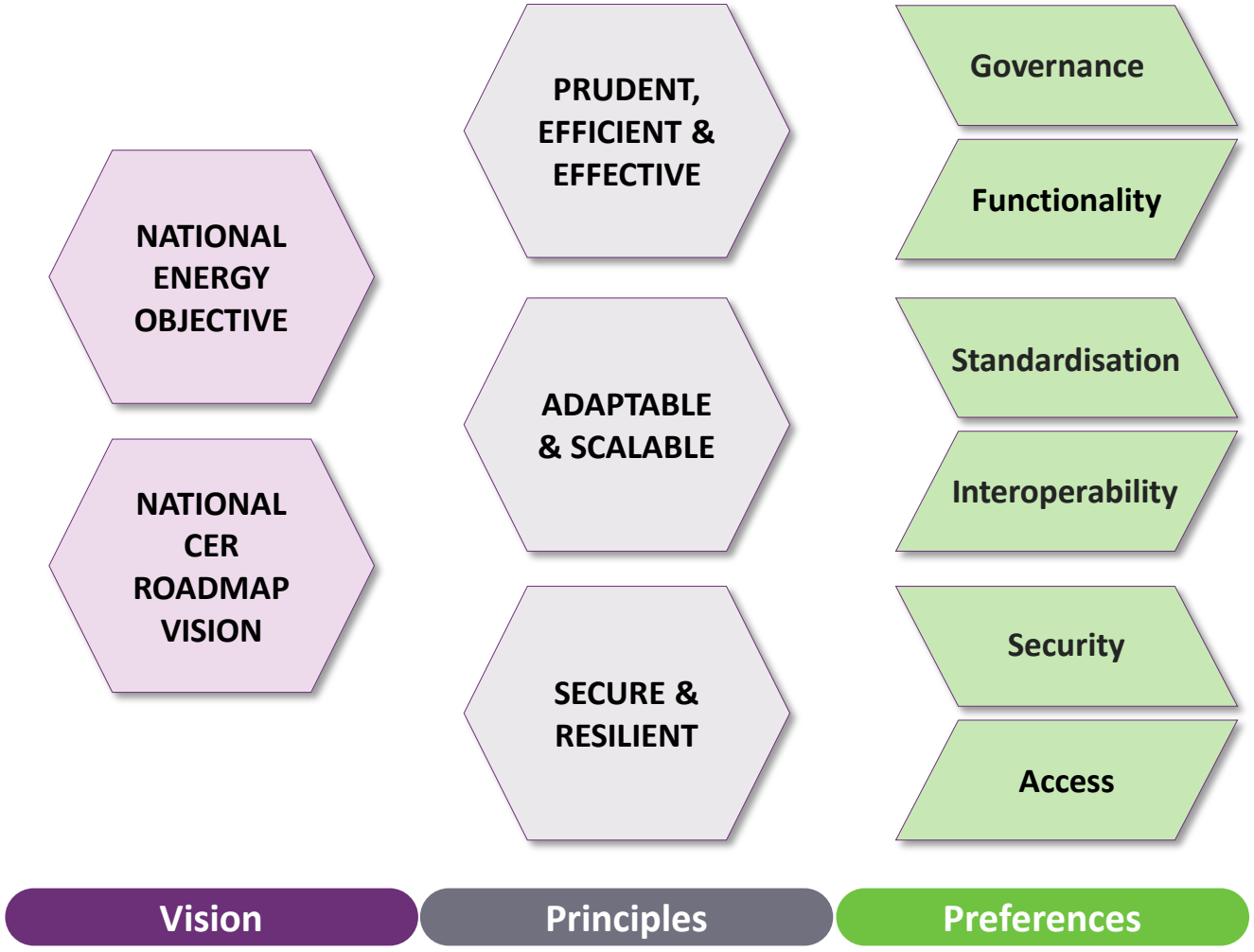
Steps involved

- Switching of customer agent or retailer is recorded in systems connected to CER Data Exchange
- Requests are only sent in relation to NMIs where customer consent is recorded (i.e. Signed up to service and customer agent)

Afternoon tea break

Preference Setting

Table Activity #2:
Preference Setting



Vision

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Must Haves

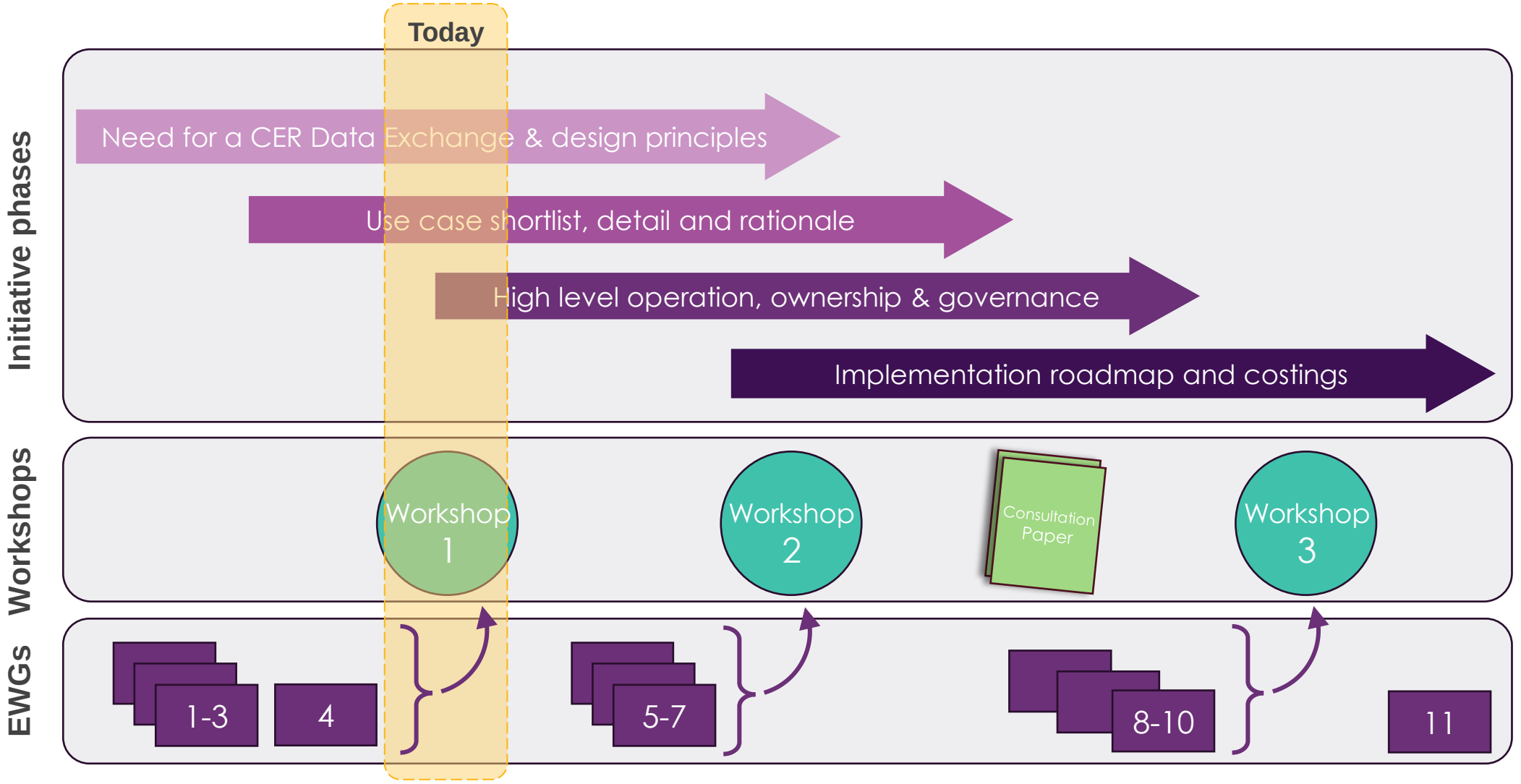
Security	Functionality	Access	Governance	Standardisation	Interoperability
High Security, end-to-end encryption	Focus on quick wins with near term use cases	Open Protocols with role-based access	Decentralised Governance supported by a transparent policies	Use international standards and common data formats	Mandatory use cases & integration with existing platforms
Standard Security, access logging & audit reporting	Adaptable platform focused on batch not real time transfers	Granular attribute data sharing controls	Data sharing / user compliance framework	Adapt international standards and metadata to Australia	Mandate core data transfers and allow customisation for non-critical uses
Adaptive Security based on roles, data types & use cases	Future proof the platform with data validation	Consent Management & Tracking	Centralised governance managed by stakeholder representatives	Create custom formats and tailored schemas	Voluntary adoption, encourage best practice

Wrap up and next steps

Two more questions to finish the day

- What is your key takeaway from today's workshop?
- What other information would you like to find out about the CER Data Exchange?

Where is the co-design process at?



Outcome
High-level design of industry preference

Contact us

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