

## Uptake of Decision Support Systems in the Forestry Sector in Great Britain

Social research was commissioned to investigate the uptake of computer-based Decision Support Systems (DSS) across the forestry sector. The research showed that successful uptake is influenced by multiple factors including whether a DSS meets business and user needs, cultural resistance, dialogue between researchers and users, the corporate delivery context, and training and support. Many of the barriers to uptake could be addressed by improving the quality of stakeholder engagement during DSS development and implementation, and a shift from unidirectional 'knowledge-transfer' towards collaborative 'knowledge-exchange'.



"You need a practitioner involved... just to keep the developers' feet on the ground."  
(Forest Planner)

### Background

Internationally, increased attention has been placed upon the development of computer-based Decision Support Systems (DSS) to enhance the evidence base for environmental decision-making. Over the last decade Forest Research has developed numerous DSS for the forestry and land use sectors in Great Britain (GB) and Europe. Many are now integral to the systems of planning and decision-making used in the GB forestry sector. However, for some DSS the level of adoption has been lower than expected. This problem is unique neither to GB nor forestry and is not yet fully understood. Therefore, social research was carried out to understand the factors affecting forestry DSS uptake in GB, and to advise on the strategies and processes whereby they are conceived, developed and maintained.

### Objectives

This research aimed to:

- improve understanding of the factors affecting DSS uptake, including those relating to the institutional context in which DSS are developed and applied;
- learn from both positive and less satisfactory experiences to inform the future development and implementation of DSS;
- advise on the strategies and processes whereby DSS are conceived, commissioned, developed, implemented and maintained by FC and other forestry sector stakeholders.

### Methods

The main methods used were:

- semi-structured interviews with 30 individuals across GB involved in different aspects of DSS development and use, and

- an online survey of 81 members of the Institute of Chartered Foresters and/or Forestry Commission staff.

## Findings

- The value of DSS appears to be increasing within the forestry sector due to perceptions that they address the growing demand for evidence-based policy, help policy-makers and managers respond to climate change, and support certification.
- The barriers to uptake are diverse, and include: the failure of a DSS to meet business demands and user requirements; cultural resistance, including a sense that DSS may threaten professional judgement; problems integrating DSS into corporate systems, and a lack of training, support and guidance.
- Many of the factors influencing uptake relate to the level and quality of stakeholder engagement during DSS development and implementation.
- A new protocol on DSS commissioning by FC is expected to improve engagement between different corporate stakeholders, and ensure there is an 'owner' for each DSS who follows its development and commits the necessary resources.
- User groups can help ensure DSS meet customer needs if they communicate effectively with scientists, have a stable composition, and reflect the full range of stakeholders.
- DSS will only be adopted if they satisfy a business need and are easy to use. Making DSS use compulsory could increase uptake, but would only be effective if the DSS is perceived to respond successfully to business and users needs.

## Recommendations

- Successful DSS development and uptake is dependent upon satisfying a range of criteria rather than addressing any single barrier.
- Specific recommendations include: improved understanding of how DSS fit into decision-making; clarification of roles and responsibilities regarding DSS development; collaborative working between developers and users to build trust and credibility; better delivery strategies to help the industry absorb DSS.
- There needs to be a shift from a knowledge-transfer model (a unidirectional process) towards knowledge-exchange (involving dialogue between collaborating partners) and knowledge-interaction (shared cultures and institutions).
- Rather than developing a tool largely in isolation from its intended users, and then seeking a user and a problem that the tool can address (as has sometimes been the case), researchers need to begin with a better understanding of the actual problems faced by decision-makers in specific contexts, and how DSS can support existing decision-making processes.

### Partners

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### Reports and Publications

Stewart, A., Edwards, D. and Lawrence, A. (2013). *Uptake of Decision Support Systems in the forestry sector in Great Britain: Final Report*. Forest Research, Roslin, UK. 69pp.

Stewart, A., Edwards, D. and Lawrence, A. (in press). Improving the science-policy-practice interface: Decision Support System uptake and use in the forestry sector in Great Britain. *Scandinavian Journal of Forest Research*.