Place-based initiatives: data competencies and skills toolkit

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Acknowledgement of Country

UniSC is a place where Aboriginal and Torres Strait Islander people's perspectives, culture and knowledge are acknowledged, valued, and respected. We share deep pride in, and seek to uplift, empower, and give a voice to Aboriginal and Torres Strait Islander people and perspectives.

We acknowledge the Traditional Custodians of the land on which we work and live, and recognise their continuing connection to land, water, and community. We pay our respects to Elders past, present and emerging.

Introduction

Place-based approaches identify and respond to local needs within a specific geographical location, addressing individual, family, organisational, and community level priorities. Place-based initiatives (PBI) are designed to meet the needs of the local community by collaboratively addressing what individual communities may require, ensuring the local community's vision, resources, experiences, and opportunities stay central. These initiatives aim to build self-determination within communities and find solutions that work locally.

Why is this toolkit important?

PBIs rely heavily on data to understand communities, inform decision-making, tailor action, and evaluate impact within specific communities.[1] While data science provides essential technical methods such as data collection, analysis, and visualisation for generating empirical insights,[2] the effective use of data in PBIs requires a broader and more contextually grounded set of competencies. Data literacy encompasses not only technical proficiency but also the critical assessment of data quality, an understanding of the socio-political and cultural contexts in which data is produced and interpreted, and recognition of how data can both reinforce and challenge existing power structures and inequities.[2,3]

In PBIs, data are essential for understanding local conditions, informing context-specific responses, and evaluating impact over time.[4] Quantitative and qualitative data together offer a comprehensive view of community assets, needs, and experiences. While numerical indicators help track trends and outcomes, qualitative insights provide essential depth by capturing the nuanced, lived realities of people in place.[4] As PBIs are inherently adaptive, data must be used in ways that support ongoing learning, reflection, and refinement of strategies.[1,5] This requires more than technical data science capabilities; it also demands broader data literacy skills, including critical thinking, ethical awareness, and the ability to communicate and interpret data in meaningful and inclusive ways.[2,3]

Although data are key to PBI, evaluations in Australia have shown PBI to be constrained by data-related barriers, including poor data quality, limited access to data, and challenges associated with cross-sectoral data sharing.[6] Homel and colleagues (2021) argue that data have been underutilised in the planning, measurement, and evaluation of PBIs. Complementing these findings, Hamer et al. (2025) identified significant data literacy gaps within the public health workforce, which are relatable to a PBI context, including challenges in data interpretation, communication, and visualisation, as well as the need for data decolonisation and the application of frameworks that foster public trust and enhance understanding of community needs.[2] Together, these findings underscore the need for a workforce that is not only capable of collecting and analysing data, but also able to address data limitations, critically examine assumptions, and engage stakeholders in meaningful and inclusive ways in the use of data.

Place-based initiatives: Data competencies and skills toolkit responds to these challenges by outlining a framework of data-related competencies tailored to the workforce engaged in PBIs. While data competencies represent only one skill set required for effective practice in PBIs, this framework focuses specifically on the development of broader data literacy competencies that

are necessary to ensure data are used ethically, effectively, and in ways that advance equity and community-led change.

Purpose of the toolkit

This toolkit aims to guide the workforce data competencies and skills necessary for effective evidence-informed delivery of PBIs. The scope of this toolkit aims to guide data competencies and skills for individuals and teams working within PBI, provide meaningful opportunities to reflect on data-informed practice, and to support recruitment of staff with desirable qualities in data-informed practice. Given the diversity of PBI structures and team compositions, the toolkit does not suggest that any one person or team will possess all the capabilities outlined. Instead, it offers a framework to support identification of the range of skills that may be needed across different phases of a PBI, helping teams to assess capacity, distribute responsibilities, and strengthen capability over time.

How did the toolkit come about?

This toolkit is a companion document to the Place-Based Data Framework, which was co-designed by place-based leaders and data experts, with support from Thriving Queensland Kids Partnership. The *Place-Based Data Framework* was created to guide practitioners in place on building a shared understanding of how to access, collect, and use data for the purpose of shared measurement and shared decision-making.

Through the process of development, it was recognised that identifying the specific data competencies relevant to place-based initiatives could support the development of the place-based workforce. The *Place-based Initiatives: data competencies toolkit* aims to contribute to this goal.

There is a lack of literature and/or frameworks that outline the data competencies and skills that are required in PBIs. The data competencies and skills in this toolkit have been synthesised from a range of data literacy frameworks (Appendix A: Synthesised Data Literacy Frameworks), recognising that not any one specific data literacy framework was designed with PBIs in mind.

Additionally, the data competencies and skills were discussed with a range of data experts and place-based stewards to gain insights regarding any gaps in the skills listed and for consideration of their application in a place-based approach.

Definition of ‘data’

For the purposes of this toolkit, data refer to various forms of information that can be collected, observed, or communicated. Data is not limited to numbers, and may include facts, ideas, messages, audio and other forms of human communication.[7] While definitions of data vary within and across disciplines, it is often associated with concepts such as evidence, research, knowledge, and results.[7,8] Data become meaningful when they support conclusions, inform decisions, or contribute to understanding within a given context.[7]

Structure of the toolkit

The toolkit provides details on 40 data competencies and skills required in PBIs, structured into six sections. The sections have been designed to reflect the nature of data-informed practices within a PBI.

1. Ethical considerations
2. Use of existing data
3. Research and evaluation design
4. Data analysis insights
5. Community-focussed priority setting
6. Communication of data

For each section, a role descriptor has been provided, designed to reflect the competencies in that section, and ready to be inserted into relevant role descriptions or other relevant documentation where required.

Each data competency is followed by a subset of skills that are required to demonstrate the competency, along with some reflective questions to guide practice in a PBI context.

Furthermore, each data competency is aligned with a range of relevant professional competencies, such as epidemiology, data science, community development, psychology, and health promotion. Each of these disciplines is represented by an icon (Table 1).

Table 1: Icons throughout the toolkit that represent alignment of data competencies to professional qualifications.

	Epidemiology
	Data Science
	Community Development
	Psychology
	Health Promotion

The icon is followed by a number or reference point to the related professional competency listed in Appendix B: Professions and associated professional competencies, located at the end of the toolkit.

For example:

 PC8.1 Refers to Epidemiology, professional competency 8.1 in the relevant appendix list

Section 1: Ethical considerations

Possible role descriptor
Demonstrates a respectful and culturally responsive approach to data-informed practice, with a strong ethical foundation and understanding of legal responsibilities.

Competencies in section 1 include:

1. Champion data literacy and data literacy skills of stakeholders
2. Manage and share data ethically and within organisational guidelines and legislative requirements
3. Comply with data privacy standards and relevant legislation
4. Apply ethical data management methods and tools to manage data collection, analysis, data storage, data access, data security, and correct disposal of data
5. Apply organisational policies and procedures to manage metadata use and storage
6. Establish, monitor and advise on data governance and practices to ensure sensitive and non-sensitive data are ethically and legally collected, stored, analysed, used and managed appropriately in PBI
7. Understand and apply principles of Indigenous data sovereignty and governance to ensure Aboriginal and Torres Strait Islander people are provided the right to maintain, control, protect, develop, and use data in a culturally safe way
8. Apply accurate and accepted citation and referencing style
9. Apply ethical principles of data validity when choosing to delete data

Data Competency 1 PC 8.1 PC 7

Champion data literacy and data literacy skills of stakeholders.[9,10,11]

What does this mean?

- Promotes a data-informed culture by recognising the importance of data in a PBI and fostering its critical use to inform learning, research, decision-making, systems, processes, policies and practices.[9,10]
- Advocates for and champions data literacy of stakeholders as a strategic action within the PBI.[9]
- Supports the development and ongoing monitoring of performance standards for data literacy.[9]
- Advocates for dedicated resources for data in the PBI.[10]
- Supports a culture that prioritises excellence across various analysis methods and techniques.[9]

Reflective questions

- How can I foster an environment where data is used not just for reporting, but for meaningful learning and decision-making?
- In what ways do I encourage others to question, interpret, and apply data critically within their role in a PBI?
- How can I support stakeholders in developing their data literacy skills?

Data Competency 2  PC 3.4  PC 6.6, 6.7

Manage and share data ethically and within organisational guidelines and legislative requirements[9,10,12,13,14,15,16,17,18,22]

What does this mean?

- Applies understanding of the ethics of using data.[9]
- Embeds Indigenous ownership and impact principles in data management and sharing, ensuring Indigenous values and ethics are reflected to benefit communities.[22]
- Implements and reflects on ethical practices in the collection, storage, analysis, and use of sensitive and non-sensitive data in a PBI, including:[9]
    - Collecting, using and sharing data in accordance with policies and procedures.[9,10]
    - Determining the ethical implications of the conducted data analysis and results.[9]
    - Discussing the reasons and permissions of storing data for further uses.[9]
    - Communicating the findings in a clear, accurate and ethical manner.[9]
    - Sharing the data legally and ethically.[9]
- Stays informed of the relevant legislative requirements related to data (includes data access, data security, privacy, and ethics).[13,14]
- Identifies and addresses ethical principles and concerns in a PBI.[15]
- Implements and continually refines and updates consistent policies in a PBI for secure and ethically sound data handling.[9]
- Complies with processes of leadership, stewardship and accountability for the ethical generation and use of data for decision-making.[13,15]

Reflective questions

- What protocols do I follow to ensure ethical collection, storage, and analysis of data?
- What steps do I take to stay informed about current laws and regulations related to data management, access, and ethics, including for First Nations communities?
- What ethical principles guide my work with data, and how do I communicate these to others?
- How do I support others in becoming responsible stewards of data within the PBI?

Data Competency 3  PC 3.4

Comply with data privacy standards and relevant legislation[9,12,13,14]

What does this mean?

- Implements and reflects on privacy practices in the collection, storage, analysis, and use of sensitive and non-sensitive data in a PBI, including:[9]
    - Anonymising or pseudonymising data appropriately and sufficiently.[9]
    - Selecting access permissions and rights to data according to privacy concerns.[9]
    - Considering whether analysing specific data raises privacy concerns.[9]
    - Identifying ways to effectively remove attributes that lead to privacy concerns.[9]
- Examines the impacts on privacy from constant data collection.[9]
- Stays informed of the relevant legislative requirements related to data (includes data access, data security, privacy, and ethics).[13,14]
- Collects or utilises only the data that is necessary.[9]
- Collects, uses and discloses data and information in accordance with policies and procedures.[9,13]

Reflective questions

- Who takes responsibility for managing the privacy and data security of data in the PBI?
- How do I ensure that my data practices consistently align with guidelines and legislation that ensures confidentiality and privacy of data in all aspects (collection, storage, analysis, and use)?
- In what ways might continuous data collection affect the privacy and trust of participants/the community?

Data Competency 4  PC 3.4  PC 5.5  PC 6.6, 6.7

Apply ethical data management methods and tools to manage data collection, analysis, data storage, data access, data security, and correct disposal of data[9,11,14,13,19]

What does this mean?

Data management includes the methods used to store, control, protect, share, and best utilise data and information assets.[14]

- Applies knowledge of basic data organisation methods and tools, reflecting on ethical issues when collecting data and information.[9]
- Applies knowledge to support effective, ethical data practice, including relating to data access, data security, data disposal, privacy and ethics.[9,14]
- Seeks advice on the application of effective data and information management practice.[13]
- Accesses, collects, uses and discloses data through compliance with information management principles, policies, procedures and associated guidelines related to a PBI to support effective data practice, including data access, data security, data disposal, privacy and ethics.[13,14]
- Advises others on the effective application of data and information management concepts, methods and tools.[13]
- Discusses the ethical impacts of conducted data analysis and subsequent results.[9]
- Justifies the storage of data for further uses from an ethical perspective.[9]

Reflective questions

- How do I ensure that my data collection, analysis, storage, access, security, and disposal practices align with ethical standards?
- What ethical considerations influence how I collect and structure data?
- What strategies do I use to stay current with best practices in data ethics?
- What safeguards do I have in place to ensure stored data remains secure and relevant?

Data Competency 5 PC 3.4

Apply organisational policies and procedures to manage metadata use and storage[13,14,20]

What does this mean?

- Applies understanding of various methods and tools for storing and working with metadata in a PBI.[14]
- Complies with organisational and PBI procedures relating to metadata creation, storage, and use.[14]

Metadata is often referred to as 'data about data'.[20] *For example, data that provides descriptive information about the context of a data element.*

Reflective questions

- In what ways can I improve the efficiency or clarity of PBI projects by using metadata effectively?
- How do I identify and correct metadata errors, and what impact can those errors have if left unresolved?

Data Competency 6  PC 3.4, 3.5  6.3, 6.6, 6.7

Establish, monitor and advise on data governance and practices to ensure sensitive and non-sensitive data are ethically and legally collected, stored, analysed, used and managed appropriately in PBIs[9,10,13,14,15]

What does this mean?

Data governance is essential to effective data management as it plans, monitors and enforces all management of all data assets.[14]

- Formulates, or contributes to the development of internal PBI policies to support data governance in alignment with current legislative and organisational requirements such as data access, data security, privacy, and ethics.[10,13,14]
- Applies knowledge and understanding of compliance with data governance arrangements for data collection, storage and use, relevant to a PBI.[10]
- Applies knowledge and understanding of the implications of data governance frameworks and policies, including relevant legislative requirements.[13,14]
- Applies knowledge of where to seek advice on governance.[13,14]
- Collects, uses and shares data in accordance with data governance principles, policies, procedures and legislation within a PBI.[10]
- Educates others on effective data governance practice and its importance and supports training.[10,13]
- Establishes governance structures for managing data assets in a PBI.[10]
- Conducts and/or contributes to compliance audits.[10]

Reflective questions

- How do I apply my understanding of data governance frameworks to ensure ethical and legal data practices in the PBI?
- What challenges may I face in aligning PBI practices with governance requirements, and how did I address them?
- Where do I go for reliable advice on governance-related issues?

Data Competency 7

 PC 8.6, 8.7  PC 2.5, 5.1, 6.1, 6.6

Understand and apply principles of Indigenous data sovereignty and governance to ensure Aboriginal and Torres Strait Islander people are provided the right to maintain, control, protect, develop, and use data in a culturally safe way[21,22]

What does this mean?

- Works collaboratively with Aboriginal and Torres Strait Islander stakeholders to develop shared decision-making structures.[22]
- Utilises and communicates appropriate and transparent data collection, data analysis and data storage methods that are easily accessible for Aboriginal and Torres Strait Islander stakeholders.[22]
- Establishes feasible and meaningful governance structures that seek leadership of Aboriginal and Torres Strait Islander people to guide data processes.[22]
- Develops personal, community, and organisational capabilities to monitor and improve systems to ensure Indigenous data sovereignty is embedded in data processes.[22]

Reflective questions

- How have I supported the establishment of an Aboriginal and Torres Strait Islander data agreement for the PBI?
- How do I support a governance structure that ensures Aboriginal and Torres Strait Islander people have leadership in all stages of the data process?
- How can I ensure that Aboriginal and Torres Strait Islander stakeholders are meaningfully involved in shaping decision-making structures?
- How do I communicate data collection, analysis, and storage methods in ways that are transparent and culturally appropriate?
- How have I developed my own understanding of Indigenous data sovereignty and its implications?
- How could all PBI stakeholders work collaboratively to further develop capability in Indigenous data sovereignty processes?

Data Competency 8

Apply accurate and accepted citation and referencing styles[9]

What does this mean?

- Applies knowledge and understanding of commonly accepted data citation methods.[9]
- Applies understanding of commonly accepted data citation methods for academic and grey literature to generate correct citations for data sets.[9]

Reflective questions

- Am I aware of the different referencing styles and how to apply these appropriately?
- In what ways do proper data citations support transparency and reproducibility in the PBI?
- How do I assess the credibility of data sources before citing them?

Data Competency 9  PC 7.3  PC 6.6, 9.1

Apply ethical principles of data validity when choosing to delete data[9,10,13,15,23]

What does this mean?

Data validity refers to how accurately the data reflects what it is intended to measure.[23]

- Identifies and addresses ethical principles of data validity, including accurate interpretation e.g. not deleting any data sources too soon, or deleting data that may compromise meaning or verification of findings.[15]
- Discusses concerns related to data validity, including the appropriate way to delete data in accordance with policies and procedures (e.g. retention of data).[9,10,13]

Reflective questions

- What ethical principles guide my approach to ensuring data validity in this PBI?
- How do I balance the need for accurate data with respect for privacy, consent, and transparency?
- In what ways have I addressed potential biases or misrepresentations in the data?
- How do I ensure that data deletion is done ethically and securely, especially when dealing with sensitive information?
- Have I encountered situations where deleting data raised ethical concerns, and how did I resolve them?

Section 2: Use of existing data

Possible role descriptor
Effectively accesses, interprets, and applies existing data to inform and support place-based initiatives, ensuring decisions are evidence-informed and responsive to local community needs and priorities.

Competencies in Section 2 include:

10. Knowledge and understanding of a range of data types, including its uses, application and assessment
11. Critically assess and articulate the purpose for collating, collecting and analysing data to meet a specified need
12. Critically analyse the purpose, limitations and benefits of administrative data
13. Seek out and understand novel data approaches, data collection and analysis methods and their strengths and limitations in PBI
14. Synthesise multiple sources of data to assess a community of place
15. Access, collect, use and monitor a range of appropriate data sources and systems to enable user-friendly access to data from a range of sources, including across data sets for use in PBI
16. Access and summarise metadata (or large and complex datasets) into meaningful narratives

Data Competency 10  PC 3.2, 3.3, 3.4, 3.5, 3.6, 3.7  PC 6.3, 6.4, 6.5, 6.6, 6.7,9.3, 9.4, 9.5

Knowledge and understanding of a range of data types, including its uses, application and assessment[9,13,14,19,24]

What does this mean?

- Applies knowledge of data and how it can be used in the context of a PBI, including identifying and solving real problems.[9,13,14]
- Applies understanding of the role and influence of data in society in various contexts. [9]
- Identifies the elements of a PBI that impact data use and can influence the effective use of data within a PBI through critical reflection.[9,13,14]
- Applies knowledge of geospatial data to inform the design and implementation of initiatives within a PBI.[24]
- Applies understanding of the relationship between the effective use of data within a PBI and other data use contexts.[13,14]
- Applies knowledge about various data sources and can explain their strengths and limitations.[13,14]
- Applies awareness of high-level concerns and limitations associated with data.[9]

Reflective questions

- How can I use data to identify and solve wicked problems within a PBI?
- How does the data I work with reflect broader societal trends, opportunities or challenges?
- How do my assumptions about the data affect how I use data in a PBI?
- What is the history of data use in this community?

Data Competency 11  5.1, 6.3, 9.3, 9.4

Critically assess and articulate the purpose for collating, collecting and analysing data to meet a specified need[25]

What does this mean?

- Clarifies the purpose and focus for working with data (collating, collecting and analysing) in a PBI.[25]

Reflective questions

- What specific questions, opportunities or challenges am I trying to address through data in the PBI?
- How does the data I collect align with the overall objectives of the PBI?
- Am I using data to explore, explain, or evaluate—and how does this shape my approach?

Data Competency 12 PC 3.3, 3.4 PC 5.1 PC 6.3

Critically analyse the purpose, limitations and benefits of administrative data[13,14,26,27]

What does this mean?

- Understands what administrative data is and where to source it.[13,14]
- Understands the advantages and disadvantages of using administrative data (e.g. survey data).[13,14]
- Applies awareness of where to seek advice on administrative data sources and use as required.[13,14]

Administrative data is information routinely collected by different organisations, including government, for reasons such as registrations and record keeping, as opposed to data obtained for research.[26,27]

- Understands the data collected from administrative sources and its intended use.[13,14]
- Applies knowledge to identify new administrative data sources and potential uses.[13,14]
- Obtains understanding and capabilities of new trends and innovations relating to administrative data sources (including Artificial Intelligence-based technologies).[14]

Reflective questions

- What types of administrative data have I worked with, and how did I source them?
- What are the key benefits of using administrative data in the PBI, and how have they supported inquiry?
- In what ways has administrative data helped me uncover insights or trends in the PBI?
- How have recent innovations—such as AI-based technologies—changed the way I work with administrative data?

Data Competency 13

Seek out and understand novel data approaches, data collection and analysis methods and their strengths and limitations in PBI[14,28]

What does this mean?

- Seeks out facts and explores different approaches to data gathering in a PBI context.[28]
- Engages in reflective practices to make sense of and analyse novel data and supports the acceptance of new approaches within a PBI.[28]
- Participates in the development of novel statistical data analysis models.[14]

Reflective questions

- In what ways do I enhance and develop my awareness and use of new approaches to data?
- What are the main barriers or limitations I face in using new methods in daily practice? In what ways might these be overcome?
- How do I support others in embracing new data approaches within the PBI?

WHAT DOES THIS LOOK LIKE?

A PBI in Queensland, Australia utilises an innovative process that implements short cycle projects or approaches developed by service system and community leaders. The short cycle approach follows a try, test and learn model where the leads continually input the data into an online platform. This data is then reviewed and analysed every six weeks by the leadership group to assess which projects are progressing well and which ones are not. It has been recognised that this process effectively collects qualitative data, representing a narrative that reflects what is happening within the local community.

Data Competency 14  PC 3.1, 3.2, 3.3  PC 6.2, 6.3, 6.4, 6.7  PC 1.7, 1.8

Synthesise multiple sources of data to assess a community of place[10,24,29,30]

What does this mean?

- Defines the boundaries of a PBI to assess place.
- Applies knowledge and understanding to identify:
    - Population demographics (e.g. age, household income, number of children, etc.).[30]
    - Socio-economic trends (e.g. what are the social strengths and needs in place?).[30]
    - Patterns in the geographical distribution of data within place.[24]
- Contextual factors, including:[10]
    - Asset mapping: structures, services, capacity, work and resources.
    - Social network mapping: key stakeholders, groups and nodes of influence in the community.
    - Community culture.
- Scopes funding and resources that could be leveraged, consolidated or redirected in a PBI.[30]
- Monitors community and data sources to identify and evaluate changes against baseline.[30]

Reflective questions

- What criteria will be been used to determine the relevance and location of the PBI?
- In what ways does the PBI respond to a genuine need or opportunity within the community?
- Have I considered how demographic diversity might affect data interpretation or stakeholder engagement?
- What social strengths (e.g. community networks, cultural assets) have I observed, and how are they leveraged in the PBI?

Data Competency 15  PC 3.3, 3.4,3.7, 9.1, 9.2, 9.3  PC 6.3

Access, collect, use and monitor a range of appropriate data sources and systems to enable user-friendly access to data from a range of sources, including across data sets for use in PBI [10,13,14]

What does this mean?

- Applies knowledge of available options to access a range of common data sources for a PBI.[14]
- Applies knowledge of the relevant data access protocols to enable access.[14]
- Applies understanding of the strengths and limitations of data relevant to a PBI.[10]
- Applies knowledge of the context of state and national data to determine the best data for a range of purposes within a PBI.[10]
- Mitigates issues arising from different approaches related to data access.[14]
- Provides actionable strategic advice on data access.[14]
- Generates and justifies recommendations for data access.[14]
- Establishes systems and processes for ensuring that data collections are suitable to the intended purpose and responsive to changes in strategic priorities in a PBI.[10]
- Collaborates with regional and national agencies to establish, maintain and support strategic data assets and systems for a PBI.[10]

Reflective questions

- How do I evaluate the reliability, accessibility, and appropriateness of different data sources?
- What barriers to data access have I encountered (e.g. technical, legal, institutional), and how did I overcome them?
- What partnerships have been most valuable, and how have they strengthened the PBI's data infrastructure?
- How do I maintain ongoing collaboration and alignment with external data custodians to support strategic data access?

Data Competency 16 PC 3.4

Access and summarise metadata (or large and complex datasets) into meaningful narratives[13,14]

What does this mean?

- Applies understanding of the concept of metadata, including its purpose, benefits and limitations.[14]
- Applies understanding of the various ways to summarise data, including an understanding of commonly used metadata options. [13]
- Uses different summary options to effectively describe metadata with the ability to explain and justify those choices.[13]
- Complies with standards and procedures relating to metadata creation, storage, and use.[14]
- Accesses metadata and use the descriptors to improve understanding of existing data to effectively use it.[14]

Reflective questions

- What benefits have I observed from using metadata, and what limitations have I encountered?
- How do my metadata summaries support data discoverability, interpretation, and reuse?
- What systems or tools do I use to manage metadata effectively?
- How do I use metadata descriptors to improve my understanding of existing datasets?

Section 3: Research and evaluation design

Possible role descriptor
Designs and adapts research and evaluation methods and tools that are contextually relevant, culturally appropriate, and responsive to the priorities of local communities, ensuring that place-based initiatives are informed by meaningful, participatory, and evidence-based insights.

Competencies in Section 3 include:

17. Conduct formative, process and partnership, impact and outcome evaluation to assess PBI performance and progress at program and systems impact levels
18. Collaborate with stakeholders in the codesign of evaluation, including appropriate levels of resourcing, community engagement, formulating qualitative and quantitative research questions, collection, analysis, interpretation, storage and sharing of data, and reflections, recommendations and communication of findings
19. Co-design with stakeholders the theory of change or program logic underpinning the evaluation
20. Understand and apply knowledge of economic evaluation methods where appropriate
21. Determine a range of appropriate qualitative and quantitative data collection methods to inform, monitor and evaluate
22. Consider follow up or additional data to further assess analysis of findings

Data Competency 17  PC 8.3, 8.4, 8.5, 8.6, 8.7  PC 6.1, 9.1, 9.2, 9.3, 9.5  PC 1.3

Conduct formative, process and partnership, impact and outcome evaluation to assess PBI performance and progress at program and systems impact levels[25,29]

What does this mean?

- Applies knowledge and understanding of a Monitoring, Evaluation and Learning (MEL) plan and clarifies its purpose and focus.[25]
- Clarifies a PBI's resourcing and degree of investment in evaluation to determine the scope of evaluation.[25]
- Develops a written MEL plan for each phase of a PBI that details the evaluation.[25]
- Conducts evaluations in partnership to assess the performance and progress of specific projects within a PBI and the initiative as a whole, including a focus on the effectiveness and fidelity of the initiative and the influence of the initiative to system and community level change.[29]

Reflective questions

- In what ways does the MEL plan help the PBI to adapt and improve throughout all phases?
- How has the MEL plan been structured to reflect the unique phases and needs of the PBI?
- How do I ensure that the MEL plan remains flexible and responsive to emerging insights?
- Who are the key partners involved in the evaluation, and how have I fostered shared ownership?
- How do I evaluate both individual projects and the overall initiative?
- What evidence do I have that the initiative is creating meaningful change at the system or community level?

Data Competency 18  PC 4.1, 4.2, 4.3, 4.4  PC 2.5, 4.4, 5.1, 6.1, 6.2, 6.5, 6.6, 8.5  PC 1.1, 1.2

Collaborate with stakeholders in the codesign of evaluation, including appropriate levels of resourcing, community engagement, formulating qualitative and quantitative research questions, collection, analysis, interpretation, storage and sharing of data, and reflections, recommendations and communication of findings[10,12,13,14,15,16,17,19,25,29,31,32]

What does this mean?

Co-design is a term used to describe the active collaboration of stakeholders who collectively work towards solutions to specific priorities.[27]

- Applies knowledge and understanding of the principles that inform how a PBI will measure data and learn.[29]
- Establishes and/or is involved in a network of content area and data experts relevant to a PBI.[10]
- Co-designs, develops and conducts a PBI's Monitoring, Evaluation and Learning (MEL) plan with a broader collaboration using culturally appropriate and accessible techniques to ensure stakeholder views and concerns are consistently understood and considered.[25,29]
- Authentically partners with targeted stakeholders and community members in various elements of the MEL data collection process, analysis of data, reflection on results, and adaption of the work, and reporting.[25]
- Identifies opportunities to work collaboratively with other teams/colleagues to resolve analytical issues, interpret the data and to draw conclusions including the importance and implications of the findings.[10]
- Adopts culturally safe evaluation and research that supports the decolonisation of data practices by centring Indigenous ways of knowing, being, and doing throughout the partnership, co-creation, and ownership of data processes.[17,32]
- Adopts two-way learning to weave the strengths of Indigenous and Western knowledge systems to engage in meaningful co-learning. [33]
- Adapts the MEL framework as new partners are included and ensure alignment of policy, funding and program delivery is achieved.[29]
- Measures the performance of the 'backbone', the partnership, and the system level impacts in consideration of the MEL with regular reviewing and updating.[29]
- Builds a supportive and cooperative environment within a PBI for collaboration and support to identify and resolve problems or questions that can be solved with data through sustainable partnerships with internal and external stakeholders.[10]
- Ensures effective communication between content area and data experts regarding data and information to support projects and programs and to meet strategic policy objectives.[10]
- Assesses data needs and identify gaps through the use of a range of techniques and in collaboration with stakeholders towards the formulation of appropriate research questions.[13,14]

- Formulates research questions for the specific needs of a PBI as part of the MEL and develops appropriate approaches and specific measures to resolve those questions to guide qualitative and/or quantitative research.[13,14,19]
- Communicates research questions to a range of audiences.[13]

Reflective questions

- What culturally appropriate and accessible techniques could be used to ensure diverse voices are heard?
- How do I work with stakeholders to identify key challenges, opportunities or questions that data can help solve in a PBI?
- How do I ensure that research questions are relevant, actionable, and grounded in community priorities?
- What opportunities have I identified to work with other teams or colleagues to interpret data and resolve analytical challenges?
- How have I fostered a culture of trust, openness, and shared problem-solving within the PBI?
- How do I ensure that data and insights are communicated in ways that support strategic policy objectives?

Data Competency 19  PC 8.3, 8.4, 8.5, 8.6, 8.7  PC 5.1, 6.6, 6.7  PC 1.3

Co-design with stakeholders the theory of change or program logic underpinning the evaluation[19,25,29]

What does this mean?

- Co-designs and creates with stakeholders the theory of change and theory of action, using culturally appropriate and accessible techniques, to focus on population outcomes for improvement and that respond to the local context.[25,29]
- Plans and develops a stakeholder engagement approach for a PBI's MEL.[25]

Reflective questions

- How do I facilitate the co-design process to ensure shared ownership and responsibility of the theory of change?
- What culturally responsive and accessible techniques can I use to support meaningful participation?
- In what ways does the co-designed theory of change guide the development of MEL indicators and evaluation strategies?

Data Competency 20

Understand and apply knowledge of economic evaluation methods where appropriate[34]

What does this mean?

- Determine the appropriate economic evaluation methodology required.[34]
- Seek resources (including specific expertise) for the data collection and analysis of the economic evaluation.[34]
- Communicate findings accurately, tailored for specific audiences.[34]

Reflective questions

- How does the evaluation question justify the need for an economic evaluation?
- What factors did I consider when selecting the economic evaluation methodology for this PBI?
- Who are the experts in economic evaluation who can assist with the evaluation?
- Are resources available to undertake the economic evaluation?

Data Competency 21  PC 3.4, 9.1  PC 6.2

Determine a range of appropriate qualitative and quantitative data collection methods to inform, monitor and evaluate[9,13,14,25,28,35,36]

What does this mean?

- Applies knowledge and understanding of relevant data collection methodologies and underpinning concepts, including statistical quantitative and qualitative methodologies relevant to a PBI.[13,14]
- Applies understanding of decolonised research methodologies when working with Aboriginal and Torres Strait Islander communities, including yarning, storytelling, and dadirri.[35,36]
- Applies understanding of the role of data collection and the value propositions of different collection approaches within a PBI, including costs and benefits of different data collection methods.[14]
- Applies understanding of the appropriate application of quantitative and qualitative methodologies and concepts and can effectively communicate to others.[13]
- Applies knowledge of where to obtain advice on quantitative and qualitative methodologies.[13,14]
- Uses various data sources, including quantitative, qualitative or real-time techniques, to develop new ideas or theories about what might work.[28]
- Follows established processes, systems and tools to collect data.[14]
- Generates and justifies recommendations and decisions for various modes of data collection and communicates these to others.[13,14]
- Explores new data generation and collection approaches to examine challenges and determine new possibilities.[28]
- Applies knowledge and understanding to amend existing code (programming language) to collect data.[14]
- Mitigates issues arising from different data collection methods.[14]
- Formulates assessment criteria for selecting and collecting data most relevant to a PBI need.[9]

Reflective questions

- How do I balance qualitative and quantitative data to support a well-rounded analysis?
- How do I balance resource constraints with the need for robust, meaningful data?
- How do I support others in understanding the strengths and limitations of different methodological approaches?

WHAT DOES THIS LOOK LIKE?

A PBI within South East Queensland implements a large-scale qualitative data collection process to determine what is most important to the local community in terms of their children, named the 1000 Voices initiative.

Key components:

Regional approach: This initiative identifies the community's hopes and dreams for their children, the barriers, and what can be achieved through collection action.

PBI Collective Plan: This initiative forms the foundation of the PBI's collective plan and development of indicators for the road map.

Indicators: These indicators are shared back to the community through workshops to ensure they accurately represent the community's voice.

WHAT DOES THIS LOOK LIKE?

One PBI employs a mixed method data collection approach, recognising the interlinks between qualitative and qualitative data collection methods. The community engagement team collects qualitative data by listening to the voices of the local community and identifies both opportunities and challenges. For example, challenges regarding maternal health in the community were identified. The community engagement team pinpointed the specific issues (qualitative data) and sourced quantitative data to these issues. Together, both data methods highlighted further insight into the maternal health challenges. The PBI plans to collect additional qualitative data through a survey aimed at exploring the underlying reasons (e.g. why is there a local challenge to accessing maternal health). The mixed methods approach fostered a richer narrative as each method continually informs the other.

Data Competency 22  PC 3.6  PC 9.2, 9.3, 9.5

Consider follow up or additional data to further assess analysis of findings [9]

What does this mean?

- Collects and conducts analysis of follow-up data to evaluate the effectiveness of decisions or solutions made based on original analysis.[9]
- Compares results of the follow-up analysis with other findings.[9]
- Evaluates the value and impacts of potential solutions or decisions based on the follow-up analysis and interpretation.[9]

Reflective questions

- What follow-up data will I collect, and how will it align with the original analysis goals?
- How do the results of the follow-up analysis compare with the initial findings or other related data sources?
- What unintended consequences or ripple effects did I observe, and how did they shape future planning?

Section 4: Data analysis insights

Possible role descriptor
Conducts, processes, and analyses qualitative and quantitative data to generate insights that are locally relevant, culturally informed, and aligned with the goals of place-based initiatives, ensuring that evidence supports community priorities and decision-making.

Competencies in Section 4 include:

23. Understand and apply data classifications and coding protocols appropriately
24. Ability to convert data from one format to another
25. Understand data linkage to assess suitability and extract appropriately prepared datasets
26. Integrate data sources appropriately using data linkage and data analysis practice, principles, and innovative technologies (including artificial-intelligence technologies)
27. Understand and apply data quality measures to ensure accurate assessment of data outputs, including data cleaning, critiquing data for quality and accuracy and assessment of data fitness for purpose
28. Understand, apply, and critique appropriate data editing methods
29. Understand and design appropriate data analysis techniques and methods
30. Conduct data analysis to explore, explain, describe and communicate findings

Data Competency 23  PC 1,3 1.4, 1.6  PC 5.1

Understand and apply data classifications and coding protocols appropriately[13,14]

What does this mean?

- Applies knowledge of relevant data classifications and coding protocols and their application to data in general.[13,14]
- Applies knowledge of where to obtain advice on coding and classifications.[13,14]
- Applies understanding to amend existing code (programming language) to collect data.[14]

Reflective questions

- What classification systems or coding protocols have I used, and how did I ensure their correct application?
- Where do I go for reliable guidance on coding and classification practices?
- What programming languages or tools have I used to modify or create code for data collection?

Data Competency 24 PC 1.7

Ability to convert data from one format to another[9]

What does this mean?

- Applies knowledge of various data types and conversion methods. [9]
- Converts data from one format or file type to another that can then be used for future processing and analysis. [9]
- Prioritises information obtained from data and converts data into information that can be actioned in a PBI. [9]

Reflective questions

- How did I determine the most appropriate format or file type for future analysis?
- What challenges have I encountered when converting data between formats, and how did I resolve them?
- What tools or techniques can I use to convert data for processing and analysis?

Data Competency 25 PC 1.6 PC 5.1

Understand data linkage to assess suitability and extract appropriately prepared datasets[12,13,14,19]

What does this mean?

- Applies understanding of how data can be linked with other data and recognises the value of this.[13]
- Assesses dataset suitability for linkage and extracts appropriately prepared datasets.[14]
- Combines multiple datasets to form a larger dataset to maximise the value of data.[13,14]

Reflective questions

- How do I communicate the value of data linkage to stakeholders who may be unfamiliar with its potential?
- What criteria do I use to evaluate whether a dataset is suitable for linkage?
- How can combining datasets enhance the depth or scope of the analysis?
- What safeguards do I use to maintain data integrity throughout the linkage process?

Data Competency 26  PC 1.6  PC 5.1

Integrate data sources appropriately using data linkage and data analysis practice, principles, and innovative technologies (including artificial-intelligence technologies)[13,14]

What does this mean?

- Applies understanding of data integration, including its benefits and limitations.[14]
- Performs data integration using standard tools and implements quality controls.[13]
- Applies understanding of the types of data that can be combined for analysis.[14]
- Applies knowledge of where to obtain expert advice on data integration.[13]
- Applies understanding to amend existing code (programming language) to integrate data.[14]

Reflective questions

- What are the key benefits from integrating data in a PBI, and how can it enhance the initiative's outcomes?
- How do I implement quality control measures to ensure the accuracy and consistency of the integrated data?
- What insights may emerge from combining data types that wouldn't have been visible otherwise?

Data Competency 27 PC 3.4, 3.5 PC 5.3

Understand and apply data quality measures to ensure accurate assessment of data outputs, including data cleaning, critiquing data for quality and accuracy and assessment of data fitness for purpose [9,13,14,15,19]

What does this mean?

- Applies measures to ensure data is fit for purpose.[14]
- Applies understanding of data quality and its importance to a PBI.[14]
- Applies awareness that given data is often imperfect.[9]
- Applies knowledge of where to access data quality measures and their relevant application to make accurate assessment of data fitness for purpose.[14]
- Follows guidelines and procedures to assess data quality.[14]
- Assesses the collected data to determine representation to and accuracy of the original information.[9]
- Critically checks data quality measures at multiple layers as implemented in standard procedures.[9]
- Describes and produces data quality measures for PBI outputs produced.[14]
- Applies awareness of data quality criteria (e.g. empty fields, duplicates) and manual fixing of errors.[9]
- Detects invalid records and removes using programs that support data cleaning (e.g. OpenRefine).[9]

Reflective questions

- What does data quality mean in the context of the PBI, and why is it critical to achieving meaningful outcomes?
- What strategies do I use to work with imperfect data while maintaining analytical integrity?
- What processes do I follow to assess whether the data accurately represents the original information?

Data Competency 28 PC 3.4 PC 5.6

Understand, apply, and critique appropriate data editing methods[9,13,14,19]

What does this mean?

Data editing includes checking and correcting data for errors, outliers, and consistency.[14]

- Applies understanding of the basics of data editing methods.[13,14]
- Applies knowledge to identify who to consult for expert knowledge.[13,14]
- Edits data in alignment with established guidelines and procedures. [14]
- Applies understanding of why different methods are used, including benefits and limitations of each.[13,14]
- Critically assesses current editing methods.[13]

Reflective questions

- How do I ensure that my editing approach aligns with the type and structure of the data?
- How do I ensure consistency and accuracy when applying basic editing methods?
- What common errors do I look for during the editing process, and how do I address them?
- Why did I choose a particular editing method over others, and what benefits did it offer?

Data Competency 29  PC 1.7, 3.4,  PC 5.2, 5.7  PC 6.2

Understand and design appropriate data analysis techniques and methods[9,10,13,14,24,28]

What does this mean?

- Applies knowledge of data analysis tools and techniques to inform accurate selection, with familiarity and confidence. [9,10,14]
- Applies understanding of a range of quantitative concepts and measures, methods, and their application relevant to data analysis in a PBI.[13,14]
- Applies understanding of qualitative concepts and measures, methods, and their application relevant to data analysis in a PBI.
- Explains the proper use of a range of quantitative and qualitative concepts and methods.[14]
- Applies understanding of geospatial analysis at small level areas.[24]
- Engages with statistical applications for statistical models.[13]
- Challenges personal assumptions and listens to everyday experiences of a PBI community through engagement, meaningful conversations and in-depth research.[28]

Reflective questions

- What criteria will I use to select the most appropriate data analysis tools for the PBI?
- What assumptions may I bring into the analysis, and how do I test or challenge them?
- Which statistical measures or models will I apply, and why are they suitable for this PBI?
- What qualitative methods will I use, and how will they complement the quantitative data?
- What stories or patterns emerged from the qualitative data that added depth to the inquiry?
- How do I incorporate the lived experiences and voices of the PBI community into the data interpretation?
- What meaningful conversations or community insights reshape my understanding of the data?

Data Competency 30 PC 1.7, 3.4 PC 5.1

Conduct data analysis to explore, explain, describe and communicate findings[9,13,14]

What does this mean?

- Applies knowledge and understanding in planning and conducting data analysis, including structuring data appropriately.[9]
- Applies understanding to amend existing code (programming language) to conduct data analysis. [14]
- Identifies and implements relevant analysis techniques and tools and can create data visualisations for analysis on large/complex datasets.[9,13,14]
- Considers specific data influences on the results of analysis.[9]
- Links data from various sources for analysis purposes.[9]
- Validates unexpected results and identifies discrepancies in the data.[9,13,14]
- Communicates findings of analysis to a range of audiences.[13,14]

Reflective questions

- What analysis techniques will I choose, and how will they align with the complexity and scale of the datasets?
- How will I use data visualisation to support both exploration and communication of findings?
- How will I account for potential bias or limitations in the data?
- What steps will I take to ensure the analysis is valid and representative?

Section 5: Community-focussed priority setting

Possible role descriptor
Applies sound decision-making, critical reasoning, and professional judgement to navigate complex local contexts, ensuring that actions and strategies are ethically grounded, culturally responsive, and aligned with community-identified priorities in place-based initiatives.

Competencies in Section 5 include:

31. Critically assess the appropriateness and accuracy of data generated by artificial intelligence systems
32. Develop appropriate process for data preservation
33. Synthesise, critically assess and interpret qualitative and quantitative data outputs and results accurately to inform PBI decisions, methods and actions
34. Critically reflect on stakeholder feedback and lessons learned for continuous improvement
35. Identify and/or develop required data processes, systems, and products to meet PBI needs
36. Lead processes for improvements in data access, quality and relevance

Data Competency 31

Critically assess the appropriateness and accuracy of data generated by artificial intelligence systems[37]

What does this mean?

- Evaluating the relevance, reliability, and validity of AI outputs in context, identifying potential biases or limitations in data sources and algorithms.[37]
- Applying ethical and analytical reasoning to determine the suitability of AI-generated data for decision-making, research, or policy development.[37]

Reflective questions

- What indicators do I use to evaluate the reliability and consistency of AI-generated data?
- What ethical considerations guide my use of AI-generated data in decision-making or research?
- What risks do I consider when relying on AI-generated insights, and how do I mitigate them?

WHAT DOES THIS LOOK LIKE?

One PBI generated programmatic type history data using AI resulting in a comprehensive output. However, applying 7-10 years of local knowledge and experience revealed discrepancies in the AI-generated data concerning local community programs that were or had operated in the past. Without this local knowledge, the output data may have been accepted at face value without the critical assessment of relevance, reliability or validity.

Data Competency 32

Develop appropriate process for data preservation[9,38]

What does this mean?

- Applies knowledge to assess requirements for data preservation.[9]
- Applies understanding to assess methods and tools for data preservation and to clean data, including identifying outliers and anomalies.[9]

Data preservation refers to the plan for retaining and storing data so that it remains available and usable, should it be required in the future.[38]

Reflective questions

- What criteria did I use to determine which data should be preserved for future use?
- How do I ensure that preserved data remains accessible, secure, and relevant over time?
- What ethical or legal considerations influence my decisions around data retention and archiving?
- How do I ensure that cleaned and preserved data continues to reflect the original context and meaning?

Data Competency 33  PC 1.2, 2.1, 2.2, 3.6  PC 6.2, 6.3

Synthesise, critically assess and interpret qualitative and quantitative data outputs and results accurately to inform PBI decisions, methods and actions[9,10,11,12,16,19,25,24,28]

What does this mean?

- Applies understanding of the importance of critical assessment of data and information, considering the health system, government and relevant contextual factors in a PBI.[10]
- Critically assesses and interprets data and information, including statistical, in context to draw accurate conclusions from an understanding of the limitations of the data sets.[9,10,16,19]
- Uses a diverse range of data to identify patterns to make decisions.[28]
- Leverages quantitative and qualitative insights, not prioritising one over the other, to make informed decisions.[28]
- Synthesises and interprets insights, results of analysis, and use of new methods into stories within a PBI that provokes questions, encourages reflection and generates ideas.[9,28]
- Generates new ideas or theories about what might work through interpretation of qualitative and quantitative data analysis.[9,28]
- Applies understanding of the broader contextual factors that influence analysis and interpretation.[10]
- Partners with relevant internal and external stakeholders to interpret information and data.[10,12]
- Engages in critical reflection that questions and challenges data outputs and results to interpret beyond the obvious and translate into actionable knowledge that influences policies and programs.[9,10]
- Critically interprets Indigenous data by centring Aboriginal and Torres Strait Islander perspectives and colonisation, supporting collaborative, community-led analysis to inform decisions and actions.[22]

Reflective questions

- What assumptions do I challenge when assessing data validity and relevance?
- How do I ensure that conclusions reflect both the data and the broader social, political, and community landscape?
- What strategies do I use to avoid overgeneralising or misrepresenting findings?
- Who will I partner with to interpret data, and how will their perspectives enrich the analysis?
- How do I challenge surface-level interpretations to uncover deeper meaning in the data?

Data Competency 34  PC 6.1  PC 2.5, 4.4, 6.1  PC 1.1, 1.9

Critically reflect on stakeholder feedback and lessons learned for continuous improvement[10,12,13,14]

What does this mean?

- Leads and fosters a continuous improvement culture in a PBI alongside community partners based on lessons learned through the MEL cycle.[12]
- Critically reflects on stakeholder feedback and appraise findings and recommendations to proactively identify and leverage opportunities and address challenges for continuous improvement.[10,12]
- Communicates lessons learned to anticipate community partner concerns.[13,14]

Reflective questions

- How will I help cultivate a culture of continuous improvement within the PBI?
- In what ways will I involve community partners in reflecting on lessons learned through the MEL cycle?
- What practices will I put in place to ensure that learning leads to meaningful change?
- How do I critically assess stakeholder feedback to identify opportunities for growth?
- How do I communicate lessons learned in ways that anticipate and address community partner concerns?

Data Competency 35 PC 6.1

Identify and/or develop required data processes, systems, and products to meet PBI needs[13,14]

What does this mean?

- Applies knowledge and understanding to identify successful processes, systems, tools and products and deficiencies within to implement change.[13,14]
- Identifies and implements change to create efficiencies and new opportunities within processes, systems, tools and products.[13,14]
- Follows test plans and supports systems testing, under guidance.[14]

Reflective questions

- What processes, systems, tools, or products have proven successful in a PBI, and what made them effective?
- How do I contribute to systems testing under guidance, and what will I learn from the process?
- How do I ensure that improvements are inclusive, scalable, and responsive to stakeholder needs?

Data Competency 36 PC 3.4

Lead processes for improvements in data access, quality and relevance[9,12]

What does this mean?

- Applies understanding of the importance of data access, quality and relevance when collecting and evaluating data.[9,12]
- Identifies data access, quality and relevance concerns and seeks to influence change where possible.[12]
- Leads or contributes to a continuous improvement culture in data access, quality and relevance.[12]

Reflective questions

- What concerns have I identified regarding data access, quality, or relevance in the PBI?
- How have I raised or addressed these concerns with stakeholders or decision-makers?
- In what ways have I contributed to a culture of continuous improvement in data management?
- How do I encourage others to reflect on and improve their data practices?
- What systems or processes have I helped implement to ensure ongoing enhancement of data access, quality, and relevance?

Section 6: Communication of data

Possible role descriptor
Clearly communicates data insights and evidence-based recommendations in ways that are accessible, culturally appropriate, and relevant to diverse community stakeholders, supporting informed decision-making and collaborative action in place-based initiatives.

Competencies in Section 6 include:

37. Advocate for appropriate resourcing for undertaking research and evaluation
38. Communicate data meaningfully and accurately to a range of different audiences and contexts, through verbal and written modes, using visual maps, charts, graphs
39. Provide recommendations and advice on the strengths and limitations and how to use data used in learning, research, and decision- making in PBI
40. Use evaluation findings to advocate for the benefits of monitoring, evaluation and learning

Data Competency 37  PC 7.1, 7.3, 7.4, 7.5  PC 2.5

Advocate for appropriate resourcing for undertaking research and evaluation[25,29]

What does this mean?

- Identifies the resources (expertise, funding, capacity, etc.) required for the measurement and learning needs of a PBI.[29]
- Seeks formal commitments to allocate resources within a PBI and implements monitoring plans and systems for evaluation, learning and shared measurement.[25,29]

Reflective questions

- What steps have I taken to advocate for dedicated resources to support data use in the PBI?
- How do I communicate the value of investing in data to decision-makers?

Data Competency 38  PC 3.7  PC 5.4, DSDA06  PC 2.5, 4.1

Communicate data meaningfully and accurately to a range of different audiences and contexts, through verbal and written modes[9,10,11,12,13,14,15,19,39]

What does this mean?

- Applies knowledge of a PBI stakeholders to assess needs, wants and familiarity regarding data through a user-centred approach to determine the desired outcome(s) when presenting the data.[9]
- Plans communication and presentation of findings appropriately to a range of stakeholders, including sophisticated narrative in a broader context (e.g. data storytelling, conferences, talks, monthly updates, blog posts).[9,13,14]
- Selects the most appropriate medium to visualise data, including basic and more interactive visualisations.[9,14]
- Translates data into meaningful data visualisation outputs, including maps, infographics, charts and graphs, making data organised and easier to interpret.[9,10,13,14]
- Interprets data visualisations, including charts, tables and graphs, and can explain arguments and/or outcomes clearly and coherently to others.[9,13,14]
- Critically assesses visual representations for accuracy and effectiveness of data.[9,13,14]
- Advises others on data visualisation options to present data results.[13]
- Employs strength-based language in the communication of data using a socio-cultural and social justice perspective.[39]

Reflective questions

- What strategies will I use to ensure that data presentations are relevant and a ccessible to each audience?
- How will stakeholder feedback shape the way I present or visualise the data?
- What narrative techniques will I use to communicate findings in a broader context (e.g. storytelling, framing, analogies)?
- In what ways will my narrative provoke reflection, dialogue, or action among stakeholders?
- How will I ensure that the visualisation format aligns with the complexity and purpose of the data?
- How will I decide which visual formats (e.g. maps, graphs, tables) to best convey the key insights?

Data Competency 39  PC 7.3  PC 9.4

Provide recommendations and advice on the strengths and limitations and how to use data used in learning, research, and decision- making in PBI[9,10,14,29]

What does this mean?

- Applies awareness of high-level challenges associated with data.[9]
- Creates and justifies recommendations for data access.[14]
- Develops and engages in a reflective process to support the learning, design, implementation and communication of data within a PBI, including challenges, opportunities, learnings and recommendations.[29]
- Engages in participatory techniques to provide recommendations and advice based on the strengths, limitations and learnings associated with data in a PBI to partners within the community.[29]
- Proactively identifies and promotes opportunities to use data to support decision making, advice and research.[14]
- Applies knowledge on the broader community and strategic environment when drawing insights from data to make informed, evidence-based decisions and recommendations for a PBI to implement.[14]
- Critically reflects on findings and recommendations with consideration of broader contextual factors within a PBI.[10]

Reflective questions

- What systemic or strategic challenges have I encountered when working with data in this PBI?
- What lessons have I learned from navigating these challenges that could inform future projects?
- How have I reflected on the design, implementation, and communication of data throughout the PBI?
- What challenges and opportunities emerged, and how did I respond to them?

Data Competency 40  PC 7.6  PC 9.2, 9.3

Use evaluation findings to advocate for the benefits of monitoring, evaluation and learning[12,29]

What does this mean?

- Effectively communicates and documents monitoring, evaluation and learning outcomes for a variety of stakeholder audiences and community so all parties benefit equally.[12]
- Creates an evidence culture by capturing, storing, analysing and communicating the findings of what is being learnt about the community through a PBI.[29]
- Applies knowledge and understanding to describe the benefits and opportunities of monitoring, evaluation and learning for a PBI.[12]
- Advocates the value of lessons learned by using evidence gained from shared monitoring, evaluation and learning.[12]

Reflective questions

- How do I use evidence from the MEL to advocate for change or improvement within the PBI or broader system?
- How do I ensure that advocacy efforts are grounded in shared learning and community priorities?
- How have I tailored the communication of MEL outcomes to suit different stakeholder audiences, including community members?
- What strategies have I used to ensure that MEL findings are accessible, inclusive, and beneficial to all parties?
- How do I ensure that what is being learned about the community is communicated respectfully and meaningfully?
- In what ways have I encouraged others to use evidence as a foundation for decision-making and improvement?
- What benefits have emerged from MEL activities in the PBI, and how have they influenced outcomes?

Appendix A: Synthesised Data Literacy Frameworks

Academic Literature	Grey Literature
1. Ridsdale et al. (2015)[9] 2. Databilities (2023)[9,11] 3. Wolff et al. (2016)[9] 4. Grillenberger and Romeike (2018)[9] 5. Sternkopf (2017)[9] 6. Cadman (2020)[19] 7. Merk et al.(2020)[19] 8. Reeves and Chiang (2019)[19] 9. Reeves and Honig (2015)[19] 10. Wu et al. (2021)[19] 11. Ebbeler et al. (2017)[19] 12. Rogers (2015)[19] 13. Pálsdóttir (2021)[19] 14. Pálsdóttir (2017)[19] 15. Wiorogórska et al. (2017)[19] 16. Todorova et al. (2018)[19] 17. Kõuts- Klemm (2019)[19] 18. Aung et al. (2019)[19]	19. Queensland Government. Department of Education. Data Literacy Framework[16] 20. New South Wales Government. NSW Health. Data literacy capability framework.[10] 21. Australian Government. Australian Public Service Commission. Data Capability Framework[14] 22. New Zealand Government, Data Capability Framework[13]

Appendix B: Professions and associated professional competencies

Profession: Epidemiology **Icon**: 

Professional Competencies:

1.2 Use of evidence and research to target and inform population health interventions and influence access to and delivery of health services.

2.1 Develop evidence-based options to address a specific population health issue and assess the implications of each option to formulate appropriate and measurable program goals, objectives and strategies.

2.2 Understand the principles and processes of policy development and implementation in promoting and protecting health and preventing disease and injury.

2.3 Plan and implement multi-strategy population health interventions to contribute to defined policy and program outcomes.

2.4 Identify risks and apply principles or risk management.

3.1 Identify the health issues that exist in and impact on populations.

3.2 Identify behavioural, environmental and organisational factors that promote or compromise health.

3.3 Identify relevant and appropriate sources of information.

3.4 Collect, manage and analyse data to determine appropriate implications, uses, gaps and limitations in information on population health issues.

3.5 Interpret the meaning of information, considering the current ethics, political, socio-cultural and economic context.

3.6 Recommend specific actions based on analysis and interpretation of information.

3.7 Report and communicate through appropriate channels to inform population health policy and practice.

4.1 Identify partners and other stakeholders through a process of proactive and responsive engagement.

4.2 Participate in, develop and maintain sustainable community and professional partnerships to enhance population health outcomes.

4.3 Collaborate with partners and other stakeholders in the planning and delivery of clinical services to achieve positive population health outcomes.

4.4 Advocate on issues of population health significance to influence healthy public policy and practice across sectors and jurisdictions.

6.1 Communicate effectively with a range of stakeholders and populations by using appropriate resources, techniques and technologies.

7.1 Communicate and apply shared visions, missions and values as well as building capacity, improving performance and enhancing the quality or the working environment.

7.3 Understand the context and the environment in which decision making occurs in relation to population health interventions.

7.4 Understand the contribution and role of other government and community partners for improving the health and wellbeing of the population.

7.5 Promote and contribute to reflective practice, professional development and an active collegiate learning environment.

7.6 Build the capacity of communities and organisations to improve population health outcomes by sharing knowledge, tools, expertise and experience.

8.1 Utilise relevant literature and research findings to improve evidence-based practice.

8.2 Locate and systematically review information and assess its quality and usefulness for the purposes of public health research, policy and practice.

8.3 Conduct research and evaluation according to research and project management principles.

8.4 Select and design appropriate evaluation and research methods and instruments.

8.5 Monitor programs, objectives and strategies based on the analysis of data.

8.6 Analyse quantitative and qualitative data to understand program effectiveness.

8.7 Report and communicate findings through appropriate channels to contribute to the evidence base and promote population health outcomes.

9.1 Uses appropriate technology and software to collect and analyse data relevant to Population Health.

9.2 Uses appropriate technology to communicate effectively.

9.3 Awareness and use of current and emergent technology in delivering population health services.

Sourced: Queensland Government, Department of Health. Queensland Health, Health Practitioner Core Competency Descriptor – Epidemiologist. Unpublished.

1.3. Designs surveillance systems using the principles of ethics, DEIA, and justice.

1.4. Conducts surveillance activities (e.g. reviews surveillance data needs, assesses existing surveillance data and systems, collects, analyses, evaluates, and communicates surveillance data).

1.6. Manages data (e.g. surveillance, investigations, studies, programs, and other data).

1.7. Analyses data (e.g. surveillance, investigations, studies, programs, and other data).

1.8. Interprets results from data analysis.

2.3. Applies public health informatics in using epidemiologic data, information, and knowledge (e.g. data collection, processing, analysis, and dissemination).

2.4. Manages information systems to promote effectiveness and security of data collection, processing, and analysis.

Sourced: Council of State and Territorial Epidemiologists. (2023). 2023 Applied Epidemiology Competencies. Atlanta, Georgia. https://www.cste.org/group/CSTECDCAEC (US CDC)

Profession: Psychology **Icon**: 

Professional Competencies:

8.7 Consults appropriately with Aboriginal and Torres Strait Islander Peoples, families, communities and organisations to support collaboration in achieving health outcomes

8.6 Understands the importance of self-determined decision-making for Aboriginal and Torres Strait Islander Peoples, families, and communities, and works in partnership to achieve health outcomes within an Aboriginal health frame of reference.

Sourced: Psychology Board Ahpra. Professional competencies for psychologists. https://www.psychologyboard.gov.au/Standards-and-Guidelines/Professional-practice-standards/Professional-competencies-for-psychologists.aspx

Profession: Health Promotion **Icon**: 

Professional Competencies:

1. Carry out appropriate needs assessment and demonstrate understanding of determinants of health.

4. Be aware of national and state priorities and determine how these impact on local plans.

7. Consider and apply theory to health promotion planning, implementation and research.

Sourced: James R, Howat P, Shilton T, Hutchins C, Burke L, Woodman R. Core Health Promotion Competencies for Australia 2007. https://espace.curtin.edu.au/bitstream/handle/20.500.11937/12996/160575_160565a.pdf;jsessionid=D061D480961F49B33039D565F46484A0?sequence=2

2.5 Facilitate communities and groups to articulate their needs and advocate for the resources and capacities required for health promotion action.

4.1 Use effective communication skills including written, verbal, non-verbal, and listening skills

4.4 Use interpersonal communication and groupwork skills to facilitate individuals, groups, communities and organisations to improve health and reduce health inequities

5.1 Work with stakeholders to agree a shared vision and strategic direction for health promotion action

6.1 Use participatory methods to engage stakeholders in the assessment process

6.2 Use a variety of assessment methods including quantitative and qualitative research methods

6.3 Collect, review and appraise relevant data, information and literature to inform health promotion action

6.4 Identify the determinants of health which impact on health promotion action

6.5 Identify the health needs, existing assets and resources relevant to health promotion action

6.6 Use culturally and ethically appropriate assessment approaches

6.7 Identify priorities for health promotion action in partnership with stakeholders, based on best available evidence and ethical values

8.5 Monitor the quality of the implementation process in relation to agreed goals and objectives for health promotion action

9.1 Identify and use appropriate health promotion evaluation tools and research methods

9.2 Integrate evaluation into the planning and implementation of all health promotion action

9.3 Use evaluation findings to refine and improve health promotion action

9.4 Use research and evidence-based strategies to inform practice

9.5 Contribute to the development and dissemination of health promotion evaluation and research processes

Sourced: Dempsey, C., Battel-Kirk, B. & Barry, M.M. (2011) The CompHP Core Competencies Framework for Health Promotion Handbook. Paris: International Union of Health Promotion and Education (IUHPE).

Profession: Community Development **Icon**: 

Professional Competencies:

1.1 Strategies for collaboration among nonprofit, public and private organisations

1.2 Facilitation skills

1.3 Community-led collective action

1.4 Conducting research

1.5 Strategies for collaboration with nonprofit, public and private organisations

1.6 Community storytelling

1.7 Needs assessment

1.8 Asset-based methods, Appreciative Inquiry

1.9 Listening

Source: Hains KD, Hains B, White S, Stanard V, Rios M. Knowledge, values and skills essential for effective community development practice: A Delphi study. Journal of Community Practice. 2020 Oct 1;28(4):416-29.

Profession: Data Science **Icon**: 

Professional Competencies:

5.1 Programming languages: Proficiency in programming languages e.g. Python, R, SQL.

5.2 Data processing frameworks: Efficient use of data processing frameworks e.g. Apache Hadoop, Apache Spark.

5.3 Machine learning libraries: Leverage the use of machine learning libraries e.g. scikit learn, TensorFlow, PyTorch.

5.4 Data visualization tools: Communicating findings using data visualization tools to create compelling visuals that facilitate interpretation and presentation of complex data patterns.

5.5 Database management systems: Understanding and applying database management systems for data retrieval, storage and management.

5.6 Version control systems: Use of version control systems to track change in code, collaborate with team members and maintain a structured and organized codebase.

5.7 Big data technologies: Use of technologies to manage big data analytics e.g. Apache Kafka.

Source: Vinay, S. B. (2024). Data scientist competencies and skill assessment: A comprehensive framework. *International Journal of Data Scientist*. *1*(1), 1-14.

DSDA06: Visualise results of data analysis, design dashboard and use storytelling methods.

International Association of Business Analytics Certification (IABAC). Data Science Competencies Framework. EDSF CF-DS-Release 2. 2019. https://iabac.org/g-standards/IABAC-EDSF-CFDS-R2.pdf

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