Ministry for Primary Industries
Manatū Ahu Matua

Agritech NEW ZEALAND

Rezare systems

Agritech Data Reference Group

https://forms.gle/idBxtbNXSoec3GYF7

+

Geospatial Ag Data Working Group

https://reza.re/geo

Ministry for Primary Industries
Manatū Ahu Matua

Agritech NEW ZEALAND

Rezare systems

Kenneth Irons, Chair AgriTechNZ

Andrew Cooke, MD of Rezare Systems, CTO of Map of Ag

Brendan O’Connell, CE AgriTechNZ

Opening Remarks

Kenneth Irons, Chair AgriTechNZ

Ministry for Primary Industries
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Objective

Seek expressions of interest to join an agritech data reference group : to represent AgriTechNZ and shared sector interests

Seek expressions of interest to join a geospatial data working group : to develop technical agreements on geospatial ag data

Budget 2021 funding includes $37m towards national integrated farm planning system for farmers and growers

“To meet our climate change and sustainability goals we need a single national farm planning framework that is easy for farmers and growers to use and that integrates with their business requirements,” Damien O’Connor

Growing opportunities for NZ's agritech ecosystem

Agritech NEW ZEALAND

OUR MISSION

To scale the New Zealand agritech ecosystem through:

- **Advocacy**
- **Collaboration**
- **Innovation**

And to support farmers and growers to adopt agritech to increase:

- **Productivity**
- **Profitability**
- **Sustainability**

OUR PROGRESS

1 Industry Transformation Plan

1 Economic impact research report

5 Global partnerships

3 International Agritech Missions

4 Key recommendations
- National agritech strategy
- Trans-Tasman agritech strategy
- Understand local adoption better
- Stimulate local agritech adoption

36 Events and webinars for members

2,200 Agritech Insights Webinar Attendees

13 National workshops hosted to develop the New Zealand Agritech Story - Powered by Place

150+ Members

www.agritechnz.org.nz

AGRITECH INDUSTRY TRANSFORMATION PLAN

New Zealand Agritech

Agritech NEW ZEALAND

Photo credit: Paul Sutherland Photography

GOOD FOR THE WORLD

Working in partnership to grow and transform the Agritech sector

NEW ZEALAND TRADE & ENTERPRISE
Te Taurapa Tūhono

NEW ZEALAND FOREIGN AFFAIRS & TRADE

Ministry for Primary Industries
Manatū Ahu Matua

Agritech NEW ZEALAND

CallaghanInnovation
New Zealand's Innovation Agency

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

All of Government with industry collaboration

Industry Transformation Plans (ITPs)

ITPs - A key tool in delivering the Government's Industry Strategy

What	High intensity, high investment, partnership-based approach to Industry policy
Goals	Lift productivity through enabling scaling up of internationally competitive clusters with a comparative advantage Transform environmental and labour market outcomes - lifting productivity, sustainability & inclusivity
Focus	Long-term vision with short & mid term step change actions
How	Partnerships & collaboration across government, business, Māori & workers is core to transformation success

Six ITPs Underway

Transforming Industries to Lift Productivity

Enabling the scaling up of highly productive & internationally competitive clusters in areas where we have a comparative advantage

Scaling up Value

High value, currently smaller sectors
Supporting diversified, resilient, knowledge intensive & high value future economy

Moving from Volume to Value

Significant employers & exporters
Opportunity to become more productive & move up the value chain

1 - Agritech
2 - Digital Technologies

3 - Advanced Manufacturing
4 - Food and Beverage Manufacturing
5 - Forestry and Wood Processing
6 - Construction

AGRITECH INDUSTRY TRANSFORMATION PLAN

Agritech ITP : Workstreams

Work-stream	1 – Global	2 – Commercialisation	3 – Investment	4 - Data Interop & Regulations	5 - Skills & Workforce	6 – Government
Areas of focus	• Connecting the NZ agritech ecosystem to global opportunities • Collaborating with Australia	• Accelerating commercialisation of research institute IP • Private sector commercialisation	• Specialist early-stage capital funding • Maximising global funding links & opportunities	• Data interoperability & open data • Variations in regulatory requirements	• Skills required to develop agritech • Skills required to use agritech, & impact of agritech on the workforce	• Improving transparency of government support • Improving understanding of agritech sector
Why	NZ's developments in agritech not well connected to international opportunities	NZ invests a significant amount into agritech research but struggles to bring research-based ideas & IP to market	NZ agritech firms and start ups struggle to attract the growth capital needed to scale. There is a lack of specialised funding in NZ	Agritech systems are often not cross-compatible, don't share standards & data produced can't be easily integrated into other systems.	Agritech struggles with skills shortages in several areas. Need for upskilling primary workers to ensure they can utilise agritech innovations.	Engagement with govt can be challenging Measurement of NZ agritech is incomplete
Lead Agency	NZTE	Callaghan Innovation	NZTE	MPI	MBIE	MBIE

Agritech ITP : Feedback 600

1. **'Data Interoperability'**
2. **Commercialisation**
   - ***funding supports***
   - ***policy impact?***
3. **Technology Adoption**
4. **International opportunities**
5. **…Connectivity*?***

AGRITECH INDUSTRY TRANSFORMATION PLAN

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Agritech Data Reference Group

Role of Reference Group

The role of this Industry Reference Group (IRG) is to

a) bring together senior representatives from AgriTechNZ membership - to represent shared industry perspectives
b) provide leadership and guidance on industry data interoperability projects…in partnership with Government and in support of data collaboratives
c) be a independent conduit for information from projects back to the wider sector

Role of Reference Group

- Engage widely across the industry and seek to represent a wide range of views, not just the views of your organisation
- Work in partnership with Industry and Government groups to further develop and prioritise projects that improve data interoperability and data use in the sector

Shared aspirations, and context

SfTI Collaboration

Our vision to become global leaders in aquaculture technology by transforming the relationship between science and industry.

Collaboration among industry players and scientists to accelerate innovation has never been more critical than now as the aquaculture sector seeks to expand significantly and into riskier offshore environments to achieve its ambitious goals (five-fold increase in value to $3B by 2035).

Emerging tech no longer emerging

PlantTech in Tauranga building **AI** platform for hort research.

Pernod Ricard using Smart Machine's **autonomous vehicles** for vineyard tasks.

IOT enabled remote water monitoring & irrigation management on NZ farm.

Fonterra, Wave & HSBC launch **blockchain** bill of lading.

Robotic dog being trialed in NZ for sheep herding. v

Autonomous **drones** being used for precision spraying.

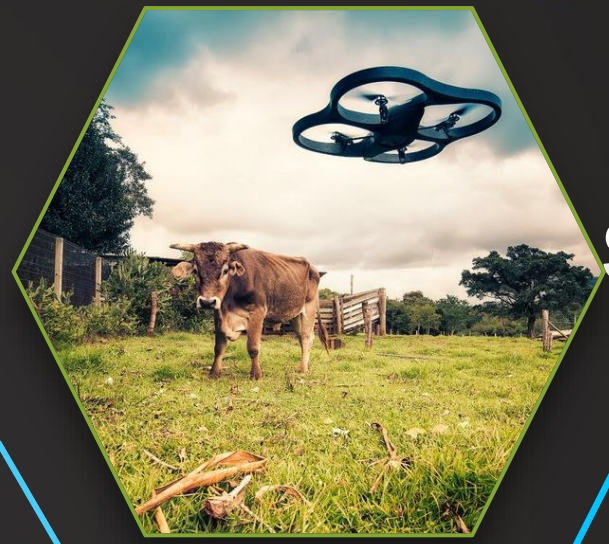
Agritech potential

1.4bn

Revenue 2019

2x

NZ primary sector productivity
and sustainability
+
Impact global environmental, food
and sustainabaility challenges



$10bn

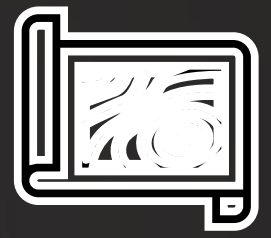
Tech often lacking from policy thinking

Reserve Bank Bill

No mention of digital currency or cryptocurrency in the bill about the future of NZ's Reserve Bank.

Water Services Bill

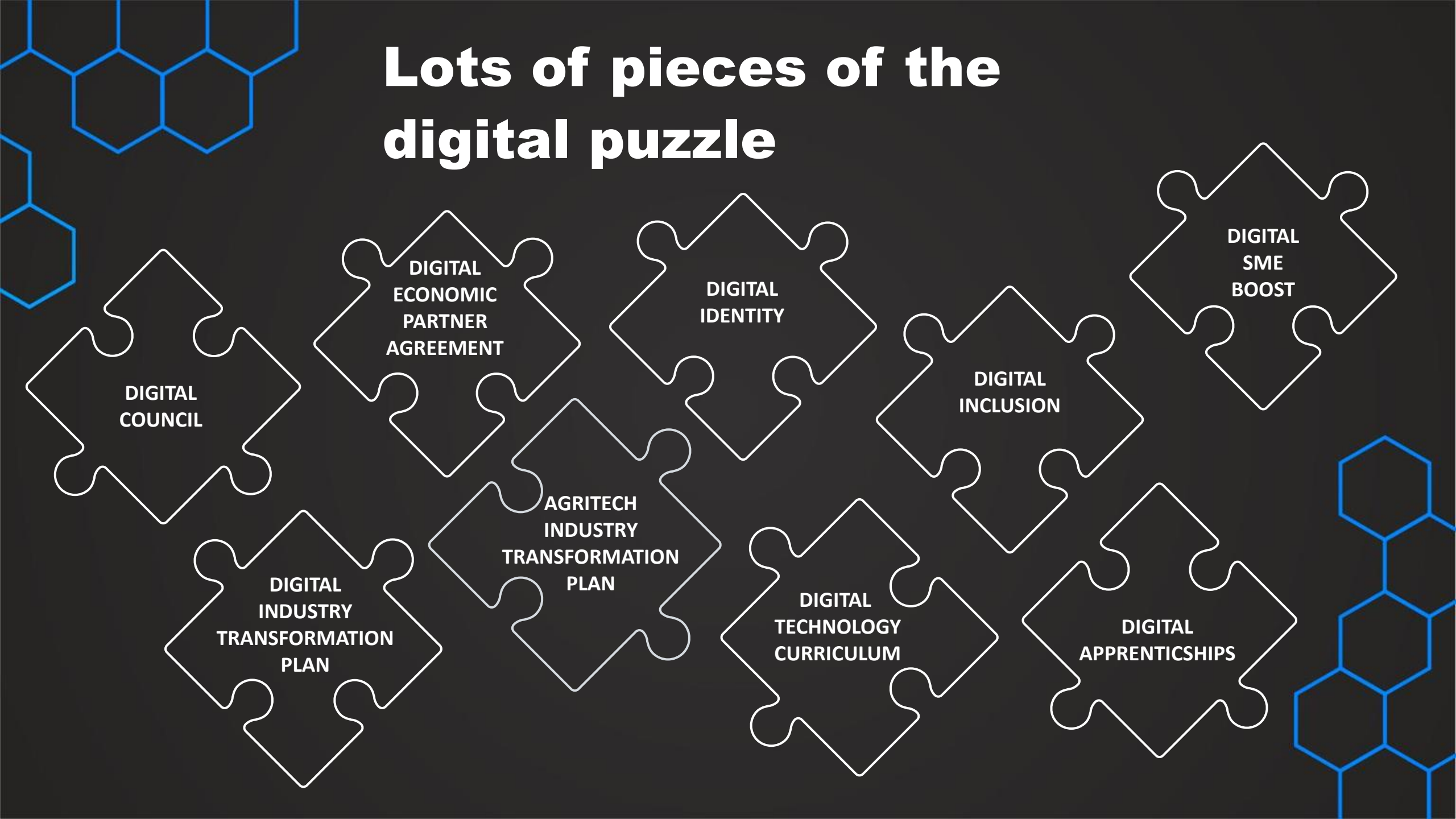
No mention of digital technology, IoT, data or sensors in the bill about monitoring NZ's water.



FEP 'framework'

Digital technology, IoT, data or sensors considered???

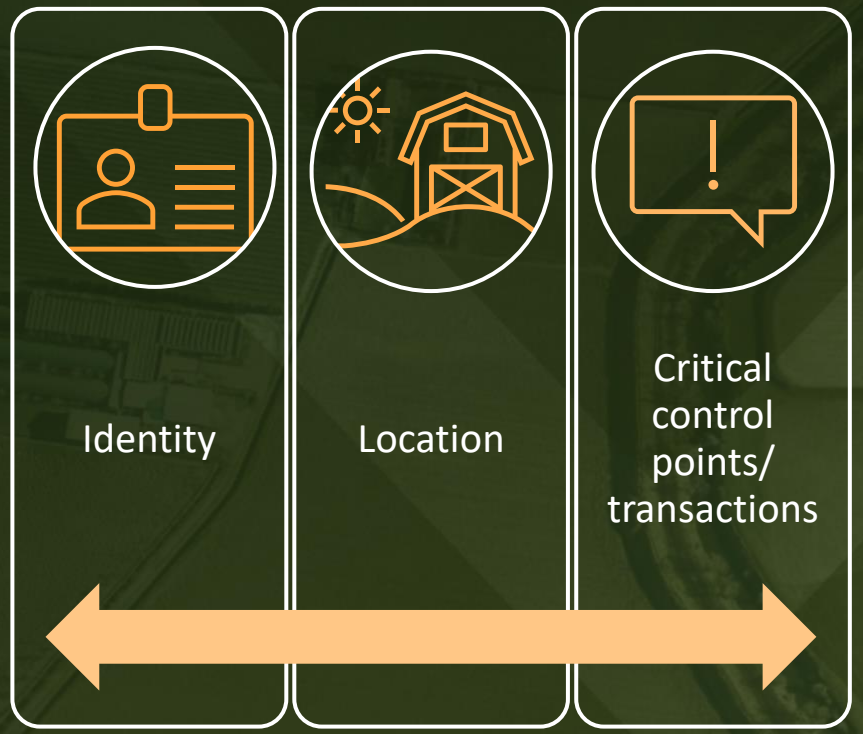
Lots of pieces of the digital puzzle



A connected national digital strategy

Trust
Alliance
New Zealand

Trust Alliance New Zealand



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Starting hypotheses

- data collaboratives and partnership development within the ecosystem are to be encouraged
- data collaboratives will be better enabled where there are open data standards
- the process of defining standards needs to be transparent, collaboratively created with good stakeholder representation, independent of any one commercial solution
- open data standards need to be linked with international standards
- data standards on their own are insufficient in enabling better data interoperability
- issues of governance, security and privacy need discussion and will likely be addressed through data collaboratives and industry regulation – with input from groups like this IRG
- agritech is in demand and globally the sector is expecting significant growth
- primary industry will never thrive without primary data

Composition

- Be made up 9 +/-2 members; with the ability to bring in additional members or expertise to address issues as needed
- Incorporate representation and experience from AgriTechNZ membership groups:
  - Major and Large corporates x3
  - Medium and Small corporates (including public sector research and independent research groups) x3
  - SMEs and early-stage business x3
- Reflect the diversity of New Zealand and be representative of all New Zealanders

Meeting Frequency and Format

- The group will self select a Chair and Vice-Chair
- Kick off meeting face to face
- Initial period of data gathering and formulation
- Monthly videoconferences
- Other requirements mutually agreed

Process

- Terms of Reference available : email (info@agritechnz.org.nz)
- https://forms.gle/idBxtbNXSoec3GYF7
- **Expressions of Interest before May 28**
- Representation considered and initial reference group informed June 4
- Kick off meeting during June

Geospatial Data Working Group

Geospatial Ag Data Interoperability

Working group and opportunity

Andrew Cooke, Rezare Systems

About me

- Rezare Systems a 2004 spin out from AgResearch, privately owned.
- Bespoke software for NZ / Australia / UK agritech, cooperatives, and agribusiness.
- Specialises in pasture systems, livestock performance, and farm data.
- From July 2020, part of the Map of Agriculture Group (founded in New Zealand, headquartered in the UK).
- Andrew Cooke – Managing Director NZ and CTO (and ag data specialist)
- Involved in farm data interoperability since 2013

Where did this come from?

- Work on DataLinker and related projects (more on that later)
- Review of interoperability solutions and approaches globally
- Many groups working on farm data interoperability, especially:
  - Farm Plans (of various sorts)
  - Sustainability, climate change mitigation and adaptation
- Organisations and groups have already expressed interest in working together to crack this.

Review of different models of interoperability

	Data governance	Empowering farmers	Widespread participation	International standards	Rapid adoption
Collectors					
Hubs					
Brokers					
Networks					
Distributed Ledgers					

New solutions pay more attention to security and permissions

Any deliberate interoperability helps farmers

Cultivate the ecosystem for innovation and long-term benefits

Can be hard to bring legacy systems along

Rezare systems

MAP OF AG

Different models but recurring components

Identity (people)	Meaning	Protocols
Entity Id (things)	Messages	Discovery
Permission	Translation	Agreements
Authorisation	Reference	Governance

Rezare systems

MAP OF AG

Different models but recurring components

Identity (people)	Meaning	Protocols
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Easiest, but still moderately useful

Rezare systems

MAP OF AG

I promised more on DataLinker…

- Confusion – often seen as a hub, but it was a network approach
- Commercial model didn't help with engagement
- Relied on each party "building their bit" (client or service) (few or no pre-built components)

I promised more on DataLinker…

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- Commercial model didn't help with engagement
- Relied on each party "building their bit" (client or service) (few or no pre-built components)

- Few reasons to build a service to make data available:
  - Other party is going to pay for access to the data
  - My farmers are going to pay to have the data available
  - Its politically difficult/dangerous not to make the data available

Rezare systems MAP OF AG

Geospatial Data Interoperability

Working group approach

MAP OF AG

Questions that could be answered

- How do I share/get <geospatial data type of interest>?
- How do we label spatial data so we know what it claims to be?
- What are the attributes that go with spatial shapes
- What are the valid values for those attributes? Meanings?
- How do we represent things – formats, international standards?
- Are there useful API patterns?
- Which system is the “master” for different sets of data? By farm?
- How do we manage updates and changes?

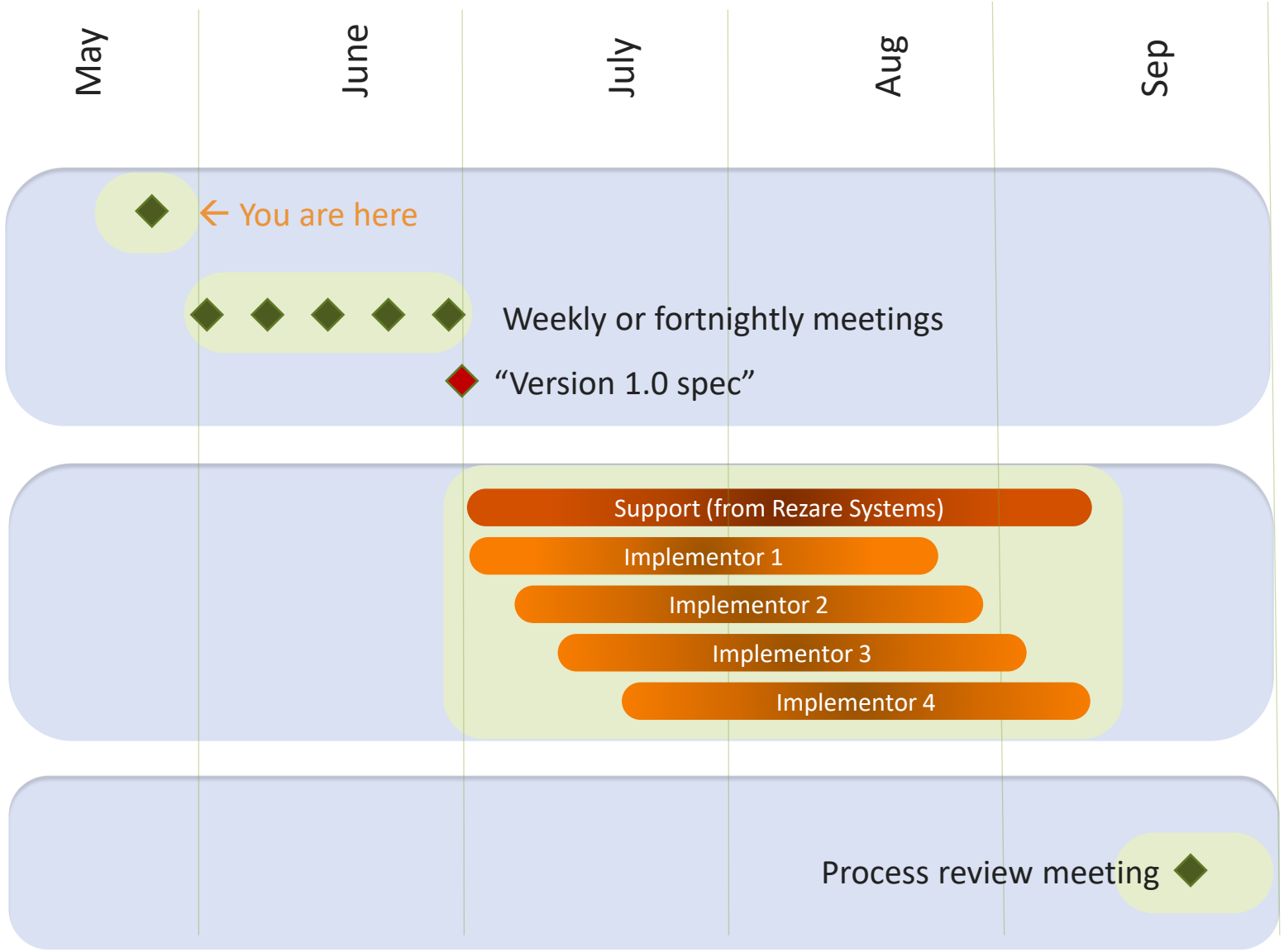
Principles

- Address specific technical issues that could unlock multiple projects
- Acknowledge that technical solutions are not the whole answer

- Re-use, don’t reinvent the wheel (wherever possible)
- Open-source approach: cost is your time (so align with your interests)
- Short, facilitated initial activity (MVP)
- Establish long-term mechanism for improvement, extension

Rezare systems MAP OF AG

Geospatial Specification – MVP Process



Who

Facilitators (Rezare Systems)
Technologists and experts

Development teams (pilots)
Support from Rezare Systems

All involved earlier
+ Agritech Data Forum

How to get involved

- Call for technical specialists
  Architects / Developers / BA or data specialist
  - Usually only 1-2 from each organisation
  - Commitment 4 x 1 hour meetings plus contributions
  - Register at https://reza.re/geo

How to get involved

- **Call for technical specialists**
  Architects / Developers / BA or data specialist:
  - Usually only 1-2 from each organisation
  - Commitment 4 x 1 hour meetings plus contributions
  - Register at https://reza.re/geo
- **Call for organisations to pilot this:**
  - Support may be available via Agritech NZ / MBIE
  - Will ask for timeframe commitments
  - Register at https://reza.re/geo

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