Best Practice Guide

BP108 | Identify

The Impact Planning Cycle overview

Introduction

Smart low-cost smart air quality monitoring technologies hold great promise as tools that can improve our understanding of air quality at the local level and support a broad range of positive impacts. To realise these impacts, it is necessary to carefully plan for them from day one. Establishing a smart sensor network demands a considerable investment of time and money.

Too often, we see technology deployed with the somewhat naïve assumption that throwing a few sensors up at random with little in the way of deeper planning will yield high quality usable data. The maxim that 'you get out what you put in' is critical here. There are many choices you can make when it comes to setting up a sensor network. What do you need to measure? What sort of data quality do you need? What device functionalities and features do you need? How will you configure your devices? Where will you locate them? How much data analysis do you need? These questions barely scratch the surface of project planning, and all of them must be determined by the impact you wish to create.

Does your data need to stand up in court, or do you want to teach school children about climate change? Both these activities are important, but one requires very different approaches to the other. It is vital that you develop a strong vision of what you want to achieve and work out as clearly as possible how new data is going to help you to achieve it. From there, a whole impact planning process follows.

The OPENAIR Impact Planning Cycle is a tool that can help local governments to maximise the impact of a smart air quality monitoring project. It features six stages (**Identify**, **Develop**, **Implement and operate**, **Manage and analyse data**, **Act on evidence**, and **Evaluate**) each comprising several tasks.

> **i** WHAT IS IMPACT PLANNING?
> Impact planning is a strategic approach to project development that connects planned activities with a specific problem, group of stakeholders, and a clearly defined set of outcomes and impacts. It helps to maximise your chances of creating measurable and meaningful impact that aligns with the needs of your community and your organisation.

Who is this resource for?

This chapter is for use by local government staff tasked with leading the design and delivery of a smart air quality monitoring project. It is also relevant for any other staff working on a project to help familiarise them with the impact planning process at a high level (e.g. senior management, ICT professionals).

How to use this resource

This chapter provides an introduction to the OPENAIR Impact Planning Cycle that can assist with the planning and strategy development for a new project. Consider the outcomes and impacts that you aim to achieve, then consider how you need to approach the preceding stages and tasks of the planning cycle in order to deliver those outcomes and impacts. The OPENAIR supplementary resource *The*

Impact Planning Cycle in detail provides an extended guide with detailed information relating to each cycle stage and task. Use it to support practical delivery of your project across the six cycle stages.

An overview of the OPENAIR Impact Planning Cycle

The benefits of using the OPENAIR Impact Planning Cycle

The OPENAIR Impact Planning Cycle (Figure 1) is a tool, the use of which has the following benefits:

- It provides a step-by-step guide for developing and delivering an air quality monitoring project that will adequately address the needs of your organisation and your community and maximise your chance of creating positive impacts in your local area.

- It is a guide to the entirety of your project workflow, from identification of a problem and stakeholders to evaluation of the project and the impact created.

- The iterative and cyclical approach to project design reflects growing best practice for smart places projects. It can help you to explore the effectiveness of different strategies, designs and activities, maximise impact and return on investment, and support improved decision-making for future projects.

- It enables you to clearly and transparently articulate and demonstrate the positive impacts of a project or activity. This can have several positive effects: it enables transparent reporting of impacts to the local community; it can encourage the team working on the project or activity by showing them how they contribute to positive impacts; and it can help attract further funding, new partners and collaboration.
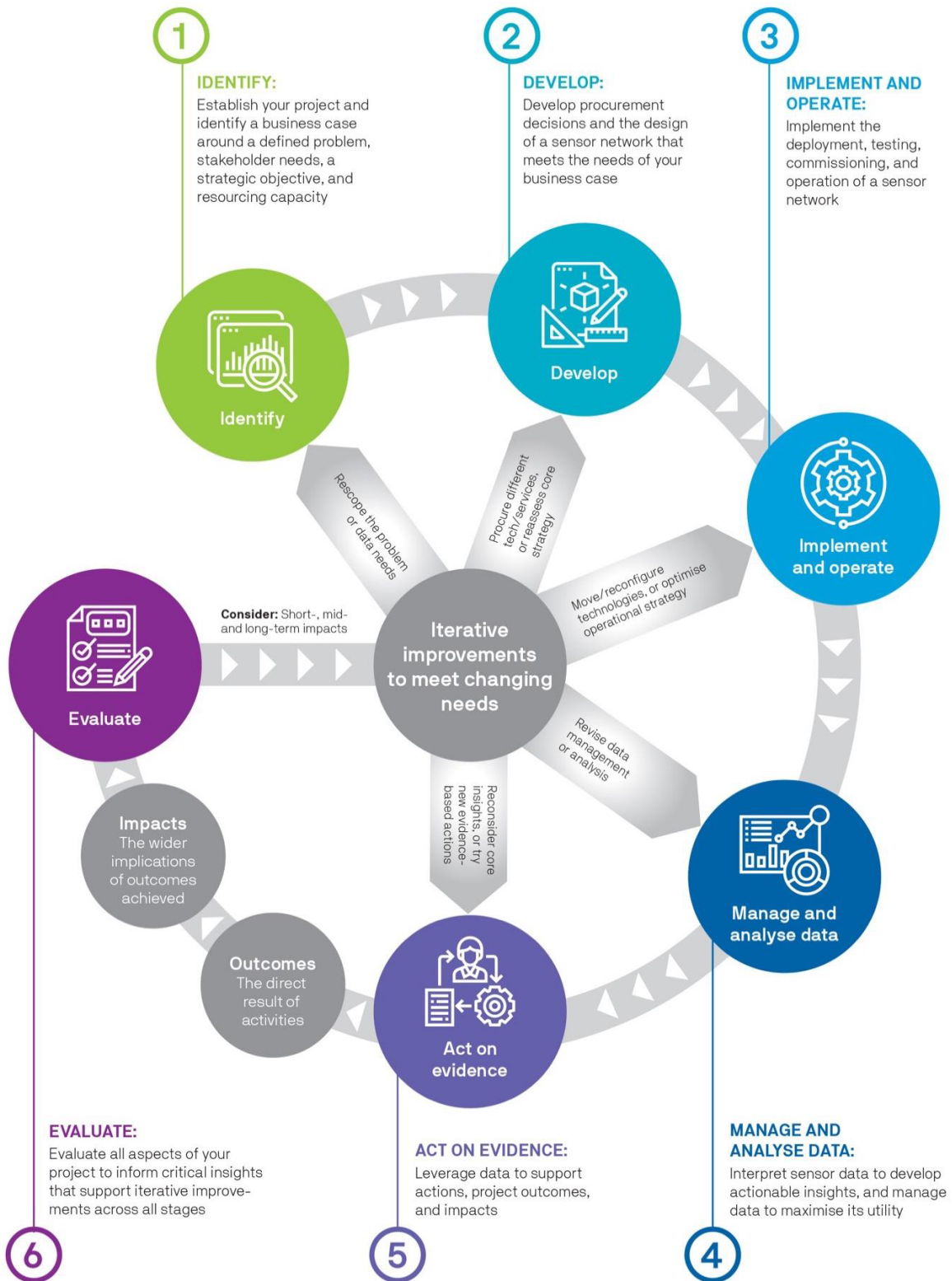
1 IDENTIFY:
Establish your project and identify a business case around a defined problem, stakeholder needs, a strategic objective, and resourcing capacity

2 DEVELOP:
Develop procurement decisions and the design of a sensor network that meets the needs of your business case

3 IMPLEMENT AND OPERATE:
Implement the deployment, testing, commissioning, and operation of a sensor network

4 MANAGE AND ANALYSE DATA:
Interpret sensor data to develop actionable insights, and manage data to maximise its utility

5 ACT ON EVIDENCE:
Leverage data to support actions, project outcomes, and impacts

6 EVALUATE:
Evaluate all aspects of your project to inform critical insights that support iterative improvements across all stages

Figure 1. The OPENAIR Impact Planning Cycle

Impact pathways

The chances that data can support positive impact increase significantly if that data is collected, managed, interpreted and shared with impact in mind. Data-driven impact can be planned for through **data-activities-outcomes-impacts pathways** (defined in Table 1), which lie at the heart of the Impact Planning Cycle.

Table 1. Definitions of the data, activities, outcomes and impacts pathways.

Data	The collection and effective management and interpretation of new data should be done to support specific planned activities.
Activities	Activities are the things that you do in response to a defined problem. They lead to outcomes, which in turn lead to impacts. An activity is *enabled by* new data. Data collection, management, interpretation, and sharing is all designed to support specific defined activities.
Outcomes	Outcomes are the direct result of activities. They should be measurable. You should have a clear idea of the outcomes you want to achieve at the start of your project and plan activities that will help you to achieve them.
Impacts	Impacts are the wider implications of outcomes achieved. They should be measurable, though this can be difficult with some types of impact. The impact is the ultimate justification for acting in the first place and should guide all of your decisions.

The six stages of the Impact Planning Cycle

The Impact Planning Cycle divides a smart sensing project into six stages, each of which contains a series of tasks. By working through these tasks (shown in Table 2) you can maximise the impact of your project.

Table 2. The Impact Planning Cycle stages and related tasks.

1 Identify	2 Develop	3 Implement and operate
This stage helps you to establish your project and identify a business case built around a defined problem, stakeholder needs, a strategic objective, and your resourcing capacity.	This stage guides you through procurement decisions and the design of a sensor network that meets the needs of your business case.	This stage guides you through the deployment, testing, commissioning, and operation of a sensor network.
- Approve and setup your project - Establish roles and governance - Establish a timeframe - Align with smart places best practice - Identify and engage with stakeholders - Identify your strategic objective - Identify your data needs - Review your existing capacity - Plan your evaluation strategy - Develop a Business Requirements Document and a Data Use Action Statement	- Plan participatory approaches - Develop technical requirements - Develop a high-level approach to data management and sharing - Develop a high-level design plan for deploying sensing devices - Plan and procure data communications - Deploy and test communications infrastructure - Plan and approve details of all sensing device deployments - Procure devices, platforms and services - Develop a data schema - Plan for evaluation	- Calibrate sensing devices - Procure device deployment services - Develop operational procedures procure operational services - Integrate systems - Conduct test device deployments - Install and commission the full device network - Undertake troubleshooting - Engage with cybersecurity

4	5	6
Manage and analyse data	**Act on evidence**	**Evaluate**
This stage helps you understand how to interpret, verify, and analyse sensor data to develop actionable insights, and how to manage data to maximise its utility.	This stage explains how you can leverage data-based insights to support actions. The direct result of actions are your project outcomes. The wider implications of these outcomes are your impacts.	This stage guides you through all aspects of project evaluation. Evaluation delivers critical insight into all aspects of the project, supporting iterative improvements across all stages.
- Complete a Master Metadata Record - Identify and integrate complementary data (if required) - Correct and harmonise data - Apply data quality control - Analyse data - Manage and share data	- Develop insights and build an evidence base - Plan and implement activities for impact - Build institutional capacity for impact creation - Engage your community with data - Support data discovery and visualisation - Build communities of practice and share knowledge	- Evaluate all aspects of your project (Business case and data use action statement, data collection and data efficacy, data insights, data sharing, data-driven activities for impact) - Report on evaluation outcomes

Associated OPENAIR resources

Factsheet

The Impact Planning Cycle at a glance

This factsheet presents the OPENAIR Impact Planning Cycle, a simple practical framework designed to assist local governments with impact planning for a smart air quality monitoring project.

Supplementary resource

The Impact Planning Cycle in detail

This resource is a detailed extended guide to using the OPENAIR Impact Planning Cycle, a simple practical framework designed to assist local governments with impact planning for a smart air quality monitoring project. The Impact Planning Cycle is a planning tool that can help to maximise the impact of a project and address the needs of an organisation and community.

Further information

For more information about this project, please contact:

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This Best Practice Guide chapter is part of a suite of resources designed to support local government action on air quality through the use of smart low-cost sensing technologies. It is the first Australian project of its kind. Visit www.openair.org.au for more information.

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