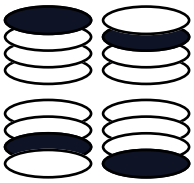
GATHER | INTERPRET | ACT

CROSS-CUTTING

DATA INCONSISTENCIES



Data on which the ML tool makes predictions are inconsistent with the expected structure, type, or unit

GATHER | INTERPRET | ACT

CROSS-CUTTING

DATA RESTRICTIONS

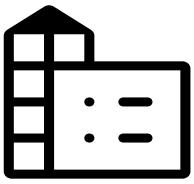


Access to the data on which the ML tool generates predictions is restricted

GATHER | INTERPRET | ACT

CROSS-CUTTING

POOR ENVIRONMENTAL CONDITIONS



The physical workplace environment in which the ML tool operates directly affects the quality of data it processes

GATHER | INTERPRET | ACT

CROSS-CUTTING

HIDDEN PREDICTORS



Stakeholders rely on contextual information not captured in data to assess the validity of the ML tool's predictions

EXAMPLE

A local authority uses a ML tool to identify risks among adult social care service users by analysing case notes. Different social workers write case notes at varying levels of detail and length, affecting the ML tool's performance.

QUESTIONS

Is there any variation in the way we collect data?

What processes and procedures do we have in place that guide data gathering?

What skills, techniques, and tools do we need to gather and prepare data into the required format?

EXAMPLE

A ML tool is used by a local authority to determine how likely older adults living in the community are to fall. But, due to the data protection concerns of service users, the ML tool cannot use factors such as age or gender to make predictions.

QUESTIONS

What internal or external policies affect which input data we can use?

Are we reluctant to share data with other groups or organisations? Are other groups or organisations reluctant to share data with us?

What variables do we want the ML tool to use but currently cannot?

EXAMPLE

A ML tool is used in a hospital to analyse images of patients' eyes to detect disease. A technician takes a picture of a patient's eye in a poorly lit room leading to a low quality image.

QUESTIONS

Does the ML tool use any data that is affected by environmental factors (e.g., lighting, temperature)?

What aspects of our workplace environment may affect the data analysed by the ML tool?

EXAMPLE

A ML tool is used in a hospital to predict whether a patient is likely to have a successful surgery. Rather than only rely on the tool's predictions when making a decision, surgeons also consider factors unrelated to patients' conditions, such as their own workload.

QUESTIONS

What factors do we consider when making care decisions?

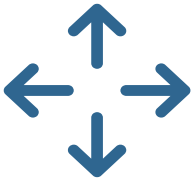
What factors (i.e., variables) are considered by the ML tool when making predictions?

What happens if a person's decision is different from the tool's prediction? Who is accountable if things go wrong?

GATHER | **INTERPRET** | ACT

CROSS-CUTTING

MISMATCHED OBJECTIVES

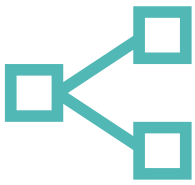


The objectives considered by stakeholders when making decisions differ from the variable predicted by the ML tool

GATHER | INTERPRET | **ACT**

CROSS-CUTTING

INSUFFICIENT CAUSAL INFORMATION



Stakeholders attempt to use a ML tool to answer cause-and-effect questions for which it was not designed

GATHER | **INTERPRET** | ACT

CROSS-CUTTING

DECISION POINT DISCONNECT



The intended user group does not come in contact with the ML tool when making care decisions

GATHER | INTERPRET | **ACT**

CROSS-CUTTING

VALUE CONFLICTS



Use of the ML tool reveals conflicting interpretations of organisational values among stakeholders

EXAMPLE

Case workers prioritise short-term risk by screening-in referrals to a care agency if they consider a child to be at risk of abuse. The ML tool prioritises long-term risk by screening-in referrals if it predicts that the child will be re-referred to the care agency at some point in the future.

QUESTIONS

What is the outcome that stakeholders consider when making care decisions?

What is the outcome that the ML tool is trying to predict?

What outcome do we want stakeholders to consider when making care decisions?

EXAMPLE

Social workers try to use the variables included in a ML tool to consider what interventions would most likely reduce a service user's risk of falling. But, the ML tool was only designed to predict the probability that someone will fall and cannot answer the social workers' question.

QUESTIONS

What sort of cause-and-effect questions are we interested in?

Was the ML tool designed to be able to answer those questions?

EXAMPLE

A ML tool is used in a hospital to support decisions for whether a patient should undergo surgery. Yet, the clinicians who are the intended users of the ML tool make most of their decisions in the wards and rarely come in contact with a computer.

QUESTIONS

Where are the intended users of the ML tool when they make care decisions? Do they have easy access to a computer?

How are the outputs of the ML tool being disseminated to those making care decisions?

EXAMPLE

A ML tool is used in a hospital to identify individuals eligible for a preventive care programme. Different stakeholder groups in the hospital debate what amount of human control over the ML tool would reduce the risk of errors.

QUESTIONS

What values and motivations are most at stake when using the ML tool?

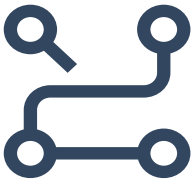
Are there disagreements or conflicts over these values and motivations?

How do we typically resolve value conflicts in our organisation?

GATHER | INTERPRET | ACT

CROSS-CUTTING

DISRUPTED WORKFLOWS



Use of the ML tool challenges existing workflows and lines of communication

GATHER | INTERPRET | ACT

CROSS-CUTTING

ADDITIONAL LABOUR



Use of the ML tool demands additional, previously unperformed work

GATHER | INTERPRET | ACT

CROSS-CUTTING

LIMITED UNDERSTANDING



Stakeholders possess limited understandings of how the ML tool functions

EXAMPLE

A ML tool is used in a hospital to identify patients who may be at risk of sepsis. Clinicians traditionally relied on seeing and speaking with patients to make a diagnosis. Now, sepsis diagnoses are made without any patient interaction.

QUESTIONS

Is there a specific process or workflow that must be followed when using the ML tool?

How does this workflow align with our existing care workflows?

Do stakeholders have flexibility in deciding how they follow the tool's workflow?

EXAMPLE

A ML tool is used by a local authority to predict a child's risk of maltreatment. To use the ML tool, social workers have to manually type in the child's family information as an input for the tool to generate a prediction.

QUESTIONS

What tasks are needed to prepare the data that is used by the ML tool to make predictions?

What tasks are required to over-ride the tool's predictions?

Are the benefits of using the ML tool greater than the costs?

Are there incentives in place for people to perform the necessary tasks?

EXAMPLE

A ML tool is used in a hospital to analyse X-ray images to identify lung cancer among patients. In some instances, the radiologists do not know why the ML tool flags an area in the image as abnormal tissue.

QUESTIONS

What do different stakeholders know about the ML tool?

What does each group need to know about the ML tool?

Does the interface provide any clues about how the ML tool functions?

How can we help stakeholders learn about the ML tool?