Implementing Predictive Models

The third step in applying predictive models in a government agency is implementation. Beyond the content of the predictive model being developed and the ethical concerns, great attention should be paid to the process of implementation. Such a change will be a major change in organizational culture. The literature on the implementation of evidence-based practices and implementation science is growing and implementation of predictive models falls within this arena.

Model development → Ethical Discernment → Implementation → Evaluation

The National Implementation Research Network uses the following metaphor to illustrate how implementation science ensures that research and scientific findings are linked to service delivery.

The Implementation Gap

What is known is not adopted by policy or practice
What is adopted is not operationalized as intended
What is operationalized as intended is not sustained

Implementation

Active and planned efforts to identify approaches that will work.
Deliver approaches sustainably and at scale in ways that maximize their effectiveness
The nexus between research and practice

“The use of effective interventions without implementation is like serum without a syringe; the cure is available, but the delivery system is not.”


For more information, contact Valerie T. Stewart, PhD, Manager, Oregon Enterprise Data Analytics (OEDA), Valerie.T.Stewart@state.or.us, 503.945.5676.
OEDA will develop metrics to address the following concerns documented in the literature about implementing predictive models.

**Executive Ownership**
- Buy-in from senior leadership and a clear strategy for integrating predictive model is essential

**IT Involvement**
- Potential technology gaps and limitations must be understood upfront to avoid issues down the road

**Available Data vs. Cleansed Data**
- While there may be restrictions on available data, in some cases a proxy variable may be used.
- Don’t risk being stymied by the belief that data must be perfectly clean.

**End User Involvement and Buy-In**
- End users should be involved in the planning, design and ultimate roll out of the predictive models.
- End users also have more insight into the business process and may be able to better identify roadblocks to successfully incorporate models.

**Change Management**
- Develop a communication that includes training materials, policies, procedures, metrics, compliance guidelines and FAQs.
- Educating end users on how the model will be used is important.

**Explainability vs. the “Perfect Fit”**
- It is important to balance building a precise statistical model with the ability to explain the model and how it produces results.

Literature has outlines success factors and challenges to overcome when implementing predictive models.

**Success Factors**
- Strong leadership
- Organizational structure that houses multiple human services programs under one agency
- Funding to develop the system
- External legal review of privacy requirements

**Challenges**
- Misperceptions around what agencies are allowed to share.
- Tendency to be risk averse and overly cautious in the interpretation of federal privacy requirements
- Inconsistencies in federal privacy requirements that apply to data sharing across multiple programs
- Lack of training and outdated IT systems
- Culture suggesting that agencies should not share data, cumbersome data sharing agreements, and concerns that other agencies will not protect data

Create a data leadership group.

“This is a culture change – a move from gut level - to using data. Have champions to move the data-driven culture forward.”

Source: Implementation Research: A Synthesis of the Literature

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