

A Machine Learning Capability Uplift Strategy

UNECE Machine Learning for Official Statistics Workshop 2023

Australian Bureau of Statistics
Informing Australia's important decisions



Motivation for a strategy

- ML has many potential benefits for NSOs
- To realise the full complement of these benefits we need to build organisational capability
- We would like to do this in an organised and focused way

Maturity model

Maturity	People	Culture	Enabling Infrastructure	Outcome
LEVEL 5 Optimised, transformative	Widespread internal capability building and engagement.	Visionary, continuous improvement, proactive anticipation of future directions.	Enterprise-level systems in place.	Significant benefits to the organisation.
LEVEL 4 Institutionalised, embedded	Widespread internal capability building commensurate to role, engagement and leadership.	Proficiency and operations embedded. Substantially institutionalised. Permanent multi-disciplinary team approach.	Enterprise-level systems in place.	Significant benefits to the organisation.
LEVEL 3 Basic deployment, proficiency	Increasing practical experience and knowledge. Proficiency in machine learning commensurate to role.	Internal maturity of pipelines and targeted engagement . Building a strategic and cohesive operationalised approach.	Standards and processes becoming defined, institutionalised and maintained .	Clear, tangible benefits.
LEVEL 2 Pilots, opportunistic	Adhoc experimentation with pockets of excellence and examples of production.	Limited engagement externally. Characterised by individuals and teams.	Limited consideration of strategic/ organisational approach and enablers to drive next steps.	Isolated benefits.
LEVEL 1 Adhoc	No or limited knowledge or experience.	Adhoc and opportunistic experimentation, dependent on individuals.	-	-

Maturing capability through a strategy

Vision and objectives



The strategy sets out to have ML capability institutionalised and embedded. The vision in the Strategy framework and below represents this level of maturity and the characterisation of this maturity in terms of People, Culture, Enabling Infrastructure and Outcome can be used to illustrate success.

Vision: By 2025, we have embedded the organisational capability to judiciously employ machine learning techniques for maximising the value of data and enabling production of quality and timely data and statistics in a changing data landscape.

	People	Culture	Enabling Infrastructure	Outcome
Characteristics of success	Widespread internal capability building commensurate to role, engagement and leadership.	Proficiency and operations embedded. Substantially institutionalised. Permanent multi-disciplinary team approach.	Enterprise-level systems in place.	Significant benefits to the organisation.

In looking towards this vision, four objectives have been identified in the Strategy framework:

Objectives:	HARNESS ML	BUILD CAPABILITY	RAISE AWARENESS	IN PARTNERSHIP
	We will learn how to harness ML for the business of an NSO	We will support and build capability in our organisation	We will champion and raise awareness of our applications of machine learning	We will work in partnership internally and externally

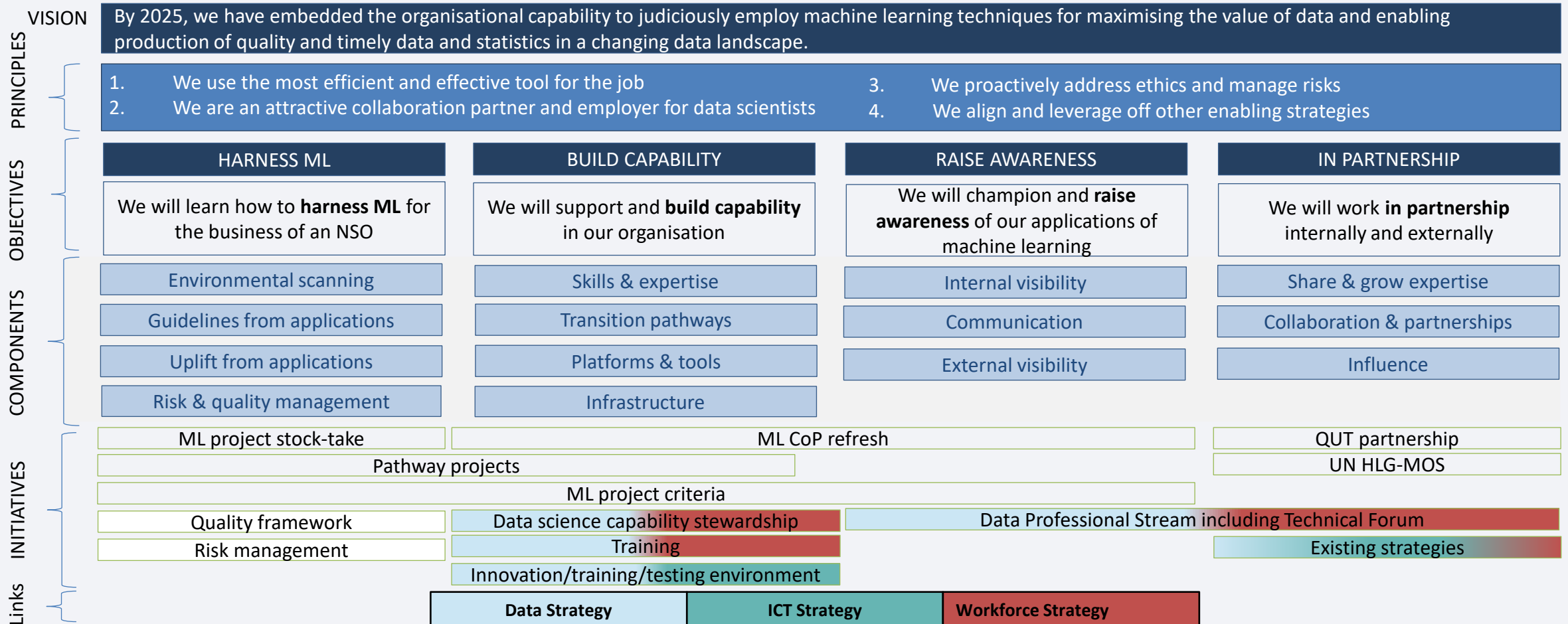
Guiding Principles

The principles in the strategy framework and below are designed to guide the execution of pieces of work and initiatives undertaken to achieve the desired objectives.

Principle	Why is this important?
We use the most efficient and effective tool for the job	This strategy is about expanding – not replacing - our skill set and methods armoury so we can maximise the value of data. Effective in this context is about striking the right balance between all seven dimensions of statistical quality.
We are an attractive collaboration partner and employer for data scientists	To maximise the value of data through an uplift in machine learning capability, success rests not just on uplifting the skills of our current people, but attracting and retaining people and partners with those skills.
We proactively address ethics and manage risks	As we expand beyond more traditional methods, success depends upon continuing to deliver trusted and objective data, statistics and insights through a transparent and ethical approach.
We align and leverage off other enabling strategies	There are initiatives and components as part of other enabling strategies which will contribute towards, or benefit from, uplifting machine learning capability. Alignment is necessary to maximise delivery of all these moving parts.

Strategy on a page

The framework below presents a goal for 2025, and key initiatives to progress the components of the four objectives through until June 2023. Links between the initiatives and other enabling strategies are illustrated.



- ▶ Machine learning project stocktake
- ▶ Machine Learning Community of Practice refresh

- ▶ QUT Partnership
- ▶ Data Profession

- ▶ Pathway Projects
- ▶ Quality Framework

Progress and next steps

- ▶ Mostly good
- ▶ Refresh the strategy in the coming year to reflect rapid change