

# Position Description

<b>Position title:</b>	Senior System Dynamics Modeller (Maternity Leave Cover), Decision Analytics Program
<b>Reports to:</b>	Manager, Decision Analytics Program
<b>Direct reports:</b>	Up to two staff
<b>Employment status:</b>	Temporary contract until September 2023, full-time (1.0 FTE)

## Background

The Sax Institute is a leading Australian expert body in helping decision makers find and make best use of research to solve real-world health and social problems.

We connect individuals and organisations with research, we build research platforms that generate new knowledge for use in decision making, and we lead thinking and knowledge around how to ensure more research has a real-world impact.

We are a transformative organisation established to develop innovative ways of better connecting knowledge from research with those who can use it.

## Program Area – Decision Analytics

The Sax Institute's Decision Analytics team uses dynamic simulation modelling (system dynamics, discrete event simulation and agent-based modelling) and other analytical methods to develop adaptable decision support tools. These tools are developed in partnership with government departments, policy agencies and program planners in health and social sectors, providing them with a low-risk virtual environment to test potential impacts of different decisions before they are implemented in the real world.

Decision Analytics applies a unique participatory approach to developing the simulation models. This allows for integration of qualitative real-world knowledge and priorities from a diverse range of stakeholders and quantitative inputs from best available data and published literature, enabling an investigation into the complex and dynamic nature of our most challenging health and social problems. In addition, a user-friendly interface is layered on the complex model and has the functionality to not only view model assumptions but also to change and test alternative assumptions and strategies, making it a true decision-support tool. Our process and methodology aim to ensure the quality and transparency of the model, and to ultimately make the simulation decision-support tools *useful* and *usable*.

## Purpose of position

The Senior System Dynamics Modeller develops model-based decision support tools for government, non-government and service delivery organisations, using high-level mathematical modelling and data analytic skills. S/he works as part of a collaborative team with diverse expertise in policy and planning, participatory and consensus building approaches, and evidence synthesis. S/he supervises other simulation modellers and technical staff on the Decision Analytics team and liaises with externally based modellers on the development of models.

### Key accountabilities

Key accountabilities	Performance expectations
Lead the analytic work in developing decision support tools for policy and planning through dynamic simulation modelling, including the refinement and advancement of existing tools	<ul style="list-style-type: none"> <li>Develop, design and deliver high quality, user friendly, system dynamics simulation models on time</li> <li>Source / identify, manage, and analyse data from a variety of sources using statistical analysis, simulation, optimisation, predictive modelling, or other mathematical methods to support the development of dynamic simulation models</li> <li>Develop user interfaces and other visualisation tools to support end user interaction with the models and use of findings</li> <li>Contribute to stakeholder workshops and development of model-related materials and resources</li> <li>Liaise with clients, external project stakeholders and internal staff to communicate model requirements and advise on model results and insights</li> </ul>
Supervise modellers and build SD modelling capacity within Decision Analytics team	<ul style="list-style-type: none"> <li>Supervise and support Decision Analytics staff working on the development of the models</li> <li>Liaise with external modellers who are contributing to Sax projects</li> <li>Coordinate and contribute to technical meetings and resources to support capacity building</li> <li>Contribute to analytic advances and efficiency improvements</li> </ul>
Contribute to tenders and applications for new work	<ul style="list-style-type: none"> <li>Contribute to the development of research protocols and grant applications, and government tenders</li> </ul>
Contribute to the dissemination of the work of Decision Analytics	<ul style="list-style-type: none"> <li>Publish and present findings from the work</li> <li>Contribute to communication materials to share the work with wider audiences</li> </ul>
Lead work in raising the Sax's profile in SD	<ul style="list-style-type: none"> <li>Determine Sax's approach to supporting SD community and capacity</li> <li>Raise profile of Sax within the SD technical community</li> </ul>
Contribute to strategic directions for Decision Analytics	<ul style="list-style-type: none"> <li>Contribute to strategic directions for Decision Analytics</li> </ul>

### Qualifications, Skills, Experience and Personal qualities

#### Essential

To be successful the Senior System Dynamics Modeller should demonstrate the following technical and behavioural competencies:

- Tertiary qualifications or demonstrated relevant, equivalent professional experience
- Experience in system dynamics modelling and participatory approaches to its application for health policy and planning.
- Proven high level analytical skills and a methodical approach to data management, and analysis
- Knowledge and / or experience in Epidemiology and/or Biostatistics, relevant to population health
- Good knowledge of data privacy and security issues and the ability to maintain the strictest confidentiality when dealing with sensitive data or reports with restricted access.

- High-level organisational and time management skills with demonstrated expertise in managing input from multiple stakeholders
- A strong service orientation with proven ability to build successful working relationships with a variety of people, both internal and external, and to deliver on commitments made
- Strong interpersonal and communication skills, both written and verbal.

## **Desirable**

- Experience in a health research environment
- Knowledge of multiple dynamic simulation modelling methods
- Experience with dynamic modelling packages such as Stella Architect, InsightMaker, Anylogic and a statistical package such as Stata or R Studio
- Experience in graphic and tabular representations of data.