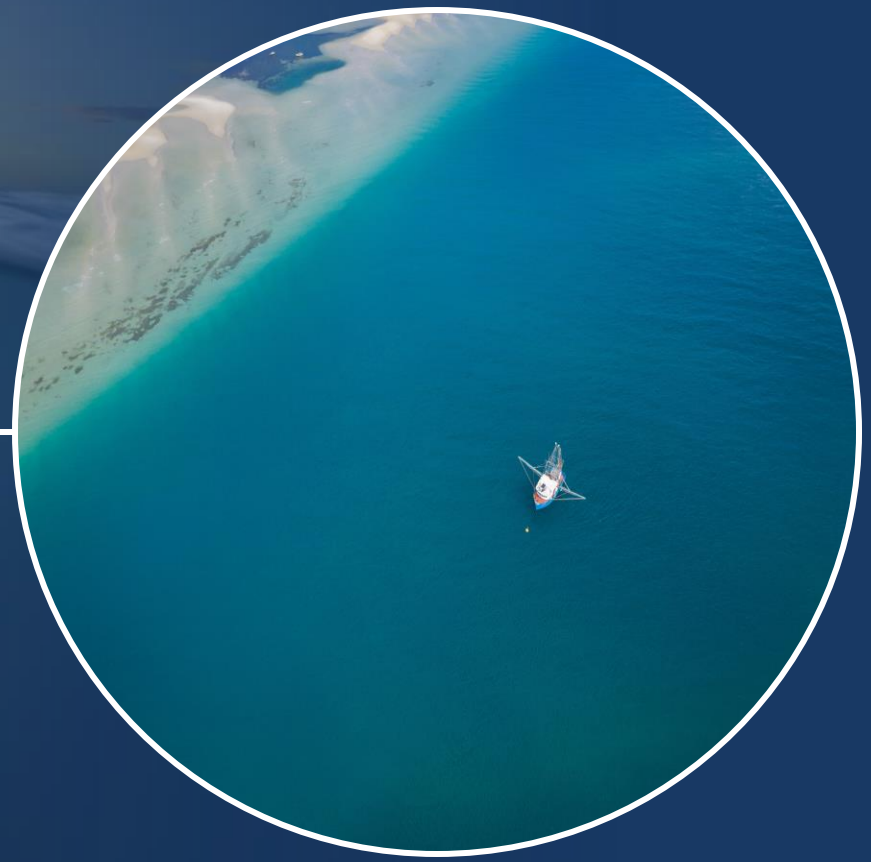
Help Shape FRDC's Future Focus – DAY 1

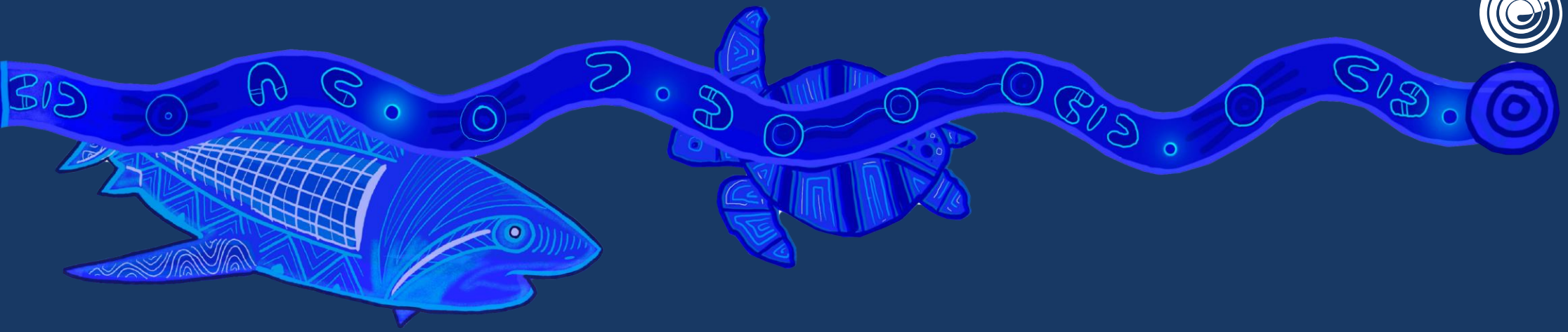
Have Your Say – ANNUAL STAKEHOLDER PLANNING WORKSHOP



"How do we work better together to address issues that we share to create impact"

October 2023

frdc.com.au



FRDC
FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

FRDC acknowledges Australia's Indigenous people who are the traditional owners of country throughout Australia and recognises their continuing connection to lands, waters and culture.

We pay our respect to their Elders past, present and extend that respect to all Indigenous people.

frdc.com.au

PURPOSES:

1. Provide an opportunity for key stakeholders to consider progress made towards key outcomes under the current FRDC RDE Plan 2020-25.

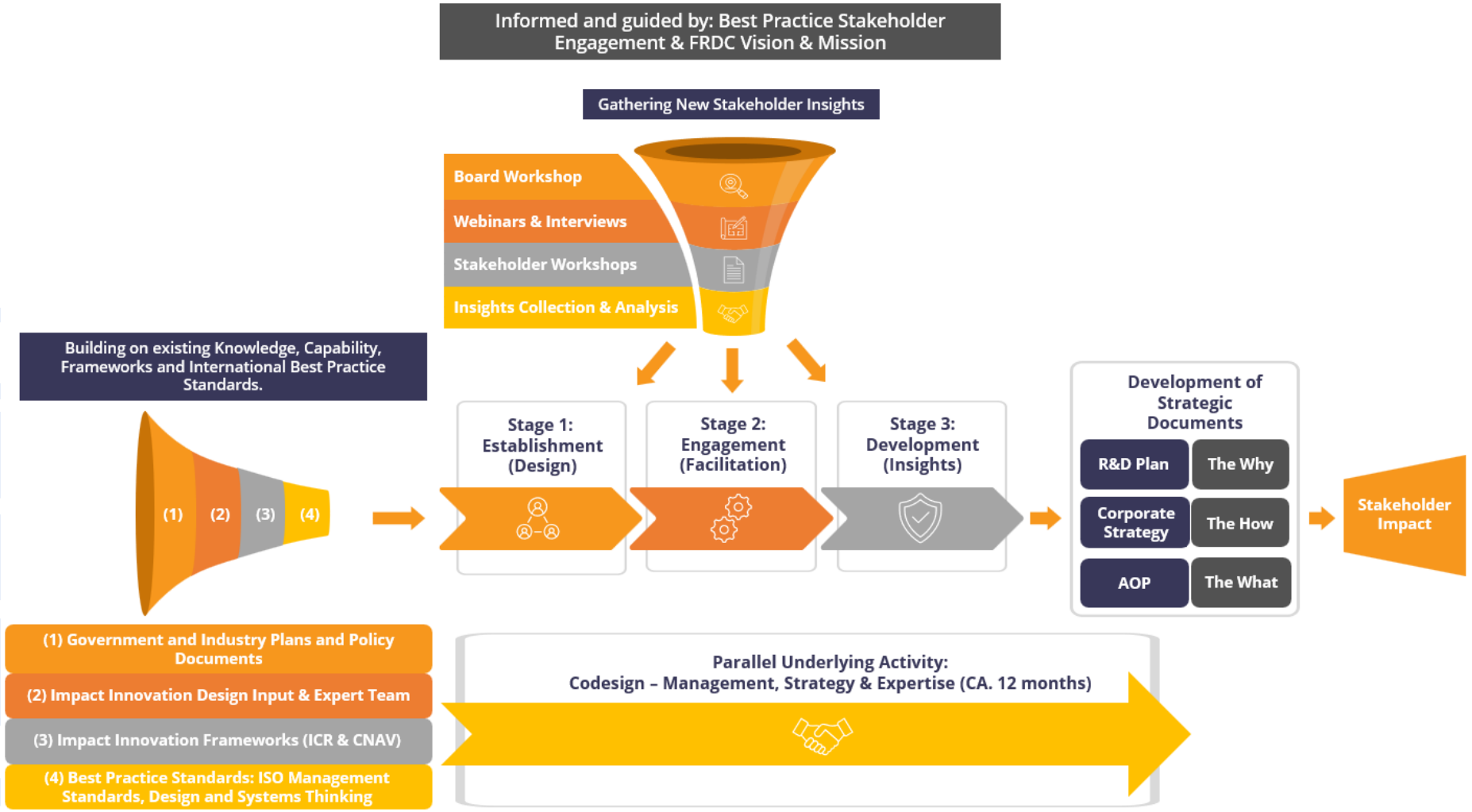
2. Identify whole-of-industry system-wide critical issues that could be better served through alternative approaches.

3. Allow an opportunity for participants to prioritise these critical issues and self-select to work on those where they can make a contribution.

4. See and try tools for system innovation that may be used to design future collaborative approaches to address the priority issues.

5. Contribute to the development of FRDC's 2024-25 Annual Operating Plan and next R&D plan.

Overview of Codesign Process



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Have Your Say - Future Focus Activity

Introducing Mentimeter...

Go to

www.menti.com

Enter the code

5151 6174

Or scan the QR code

FRDC Overview

frdc.com.au

FRDC Updates

FRDC
FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

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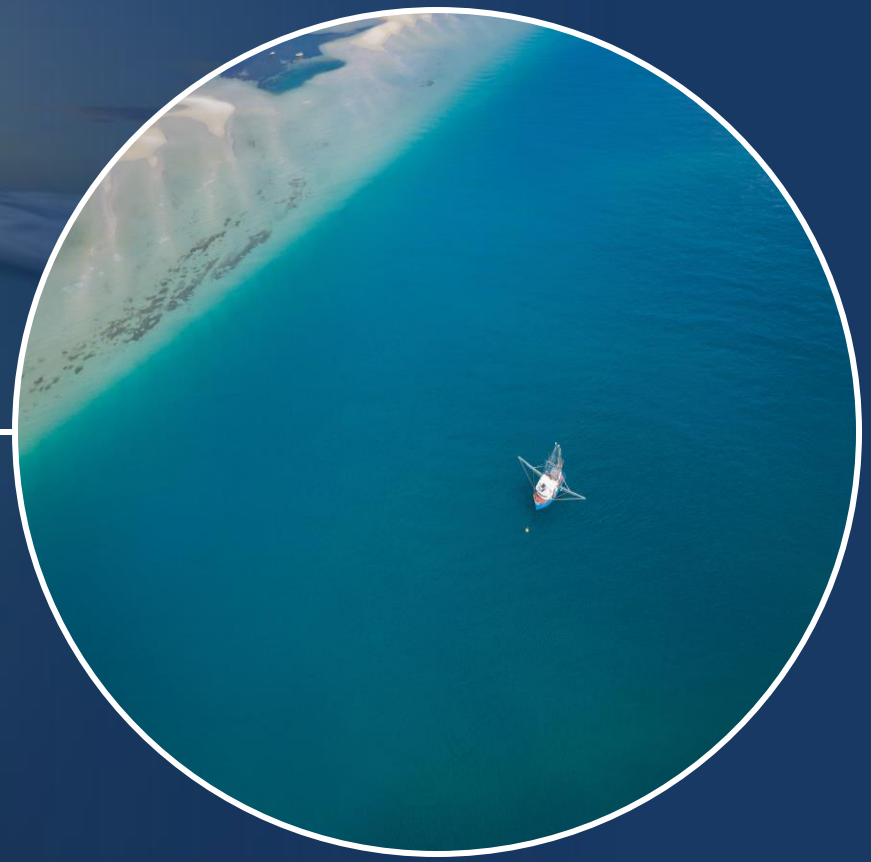
FRDC overview

October 2023 Crispian Ashby



frdc.com.au

Stakeholder consultation, planning, investment and reporting

PRIMARY INDUSTRIES RESEARCH AND DEVELOPMENT ACT 1989

PUBLIC GOVERNANCE, PERFORMANCE AND ACCOUNTABILITY

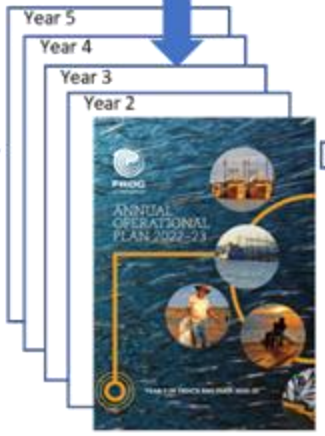
Statutory Funding Agreement 2020-2030

Consultation (Representative Organisations, DAFF, FRDC Board, fishing & aquaculture stakeholders etc)

Fish Forever 2030 (draft

8 year plan outlining high level vision for fishing & aquaculture blueprint for sustainable growth

5-year plan that describes FRDC's objectives, priorities & strategies to achieve those objectives.



Annual Operational Plans give effect to the current 5-year R&D plan, detailing income, expenditure, and planned investments for the relevant year.

Industry contributions & Matching

IPAs

RACs

Coordination Programs

Response Fund

Public Good funds

The FRDC advertises calls for investment opportunities (at least twice a year) that address priorities nominated by RACs, IPAs, Co-ordination programs or national initiatives.

Inputs

Outputs

Monitoring & Evaluation occurs throughout

Extension occurs throughout

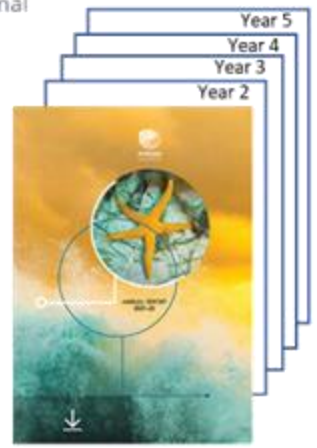
Outcomes

IMACT

-profitability
-Productivity
-Competitiveness
-Preparedness

Performance reporting is undertaken at different intervals, from monthly financial statements through to annual whole of agency reporting.

Annual Reports



FRDC shares progress with investments and activities through annual reporting.

Web-based performance reporting also helps stakeholders to track progress in a more flexible manner.

https://storymaps.arcgis.com/stories/737a78a39dd140bdaa6ffb1581191fe1

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Australian Government Priorities

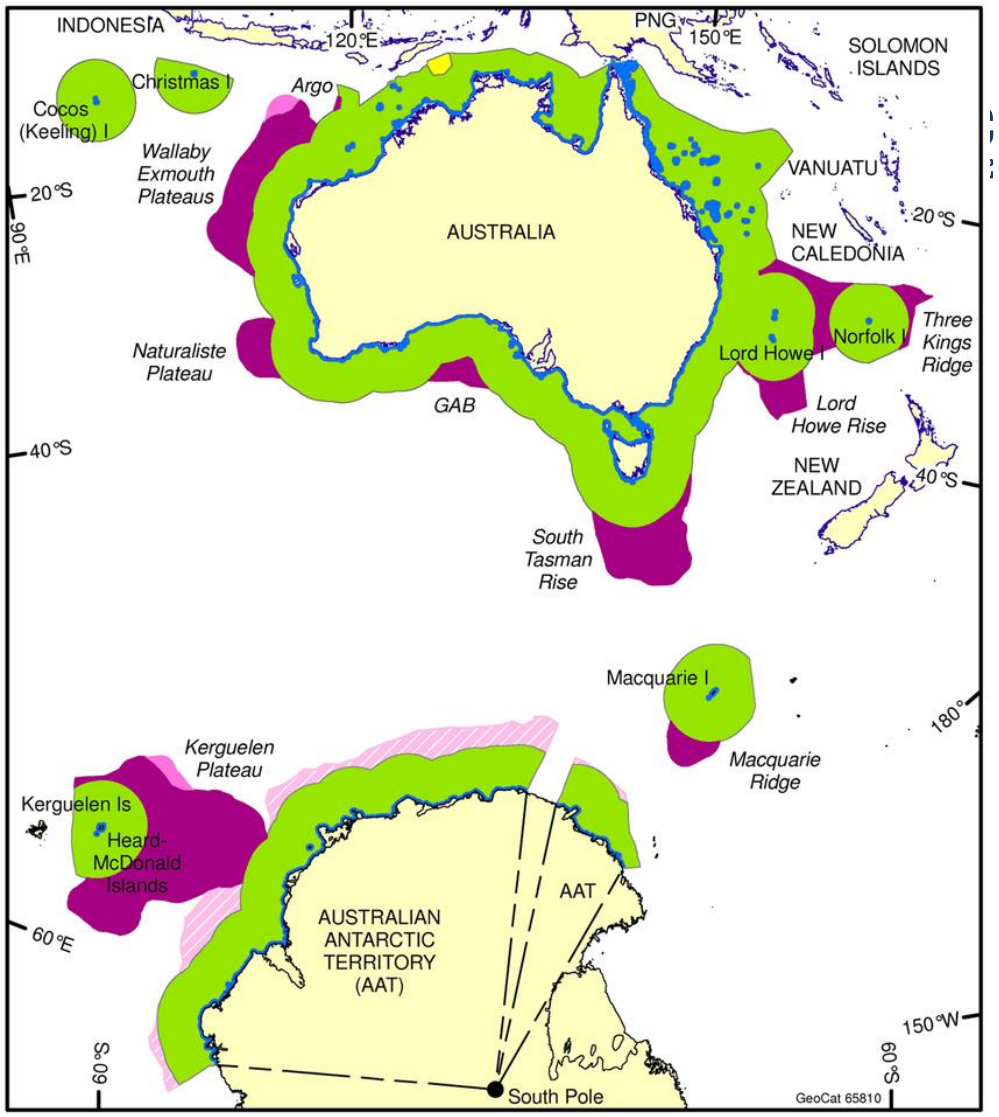
Minister for Agriculture, Fisheries and Forestry, The Hon Murray Watt wrote to all RDCs confirming priorities including:

- Biosecurity
- Climate Change and Sustainability
- Trade and Market Access
- First Nations Engagement
- Workforce

As well as encouraging continued collaboration and cooperation amongst the 15 rural Research and Development Corporations and companies

Australia's Aquatic Environment

- Third largest marine territories (14 million sq/km)
- Over 40% currently in marine reserves (excluding new areas being considered)
- Over 4,000 finfish species
- High species biodiversity
- Hot spot for Ocean Warming
- Fish, unlike minerals, are a renewable resource



AUSTRALIA'S CONTINENTAL SHELF JURISDICTION

- *Territorial sea and internal waters*
- *Areas of marine jurisdiction within 200 M of Australia and its external territories*
- *Joint Petroleum Development Area under Timor Sea Treaty 2002*
- *Area of Australia's continental shelf beyond 200 M as confirmed by the Commission on the Limits of the Continental Shelf*
- *Area considered by the Commission and yet to be resolved*
- *The Australian Antarctic Territory region that Australia requested the Commission not consider for the time being*

Note: The areas of continental shelf depicted to the north-west of Australia reflect the terms of the 1997 maritime boundary treaty with Indonesia which has not yet entered into force.

1 nautical mile (M) = 1852m

Australia's Fishing and Aquaculture Production

Australian fisheries and aquaculture production

Aquaculture GVP increased by 9% to **$1.73 billion**, accounting for 56% of total GVP

Wild-catch GVP decreased by 12% to **$1.39 billion**, accounting for 44% of total GVP

Aquaculture volume increased by 24% to **131,578 tonnes**, accounting for 43% of total volume

Wild-catch volume increased by 0.3% to **172,657 tonnes**, accounting for 57% of total volume

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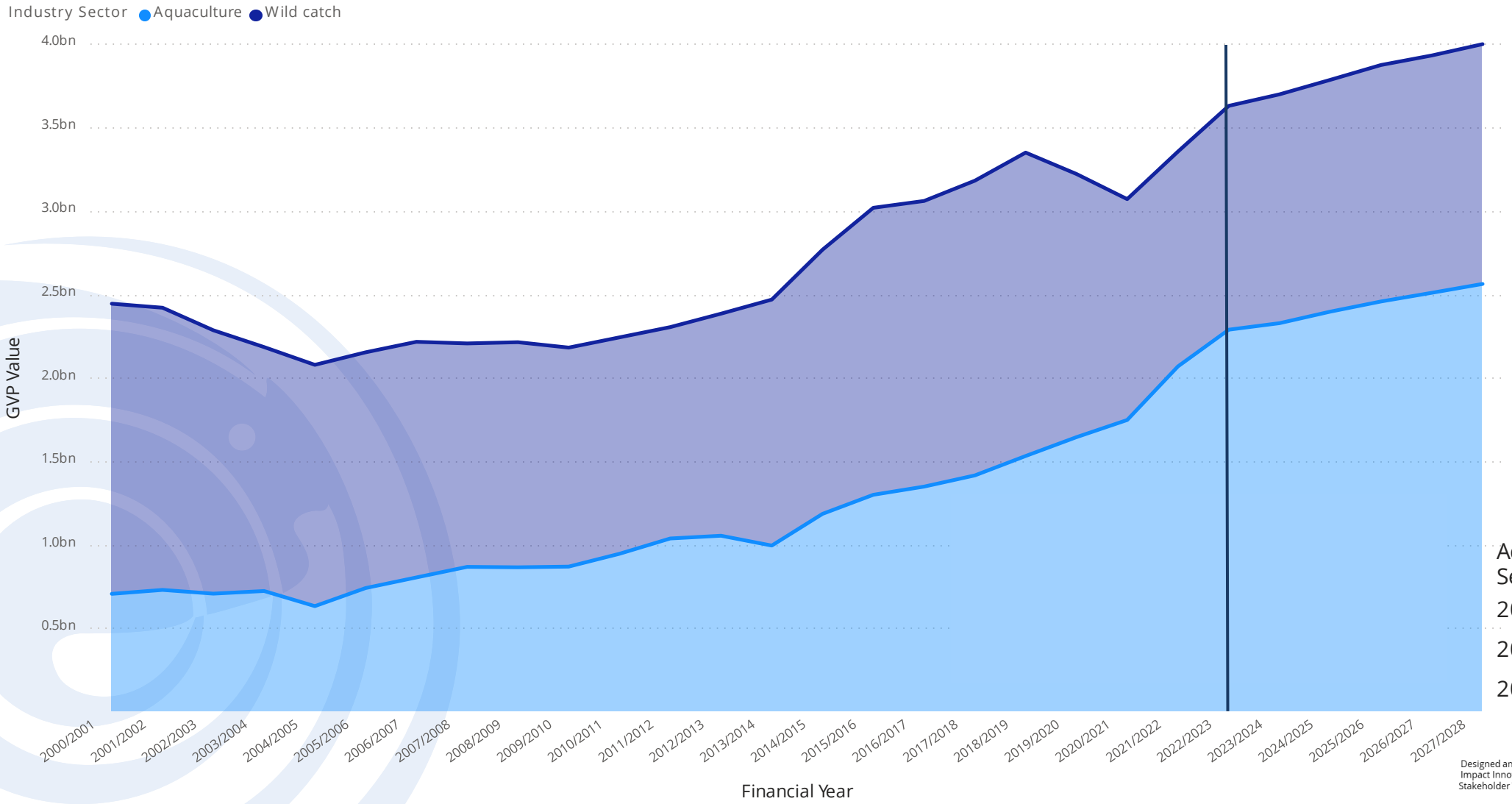
Gross Value of Seafood Production

GVP Value by financial year and industry sector

Data Source



Aquaculture % Seafood value

2000-01 = 28.96%

2022-23 = 63.07%

2027-28 = 64.08%

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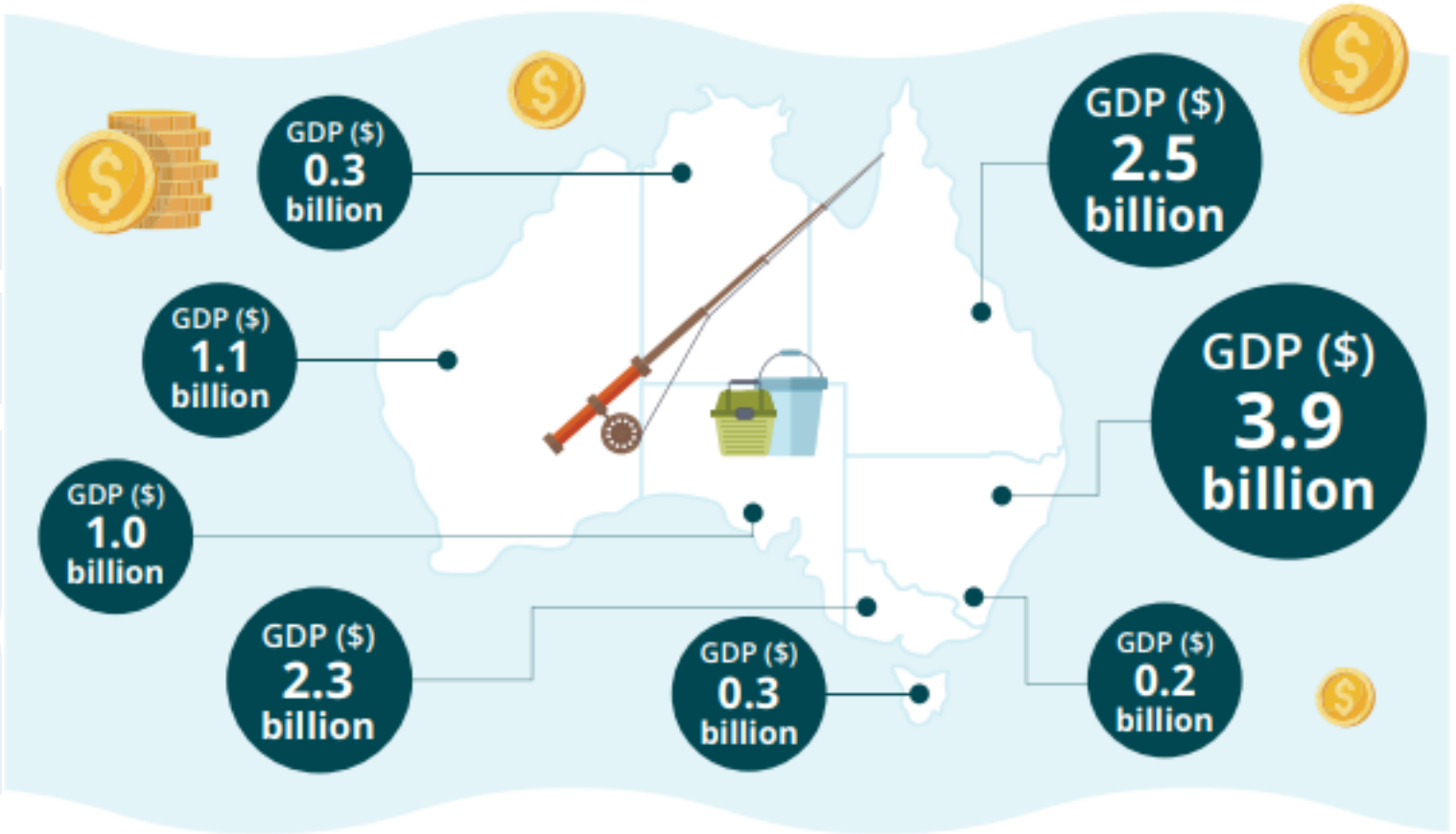
Value of the recreational sector to Australian economy

" recreational fishing contributes over **100,000 jobs** and over **$11 billion per year** to the Australian economy "



4.2 Million
recreational fishers per year **in Australia**

of the Australian population

Source: National Recreational Fishing Social and Economic Survey ABARES 2023

Indigenous Reference Group – Priorities

Priority	Context
Primacy for Indigenous people	Indigenous people have certain recognised rights associated with and based on the prior and continuing occupation of country and water and the activities (e.g. fishing, gathering) associated with the use and management of these.
Acknowledgement of Indigenous cultural practices	Indigenous people have the right to maintain and develop cultural practices to address spiritual, cultural, social and economic needs associated with aquatic resources and landscapes.
Self-determination of Indigenous rights to use and manage cultural assets and resources	Indigenous people have the right to determine courses of action in relation to the use and management of aquatic biological resources.
Economic development opportunities arising from Indigenous peoples' cultural assets and associated rights	Indigenous people have the right to engage in economic activity based on the use of traditional aquatic biological resources and/or the right to share in the benefits derived from aquatic biological resources.
Enhanced capacity building opportunities for Indigenous people	Indigenous people have the right to access capacity building activities to further their aspirations in the use and management of aquatic biological resources.

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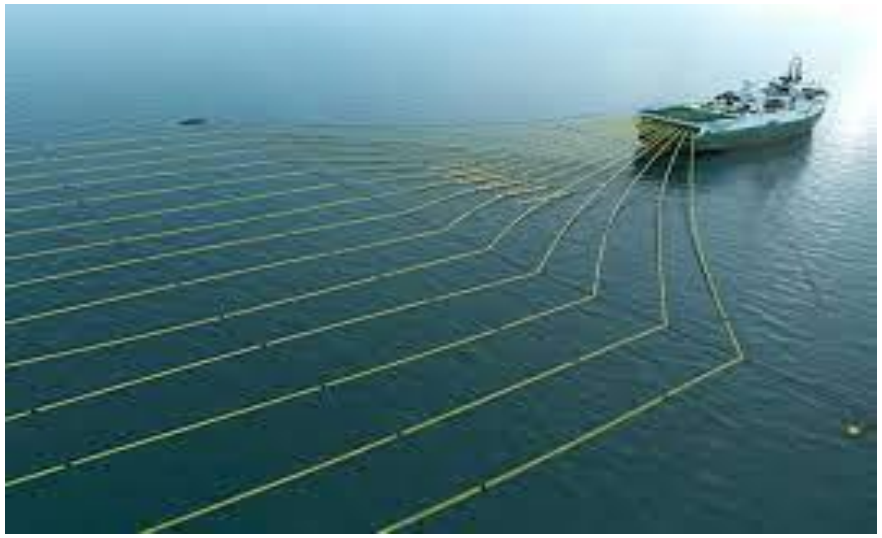
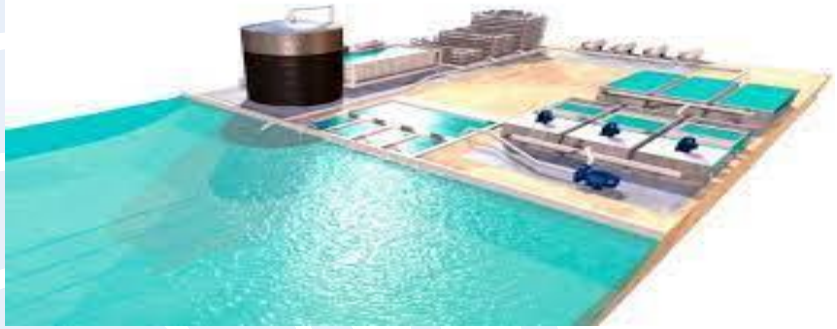
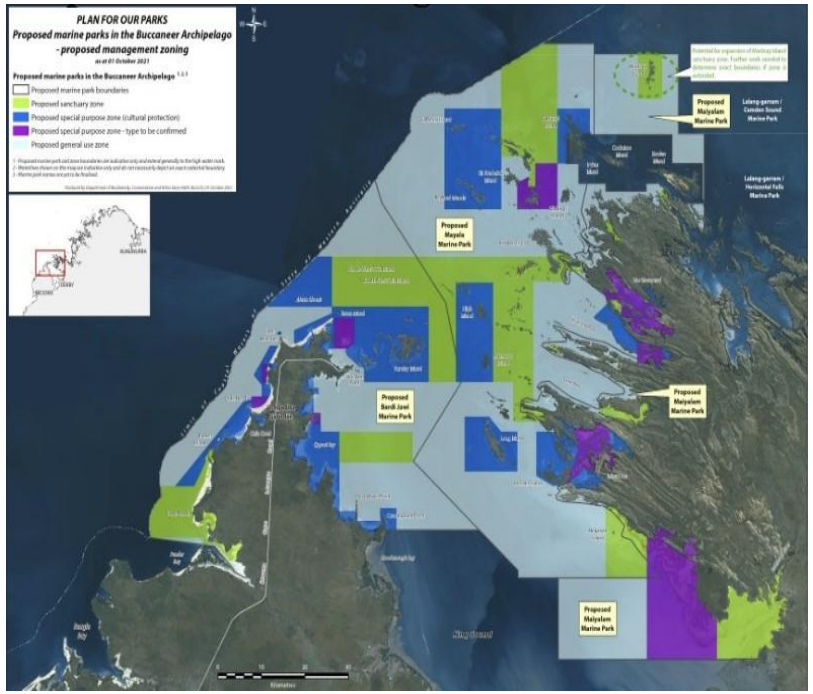
Resource access and sharing







Source: WAFIC

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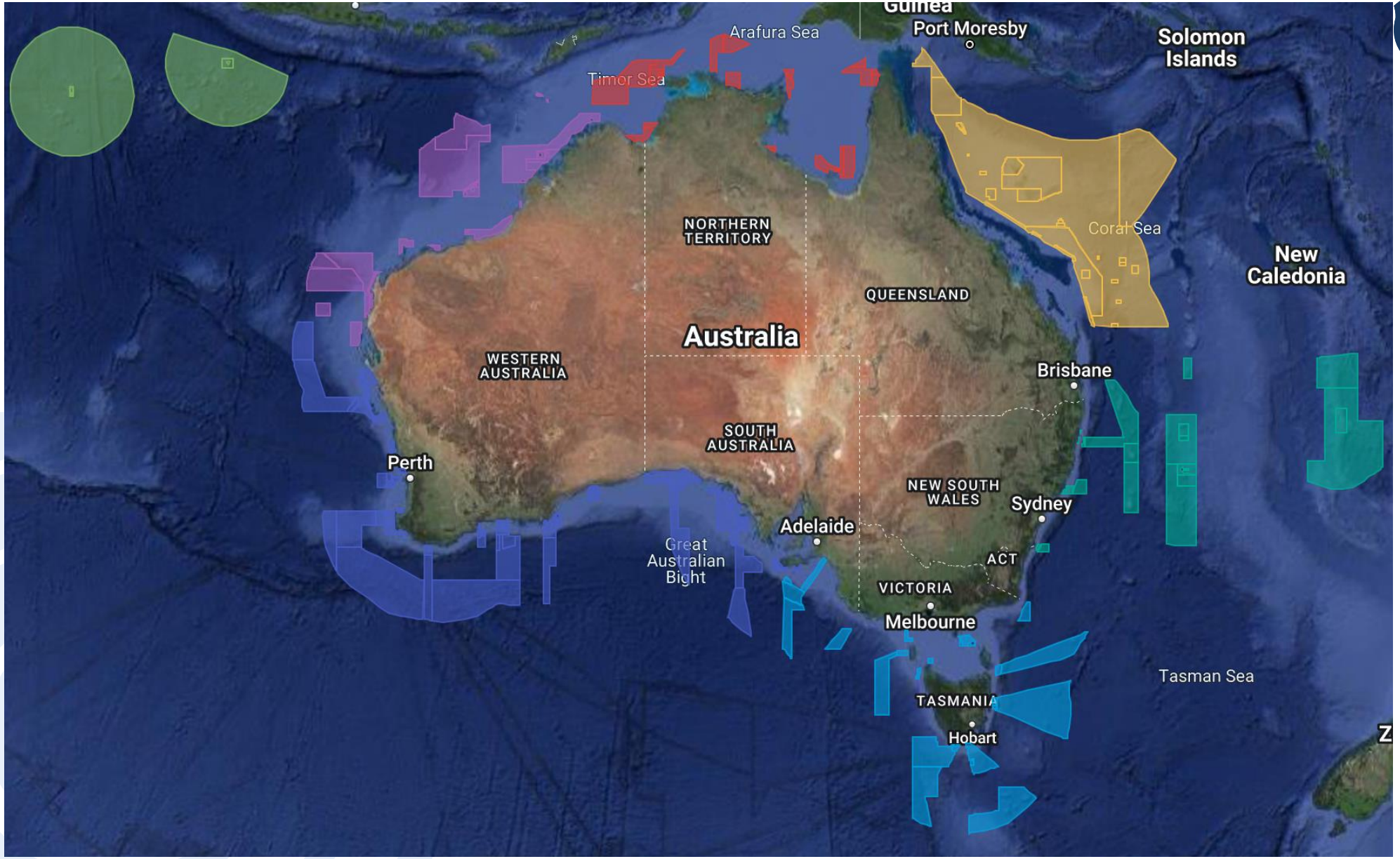

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IMPACT INNOVATION

What else?

Australia signs High Seas Biodiversity Treaty

MEDIA RELEASE | ENVIRONMENT PROTECTION | PARKS

25 September 2023

Australia has signed the new High Seas Biodiversity Treaty. Established under the framework of the Nations Convention on the Law of the Sea.

The treaty supports a coordinated approach with existing international bodies. Delivering stronger environmental protection for our ocean.

Once it enters into force, the treaty will enable the establishment of marine protected areas in the seas. Enabling us to meet our global goal of protecting 30 per cent of our earth's ocean.

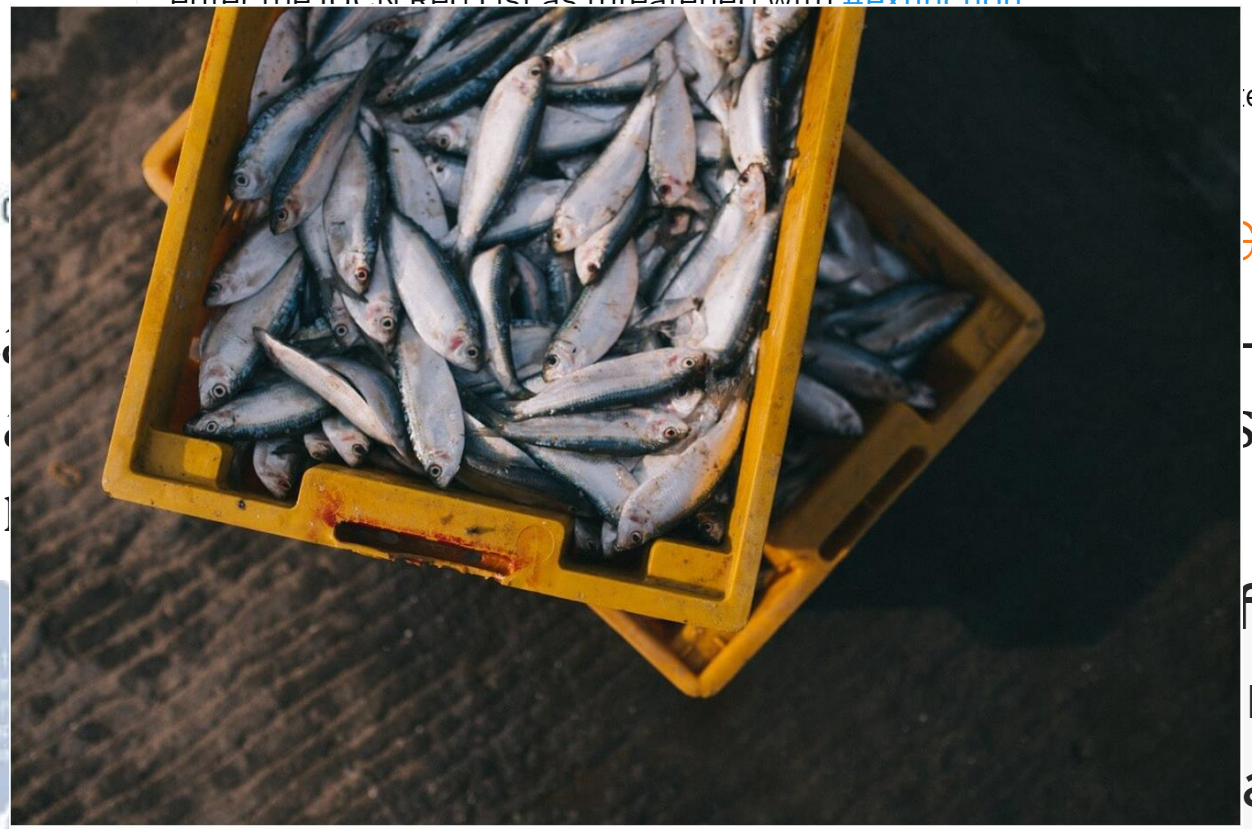
Net Zero

The Australian Government is developing a Net Zero 2050 plan, as outlined in our 2022 Annual Climate Statement to Parliament and consistent with the recommendations of the Climate Change Authority (CCA). In 2022, we legislated Australia's greenhouse gas emission targets reach Net Zero by 2050. By 2030 we aim to reach emission levels of 43% below 2005 levels.

Others

IUCN Red List
@IUCNRedList

NEWS: Populations of dugongs and 44% of all abalone shellfish species enter the IUCN Red List as threatened with #extinction



GE AND FOOD SAFETY

ffects on Aquaculture
nability Implications,
aptations

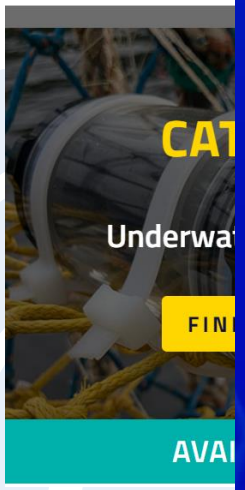
Friends, Not Food

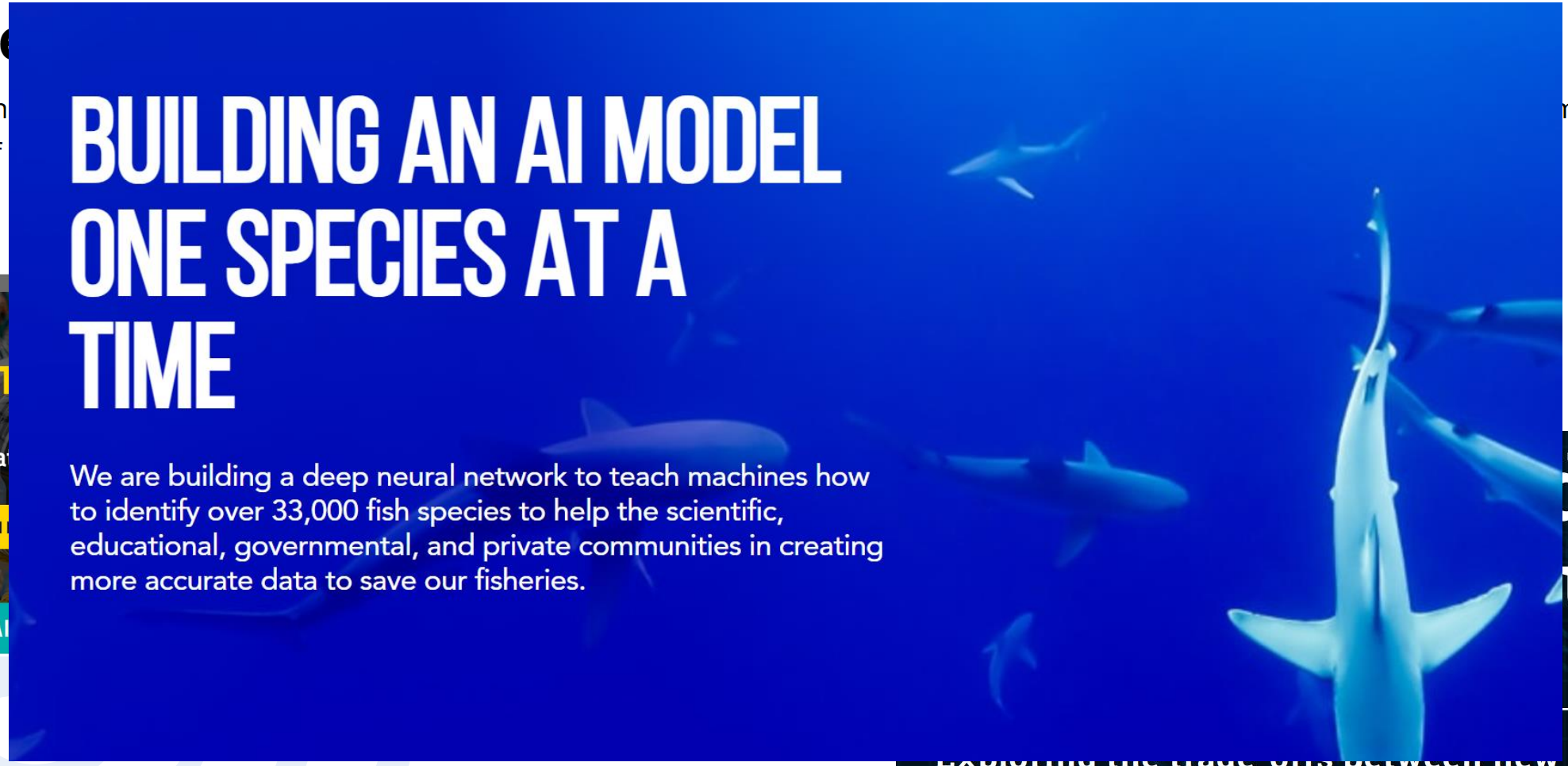
Data and Technology

RECREATIONAL FISHING DATA

Recr

NOAA Fish … n
analysis of





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ustry

… technology, mechanisation and traditional labour resourcing. September 2019.

Thank you

For more information, please visit

www.frdc.com.au

Or visit:

Evolution of FRDC

Organisation Chart

Who had a say?

Total participation by over 200 people.

Sector attendance rates (% attended/accepted)

- Commercial Wild Catch: 56%
- Recreational Fishing: 43%
- Researchers and Fishery Managers: 51%
- Youth: 30%
- Aquaculture: 52%
- Indigenous: 37%
- Other Aquatic Users: 50%

NB: A video package and an additional survey to be sent out to participants to gain any richer insights and afterthoughts.

Key Themes by Sector Grouping

Commercial Fishers:

1. Social licence
2. Easy catch data capture & digitisation
3. Resource access & security
4. Transition from diesel
5. Sustainable fishery
6. Develop alternative fishing apparatus for inshore fisheries
7. Gillnet bans
8. Queensland:
    - Inshore fin fish will nearly be all closed on January 1 2024.
    - 25% of the GBRMP is green zone
    - 2017 to 2027 sustainable fishing policy

Indigenous:

1. Net bans
2. Indigenous participation in R&D
3. Economic development
4. Cross-jurisdictional legislation
5. Resource allocation
6. Aquaculture start-up costs

Key Themes by Sector Grouping

Recreational fishers:

1. Sustainable fishery with transparent data
   - Stock Assessments must be shared
2. Sharks
3. Licensing & bag limits
4. Off-shore wind farms (spacial squeeze)
5. Fisher stewardship
   - Put FISH and Fish Habitat FIRST
6. Formation of peak bodies?
7. Engage CALD Communities interests and input

Researchers and Fishery management:

1. Social media vs science
2. By-catch
3. Traceability
4. Social licence
5. Sustainability
6. Biosecurity
7. Real-time data monitoring stocks
   - Species, size, grade, process, catch time, location
8. Compliance/ill-legal fishing
9. Whole-of-lifecycle management (including coastal habitat planning)

Key Themes by Sector Grouping

Youth:

- Social licence
- Shifting demand (age)
- Public engagement
- Succession planning
- Resistance to changing industry culture
- Marine bioproducts and circular supply chains

Aquaculture:

1. Circular economy
2. Regulatory constraints on growth
3. Carbon Neutral
4. Sustainable aquafeeds
5. Biosecurity
6. Translocation?? (off-shore)
7. Microplastics
8. Innovation leadership on costs vs imports
9. Fish kills…
10. Investment in breeding stock and lower trophic species

Key Themes by Sector Grouping

Other Aquatic Users:

- Social Equity
- Workforce retention
- Trust in science
- Trust in government
- Data collection
- Co-management with renewable energy projects
  - Declaration of renewable energy zones offshore
- Seafood Supply Security
- Co-management - co-existence - do we have the model right?

Common Issues Mapped to Shared Strategic Opportunities

#	Shared Strategic Opportunities AOP 2022-23	Sector						
		Commercial Wild Catch	Rec Fishing	Researcher & Fishery Managers	Youth	Aquaculture	Indigenous	Other Aquatic Users
1	Activate program to improve resilience of fishing and aquaculture to a changing climate	✓	✓	✓		✓		✓
2	Activate program to aid transitioning of fishing and aquaculture into a circular economy				✓	✓		
3	Investigate opportunities to optimise equitable sharing and security of access to Australia's aquatic resources	✓	✓	✓	✓		✓	✓
4	Understand and respond to threats and opportunities presented by alternative proteins							
5	Partner to increase opportunities for Indigenous communities in fishing and aquaculture					✓	✓	
6	Collaborate across agriculture, fisheries and forestry to target shared strategic issues							
7	Bring together a collective to lay foundations for successful digital transformation	✓		✓				
8	Explore opportunities to enhance national sustainability reporting	✓	✓	✓	✓	✓		
9	Initiate expanded program to build capability and capacity across fishing and aquaculture	✓			✓		✓	✓
10	Deployment of regional network to facilitate greater adoption of R&D	✓		✓			✓	

Issues in Common: Cross-species/cross-jurisdiction (NOT IN PRIORITY ORDER)

1. Off-shore wind farm renewable energy
    1. Due to there being no spatial rights considered, only quota and season
2. Social licence (NB: social media vs science)
3. Sustainable resource access and security
4. Automation of data capture, ownership and real-time sharing
5. Species population footprint shifting South
6. Flexible management of stocks across jurisdictions
7. Shared management of biosecurity risks across jurisdictions
8. Leadership pathways and succession
9. Aquatic animal welfare-based practices**
10. Microplastics**
11. **PLUS** Common themes from Your say **TODAY**

**Wildcard - Not a theme in common across sectors but still worth highlighting

Issues in Common: Cross-species/cross-jurisdiction PLUS Common themes from Your say TODAY (NOT IN PRIORITY ORDER)

1. **(Spatial Squeeze issue (includes, renewable infrastructure, ocean energy, wind farms, expansion of marine parks & aquaculture))**
2. **(Markets and economics (cost of operations, viability of supply to domestic and international markets))**
3. Social licence **(includes respect for science, microplastics**),** social media vs science)
4. **Equitable**, sustainable resource access and security **(incl Indigenous)**
5. **(Automation of data capture, digitisation, AI, ownership/sharing and real-time sharing)**
6. **(Impact of climate change and water heating (includes healthy ecosystems, species population footprint shifting South, adaptive policy making, ecosystem productivity))**
7. Leadership pathways, succession, **(training), capacity, next generation, latent workforce, and decline small fishers**)
8. Aquatic animal welfare-based **(best)** practices**
9. **Imports & COOL**
10. **Genetics/Genomics**
11. **Leveraging investment**
12. **Collaboration on biosecurity harmonisation – (Shared management of biosecurity risks across jurisdictions)**
13. **Full utilisation of product (incl value add to by-catch)**
14. **Diesel alternatives**
15. **(Flexibility in application of policy and fisheries regulation) (includes holistic management, flexible management of stocks across jurisdictions (holistic management)**

**Wildcard - Not a theme in common across sectors but still worth highlighting

Designed and developed by Impact Innovation for FRDC Stakeholder Workshop 2023

Issues in Common: Cross-species/cross-jurisdiction SELF SELECTED BY WORK GROUPS (NOT IN PRIORITY ORDER)

- **1.(Spatial Squeeze issue (includes, renewable infrastructure, ocean energy, wind farms, expansion of marine parks & aquaculture))**
- **2.(Markets and economics (cost of operations, viability of supply to domestic and international markets))**
- **4.Equitable**, sustainable resource access and security **(incl Indigenous)**
- **6.(Impact of climate change and water heating (includes healthy ecosystems, species population footprint shifting South, adaptive policy making, ecosystem productivity))**
- **7.**Leadership pathways, succession, **(training), capacity, next generation, latent workforce, and decline small fishers**)
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FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION

Annual report 2022-23

Key achievements and priorities

Stakeholder workshop 10 Oct 2023

FRDC

FISHERIES RESEARCH &
DEVELOPMENT CORPORATION

2022-23 Highlights

SNAPSHOT OF 2022–23

134
NEW PROJECTS

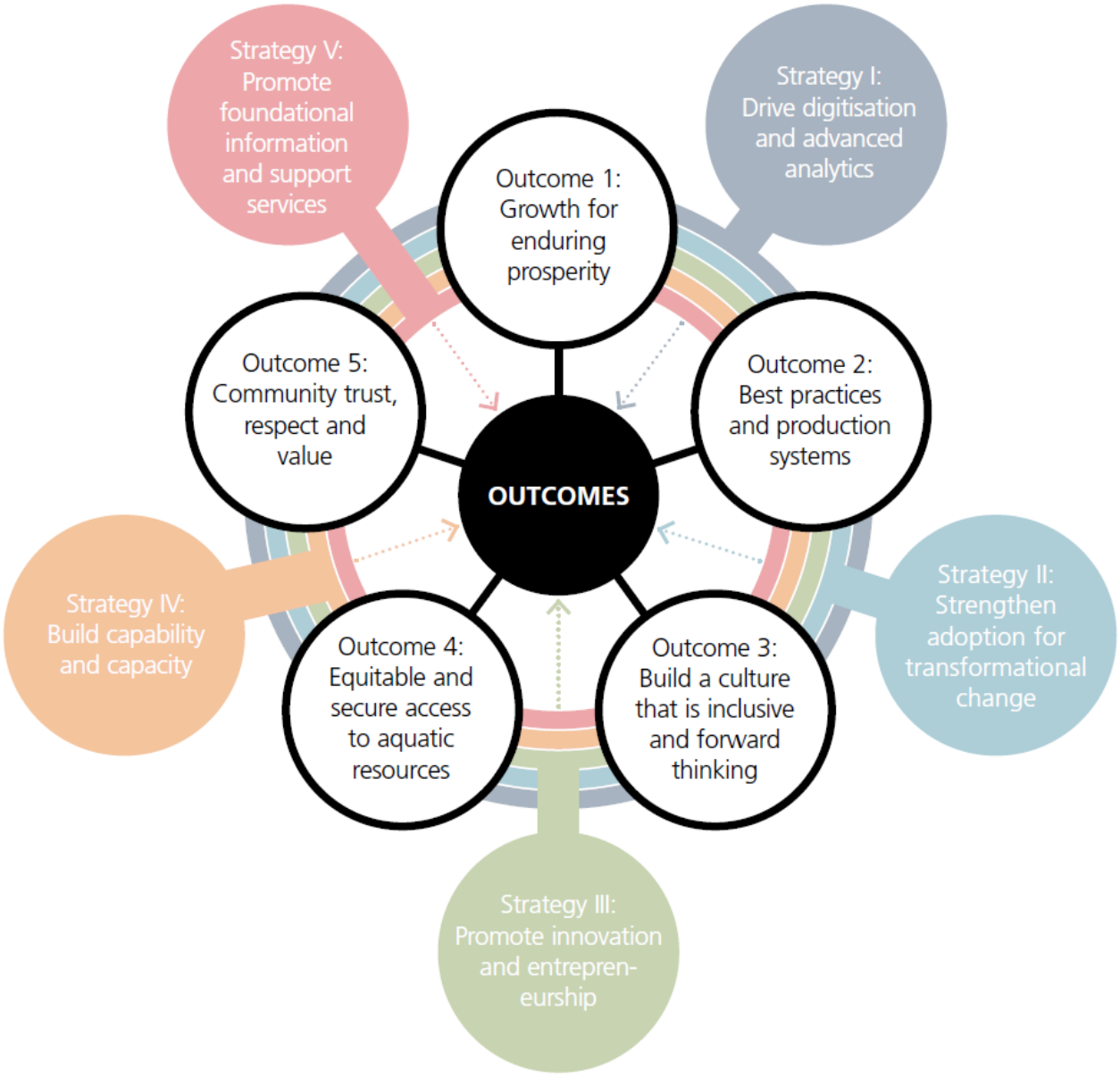
451
ACTIVE PROJECTS

70
PROJECTS COMPLETED

$33 million
INVESTED IN RD&E

Outcome 1: Growth for enduring prosperity

Enduring and balanced ecological, social and economic growth for the community benefit



The FRDC will explore opportunities to invest in, manage and promote adoption of R&D to:

- support a sustainable, efficient and effective increase in production, value and price
- guide evidence-based strategy for growth
- cost-efficient solutions for biosecurity
- designing out waste and extending lifespan of products
- economic opportunities for Indigenous communities
- understand impacts to aquatic systems and create healthy aquatic ecosystems
- identify ways to get the most benefits from aquatic systems.

Growing seaweed to reduce emissions from livestock

Project 2022-132

FRDC will administer an $8 million investment to progress seaweed research on behalf of DCCEEW and DAFF and it will be undertaken as a partnership between Australian Sustainable Seaweed Alliance, FRDC and DAFF. It is anticipated the investment will draw together public and private sector groups working to expand seaweed production in Australia, with the initial focus on the opportunities arising from the production of the red seaweed *Asparagopsis*.

Innovative nanobubble technology used in diverse production industries globally, is being evaluated for its potential to help Australian aquaculture oxygenate water

Project 2019-139

In many recirculating aquaculture systems, maintaining the optimal dissolved oxygen levels in water is an ongoing challenge. Getting it right will result in fast-growing, healthy and productive fish. Too little oxygen results in slower fish growth, reduced resilience to disease and potentially, death from hypoxia — a lack of oxygen. Paradoxically, when oxygen levels are too high it can also reduce fish health and productivity, leading to the potentially fatal gas bubble disease.

Outcome 2: Best practices and production systems

Diverse benefits from aquatic resources to be consistent with shared principles

The FRDC will explore opportunities to invest in, manage and promote adoption of R&D to:

- minimise impacts on non-target species and ecosystems
- understand and increase wellbeing, equity and safety of workers
- independent validation of sustainable practices
- improve animal welfare outcomes
- inform effective management of climate change impacts
  - explore ways to capitalise on new opportunities presented by climate change
- improved decision-making tools to respond to biological variability and increased revenue volatility and risks

Implications of plastic in seafood

Project 2021-117

Through the United Nations Environment Assembly, more than 500 organisations and 21 governments, including Australia, have signed up to commitments to change how plastic is produced, used and reused and through the creation of circular economies to keep it out of the environment.

FRDC has funded a body of research looking at the plastic issue in an Australian context, including a project focused on the potential effects and implications of plastic in seafood and its impacts for fishing and aquaculture.

Tasmania's Marine Atlas

Project 2019-111

Tasmania's marine environment is increasingly subject to varying and sometimes competing uses. As the marine environment is becoming more congested, there is a growing need to track activities and how they overlap with each other, which is why holistic marine spatial planning is becoming increasingly important. While there are many useful and valuable datasets available for fishery and aquaculture stakeholders, they are often not easily accessible. Tasmania's Marine Atlas aims to address these issues by collating and integrating this data into a format that makes it easier to find and understand the available information.

Outcome 3: A culture that is inclusive and forward thinking

A fishing and aquaculture community that is cooperative, diverse and well equipped to enable growth and adaptability in a complex and uncertain world.

The FRDC will explore opportunities to invest in, manage and promote adoption of R&D to:

- understand and address factors that hold back positive cultural and behavioural change
- promote greater inclusiveness, creative thought and solution seeking
- encourage openness to new ideas, approaches and ways of thinking and behaving
- strengthen collaboration across sectors

Maintaining cultural practices and building knowledge and capacity to support sustainable fishing of the Gynburra on Narungga Sea Country

Project 2021-050

Work has begun on a project to capture cultural and scientific knowledge on iconic fish species of the Narungga people the Traditional Owners of Guuranda, South Australia's Yorke Peninsula. The project focused on the Gynburra, also known as the Dusky Morwong or Butterfish, and is being led by Garry Goldsmith in collaboration with his community on Guuranda and by Dr Paul Rogers from Southern Fishery and Ecosystem Solutions. The Narungga community are known as the Butterfish Mob because Narungga men traditionally waded in the incoming tide and attracted Gynburra by stirring up sediments of sand.

A wide cross-section of Australia's fishing communities come together to address shark depredation

Projects 2021-111 and 2021-038

Reports of shark depredation on fishing operations have been increasing, to the extent that commercial, charter and recreational fishers reached out for help. In response, FRDC held two national workshops over the past year. These workshops aimed to assess the scale of shark depredation and explore mitigation options.

Outcome 4: Fair and secure access to aquatic resources

Integrated management of Australia's aquatic resources, providing certainty and confidence

The FRDC will explore opportunities to invest in, manage and promote adoption of R&D to:

- support increasingly integrated and effective management
- promote development and adoption of management measures that are well suited for resilience to change, including:
  - harvest strategies
  - flexible spatial arrangements & decision-making tools
  - management approaches that aim for fairness
  - participative management

National social and economic survey of recreational fishers

Project 2018-161

The release of the National Social and Economic Recreational Fishing Survey, highlighted the positive economic and health benefits of recreational fishing for Australians. Delivered in partnership with the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Executive Director Dr Jared Greenville says the survey provides a current picture of recreational fishing in Australia, including information on participation rates, as well as the contribution to the economy and society.

Seafood, community and connection to Country

Projects 2019-143 and 2015-205

Diminishing opportunities for the exchange of traditional knowledge within local communities is a significant barrier to connecting people with seafood and its broader benefits. Researcher at Monash University, Beau Cubillo worked on a project to investigate Indigenous values to support the development of Indigenous fisheries. Beau is a Larrakia
and Wadjigan Aboriginal man from the Northern Territory, and says an Indigenous perspective is central to the research that has involved close collaboration with the Maningrida Traditional Owners, Bawinanga Aboriginal Corporation and both Monash and Charles Darwin universities.

Outcome 5: Community trust, respect and value

People feel good about using the products, services and experiences provided by fishing and aquaculture

The FRDC will explore opportunities to invest in, manage and promote adoption of R&D to:

- motivate collective action towards a shared vision
- nurture relationships between stakeholders and community
- encourage practices aligning with community expectations
- assist fair distribution of economic and societal benefits
- improve seafood traceability and integrity from capture through to end user

Community Trust in Rural Industries — a cross-RDC initiative

Project 2019-042

FRDC has been one of the partners in the Community Trust in Rural Industries (CTRI) collaborative project, run by AgriFutures and funded by the rural RDCs. The third and final year of this program of work delivered deeper insights into the pathways to community trust and acceptance for Australia's farmers, fishers and foresters. With 4969 surveys of Australian citizens included in the Year Three analysis and 19,194 participating in the three annual surveys since 2019, this program represented a significant dataset of community attitudes toward rural industries.

Indigenous brands attract price premiums, strengthen communities and create employment opportunities

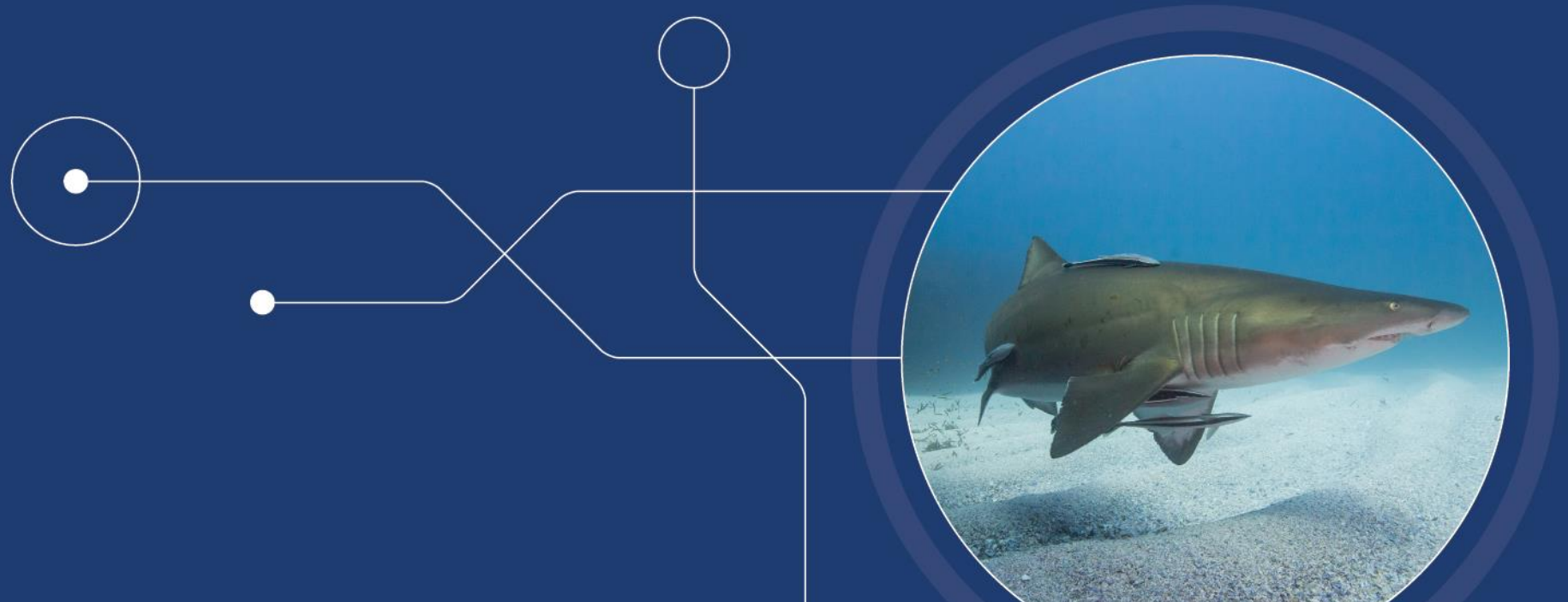
Projects 2020-121 and 2016-244

With the growing involvement of Indigenous fishers and their communities in Australia's commercial seafood sector, there has also been growing interest in the economic benefits of creating Indigenous seafood brands. To better understand branding opportunities, FRDC commissioned market research to assess existing Indigenous food brands in Australia and overseas. Researcher Ewan Colquhoun, from Ridge Partners, initially identified 55 businesses with 69 brands in Australia, New Zealand, the United States and Canada, for assessment. Of the 24 enterprises assessed in detail, 13 acknowledged economic benefits from Indigenous branding, primarily through increased sales. Longer established enterprises also reported higher prices and increased profit margins.

Progress against the R&D Plan and Annual Operating Plan

2022-23

FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION



Outcomes	Enabling strategies
Outcome 1: Growth for enduring prosperity	Strategy I: Drive digitalisation and advanced analytics
Outcome 2: Best practices and production systems	Strategy II: Strengthen adoption for transformative change
Outcome 3: A culture that is inclusive and forward thinking	Strategy III: Promote innovation and entrepreneurship
Outcome 4: Fair and secure access to aquatic resources	Strategy IV: Build capability and capacity
Outcome 5: Community trust respect and value	Strategy V: Provide foundational information and support services

		Outcome	Strategy
1.	Activate a program to improve resilience of fishing and aquaculture to a changing climate.	1 2 3 4 5	I II III IV V
2.	Activate a program to aid transitioning fishing and aquaculture into a circular economy.	1 2 3 5	I III IV
3.	Investigate opportunities to optimise equitable sharing and security of access to Australia's aquatic resources.	3 4 5	
4.	Understand and respond to threats and opportunities presented by alternative proteins.	1 3 5	III IV
5.	Partner to increase opportunities for Indigenous communities in fishing and aquaculture.	1 2 3 5	I III IV
6.	Collaborate across agriculture, fisheries and forestry to target shared strategic issues.	1 2 3 4 5	I II III IV V
7.	Bring together a collective to lay the foundations for successful digital transformation.	1 2 3 4 5	I
8.	Explore opportunities to enhance national sustainability reporting.	1 2 3 4 5	V
9.	Initiate an expanded program to build capability and capacity across fishing and aquaculture.	1 2 3 4 5	IV
10.	Deploy a regional network to facilitate greater adoption of R&D.	1 2 3 4 5	II

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1. Activate program to improve resilience of fishing and aquaculture to a **changing climate**

1. Build awareness of risks and opportunities
2. Establish baseline of GHG emission performance
3. Build capability and capacity to trial solutions (alt. fuels, renewable energy solutions etc)
4. Drive adoption/commercialisation of scalable options
5. Upscale stewardship targeting preservation end enhancement of natural systems incl. ‘blue carbon’
6. Facilitate development of a plan outlining critical steps towards neutrality
7. Track what’s working, what’s not working, and adapt
8. Tell the story of fishing and aquaculture’s efforts towards achieving neutrality

BACK

2. Activate program to aid transitioning of fishing and aquaculture into a circular economy

1. Quantify the size of the opportunity afforded by more circular flow of materials across fishing and aquaculture, and showcase success stories.

2. Provide support for enterprises and entities across fishing and aquaculture sectors to identify circular economy opportunities in their context.

3. Trial and scale solutions to convert waste into value.

4. Track what's working, what's not working, and adapt

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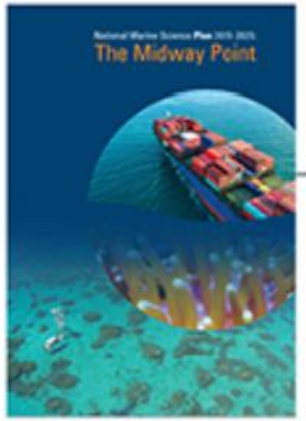
Strategic and sustained cross-sector and cross-industry collaboration



Marine and Coastal

National Environmental Science Program

AGRICULTURAL INNOVATION AUSTRALIA

grow AG.

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

SUSTAINABLE DEVELOPMENT GOALS

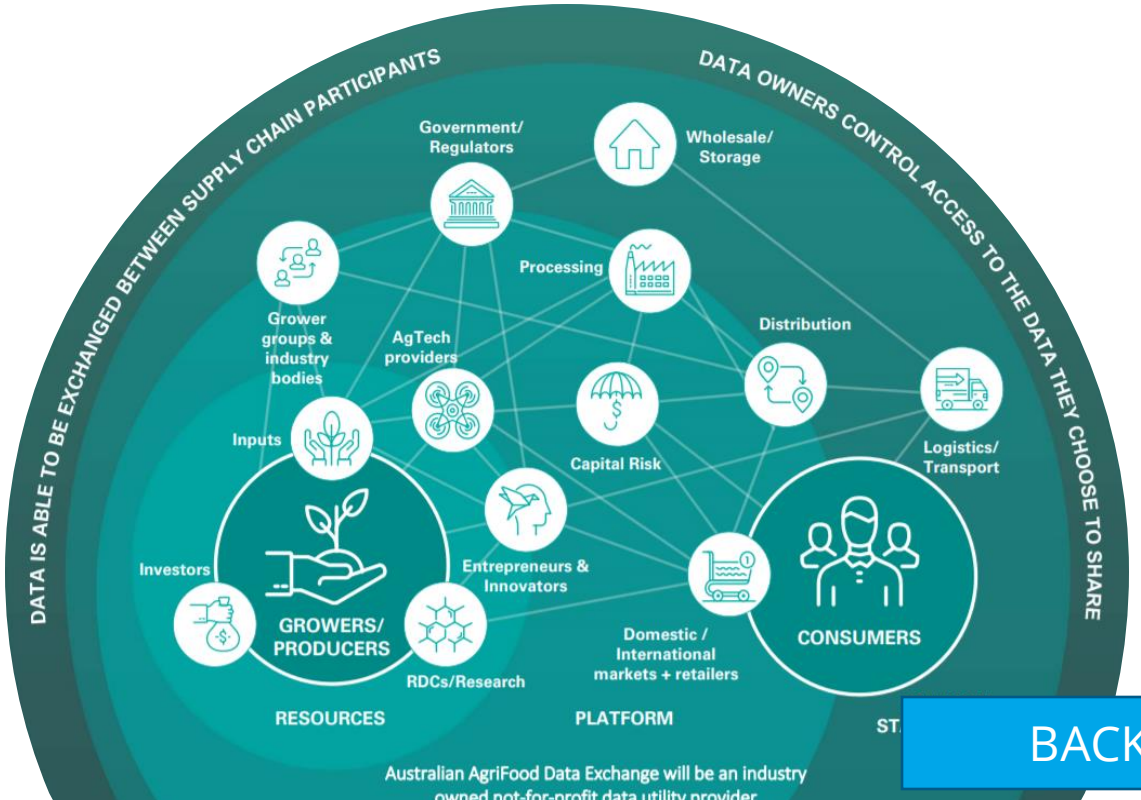
FRDC

7. Bring together a collective to lay foundations for successful digital transformation

Australian Agrifood Data Exchange

- Partnership led by KPMG and Meat & Livestock Australia (MLA)
- Overall goal is for an interconnected data highway to allow sharing, re-using and combining data.
- Seeks to leverage technology across supply chains to maintain domestic and global competitiveness.
- Case study with Western Rock Lobster to demonstrate value able to be unlocked.
- Outcomes from this work will include:
  - End-to-end visibility of product movement across supply chain
  - Increased confidence in product supply
  - Reputational brand enhancement leading to fair return for product
  - Refined understanding of opportunities for product value optimisation

"It is estimated that the unconstrained application of technology across the agricultural sector could see savings of $7 billion from automation, and gains of $3B from genetic enhancements, $2B from tailoring inputs, and $1B from improvements to market access and biosecurity"



BACK

8. Explore opportunities to enhance national sustainability reporting

- Completing the 6th edition of the Status of Australian Fish Stocks
  - Anticipating not many new species
  - Looking to move sustainable criteria from limit reference point to target reference point
  - How do we assess enhanced stocks
  - Building in equivalence with other reporting systems
  - Discussing qualitative assessments in a quantitative report

- Progressing a "broader than stock" risk assessment tool
  - Partnering with Seafood NZ & the Deepwater Group
  - Assesses broader environmental risks and fisheries management
  - Expand to consider climate, plastics, carbon, labour, Welfare

- Exploring Carbon-based and Nature-based Financial Disclosure frameworks and processes

- Next - Sustainability context, financial and other opportunities with sustainability reporting, capability and capacity building

BACK

9. Initiate expanded program to build capability and capacity across fishing and aquaculture

1. Determine workforce and capability / capacity needs
2. Tools and resources to connect and support
3. Attract and retain great people
4. Connect and collaborate to drive meaningful change
5. Grow and nurture diverse people to thrive in uncertainty
6. Innovate, learn and adapt

BACK

10. Deployment of regional network to facilitate greater R&D adoption

- Responds to a need to maximise value from our R&D investment through improving extension for adoption.
- New network of 7 Extension officers across Australia.
- Connecting with end users of R&D to improve impact.
- Working independently across all FRDC stakeholders.
- Extension officers will support priority setting processes.
- Working on focussed strategic issues consistent with the FRDC Strategic Plan and the needs of each region.
- Advising researchers on best practise extension leading to more impact with research.
- Connecting end users to come up with R&D ideas

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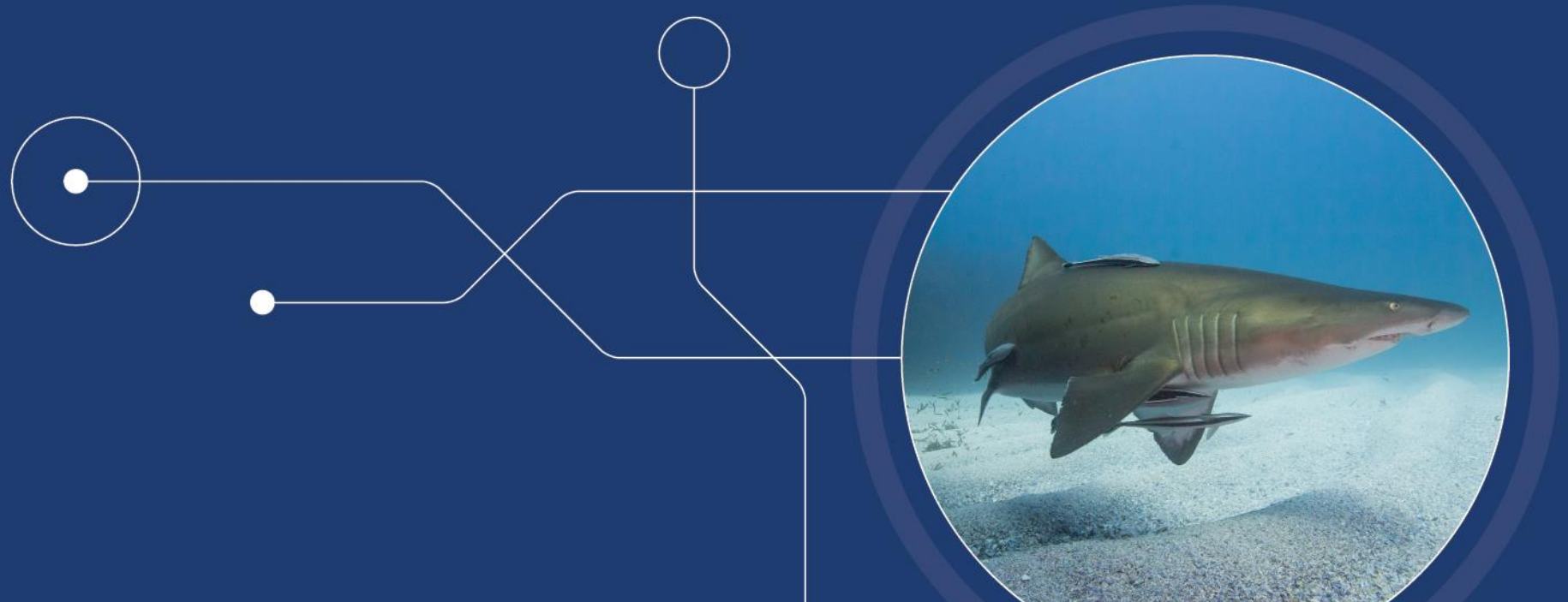
Stakeholder survey results and actions

2022-23

FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION



Who we spoke to

- ✓ Aquaculture
- ✓ Commercial wild catch
- ✓ Indigenous
- ✓ Recreational fishers
- ✓ Exporters/importers
- ✓ Processors

- ✓ Federal Government
- ✓ State Governments
- ✓ Fisheries managers
- ✓ National resource managers

- ✓ Universities
- ✓ TAFEs
- ✓ Government fisheries organisations
- ✓ International research organisations
- ✓ Private sector researchers

- ✓ The Australian community (inclusive of age, gender, geography)
- ✓ Seafood consumers
- ✓ Non-seafood consumers

What we measured. . . .

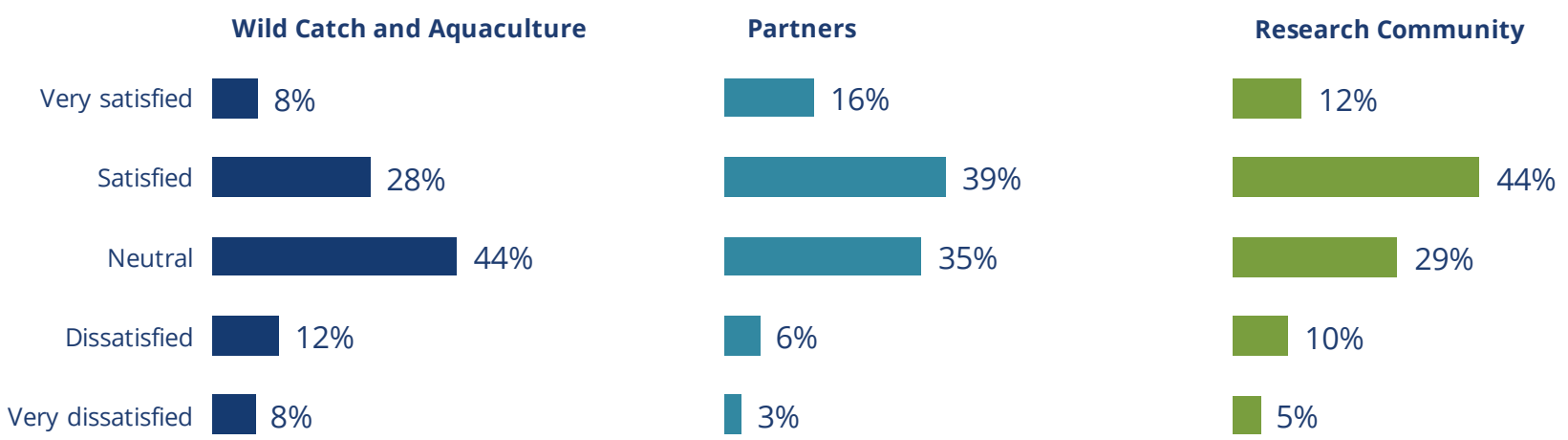
Indicator (as per Monitoring and Evaluation Framework)		*Target*
KPI 1	Stakeholders report that they value FRDC services highly	*70%*
KPI 2	Stakeholders report that they value FRDC highly	*70%*
KPI 3	Stakeholders report that they value FRDC extension and adoption	*50%*
KPI 4	Of levy payers who participate in RDC supported extension and adoption programs: -the majority (over half) intend to make or have made changes to existing practices by adopting the outcomes of R&D	*50%*
KPI 5	Transparent communication to stakeholders (including government) on the impacts and benefits of the RD&E (and marketing) activities	*No target*

Include diagnostic measures to assist in interpretation and in providing directions for improving KPI outcomes.

Satisfaction with FRDC investment

"How satisfied are you that financial contributions from industry and Government to FRDC are being invested wisely and for the benefit of both the fishing and aquaculture sectors and the Australian community?

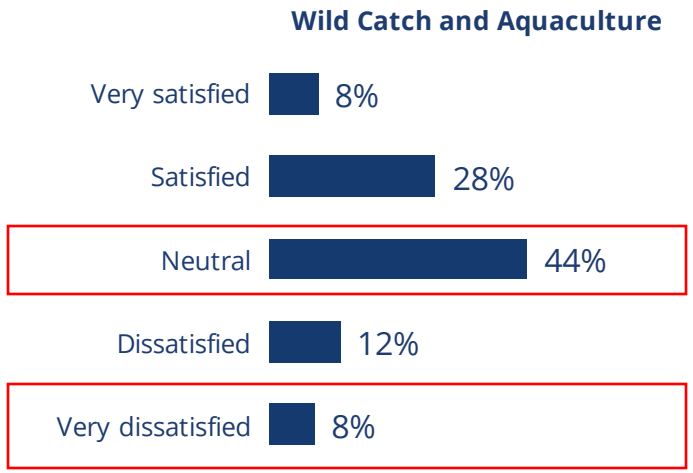
KPI 2
% very satisfied
+ satisfied



Satisfaction with FRDC investment

KPI 2
% very satisfied
+ satisfied

37%



The 'neutral' cohort should be the focus for strengthening the KPI outcome.

Analysis indicates 'soft' levels of engagement.

The dissatisfied group are typically a challenging cohort to shift.

Long game.

FRDC engages in different ways

FRDC 'services'

- ✓ Australian Fisheries Statistics
- ✓ Fish Names
- ✓ Status of Australian Fish Stock (SAFs)
- ✓ ++++

FRDC sponsored Capability and Capacity Building activities

- ✓ Women in Seafood Australasia program (WISA)
- ✓ National Seafood Industry Leadership Program (NSILP)
- ✓ Australian Rural Leadership Program (ARLP)

FRDC R&D extension events

- ✓ Conferences (Seafood Directions, World Fisheries Congress, etc.)
- ✓ Face-to-face meetings
- ✓ Discussion groups

FRDC Extension Officer Network

Direct communication with FRDC staff

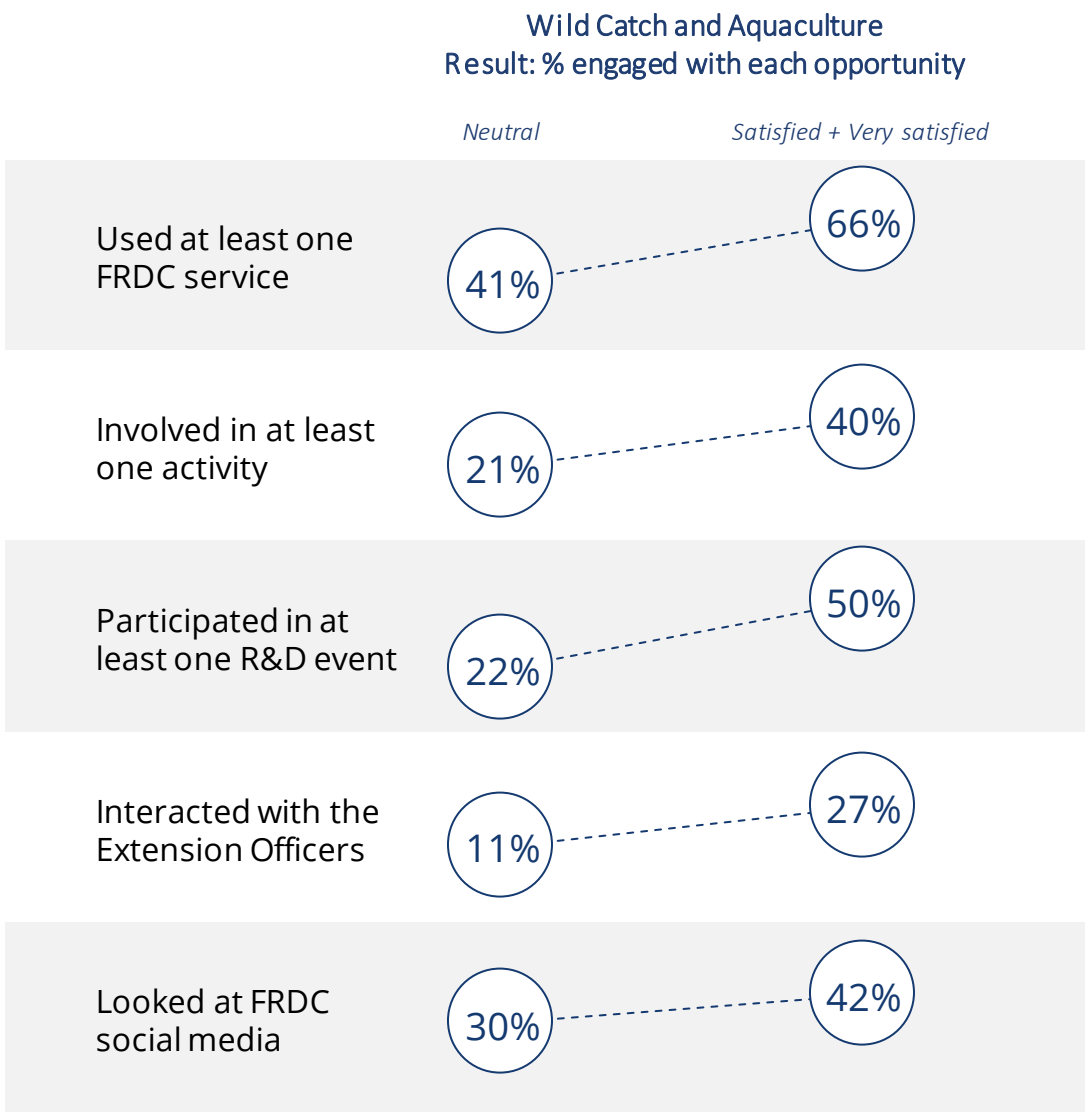
FRDC comms

- ✓ E-newsletters
- ✓ Media
- ✓ Website

FRDC social media

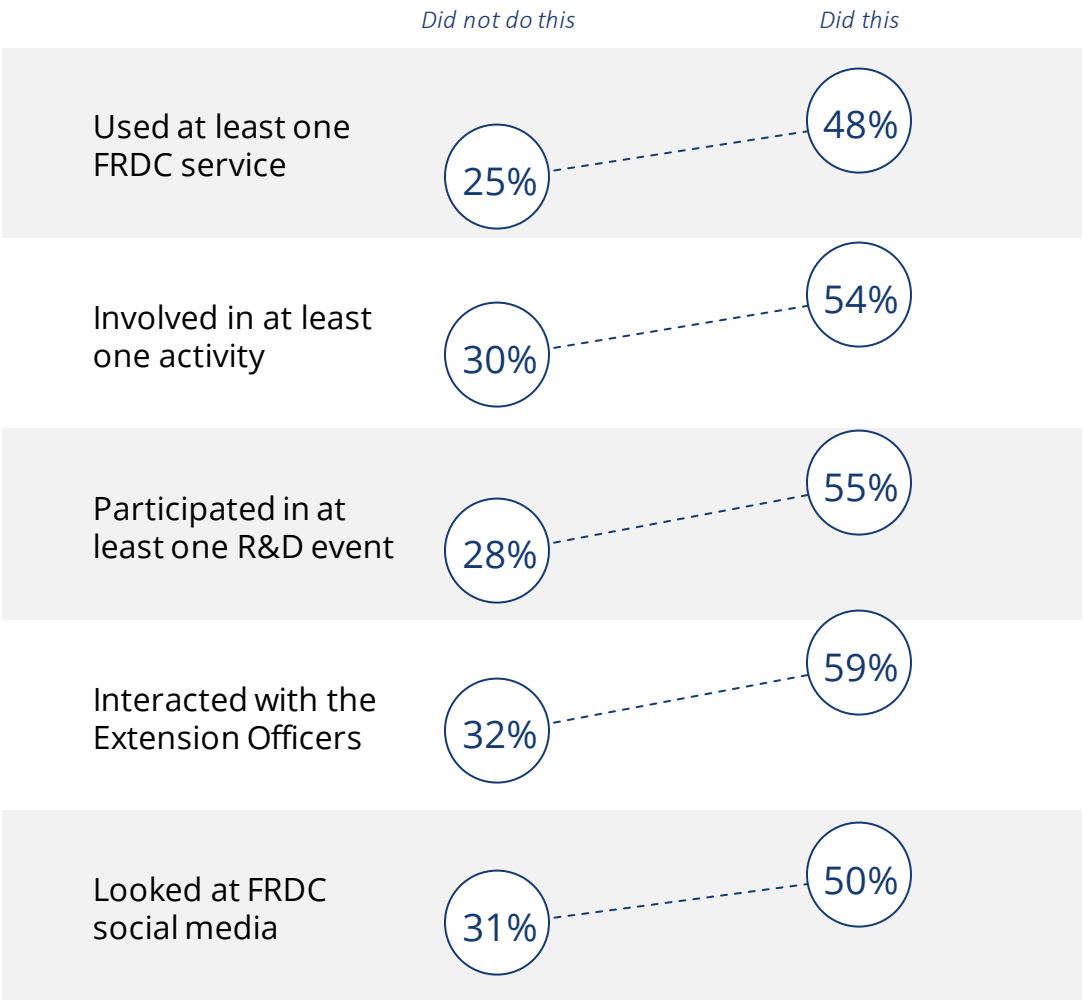
- ✓ FRDC Facebook
- ✓ FRDC LinkedIn
- ✓ FRDC Twitter

FRDC engages in different ways



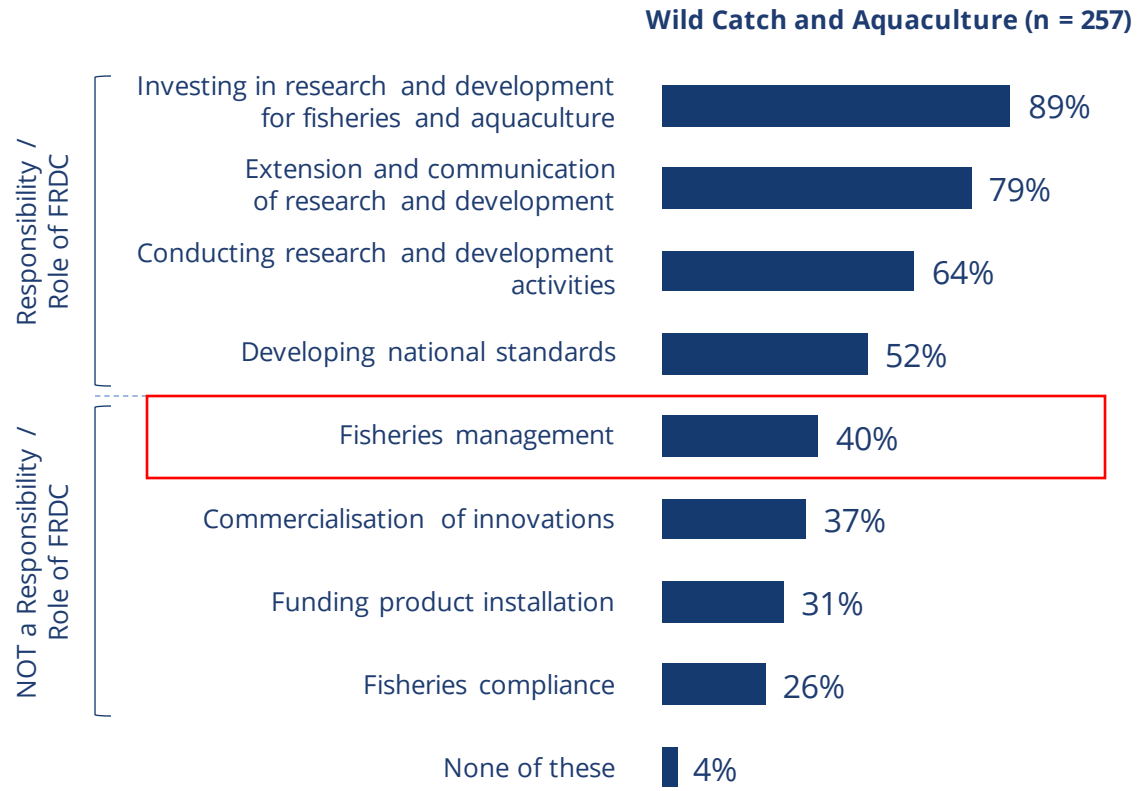
Deeper engagement is correlated with stronger satisfaction

Wild Catch and Aquaculture
Result: % very satisfied + satisfied with FRDC investment



Perception of FRDC roles and responsibilities

"Based on what you understand, which of the following does FRDC have responsibility for or play a role in?"

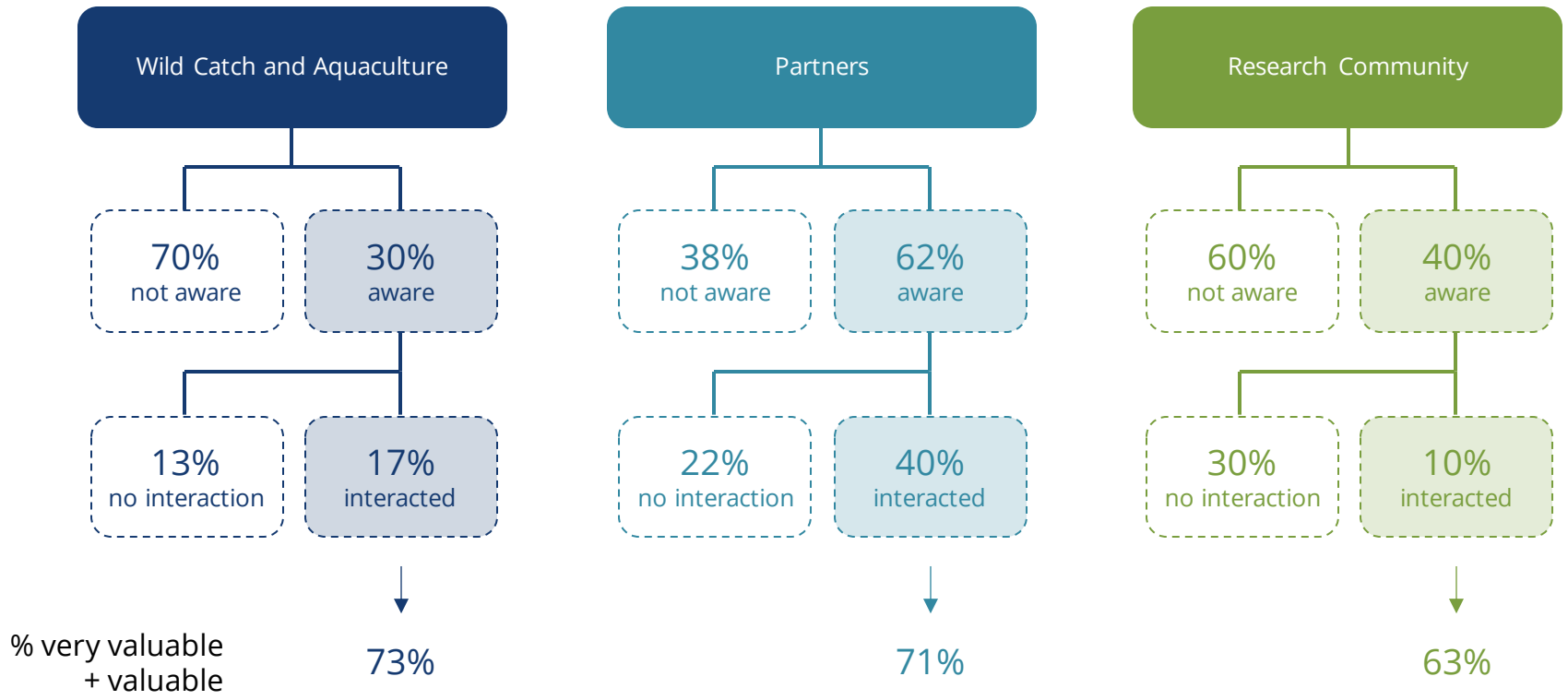


93%
Recalled at least one "correct" responsibility / role

61%
Recalled at least one "incorrect" responsibility / role

The Extension Officer Network

Awareness and interactions with FRDC Extension Officers



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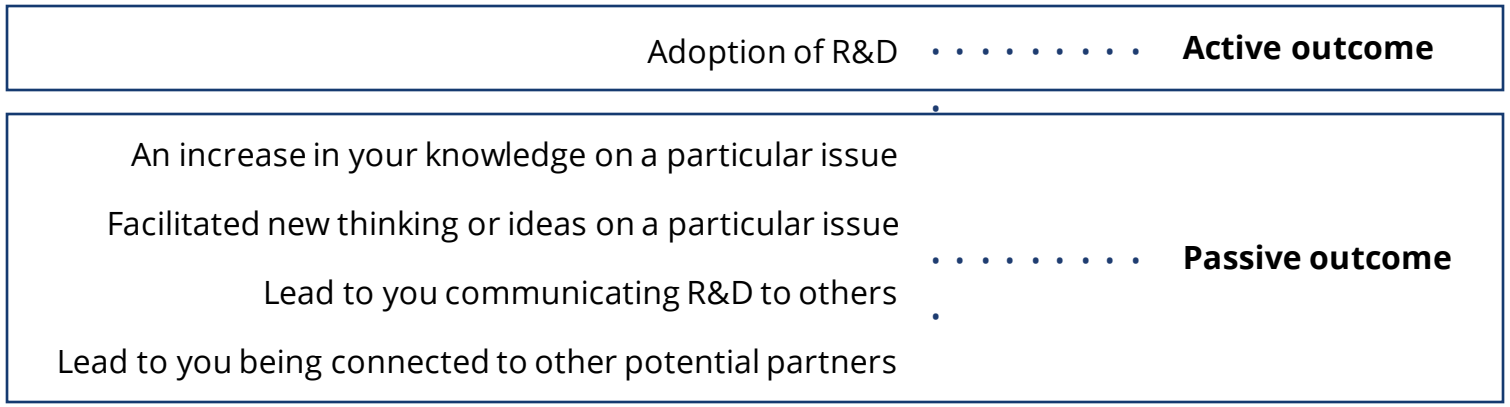
Outcomes of FRDC engagement

A key 'end game' focus is about supporting practice change……. on boat and on shore

We measured some signals. . . . .



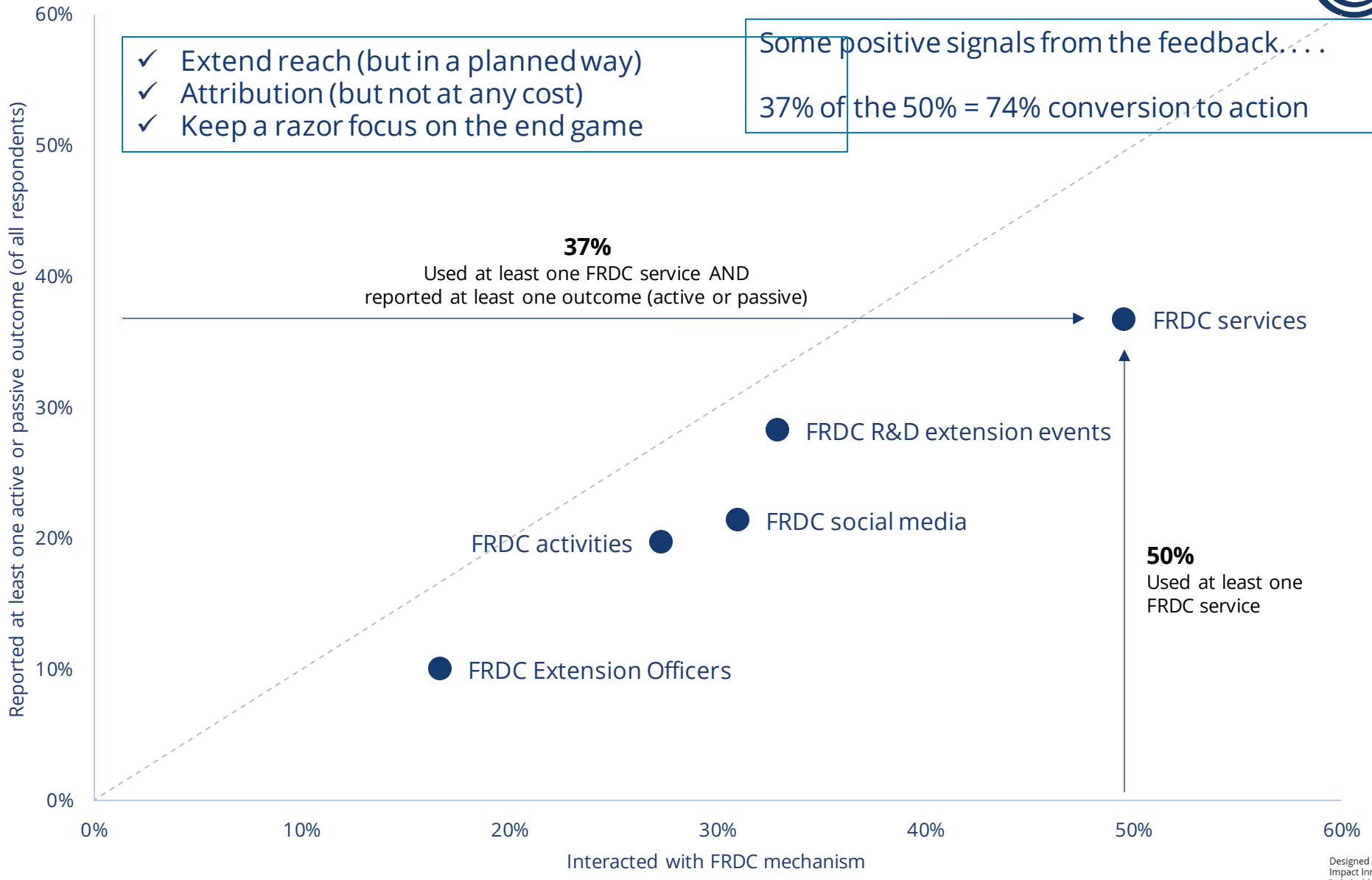
Outcomes of FRDC engagement

Looking ahead. . . . .

- ✓ Extend reach (but in a planned way)
- ✓ Attribution (but not at any cost)
- ✓ Keep a razor focus on the end game

Some positive signals from the feedback. . . .

37% of the 50% = 74% conversion to action



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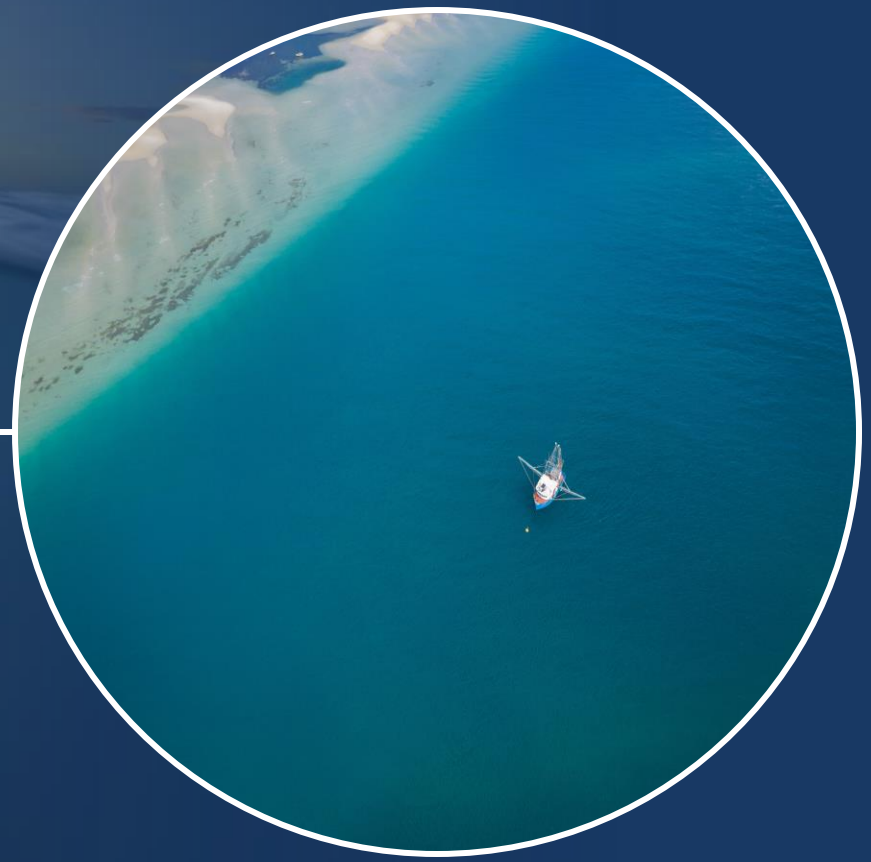
Actions from 2022 Workshop

October 2023 Crispian Ashby



frdc.com.au

What we heard	What we're doing
How can we continue to build capacity of RAC members to help them excel in their role?	Investing to help build capability of our advisory committees in use of impact pathway thinking to identify priorities
Can FRDC provide more information on investments against contributions?	New reporting process back to advisory committees clarifying their return on investment
Engage RAC members with relevant expertise in application review process	Increasingly utilising RAC members as external reviewers
Better communication on priorities (including projects relevant but not created by RAC)	Priorities to be circulated earlier and providing summaries of applications
How might we increase cooperation between IPAs?	New investment approach to incentivise co-investment on shared national opportunities
Options being considered with regards to timing of AGVP calculation	Working with DAFF to improving the AGVP calculation and timing
Improve process for programmatic investments	Increasing number of programmatic investments and revising as we learn through improving governance and streamlining processes

What we heard	What we're doing
We need ways to fast-track shorter, agile and staged investments	Adoption of alternative application types to reduce transaction time and costs, new milestone template to speed up project delivery, and a new tactical investment approach
Ensure all project assets are available, not just reports	Increasing end user engagement in the milestone process. Products associated with projects available on web.
Can we investigate digital approaches to help communicate the intent of priorities	Webinars held for the last call for investment opportunities to explain the intent of priorities. Future webinars planned
Can FRDC scope development of dedicated dashboards to give our partners a 'window' into FRDC's systems?	Trial underway with Western Rock Lobster before wider implementation
FRDC needs to increase awareness of the services currently available	FRDC's Extension Officer Network and Communications Team are working to increase the profile of our service offerings and explain how they help.
How to implement an enhanced Sustainability Framework for fishing and aquaculture?	Action committed under 2023-24 AOP
How can FRDC stakeholders gain maximum value from historical R&D investments?	FRDC developing synthesis of historical R&D in key areas identified from stakeholder needs from discussions with extension officers

Thank you

For more information, please visit

www.frdc.com.au

Or visit:

Evolution of FRDC

Organisation Chart

Reflection on Updates. What do you think?

Switching across to Mentimeter:

Go to

www.menti.com

Enter the code

5151 6174

Or scan the QR code

Innovation Mindset and Tools for Impact (Part 1)

Overview

- A short history of modern innovation and new ways of thinking.
- Introduction of innovation tools and frameworks.
- Change is difficult.
- Application of these approaches to collaboration.
- Focusing on R&D sector outputs:
  - Information, data and knowledge to inform policy, decision-making, and practice change.
  - New products and services.

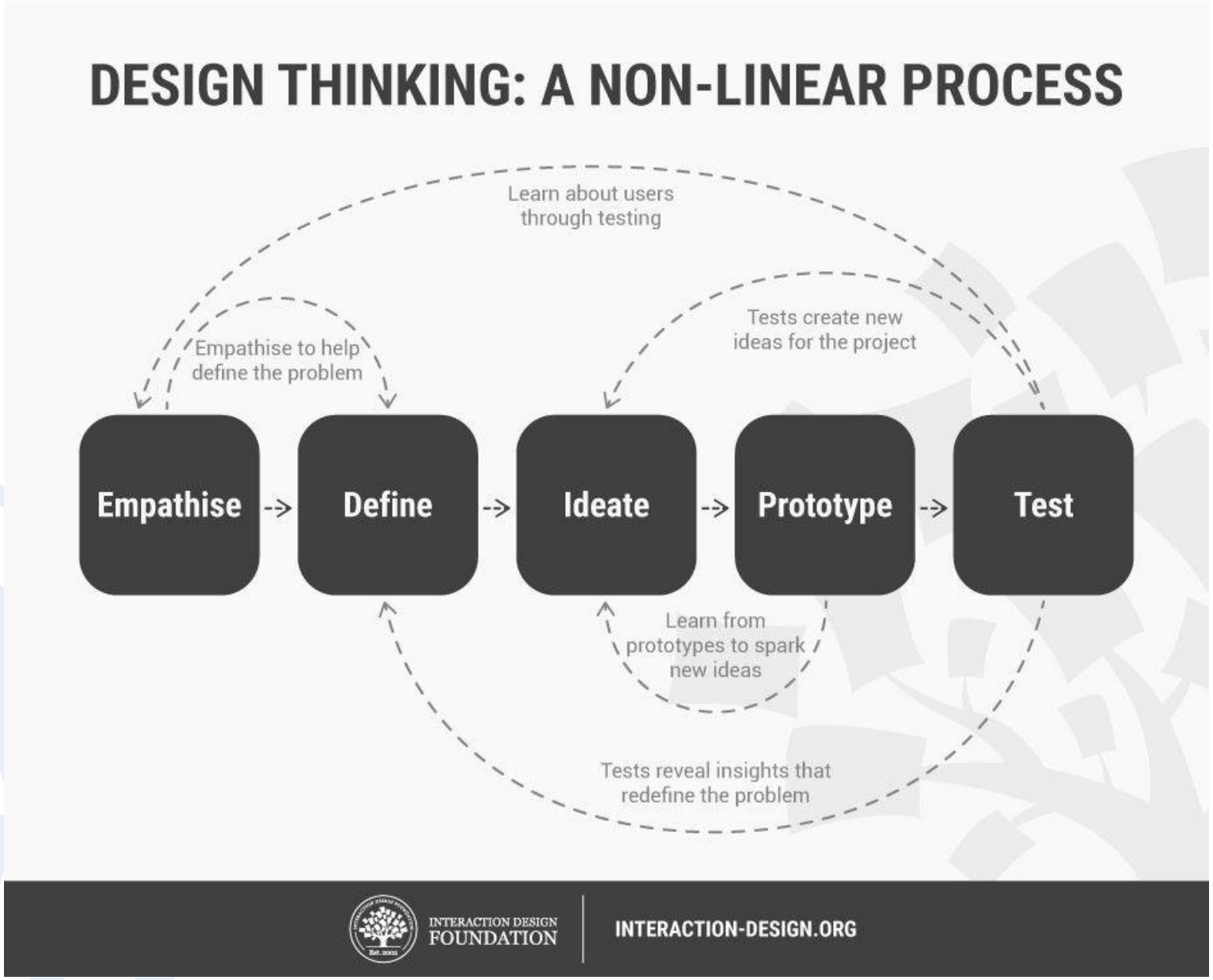
"Unless you have tested the assumptions in your business model first, outside the building, your business plan is just creative writing."
- Steve Blank

https://steveblank.com/

"THE MOVEMENT THAT IS TRANSFORMING HOW NEW PRODUCTS ARE BUILT AND LAUNCHED"

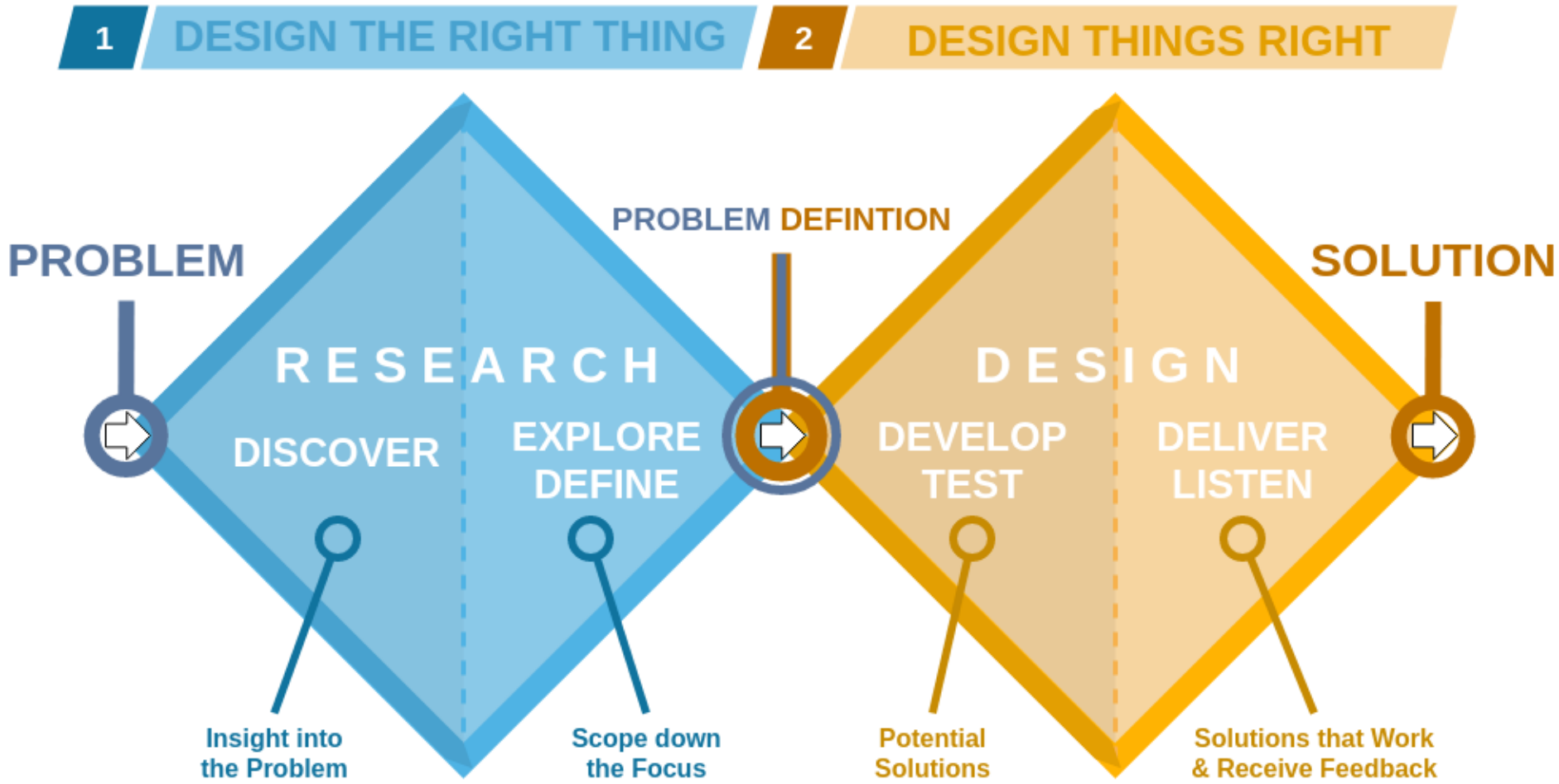
https://theleanstartup.com/

DESIGN THINKING: A NON-LINEAR PROCESS



Transition from Problems to Solutions

Design Thinking Double Diamond Diagram



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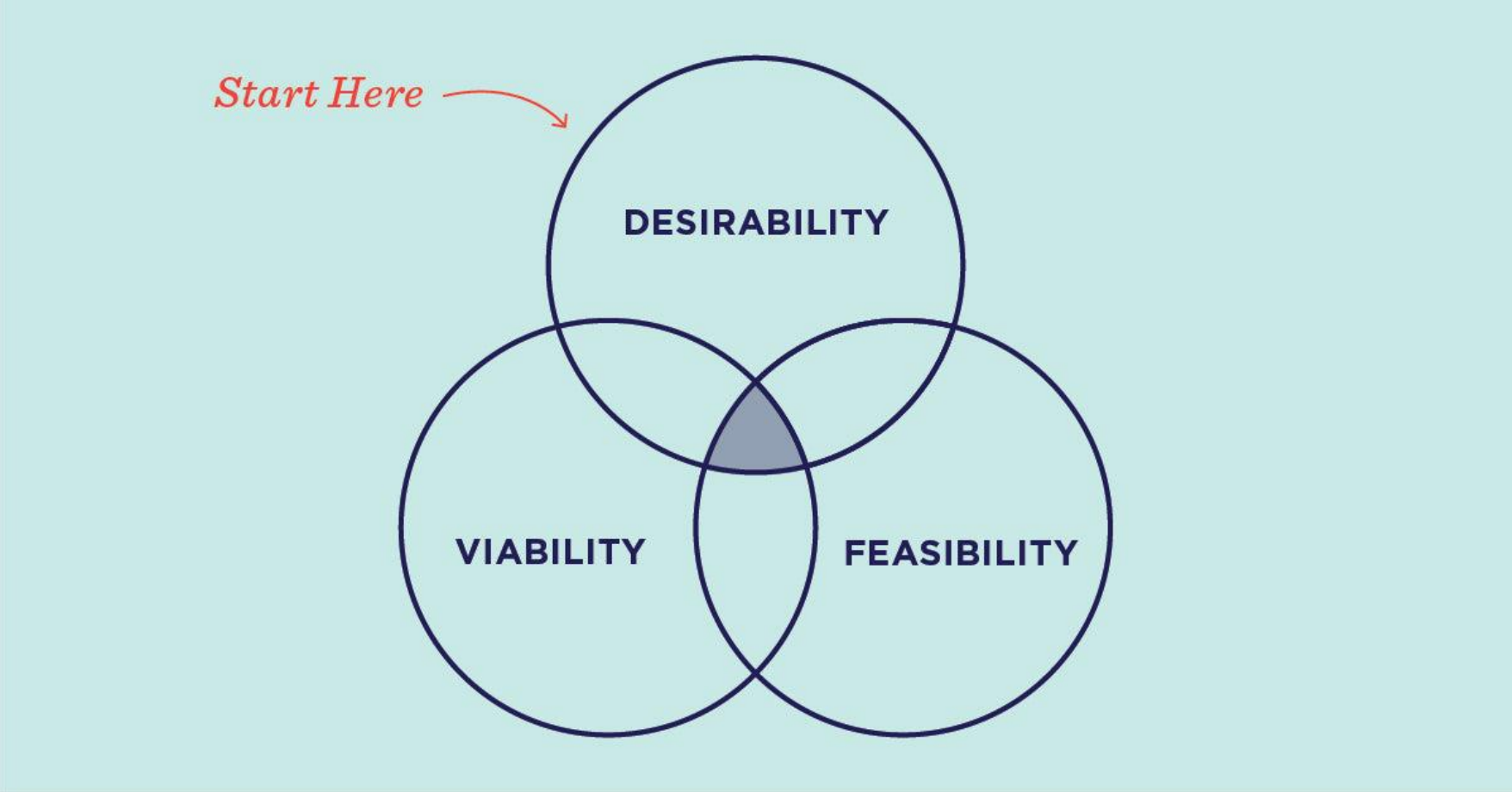
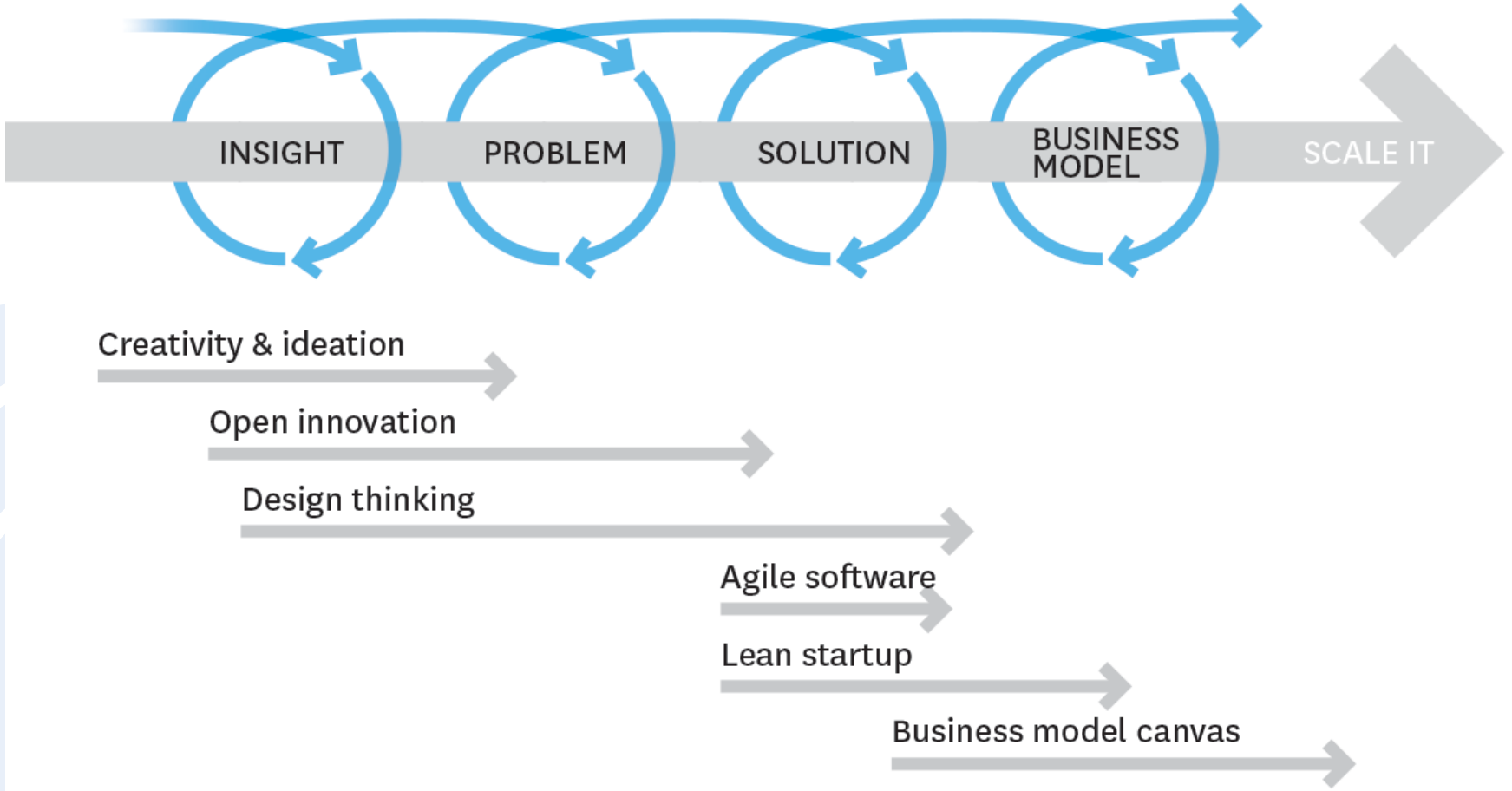


Design thinking has a human-centred core. It encourages organisations to focus on the people they're creating for, which leads to better products, services, and processes. Human-centred.

https://www.ideou.com/blogs/inspiration/how-to-prototype-a-new-business

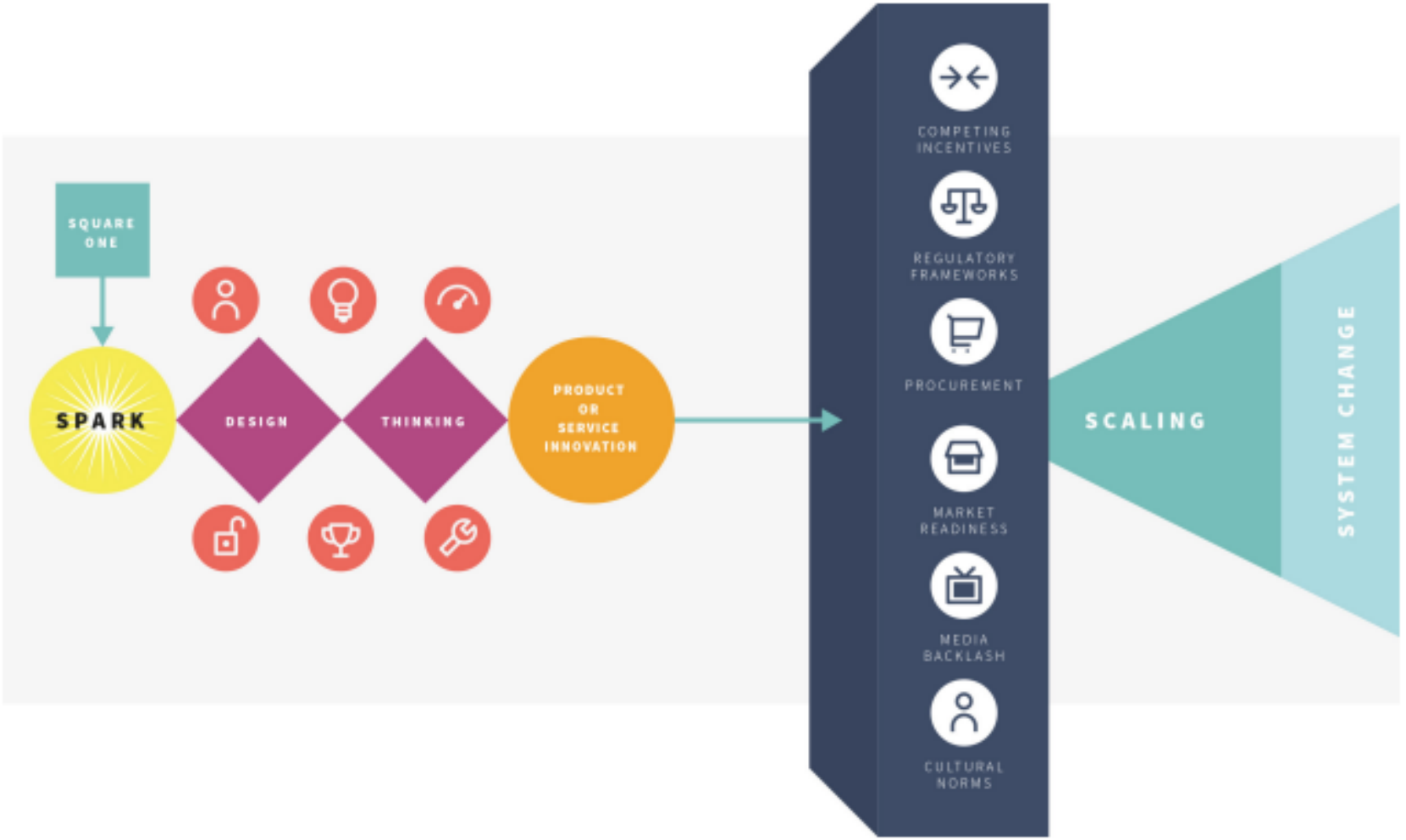
End to End Innovation Process

Adapting the tools honed by start-ups.



https://hbr.org/2014/12/choose-the-right-innovation-method-at-the-right-time

‘From Design Thinking to Systems Change’



https://www.thersa.org/globalassets/pdfs/reports/rsa_from-design-thinking-to-system-change-report.pdf

Are any of these 9 anti-rules are they holding us back? Make a note.

9 anti-rules of meaningful impact

Harvard Business Review

CREATIVITY

Nine Rules for Stifling Innovation

by Rosabeth Moss Kanter

JANUARY 15, 2013

Innovation has become the holy grail. Finding innovation is almost a sacred quest for the solution that will create growth, and open new eras of prosperity and well-being. Unfortunately, like many things called holy, the concept of innovation is invoked ritually and ceremonially more than it is embraced in practice.

For all the talk about innovation, I see many leaders in numerous organizations in every sector who actively stifle it. They say they want more innovation. But at the same time, they seem to operate by a set of hidden principles designed to prevent innovations from surfacing or succeeding. I've compiled them into a set of anti-rules. Acting in these nine ways guarantees that there will be little or no innovation of any significance, because no one had the time, money, or motivation to innovate:

Are any of these 9 anti-rules are they holding us back? Make a note.

9 anti-rules of meaningful impact

1. Be suspicious.
2. Invoke history.
3. Keep people really busy.
4. Encourage cut-throat competition.
5. Stress predictability above all.

Are any of these 9 anti-rules are they holding us back? Make a note.

9 anti-rules of meaningful impact

6. Confine strategy discussions.
7. Act as though punishing failure motivates success.
8. Blame problems on the incompetent people (customers…) below.
9. Never forget … we got to the top because we already know everything there is to know.

Picking Issues to Work On

A case for change to a new way of thinking

- Many of the challenges are simply not soluble to traditional areas of strength for the FRDC, biology, ecology, and technology knowledge creation.
- Browsing through the identified challenges, you will note the high frequency of those rooted in issues of social, behavioural and cultural change.

What success looks like in 2030? NFP 2030

#	Priority Area	Description	Outcome by 2030
1	Governance	Streamlining and harmonising governance and regulation across jurisdictions and sectors	**A collaborative, secure, efficient and effective regulatory environment**
2	Sustainability	Managing the sustainable use of fisheries, aquaculture and seafood resources, while maximising benefits and ensuring healthy aquatic ecosystems	**Sustainable and healthy fisheries and aquaculture resources**
3	Resource sharing and access security	Implementing clear and secure access to fisheries, aquaculture and seafood resources	**A transparent, consultative approach to resource sharing and increased security of access for all sectors**
4	Indigenous opportunity	Nurturing cultural and customary values and supporting and enabling participation of the Indigenous fishing, aquaculture and seafood sectors in fisheries management and fisheries-related business	**An empowered Indigenous fishing sector, actively involved in fisheries management and fisheries-related business**
5	Recreational recognition	Recognising the economic and social benefits of recreational fishing	**A celebrated and vibrant recreational fishing sector**
6	Adaptation	Supporting sectors to adapt to, and harness opportunities from, a changing environment	**A thriving fisheries, aquaculture and seafood community in a changing environment**
7	Employment, participation and health	Improving the health and wellbeing of the fishing, aquaculture and seafood community	**A prosperous workforce and a healthy fishing, aquaculture and seafood community**
8	Community connection	Promoting trust and understanding between the fishing, aquaculture and seafood community and the public	**A celebrated fishing, aquaculture and seafood community**
9	International engagement	Engaging internationally to promote sustainable fisheries management and market access	**World-leading international engagement, diverse trade opportunities and greater market access**

Issues in Common: Cross-species/cross-jurisdiction SELF SELECTED BY WORK GROUPS (NOT IN PRIORITY ORDER)

- **1.(Spatial Squeeze issue (includes, renewable infrastructure, ocean energy, wind farms, expansion of marine parks & aquaculture))**
- **2.(Markets and economics (cost of operations, viability of supply to domestic and international markets))**
- **4.Equitable**, sustainable resource access and security **(incl Indigenous)**
- **6.(Impact of climate change and water heating (includes healthy ecosystems, species population footprint shifting South, adaptive policy making, ecosystem productivity))**
- **7.**Leadership pathways, succession, **(training), capacity, next generation, latent workforce, and decline small fishers**)
- **12.Collaboration on biosecurity harmonisation – (Shared management of biosecurity risks across jurisdictions)**
- **13.Full utilisation of product (incl value add to by-catch)**
- **15.(Flexibility in application of policy and fisheries regulation) (includes holistic management, flexible management of stocks across jurisdictions (holistic management)**

Introducing Theory of Change

Reference

Responding to global change: A theory of change approach to making agricultural research for development outcome-based

https://doi.org/10.1016/j.agsy.2017.01.005

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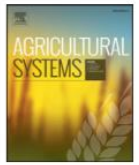

Perspectives

Responding to global change: A theory of change approach to making agricultural research for development outcome-based

PK Thornton [a,*], T Schuetz [a], W Förch [a,1], L Cramer [a,b], D Abreu [b], S Vermeulen [c], BM Campbell [b,c]

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Theory of change
Impact pathway
Outcome
Adaptive management

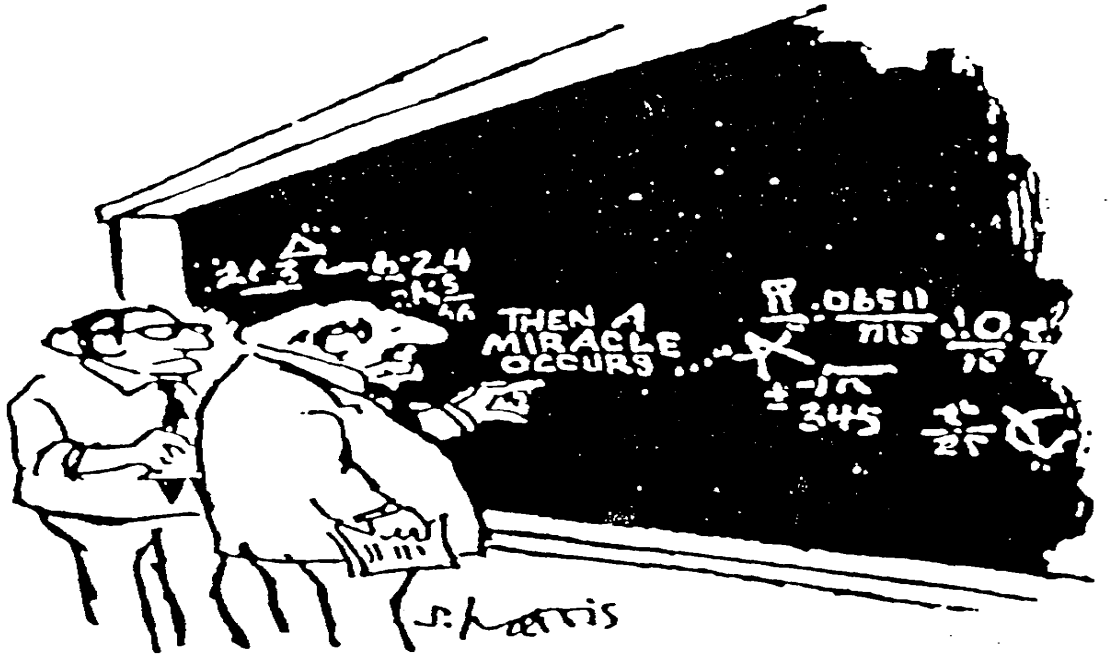
ABSTRACT

Agricultural research for development has made important contributions to poverty reduction and food security over the last 40 years. Nevertheless, it is likely that both the speed of global change and its impacts on natural and socio-economic systems are being under-estimated. Coupled with the moral imperative to justify the use of public resources for which there are multiple, competing claims, research for development needs to become more effective and efficient in terms of contributing towards longer-term development goals. Currently there is considerable debate about the ways in which this may be achieved. Here we describe an approach based on theory of change. This includes a monitoring, evaluation and learning system that combines indicators of progress in research along with indicators of change aimed at understanding the factors that enable or inhibit the behavioural changes that can bring about development impacts. Theory of change represents our best understanding of how engagement and learning can enable change as well as how progress towards outcomes might be measured. We describe the application of this approach and highlight some key lessons learned. Although robust evidence is currently lacking, a theory of change approach appears to have considerable potential to achieve impacts that balance the drive to generate new knowledge in agricultural research with the priorities and urgency of the users and beneficiaries of research results, helping to bridge the gap between knowledge generation and development outcomes.

What is a theory of change?

A *theory of change* is **a diagram or written description** of the **strategies, actions, conditions and resources that facilitate change and achieve outcomes**. It has 'explanatory power' in that **it should explain why** you think particular activities or actions will lead to particular outcomes.

"I think you should be more explicit here in Step Two."



University of Wisconsin-Extension, Program Development and Evaluation

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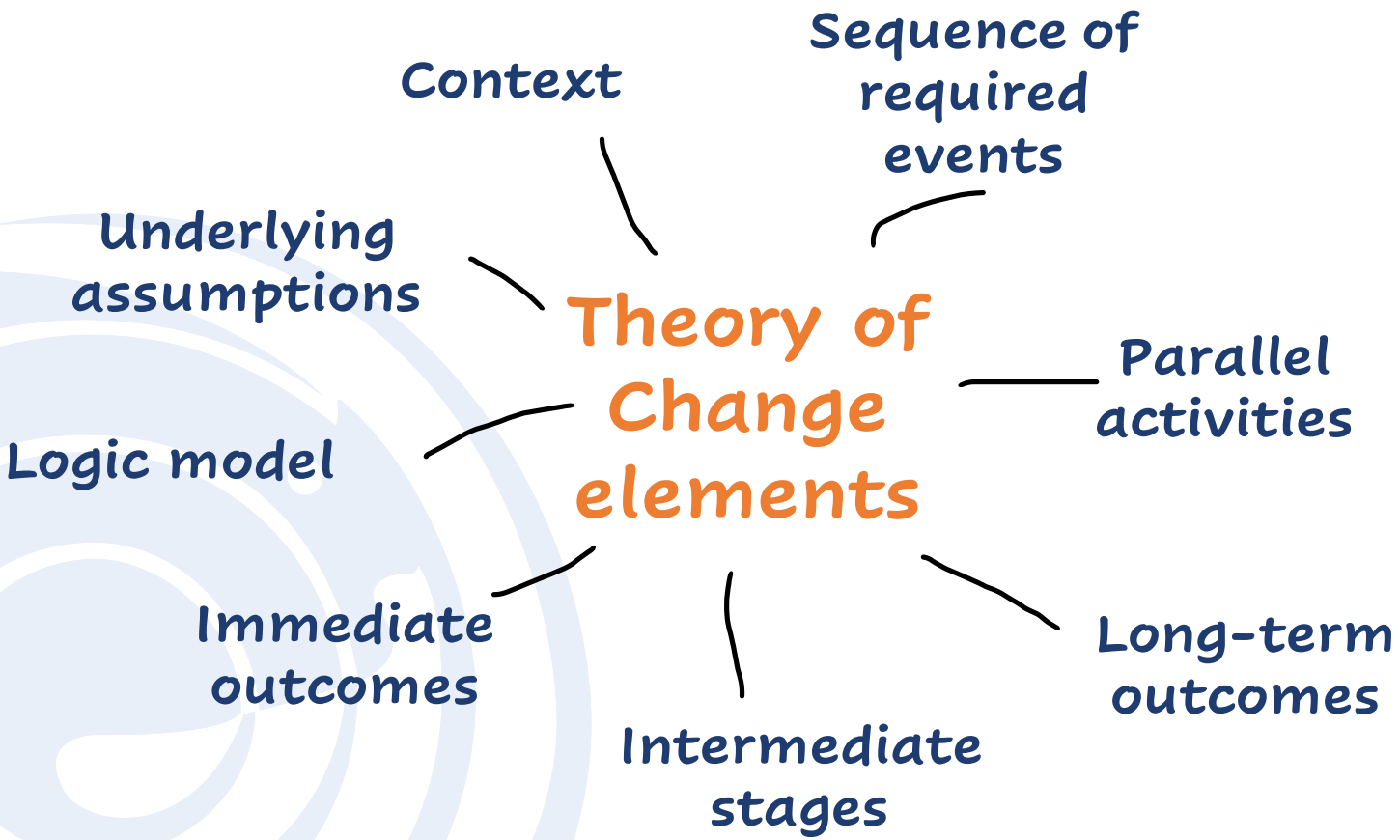
Necessary conditions and resources, but also explain why these actions will cause the outcome that you want



*It is the **causal thread** that runs through a story of change from beginning to end.*

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Australian case study: GIA APPS

Greenlife Industry Australia (GIA) is Australia's national peak industry body for production and retail nursery businesses

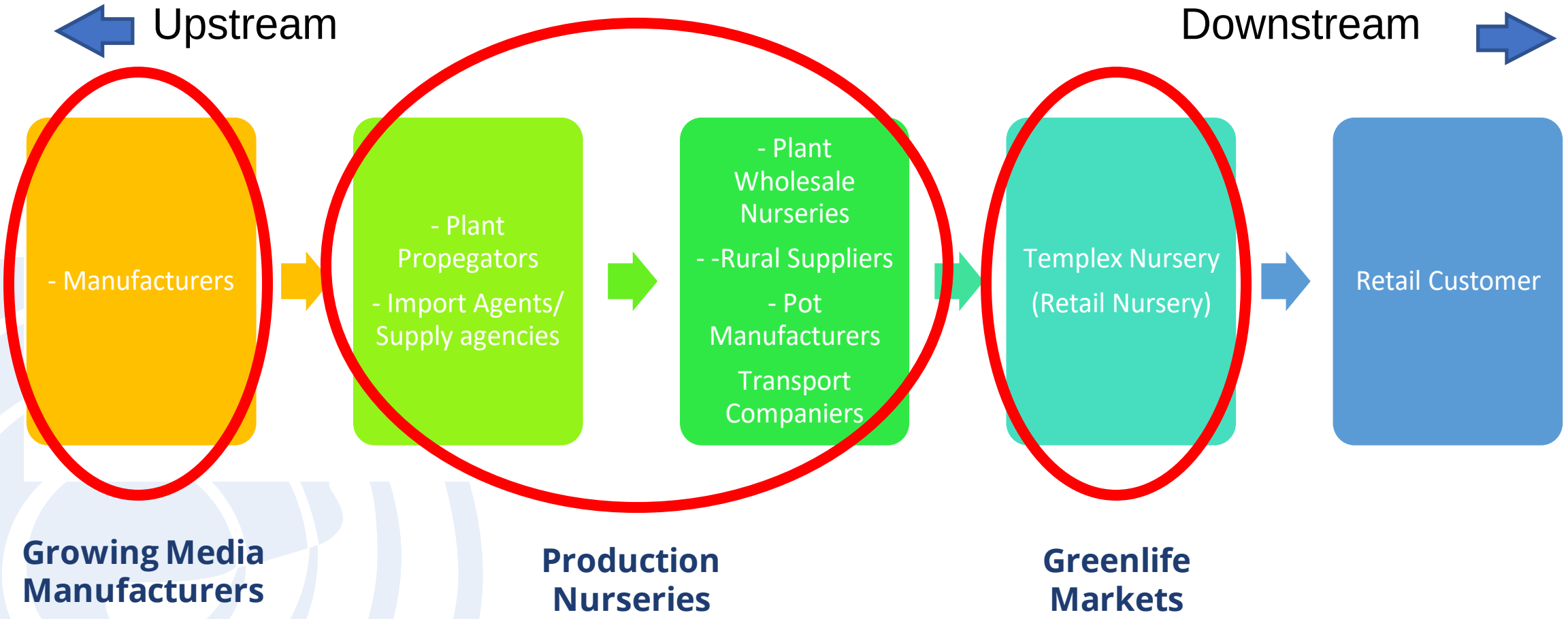
The TOR for this project presented the **Australian Plant Production Standard** (APPS) as the overarching framework binding three separate programs:

1. **NIASA Best Management Practice**
2. **EcoHort environmental and natural resource management system**
3. **BioSecure HACCP plant protection and biosecurity system**

It is a ***cohesive, interlocked support system*** for production nurseries, greenlife markets and growing media manufacturers.

Each program is intended to mutually reinforce the ability of accredited businesses to achieve the **common industry goal (emergent outcome)** ***of maintaining market access and the social license to operate.***

Nursery & Garden Industry Value Chain



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Self-sustaining Audit and Accreditation Scheme

For certification of production nurseries, greenlife markets and growing media manufacturers **to achieve the desired impact** *of* ***maintaining market access and the social license to operate***.

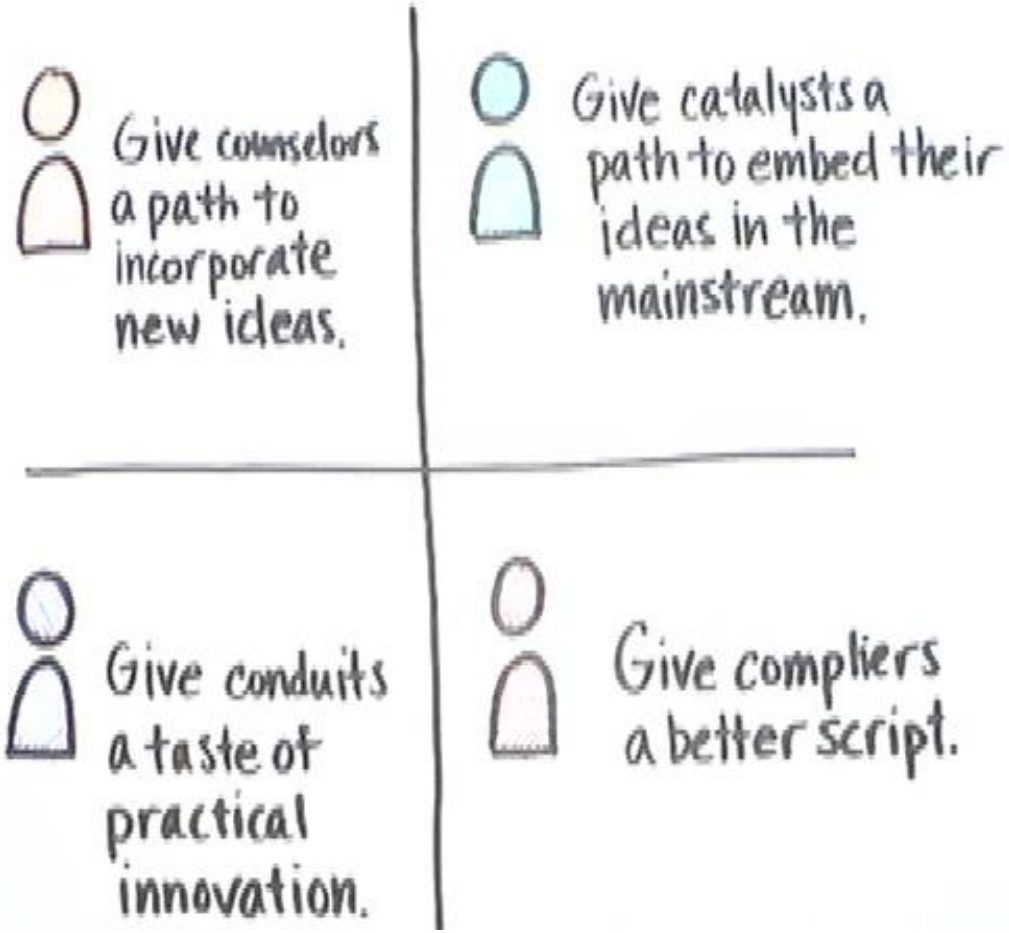
Actor Name	Key Role/ Function
Plant Propagators	Source and produce plant material and supply to wholesale growers. Supply plants in the form of plugs, seeds, tissue culture or cuttings.
Plant Wholesale Nurseries	Buys from propagators or source their own material, grows the plants and then supplies retail nurseries with sellable products in various sizes with labels
Manufacturers	Plastic Pots: manufacture plastic pots in Australia, sells direct wholesale growers and retail nurseries.
Import Agents	Third party bulk purchaser from overseas manufacturer of decorative pots, glassware & garden ornaments
Supply Agencies	Supplies wholesale growers and retail nurseries with nursery products. Pots, soils, fertilizers, plant labels, insecticide, herbicide, fungicide, bamboo sticks.
Transport Companies	Transports plants from wholesalers to retail nurseries
Customer	Retail customers. Ranges in age, gender and ethnicity.

Empathy & Engagement– One size does not fit all

Probably similar end-user profiles in the wild catch sector

Grower self-efficacy was key issue for breaking down barriers to adoption of APPS

Stuck in the paradigm of the status quo



Innovators

Give me a reason to make a change

Fishers – just tell me what to do

Measuring Progress Toward the Outcome

The component program parts of the APPS are intended to work together interdependently as a prerequisite for the emergent outcome of ***maintaining market access and the social license to operate***.

Measure for progress towards the emergent outcome is **% APPS Program adoption intensity per business**

NIASA Accreditation of production businesses on a state-by-state basis				
State	% APPS Program adoption intensity per business @ June 2020			Size of adoption intensity opportunity gap by state by # of businesses
	NIASA only	NIASA + EcoHort	NIASA + EcoHort + BioSecure	
QLD	19%	72%	9%	29
NSW	64%	36%	0%	14
VIC	54%	40%	6%	**44**
WA	63%	35%	<1%	**48**
SA	77%	6%	17%	10
NT	50%	50%	0%	2
TAS	60%	40%	0%	5
ACT	NA	NA	NA	NA

"Low-hanging "fruit

Example Causal Thread Statement for APPS

If we create the best practice Australian Plant Production Standard (APPS) and gain support from regulators in each jurisdiction

by providing a cohesive, interlocked web-based business administration and accreditation system for vertically integrated supply chain partners - production nurseries, greenlife markets and growing media manufacturers

this will result in faster adoption of APPS accreditation because of confidence in supply, ease of compliance, reduced waste and better productivity

which will eventually lead to maintaining market access and the social license to operate for the nursery industry.

ASSUMPTIONS: *What assumptions do you think have been made here?* ***HINT:*** *Think about conditions that must prevail and resources that are required for this change to happen….*

Final Session: Theory of change that traces a causal thread

*Summarise your work as a theory of change that traces a **causal thread** that runs through your story from beginning to end*

IF WE (activities) (*Generate the right knowledge for the right people…)*

BY (approach) (*Helping them to use knowledge to change processes, structures, or mindsets….)*

THIS WILL RESULT IN (outcome) (The *desired change in behaviour or response that we want to see)*

AND EVENTUALLY LEAD TO (impact) *(Use relevant NFP 2030 outcome description)*

CONTRIBUTING TO THE BROAD GOAL OF *(Use relevant NFP 2030 Priority Area description in workbook)*

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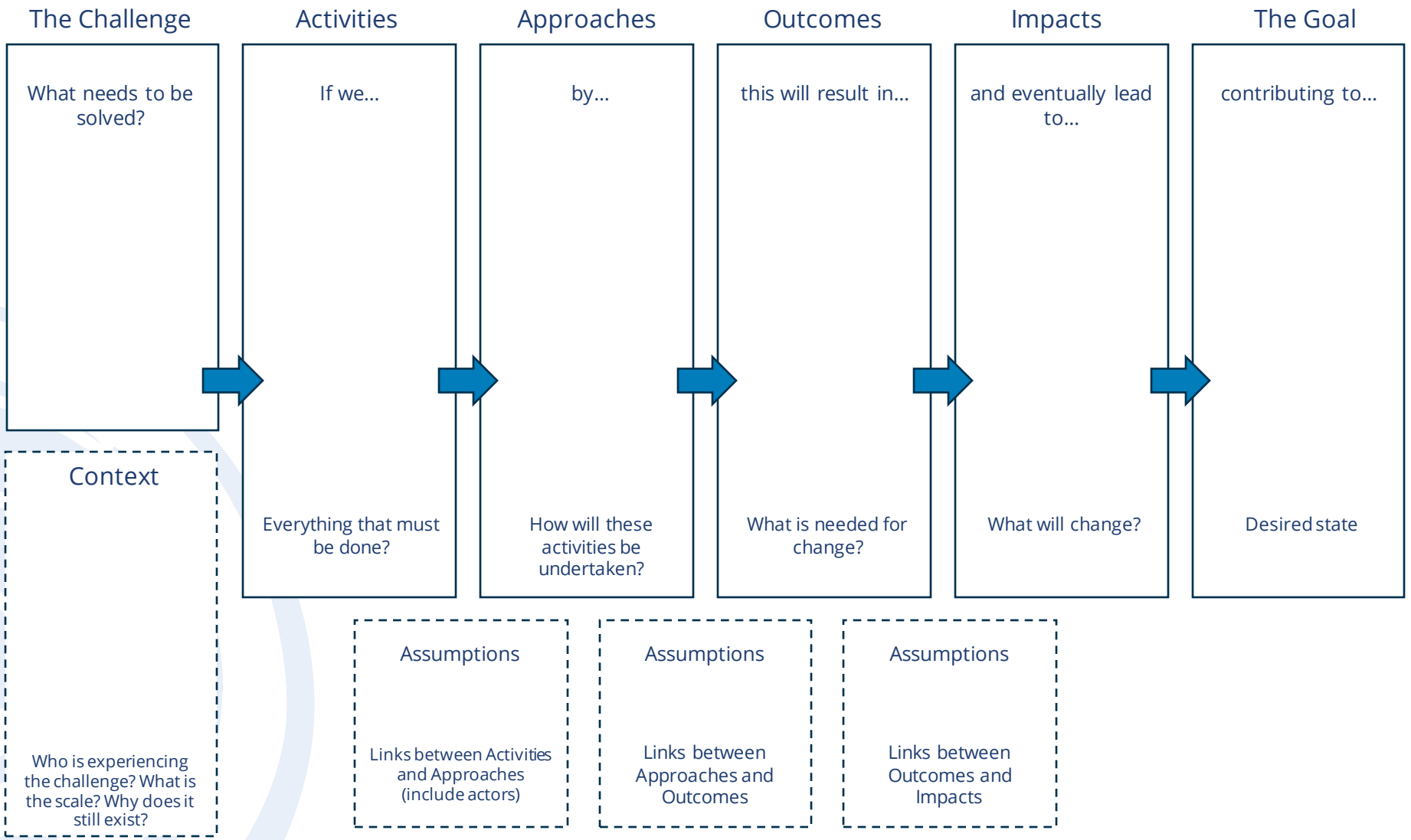
Theory of Change: Impact Map



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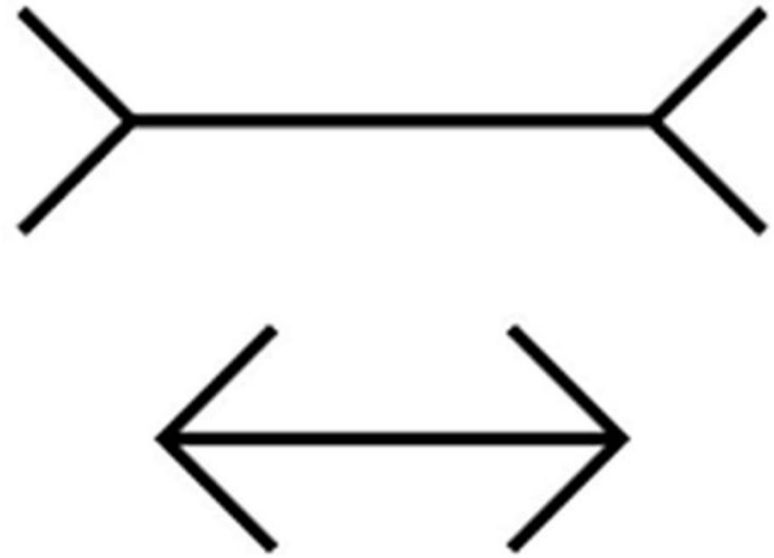
Beware causal illusion?....you are only human



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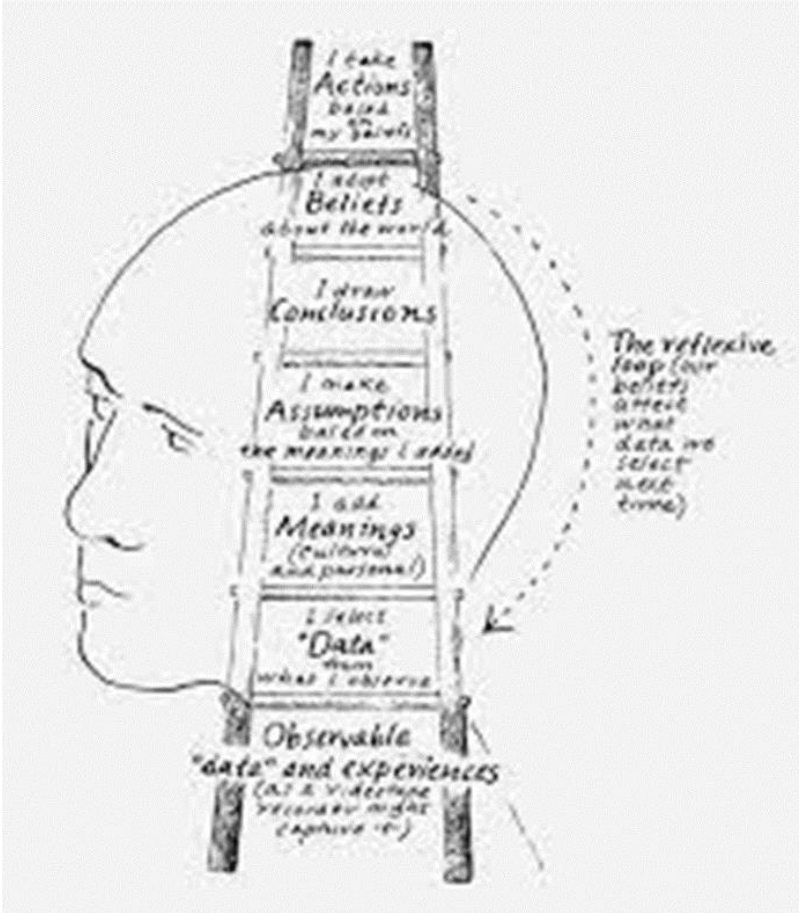

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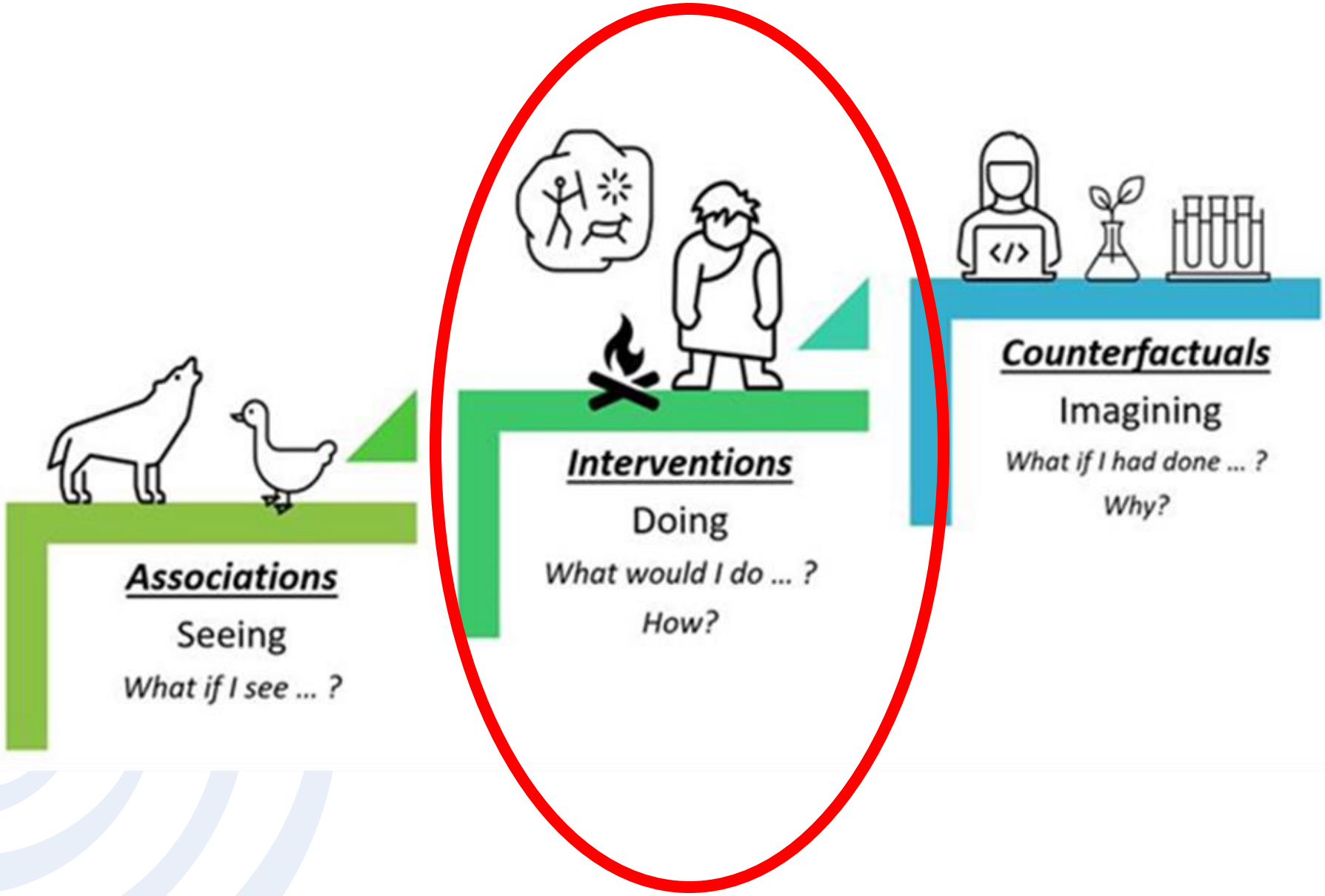
The ladder of causality



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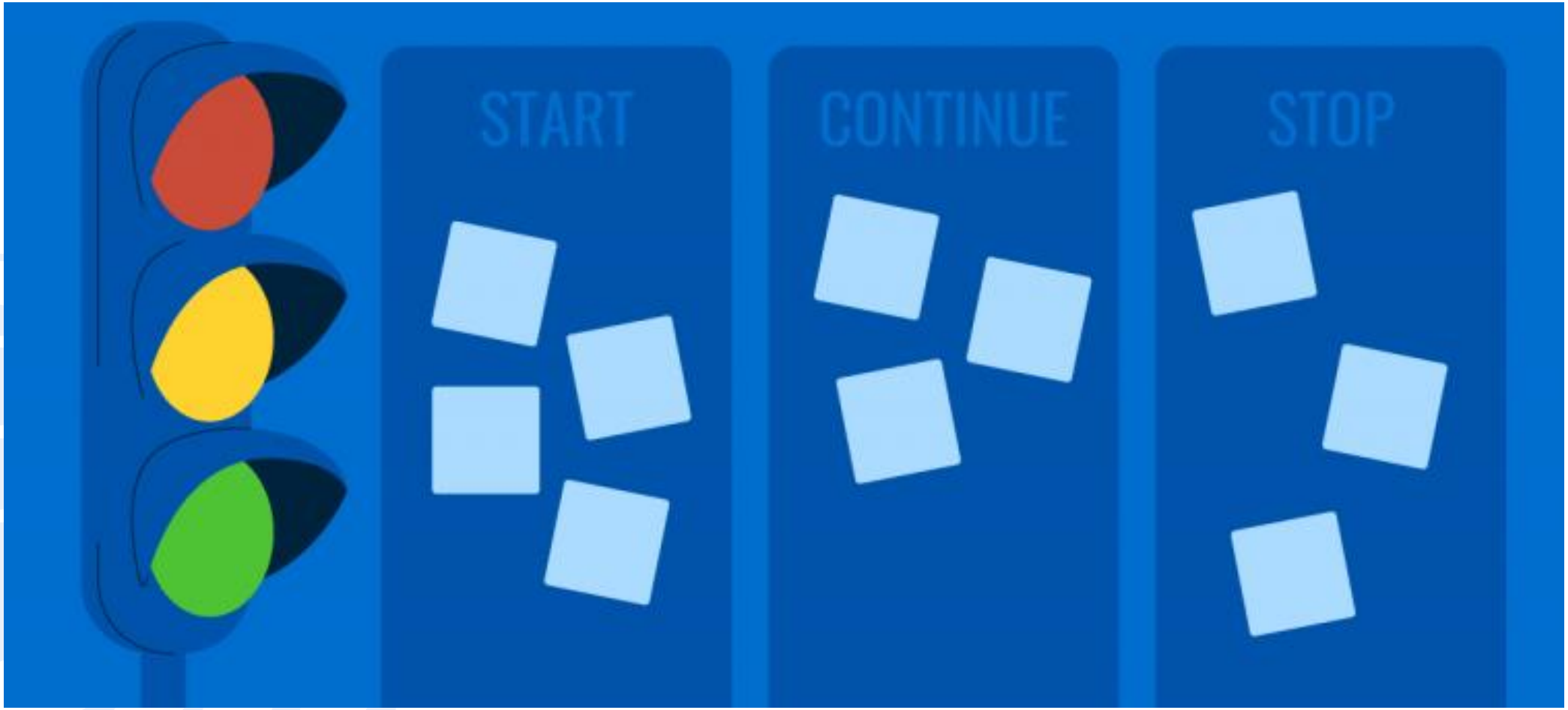
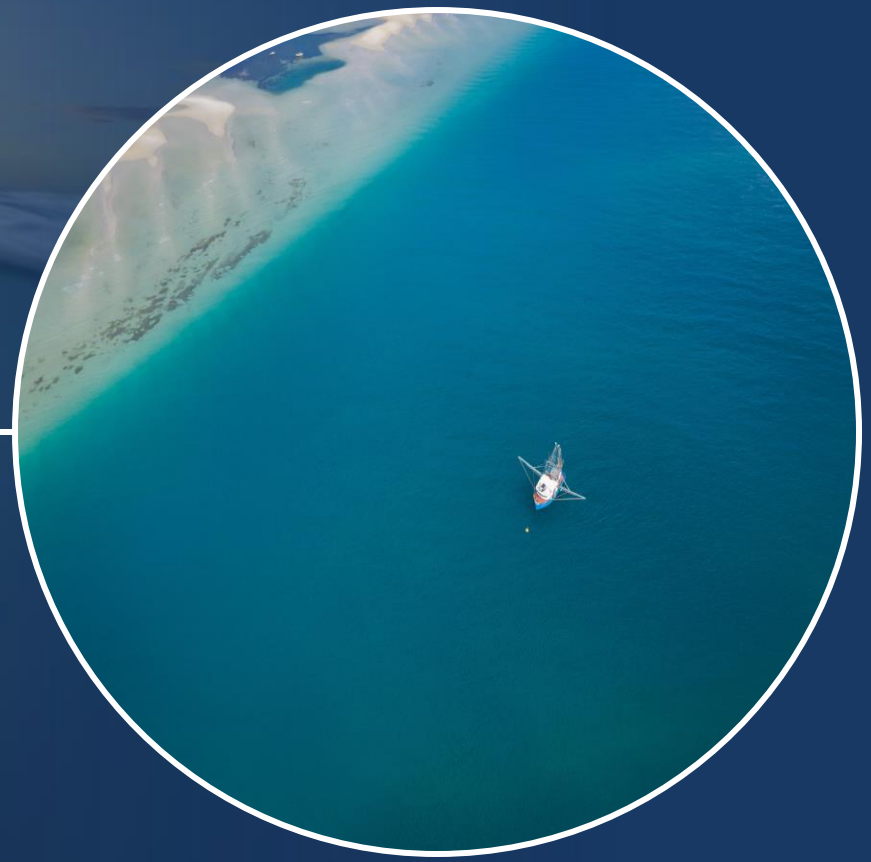
How can we do better next time?



Help Shape FRDC's Future Focus– DAY 2

Have Your Say – ANNUAL STAKEHOLDER PLANNING WORKSHOP



"How do we work better together to address issues that we share to create impact"

October 2023

frdc.com.au

PURPOSES:

1. Provide an opportunity for key stakeholders to consider progress made towards key outcomes under the current FRDC RDE Plan 2020-25.

2. Identify whole-of-industry system-wide critical issues that could be better served through alternative approaches.

3. Allow an opportunity for participants to prioritise these critical issues and self-select to work on those where they can make a contribution.

4. See and try tools for system innovation that may be used to design future collaborative approaches to address the priority issues.

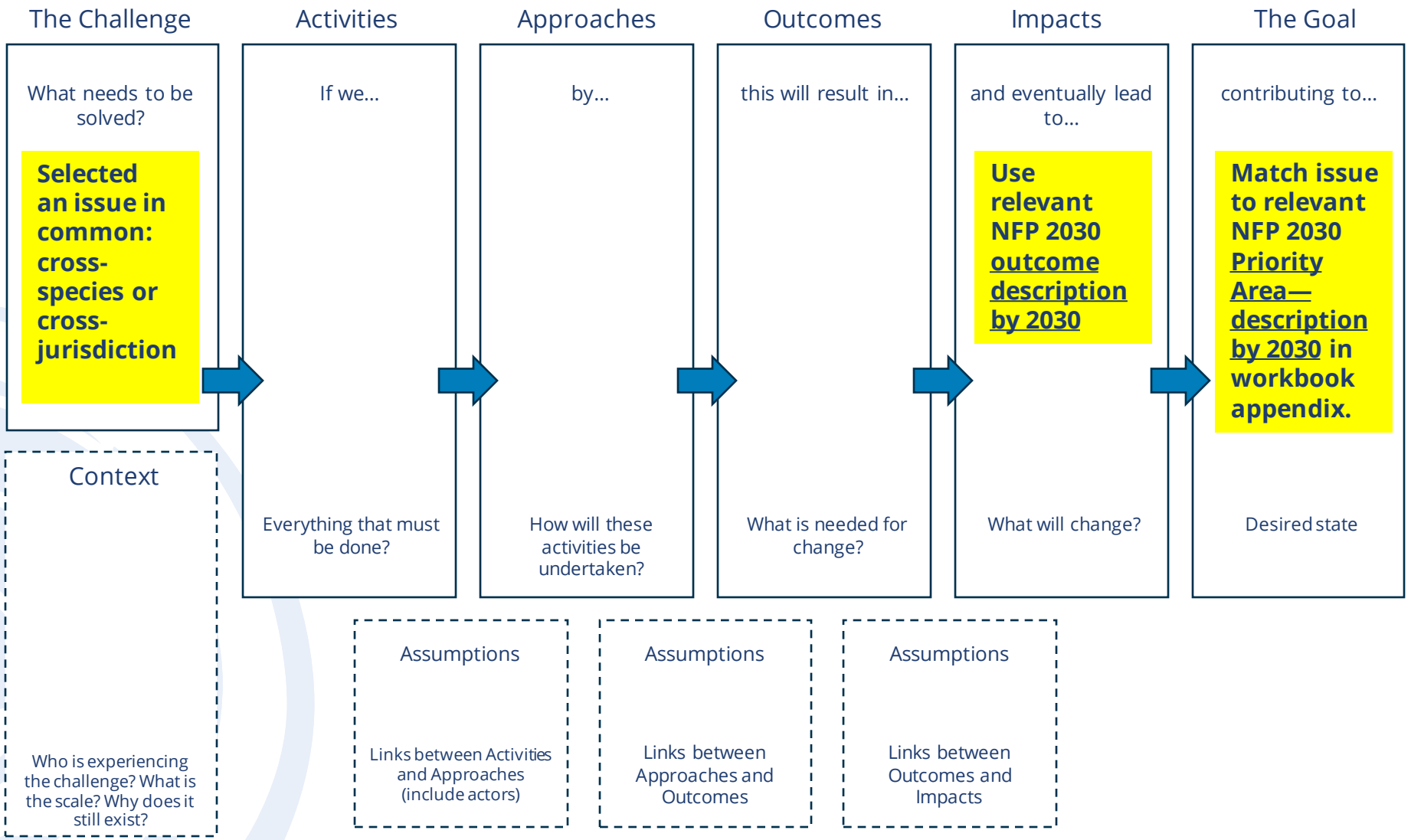
5. Contribute to the development of FRDC's 2024-25 Annual Operating Plan and next R&D plan.

TOC Session STEP #1

What success looks like in 2030? NFP 2023

#	Priority Area	Description	Outcome by 2030
1	Governance	Streamlining and harmonising governance and regulation across jurisdictions and sectors	**A collaborative, secure, efficient and effective regulatory environment**
2	Sustainability	Managing the sustainable use of fisheries, aquaculture and seafood resources, while maximising benefits and ensuring healthy aquatic ecosystems	**Sustainable and healthy fisheries and aquaculture resources**
3	Resource sharing and access security	Implementing clear and secure access to fisheries, aquaculture and seafood resources	**A transparent, consultative approach to resource sharing and increased security of access for all sectors**
4	Indigenous opportunity	Nurturing cultural and customary values and supporting and enabling participation of the Indigenous fishing, aquaculture and seafood sectors in fisheries management and fisheries-related business	**An empowered Indigenous fishing sector, actively involved in fisheries management and fisheries-related business**
5	Recreational recognition	Recognising the economic and social benefits of recreational fishing	**A celebrated and vibrant recreational fishing sector**
6	Adaptation	Supporting sectors to adapt to, and harness opportunities from, a changing environment	**A thriving fisheries, aquaculture and seafood community in a changing environment**
7	Employment, participation and health	Improving the health and wellbeing of the fishing, aquaculture and seafood community	**A prosperous workforce and a healthy fishing, aquaculture and seafood community**
8	Community connection	Promoting trust and understanding between the fishing, aquaculture and seafood community and the public	**A celebrated fishing, aquaculture and seafood community**
9	International engagement	Engaging internationally to promote sustainable fisheries management and market access	**World-leading international engagement, diverse trade opportunities and greater market access**

Thory of Change: Impact Map – Session #1: Matching common issue to the NFP 2023 impact



The solution may achieve more than one goal

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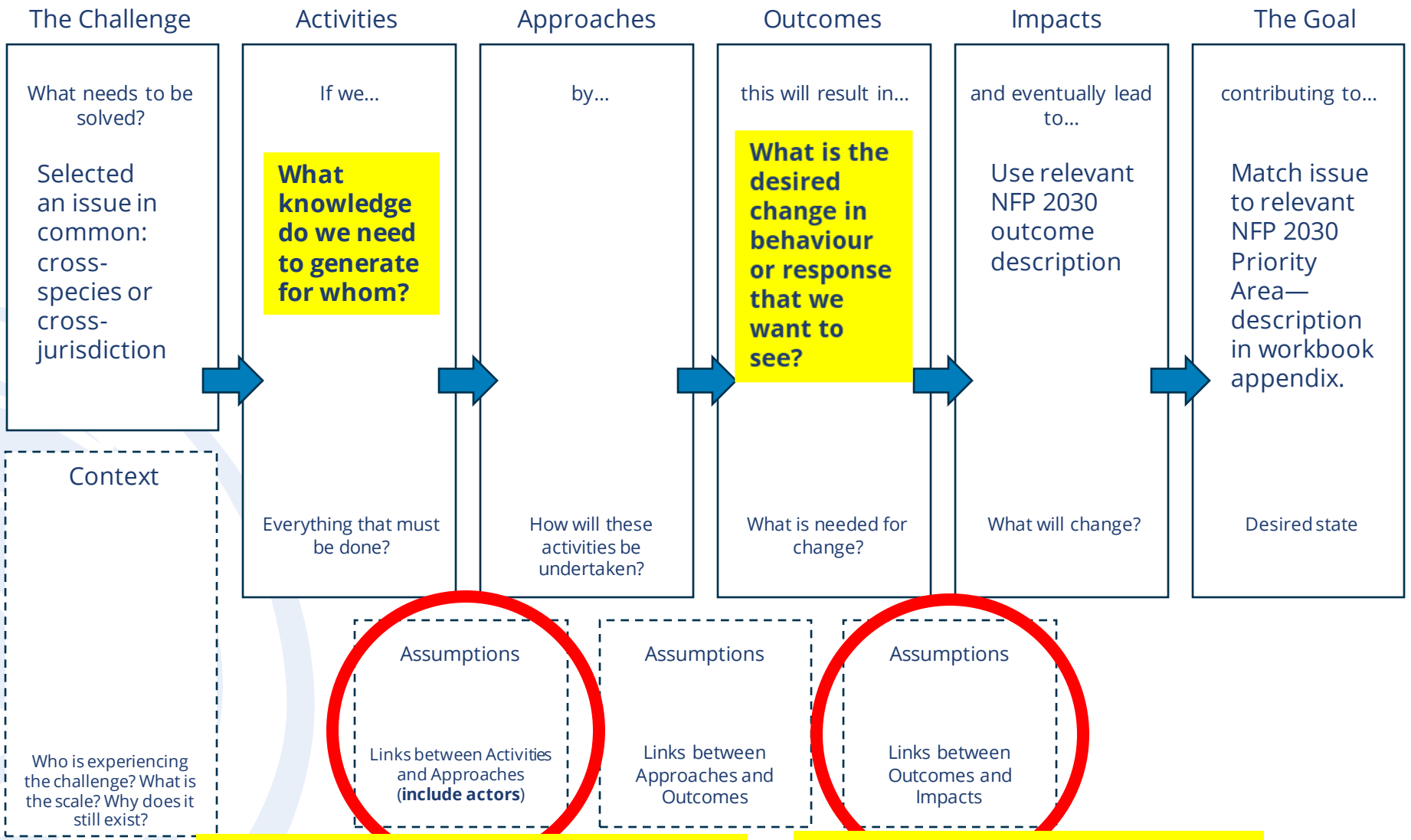
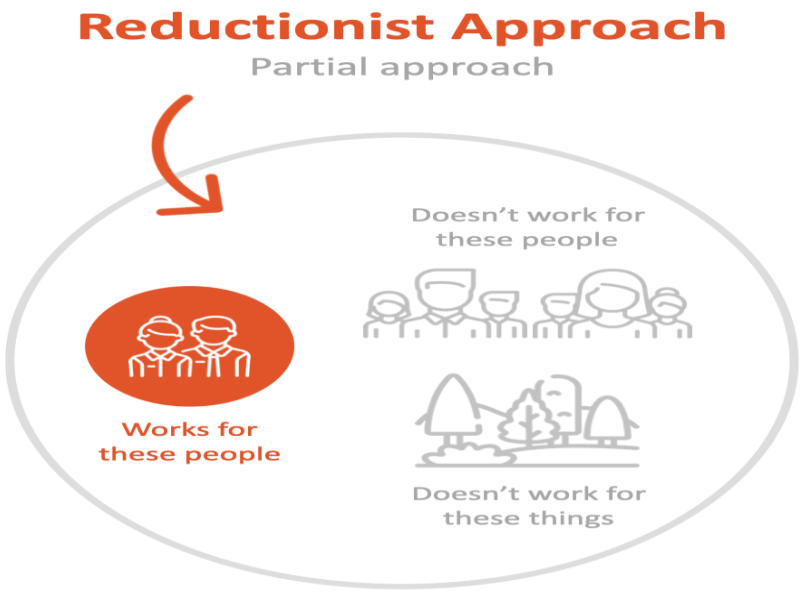
Group report back Session
STEP #1

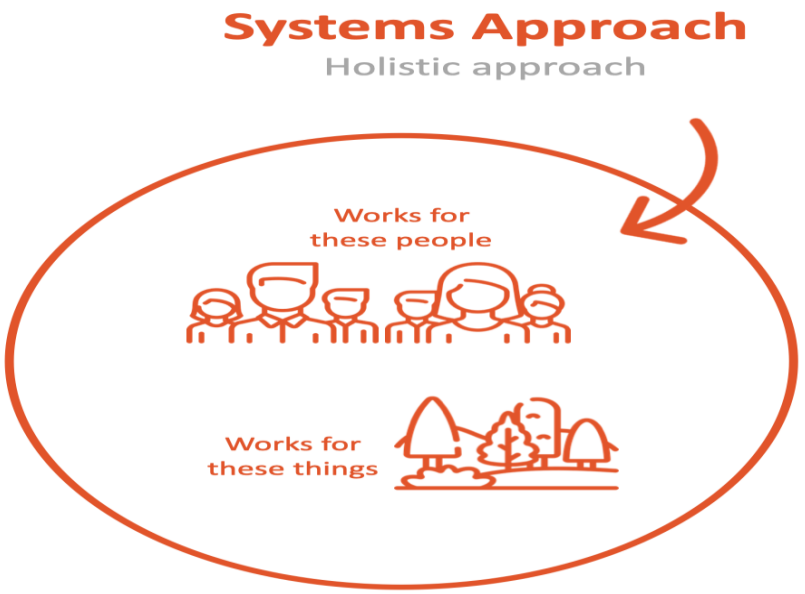
TOC Session STEP #2 & #3

Theory of Change: Impact Map – Session #2 & #3: Who are the actors/parts in the system that need to change? What is the desired change that you want to see?



We are all taught to be reductionists





loped by for FRDC hop 2023 IMPACT INNOVATION

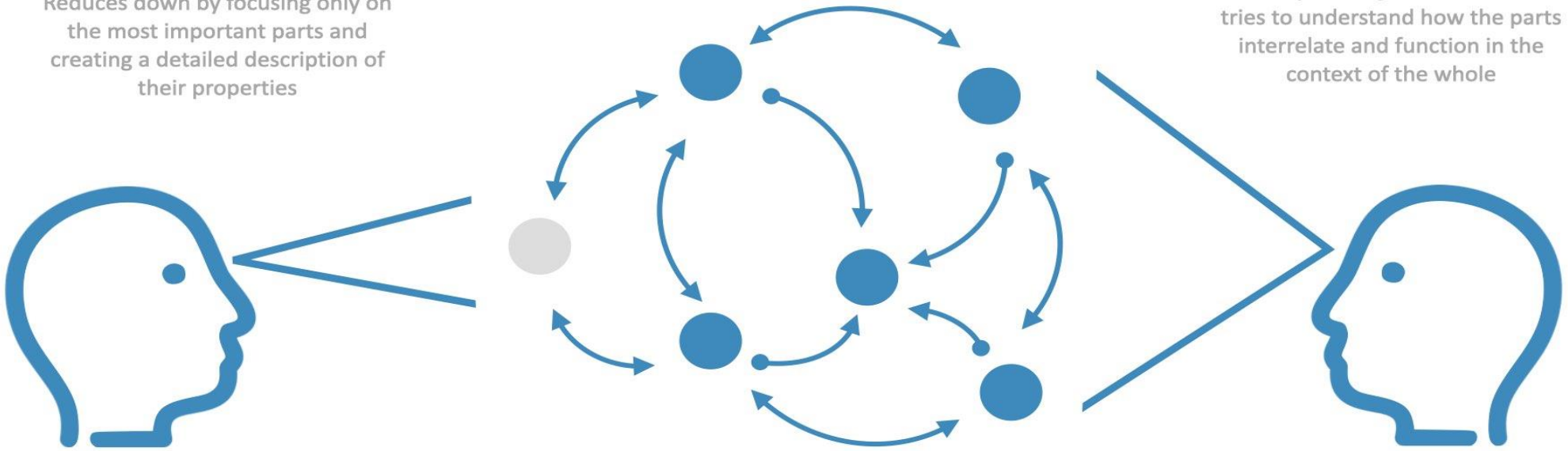
The system says it needs LESS either/or and MORE BOTH/AND thinking

Analytical Thinking

Reduces down by focusing only on the most important parts and creating a detailed description of their properties

Holistic Thinking

Starts by looking at the whole and tries to understand how the parts interrelate and function in the context of the whole



Connection Circle Tool

Purpose of the exercise:

1. Identify all of the moving parts involved.
2. Understand the interrelationship between the parts.
3. Identify feedback loops.
4. Surface assumptions about the conditions necessary for successful systems change.

1. Choose elements of the story that satisfy all of these criteria:
    1. **They are important to the changes in the story.**
    2. **They are nouns or noun phrases**.
    3. **They increase or decrease in the story.**
2. Write your elements around the circle. Include no more than 5 to 10.
3. Find elements that cause another element to increase or decrease.
    1. Draw an arrow from the cause to the effect.
    2. The causal connection must be direct.
4. Look for feedback loops.

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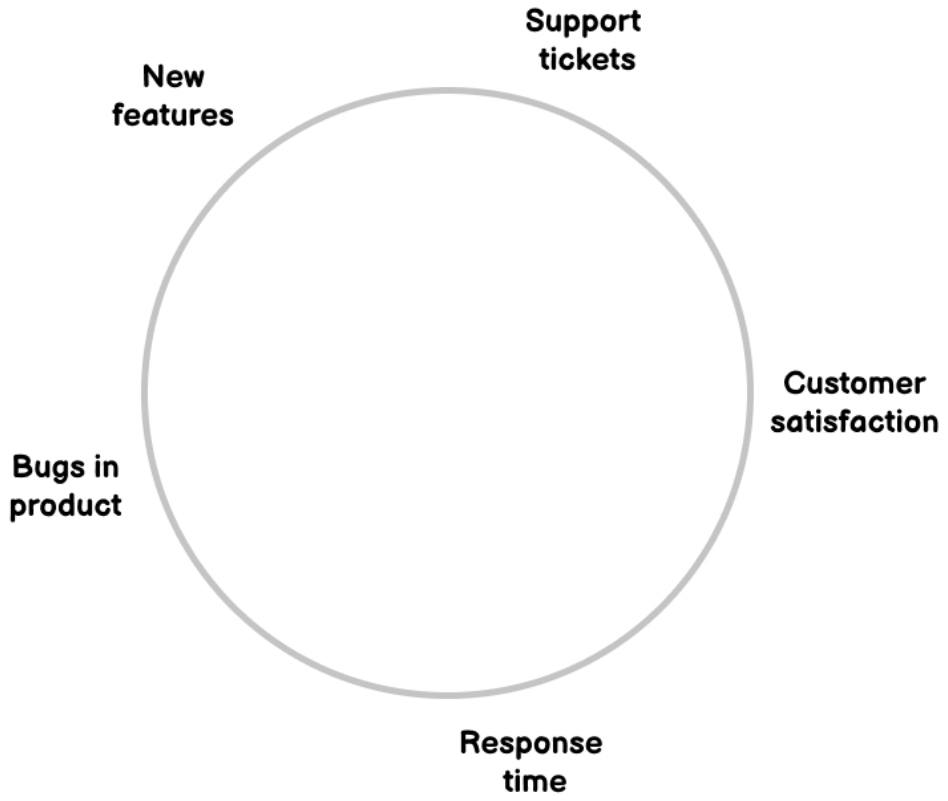
Example

1. AgtechCo had a database product, ILR, which was aging and becoming increasingly complex.
2. Creating unhappy customers complaining about too many bugs in the product and slow response times from the JIRA-based support function (as customers create more support tickets).
3. At the same time, in response to requests the AgtechCo support team coders have been adding more customer features to make them happier.
4. From this story, we can identify the key elements:
    1. Unhappy customers,
    2. Bugs in the product,
    3. Response times,
    4. Support tickets and
    5. New features.
5. We'll document them around our connection circle: database



Example

Now, we need to document the relationships between them.

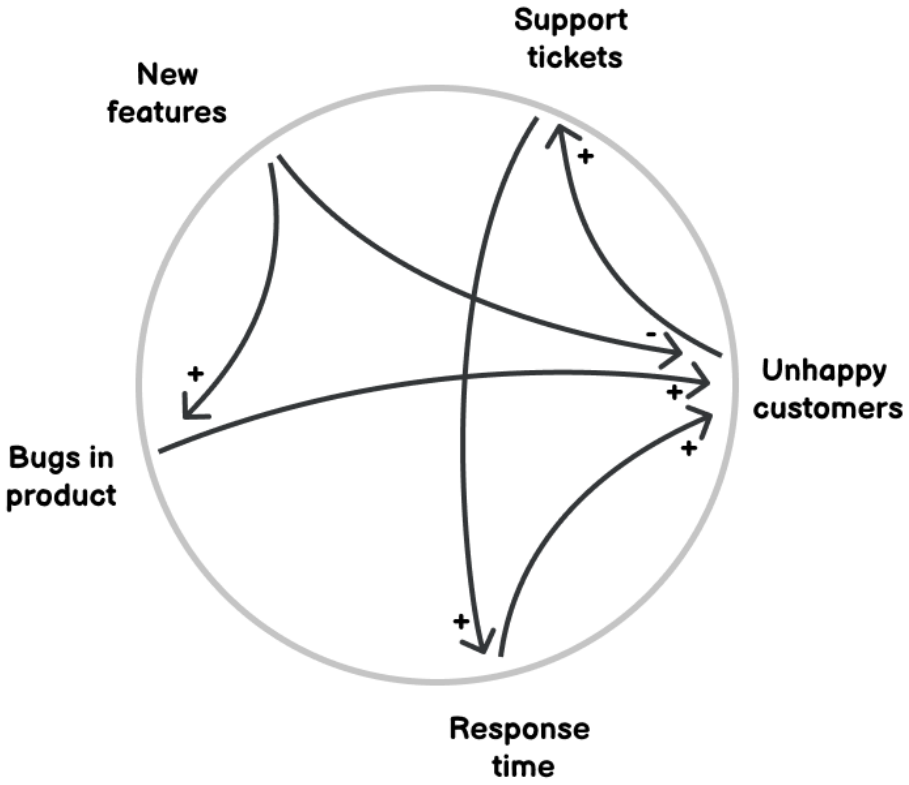
For example, we know that unhappy customers create more support tickets.

More tickets means longer response time which in turn produces even more unhappy customers.

We try to create new custom features which lower the number of unhappy customers.

But they also produce more bugs, and those lead to more unhappy customers again.

Let's map these relationships to the connection circle:



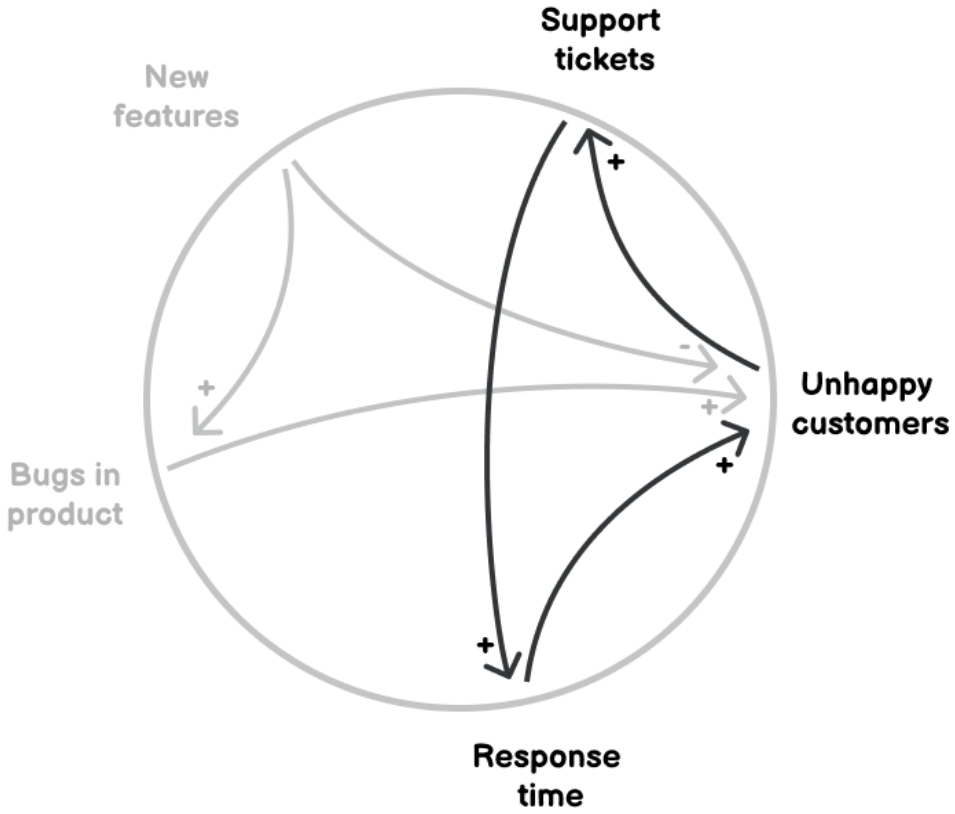
Example

The connection circle is now nicely showing the key elements of the system and the relationships between them.

There's even one feedback loop that we can see here.

The completed connection circle and an identified feedback loop make you better understand the system.

This understanding will greatly help you make changes that you need.



Spatial Squeeze Story: Off-shore wind farm renewable energy

Regulators and decision-makers need to understand it's not just about ticking boxes - they need to understand the **complications and disruptions** offshore renewable energy developments bring for fishing.

Experience and learnings on the spatial squeeze in other fisheries provide insights into how Australia can navigate equal sharing of the **marine space** in ways that protect and support fishing.

It is important to have **good data and evidence** for the fishing industry. If you want to prove the cumulative effects that other developments will have on fishing, you need to demonstrate it to the regulators and other sectors

International experience with multiple offshore activities and challenges has been very difficult work, and the scale of **further planned expansion is huge**.

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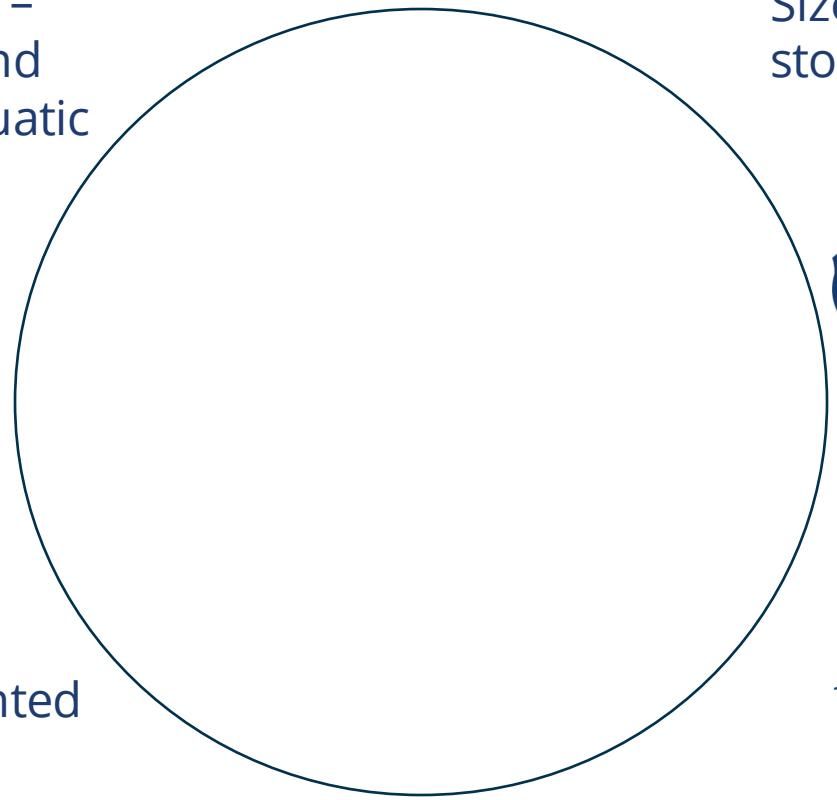
Many interrelated parts of the spatial squeeze story

The necessity of early and genuine dialogue with the [various] sectors and the importance of building these relationships through meaningful engagement



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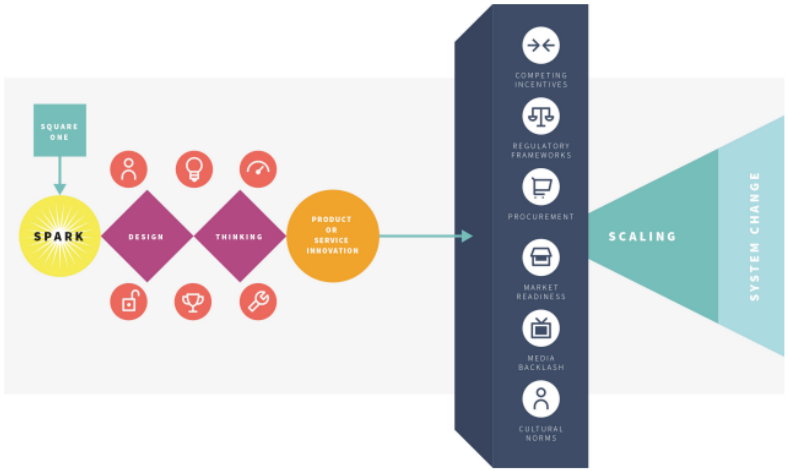
Innovation Mindset and Tools for Impact (Part 2)

Simple Impact Process

1. R&D

2. Adoption/Uptake

3. Impact



Real costs:

- Retooling costs
- Retraining staff
- Changing supply chain
- Warranty requirements
- Regulatory hurdles
- Maintenance costs
- Staff time to “iron out bugs”
- Supplier relationships
- Customer relationships

- Product
- Service
- Policy decision
- Change of Practice/Behaviour

Investment

How can we measure ROI or assess progress?

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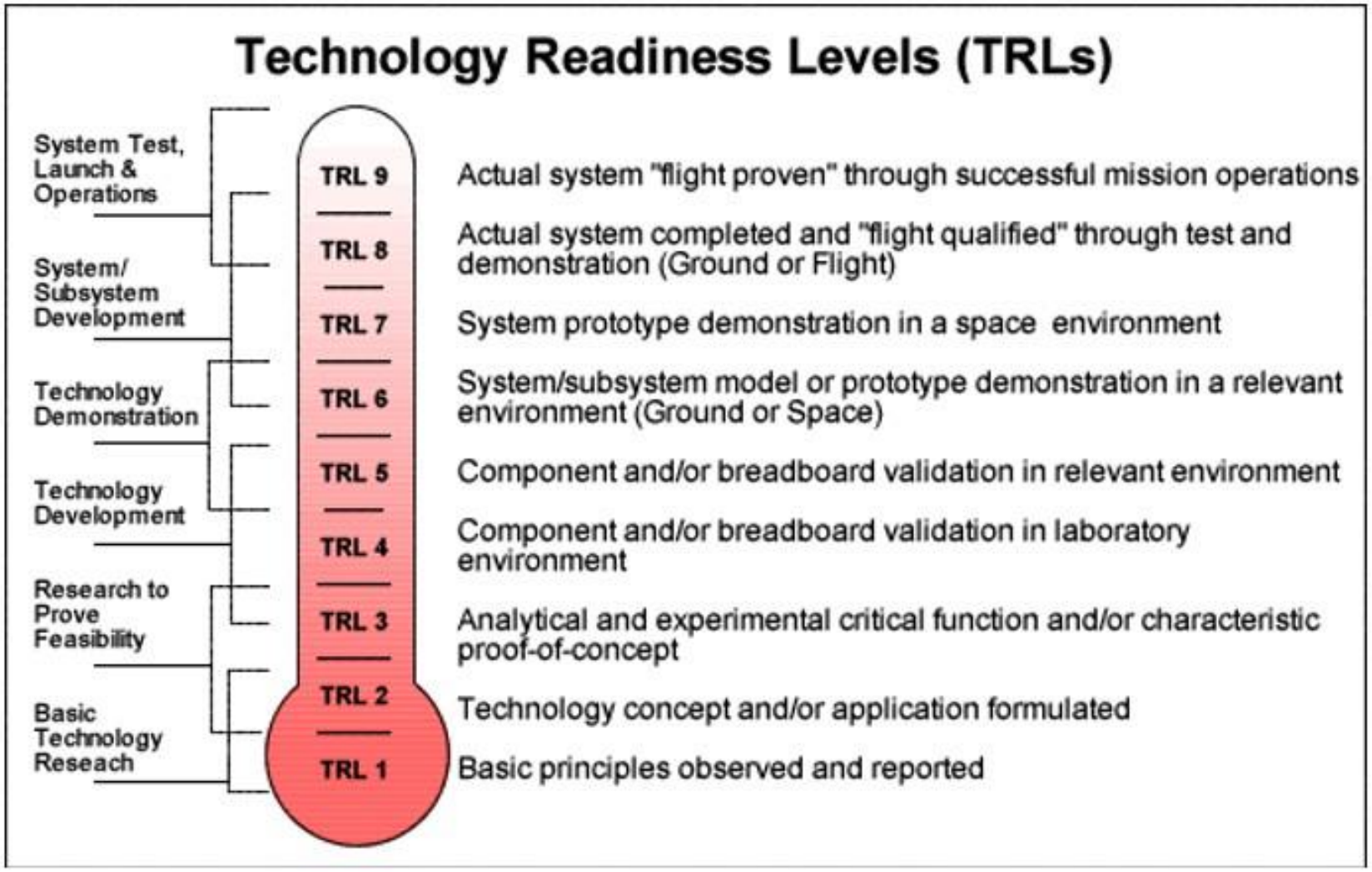
Technology Readiness Levels (TRLs)



https://esto.nasa.gov/trl/

IC Readiness® Overview

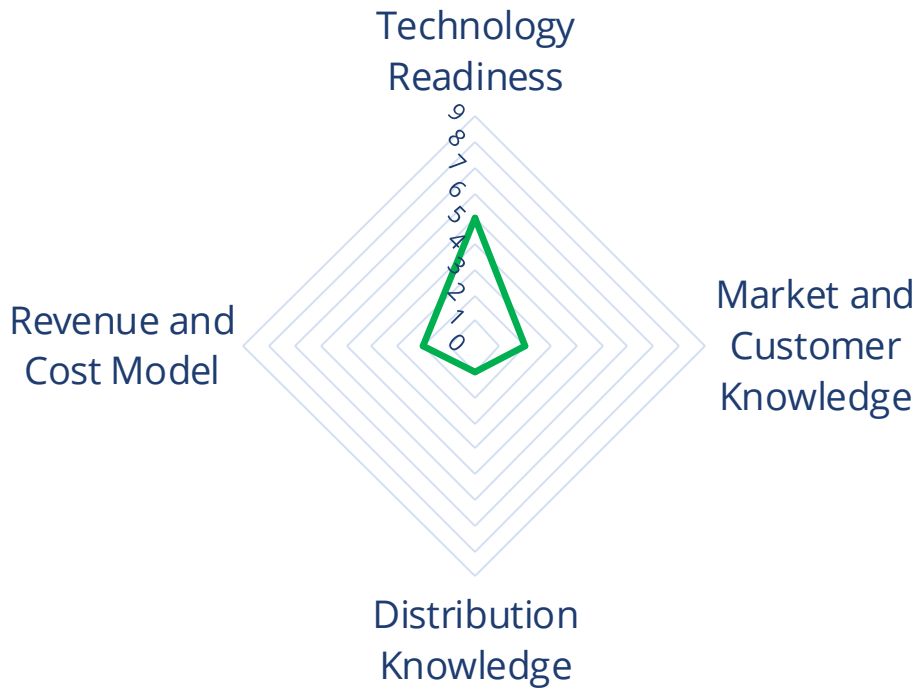
Context of the Model:

The ICR model is designed to provide a point-in-time assessment of the impact status of a project or technology to guide future data gathering.

Monitors project progress against four critical categories:

- technology readiness,
- target market readiness,
- manufacturing & distribution readiness, and
- revenue & cost model readiness.

Assess and evaluate innovation and impact initiatives with the Impact and Commercial Readiness Assessment



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Impact and Commercial Readiness® Matrix

Development Stage	Score	Technology Readiness Level (T)	Market & Customer Knowledge (M)	Supply, Manufacturing & Distribution Knowledge (S)	Financial, Revenue & Cost Models (F)
Early Stage/ Research	1	The basic principles have been observed and reported.	The target end-user and market are clearly understood and described (including segments).	Initial manufacturing and supply chain stages to deliver the technology have been identified.	The total costs to develop and commercialise (extension) the technology have been documented.
	2	Competing technology and/or technology applications formulated or reviewed and compared.	Secondary research has been undertaken and included in the project materials.	The supply chain requirements have been identified, including the types of partners or manufacturers.	Revenues for the next 36 months have been modelled and documented.
	3	Preliminary analytical, experimental, or proof-of-concept functions have been demonstrated.	Primary market research has been undertaken?	The roles and responsibilities have been defined for the types of supply chain partners who will need to deliver the technology, products or services.	Cost of production and delivery have been validated by direct discussion with suppliers/manufacturer/ distributors.
Proof-of-Concept	4	The component and/or prototype approach has been validated in a laboratory or 'in-house' environment.	The value proposition has been validated against competing for approaches (products/services or practices).	Specific supply chain partners have been identified. Including role/s within organisations to approach regarding the deal.	The costs of distributing and supplying the product or service have been verified.
	5	Validation in relevant industry operating environment.	A prototype has been sold, or a collaborative project initiated with a partner.	Supply chain processes have been discussed with initial customers and have critical partners demonstrated their ability to meet needs	The revenue model has been tested with at least one customer.

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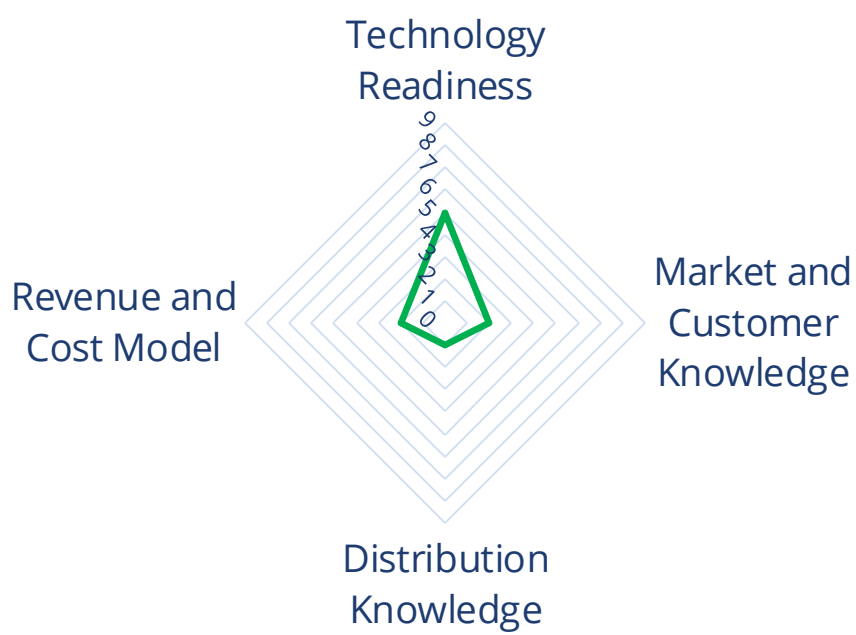
Impact and Commercial Readiness® Matrix

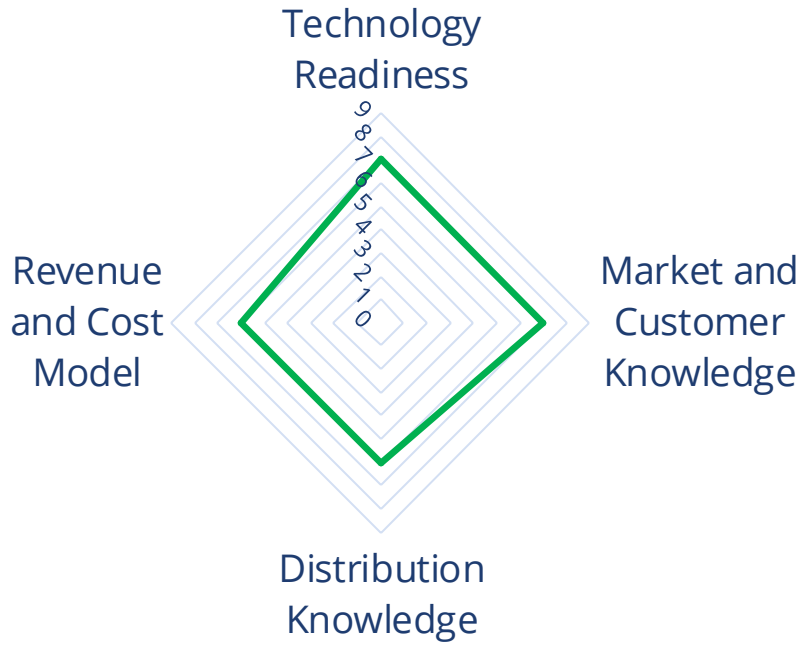
Development Stage	Score	Technology Readiness Level (T)	Market & Customer Knowledge (M)	Supply, Manufacturing & Distribution Knowledge (S)	Financial, Revenue & Cost Models (F)
Development	6	System/subsystem model or prototype demonstration in a relevant environment.	Customer sales pitches have been developed for the technology, product or service.	All supply chain partners have been engaged. Key back-ups have been identified.	The costs of production and distribution have been validated across multiple markets and regions.
	7	System prototype used by target end-users in an operational environment.	Marketing collateral has been developed using the results of market research for each target customer/region.	The supply chain has been trialled with one customer in each target market.	Revenue and cost models have been verified based on the final product or service over 6 months
Application/ Adoption	8	Actual system completed and qualified through early use with 10 end-users	The technology has been sold to 10 unique customers (or used by 0.5% of end-users if the technology is incorporated into other products or services).	Post-sales support have been tested and verified to be effective for each target region.	Have cost models been validated across multiple batches or sales over 12 months (or multiple countries if applicable).
	9	Actual system has been proven through successful operations. 50 end-users paying for access.	Over 50 sales have been made (or the technology been used by 5% of the target market) or demonstrated sales across multiple regions.	The robustness of the supply chain has been validated across all customer types, target markets and regions.	Revenue models have been validated with a minimum of 50 sales (or 5% of a target market) over 12 months.

IC Readiness® Example Results

Early Stage Technology



Later Stage Technology



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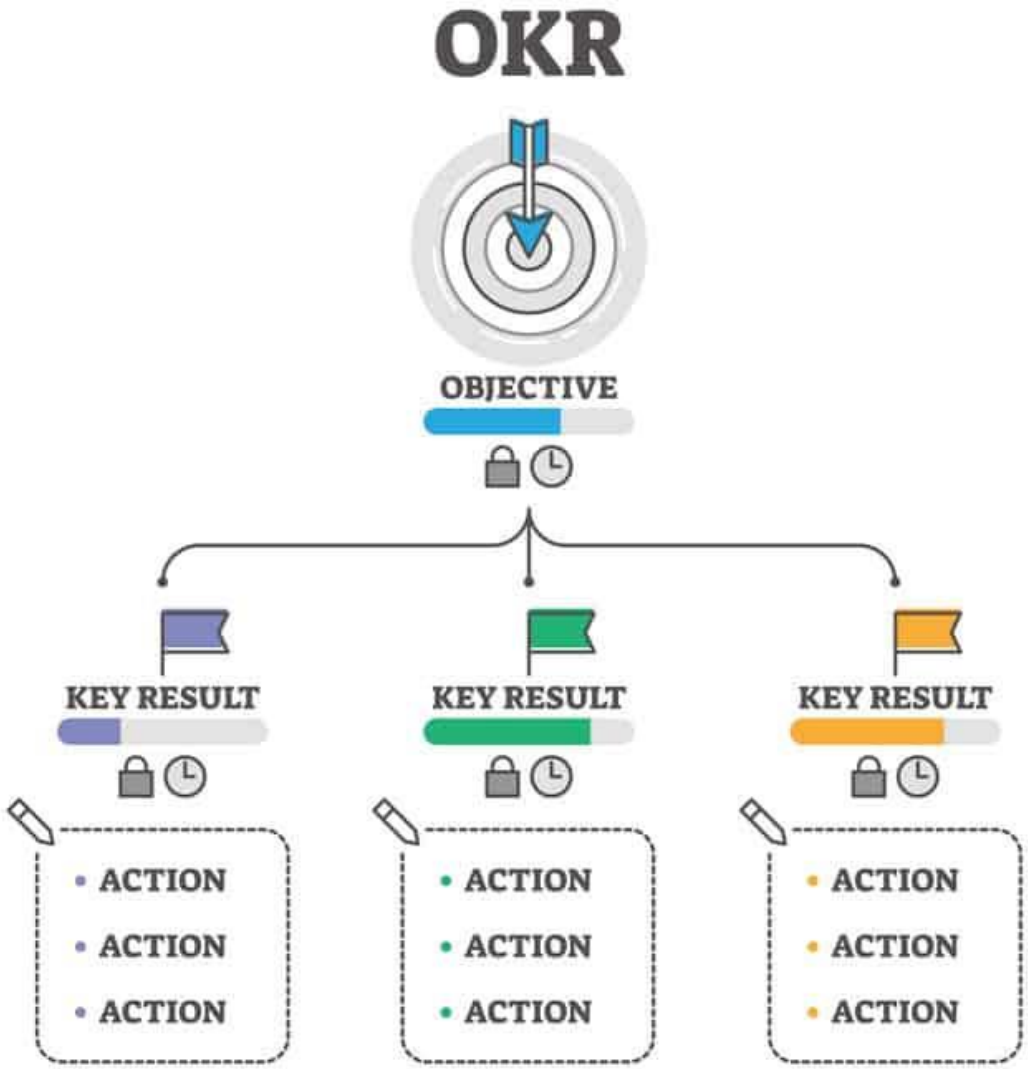
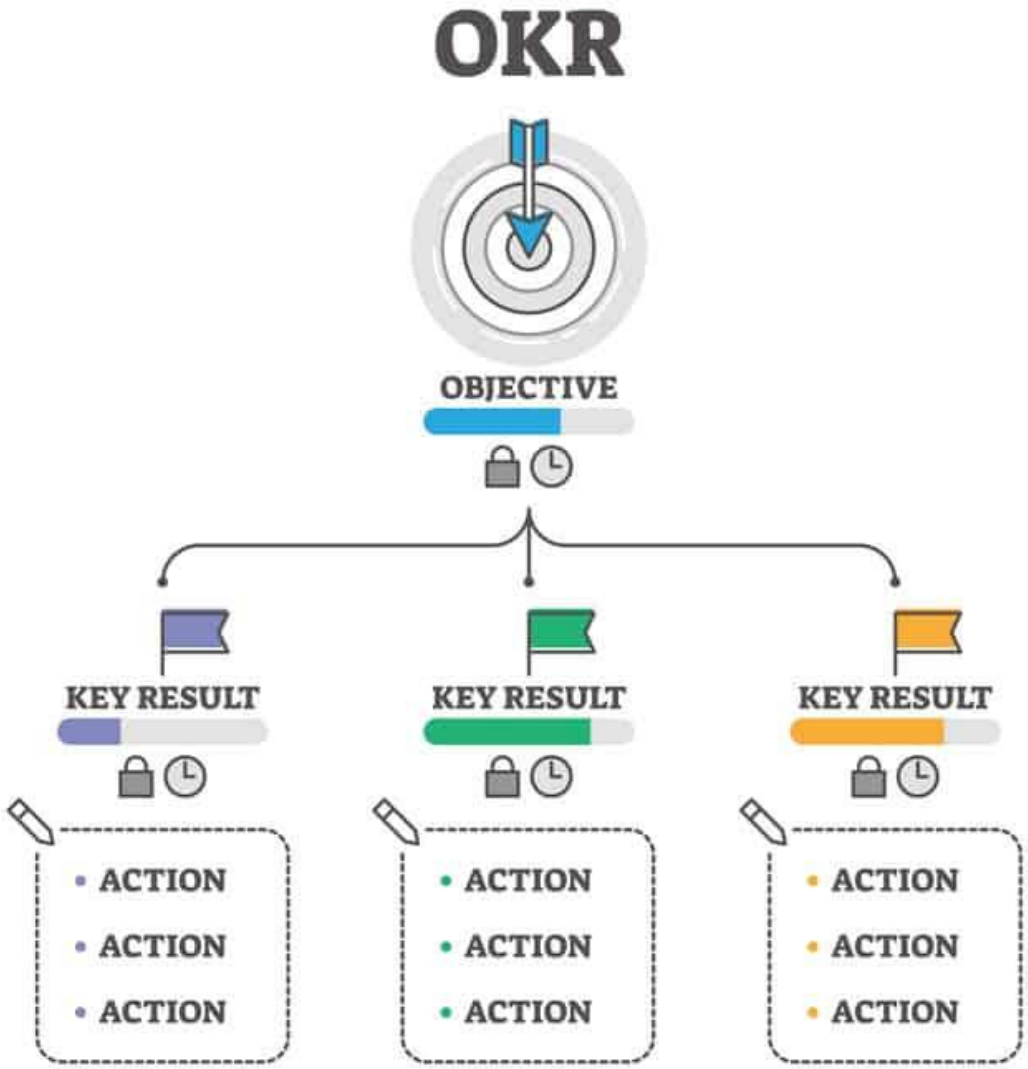
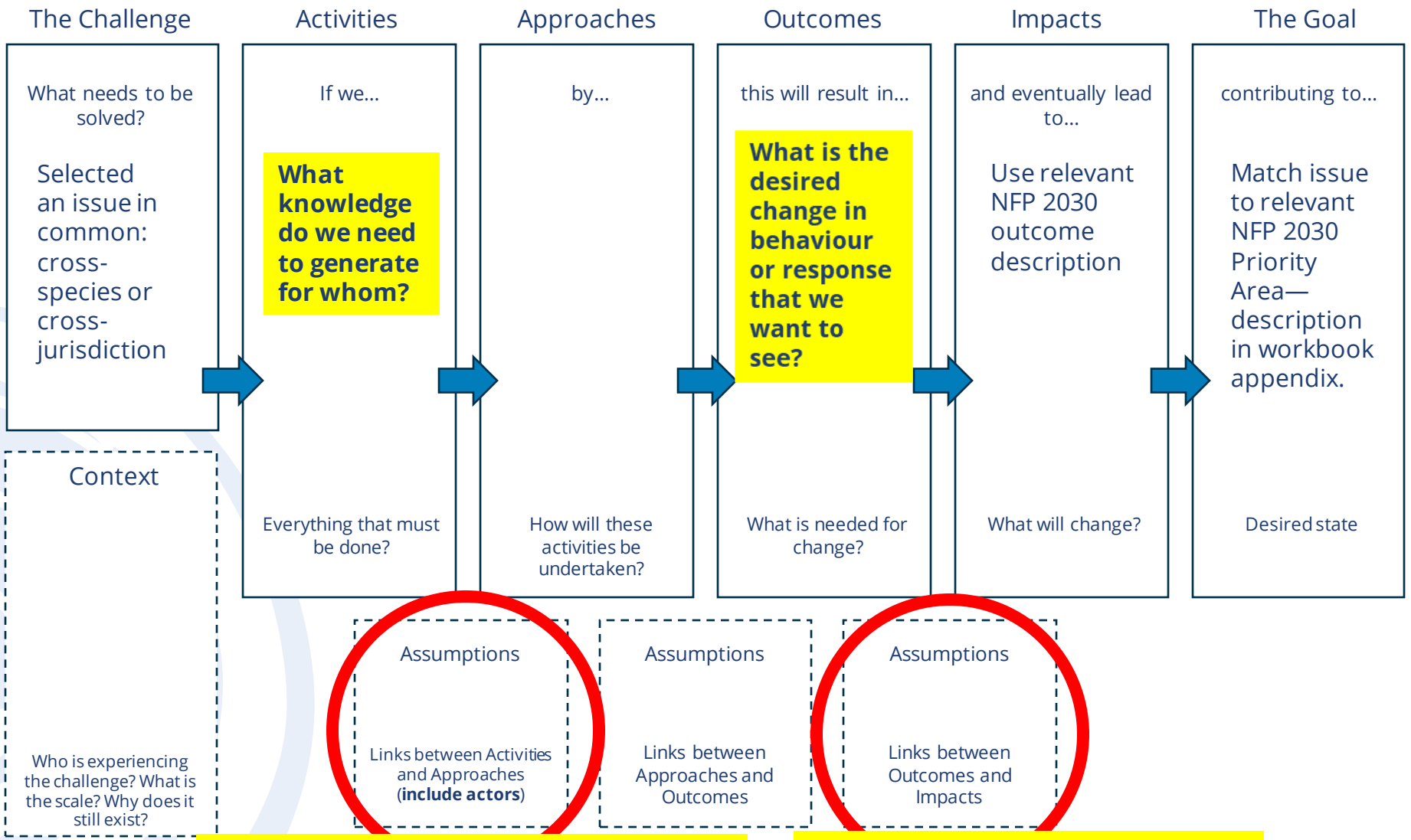
OKRs: Objectives & Key Results





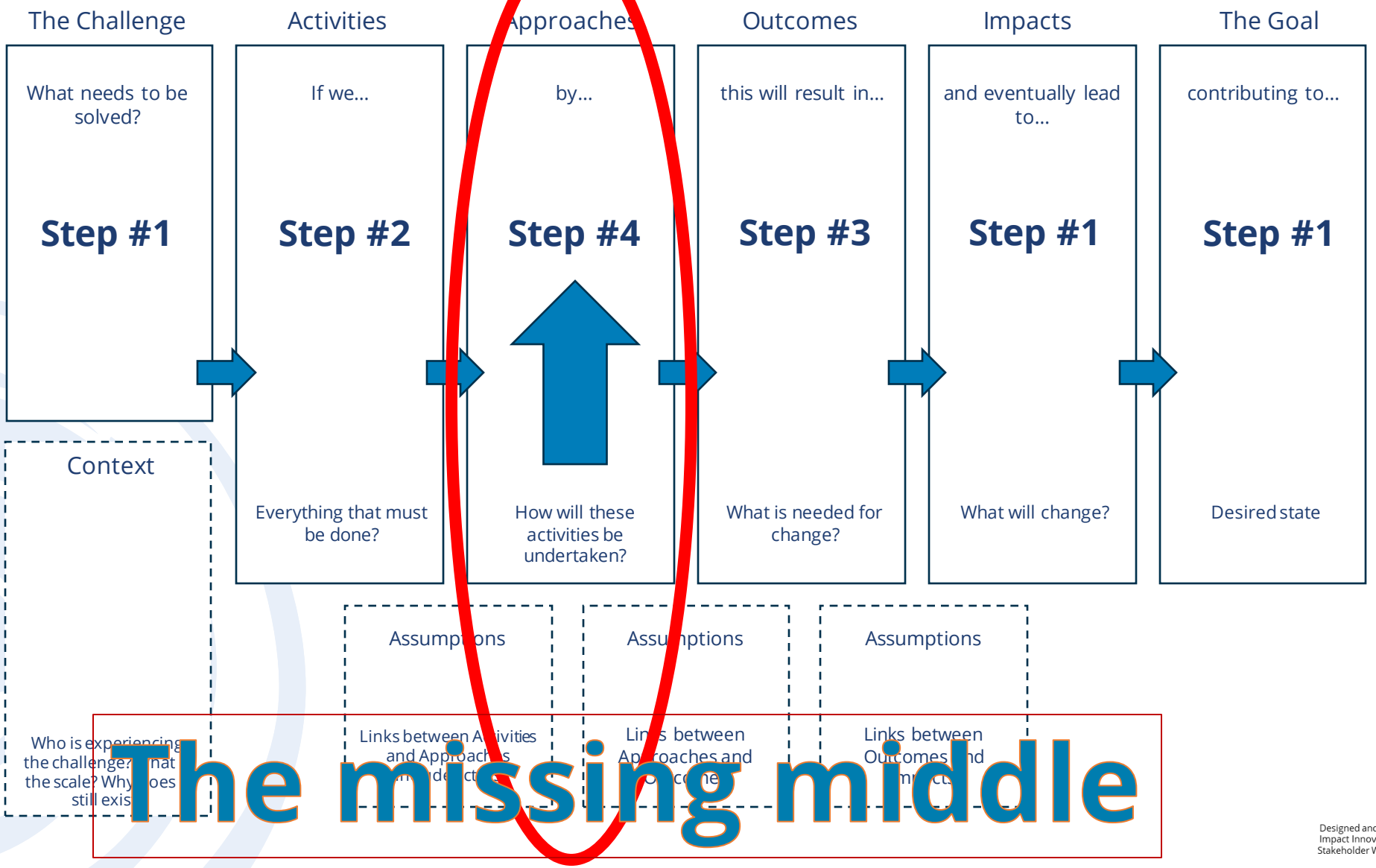
Group report back Session #2 & #3

Theory of Change: Impact Map – Session #2 & #3: Who are the actors/parts in the system that need to change? What is the desired change that you want to see?



TOC Session STEP #4

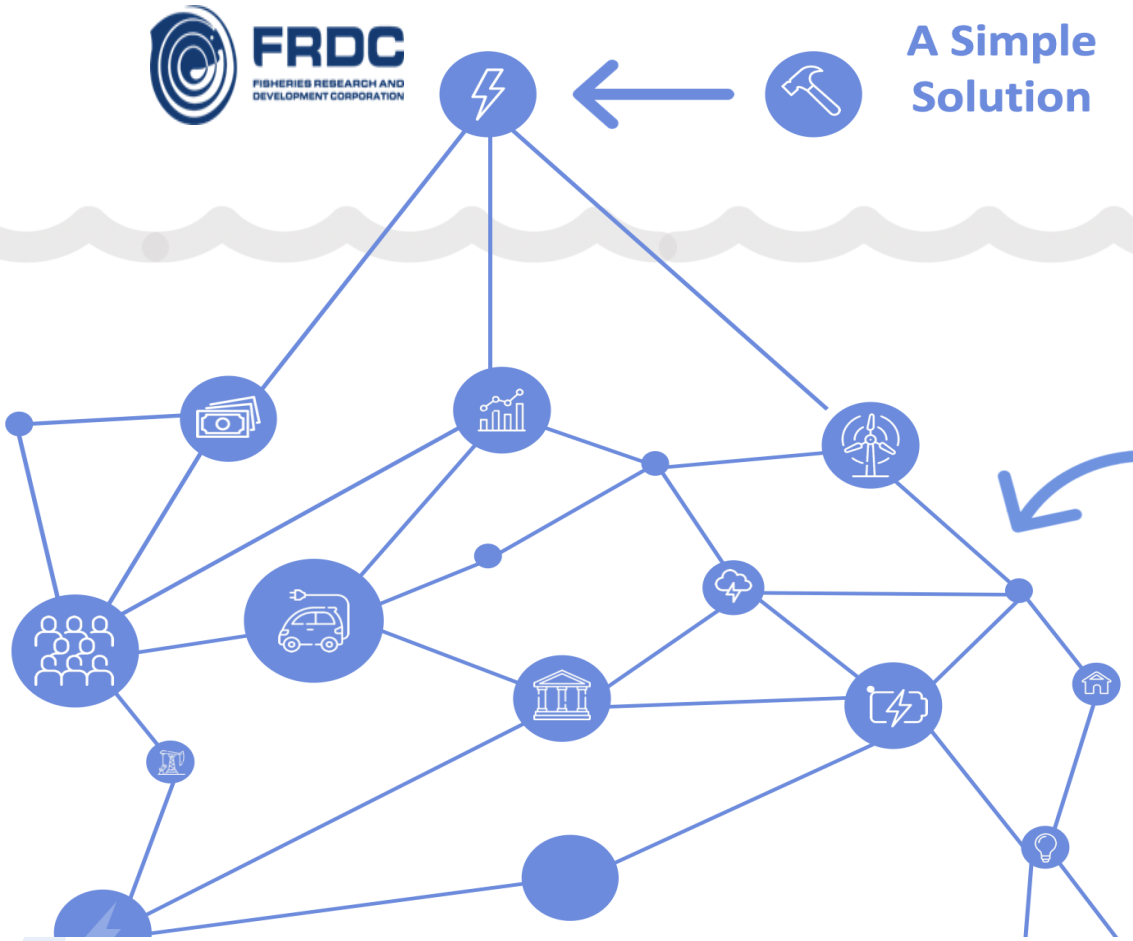
Theory of Change: Impact Map – Completed in 4 Steps



Iceberg System Metaphor

Why FRDC projects alone no longer work...

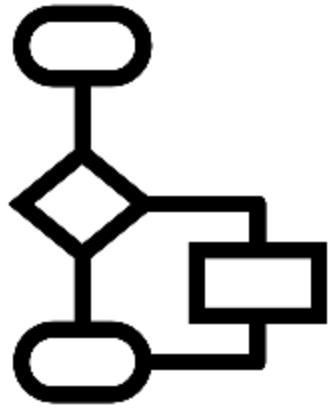
Short-term thinking denying complications and disruptions



Also, need to account for interrelationships between the many moving parts "below the surface"

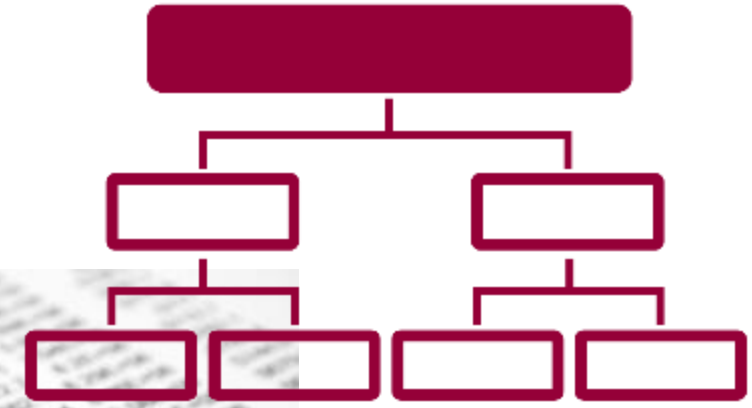
Examples of processes

- Hiring, interviewing, onboarding
- Rewards, performance appraisal, promotions, high potential management
- Training, succession planning
- Change management
- Strategic management
- Measurement tracking, budgeting
- Project management, project approval process
- Decision making, handling conflict
- Reporting
- Standard operating procedures
- Steps to complete a task
- Communication



Structure Influences Behaviour

Structures are one of the most powerful influences on behaviour, there are - they are the “context” within which change occurs

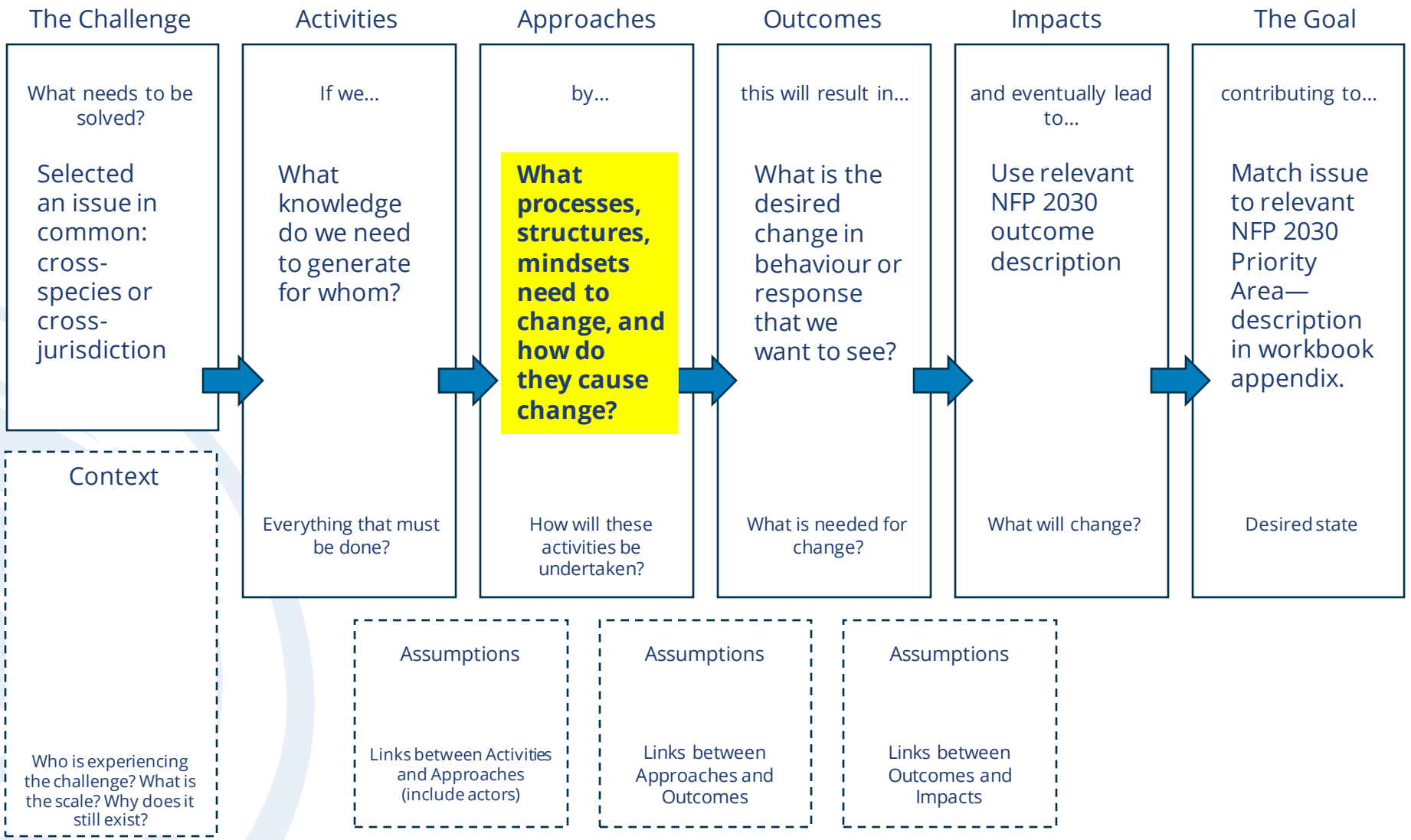


Examples of structures

- Task force
- Project teams
- Program Management Office
- Reward & Recognition Program
- Reports, job descriptions
- Organisation charts
- Rules, guidelines, laws
- Buildings, physical location of depts
- Leadership team
- Colors, shapes
- Agendas
- Bottles, boxes
- Walls, dividers
- Roads

Iceberg System Metaphor

Theory of change: Impact Map – Session #4: What processes and structures need to change



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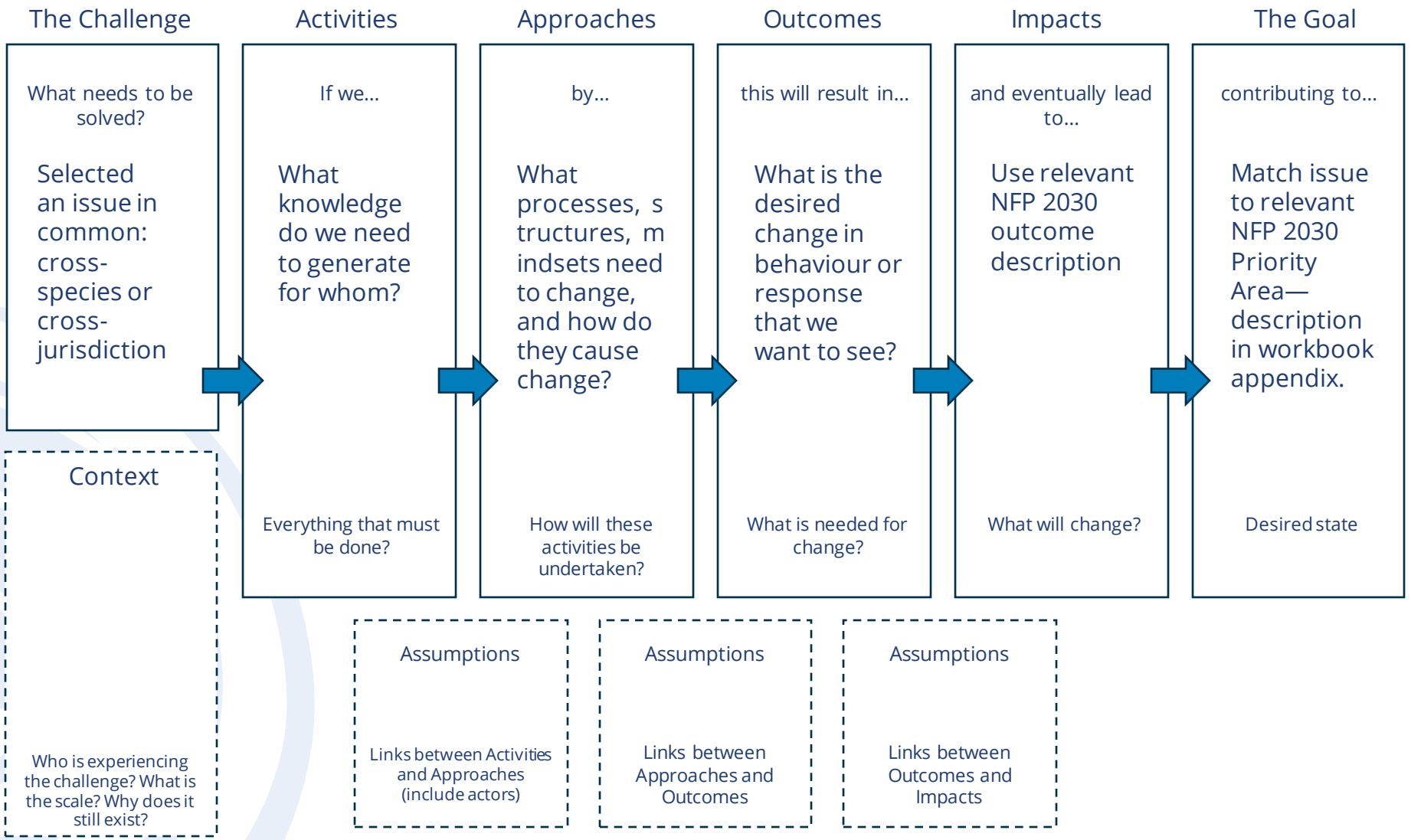
Group report back Session
STEP #4

Strawperson Impact Map – Completed



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What success looks like in 2030?

#	Priority Area	Description	Outcome by 2030
1	Governance	Streamlining and harmonising governance and regulation across jurisdictions and sectors	**A collaborative, secure, efficient and effective regulatory environment**
2	Sustainability	Managing the sustainable use of fisheries, aquaculture and seafood resources, while maximising benefits and ensuring healthy aquatic ecosystems	**Sustainable and healthy fisheries and aquaculture resources**
3	Resource sharing and access security	Implementing clear and secure access to fisheries, aquaculture and seafood resources	**A transparent, consultative approach to resource sharing and increased security of access for all sectors**
4	Indigenous opportunity	Nurturing cultural and customary values and supporting and enabling participation of the Indigenous fishing, aquaculture and seafood sectors in fisheries management and fisheries-related business	**An empowered Indigenous fishing sector, actively involved in fisheries management and fisheries-related business**
5	Recreational recognition	Recognising the economic and social benefits of recreational fishing	**A celebrated and vibrant recreational fishing sector**
6	Adaptation	Supporting sectors to adapt to, and harness opportunities from, a changing environment	**A thriving fisheries, aquaculture and seafood community in a changing environment**
7	Employment, participation and health	Improving the health and wellbeing of the fishing, aquaculture and seafood community	**A prosperous workforce and a healthy fishing, aquaculture and seafood community**
8	Community connection	Promoting trust and understanding between the fishing, aquaculture and seafood community and the public	**A celebrated fishing, aquaculture and seafood community**
9	International engagement	Engaging internationally to promote sustainable fisheries management and market access	**World-leading international engagement, diverse trade opportunities and greater market access**

Activity: Considering the tools and collaboration for impact.

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Impact Innovation next steps for AOP & R&D Plan

- Collect your work and pull together of the insights from this session focused on solving the broader x-jurisdiction & x-sector critical issues identified in combined stakeholder feedback
- Identify anything that is new and emergent beyond what is already being considered during the current planning period to 2025
- Use insights gathered to inform next AOP and future R&D plan 2025-30
- Recommendations based on your feedback for different approaches to addressing issues

What was your experience like?

Workshop End

Thank You