USER TRAINING GUIDE

Greater Graz Innovation Opportunity Map Training Guide

How to navigate the map, interpret its evidence, and discover collaboration opportunities

This handbook is for economic development teams, research organisations, founders, industry partners, cluster managers, and workshop facilitators using the Greater Graz ecosystem map.

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Content steward Greater Graz Innovation Opportunity Map project administrator

Review cycle Quarterly and before external presentations or partner outreach

Support route Use the Discussions tab in the Kumu project or contact the project administrator

Open the live map Greater Graz Innovation Opportunity Map

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Select a section name in Word to jump to it. The final page provides a compact reference for use during workshops.

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Document history

Version	Date	Change
1.0	7 September 2026	Initial user training guide
1.1	7 September 2026	Added annotated screens, role paths, worked example, facilitator agenda, worksheet, navigation, and quick reference
1.2	7 September 2026	Added an insight pattern library, additional worked examples, trainer answer key, interview checklist, digital form fields, diagrams, and PDF companion

Get started

Purpose and learning outcomes

The map helps users move from a broad ecosystem overview to a testable collaboration hypothesis. It is designed for exploration and prioritisation. It is not a directory of confirmed partnerships, a commercial due diligence report, or evidence that an organisation has agreed to participate.

After this training, a user should be able to choose the right view, narrow the network with controls, read an element profile, distinguish evidence from inference, compare opportunity scores, and record a useful next step.

Five minute quick start

1. Open 01 Greater Graz Overview and read the legend before selecting anything.
2. Use Research startup or industry to compare the three stakeholder groups.
3. Choose a domain to highlight a thematic cluster without hiding the rest of the network.
4. Select Focus by label and choose one organisation. Inspect its immediate neighbours.
5. Open 07 Opportunity Pipeline and select an opportunity. Read the rationale, evidence basis, participants, scores, and suggested next step.
6. Open 09 Evidence and Review before presenting a finding as fact.

Fifteen minute first insight exercise

Minutes	Action	Write down
0 to 3	Choose one decision question and open the most relevant view	The question and intended user of the answer
3 to 7	Select one capability, asset, organisation, or opportunity and inspect one degree	The visible pattern and the relevant node types
7 to 11	Open the connected profiles and source links	Which facts are verified and which classifications are analyst-normalised
11 to 15	State one hypothesis and its weakest assumption	One validation action, owner, and review date

Success standard A useful first insight names an observed pattern, distinguishes evidence from inference, and ends with an action that could change the decision.

A useful question to begin with

Start with a concrete question, such as which research groups and startups could help an industrial actor validate a new manufacturing application. Broad browsing often produces attractive clusters but weak conclusions. A question gives you a testable search path.

Role based learning paths

User	Start here	Primary task	Useful output
City and regional development	01 Overview then 07 Pipeline	Identify cross-sector opportunities and missing capabilities	Prioritised validation agenda
Research organisation	04 Capability Landscape	Find application partners, complementary expertise, and test environments	Partner and asset shortlist
Research-driven startup	03 Graz Core then 06 Assets	Find local evidence, pilot infrastructure, and industrial pathways	Pilot access questions
Industry	02 Verified Ecosystem then 07 Pipeline	Find relevant research, startup solutions, and validation routes	Problem-led collaboration brief
Facilitator or cluster manager	01 Overview then 09 Evidence	Guide comparison without confusing hypotheses with partnerships	Workshop insight log

Understand the map and its evidence

How the map represents the ecosystem

The network contains four node types. Connections explain how nodes relate. A user should read a node and its connections together rather than treating proximity on the screen as evidence of a relationship.

Node	Meaning	Typical question
Organization	Research and knowledge organisation, research-driven startup, or industry actor	Who could participate
Capability	Normalised reusable competence such as trustworthy AI, sensing, or digital twins	What can they contribute
Asset	Laboratory, testbed, demonstrator, facility, or real-world pilot environment	Where can the idea be tested
Opportunity	Analyst-generated collaboration concept	What could Graz do next

How to read colours and lines

Visual cue	Meaning
Blue organization	Research and knowledge
Green organization	Research-driven startup
Orange organization	Industry
Outlined organization	AI provider marker; the fill colour still shows its primary category
Purple node	Capability
Pink node	Asset or testbed
Light green node	Inferred collaboration opportunity
Solid line	Verified or source-classified relationship
Dashed line	Proposed relationship or hypothesis

Evidence rules

Verified fact A public source supports the organisation, asset, or direct relationship.

Normalised classification An official description supports the underlying activity, while the capability label is mapped into the controlled taxonomy by the analyst.

Hypothesis The opportunity, participant role, or capability combination is proposed by the analysis. It is not evidence of a current partnership.

Confidence The score measures public evidence coverage for the proposed fit. It does not predict project success or willingness to participate.

Reading the live map

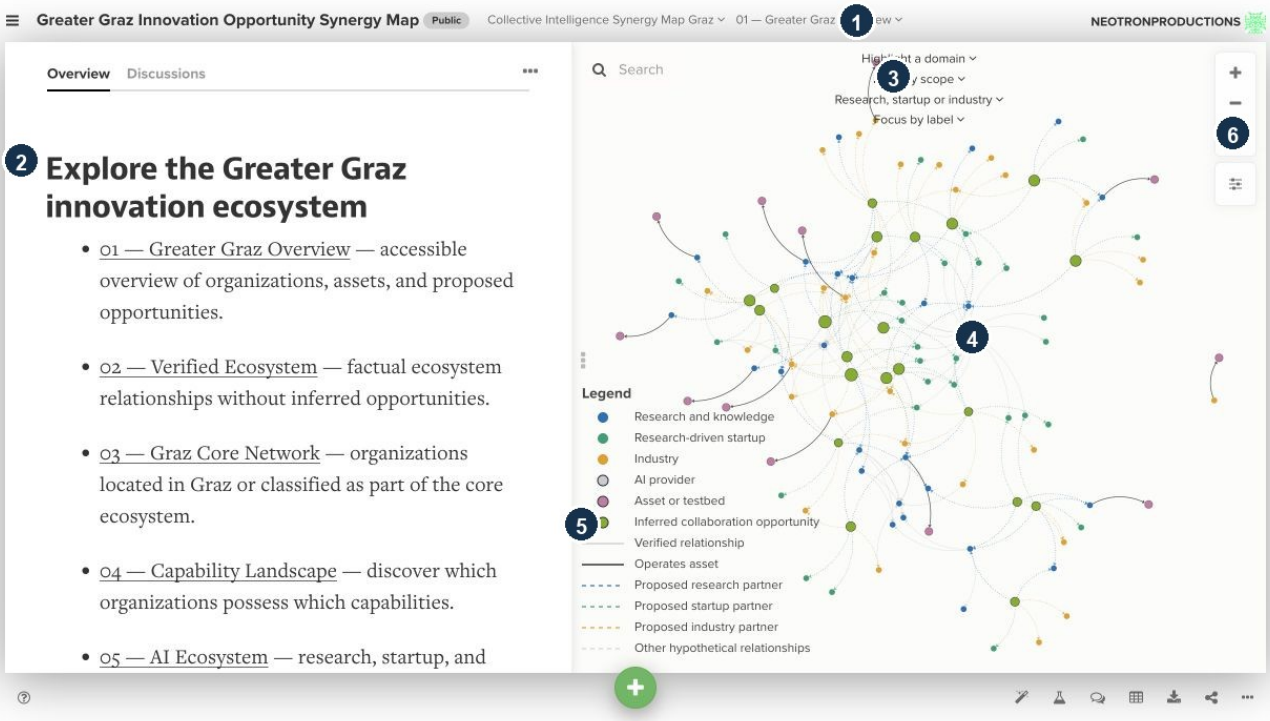


Figure 1 Main navigation and analysis areas in the Greater Graz overview

Marker	Area	Use
1	View selector	Switch between the ten saved analysis perspectives
2	Overview panel	Read guidance and open the named views
3	Interactive controls	Highlight a domain, limit scope, compare categories, or focus on a label
4	Network canvas	Select a node and trace its immediate relationships
5	Legend	Interpret stakeholder colours, node types, and verified or proposed lines
6	Zoom and fit	Restore a readable frame after filtering or focusing

Choose views and use controls

Choosing the right view

Use one view for one question. Switching views changes filters, emphasis, and layout; it does not create a separate dataset.

View	Use it when	Primary action
01 Greater Graz Overview	You need an orientation or public landing view	Compare stakeholder categories, scope, and domains
02 Verified Ecosystem	You need only factual relationships	Inspect sourced organisations, capabilities, and assets
03 Graz Core Network	You need the city and immediate functional network	Focus on an organisation and expand two degrees
04 Capability Landscape	You want to know who can do what	Select a capability or organisation and trace overlaps
05 AI Ecosystem	You need AI providers and their linked capabilities	Compare research, startup, and industry providers
06 Assets and Testbeds	You need pilot infrastructure	Start from an asset and inspect its operator
07 Opportunity Pipeline	You need actionable collaboration concepts	Filter by stage and validation status
08 Priority Shortlist	You need the highest-ranked opportunities	Compare the shortlist before deeper validation
09 Evidence and Review	You need quality control	Highlight hypotheses and records due for review
10 Full Network Reference	You need the uncurated underlying network	Use for troubleshooting and completeness checks

Recommended audience sequence

For a first briefing, move from Overview to Verified Ecosystem, then to Opportunity Pipeline. Use Capability Landscape or Assets and Testbeds only when a question requires more detail. End with Evidence and Review if the audience is making a decision or preparing outreach.

Using the map controls

Control	What it does	When to use it	How to clear it
Search	Finds a label or text	You know the organisation, capability, asset, or opportunity name	Clear the search field
Filter	Hides records that do not match	You need a clean subset	Remove the selected values or choose show all
Showcase	Fades non-matching records	You want context to remain visible	Clear the highlighted option
Focus	Shows one record and a defined number of relationship steps	You need a readable neighbourhood	Press Esc or clear the focus control
Zoom fit	Fits the current network to the window	The network is off-centre or too large	No reset required

Filter logic

Multiple filter controls use AND logic. If you select Industry and Core scope, Kumu shows records that satisfy both active conditions. If the map appears empty, clear one control at a time. Showcase is less destructive because it fades the background rather than hiding it.

Focus and network distance

One degree shows the selected node and its direct neighbours. Two degrees also shows the neighbours of those neighbours. Use one degree to explain a single profile and two degrees to discover bridges. Larger distances usually recreate the full network and reduce readability.

Reading a profile

- Confirm the node type and organisation category.
- Read location and scope tier before calling an actor local to Graz.
- Open the source URL for factual claims that matter to the decision.
- For opportunities, read Is hypothesis, Validation status, Confidence basis, Dependencies and risks, Data and IP constraint, and Suggested next step.
- Treat missing, stale, or review-due fields as work to complete, not as negative evidence about the organisation.

Discover insights

A repeatable method for discovering insights

Use the following sequence whenever the map is used for research, a workshop, or partner outreach. Each step produces a written result that another person can review.

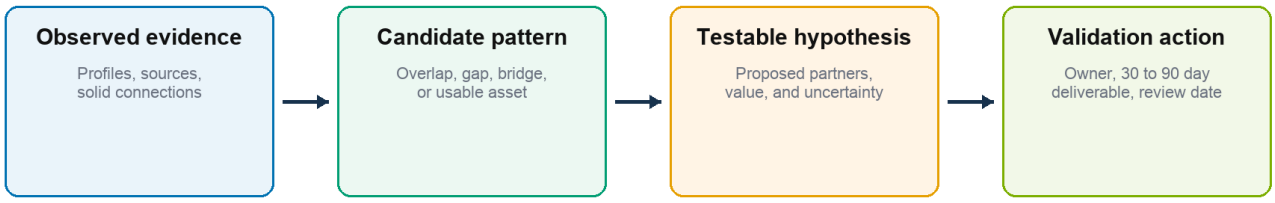


Figure 2 Evidence to action sequence for a defensible map insight

Step	Action	Question answered	Result
1 Frame	Write one decision question	What decision will this answer	One-sentence question
2 Narrow	Choose a view, domain, scope, and category	What evidence is relevant	Visible subset
3 Trace	Focus on a node and inspect one or two degrees	Which capabilities, assets, or actors connect	Candidate pattern
4 Verify	Open profiles and sources	Which links are factual and current	Evidence notes
5 Compare	Check alternatives and scores	Is this combination stronger than another	Ranked candidates
6 Formulate	Write the opportunity as a testable proposition	Who contributes what and where	Hypothesis statement
7 Act	Choose the smallest useful next step	What can be done in 30 to 90 days	Owner and deliverable

Insight statement template

A useful map insight should name the observed pattern, its evidence status, why it matters, and the next validation action.

Example structure: The map shows that [actors] share or complement [capabilities] and connect to [asset or market need]. The capability and asset links are [verified or classified], while the proposed collaboration is a hypothesis. This may create [specific value]. Validate it by [interview, technical check, data review, or pilot design].

Questions that the map can answer

- Which capabilities are shared across research, startup, and industry organisations
- Which capabilities appear concentrated in one stakeholder category
- Which assets could reduce the cost or time required for a pilot
- Which organisations bridge two domains or clusters
- Which high-value opportunities have weak feasibility, readiness, or evidence
- Which proposed collaborations have all three participant roles represented

Insight pattern library

How to use the pattern library

A pattern is a reason to investigate, not a conclusion. First identify the visual signal, then test it against profiles, sources, alternative organisations, and practical constraints. Record a collaboration only as a hypothesis until the relevant participants confirm interest and conditions.

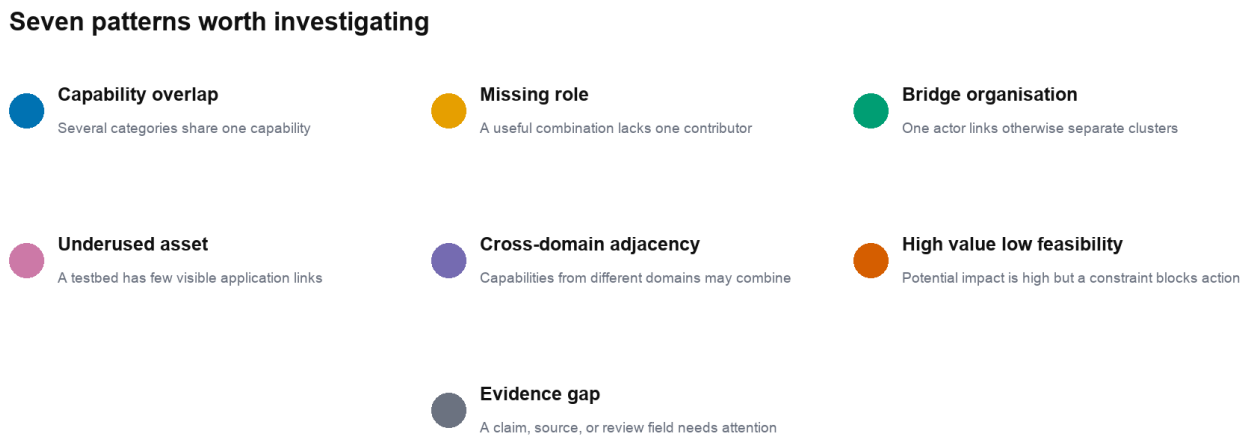


Figure 3 Seven recurring patterns for structured investigation

Pattern	Visible signal	Required check
Capability overlap	One capability links organisations from two or three stakeholder categories	Confirm that source wording, maturity, and application context are compatible
Missing role	A promising chain lacks research, startup, industry, integration, data, or test access	Decide whether the missing role is essential and search the same capability neighbourhood
Bridge organisation	One actor links several otherwise separate capabilities or domains	Verify evidence on both sides and rule out broad tagging as the only cause
Underused asset	A sourced testbed has few visible applications or opportunity links	Ask the operator about access, capacity, cost, safety, and commercial restrictions

Patterns for opportunity and evidence review

Pattern	Visible signal	Best next action
Cross-domain adjacency	Capabilities from different domains meet around one problem or asset	Write the mechanism that connects them and reject combinations based only on proximity
High value low feasibility	Value is high while feasibility, readiness, or participant interest is weak	Name the blocking condition and design one action that could remove or confirm it
Evidence gap	A source, review date, status, or assertion is missing, stale, or inconsistent	Refresh the source before changing a public statement, score, or outreach priority

Strong and weak insight statements

Weak statement	Why it is weak	Stronger statement
These organisations should collaborate	It does not identify the evidence, contribution, or uncertainty	The profiles show complementary battery testing, sensing, and analytics capabilities. A joint demonstrator is a hypothesis that depends on data access and participant interest.
This central organisation is the key player	Visual centrality may reflect broad taxonomy coverage	The organisation connects five capability domains in the dataset. Confirm whether those links represent active expertise relevant to the decision.
The testbed is available	A sourced asset is not proof of access	The asset may fit the proposed test. Confirm operator approval, capacity, cost, safety, and data conditions.
Confidence 84 means likely success	Confidence measures evidence coverage, not probability	Confidence 84 indicates that the main capability roles have public evidence. Delivery risk and willingness to participate remain untested.

Discovery workflow for capability overlaps

Use this workflow to find combinations where research depth, startup speed, and industry application may reinforce one another.

1. Open 04 Capability Landscape.
2. Highlight one domain and choose one organisation category if the map is crowded.
3. Focus on a capability. Expand to the organisations connected to it.
4. Look for representation from at least two categories. Three categories indicate a possible research startup industry combination.
5. Open each profile and compare the wording and source. A shared taxonomy label does not prove that technical maturity, application, or equipment is identical.
6. Record the complementary roles and identify the missing ingredient, such as data access, certification, integration, procurement, or a pilot site.

Discovery workflow for collaboration triads

1. Open 07 Opportunity Pipeline and choose an opportunity.
2. Confirm that proposed research, startup, and industry partner connections are present.
3. Read the rationale and basis source IDs. The sources should establish capability fit without being presented as proof of a partnership.
4. Compare value, feasibility, novelty, confidence, readiness, dependencies, and participant interest.
5. If a role is weak or absent, return to Capability Landscape to identify alternatives.
6. Define a 90-day deliverable that tests the most important uncertainty.

Common false positive

Two organisations may share a capability but compete for the same role, operate at different maturity levels, or lack access to usable data. Treat a visual overlap as a prompt for investigation. Do not present it as evidence of strategic fit until the profiles and sources support the claim.

Discovery workflow for assets and testbeds

1. Open 06 Assets and Testbeds and select an asset.
2. Confirm the operator through the solid operates asset connection.
3. Read the asset profile for location, domain, source, and any stated access constraints.
4. Identify opportunities or capabilities that could use the asset.
5. Check whether the proposed participants have the integration capability, data rights, certification path, and budget required to use it.
6. Contact the asset operator before naming the facility in an external pilot proposal.

Discovery workflow for AI supply

1. Open 05 AI Ecosystem. The border marks an AI provider; the fill colour still shows research, startup, or industry.
2. Highlight the application domain rather than treating AI as one undifferentiated market.
3. Focus on a provider and inspect its capability evidence.
4. Compare providers by application fit, available data, deployment constraints, explainability, security, and integration burden.
5. Return to Verified Ecosystem before describing an AI relationship as current or local.

Finding bridge organisations

A bridge connects capabilities, domains, assets, or stakeholder categories that otherwise have few links. In Graz Core Network, focus on an organisation and expand two degrees. A useful bridge has relevant evidence on both sides of the connection. A visually central node is not automatically influential; centrality can also reflect broad taxonomy assignments or data completeness.

Evaluating opportunity scores

Scores support comparison and workshop discussion. They are transparent analyst judgements, not investment advice or forecasts.

Measure	Scale	Interpretation
Value	1 to 5	Likely economic, environmental, or social value for the region, including strategic relevance and spillovers
Feasibility	1 to 5	Local role complementarity, usable assets, integration burden, regulation, and procurement friction
Novelty	1 to 5	Distinctiveness of the combination and potential defensibility beyond routine supplier work
Confidence	0 to 100	Coverage and quality of public evidence for the proposed fit
Priority	1 to 5	Weighted comparison score calculated from value, feasibility, novelty, and confidence
Readiness	Dataset field	Operational preparedness; use with dependencies, risks, budget, and participant interest

Priority calculation

Priority score = 0.40 × Value + 0.30 × Feasibility + 0.20 × Novelty + 0.10 × (Confidence ÷ 20).

The formula gives value the greatest weight. A high-value concept can still require substantial validation when feasibility or confidence is low. Review the component scores rather than relying on the final priority number alone.

Confidence bands

Score	Evidence interpretation	Recommended action
90 to 100	Strong capability evidence plus relevant local assets or precedent	Validate participant interest and pilot conditions
75 to 89	Major roles are grounded but the partnership is inferred	Hold targeted partner interviews
60 to 74	One or more needs or roles are partially grounded	Research the weak role before prioritising
Below 60	Exploratory evidence coverage	Treat as a discovery lead, not a shortlist recommendation

Decision rule

Do not advance an opportunity solely because it ranks highly. Check whether its sources are current, all required roles are plausible, a suitable asset or pilot environment exists, and the next step tests a real uncertainty.

Opportunity decision gate

Question	If the answer is no	Return to
Are the critical sources current	Refresh or replace the weak evidence	09 Evidence and Review
Are research, startup, and industry roles plausible	Find alternatives or narrow the consortium	04 Capability Landscape
Is a usable asset or pilot environment identified	Confirm an operator, host, and access route	06 Assets and Testbeds
Does the next step test the weakest assumption	Rewrite the validation action and deliverable	07 Opportunity Pipeline
Has participant interest been checked	Treat the named consortium as provisional	Direct stakeholder outreach

Worked example

Reading an opportunity profile

An opportunity profile combines evidence-backed capability fit with an analyst-generated collaboration hypothesis. Read the fields in this order before discussing the concept as a potential project.

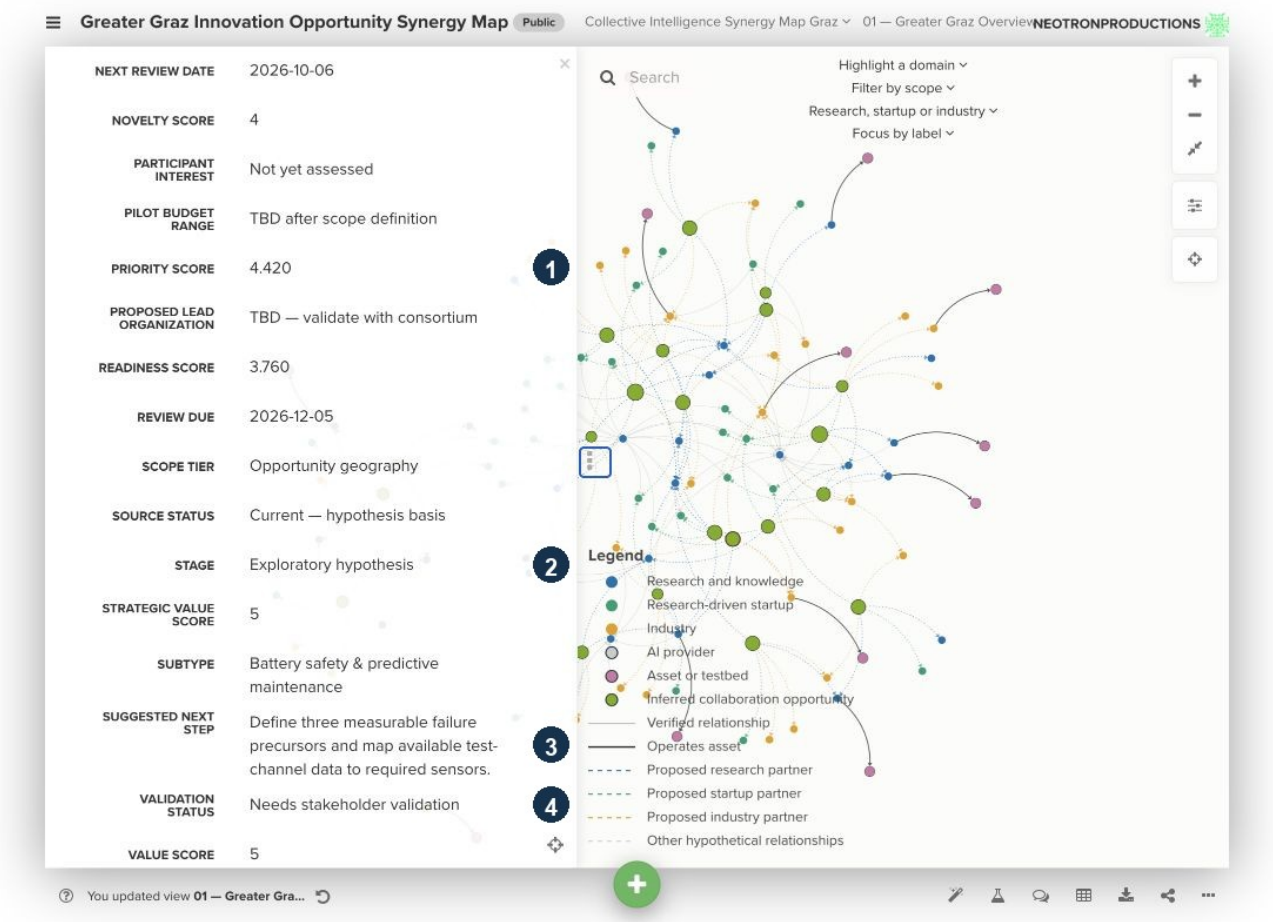


Figure 4 Opportunity profile fields used for validation

Marker	Field	Interpretation
1	Priority and readiness	Use for comparison; inspect the component scores before ranking
2	Stage and source status	Confirms that the concept remains an exploratory hypothesis
3	Suggested next step	Names the smallest useful action for reducing uncertainty
4	Validation status	Shows whether participant interest and project assumptions have been checked

Case example embedded battery health demonstrator

Decision question Could Graz combine battery testing, embedded sensing, explainable analytics, and industrial validation to detect degradation or thermal anomalies earlier

Observed evidence The dataset documents relevant local battery testing, electronics research, predictive monitoring, and validation capabilities.

Hypothesis The named organisations could combine those capabilities in one demonstrator. The map does not establish that they are already collaborating or willing to participate.

Role	Named participants	Potential contribution
Research	Silicon Austria Labs and Know-Center	Embedded electronics, sensing, analytics, and trustworthy AI evidence
Research-driven startup	Zyglox	Condition monitoring and sensor expertise for failure precursors
Industry	Samsung SDI Battery Systems and AVL	Battery application, test channels, integration, and validation context

Capability chain

Battery systems and lifecycle → sensors and metrology → embedded and edge systems → predictive maintenance → trustworthy AI → testing and certification

Score interpretation

Value	Feasibility	Novelty	Confidence	Priority
5	4	4	84	4.42

The high priority score makes the concept worth validating. Confidence 84 means the public evidence covers the main capability roles. It is not an 84 percent probability of project success.

Main uncertainties Sensor placement, access to labelled degradation data, and automotive validation cycles.

Evidence basis SRC_SAL, SRC_KNOW, SRC_SPG_ZYGLOX, SRC_SAMSUNG_SDI, and SRC_AVL.

Suggested next step Define three measurable failure precursors and map available test channel data to the required sensors.

Ninety day deliverable A benchtop proof of concept protocol and labelled data plan.

How to test the insight

1. Open the source links for each named participant and confirm the relevant capability language.
2. Ask the industrial participants whether a non-sensitive test channel and representative failure mode are available.
3. Ask the research and startup participants whether the required sensing and analytics can operate within the data and hardware constraints.
4. Replace any unsuitable participant with an alternative from the same capability neighbourhood.
5. Advance the concept only when a project owner, data route, pilot environment, and review date are agreed.

Additional worked examples

These short examples demonstrate the expected output from each discovery workflow. Counts and links describe the v0.1 dataset snapshot. They do not measure market capacity, organisational quality, or willingness to collaborate.

Capability overlap example artificial intelligence

Observed pattern Artificial intelligence and machine learning is assigned to eight research and knowledge organisations, ten research-driven startups, and three industry organisations in the v0.1 dataset.

Interpretation The capability has representation across all three stakeholder categories, but industry coverage is lower by record count. This may indicate an outreach gap, a classification gap, or a genuine concentration of visible providers outside industry.

Evidence check Open the profiles behind the capability. Compare application domain, source wording, technical maturity, and whether AI is a core offering or a supporting method.

Next step Choose one industrial problem and shortlist only providers whose evidence matches that application and data environment.

Collaboration triad example hydrogen validation

Candidate OPP_17 Durable green-hydrogen component validation sprint.

Verified basis The dataset sources document hydrogen research and test capability at HyCentA and LEC, materials startups ionida and Duramea, and industrial application capability at AVL and ANDRITZ.

Hypothesis Those roles could form a neutral component-comparison sprint. The map does not establish a current consortium.

Weakest assumption A shared specification, material sample, duty cycle, and failure criterion can be agreed without compromising confidential IP.

Validation action Agree one component specification, duty cycle, failure criterion, and data-sharing boundary. The 90-day output is a neutral test protocol, first comparative results, and a scale-up gap analysis.

Asset led example HyCentA test infrastructure

Observed fact ASSET_HYCENTA_TEST is listed as HyCentA hydrogen test infrastructure, operated by HyCentA Research in Graz, with a source describing production, storage, distribution, and application testing.

Potential use The asset may support OPP_17 or another hydrogen component-validation question.

Do not infer The source does not prove that a specific test slot, duty cycle, budget, or commercial access route is available.

Operator questions Which equipment matches the component, what sample and safety requirements apply, what results can be shared, and what lead time and cost should be assumed.

AI supply example regulated pharma copilot

Candidate OPP_05 Validated generative-AI copilot for regulated pharma operations.

Provider fit Know-Center and Leftshift One provide documented AI capability; RCPE, Fresenius Kabi, ZETA, and VTU provide pharmaceutical engineering, production, or validation context in the dataset.

Hypothesis A retrieval-based copilot could be evaluated on a bounded, human-reviewed workflow. No current partnership is asserted.

Blocking questions Which documents may be used, whether the workflow is GxP-relevant, how answers are traced to sources, and who remains accountable for each decision.

Validation action Select one non-GxP or human-in-the-loop workflow and agree the evaluation rubric before exposing documents.

Bridge example JOANNEUM RESEARCH

Observed pattern JOANNEUM RESEARCH has ten capability assignments across five domains in the v0.1 organisation file, giving it broad visible reach in the network.

Possible insight The organisation may help connect mobility, digital, climate, health, and sensing questions where relevant expertise is supported on both sides.

Required caution Breadth in the taxonomy is not proof of influence, availability, or an internal route between teams. Confirm the relevant institute, active capability, and contact path.

Evidence audit example battery passport

Record OPP_01 Battery passport and residual-value pilot.

What is supported The cited sources establish relevant battery development and testing, digital twin, secure identity, predictive maintenance, and circular recovery capabilities.

What remains hypothetical The named participant combination, data-sharing arrangement, lead organisation, and pilot willingness are not verified partnerships.

Review decision Keep the opportunity labelled as a hypothesis until participant interest and a non-sensitive battery-pack archetype are confirmed. Refresh any source that is unavailable or no longer describes the required capability.

Validation output A shared data schema, passport mock-up, bench-validation plan, and named data owners.

What a completed insight record looks like

Field	Example entry
Decision question	Can local hydrogen assets shorten qualification of durable PFAS-free components
Observed evidence	Sourced research, materials, testbed, and industrial application capabilities
Hypothesis	A neutral comparison sprint could connect the documented roles
Weakest assumption	Participants can agree a non-confidential test specification and data boundary
Action	Hold a specification workshop and confirm asset fit with the operator
Owner and date	Assign during the workshop and set a review within 30 days

Facilitate a training session

Facilitated training exercises

These exercises work for an individual review or a 60 to 90 minute group session. Ask participants to record evidence and uncertainty separately.

Seventy five minute facilitator agenda

Time	Activity	Facilitator action	Output
0 to 10	Frame the question	Agree the decision, audience, and scope	One decision question
10 to 20	Orient participants	Explain node types, line styles, and evidence rules	Shared reading of the map
20 to 35	Compare stakeholder roles	Use Overview or Capability Landscape	One promising capability pattern
35 to 55	Stress test an opportunity	Open Pipeline and compare evidence, scores, and missing roles	Candidate hypothesis and weakest assumption
55 to 70	Define validation	Identify the smallest useful evidence-gathering action	Owner, deliverable, and review date
70 to 75	Close	Read back facts, hypotheses, and unresolved questions separately	Completed insight record

Preparation Choose one decision question, test the relevant view, confirm that source links open, and provide each participant with the insight worksheet.

Facilitation rule When discussion moves from an observed connection to a proposed collaboration, name the transition explicitly and record it as a hypothesis.

Exercise one stakeholder comparison

Prompt Choose one domain in 01 Greater Graz Overview. Compare research and knowledge, research-driven startup, and industry organisations.

Deliverable Name one capability with representation across all three categories and one category that appears underrepresented.

Check Is the pattern supported by profiles, or is it caused by missing or uneven data

Exercise two opportunity stress test

Prompt Choose one item from 08 Priority Shortlist and inspect it in 07 Opportunity Pipeline.

Deliverable Write the strongest supporting evidence, the weakest assumption, and one 90-day validation action.

Check Does the suggested next step test the weakest assumption

Exercise three asset-led pilot

Prompt Start with one asset in 06 Assets and Testbeds and identify a capability and application that could use it.

Deliverable Draft a pilot concept naming the operator, likely users, access questions, data requirements, and a measurable deliverable.

Check Has the operator actually confirmed access or is access still hypothetical

Exercise four evidence audit

Prompt Open 09 Evidence and Review and highlight Hypotheses, Review due, Source not current, and Evidence not current in turn.

Deliverable Select three records for update and assign a source-check action, owner, and date.

Check Would correcting the record change a public statement, score, or outreach priority

Facilitator answer key

The exercises do not have a single correct commercial answer. Use the checks below to assess whether participants separated observation from interpretation and chose a useful validation action.

Exercise	Acceptable evidence of completion	Common correction
Stakeholder comparison	Names one capability, gives examples from each visible category, and notes that counts reflect dataset coverage	Do not treat a larger node count as proof of greater regional capacity
Opportunity stress test	Quotes or paraphrases the strongest source-backed role, identifies one untested assumption, and proposes an action that tests it	Replace generic networking with a specific evidence-producing action
Asset-led pilot	Names the sourced asset and operator, states a possible use, and lists access questions	Remove any claim that availability has already been confirmed
Evidence audit	Separates stale or missing evidence from negative evidence and assigns an owner and date	Do not lower a score automatically before checking the source and assertion

Facilitator prompts

- Which part of that statement is directly visible or sourced
- What alternative organisation or capability did you compare
- What could make this pattern an artefact of the taxonomy or missing data
- Which assumption matters most to the decision
- What result from the next action would cause you to stop, revise, or advance the opportunity

Debrief standard A strong group can explain the evidence, hypothesis, uncertainty, and next action in under two minutes without describing a proposed partnership as current.

Insight capture worksheet

Complete this page in Word during or immediately after a map session. Select each grey placeholder and type. The fields expand with the response. Keep observed evidence separate from the proposed interpretation.

Decision question What decision or collaboration question are you investigating

{{DECISION_QUESTION}}

View and filters Which view, domain, scope, category, and focus did you use

{{VIEW_AND_FILTERS}}

Observed pattern Which nodes and verified relationships are visible

{{OBSERVED_PATTERN}}

Evidence checked Record source links or source IDs and any freshness concerns

{{EVIDENCE_CHECKED}}

Collaboration hypothesis Who could contribute what and why might the combination matter

{{COLLABORATION_HYPOTHESIS}}

Weakest assumption or risk What could make the interpretation wrong or impractical

{{WEAKEST_ASSUMPTION}}

Validation action What is the smallest useful action within 30 to 90 days

{{VALIDATION_ACTION}}

Owner and review date Who will act and when will the finding be reviewed

{{OWNER_AND_REVIEW_DATE}}

Capture and communicate findings

From insight to action

A map session is complete only when the finding is captured with its evidence status and a practical next step. Use a simple insight log outside Kumu or add governed fields to the source spreadsheet.

Field	What to record
Question	The decision or opportunity being investigated
Observed pattern	The nodes and relationships visible in the selected view
Evidence	Source links and which relationships are verified
Hypothesis	The proposed fit or collaboration that still needs validation
Risk	The most important technical, legal, commercial, data, IP, or access constraint
Next step	A concrete action that can be completed within 30 to 90 days
Owner and review date	Who will act and when the finding will be reviewed

Opportunity validation interview checklist

Use a short interview to test the assumptions behind a map opportunity. Send the opportunity label, the hypothesis statement, and the specific questions in advance. Do not present other named participants as committed.

Topic	Question to ask	Evidence to record
Relevance	Is the problem important enough to justify work in the next 12 months	Concrete use case, affected process, and decision owner
Contribution	Which capability, asset, data, or market access could you realistically contribute	Named resource, responsible team, maturity, and constraints
Fit	What would need to be true for the proposed combination to add value	Technical interface, workflow, buyer, or operational condition
Data and IP	What data can be used and which confidentiality or ownership limits apply	Permitted data class, access route, IP boundary, and approval owner
Pilot	What is the smallest credible test and where could it run	Site, operator, inputs, duration, success measure, and cost range
Decision	What result would make you advance, revise, or stop	Decision threshold, next meeting, owner, and date

Questions by participant role

Role	Additional questions
Research	Which methods are ready for external application, what validation remains, and who can lead technical work
Startup	Which product boundary is stable, what integration support is available, and what commercial condition matters
Industry	Who owns the problem, what operating environment and procurement route apply, and which data can leave the site
Asset operator	What access, scheduling, safety, insurance, data, and publication rules apply

After the interview Update participant interest, validation status, dependencies, the next step, owner, and review date. Keep the opportunity hypothetical until the relevant organisations explicitly confirm the collaboration.

Safe language for external use

Avoid	Use instead
Organization A is partnering with Organization B	The map identifies a potential collaboration between A and B
This opportunity has an 82 percent chance of success	The confidence score is 82, reflecting public evidence coverage
The asset is available for the pilot	The asset may be relevant; access must be confirmed with its operator
The map contains all Graz actors	The map is a curated public-evidence snapshot and is not exhaustive

Maintain data quality

Maintenance rhythm

- Review source status, operating status, and review-due records before public briefings.
- Refresh programme portfolios, cluster directories, city sources, and organisation profiles on a defined schedule.
- Record why a score changes, not only the new value.
- Keep organisation category limited to Research and knowledge, Research-driven startup, and Industry. Track AI provider as a separate field.
- Preserve stable IDs when refreshing the spreadsheet so Kumu connections remain intact.

Recommended review triggers

Trigger	Minimum check	Responsible role
Before an external briefing	Open source links, review hypotheses, and confirm that opportunity language is current	Presenter and dataset steward
Before partner outreach	Confirm organisation status, local relevance, capability evidence, and contact route	Opportunity owner
After a spreadsheet refresh	Verify stable IDs, connection counts, view filters, labels, colours, and sample profiles	Map administrator
Quarterly	Review due dates, stale evidence, new programmes, operating status, and score changes	Dataset steward

Change control checklist

- Preserve IDs for existing elements and connections.
- Record the source and date for new factual assertions.
- Keep opportunities and proposed partner roles marked as hypotheses until directly validated.
- Document the reason for any score or classification change.
- Open all ten views after a material data update and confirm that controls and legends still behave as intended.

Troubleshoot common problems

Problem	Likely cause	Action
The map looks empty	Several filters are active	Clear controls one at a time; filters combine with AND logic
The network is unreadably dense	No focus or thematic selection is active	Choose a focused view and use one or two degrees
Labels disappear	The map is zoomed out	Zoom in, use focus, or select the node to open its profile
A colour is grey	The record lacks the field used by the current decoration	Open the profile and check the relevant classification field
A link appears unsupported	The edge may be a hypothesis	Check line style, Is hypothesis, Evidence status, and Source URL
A spreadsheet update is missing	Kumu or the embed has not refreshed	Reload the map; embedded updates can take time to appear
A view change is unsaved	The editor requires an explicit save	Return to the editor and select Save

When to request help

Contact the map administrator when a source is unavailable, a spreadsheet refresh repeatedly fails, a saved view no longer matches its description, or an unresolved evidence issue could change a public claim or outreach decision.

Quick reference and sources

One page quick reference

Use this page beside the map during a briefing or workshop.

Question	Best view	First action
Who is in the ecosystem	01 Greater Graz Overview	Compare research, startup, and industry
What is verified	02 Verified Ecosystem	Open profiles and source links
Who can do what	04 Capability Landscape	Focus on one capability
Where can a pilot run	06 Assets and Testbeds	Start from an asset and confirm its operator
Which opportunities deserve validation	07 Pipeline and 08 Shortlist	Compare component scores and missing evidence
What requires review	09 Evidence and Review	Highlight hypotheses and review-due records

Seven step discovery sequence

Frame → Narrow → Trace → Verify → Compare → Formulate → Act

Checklist for a defensible insight

- State the question before exploring.
- Use the view designed for that question.
- Read profiles and source links, not only visual proximity.
- Separate verified relationships from proposed relationships.
- Compare alternatives and component scores.
- Name the weakest assumption and the action that will test it.
- Record an owner and review date.

Before sharing externally

- Describe solid relationships as verified only when the cited source supports the claim.
- Describe dashed relationships and opportunity participants as proposed or inferred.
- Explain confidence as evidence coverage rather than probability of success.
- Confirm asset access, participant interest, data rights, budget, and ownership directly.

Sources and support

Live map Greater Graz Innovation Opportunity Map

Source spreadsheet Greater Graz ecosystem data in Google Sheets

Official Kumu guidance

- Views
- Controls
- Filter control
- Focus
- Selectors
- Share and embed maps
- Presentations

Dataset reference

The scoring logic and evidence definitions in this guide follow the Greater Graz Innovation Opportunity Map dataset v0.1 README and the live map configuration completed in September 2026.

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