

## Morphology Defined

*There are a number of definitions on Morphology and on its application. We shall try to give an abstract on the matter. The reader should bear in mind that the view of the person defining it alters the subject to some extent.*

### J. W. Goethe:

G. used „Morphology“ the first time 1796 for a methodically oriented science dealing with forms (Greek: Morphä) and changing shapes (Methamorphosis). In his words: The science of shaping and reshaping of organic structures. His idea was then followed in various fields, sometimes in reduced form: Mineralogy, medicine, geology, linguistics, mathematics, metallurgy, and more.

### Fritz Zwicky:

Zwicky «reinvented» the idea in as much as he recommended *General Morphology* to be a set of methods for creative thinking processes which are independent of the discipline, not specialized. Creative thinking includes search for and verification of new, even counterintuitive ideas, interdependence, thinking errors, and recombination of characteristics.

### Hermann Holliger:

There is a narrow and a wide application of Morphology.

1. The narrowest definition of Morphology is a very *specialized* one. You are talking about the morphology of vertebrate animals, of the chemical elements, of Belgian finance groups, of rocket power units, of types of markets, etc. In each case the word Morphology indicates the desire to set up a systematic order of a variety of things. It is a case with an order of structures, forms and shapes. In the narrow sense Morphology is applied to classify the items themselves.
2. In a wider sense the *system of classification* is the object, classification of structures, shapes, forms, theories of classification.
3. In the widest sense *Morphology is an Interdisciplinary Methodology*. It is responsible for the methods used in creative,

critical and communicative thinking. Zwicky used the term *General Morphology*.

### Emil Zahner:

General Morphology is the science of change, Creative Morphology is the process of change guided by the human brain.

Morphology is not limited to science. *General Morphology* derives its meaning from the suitability of its methods to all people. The goal of General Morphology is to enable various disciplines of education to communicate properly and use a set of agreed upon rules. Further it facilitates communication between specialists, applying their specialized knowledge, with laymen - who after all may be the deciding persons in a specific case. A manager typically relies on specialists - he is a layperson - yet accountable for adopting the recommended decision. A common interpretation of facts and methods, - *unité de méthodes* - is the key to efficient communication, evaluation and understanding.

### Methods are tools.

Among the most useful are:

- The Method of Systematic Field Coverage - moving from known areas into the unknown
- The Method of the Morphological Box - construction of alternative solutions
- The Method of Negation and Construction - crash thinking blockades and rebuild ideas.

### Literature:

F. Zwicky: Discovery, Invention, Research through the Morphological Approach. Morphology of Propulsive Power. New Methods of thought and procedure, etc.

Hermann Holliger: Manual of Morphology (part of H.'s seminars, in German).

### Seminars on Morphology for Innovation, Risk Management and Restructuring:

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