

Morphological analysis

A method that breaks a problem down into its dimensions, lists the options for each and explores the possible combinations in a table.

In Spanish

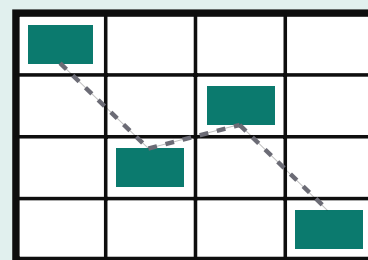
Análisis morfológico

Origin

Zwicky (1969)

Output

A table of parts and options, and the most promising combinations



What it's for

It helps find solutions nobody would think of at first, because it goes through every combination in an orderly way.

Key elements

Independent parts

Each dimension of the problem can be decided separately, such as the energy source or the material.

All the options

For each part, list the alternatives, including the odd ones.

Combinations that fit

Discard those that can't go together and study the rest.

How it's done

1



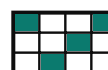
Name the parts of the problem, in columns.

2



Fill in the options for each part, in rows.

3



Combine them by choosing one option per column, and assess the best.

Applications in design

✓ When to use it

When a product has several parts that can each be solved in many ways.

✗ Avoid

Using so many parts and options that the combinations become impossible to review.

👁 Don't fall for it

The table generates ideas, it doesn't choose them; you still need to test them.

Connections

Related to

■ Sketching

■ Brainstorming

■ SCAMPER

Authors and works

1969	Fritz Zwicky	The Caltech astrophysicist used it to explore solutions to technical problems, such as propulsion, and explained it in his book.
1998	Tom Ritchey	Described how to discard impossible combinations by comparing the options in pairs.

Sources

Original sources

- Zwicky, F. (1969). Discovery, invention, research through the morphological approach. Macmillan.

Academic reviews

- Ritchey, T. (1998). Fritz Zwicky, "Morphologie" and policy analysis. Ponencia en la 16th EURO Conference on Operational Analysis, Bruselas. [View source \(https://ia600207.us.archive.org/27/items/ritchey_swemorph_Gma/gma.pdf\)](https://ia600207.us.archive.org/27/items/ritchey_swemorph_Gma/gma.pdf)

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