

DBL Interactive - A Bayesian network decision support toolkit for the web

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DBL Interactive® (or DBLi) is a new decision support toolkit designed to allow model builders to create and share Bayesian networks over the internet. DBLi integrates a powerful database (SQL Server), and Bayesian network engine (Smile), and graphical user interface (HTML and Adobe Flash), a GIS (ASPmap) and several other tools.

DBLi was developed to meet a growing need for tools that support collaborative model development and the online delivery of models to clients and users. The main components of the system are:

- A user management system - allows the system administrator or model builder to control access to models. Users can be granted read only, collaborate and owner / edit permissions on a network.
- A network organiser - a list of networks that model builders can create. Models can be created directly in DBLi or they can be imported from a Netica (.dne) file. The model organiser supports versioning, so the model builders and collaborators can create versions of a model and select which version to publish if they wish to make a model publically available.
- A network viewer - an interface similar to commonly used desktop Bayesian network software (e.g. Netica). In the network viewer users can view networks, edit networks (if they have permission) and conduct scenario and diagnostic analysis using networks. Nodes can be moved, created, deleted and edited. Model builders can also control how a network is used as displayed by selecting which nodes are visible to users, which nodes can be used in scenario analysis, default scenarios for networks and the colour and location of nodes.
- A map viewer - this allows model builders to link their network to GIS layers for spatial modelling and map production. DBLi supports shape files, which is a commonly used GIS format. Mapped output can be overlaid onto Google Maps in the map viewer. The map viewer also supports scenario analysis so that maps from multiple model runs can be produced and saved.
- Field data set manager - this is an interface where model builders can create and use case files to populate networks with probabilities. This interface is CSV file compatible so that case files can be transferred to and from other CSV compatible spreadsheets and databases.
- Information page editor - this is similar to common document editors and allows model builders to create HTML information pages for networks and individual nodes within networks. Information pages can contain text, pictures and hyperlinks to

other websites. User can access these information pages through the network viewer.

- Probability table calculator - this is a probability table elicitation tool that model builders can use to assist them when populating probability tables using expert opinion.
- Discussion board manager - DBLi automatically creates a discussion board for each model created so that model builders, collaborators and users can communicate online.
- Ancillary information manager - this allows model builders to attach documents, pictures, video and other electronic information to networks for access by users.

This presentation will give a brief overview of DBLi and some examples of its application.