

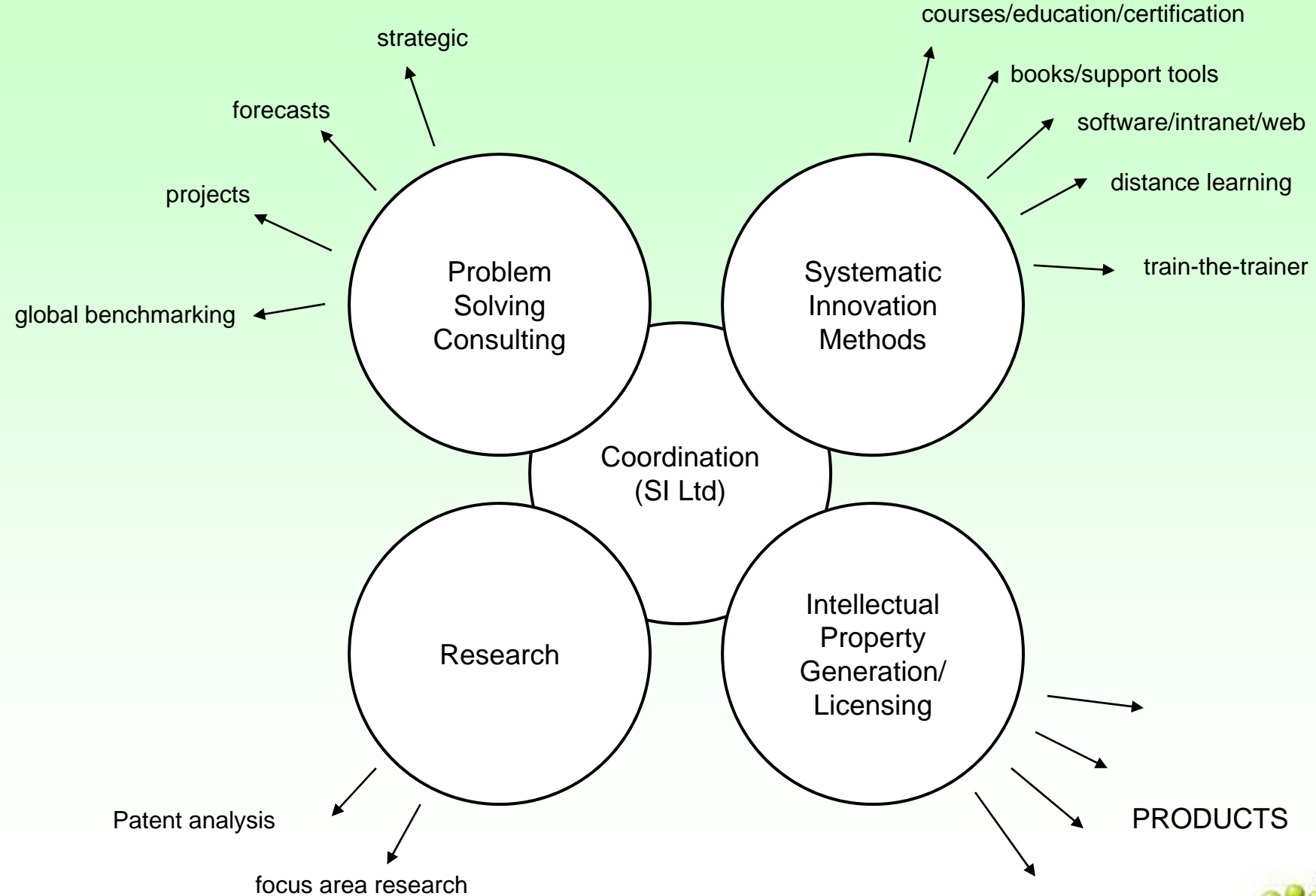


Innovation in small and medium businesses: Myths and Opportunities

Darrell Mann



Systematic Innovation - Overall Business Model



40 full-time personnel + 150 network partners



The Luckiest Company On Earth?

In the last three years we have conducted innovation projects with Blue-Chip & SME companies in:

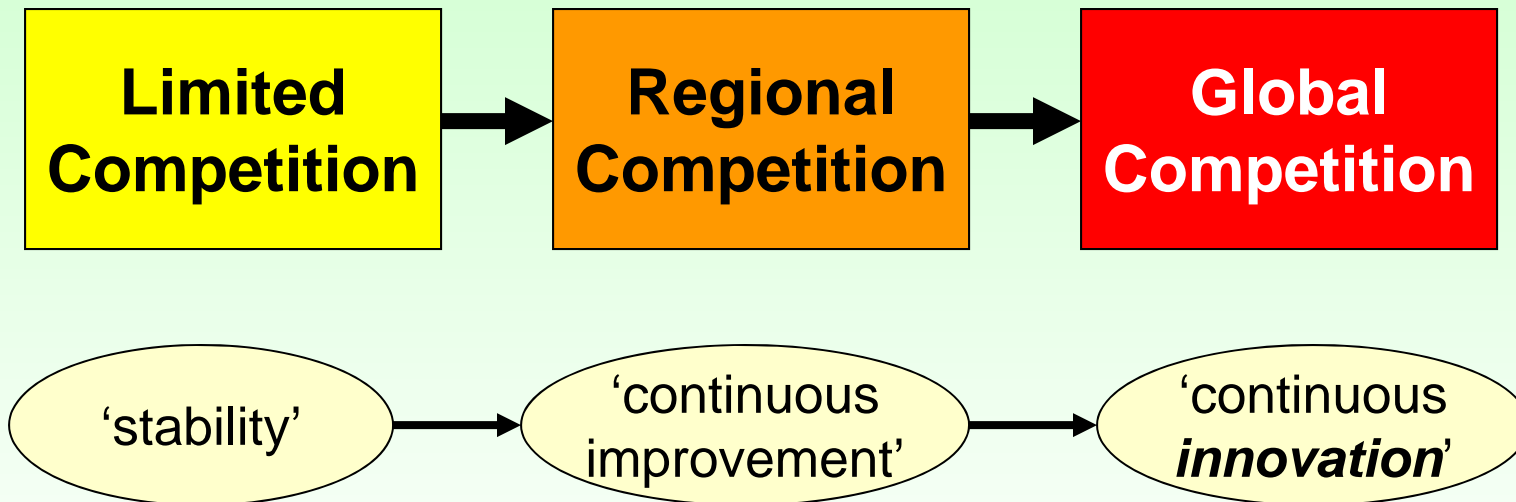
- India
- China
- Malaysia
- South Korea
- Australia
- New Zealand
- Saudi Arabia
- Denmark
- UK
- USA
- Turkey
- Ireland
- Austria
- Switzerland
- Finland
- Belgium
- Thailand
- Philippines
- Italy
- Mexico





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An Accelerating World: The Innovation Imperative

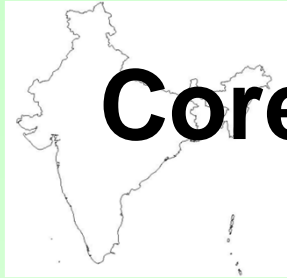


“Almost every single major innovation has run counter to the prevailing common sense”

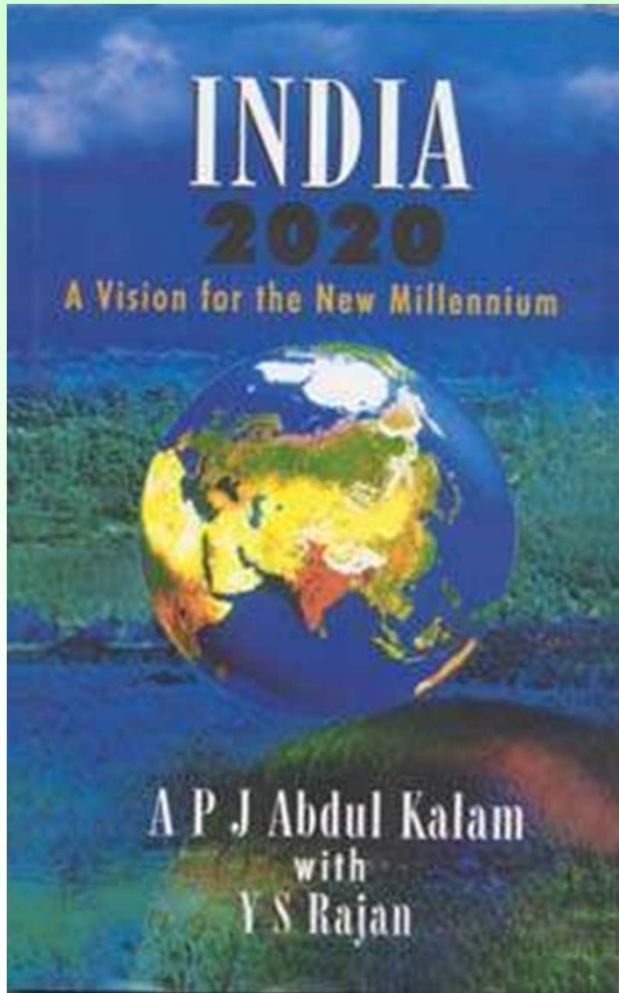
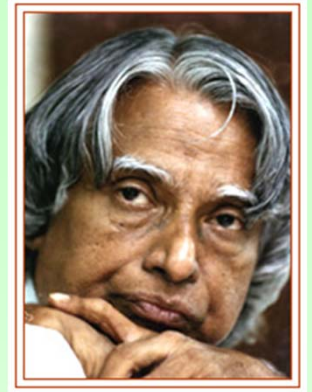
Lewis Wolpert





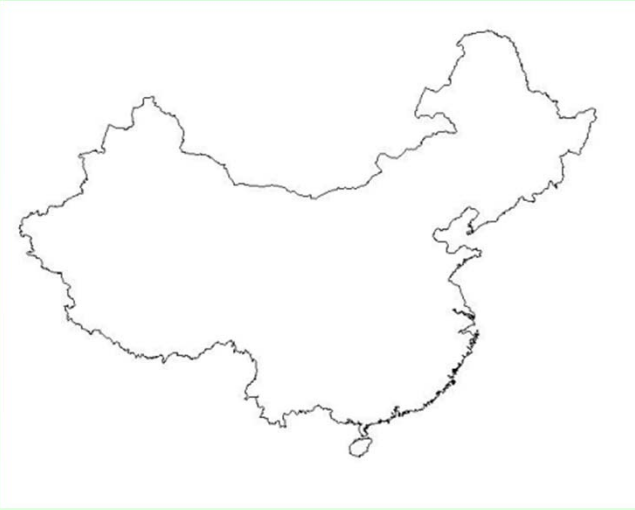


Core Competences

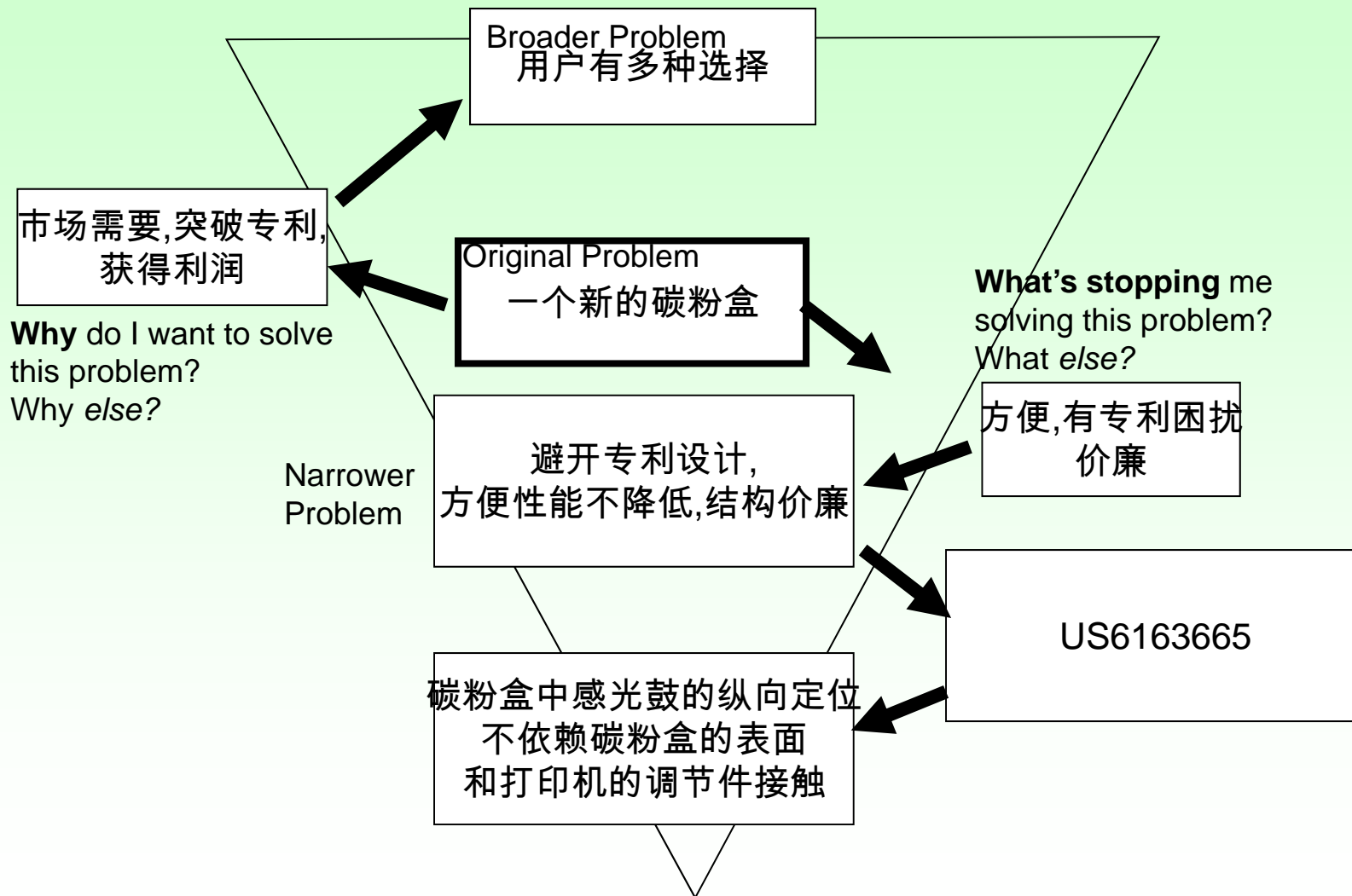


- * Infra-structure - transport
- * Infra-structure - telecoms
- * Hi-Tech
 - materials
 - electronics
 - software/infotech
 - sensors
- * Industry
 - Pharma
 - 'Cleaner chemicals'
- * Emerging
 - Biotechnology
 - Biodiversity





What Is The Problem?



(NB: procedure may be repeated to broaden or narrow the problem to more levels)
The aim of this sheet is to get you to think about what your problem is, and at which level you are going to try and solve it



StarLite – All in One Karaoke System



P2150RW 21" TV / DVD+RW Video Recorder **STARLITE**
Design and specifications are subject to change.

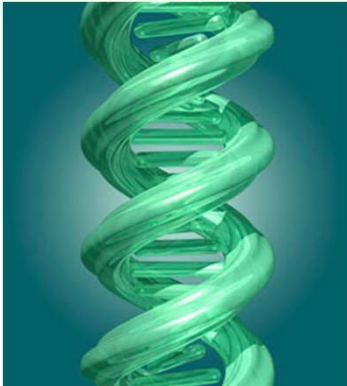


- 4/3/05 Cosmetic file received
- 14/3/05 Design review meeting
- 30/3/05 Preliminary pcb drawing
- 7/4/05 Tooling start meeting
- 7/4/05 3D drawing finish1
- 5/4/05 2D drawing finish
- 16/4/05 Final PCB drawing
- 30/5/05 1st try shot
- 2/6/05 1st eng sample
- 8/6/05 1st try shot comment
- 18/6/05 2nd try shot
- 21~22/6/05 PP (Pre-production)
- 27/6/05 2nd try shot comment
- 4/7/05 3rd try shot
- 8/7/05 Final try shot
- 12/7/05 Mass Production start





Innovation DNA



Some Innovation Statistics

- * **over 80% of innovations fail before they reach the market**
- * **over 90% of those innovations that do reach the market will also fail**
- * **Over 90% of innovations are delivered late, over-budget or to a lower quality than was originally planned**
- * **Over 90% of collaborative innovations fail**



Developing Strengths In 'Niche' Nations

Malaysia Core Strengths



Petro-chemical

Bio- Technology

MSC/MIMOS



Myths:

- Asian Cultures Are Not Creative
- Asian companies copy



Malaysia – ‘Flush’n’Go’

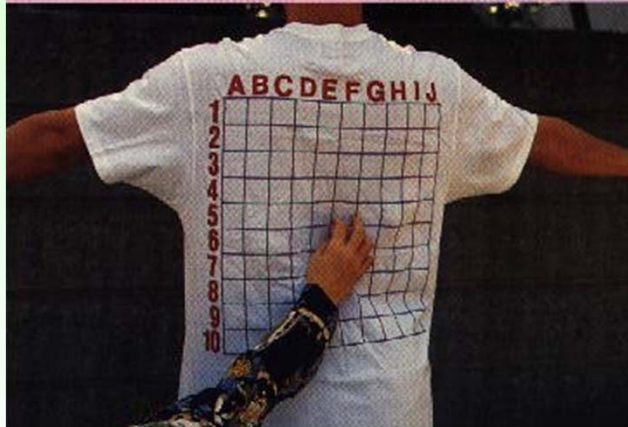
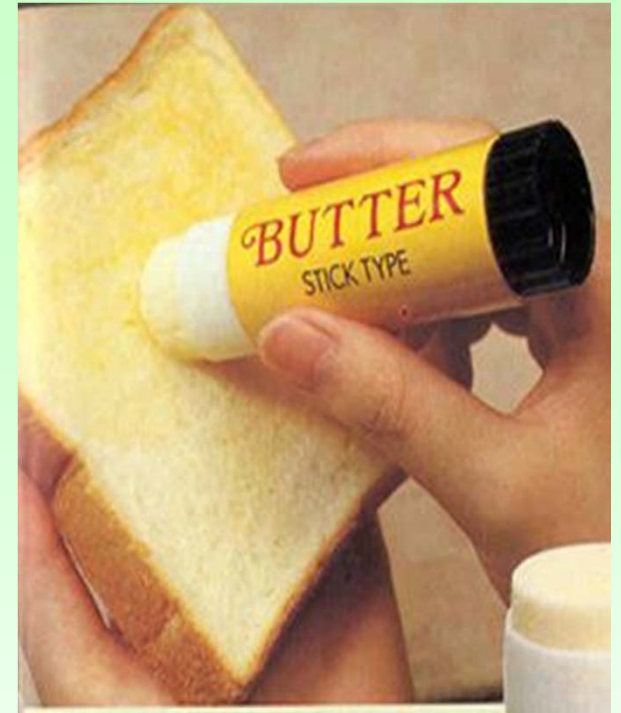
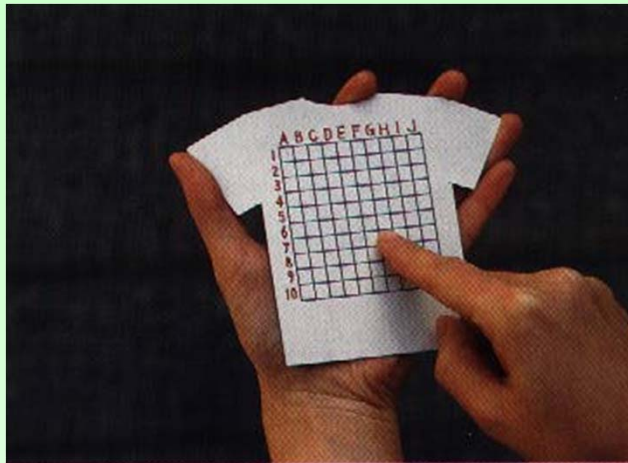


What is a  solution?

When was the last time something
made you go 'wow!'
?



Why Do Some Things Succeed And Others Fail?



Segway ('Re-Inventing The Wheel')



Dean Kamen's attempt
to re-define
'personal transport'

Projected US market size:
25 million units

Anticipated production rate
10,000 per week

Actual sales;
<1000 units in 2 years





Pilkington **Activ**[™] self-cleaning glass

HOW IT WORKS

What do you mean by 'dual-action'?

The secret of Pilkington **Activ**[™] lies in its special coating, which works in two stages:

1) Breaking down organic dirt

Using a 'photocatalytic' process, the coating reacts with ultra-violet rays from natural daylight to break down and disintegrate organic dirt.

2) Washing dirt away

The second part of the process happens when rain or water hits the glass. Because Pilkington **Activ**[™] is 'hydrophilic', instead of forming droplets the water spreads evenly over the surface, and as it runs off takes the dirt with it. Compared with conventional glass, the water also dries off very quickly and does not leave unsightly 'drying spots'.

MORE..

ABOUT THE GLASS

HOW IT WORKS

FAQ

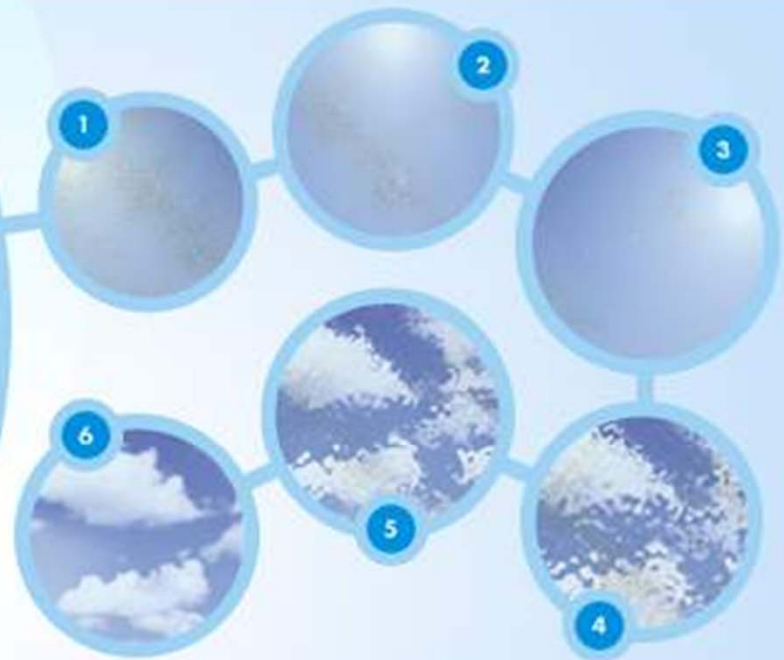
INTERESTED?

BENEFITS

ADVERTISING

GUIDELINES

PILKINGTON



www.activglass.com





SANYO has now succeeded in implementing its Electrolyzed Water technology cultivated in SANYO's Water purifying bacteria-removing device into the Fully-Automatic "Wash with Ultrasonic Waves and Electrolysis" washing machine. By combining Electrolyzed Water's dirt dissolving and bacteria-removing properties with the cleansing power of Ultrasonic Wave technology SANYO has brought to realization the World's first "Zero-Detergent course" washing machine.

SANYO Introduces the Worlds First Zero-Detergent Electrolyzed Water Cleaning Powered Washing Machine

Allows the option of "Detergent Course" or "Non-Detergent Course" according to the extent and type of dirt



Michelin 'Tweel'



Myth:

Innovation is about new
technology

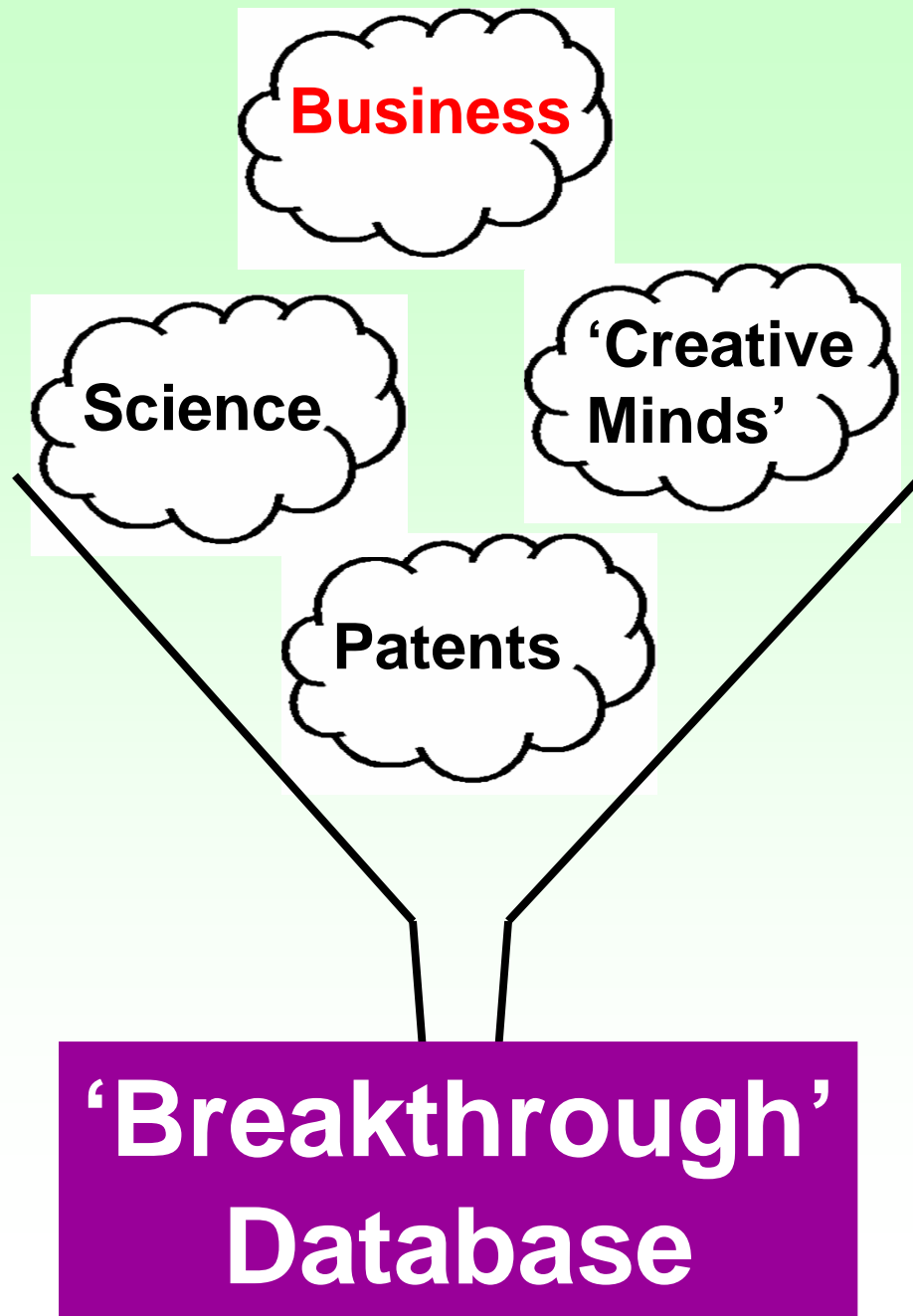


'LifeStraw'



Self-Timing Egg

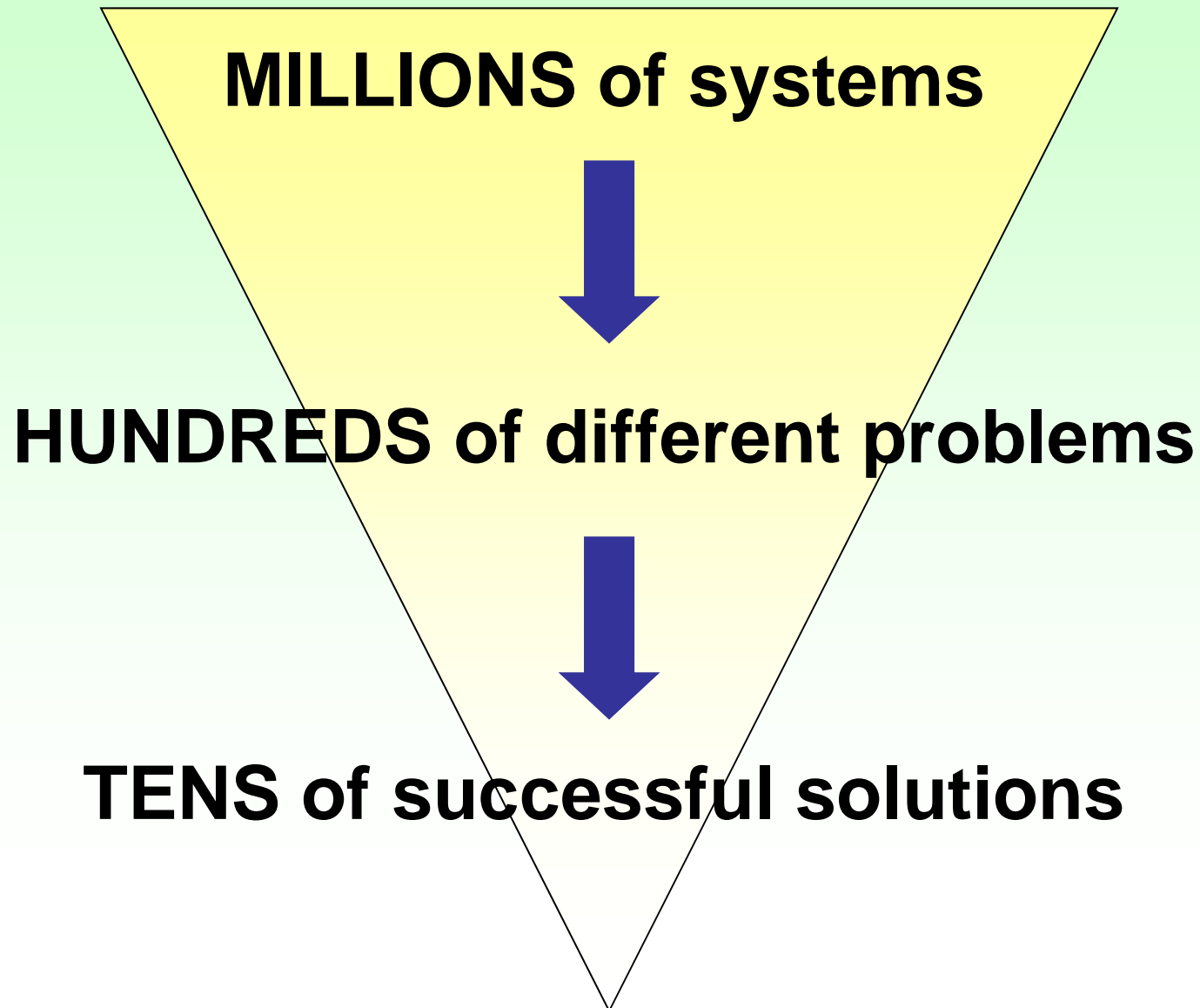




**Distillation of
best practices
extracted from
all fields of
human
endeavour**



What we have been doing since 1996 is analysing as many sources of knowledge as we can about what makes something successful or not. This is what we find after having studied close to 3 million successful innovations:



Myth:

Innovative ideas are the result
of random 'Eureka' moments



Remove Water from glass

Without touching the glass



Knowledge from all fields

How many ways do you know to move a liquid?


Absorption	Electroosmosis	Osmosis
Acoustic Cavitation	Electrophoresis	Pascal Law
Acoustic Vibrations	Electrostatic Induction	Resonance
Archimedes' Principle	Ellipse	Shock Wave
Bernoulli's Theorem	Evaporation	Spiral
Boiling	Ferromagnetism	Super Thermal Conductivity
Brush Constructions	Force Oscillations	Superfluidity
Capillary Condensation	Funnel Effect	Surface Tension
Capillary Evaporation	Gravity	Thermal Expansion
Capillary Pressure	Inertia	Thermocapillary Effect
Coanda Effect	Ionic Exchange	Thermomechanical Effect
Condensation	Jet Flow	Ultrasonic Capillary Effect
Coulomb's Law	Lorentz Force	Ultrasonic Vibrations
Deformation	Magnetostriction	Use of foam
Electrocapillary Effect	Mechanocaloric Effect	Wetting




Other Means of Delivering The 'Move Air' Function


Online Function Database

Classifying knowledge by function rather than by alphabet. CREAM is constructing the largest database of functions enabling you to access the world's knowledge within seconds.


Select Function 


☒ Solid ☐ Liquid ☐ Gas ☐ Field 

www.systematic-innovation.com


Creativity for Innovation

Function:

Moves/Vibrates 

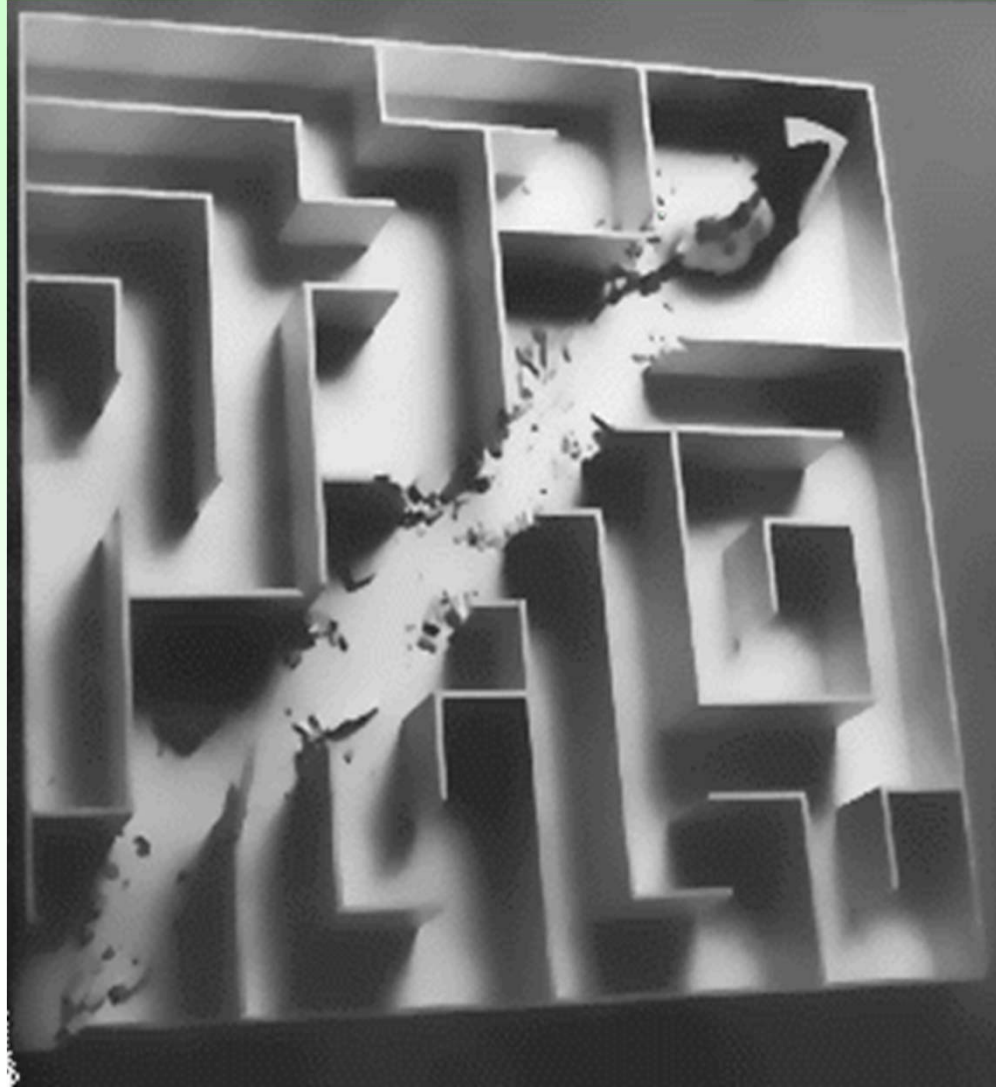
☐ Solid ☐ Liquid ☒ Gas ☐ Field 

Search Found 23 Results

- Acoustic Vibrations
- [Archimedes' Principle](#)
- [Bernoulli's Theorem](#)
- Cholosky Effect
- Coanda Effect
- [Diffusion](#)
- [Ejector](#)
- Electrocapillary Effect
- Electroosmosis
- Electrophoresis
- Electrostatic Induction
- [Fan/Compressor](#)
- Ferromagnetism
- [Gravity](#)
- Inertia
- [Jet Flow](#)
- [Pascal Law](#)
- [Rangue-Hilch Effect](#)
- [Shock Wave](#)
- Spiral
- [Thermal Expansion](#)
- [Peristaltic Pump](#)
- [Vaccum Venturi Effect](#)



Problem Solving And 'Ideal' Design Solutions



Myth:

Innovation requires massive
resources



Root Causes...



80% likely that the 'root cause' of your problem is that your system has hit a limit

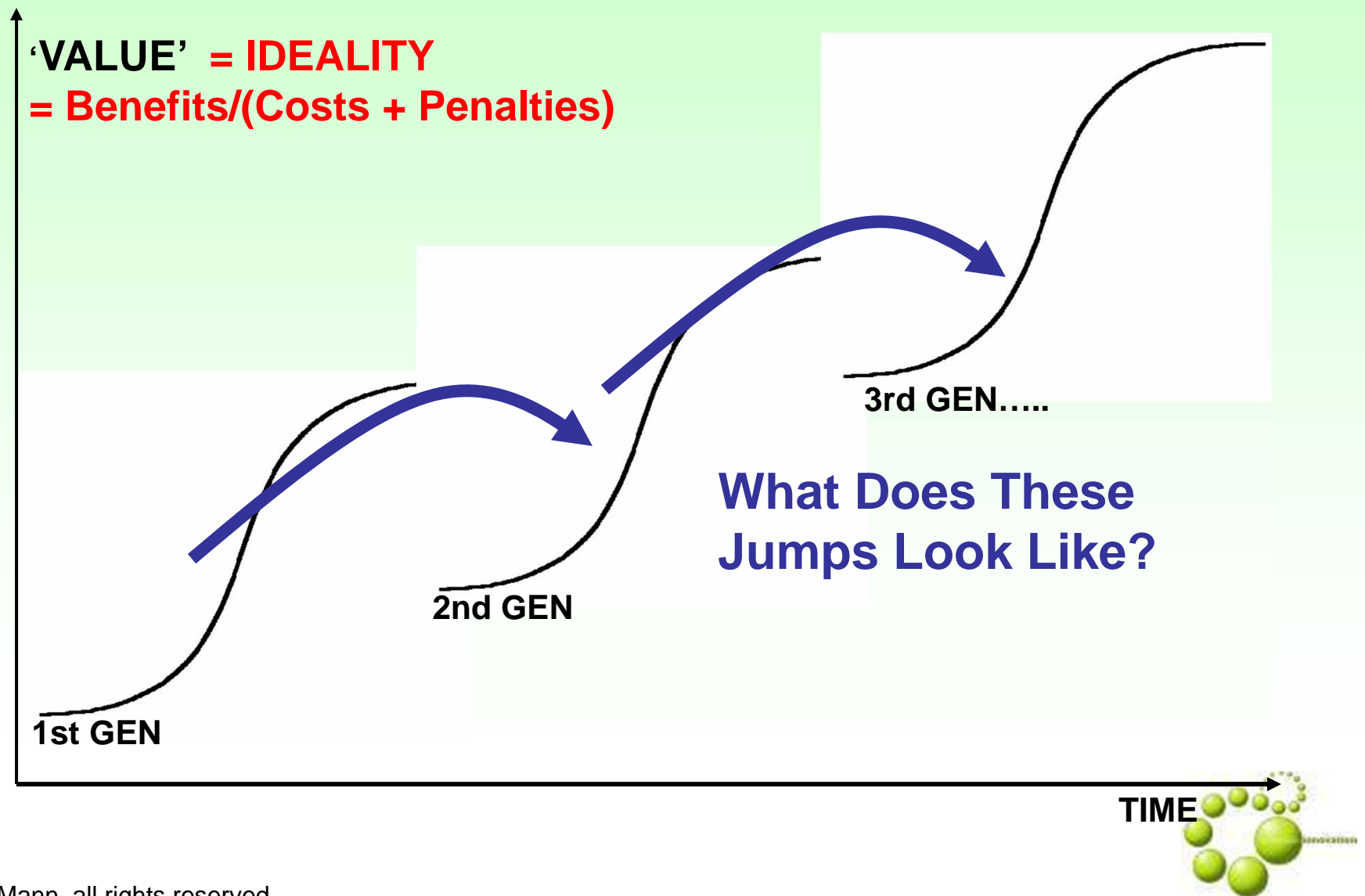


System Evolution

- Evolution is not random
- It follows certain patterns
- Different Stages can be predicted
- This knowledge can help solve problems
- It can also help define strategic opportunities

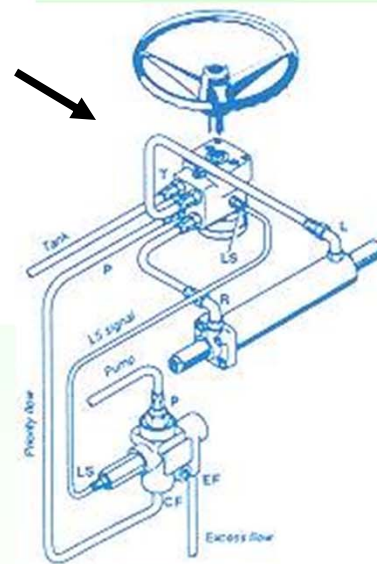


Evolution Occurs Through Discontinuous Shifts...

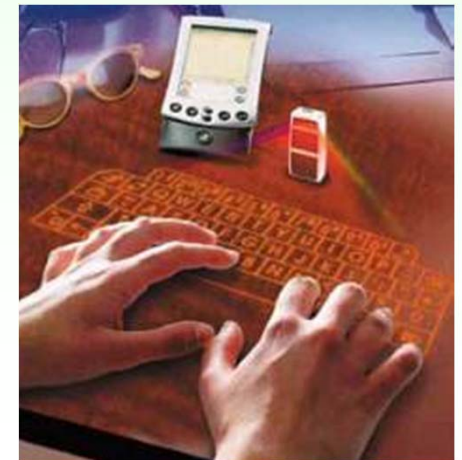














演變趨勢：動態化



固定
系統



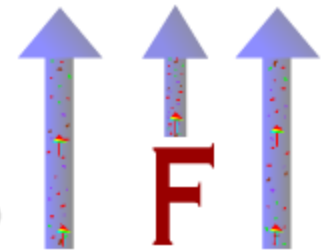
活動連接
系統



全自由度
系統



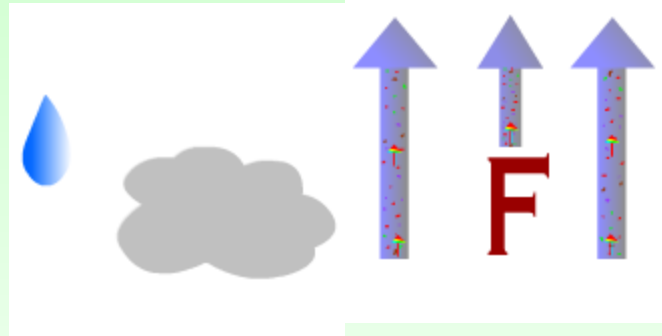
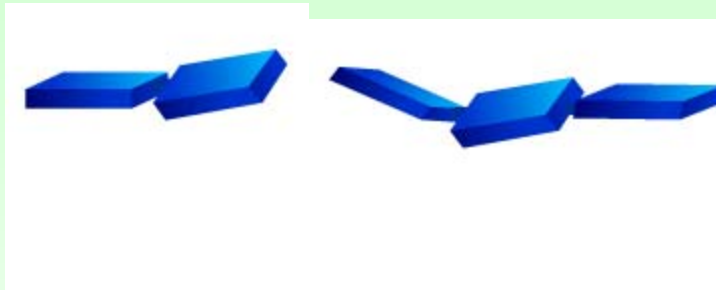
液壓或空壓
系統



場效應
系統



Trend : Dynamization



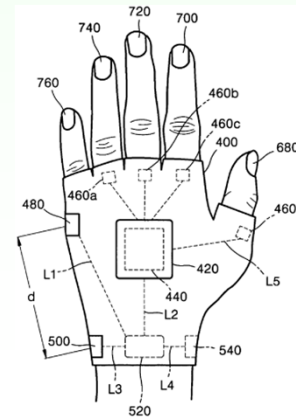
Immobile Single Joint

Multiple Joint

Completely flexible

Liquid Gas

Field



Trend : Geometric Evolution Of Linear Constructions



point



line



2-D Curve



3-D Curve

Trend : Surface Segmentation



Smooth surface



Smooth surface
(Surface with
protrusions
in 2D)



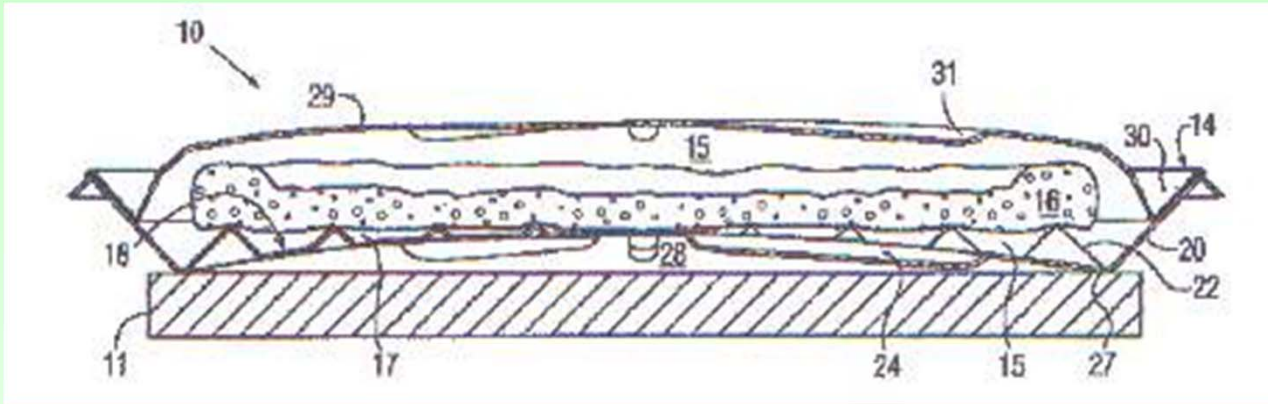
Rough surface
(Surface with
protrusions
in 3D)



Rough surface
with active
elements



Business Implications



6 employees

1 Systematic Innovation Toolkit

=

\$14M
royalties



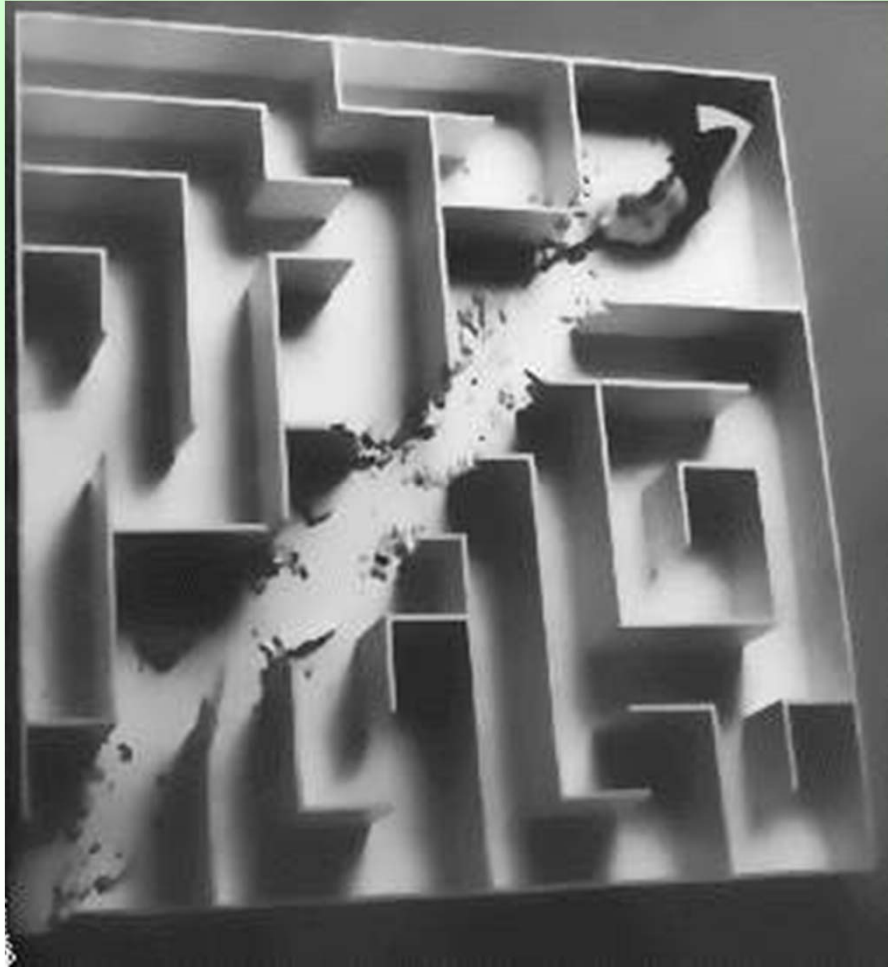
Asking Big Questions:



Could we design a domestic boiler/air-conditioner with **650%** energy efficiency?



‘Breakthrough On Demand’

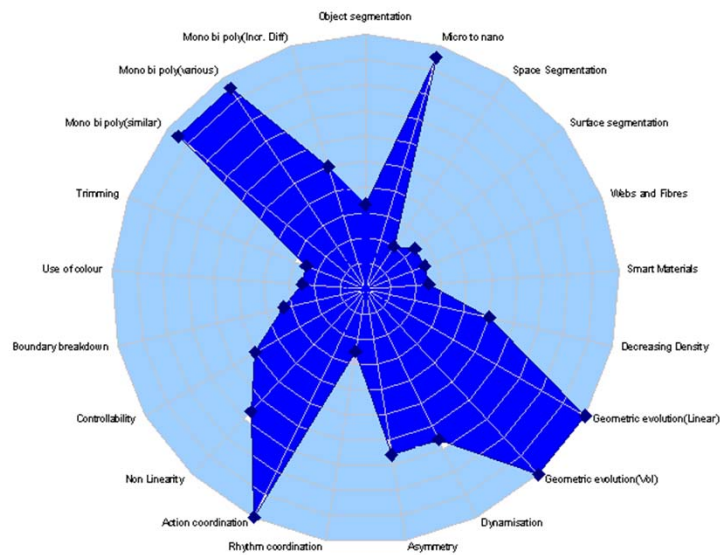


- 1) Ask the big question**
- 2) Imagine someone already solved a similar problem**
- 3) Global consumers are all attracted to ‘wow’ solutions**
- 4) ‘wow’ solutions can be predictably generated**
- 5) Those with the biggest desire to succeed will win**



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- Strategic Studies
- Problem Solving Consulting
- IP Generation/Design-Around
- IP Strategy



darrell.mann@systematic-innovation.com



Standing On The Shoulders Of Giants



no matter how far a person can go
the horizon is still way beyond you

