CER Data Exchange Industry Co-design

Workshop 2

19 September 2024

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.

One more acknowledgement!

A word of thanks

We had help from a group of experts

22 members
8 broad stakeholder groups

7 x EWG meetings
13 hours of collaborative discussion

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

Housekeeping, venue safety and meeting logistics

Housekeeping and venue safety

Emergency Exits

Photography

Photography inside Meers Hall is allowed

but is **prohibited in the broader gallery**.

A few requests from the project team

Be open to different perspectives

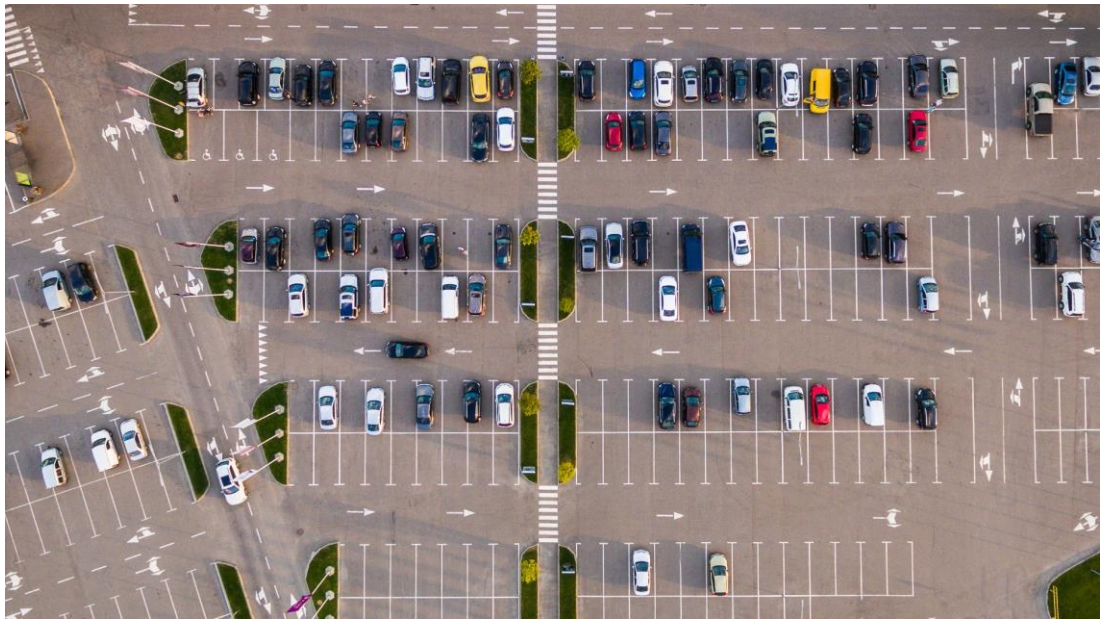
Outcome focused – focus on the problem we are trying to solve, but we can't solve everything

Welcome constructive questions

Please stay at your allocated tables.

Ideas wall and Parking Lot

Capturing all our ideas today



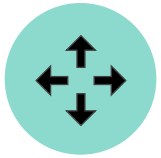
Today’s workshop

Today is all about co-design

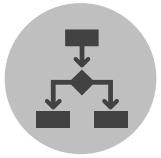
Morning session: Co-design Activity 1

What are the different ways of addressing CER data challenges?

Explore four potential **data exchange challenges** through use cases



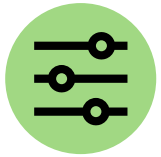
Investigate **three alternative futures** for exchanging CER data in Australia



Focus on the **what, how, when, and why** of using 10 example use cases

Afternoon session: Co-design Activity 2

If there is a CER Data Exchange, what is your high-level preference for its form?



Identify key trade offs **for functionality, ownership and oversight**

Assess **pros and cons** of representative design options

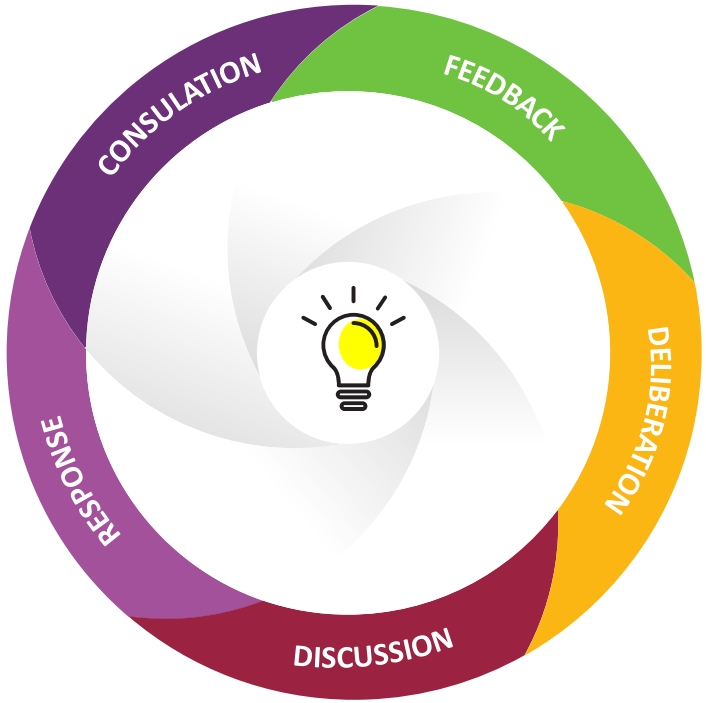
Evaluate how the representative design options **meet co-defined criteria**

The CER Data Exchange Co-design project

What is the CER Data Exchange Co-Design project?

Alignment on a high-level design preferences

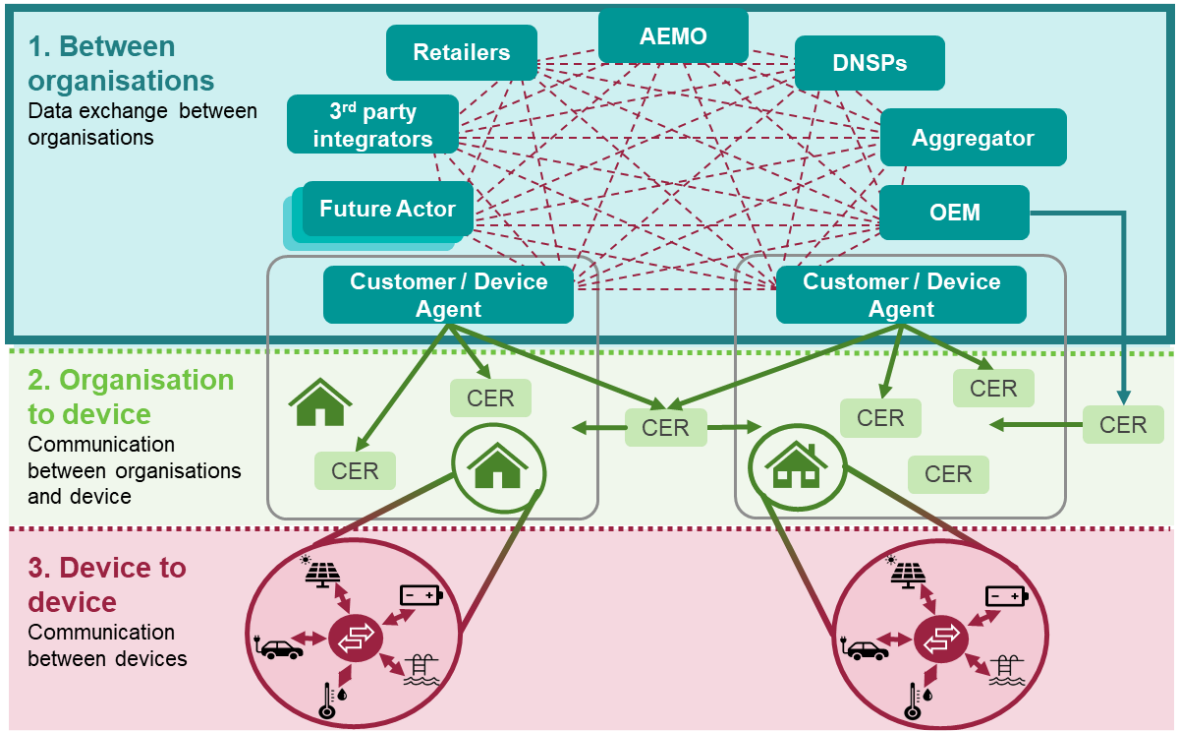
Co-design project with stakeholders



This initiative is focusing on organisation-organisation data transfers

An org-to-org CER data exchange

Its form is what we will co-design together

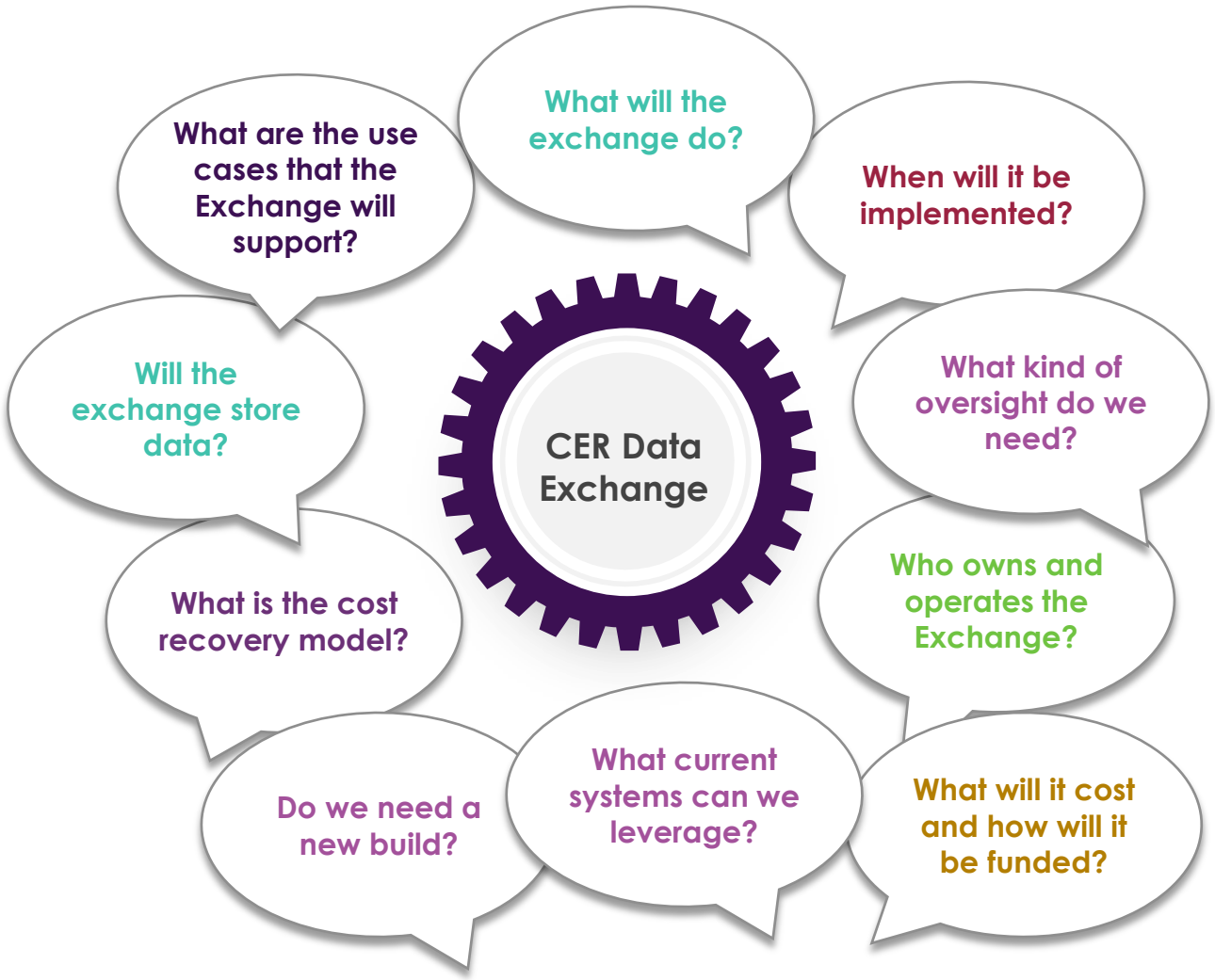


What the CER data exchange isn't:

- **Not all data** – only for certain use cases where efficient solutions do not exist
- **Not for control** – communication only with control systems separate
- **Not to consumer devices** – org to org
- **Not a replacement** – of existing efficient processes
- **Not preclusive** – of other data sharing mechanisms incl. point to point.

High level design

Seeking to answer some of these questions

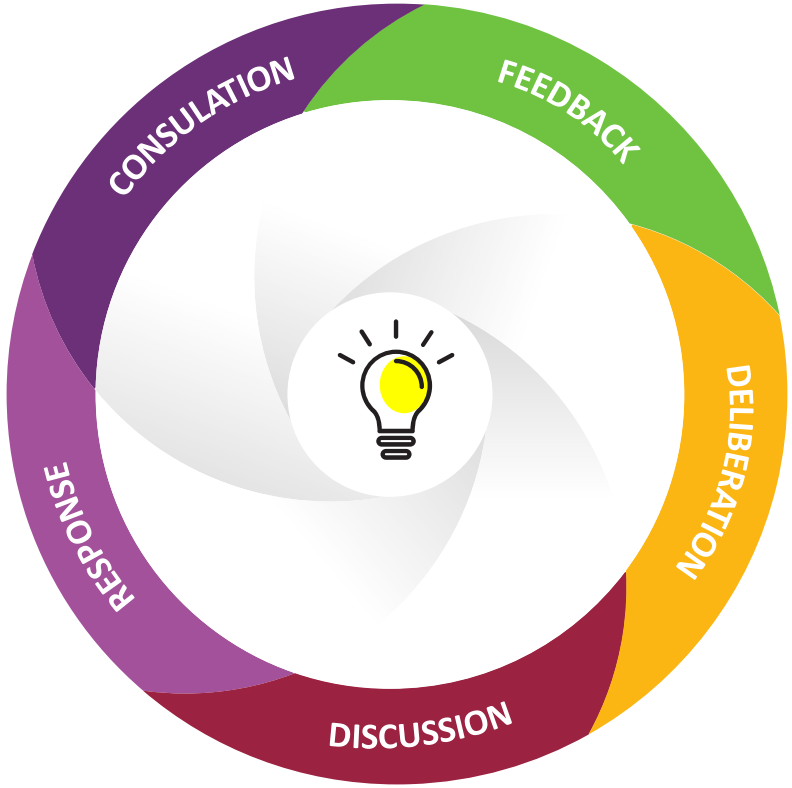


Outputs

- High level design document
- Implementation Roadmap
- Indicative Implementation Costs
- Knowledge sharing

Co-design process

Working with stakeholders through a range of processes to develop a high-level design

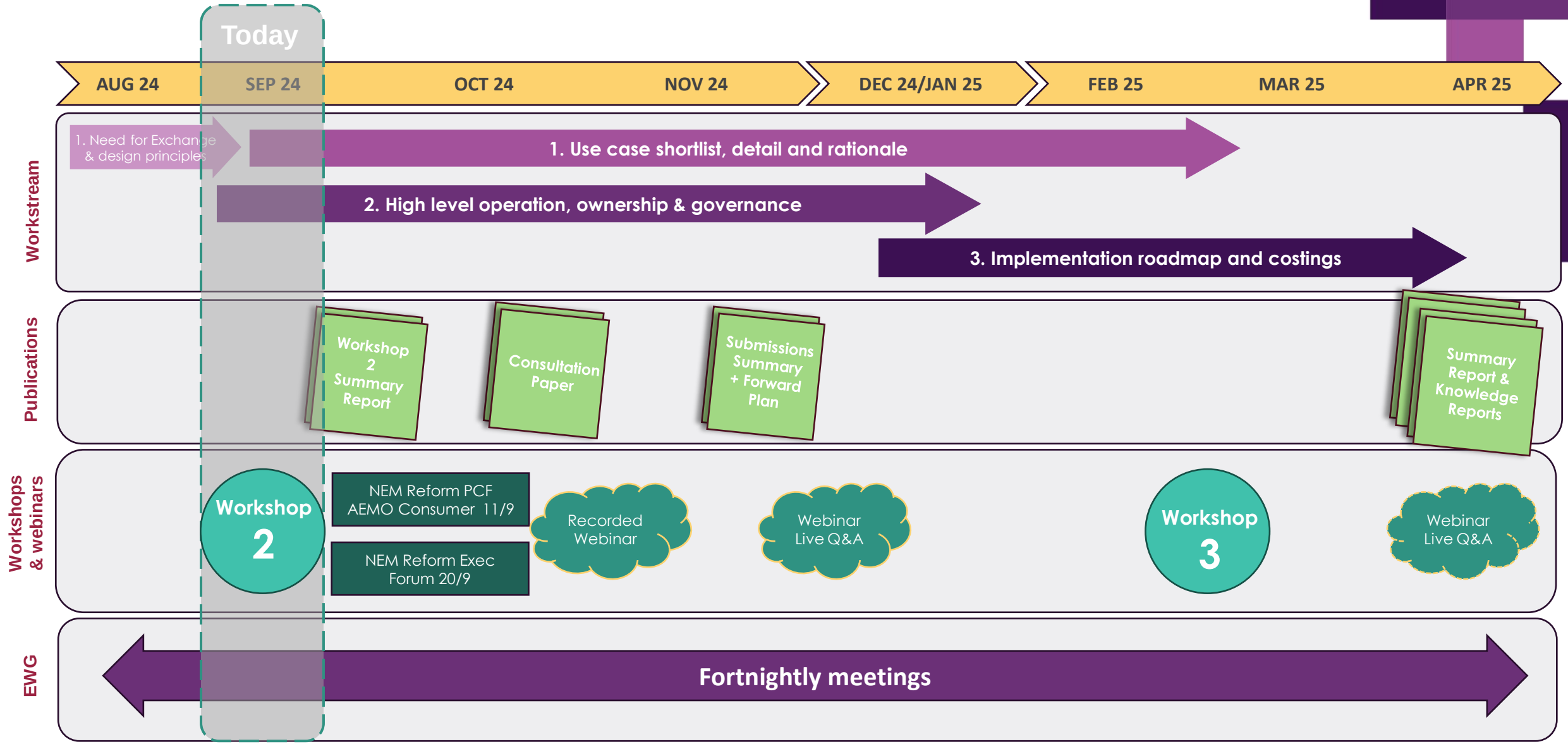


Expert Working Group
Subject matter experts to provide insights and stress test options and implementation consideration

Public Workshops
Open forum for broader stakeholders to participate in the co-design process and provide feedback

Consultation Paper
Formal way for all stakeholders to provide feedback

High level project timeline



Workshop 1 Recap

Industry Workshop 1 – a quick recap

Exchange shouldn't be the only way to exchange CER data

We like to know more details about the exchange

Benefits from greater visibility & transparency of CER

How will benefits flow through to end consumers?

Careful management consumer privacy, security, consent

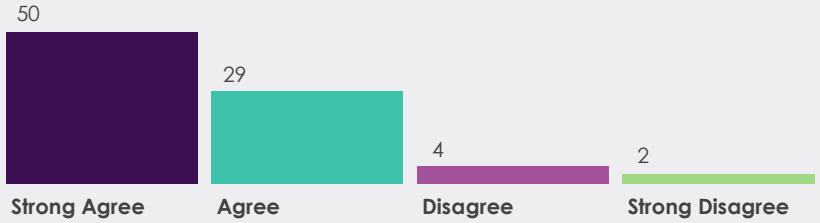
Would this lead to more equitable outcomes for consumers?

Stage implementation that support the future

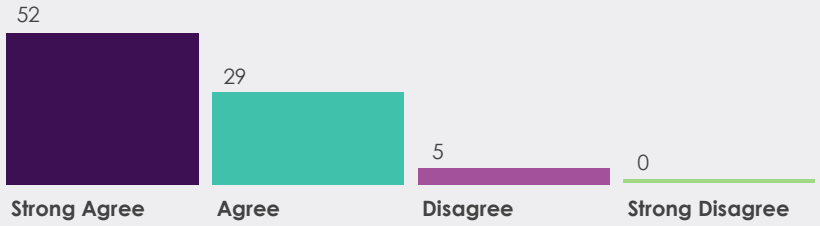
For more information on Workshop 1, please see the Summary Report and Presentation on AEMO's Project Webpage

We asked workshop participants a few questions

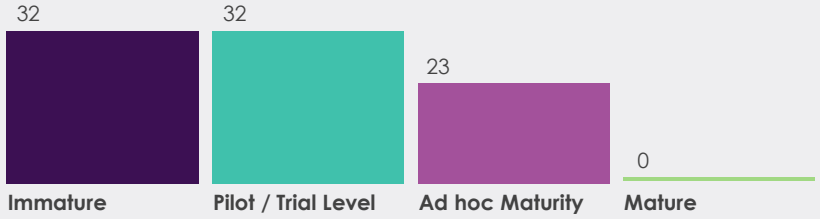
Access to, and efficient sharing of, CER data between many Industry stakeholders is a critical enabler to achieve the NEO and reach Net Zero.



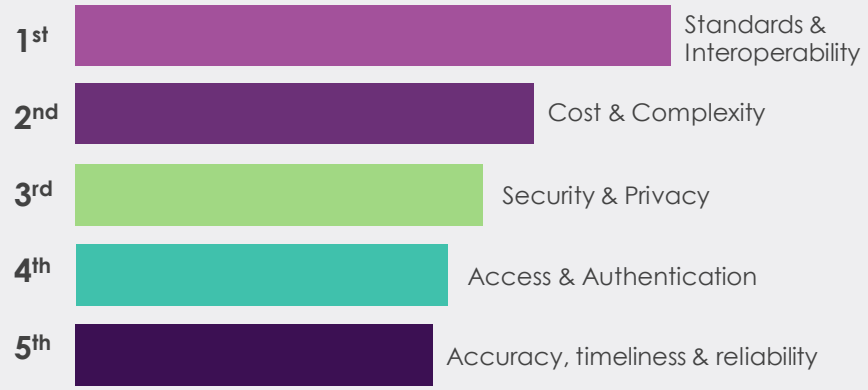
Coordination of CER at scale (with customer consent) is required to enable a more efficient and cost-effective power system for all consumers.



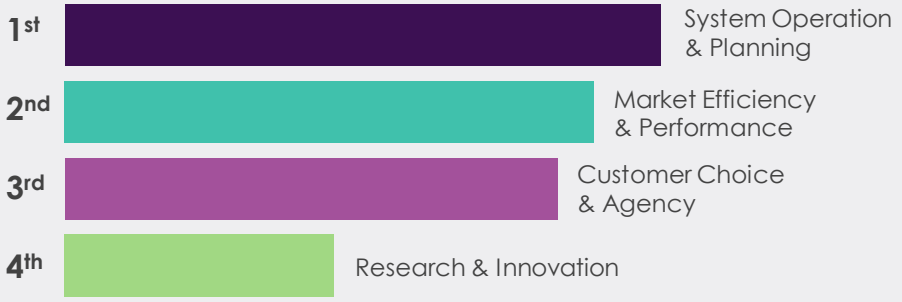
What is your assessment of the current state of CER data sharing maturity in Australia?



Please rank your CER data sharing challenges or in order of pain point you would like to remove?



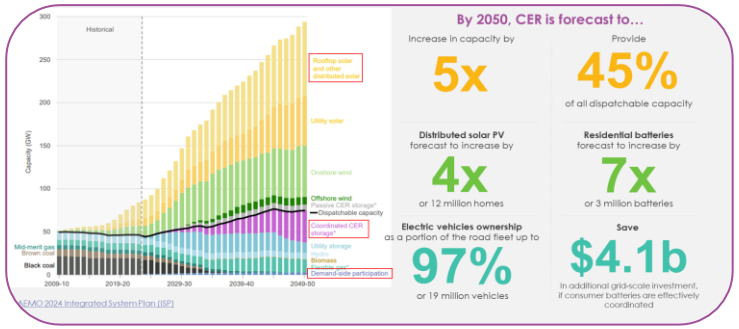
Rank which domain of the energy system would get the most value through improved CER data exchange?



Why are we undertaking this initiative?

There is a big program of work planned to unlock benefits from CER

CER is a key part of our system now and in the future: Efficient integration will deliver significant benefits



AEMO Integrated System Plan
$4.1 billion
In savings by 2050

EDGE Energy Demand & Generation Exchange
$6 billion
In additional benefits to consumers, over 20 years

Project Symphony Our energy future
$920 million
In additional benefits to WEM participants, over 10 years

The CER Roadmap has identified a large program of work to realise the benefits

Four workstreams

- Consumers
- Technology
- Markets
- Power system operations

Lots of projects scheduled & underway

52x Projects in the CER Roadmap

Multi-year program

2024 2025 2026 2027 2028 2029 2030

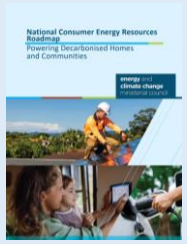
Many organisations have been undertaking trials and research

- Network Businesses
- Retail Businesses
- Academia

How this project fits into the National CER Roadmap

Consumers workstream

[C.1]
[C.2]
[C.3]



Visit National CER Roadmap

CER Taskforce Project (current)

[M.3, P.5] DSO/Market Operation "Roles"

Hard & Soft Dependencies

Part of this stream

[M.2] CER Data Sharing Arrangements

Hard & Soft Dependencies

[T.1] Interoperability Standards ecosystem

Some relevant National CER Roadmap initiatives

Distribution level market roles and responsibilities defined

Roles and responsibilities for power system operations defined

Defines which functions are needed and the responsible parties

Data sharing arrangements to inform planning and enable future markets
To enable consumer participation

Bridges functions and devices with enabling data and infrastructure

Interoperability standards developed
Ensures CER devices work as intended, can communicate with each other and maintain cybersecurity

Defines what devices need to be able to do

Australia is not alone in thinking about this

United Kingdom

UK Data Sharing Infrastructure (formerly Digital Spine) (MVP Implementation 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.

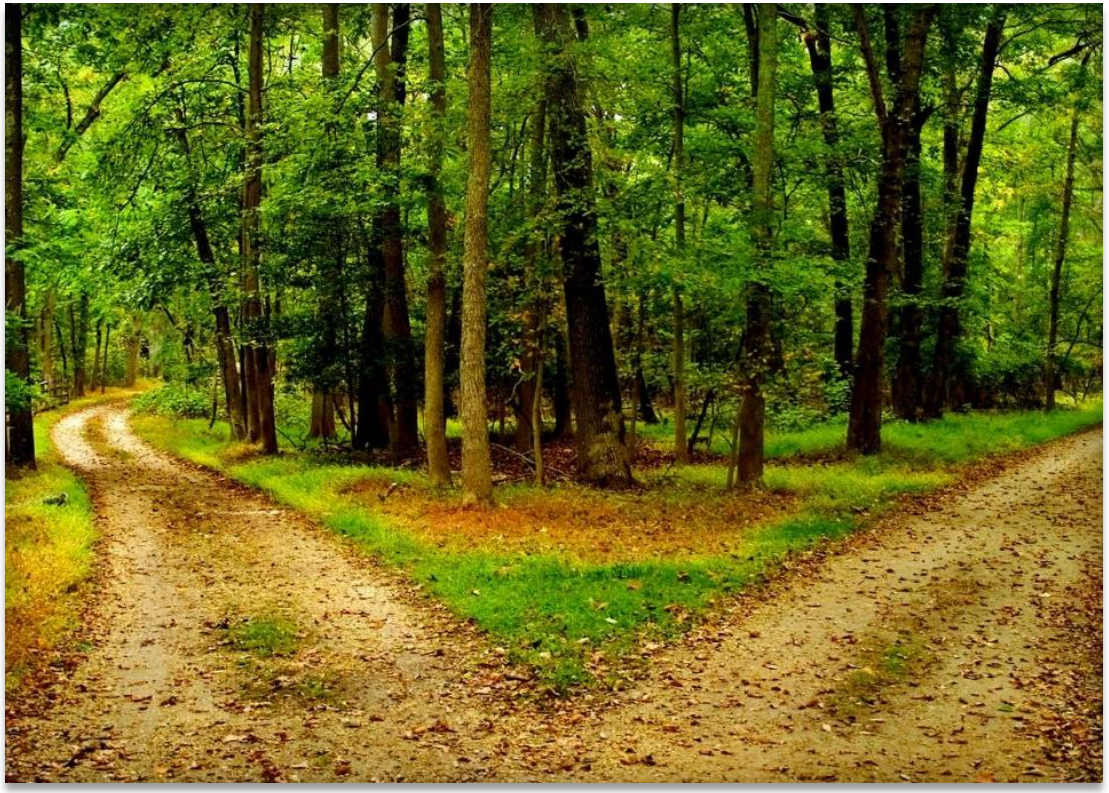
Portugal

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)**

So why are we doing this?



This process is about finding the best way to achieve an outcome that we are all aligned on

What's in it for customers?

The customer doesn't need to see all the behind-the-scene workings in order for them to have benefits

It is up to us to make this work for them

Co-design Activity 1

Preference Setting Alternative Futures

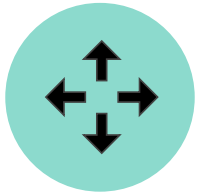
Session Overview

Addressing data exchange challenges differently

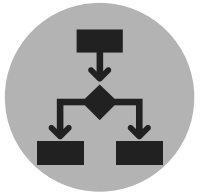
Purpose

In table groups, we would like you to test alternative futures for CER use cases in order to co-define the value of change.

Explore four potential **challenges in exchanging data**



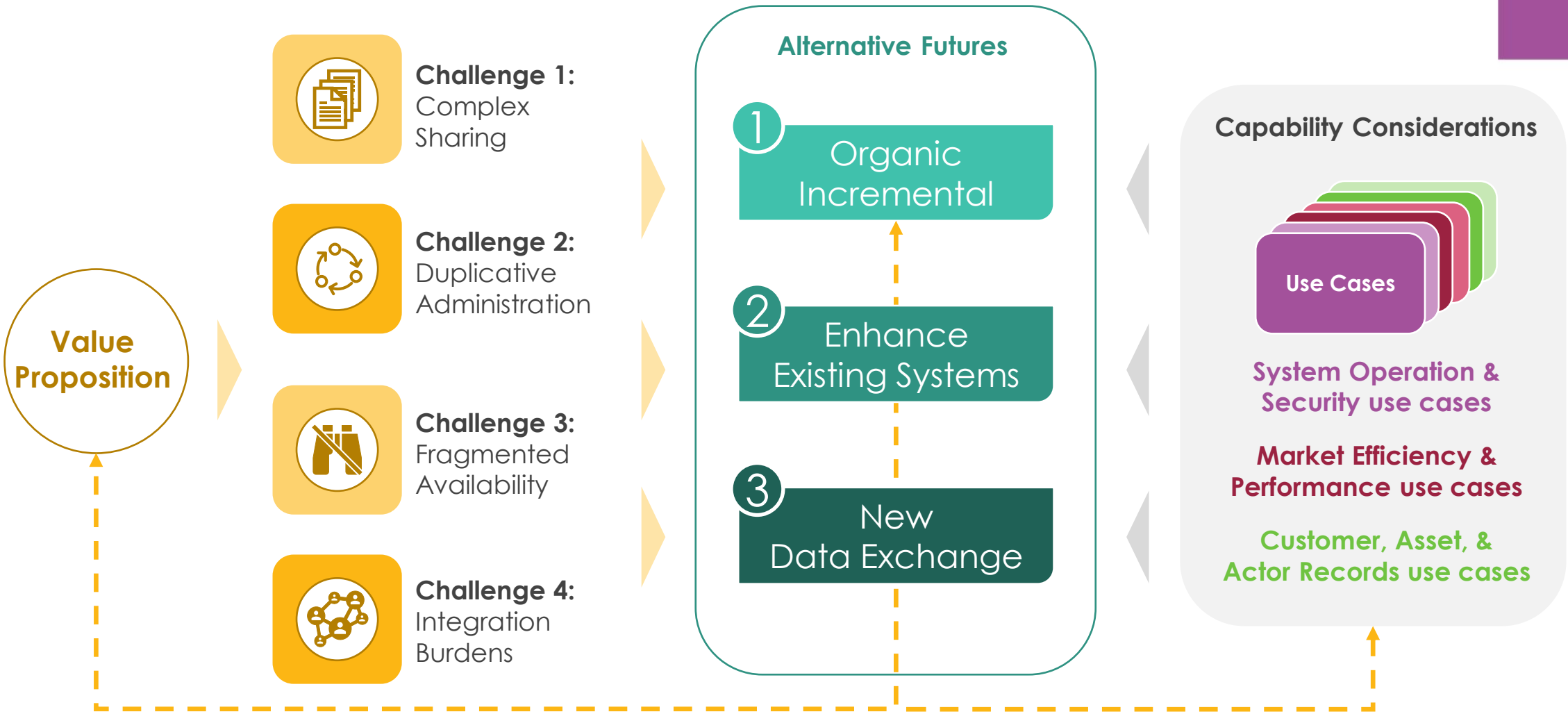
Investigate **three alternative futures** for exchanging CER data in Australia



Focus on the **what, how, when, and why** of using 10 example use cases

We are preference setting Alternative Futures

A map to choose your own adventure



Four Potential Challenges in Exchanging Data

Challenge 1

Complex Sharing

- Bespoke contracts
- Administrative inefficiencies
- Legal and collaboration delays

Challenge 2

Duplicative Administration

- Silos of key data
- Repeat many times over to access services
- Slower market response

Challenge 3

Fragmented Availability

- Inconsistent access conditions
- Prevents people from doing their job for customers

Challenge 4

Integration Burdens

- Cater to many different tech integrations
- Inefficient coupling at scale

Three Alternative Futures that could address Challenges in Exchanging Data

Challenge 1: Complex Sharing

Challenge 2: Duplicative Administration

Challenge 3: Fragmented Availability

Challenge 4: Integration Burdens

Three possible futures that could solve challenges in exchanging data

Future 1: Organic incremental approach

Most like our current arrangements with minimal changes to existing data sharing arrangements

Future 2: Enhance existing capabilities and systems

Builds on current arrangements by adding new capabilities where there are needs or gaps

Future 3: Create a new data exchange

Develop a new, strategic, fit-for-purpose, data exchange

Three possible futures that could deliver these use cases

System Operation & Security use cases

Market Efficiency & Performance use cases

Customer, Asset, & Actor Records use cases

We aren't starting from a clean slate: these Alternative Futures depend on and interact with existing capability

So, what are we working with today?

Some of the (imperfect) capabilities that exist now

Proprietary Platforms

- **Data available**: Participating DER install, Participating VPP Portfolio, Participating Services / Instructions, Select Visibility
- Third party ownership with private governance

Standards (CSIP-AUS and OCPP)

- **CSIP-AUS:** Point to point, does not support 1:Many. Device-level communication protocol based on IEEE 2030.5 using utility servers.
- **OCPP:** Open communication protocol for EV charging equipment and charge management systems

CDR

- Consent framework allows consumers to share their energy data with accredited 3rd parties.
- **Data available**: NMI standing data (AEMO, Customer Billing data (Retailer), Revenue Meter data (AEMO)

Portfolio MS and DER Register

- **Data available**: VPP portfolio / DER installation
- Provides a reference of DER installation and VPP portfolio data.
- **Accessibility**: DER register is only accessible by DNSPs and AEMO with limited access provided to installers.

DERMS

- Operational management system for DER, supports generation of export/import limits, service/device instructions, operational visibility, and near real time status.
- **Significant data source**

AEMO Systems

- Next slide.

Some of the (imperfect) capabilities that exist now

AEMO Systems:

NEM IDX and IDAM

- NEM reform initiative to upgrade underlying technology that supports streamlined integration between market participants and service providers.
- Replacing legacy technology and bespoke patterns with modern secure standard patterns
- Currently implementing foundational components and will be progressively rolled out to NEM wholesale, retail and B2B data exchanges including the DER Register access

NEM Retail

- Facilitates energy retail competition and settlement in the NEM
- Provides 'source of truth' on actors performing defined NER roles at a given site
- Supports the sharing of NMI standing data between parties and supports customer switching noting that consumer interactions incl. consent are managed by the incoming retailer.

B2B eHub

- Purpose: exchange information between the multiple parties responsible for energy supply to consumers.
- Supports limited form of 1:Many
- Legacy technology, scheduled to be upgrade to use the same capabilities as the IDX/IDAM initiatives.
- Provides lessons learned on enabling data exchange and governance approaches.

Three Alternative futures that could deliver 10 example Use Cases

Challenge 1: Complex Sharing

Challenge 2: Duplicative Administration

Challenge 3: Fragmented Availability

Challenge 4: Integration Burdens

Three possible futures that could solve challenges in exchanging data

Future 1: Organic incremental approach

Future 2: Enhance existing capabilities and systems

Future 3: Create a new data exchange

Three possible futures that could deliver these use cases

System Operation & Security	Market Efficiency & Performance	Customer, Asset, & Actor Records
1. Sharing Network Limits	5. Transparency of Market Data	8. Visibility of CER Choices
2. Grid Data Collaboration	6. Flexibility Service Requests	9. Consistent CER Standing Data
3. Scaling Network Prices	7. Streamline CER Portfolio Data	10. Support EV Integration
4. Supporting Local Services		

Co-design activity 1 Round 1

Testing alternative futures for System Operation & Security use cases

What are we going to do in this activity?

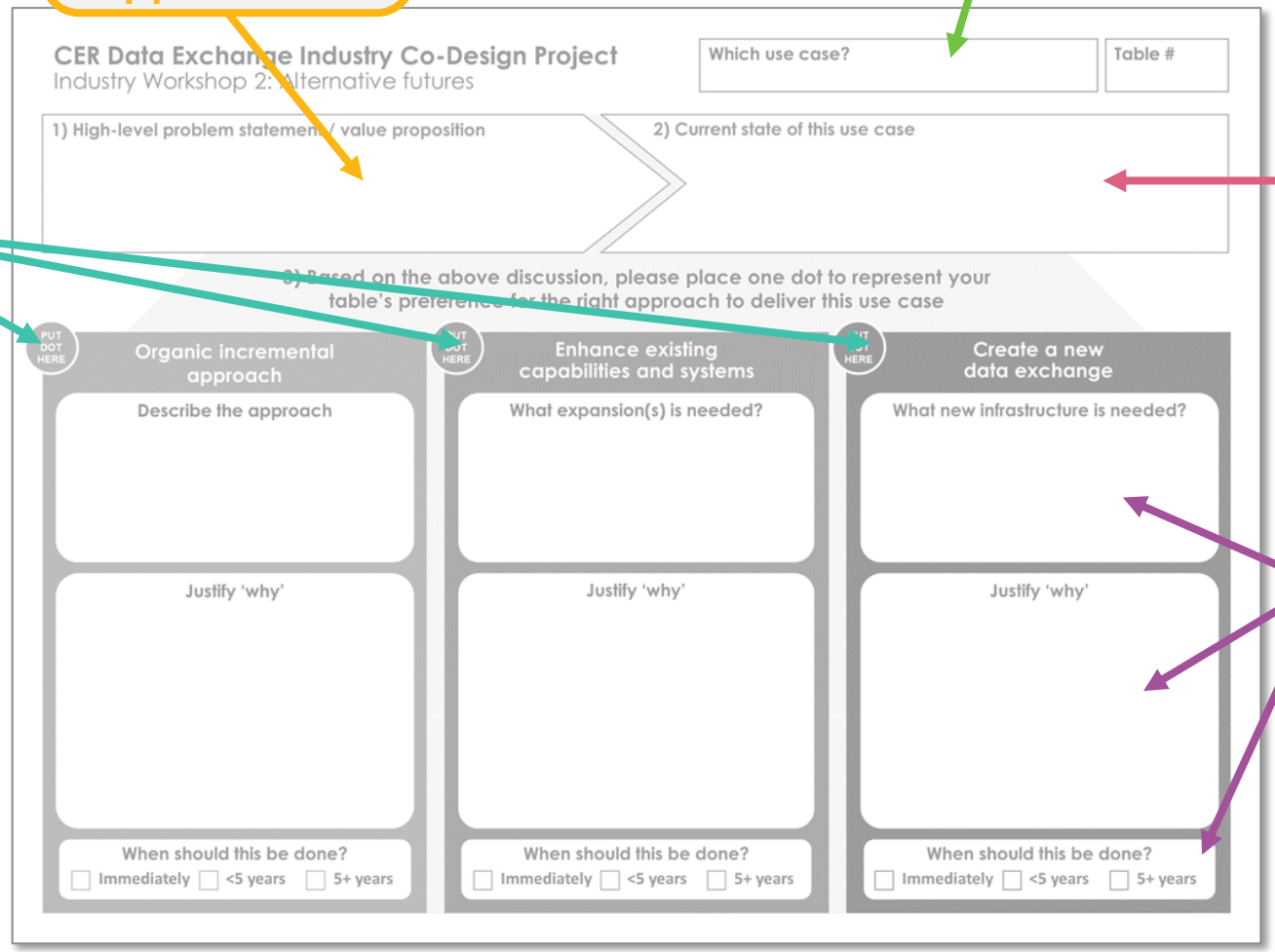
1. Explore data exchange challenges & opportunities

2. Investigate 10 use cases (3 per table)

4. Set preferences for alternative futures to deliver use cases

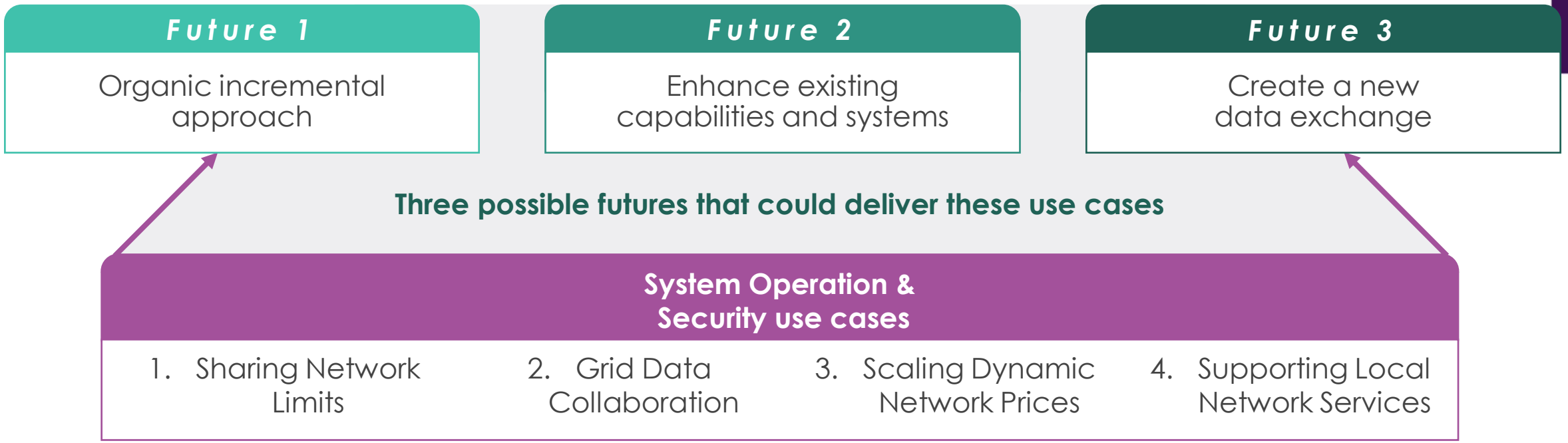
3. Define the counterfactual

5. Justify your choices: '*what, why, when*'



Testing alternative futures Round 1

System Operation & Security use cases



Morning tea break

Co-design activity 1 Round 2

Testing alternative futures for Market Efficiency & Performance use cases

Reminder: what are we doing in this activity?

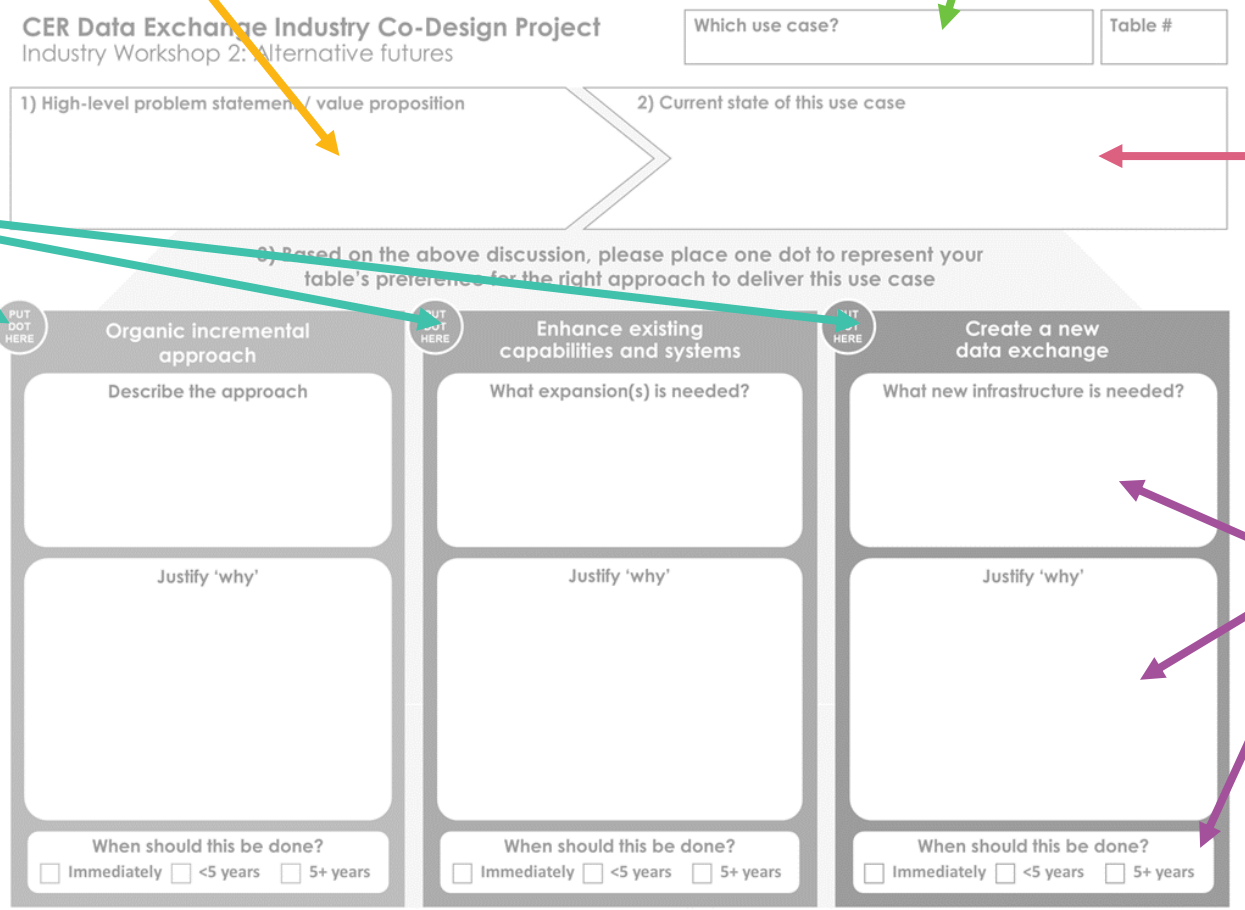
1. Explore data exchange challenges & opportunities

2. Investigate 10 use cases (3 per table)

3. Define the counterfactual

4. Set preferences for alternative futures to deliver use cases

5. Justify your choices: '*what, why, when*'



Testing alternative futures Round 2

Market Efficiency & Performance use cases

Future 1	Future 2	Future 3
Organic incremental approach	Enhance existing capabilities and systems	Create a new data exchange

Three possible futures that could deliver these use cases

Market Efficiency & Performance use cases

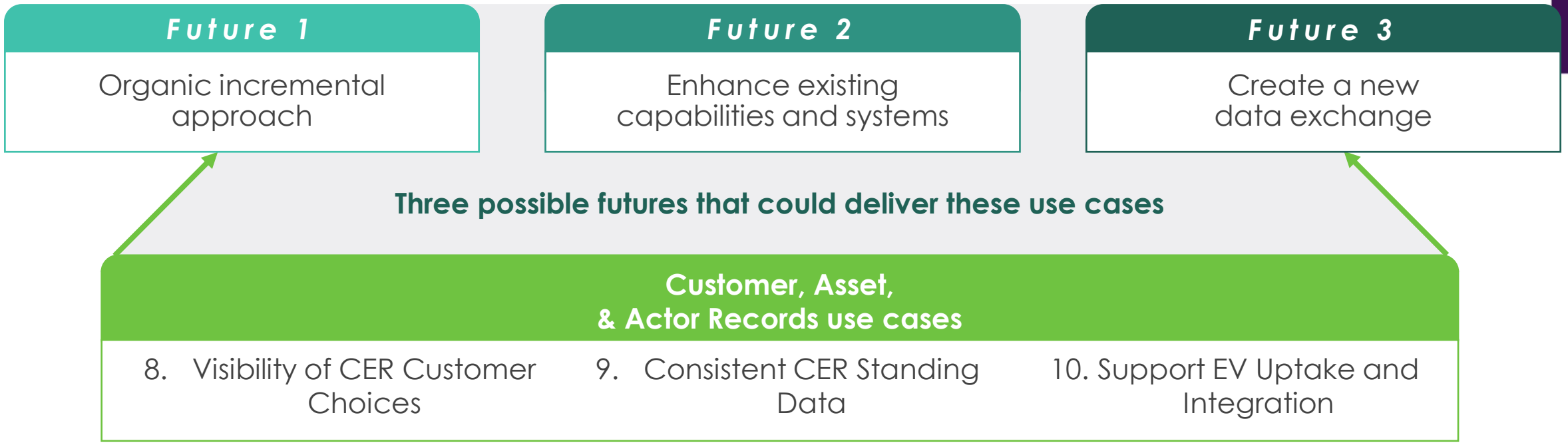
5. Transparency of Market Data
6. Flexibility Service Requests
7. Streamlined CER Portfolio Data Access

Co-design activity 1 Round 3

Testing alternative futures for Customer, Asset, & Actor Records use cases

Testing alternative futures Round 3

Customer, Asset, & Actor Records use cases

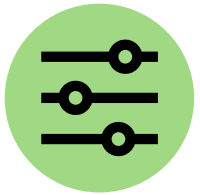


Preview – what's after lunch

Activity Overview:
Trade-offs of different forms of a CER data exchange

Purpose

In table groups, we would like you to describe your priorities for key trade-offs and evaluate representative options of exchange design (keeping in mind the challenges and problem statements explored in activity 1).



Identify and explain where you sit on **three key design trade-off spectrums**

Assess the pros and cons of **three representative options** for a CER Data Exchange Ownership, Oversight and Functionality

Evaluate how the options meet common and table-led **criteria for a fit-for-purpose exchange**

Lunch break

5. Co-design Activity 2

High level design trade-offs and options

Activity Overview:
Trade-offs of different forms of a CER data exchange

Purpose

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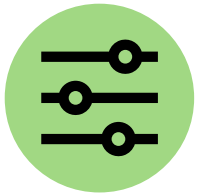

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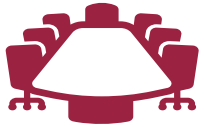
CER Data Exchange

Oversight



Regulatory consumer value protection

Forward investment plans, roles & responsibilities, change management, costs and recovery , policy interactions, CER data compliance, oversee owner

Owner/Operator

Manage the exchange

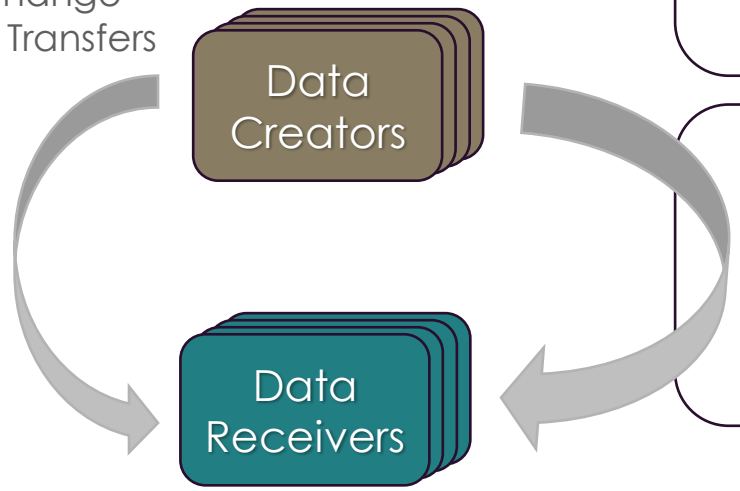
Implement, upgrade, maintain, integrate systems, onboard users, change management

Functionality

Enable use-cases services

E.g. Store data, control quality, response loops, consent tracking, data compliance, authentication

Non-Exchange Data Transfers



Spectrum of options and trade-offs

FUNCTIONALITY

What should the exchange do as it transfers CER data?

Broad functionality

- ✓ Capable, supports innovation, future-proofed
- ✗ More cost, longer lead time, more oversight

Intermediate

Narrow functionality

- ✓ Low cost, quick to market, simpler oversight
- ✗ More done by users, may have limited overall value

OWNERSHIP

Who should own, operate and implement the Exchange?

Public

- ✓ Consumer-focused, transparent, trusted
- ✗ Less agile, more set up, may lack expertise

Hybrid

Private

- ✓ Expertise, innovation, agile
- ✗ Risk of commercial bias, longevity, more oversight

OVERSIGHT

What should exchange and industry oversight look like?

Highly prescriptive

- ✓ Stable, trusted, existing frameworks
- ✗ Inflexible, higher cost, longer setup

Semi-prescriptive

Moderate-discretion

High discretion

- ✓ Agile, streamlined, supports innovation
- ✗ Lacks guardrails and accountability

Activity 2A

Activity #2a Placemat Overview

Activity components:

1. Discuss and describe the most important design trade-offs for each spectrum.
2. Determine and justify where you would want a CER data exchange to fall on the spectrum, considering the challenges, futures and use cases discussed in Activity 1.
3. Identify your priorities for what trade-offs should carry most weight for your preferred style of CER Data Exchange.

For further reading, see slides 51, 54 & 60

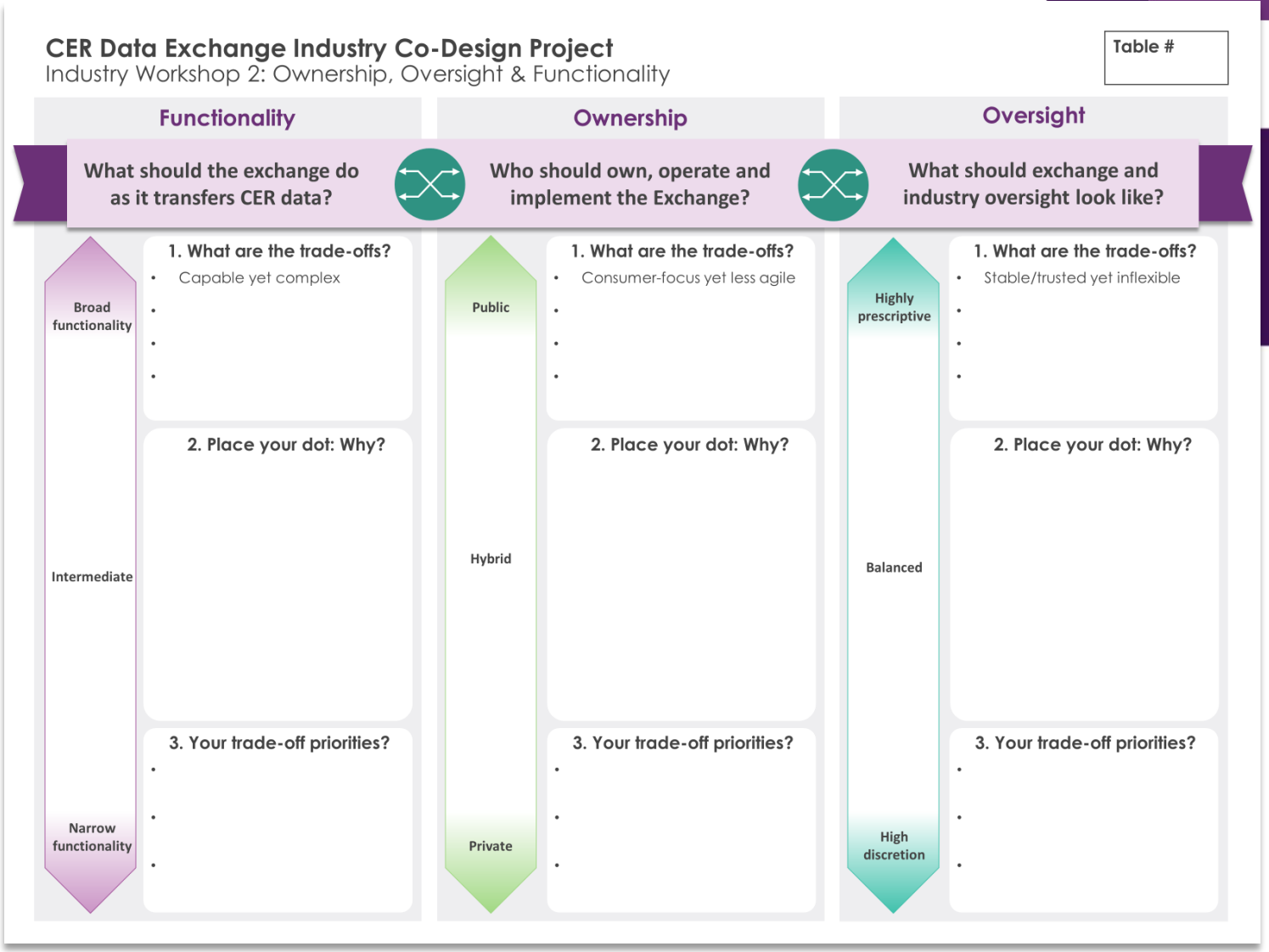


Table Sheet: Elements of Data Exchange

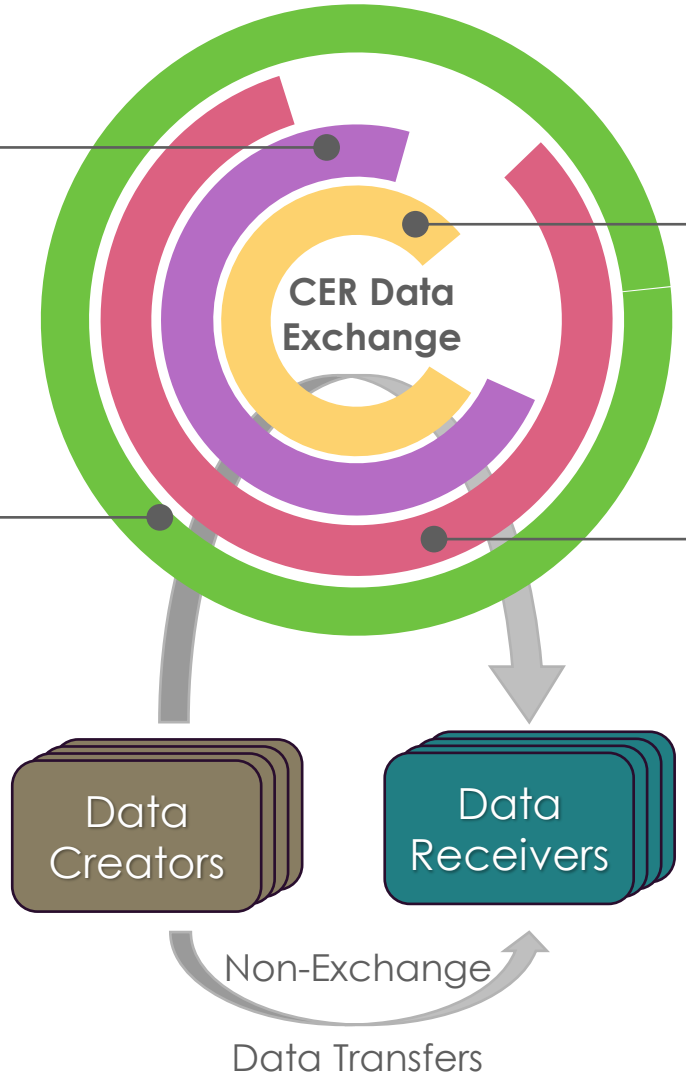
We are codesigning preferences, noting the Exchange is not the only way to transfer data

Governance Layer

- Ownership & Funding
- Oversight & Compliance
- Roles & Responsibilities
- Auditability

Data Infrastructure Layer

- Servers
- Protocols
- Latency
- Redundancy



Security Layer

- Authentication
- Privacy
- Security
- Encryption

Data Management Layer

- Quality Control
- Life cycle management
- Interoperability
- Version control

Table Sheet – First Pass Trade-Off Evaluation

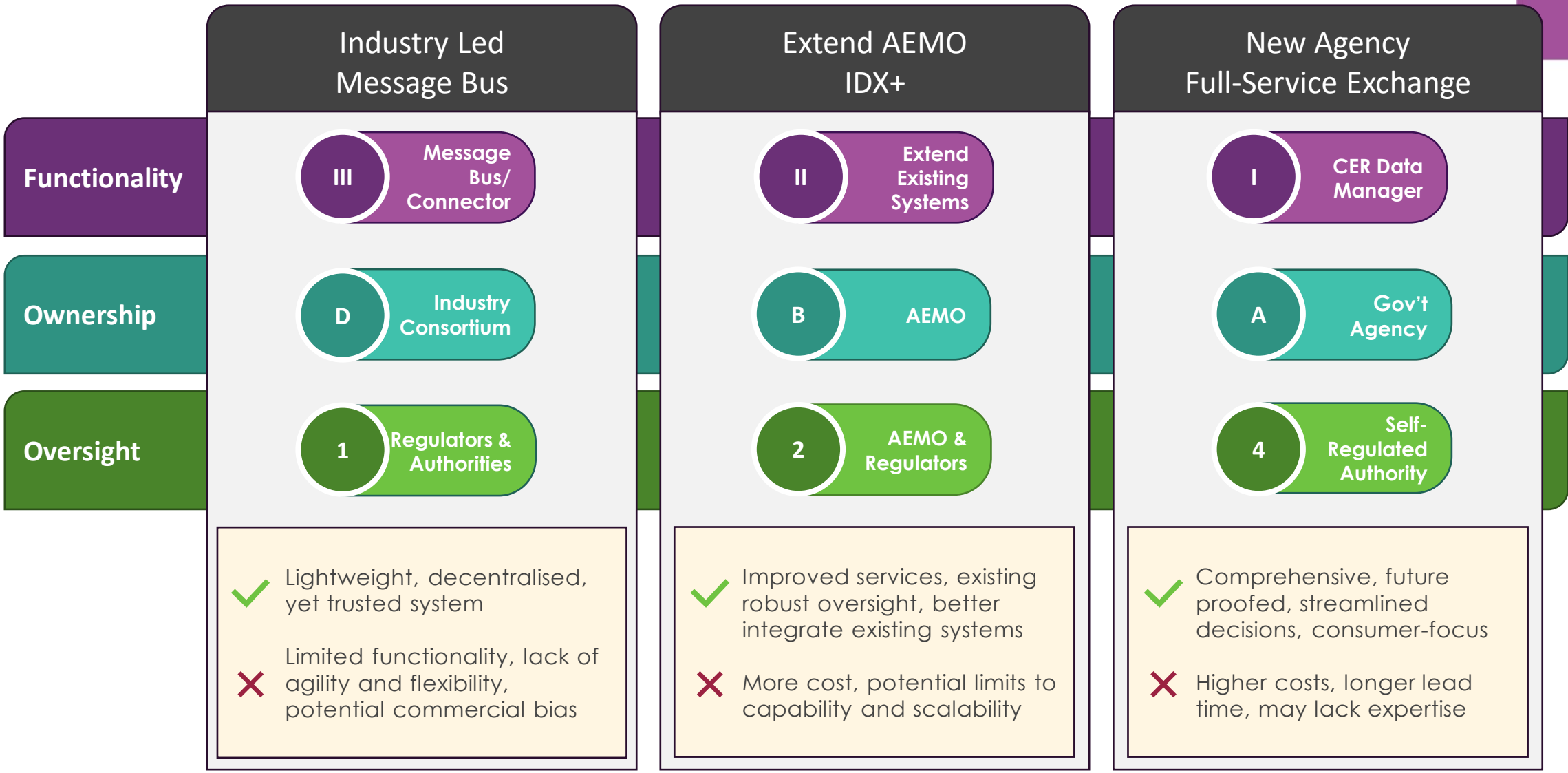
Proposed Evaluation Criteria

Functionality	Capability	Cost	Speed to market	Flexibility	Accessibility	Fit-for-purpose*
I. CER Data Manager	Achieves	Concerns	Concerns	Achieves	Achieves	Unknown
II. Extend Existing Systems	Unknown	Concerns	Achieves	Concerns	Concerns	Unknown
III. Message Bus/Connector	Limited	Achieves	Achieves	Limited	Concerns	Unknown
Ownership	**Transparent**	**Trusted**	**Efficient & Effective**	**Enduring**	**Consumer-centric**	**Secure**
A. Government Agency	Achieves	Concerns	Limited	Concerns	Achieves	Concerns
B. AEMO	Achieves	Concerns	Achieves	Achieves	Concerns	Achieves
C. AEMO + Licence	Concerns	Unknown	Concerns	Limited	Concerns	Concerns
C. Industry Consortium	Unknown	Concerns	Concerns	Concerns	Concerns	Unknown
Oversight	**Capability**	**Flexibility**	**Cost**	**Engagement**	**Consumer Centric**	**Trust**
1. Regulators & Authorities	Concerns	Limited	Concerns	Achieves	Achieves	Achieves
2. AEMO & Regulators	Concerns	Concerns	Concerns	Achieves	Achieves	Achieves
3. New Authority Regulates	Concerns	Achieves	Unknown	Concerns	Concerns	Unknown
4. Self-Regulated Authority	Concerns	Achieves	Unknown	Concerns	Concerns	Unknown

Achieves
Concerns
Limited
Unknown

Activity 2B

Overview of Potential Exchange Options



Evaluation criteria for a CER Data Exchange

Fit-for purpose
Suitable to solve the challenges and use-cases identified in Activity 1. Includes appropriate speed to market, and ease of implementation, integration and uptake.

Efficient
Economical upfront and ongoing cost for services provided and efficient processes for stakeholder engagement and data exchange development.

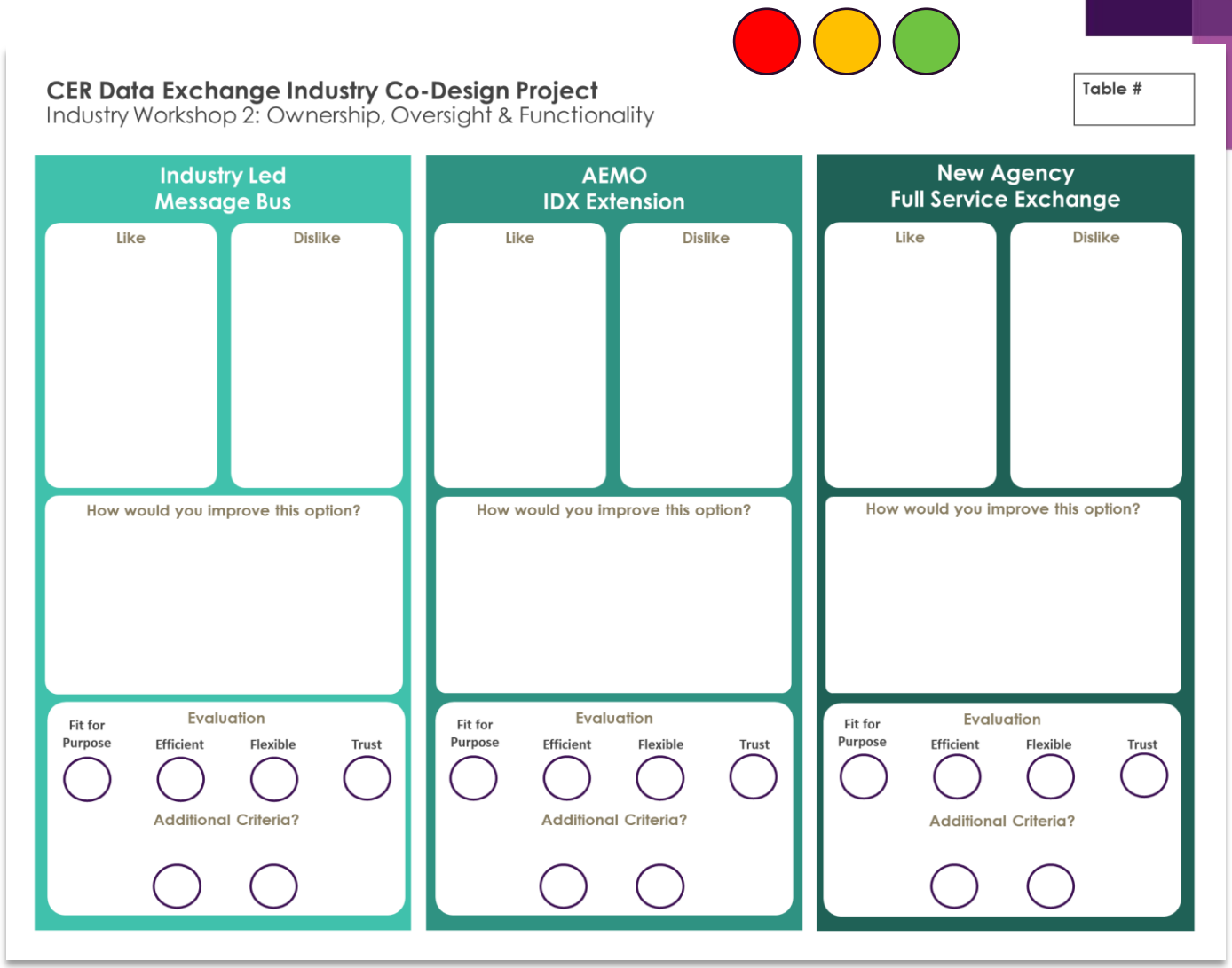
Flexible
Able to evolve and scale for more data, different use cases, changes in regulator or market environments and different user requirements as needed over time.

Trust
Can be trusted by industry, customers and consumers to protect their data and rights and deliver an effective and efficient exchange in the long-term interests of consumers.

Activity #2b Placemat Overview

Activity components:

1. Identify what you like and what you dislike about each representative option for a CER data exchange design.
2. Describe improvements to the option e.g. by modifying its components or including measures that could mitigate your dislikes and boost your likes.
3. Evaluate each option against the provided criteria and any added by you. **achieves**, **concerns**, or **limited**.



Afternoon tea break

Outcomes from today

Survey

Mentimeter

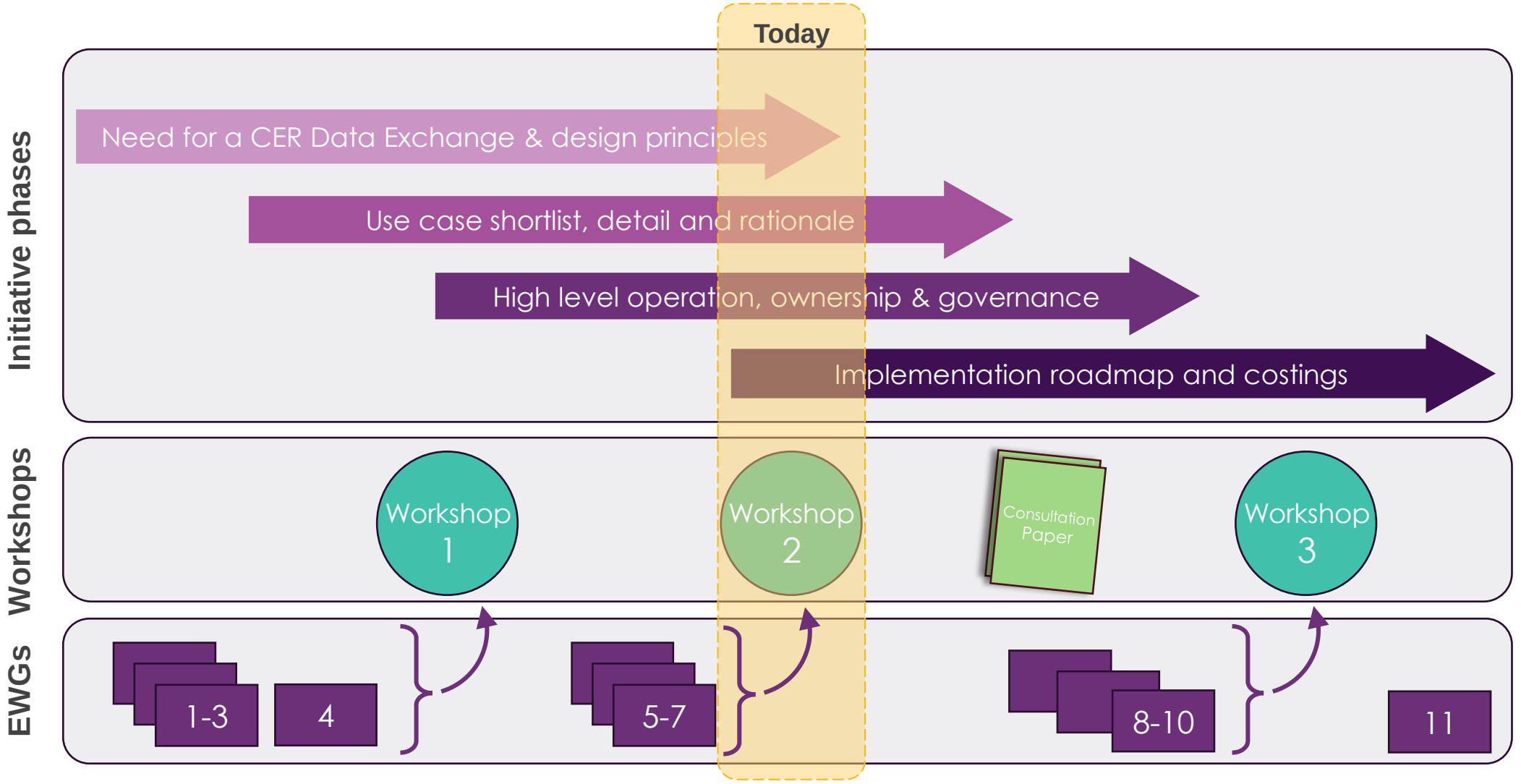
Join at menti.com | use code **6417 8391**

Wrap up and next steps

Where is the co-design process at?

This would be the third time we show this – checking intentional

Also it's a slightly slimmed down version of the others



Outcome
High-level design of industry preference

AEMO

AUSTRALIAN ENERGY MARKET OPERATOR

Contact us

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