

# Decision Explorer

# NEWSLETTER



## Issue 4 Winter 1999/2000

### Welcome!

Welcome to the Winter 1999/2000 edition of the Decision Explorer Newsletter. Over the past few months we have been out and about and have got to meet a few more of you at various conferences and events around the UK and in Boston (Mass, USA rather than Lincolnshire, UK - as someone commented to me last week). It is really nice to be able to meet our customers and to be able to put a face to people, some of whom we have known for years by phone and email and who have been using Decision Explorer since its "DOS days" as COPE. We will continue to advertise events on our web pages, including details of any conference where we will have representation. So, if you happen to be at one of the conferences that we attend, please come up and say "Hi!"

In this and the next edition of the Newsletter we will, amongst other things, be providing details of how cluster analysis is used in Decision Explorer and how to use password protection on shared models. We have already covered file types (\*.mdl, \*.mdk and \*.mlk, in the "sharing models" article in Issue 2 of the Newsletter) and will continue in future issues to feature articles which deal with the questions about the functioning of Decision Explorer that crop up most often. Previous editions of the Newsletter can be downloaded from our web site at [www.banxia.com](http://www.banxia.com), so if you have missed an article that you think might be of interest or help to you, the information is still available.

Please remember that we are always interested in hearing from you, so if you have any comments or contributions which you would like to make, please call us.

*Jenny Brightman, Banxia Software Ltd*

### News

#### Decision Explorer Student Edition - now available!

In Autumn 1999 we launched a new, lower priced edition of Decision Explorer 3.1. The Decision Explorer Student Edition is aimed at individual users who are studying for an academic qualification and who want their own copy of Decision Explorer on their PC, for use at home. The Student Edition cannot be run over a network (in the way that the full academic edition can be) and is, as we say, intended for personal use. A full description and comparison of the capabilities of the various editions of Decision Explorer can be found at <http://www.banxia.com/dexplore/editions.html>.

#### Reseller network

We are pleased to announce the continued expansion of our reseller network. Beyond the UK Banxia either now has, or is currently negotiating with, additional resellers in Australia, The Netherlands, Israel, South Africa, Taiwan and the USA. Some of these resellers deal only with one of our products (Decision Explorer or Frontier Analyst) while others deal in both products. Our web pages carry address and contact details for our resellers and outline the services which they provide. Please visit <http://www.banxia.com/reseller/index.html> for details.

#### Talking telephone numbers

Over the next few months you will start to see new telephone and fax numbers appearing on our web pages, in our product literature and on other supporting materials. We are now using "0870" numbers, which will allow us to expand more easily in future. The new telephone number in the UK is 0870 787 2994 and the new fax number is 0870 787 2995. As UK residents will be aware the telephone "Big Number" change is happening in the UK between January and April 2000. During this time many telephone codes in the UK will change. Our new numbers are operational now and will be unaffected by the "Big Number" changes.

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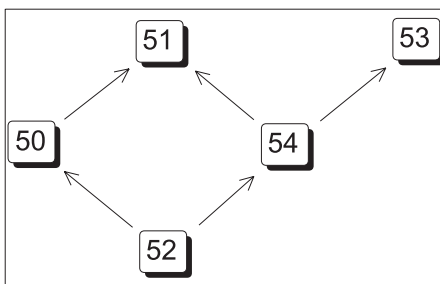
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# Cluster analysis - how it works

The cluster command in Decision Explorer gives you a form of analysis based on the structure of your model. It takes no account of the contents of the concepts' text or their meaning: the analysis is based solely on the structure of the links between concepts. All links are considered as having an equal weight (that is there is no sense of any particular type of link being "stronger" than another). The clusters that are identified are mutually exclusive i.e. concepts can appear in only one cluster at a time.

A typical use of cluster analysis is to split a large model up into related sections. With no "seeds" (explained later) the effect of the analysis is to produce a numbers of sets, which are relatively isolated clusters of ideas. You may then want to explore the "bridges" between and "islands" of clusters. Going through a cycle of model elaboration and clustering can be very helpful when constructing a model. By mapping the clusters you can quickly get insight into "missing links", for example, when you have two clusters which are talking about the same kind of issues. The idea behind the cluster analysis is that the meaning of a concept is related to the concepts that it is linked to, so the groups of concepts that are identified will relate to roughly the same area of the discussion.

In this example, concepts [50] and [54] have similar explanations and consequences (i.e. they are linked to the same concepts). Therefore they are likely to form part of a single topic. Intuitively even a large model can be broken up into a series of topics in this way, although for complex models the identification of the centres and boundaries of each topic is necessarily an art rather than a science.



In Decision Explorer the cluster analysis should provide you with a "suggestion" of independent topic areas. The word "suggestion" is used for two reasons. Firstly, because you are likely to map the clusters, then edit and change links, add explanatory and consequential concepts. And secondly, because cognitive maps are rarely "comprehensive" and "normalised": for example, in a single map some concepts will cover small details, while others cover complete policy areas. The underlying mathematical methods used in cluster analysis rely on the "comprehensiveness" and "normality" of the initial data and cognitive maps rarely satisfy these criteria.

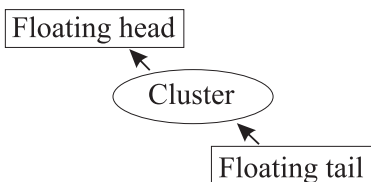
In Decision Explorer "Jaccard Coefficients" are used to identify clusters. For cluster analysis we require a "matching" score for each concept in relation to the others in the surrounding map. For the small map shown here, with only 5 concepts, the table of "matches" would look like this:

	50	51	52	53	54
50	0	1	1	0	0
54	0	1	1	1	0

For concepts [50] and [54] the Jaccard Coefficient is simply:

$$\frac{\text{Number of concepts directly linked to pair}}{\text{Total number of concepts linked to pair}} = \frac{2}{3} = 0.67$$

This ignores concepts that are not linked to either concept [50] or [54] (the number of indirect links is usually large in relation to the number of direct links). We can generate a matching score for any pair of concepts in the model. The clusters are built up using a simple, single link hierarchical clustering method. We begin by picking up a concept, we then pick up another concept and compute the matching score between the two concepts. If the matching score is greater than a pre-set threshold value the concepts are placed in the same cluster (set), otherwise the second concept forms the seed for a new set. Another new concept is then picked up and a matching score computed for this concept and the seed concept of each existing cluster set. The process continues until all of the concepts in the model have been analysed and their matching scores calculated. If a seed set is specified at the start of the cluster analysis, the concepts in the seed set are used as the initial cluster sets, thus providing "prompts" for the analysis process.



For cognitive maps this clustering process usually produces a lot of small clusters. The cluster command also amalgamates small sets into larger ones by merging groups towards "head" concepts until the target set size is reached. The sets are then inspected again and floating heads and tails are merged into the nearest group. The target size obviously has a large influence on the final number of clusters. The default target size setting is 30 concepts per cluster, but this can be changed by the user in the range 5 to 90.



Certain assumptions have obviously been made in the clustering algorithm which has been developed for Decision Explorer, for example, the inclusion of floating head and tails is one which resulted from experience in using the tool. Experience has shown that in "real life use", more sophisticated methods of clustering are inappropriate when dealing with cognitive maps.


Generally speaking, the clustering method is useful in large models which cannot be split visually into areas of related issues, and it will reveal clear cut groups (clusters) of concepts, if such groups exist. Where concepts in a map are very heavily interconnected the value of clustering is much more questionable. You can "force" clusters by reducing the target size to a minimum value of 5 concepts per cluster. However, if the "forcing" process still reveals relatively large clusters, then this is an indication that the model is heavily interlinked and cannot be broken down further.

It is important to remember that cluster analysis gives you a hypothesis about the model structure and should be treated as such, but it can be very useful in directing you to "natural" topics within the data, if they exist.

## Decision Explorer 3.1

We promised in the last newsletter that we would provide you with more details of the new features in Decision Explorer 3.1. This development was classed as a minor upgrade, so free upgrades are available from our FTP site to anyone who is a licensed user of Decision Explorer 3.0.4 or later (CD-ROMS are available but a charge will be made for the CD, shipping and handling). The main feature of this upgrade is one that you may not even notice! Decision Explorer has moved from 16-bit to 32-bit operation. The reason for this move is to keep the software up to date and to provide a platform for future developments. Of course this means that you can now use long file names (more than 8 characters) and you can have spaces and punctuation characters in your file names. Decision Explorer 3.1 runs on Windows 95, 98, 2000, NT4 or later. A 16-bit version (Decision Explorer 3.0.8) is still included on the install CD for Windows 3.1 support.

One of the new features (which I find most useful!) is “rapid entry” mode. There are various ways in which you can access this mode, the first is through the Edit Menu, Rapid Entry mode item. When you click on this menu item a “check” will appear next to it, showing that you are now in rapid entry mode. If you click on this menu item again the check will disappear and you are back in “normal” entry mode. You can also access rapid entry mode through the tool bars (using the  button. Or, when you have typed a concept on the command line, press **CTRL** + , when you finish the concept.

If you are using the Edit menu, select this option and enter your next concept. Press enter and you will be prompted for another concept, either by an “equals sign” (=) on the command line or a cursor prompt on the mapping area, depending on how you chose to enter the first concept. When you are in rapid entry mode, you can just type, press enter, type, press enter, type press enter and so on - to enter a succession of concepts. To come out of this mode either select the rapid entry option again from the Edit menu, press **ESC** or press **CTRL** +  when you enter your last concept.

Other features include the “launch link” feature in the memo cards, full screen mode and additional zoom control. To use the launch link facility in the memo cards you simply enter the path name for the destination document in the memo card. If the body of the memo contains text in the form “location:name” (i.e. a colon with text either side, such as c:\report10.doc or <http://www.banxia.com>), then you can “launch” the destination application and document from the memo pop-up menu (which is accessed via the right mouse button. Place the mouse pointer over the concept to which the memo is attached and right click). Typical uses of this feature would be to launch web pages (using text such as: “Source was the web page <http://www.banxia.com>”) or to take the user to a more detailed document (using text such as: “Full document is stored in the file c:\docs\source.doc where you will find the full text on pages 9-12.”)

With full screen mode you have the ability to maximise the screen display area to the fullest possible extent. You can turn off both your tool bars and the view tabs (if you wish), then type the command “Full” or use the Window menu, Full item. You can still add, edit and move concepts in the usual way. To switch between views use **ALT** + <view number> e.g. **ALT** +1 to get to view one, **ALT** +2 to get to view two and so on. Using **ALT** + **SHIFT** + <view number> adds 10 to the view number and **ALT** + **CTRL** adds 20 to the view number. In full screen mode you can use the command line in the usual way and access the other menus using their shortcuts e.g. **ALT** +F for the file menu and so on. To get out of full screen mode, type the command “Full” again and the mode will change back to normal operation. When might you want to use this mode? Full screen mode was introduced in response to a request from a consultant who wanted an uncluttered display, with maximum legibility, for use at the start of group sessions. Another use would be during the course of a workshop, when you want to pause, focus discussion and concentrate on a particular group of concepts.

Also a custom scaling option has been introduced, primarily to help with live use of Decision Explorer. The **ALT** +[ and **ALT** +] key combinations allow you to change the map view display scale by a predetermined amount (5% increase or decrease in size). The minimum display scale is 10% while the maximum is 200%.

## From the bookshelf

Named the “Best Book of 1995” by the Public and Nonprofit Division of the North American Academy of Management, we would like to commend to you John Bryson’s book “Strategic Planning for Public and Nonprofit Organizations” (Revised Edition, published by Jossey-Bass, San Francisco, CA. 1995). Until now this book was missing from our bibliography on cognitive mapping, decision support, strategy formulation, and applications of Decision Explorer (which can be found at <http://www.banxia.com/dexplore/debiblio.html>).

The original edition of this book was reprinted 9 times and became “the standard book” in the field. As well as giving an introduction to the dynamics of strategic planning the book deals with what are seen as the key steps in using the strategy change cycle to think and act strategically, and getting started with and managing the process of strategic planning. The resources section also contains a section devoted to oval mapping, which is a paper based form of the cognitive mapping technique supported by Decision Explorer.

In praise of this book, Beverly Stein, chair of the Multnomah County Board of Commissioners, Portland, Oregon, comments that: “When I am asked for advice on strategic planning for government or nonprofits, the very first resource I recommend is John Bryson’s book. It is a must-have tool for anyone working toward the common good.”

If you are interested in more information about this book, please visit <http://www.josseybass.com/>, click through to the “Nonprofit organizations” section and use the search facility at the foot of the page.

## Events and training courses

If you would like more information about any of the events listed below, please contact either ourselves (Banxia Software Ltd) or the appropriate event organiser. If you are not sure who is the right person to contact, then please just call us or email to [training@banxia.com](mailto:training@banxia.com), we will be able to help you!

**Thursday 24th February. London, UK.**

### **Academics "Come & See" day.**

A free event for an audience of lecturers, research students and researchers. Three short sessions, repeated throughout the day, where you are invited to come and talk about and try out Decision Explorer.

**Friday 25th February. London, UK.**

### **Commercial users "Come & See" day.**

A free event for an invited audience of managers and management consultants. Three short sessions repeated throughout the day, where practitioners are invited to come and talk about and try out Decision Explorer.

**Monday 28th February 2000. London. UK.**

### **An Introduction to Decision Explorer.**

One-day, hands-on workshop run by SdG Associates, taking you through the theory and practice of cognitive/ ideas mapping and the use of Decision Explorer.

**Mid to Late March 2000. (Date to be confirmed).**

**Boston, MA, USA.**

### **An Introduction to Decision Explorer.**

One-day, hands-on workshop run by SdG Associates, taking you through the theory and practice of cognitive/ ideas mapping and the use of Decision Explorer.

**Thursday 18th May. London, UK.**

### **Academics "Come & See" day.**

A free event for an audience of lecturers, research students and researchers. Three short sessions, repeated throughout the day, where you are invited to come and talk about and try out Decision Explorer.

**Friday 19th May. London, UK.**

### **Commercial users "Come & See" day.**

A free event for an invited audience of managers and management consultants. Three short sessions repeated throughout the day, where practitioners are invited to come and talk about and try out Decision Explorer.

**Monday 5th June 2000. London, UK.**

### **An Introduction to Decision Explorer.**

One-day, hands-on workshop run by SdG Associates, taking you through the theory and practice of cognitive/ ideas mapping and the use of Decision Explorer.

**5th - 9th June. University of Minnesota, MI, USA.**

### **An Introduction to Systems Thinking Tools for Public and Nonprofit Organizations.**

In this course, run by Prof. John M. Bryson of University of Minnesota, you will (amongst other things) learn about cognitive mapping, oval mapping, Decision Explorer, and system dynamics modelling in the context of managing strategic change. The course will meet all day Monday 5th, Tuesday 6th and Wednesday 7th June, the evening of Thursday 8th and all morning Friday 9th. Please contact Prof. John M. Bryson, University of Minnesota, [jmbryson@hhh.umn.edu](mailto:jmbryson@hhh.umn.edu) for costs and further information (course reference PA 5990).

**Monday 26th June 2000. London, UK.**

### **Advanced Decision Explorer Workshop.**

One-day workshop, tutored by Dr. Fran Ackermann, concentrating less on the mechanics of using Decision Explorer and more on the wider picture of how you would use Decision Explorer and cognitive mapping in a workshop setting, as part of a decision support intervention with a client group.

## Impact Explorer

We are pleased to announce "Impact Explorer". This new piece of software is aimed at risk assessment, for use by groups in a facilitated workshop setting. Impact Explorer allows you to vote on ideas in various ways and to display impact/ probability matrices. As you may know, Decision Explorer has DDE capabilities which means that it can interact and exchange information with other software applications (some Decision Explorer users are already making use of this facility). You can, if you wish, make use of these capabilities and exchange information between Impact Explorer and Decision Explorer. Otherwise, you can use Impact Explorer as a stand-alone "voting" tool. To use Impact Explorer you need a radio key-pad voting system (manufactured by the Fleetwood Group, [www.fleetwoodgroup.com](http://www.fleetwoodgroup.com)). This system and the Impact Explorer software allow you to work with up to 250 users. Full release of Impact Explorer is expected in March 2000. Outline details can be found on our web pages at [www.banxia.com/impact/index.html](http://www.banxia.com/impact/index.html).

## Training contacts

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## Feedback

We very much welcome comments from readers, suggestions about articles that you would like to see in this newsletter and any articles that you would like to submit for publication.

If you have any suggestions or would like to contribute an article then please contact Jenny Brightman, at Banxia Software Ltd, by telephone on +44 (0) 870 787 2994 or by email to [news@banxia.com](mailto:news@banxia.com). Thank you.