

# 'What should we try next?'

The application of TRIZ trends of evolution  
(originally devised for use in Engineering)

to New Product Development

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# Timetable

- Very brief overview of TRIZ
- Introduction to the *'trends of evolution'*
  - Locating food products on these trends
  - Interpreting the next stage of evolution
- Hands-on exercise in groups

# TRIZ

Many Russian scientists and physicists were exiled to Siberia, and their only resource was a patents library.

With not much else to do, they reviewed millions of patents, and...

- created library of physical effects (but indexed by function not the industry that uses them)
- noticed that 40 'tricks' are commonly used to resolve apparent conflicts in designs.
- identified common patterns of technological development; the so called '**trends of evolution**'.

After release they went to the USA and wrote books, training manuals and supporting software.

# 'Trends of evolution'

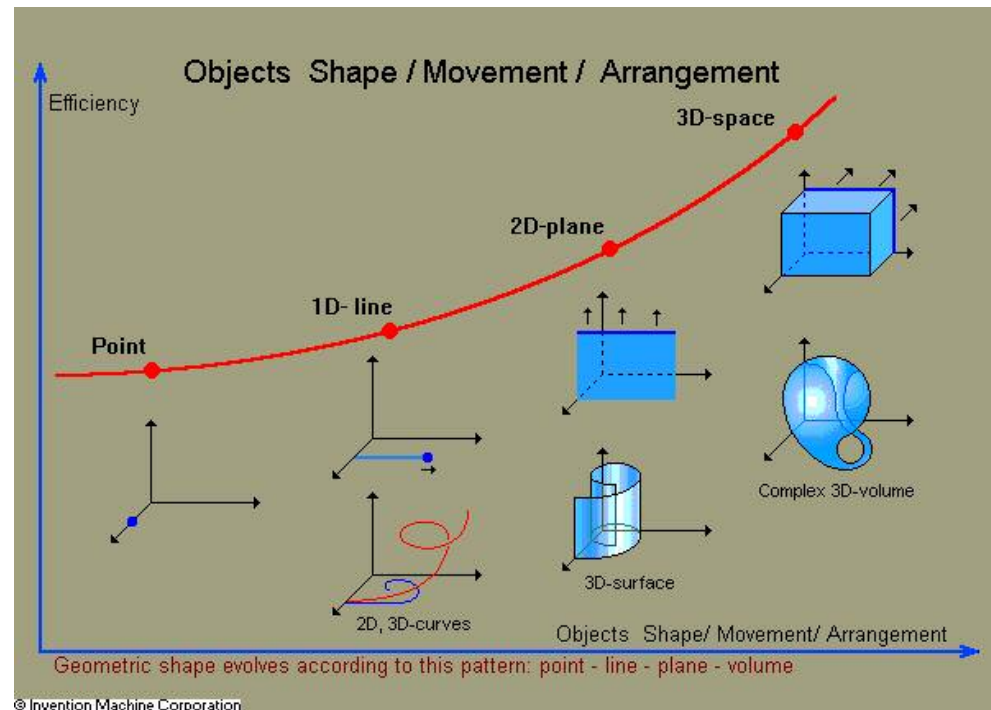
A series of graphs showing the progression of evolution of 'things', which can be used to map the evolutionary position of your current products, and suggests the next evolutionary step.

One simple example (reproduced here from the 'Invention Machine' software) is the trend from 1 dimension to 3 dimensions:

Vertical axis is 'efficiency' or degree of evolution.

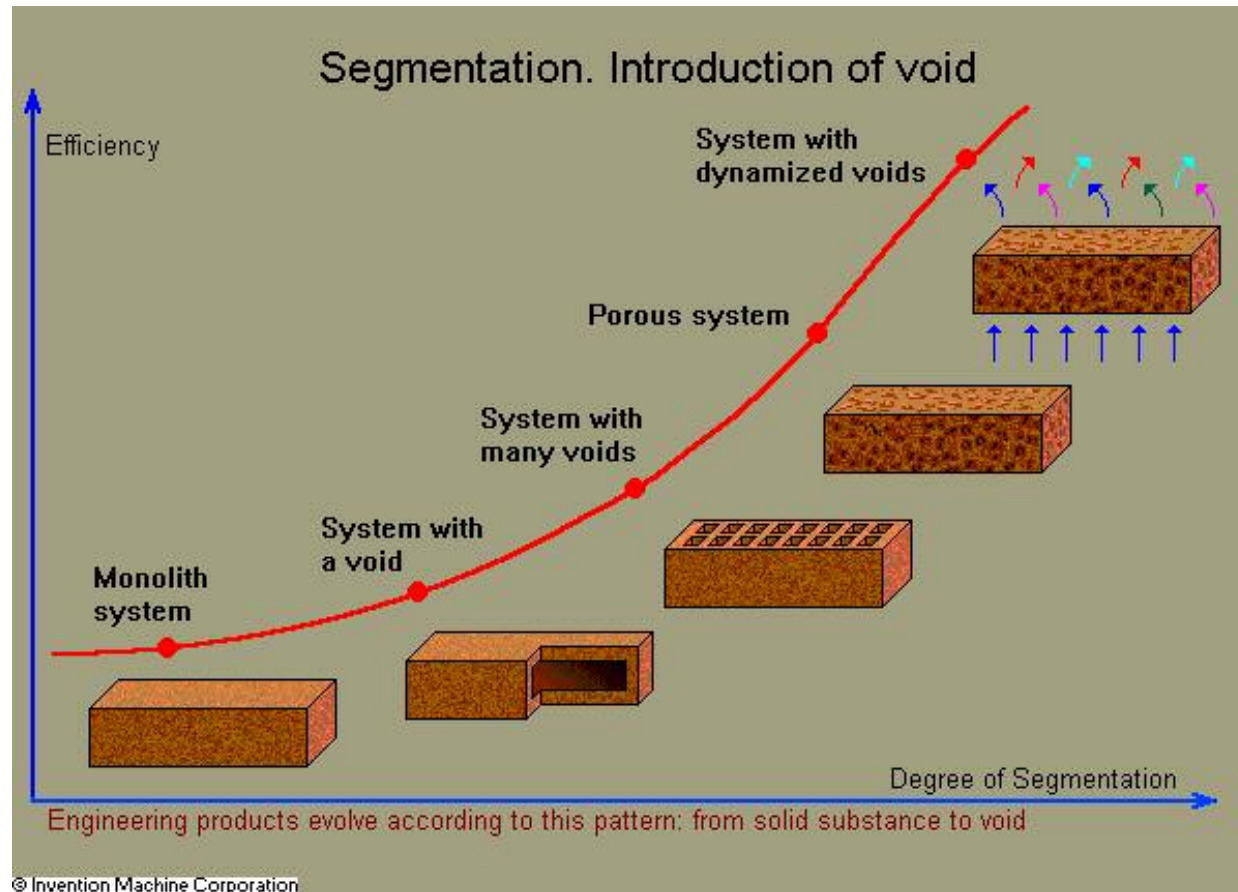
Horizontal axis shows the progress from 1 to 3 dimensions

(Specific examples are also shown on the graph)



# Trends of evolution #2

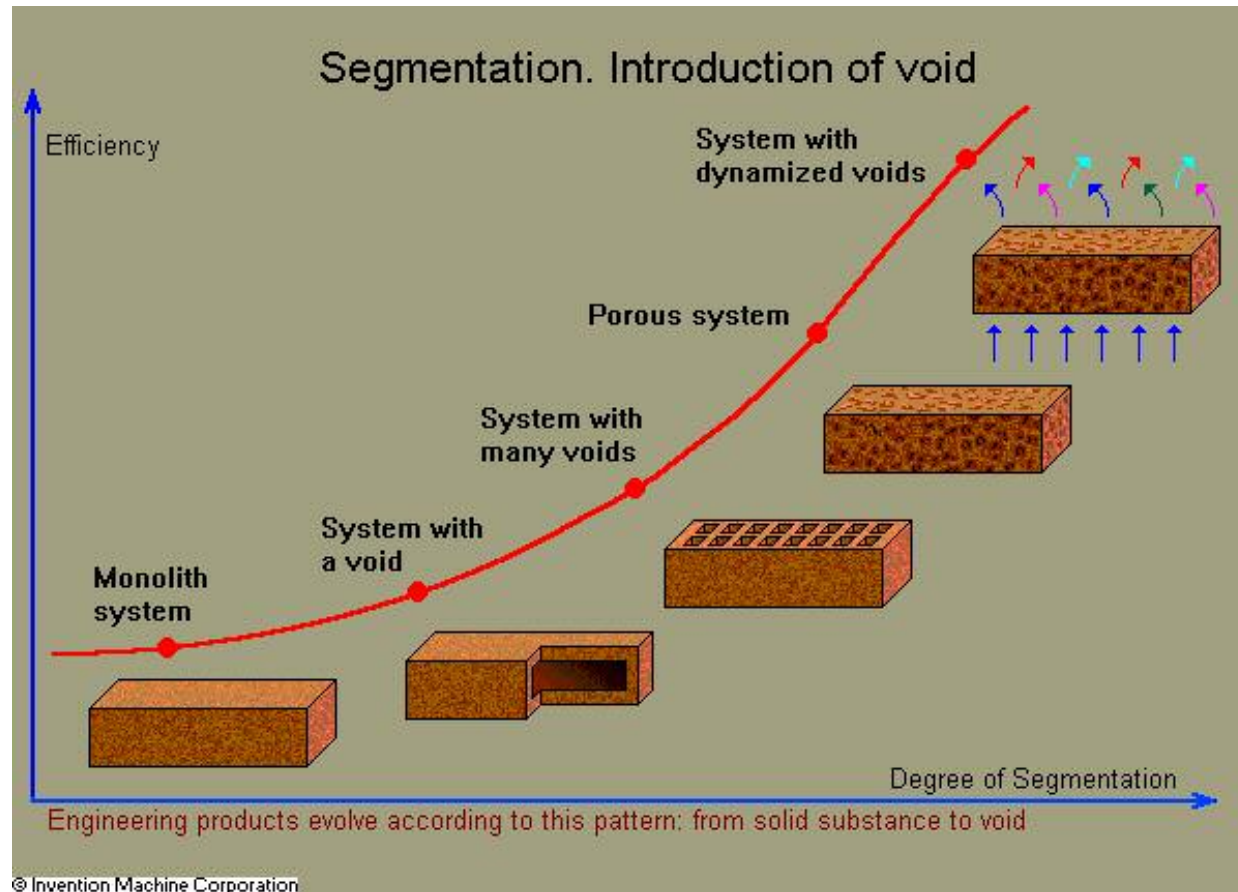
A trend in 'segmentation' as voids are introduced:



Solid → Hole → Many holes → Random holes → Connected holes → Gassing holes

# Trends of evolution #2

A trend in 'segmentation' as voids are introduced:



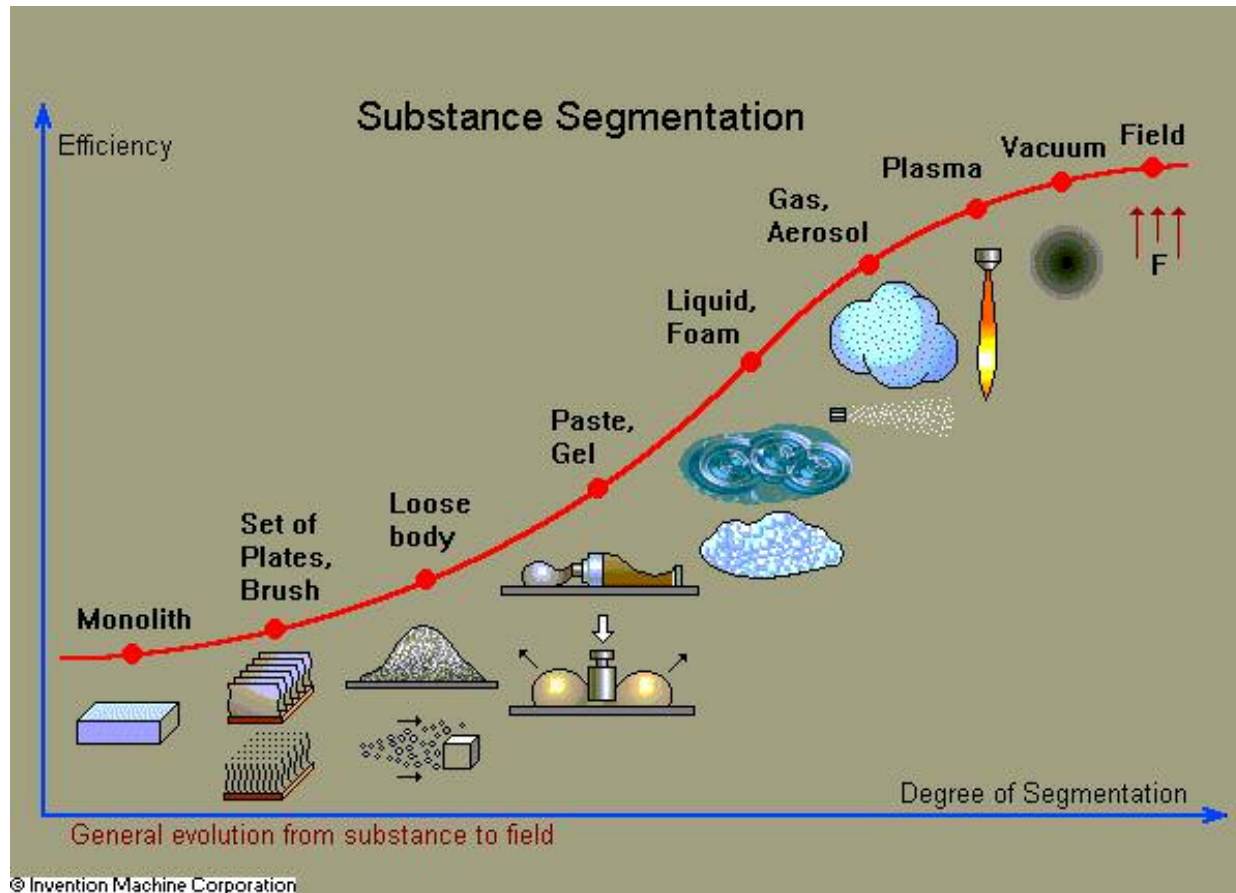
Solid → Hole → Many holes → Random holes → Connected holes → Gassing holes

Unleavened → Pita → crumpet → Mothers pride → still hot and smelling of alcohol

Dairy milk → Rolo → Fruit and nut → Aero → spacedust chocolate?

# Trends of evolution #3

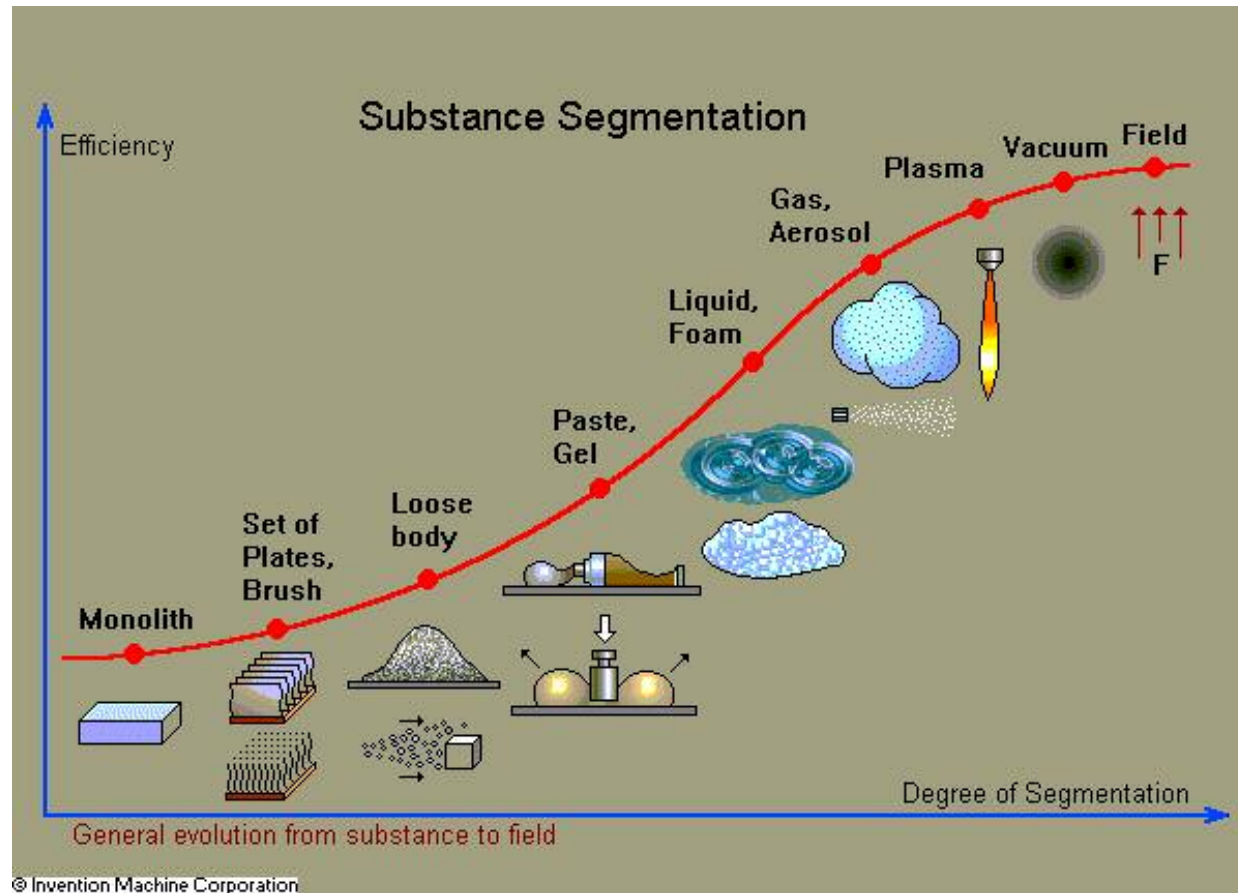
A trend in 'segmentation' from solid to gas (and beyond)



Solid → Plates → Brushes → powder → Gel → Liquid → foam → Gas field

# Trends of evolution #3

A trend in 'segmentation' from solid to gas (and beyond)



Solid → Plates → Brushes → powder → Gel → Liquid → foam → Gas field

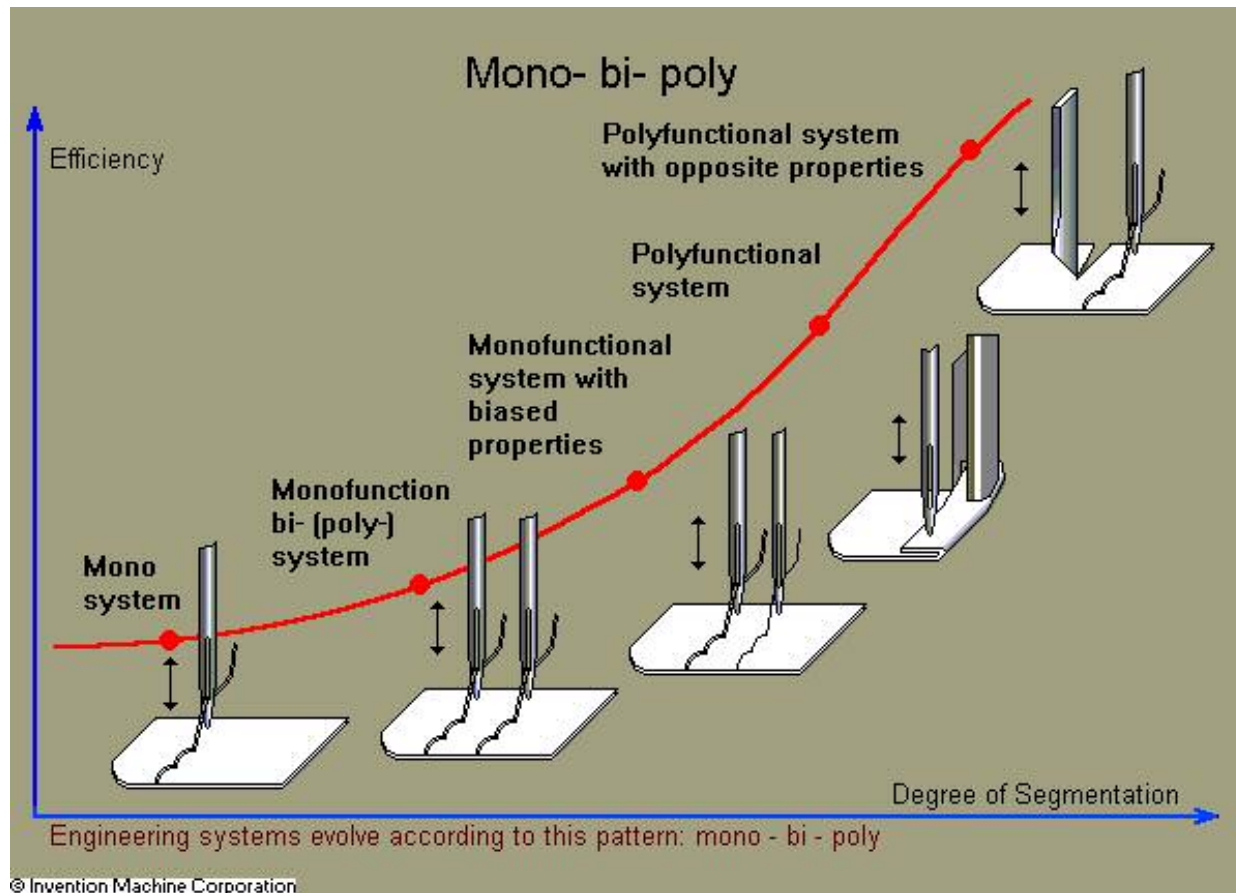
Tomatoes → sun dried → tomato soup powder → Tomato paste → tomato juice → flavour

Potatoes → chips → crisps → Smash



# Trends of evolution #4

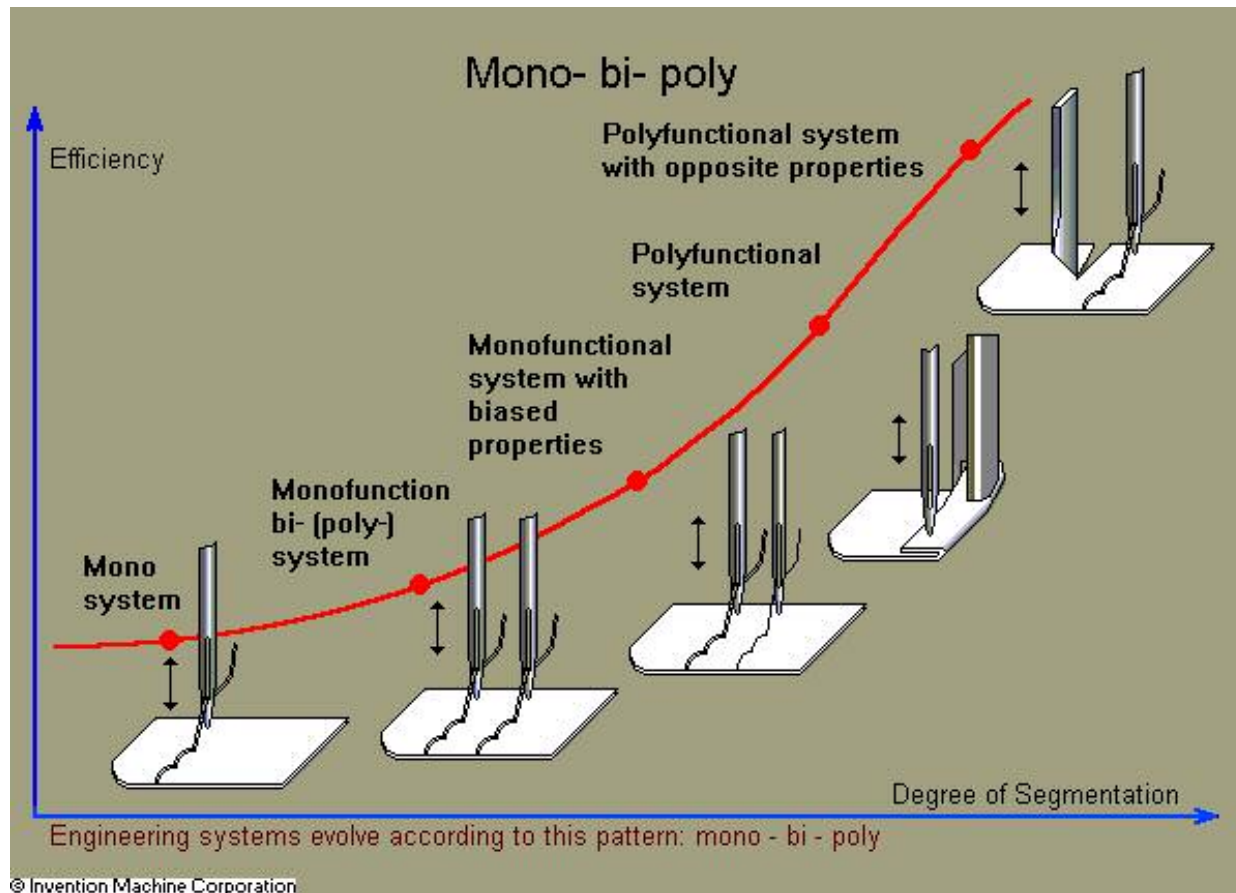
A trend in 'Function' from doing one thing to doing many conflicting things:



1 thing → same thing twice → 2 versions of the same thing → 2 different things  
→ 2 opposite things → many contradictory things

# Trends of evolution #4

A trend in 'Function' from doing one thing to doing many conflicting things:



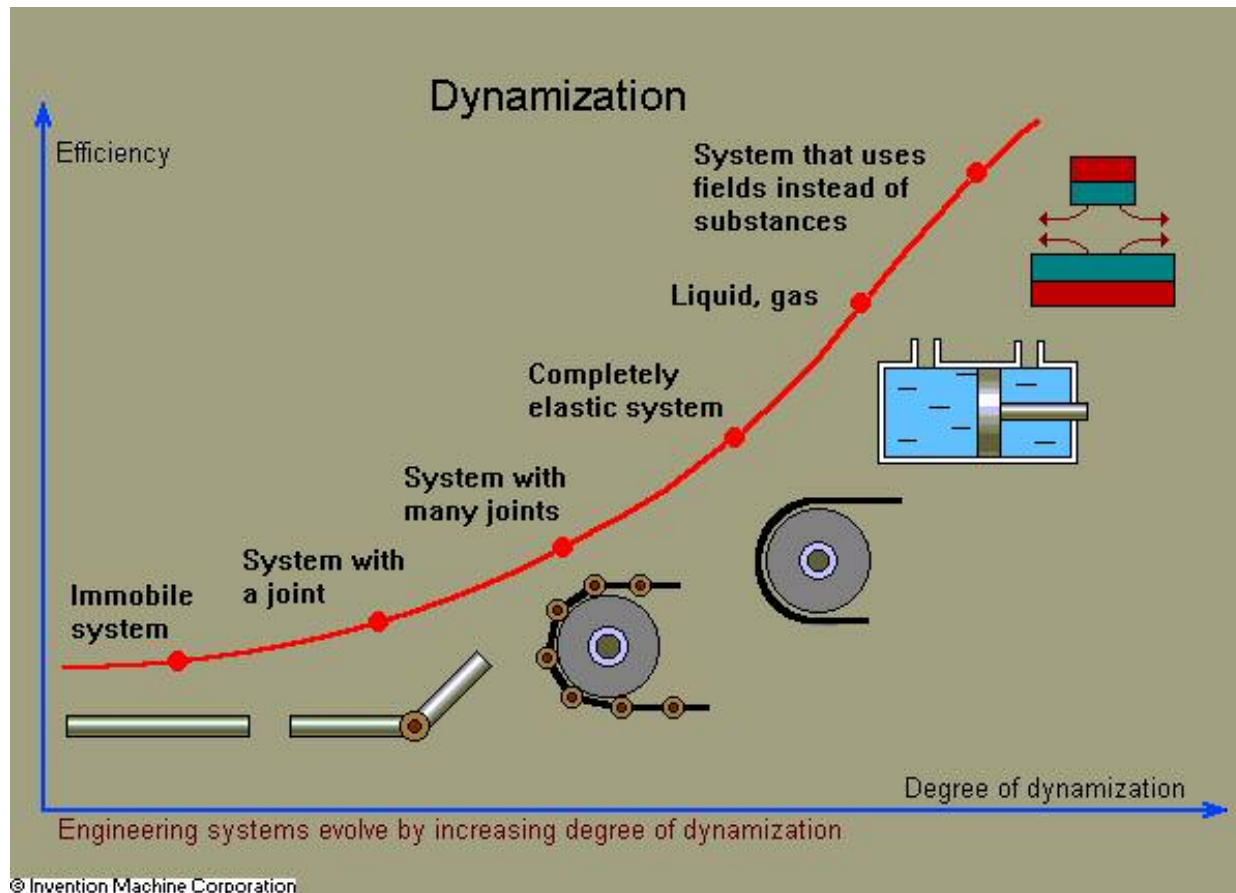
1 thing → same thing twice → 2 versions of the same thing → 2 different things  
→ 2 opposite things → many contradictory things

Strawberry ice cream → BOGOF → Neapolitan → Crunchie Mc Flurry → Arctic roll

Yoghurt → multi-pack → Muller fruit corner → crunchy corner, crumbles

# Trends of evolution #5

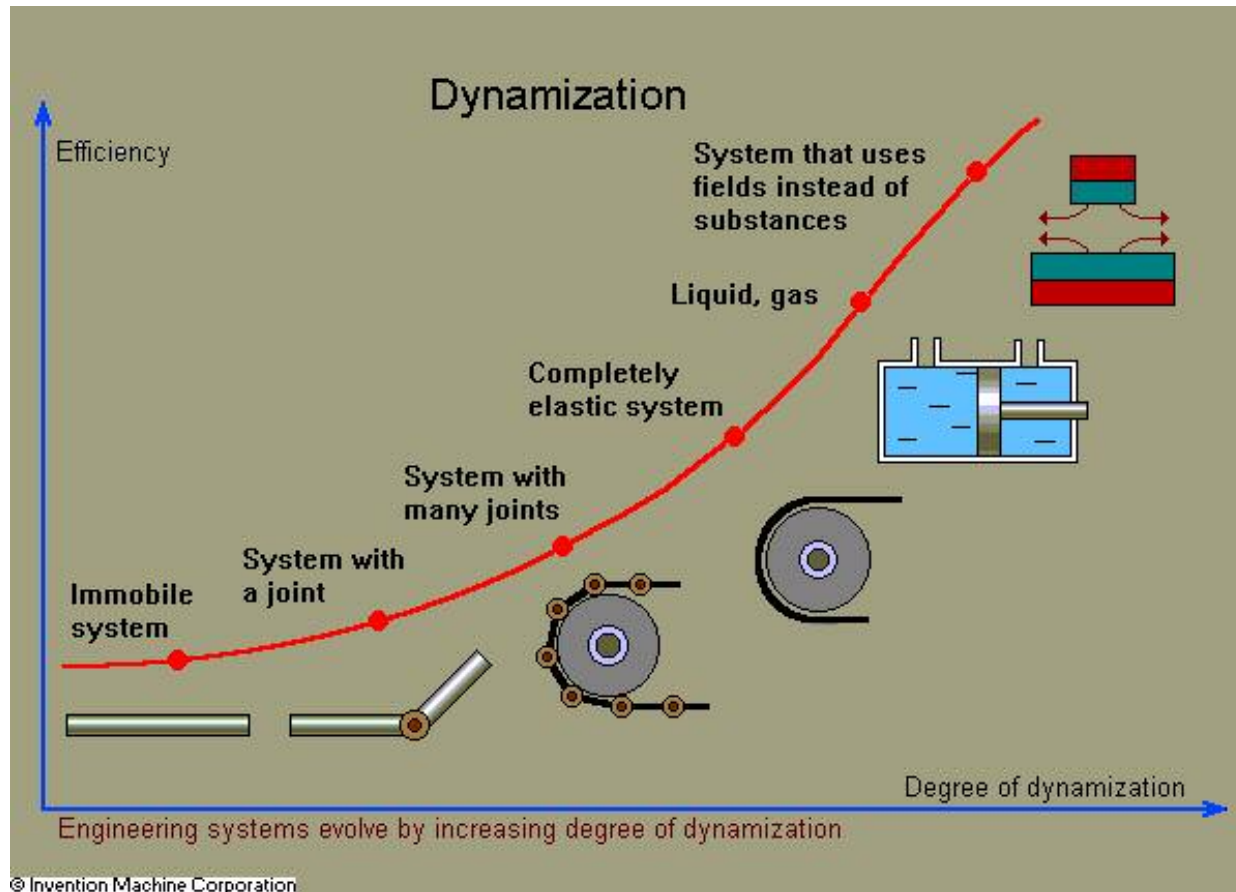
A trend in 'Dynamisation' from rigid to flexible



Fixed → jointed → many joints → elastic → hydraulic → field

# Trends of evolution #5

A trend in 'Dynamisation' from rigid to flexible



Fixed → jointed → many joints → elastic → hydraulic → field

Swallow whole → snap into bits → bite chunks → chew → suck → drink → smell

tic tac → Polo → extra strong mint → soft mint → Ice White

# Product mapping exercise

- In your groups take one or more of the products and try and work out where they fit on the 5 evolutionary trends we have seen so far:

★ **Dimensions**

✂ **Segmentation**

▣ **voids**

📅 **multiple functions**

⚡ **Dynamism**

- Feedback from your group.

# Product mapping exercise

## check list

Dimensions (Shape)	One dimension → two dimensions → three dimensions
Voids (Holes)	Solid → Hole → Many holes → Random holes → Connected holes → Gassing holes
Segmentation (Form)	Solid → Plates → Brushes → powder → Gel → Liquid → foam → Gas field
Functions (Variety)	1 thing → same thing twice → 2 versions of the same thing → 2 different things → 2 opposite things → many contradictory things
Dynamism (Mouth-feel?)	Fixed → jointed → many joints → elastic → hydraulic → field (Snap → bite → chew → suck → smell?)

# Product evolution exercise

- Take a product that you have already mapped, and move it further along one (or more) of the trends.
- Try and work out what this product would or could be.
- Fill in a 'concept sheet' for it.
- Feedback from your group.

# Summary

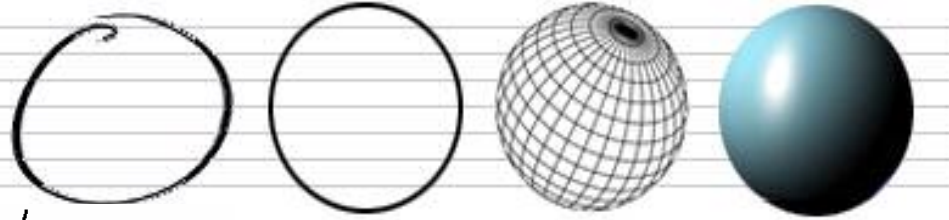
TRIZ Trends can help you....

- take a sideways look at your products in an unusual (and rather abstract) way
- establish where they sit on the trends of evolution.
- get some pointers of the directions in which they could be developed further.

They are technical trends that your product might follow, but of course remember that customer needs are key!



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*Ingenious machine developers*

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