



This article on **Morphological Analysis & Relevance Trees** is a **stub**. You can help the Foresight Wiki by [expanding it](#) with new sections on the usage of this method in foresight exercises.

Morphological Analysis & Relevance Trees are normative forecasting methods which start with future needs or objectives, and then seek to identify the circumstances, actions, technologies, etc. required to meet them.

Contents

- [1 The FOR-LEARN Guide to Morphological Analysis & Relevance Trees](#)
 - ♦ [1.1 Overall description](#)
 - ◊ [1.1.1 When is this method appropriate?](#)
 - ♦ [1.2 Approach \(Step-by-step Guide\)](#)
 - ♦ [1.3 Pros and cons](#)
- [2 See also](#)

The FOR-LEARN Guide to Morphological Analysis & Relevance Trees

This is a summary of the article on Morphological Analysis & Relevance Trees from the FOR-LEARN guide. To read the full article go [here](#).

Overall description

Morphological Analysis & Relevance Trees originated in strategic planning. They are two of several normative forecasting methods which start with future needs or objectives, and then seek to identify the circumstances, actions, technologies, etc. required to meet them. A relevance tree is an analytic technique that subdivides a broad topic into increasingly smaller subtopics thereby showing 'all' possible paths to the objective, and provides a forecast of associated costs, durations and probabilities for each element. Similarly, morphological analysis involves mapping options to obtain an overall perspective of possible solutions.

When is this method appropriate?

The method can be used to identify problems and solutions, establish feasibility, select the 'optimum' solution and deduce the performance requirements of specific policies, technologies, etc. It may also be used to estimate the overall cost and duration of implementing policies or increase technological performance, thereby scheduling the detailed R&D programme. The purpose of morphological analysis is to organise information in a relevant and useful way in order to help solve a problem or stimulate new ways of thinking. It has often been used for new product development but also in constructing scenarios.

Approach (Step-by-step Guide)

A relevance tree looks much like an organisational chart and presents information in a hierarchical structure. The hierarchy begins at a high level of abstraction and descends with greater degrees of detail in succeeding level of the tree. The entries at a particular level are intended to describe, in a complete manner, the item to which they are connected in the level above. Ideally, each entry at a particular level is orthogonal, that is, it should not overlap with any other entry, thus being mutually exclusive of other entries. Finally, the items at the same level should be addressed from the same point of view. If done properly, the structure can lead to a clearer understanding of the topic under analysis.

Morphological analysis involves mapping a discipline to obtain a wide perspective of existing solutions and future possibilities. The approach can be based on five basic steps:

- Formulation and definition of a problem;
- Identification and characterisation of all parameters toward a solution;
- Construction of a multidimensional matrix (morphological box) whose combinations will contain all possible solutions;
- Evaluation of the outcome based on feasibility and achievement of desired goals; and
- In-depth analysis of the best options considering available resources.

Steps 1, 4, and 5 often stem from a different analysis, whereas steps 2 and 3 form the heart of morphological analysis, as step 2, identification of parameters, involves studying the problem and present solutions with which to develop a framework. This step can involve developing a relevance tree to help define a given topic. Once the parameters are identified, a morphological box can be constructed that lists parameters along a single axis. The second axis is determined by the nature of the problem.

Pros and cons

Advantages:

Relevance tree analysis has demonstrated to be a powerful intellectual stimulus to ensure that a given problem or issue is illustrated in comprehensive detail and that the important relationships among the items considered are shown in both current and potential situations.

Morphological analysis allows for two key elements:

- A systematic analysis of the current and future structure of an industry area (or domain) as well as key gaps in that structure.
- A strong stimulus for the invention of new alternatives that fill these gaps and meet any requirements imposed.

Potential drawbacks:

The development of relevance trees or morphological analysis, like most of Foresight methods, requires critical judgement thus the possibility of human error is present. Finally, if the underlying thought processes are not insightful, the outcomes of this method will be weak.

See also

Environmental Scanning & Monitoring
System Dynamics

Structural Analysis

Agent Modelling

SWOT Analysis

Trend Intra & Extrapolation

Modelling & Simulation

Gaming

Creativity Methods

Expert Panels

Delphi survey

Backcasting

S&T Roadmapping

Critical & Key Technology Study

Scenario Building

Cross-Impact Analysis

Multi-Criteria Analysis