



# TRIZ:

## Necessary But Not Sufficient Customers And Theories Of Everything

Darrell Mann



# The Innovation Challenge:

**...Getting it Right is Hard – the odds are heavily stacked against you: -**

- \* over 90% 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**



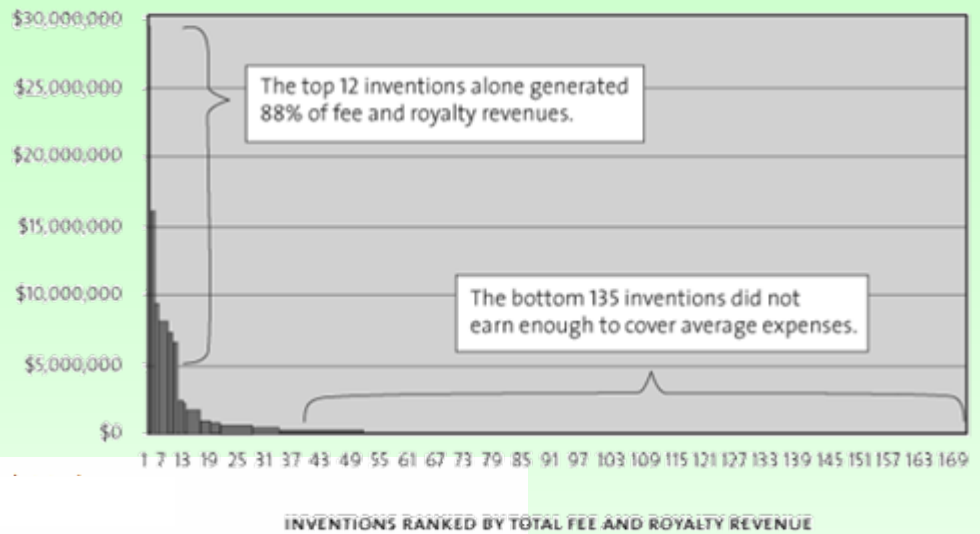
# ..And If You Thought That Was Bad

Academic research:  
every \$100 invested will  
on average return  
\$3 (gross) in revenue.

As a Global Average.

In the UK the return  
would be just over \$1

FIGURE 3: DISTRIBUTION OF TOTAL FEES AND ROYALTIES EARNED BY THE 174 INCOME-GENERATING AES INVENTIONS (1982-2000)

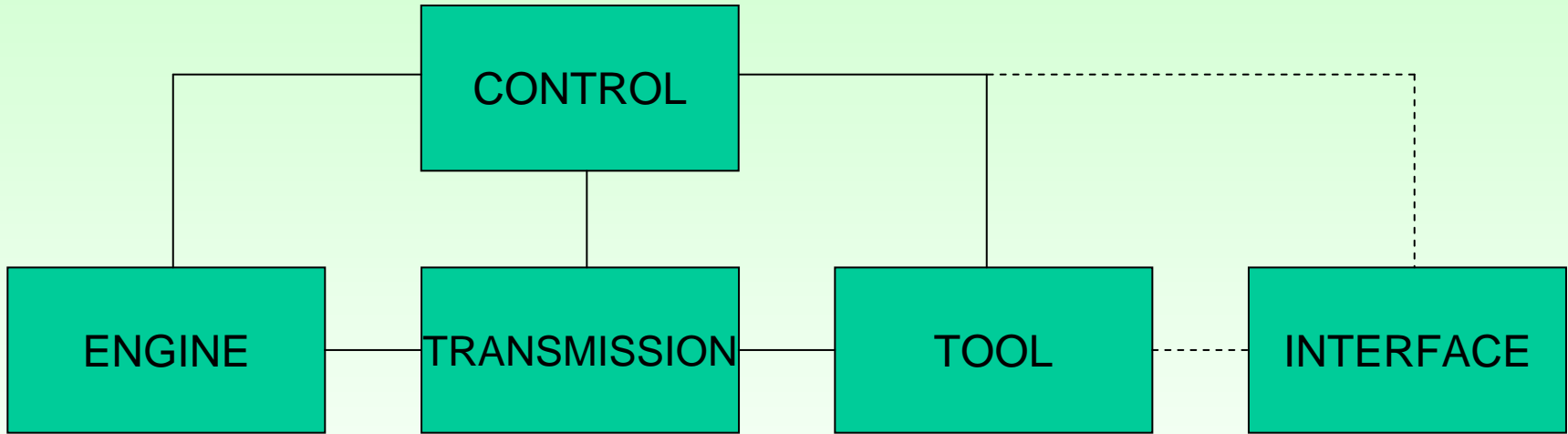


	U.S.A.			CANADA			U.K.		AU STRALIA	
	2001	2002	2003	2001	2002	2003	2001	2002	2001	2002
Research expenditure (\$b ATRE)	\$27.6	\$31.7	\$34.8	\$2.1	\$2.5	\$2.5	\$2.6	\$3.1	\$1.9	\$2.1
Invention disclosures	41	40	39	44	48	50	54	72	28	25
Patents, filed	21	21	21	20	17	17	29	35	21	22
Patents, issued	12	10	10	8	7	7	11	11	6	6
Licenses, executed	12	12	11	16	15	18	15	21	9	11
Licenses, active	83	-	-	67	70	-	-	52	-	-
Licenses, yielding income	28	27	26	-	30	35	16	20	-	-
Start-up companies, total	1.8	1.1	1.0	3.2	2.0	2.3	6.7	5.1	2.4	2.1
Start-up companies, still operating	9.1	-	-	-	20.0	-	-	-	52	52
Staff, professional	1.9	1.9	1.9	4.2	4.6	5.5	17.7	24.3	5.8	4.8
Staff, support	2.0	2.0	1.9	4.5	5.0	5.4	-	-	2.8	2.5
Dislosures to:										
licenses	29%	30%	28%	36%	31%	35%	27%	29%	33%	43%
start-ups	4%	3%	3%	7%	4%	5%	12%	7%	9%	9%
licenses + start-ups	34%	32%	31%	43%	35%	39%	40%	36%	41%	51%
License income	3.0%	3.0%	2.8%	2.6%	1.3%	1.6%	1.0%	1.1%	1.8%	1.4%
Legal expenses as % total res exp <sup>a</sup>	0.3%	0.3%	0.5%	0.2%	0.2%	0.3%	0.5%	0.5%	0.2%	0.2%
Legal expenses as % of licence income <sup>b</sup>	10%	10%	18%	6%	13%	19%	51%	48%	9%	12%

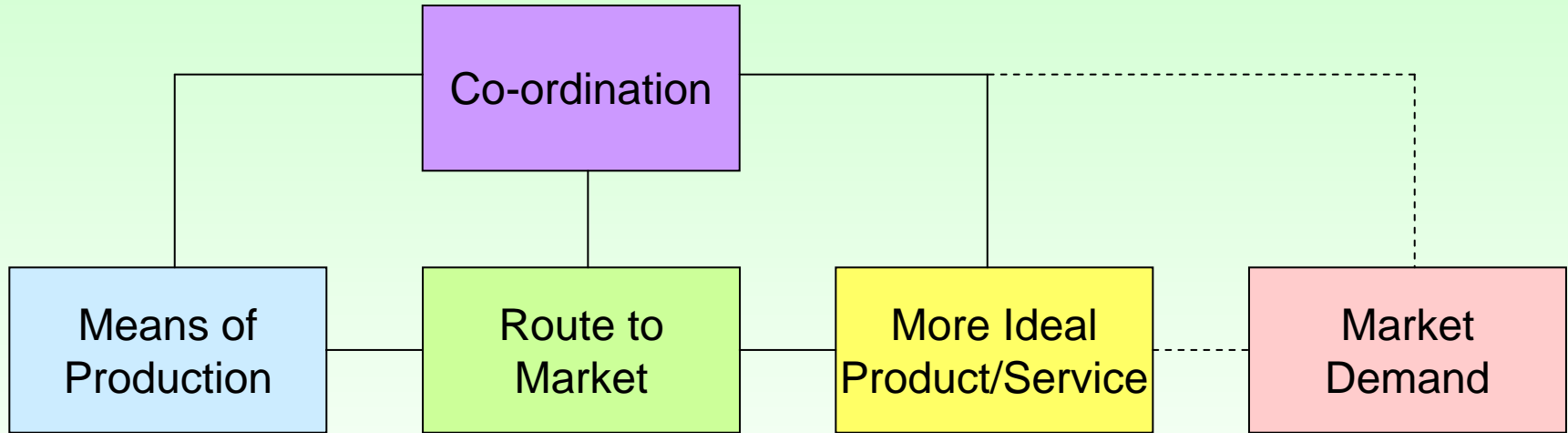


# Where & Why Do Innovations Fail?

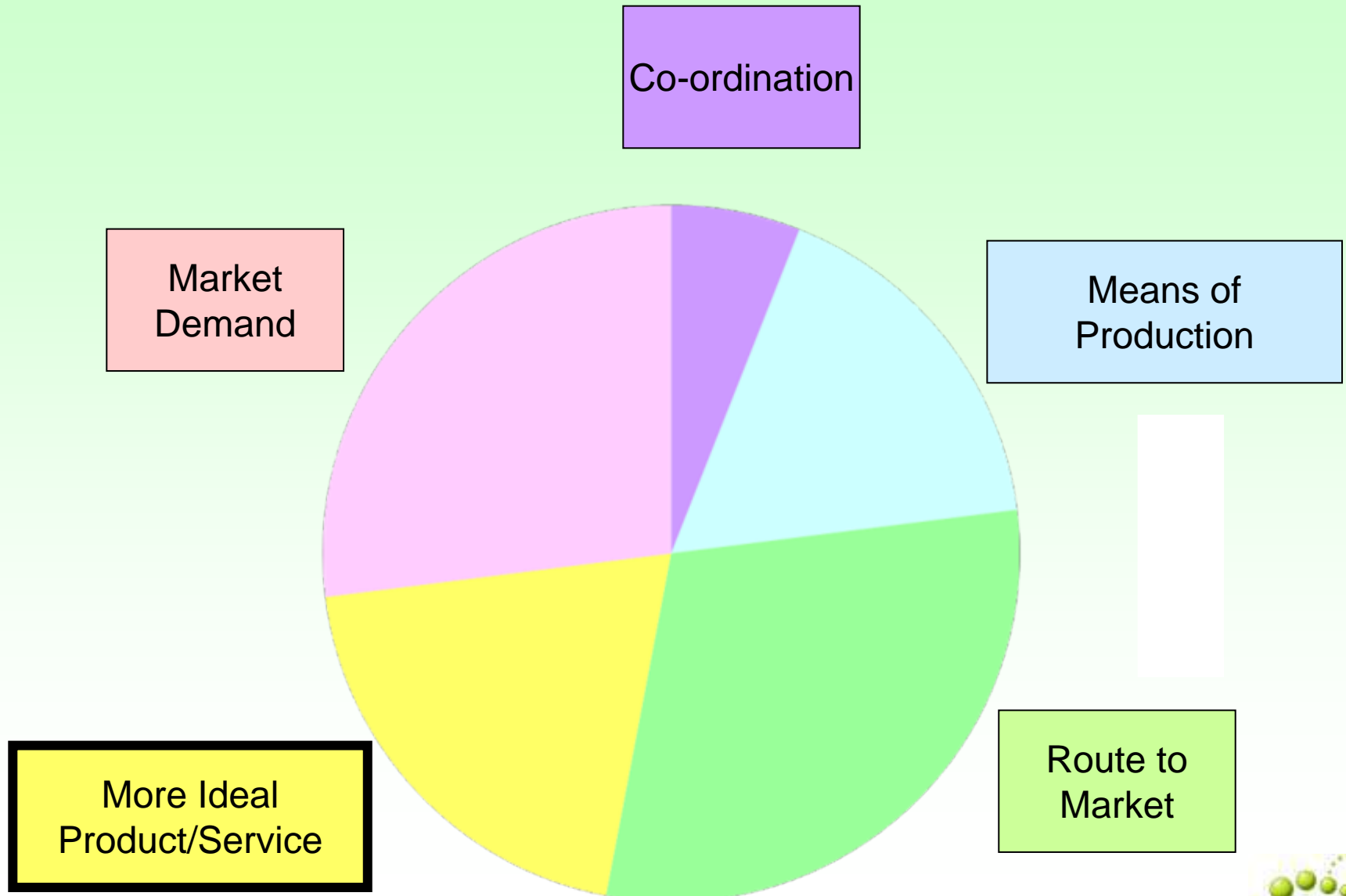
## - Law Of System Completeness



# Law Of System Completeness - Business



# Where Failures Happen



**(The technical solution is < 20% of the problem)**



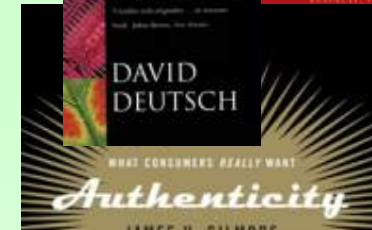
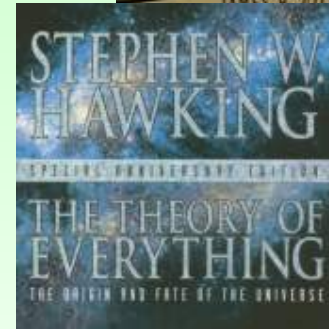
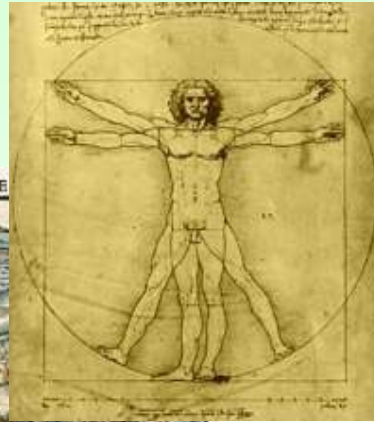
# Theories Of Everything



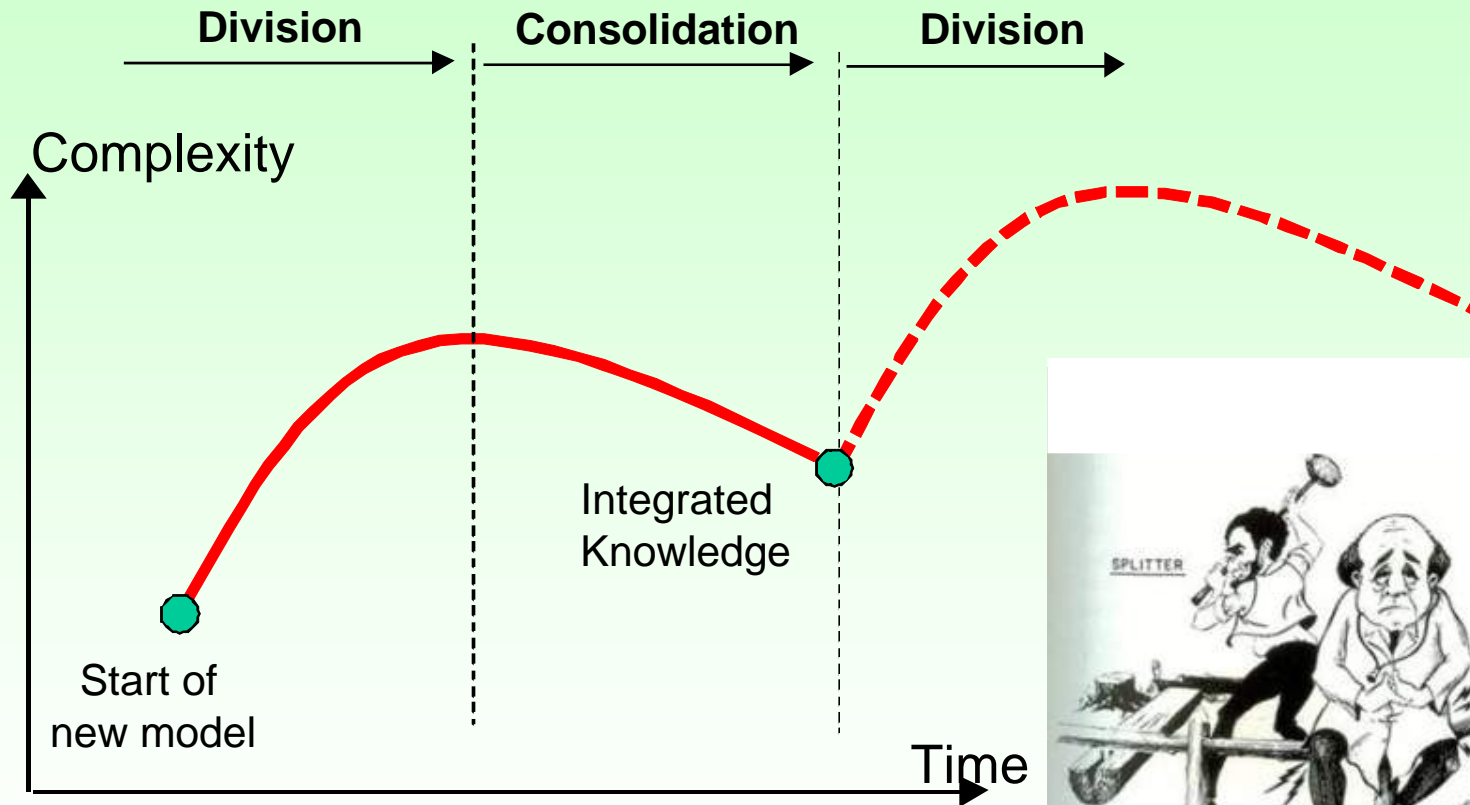
~2500 years ago



~500 years ago

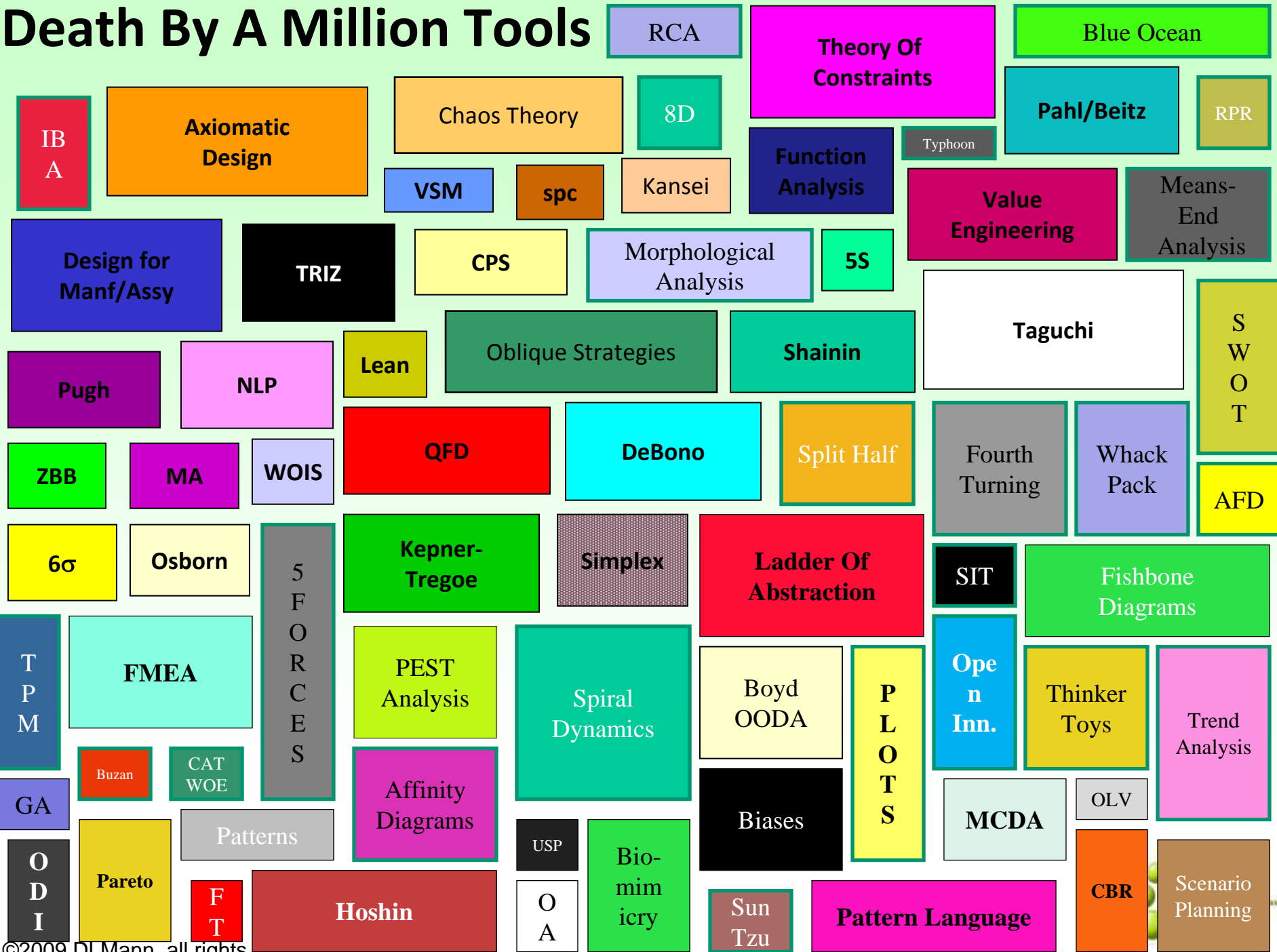


# Theories Of Everything





# Death By A Million Tools



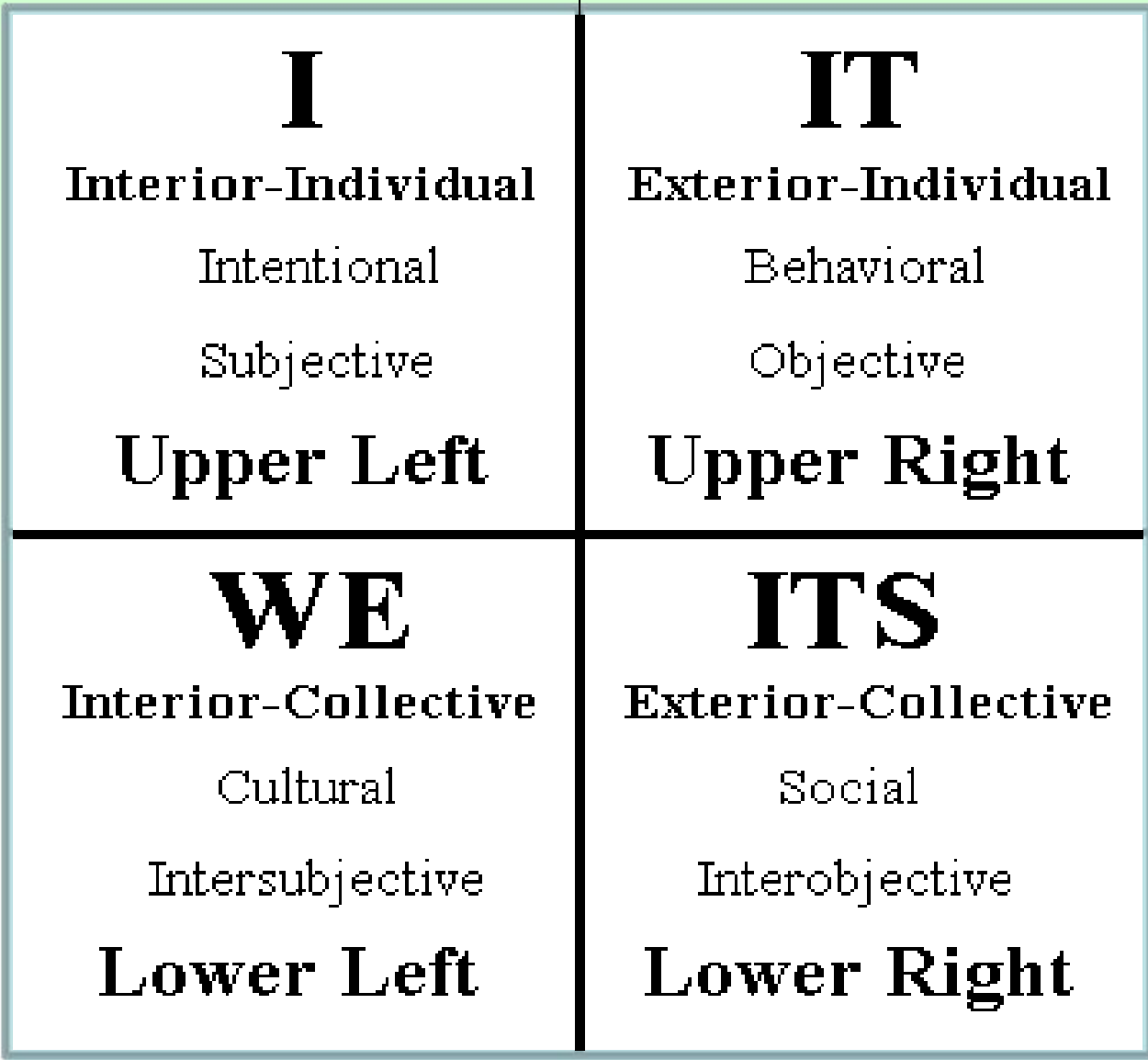




All the insights in one place

# Maps Of The World

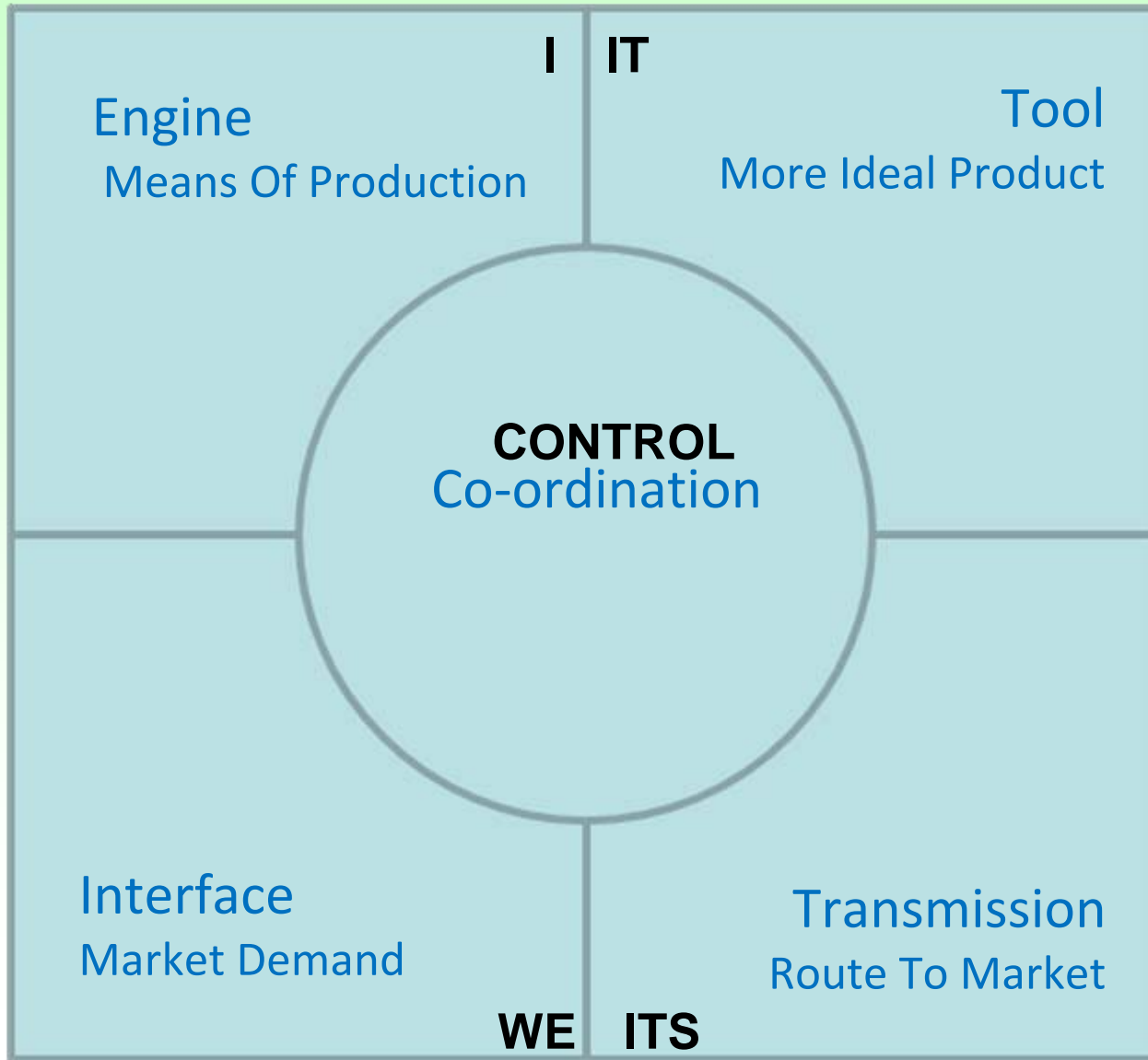
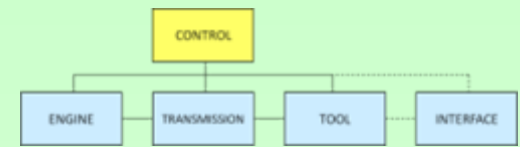
Internal World ← External World

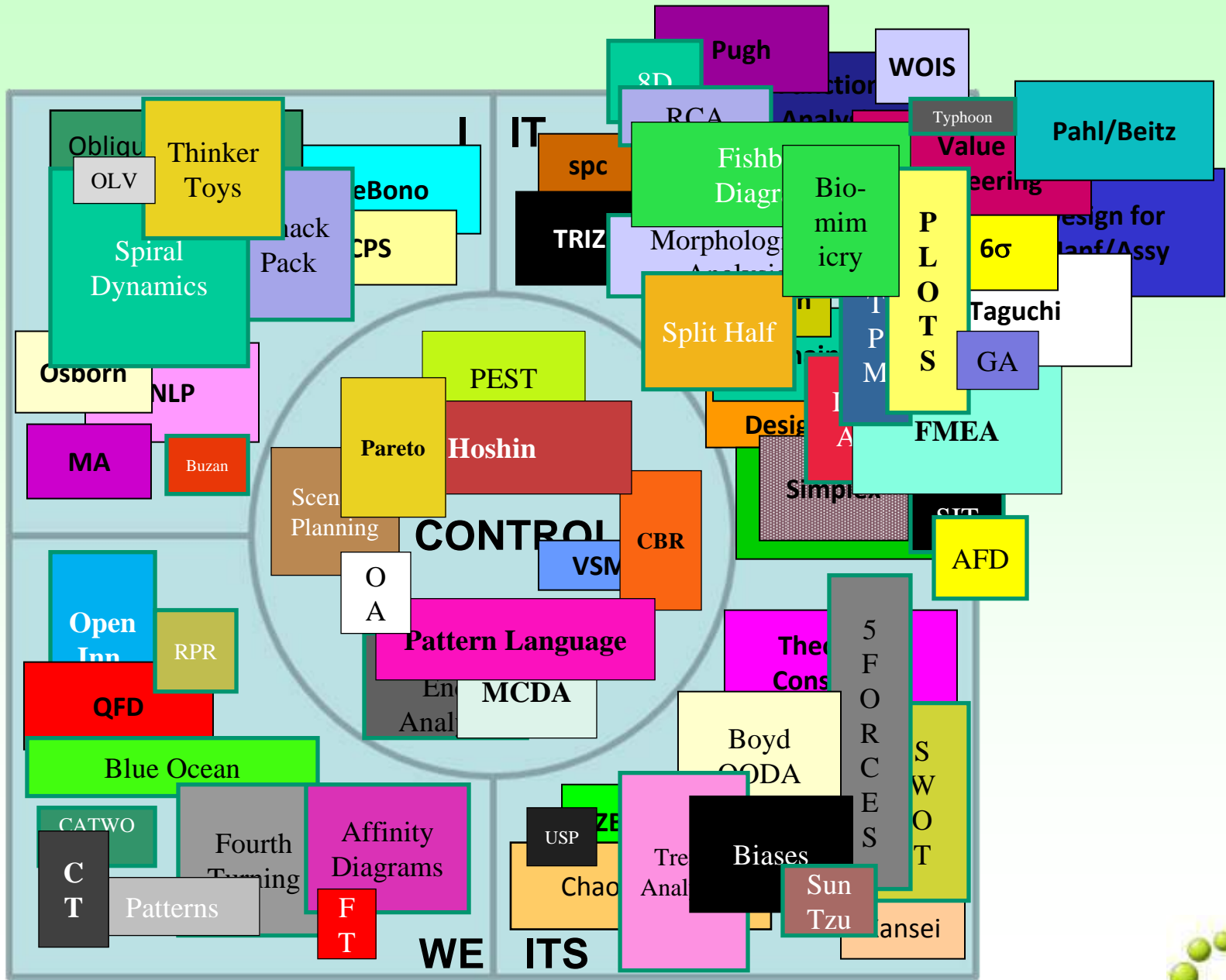


↑ Singular

↓ Plural





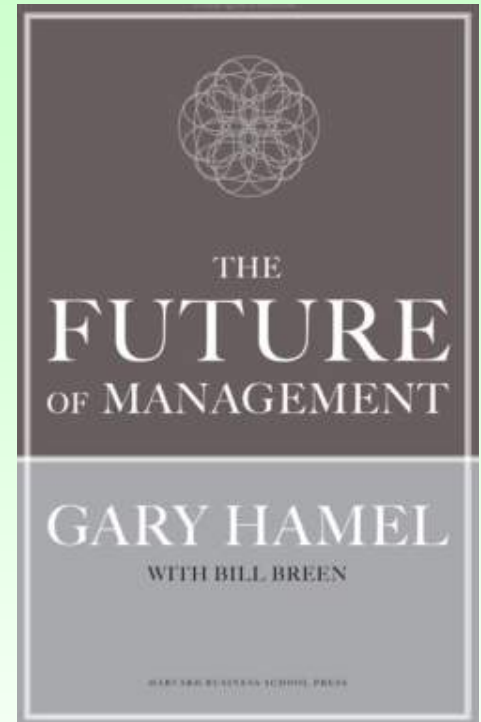
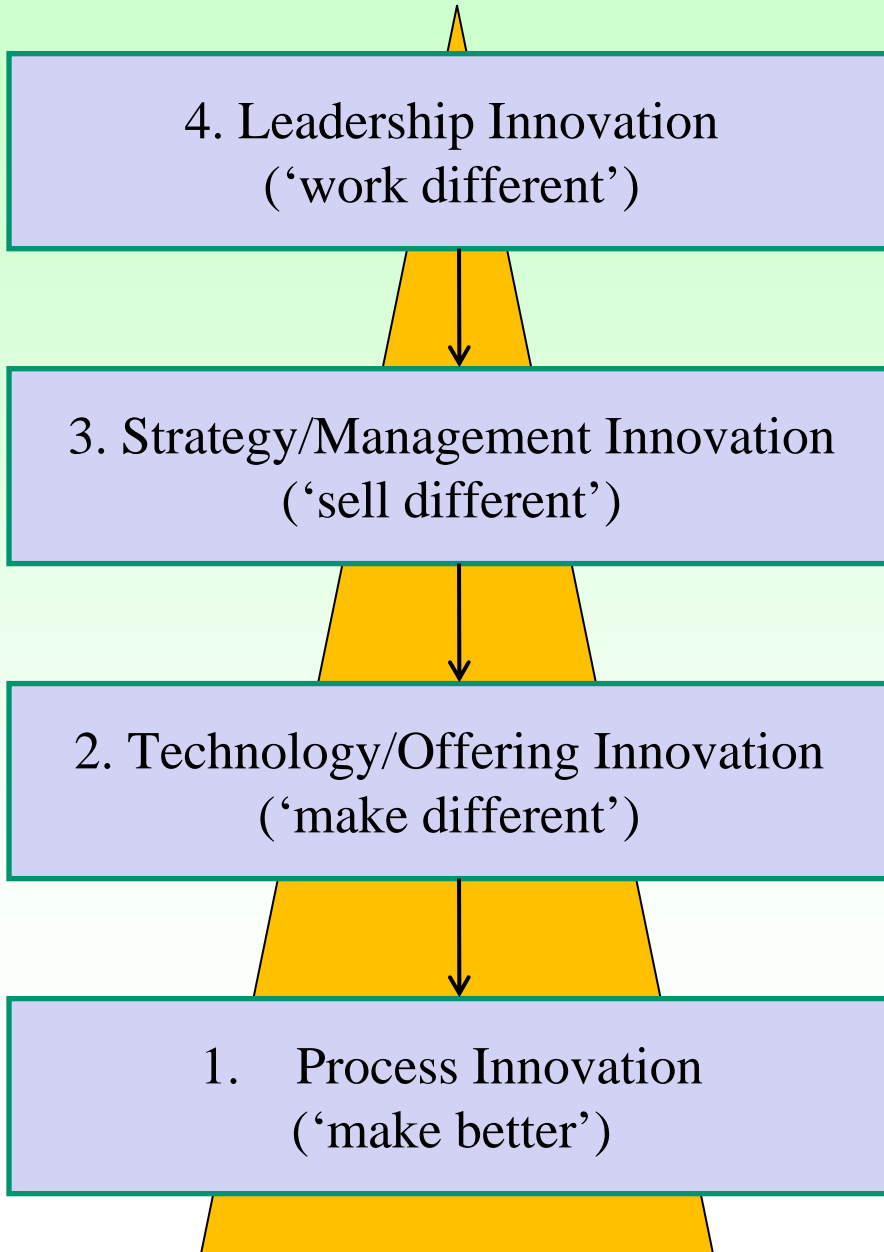


# Five Innovation DNA strands

<b>I</b> Interior-Individual Intentional Subjective <b>Upper Left</b>	<b>IT</b> Exterior-Individual Behavioral Objective <b>Upper Right</b>
<b>WE</b> Interior-Collective Cultural Intersubjective <b>Lower Left</b>	<b>ITS</b> Exterior-Collective Social Interobjective <b>Lower Right</b>

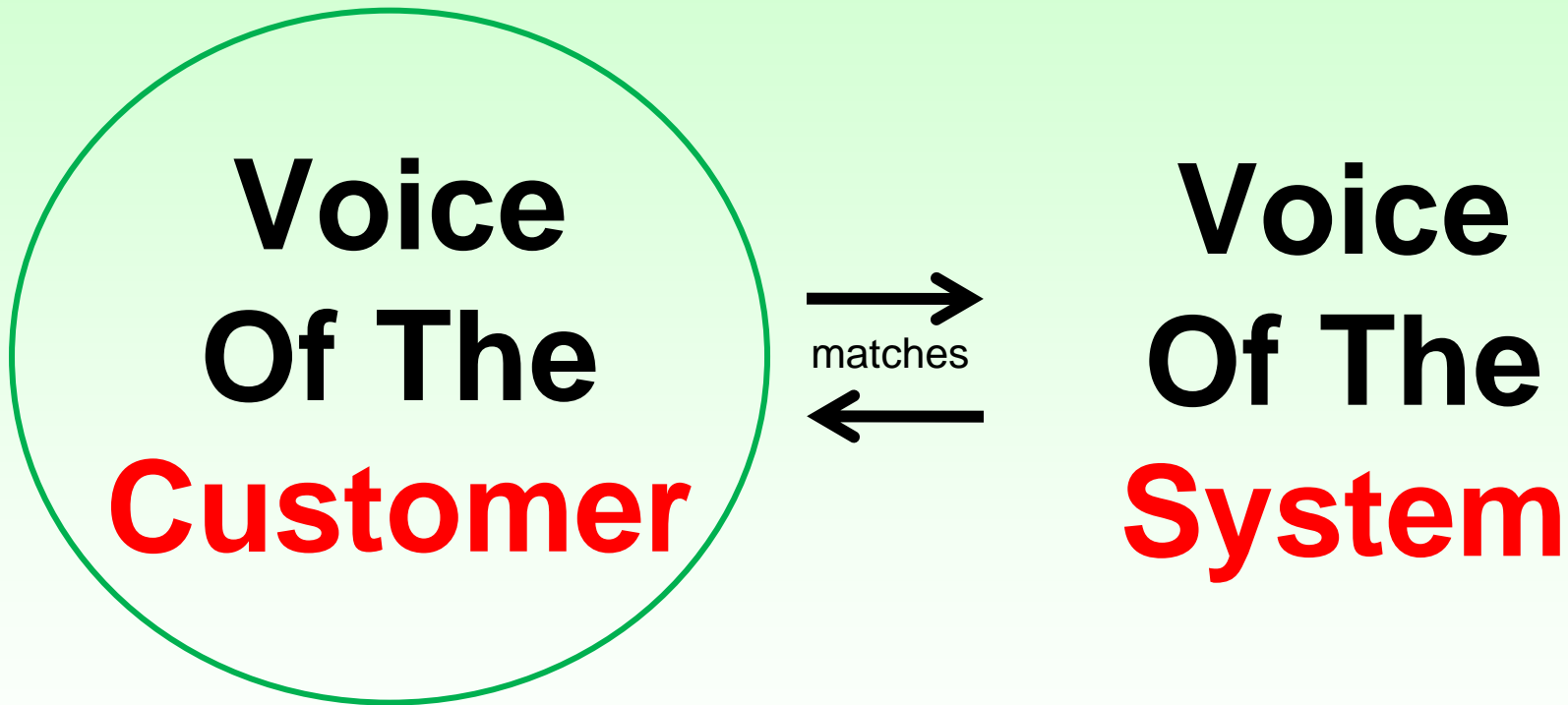


# Engaging At All Levels Inside Client Organisations...



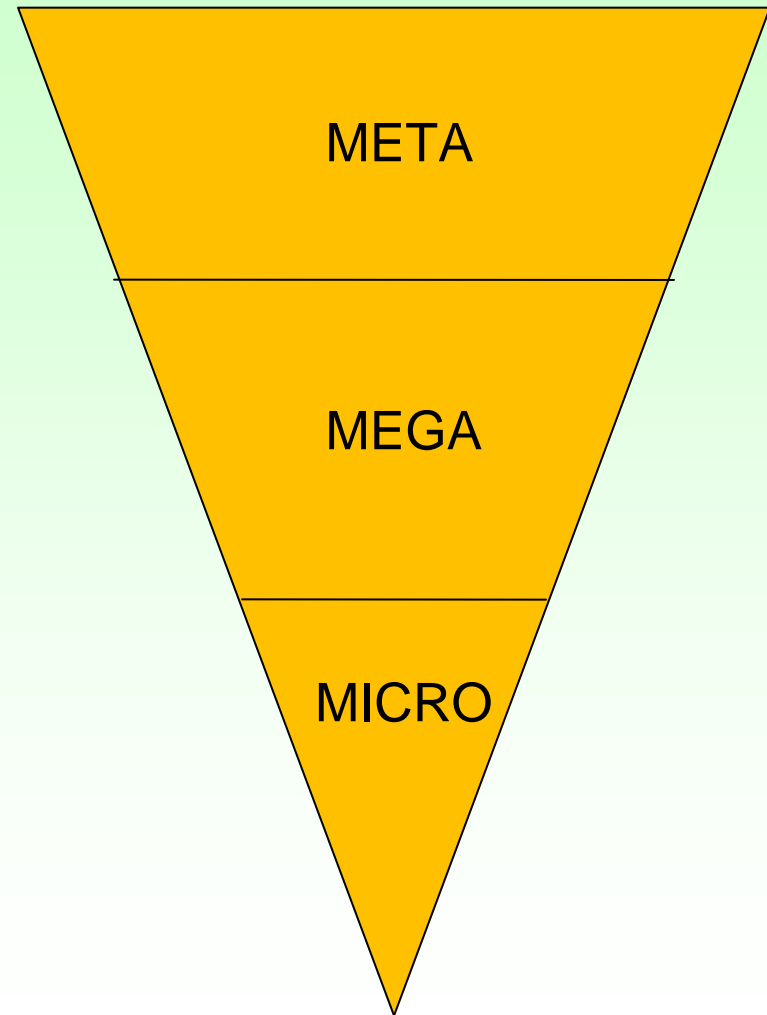


# Innovation Happens When....



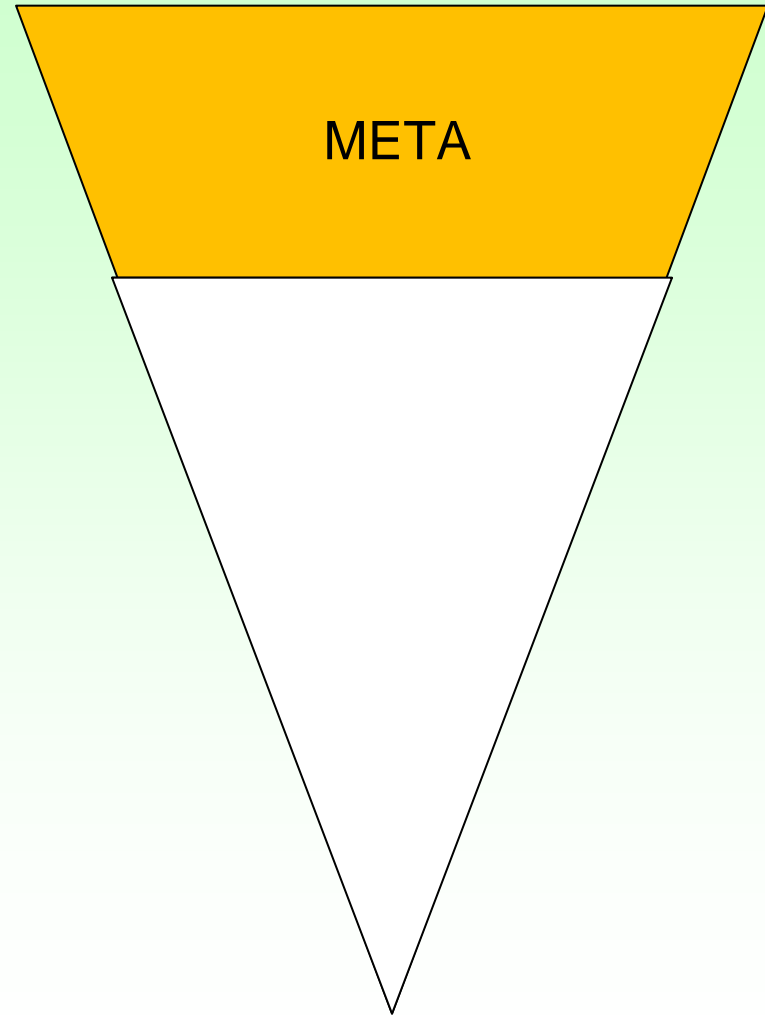
# Maps Of The World

**Voice  
Of The  
Customer**



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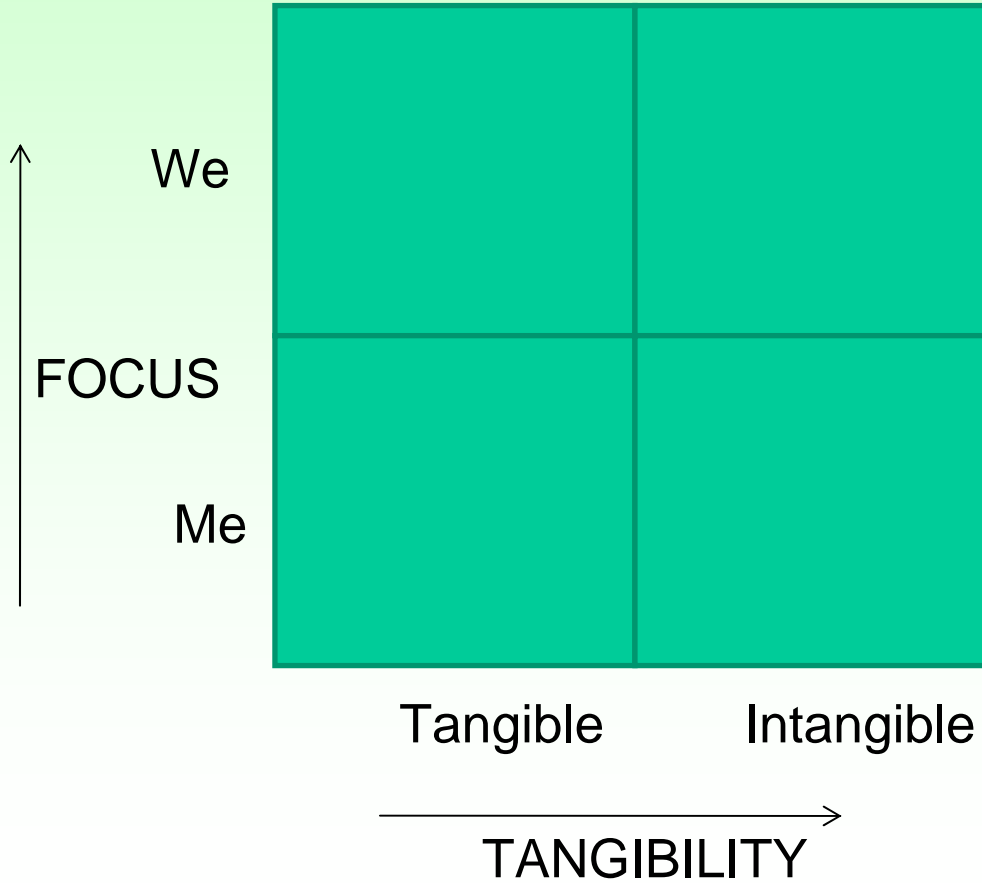


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- \* FUNCTION = 'JOB' = 'OUTCOME'
- \* **'Solutions Change; Functions stay the Same'**  
 (we will all continue to want to achieve the function  
 'communication' but we will not necessarily want a  
 mobile phone to achieve it)
- \* TANGIBLE & INTANGIBLE



# Customers Buy 'Outcomes'



# Customers Buy Outcomes

Collective/ Societal	move family/friends protect family/friends entertain occupants minimise environment damage	'safe family' 'peace of mind'
Individual	move me from A-B transport goods protect me isolate me	reward myself my safety empathetic-conversation 'woman's touch'
	Tangible	Intangible



*“A man makes a decision for two reasons – the good reason and the real reason.”*  
J.P.Morgan



# Defining Perfection...

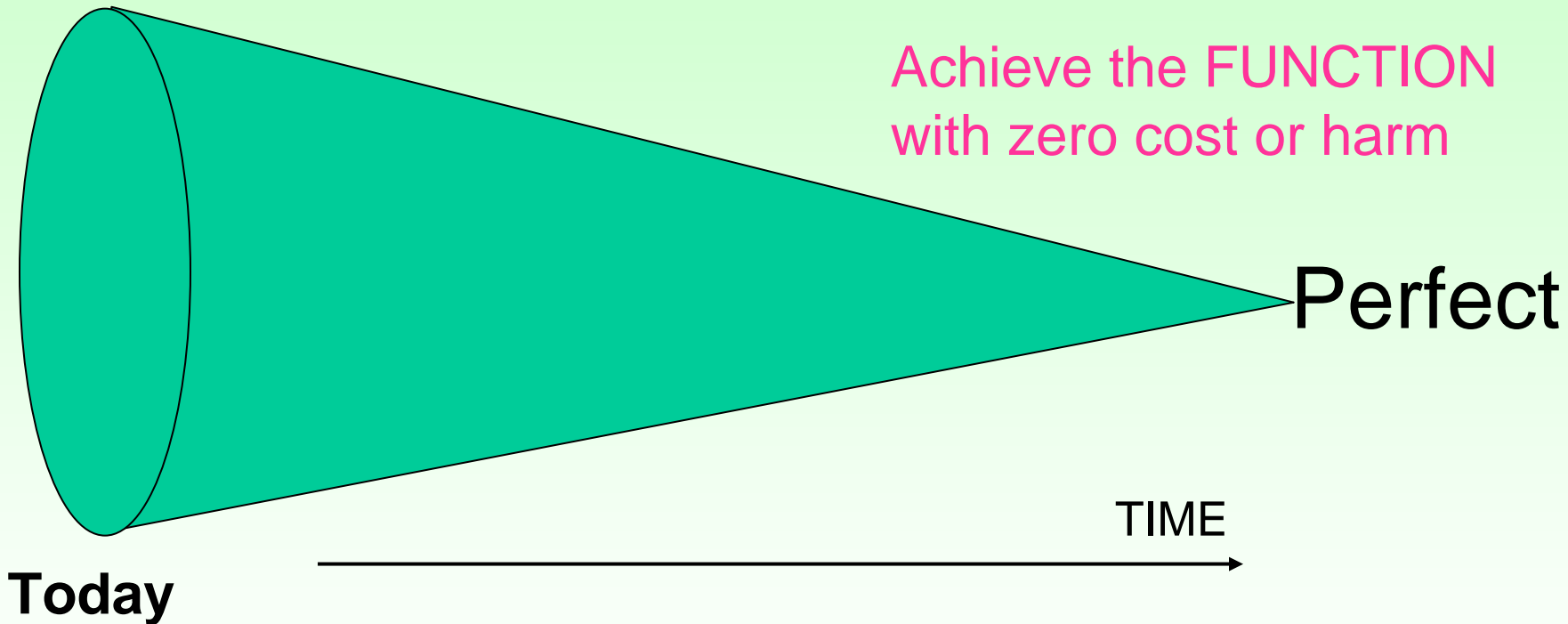


ATTRIBUTE CONFLICTS	ATTRIBUTE	CUSTOMER A IFR	CUSTOMER B IFR	PROVIDER IFR	etc →
	Hits				
	Accuracy				
	Cost				
	Security				
	'Colour'				
	Logo				
	Hits/screen				

Key questions when looking for conflicts: 'Is there anyone who does not want this IFR?' Why?  
 'Is there a new attribute we should be thinking about?'



# 'Good Solutions'...



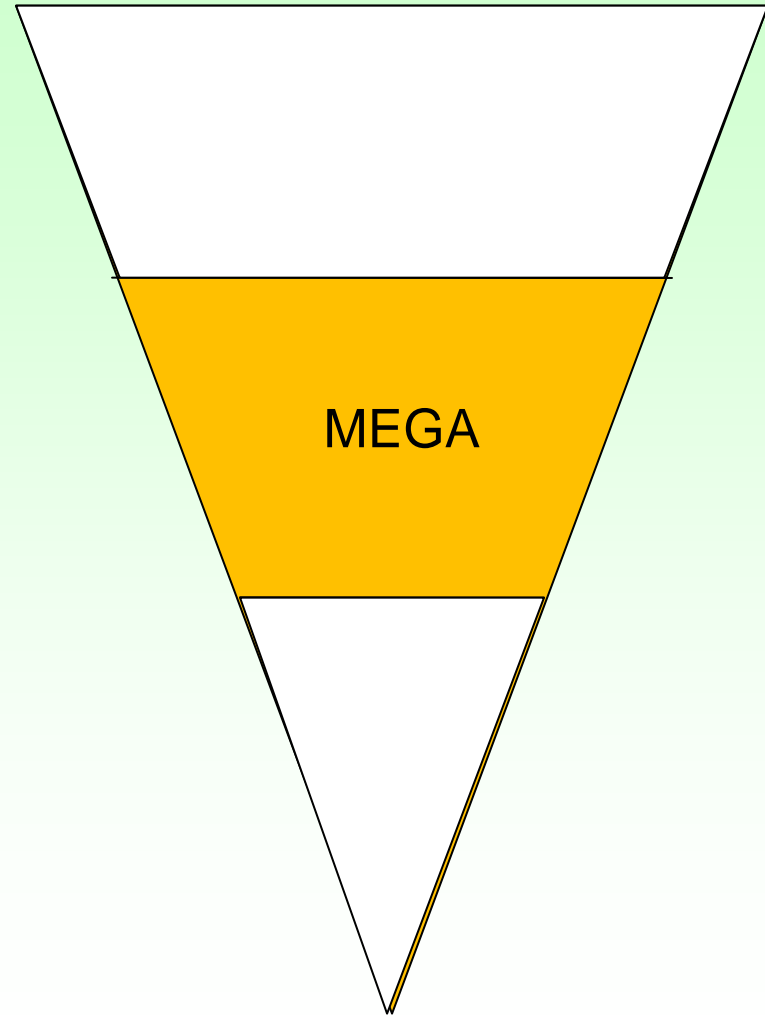
**...deliver more perfect outcomes**





# Maps Of The World

**Voice  
Of The  
Customer**

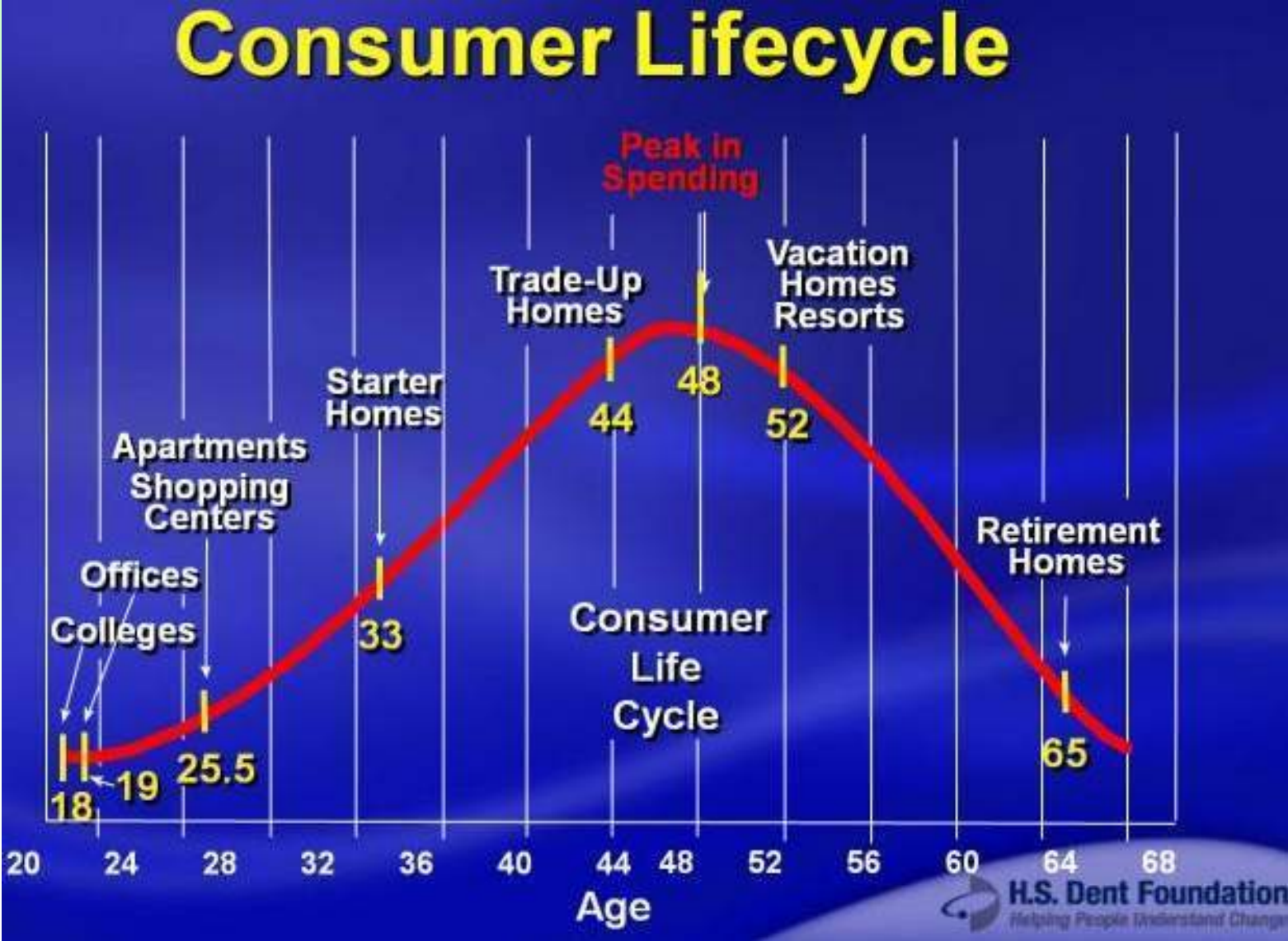


# Inevitable Surprises

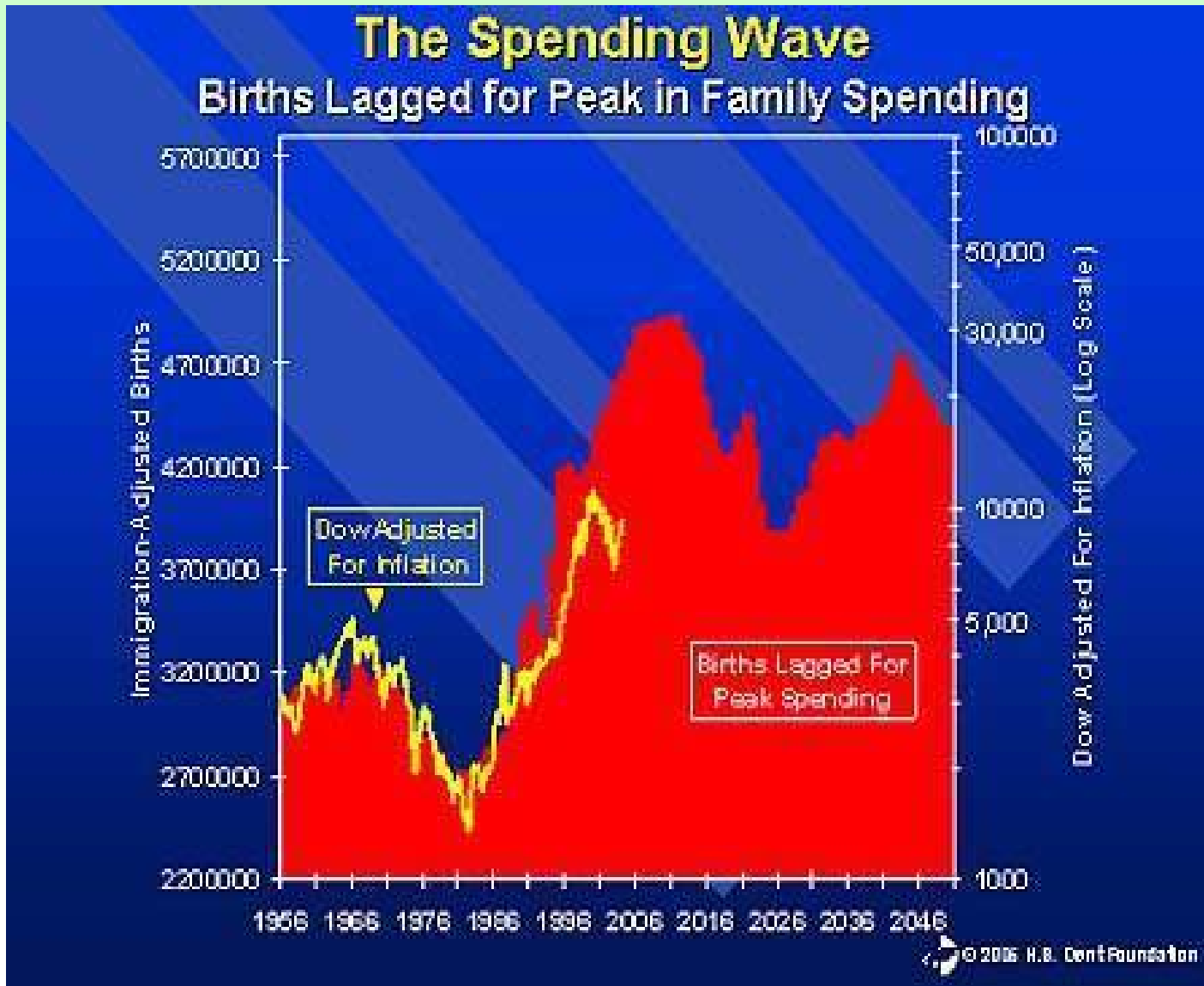
## Immigration Adjusted Birth Index



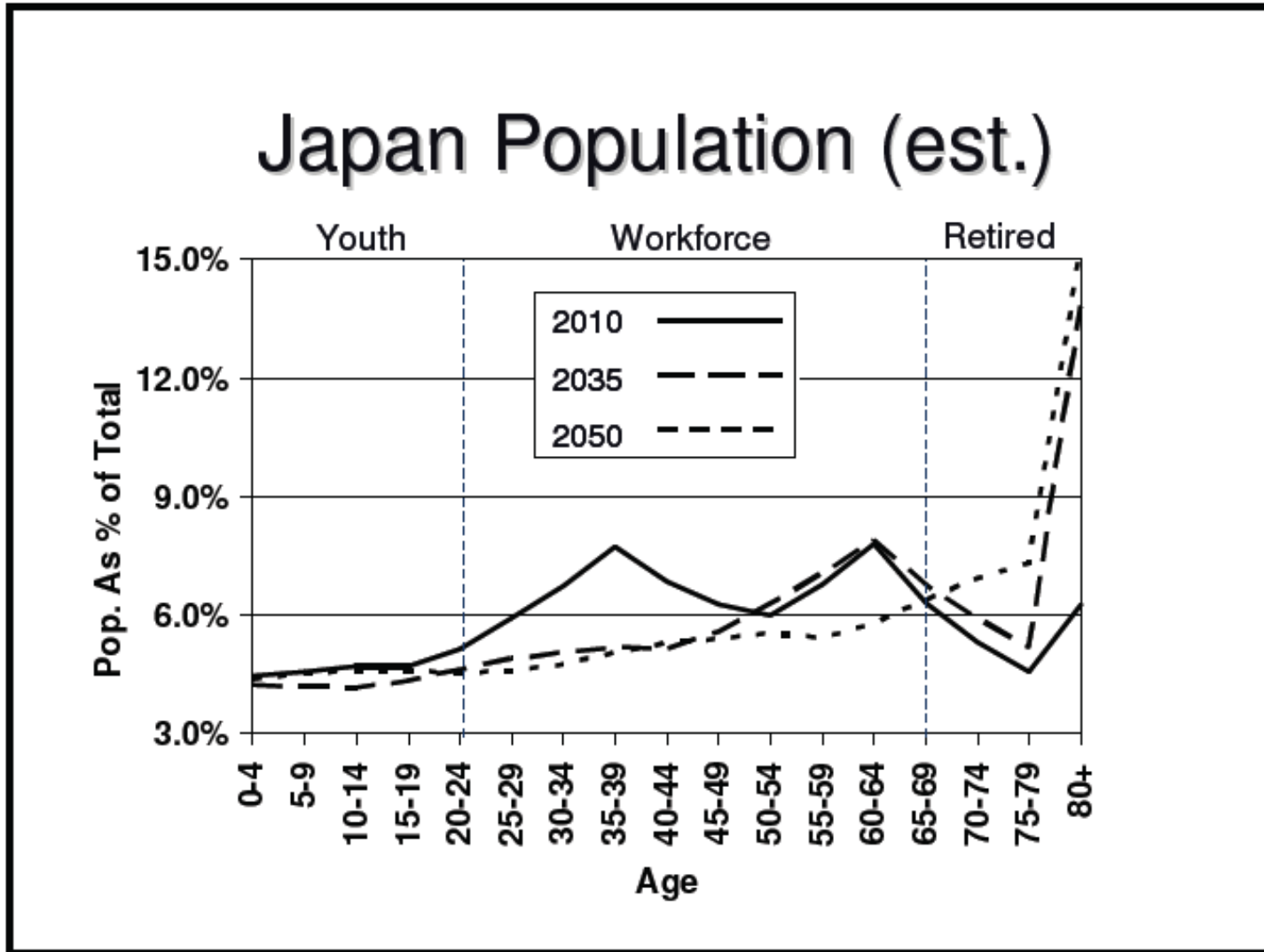
# Inevitable Surprises



# Inevitable Surprises



# Inevitable Surprises II



# Case Study Example

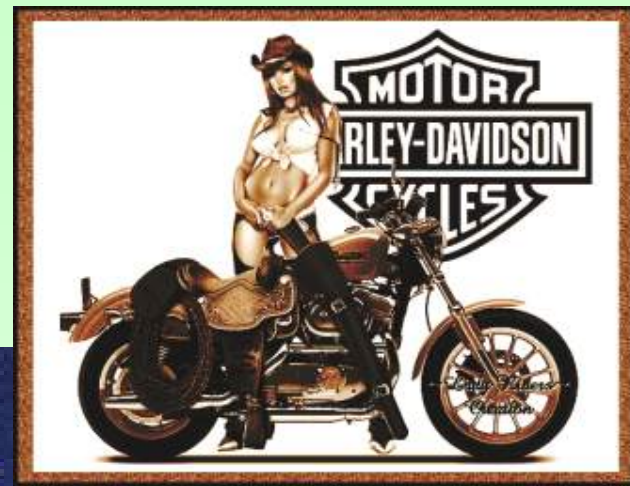


On January 23, 2009, Harley-Davidson announced they were cutting 1,100 jobs, closing facilities and consolidating others. The company reported its fourth-quarter profit fell nearly 60 percent.

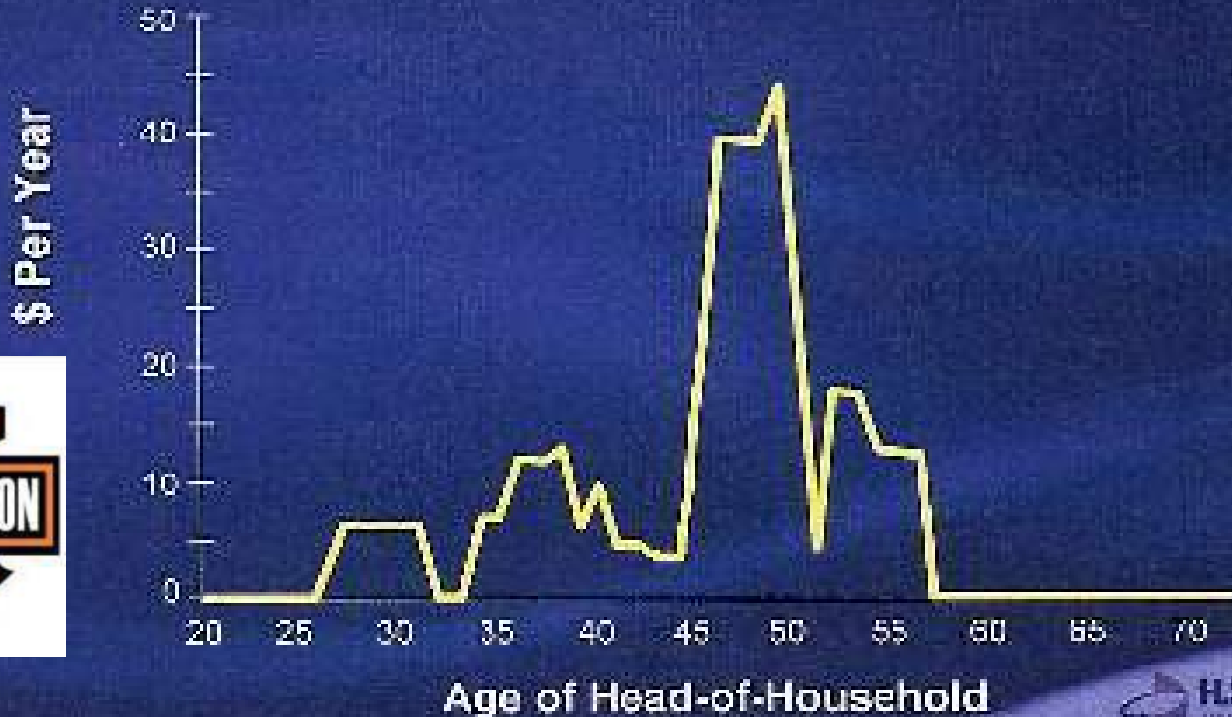
Harley-Davidson's stock sold at \$72 a share in 2006 when the Dow Jones Industrial Average was at its highest level in history. It closed at \$11.50 on January 26, 2009.



# Case Study Example



## Motorcycles vs. Age *"The Male Mid-Life Crisis":*



H.S. Dent Foundation  
MAKING PEOPLE WHO CARE ABOUT DENTISTRY



# Basic Idea – I – Complex Systems

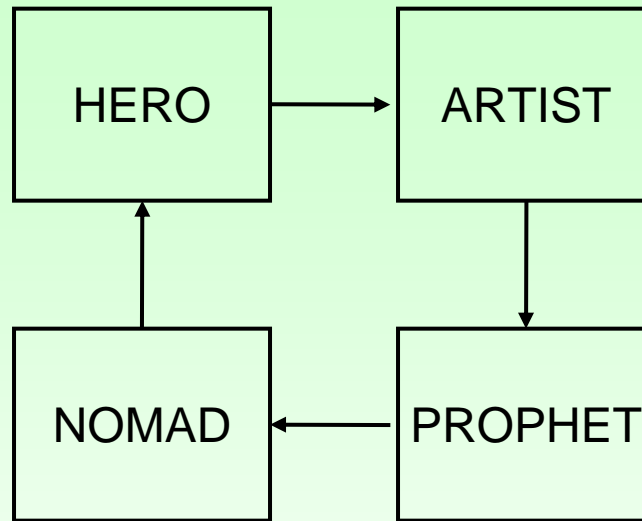


The manner in which you were raised by your parents  
In turn influences how you raise your children





# US/UK Generational Cycles



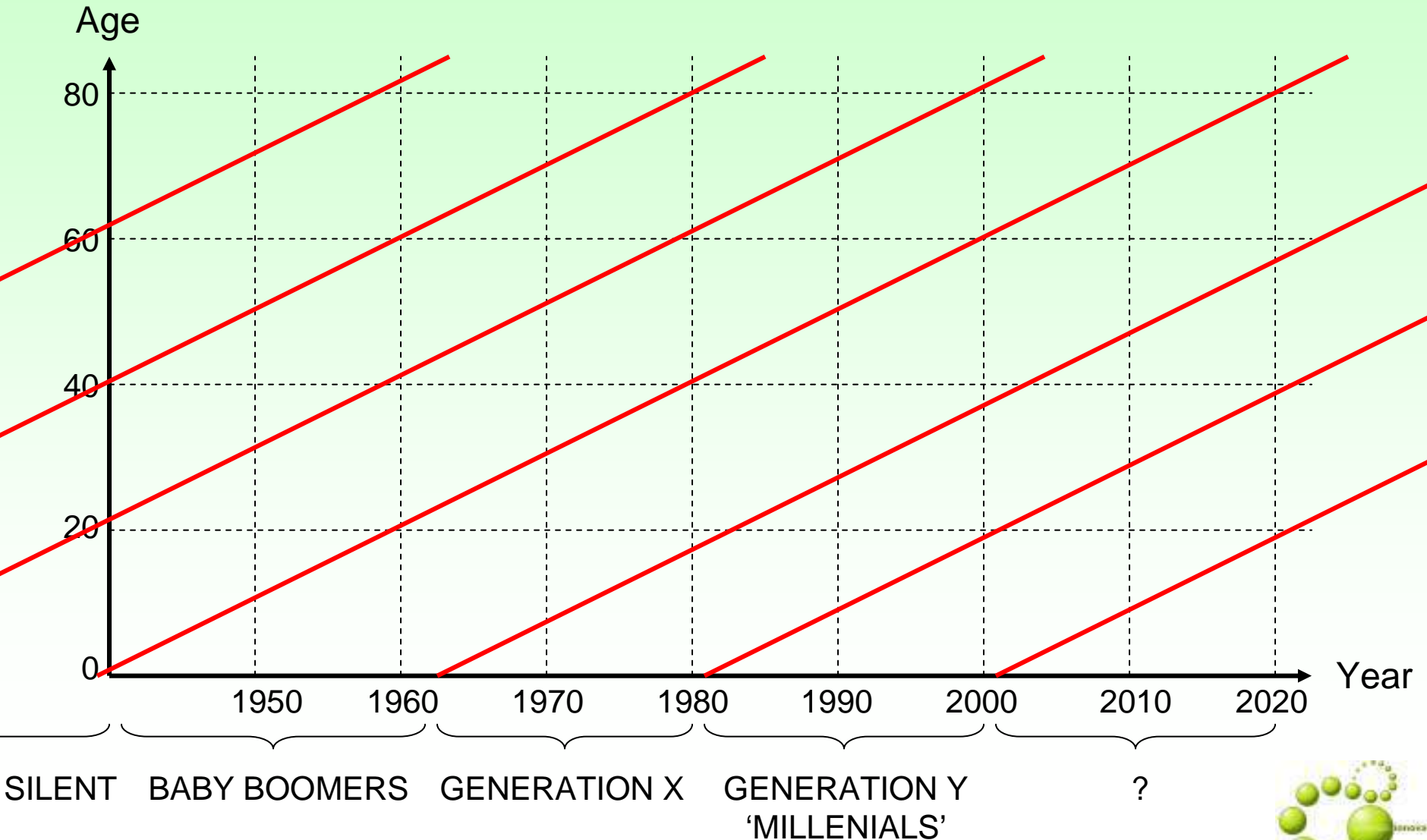
	0-20	21-41	42-62	63-83	
(Generation Y) (Silent)	HERO	protected	heroic	hubristic	powerful
(Boomer)	ARTIST	suffocated	sensitive	indecisive	empathic
(Generation X)	PROPHET	indulged	narcissistic	moralistic	wise
	NOMAD	abandoned	alienated	pragmatic	tough

(2006 characteristics in red)

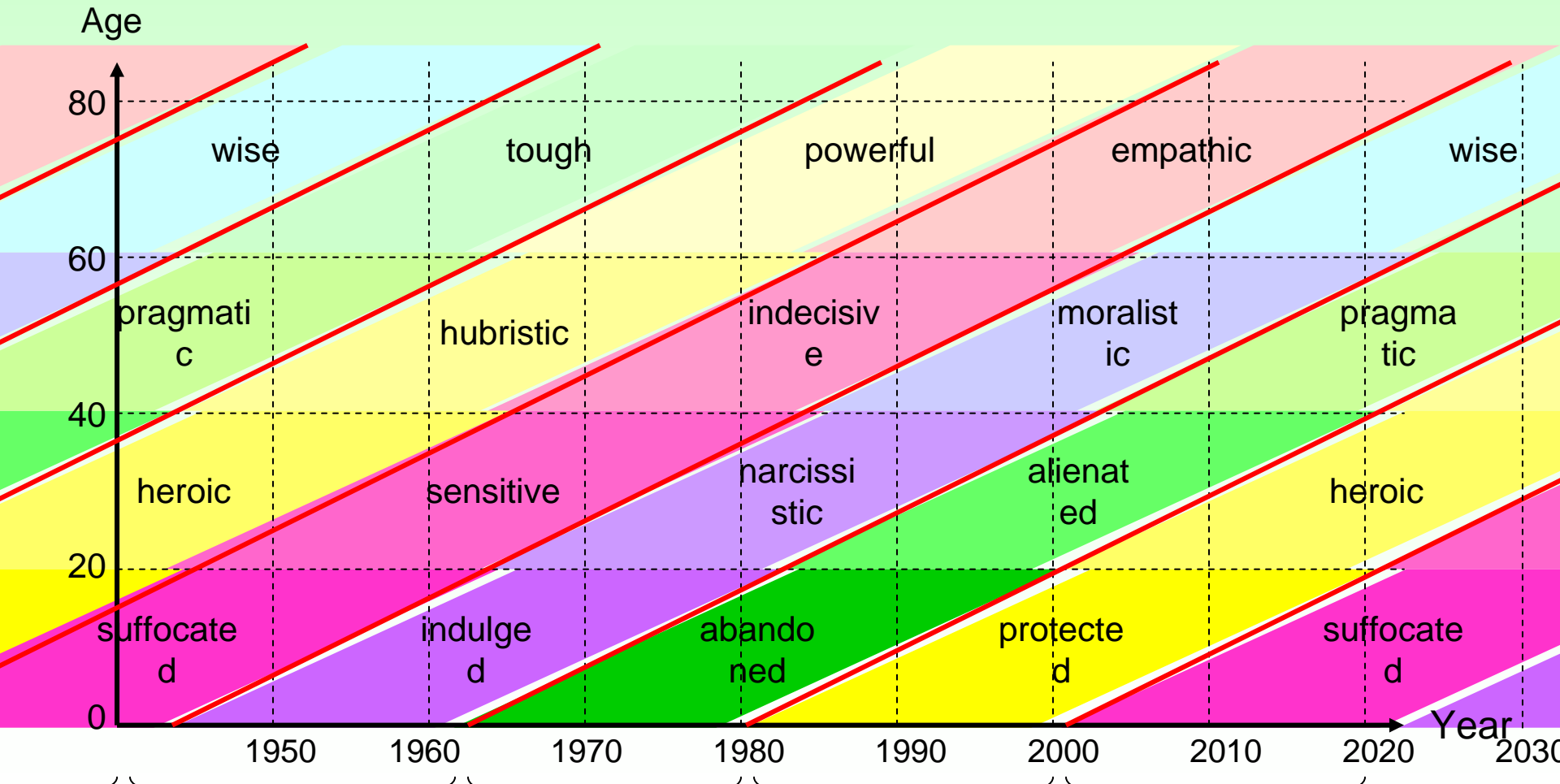
Strauss, W., Howe, N.,  
 'The Fourth Turning: An American Prophecy',  
 Broadway Books, New York, 1997.



# The Impact Of Cultural Shifts On Timing



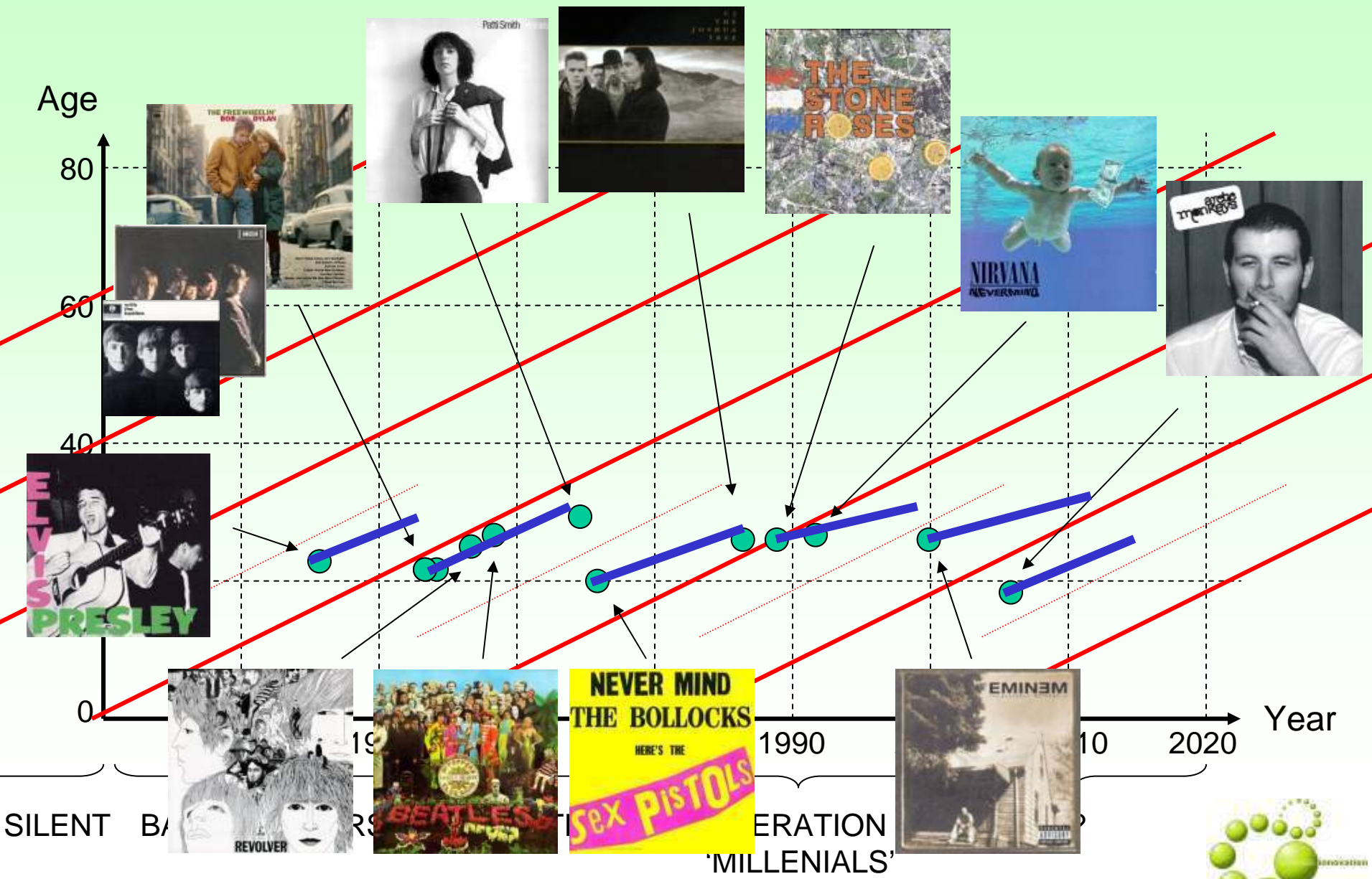
# The Impact Of Cultural Shifts On Timing



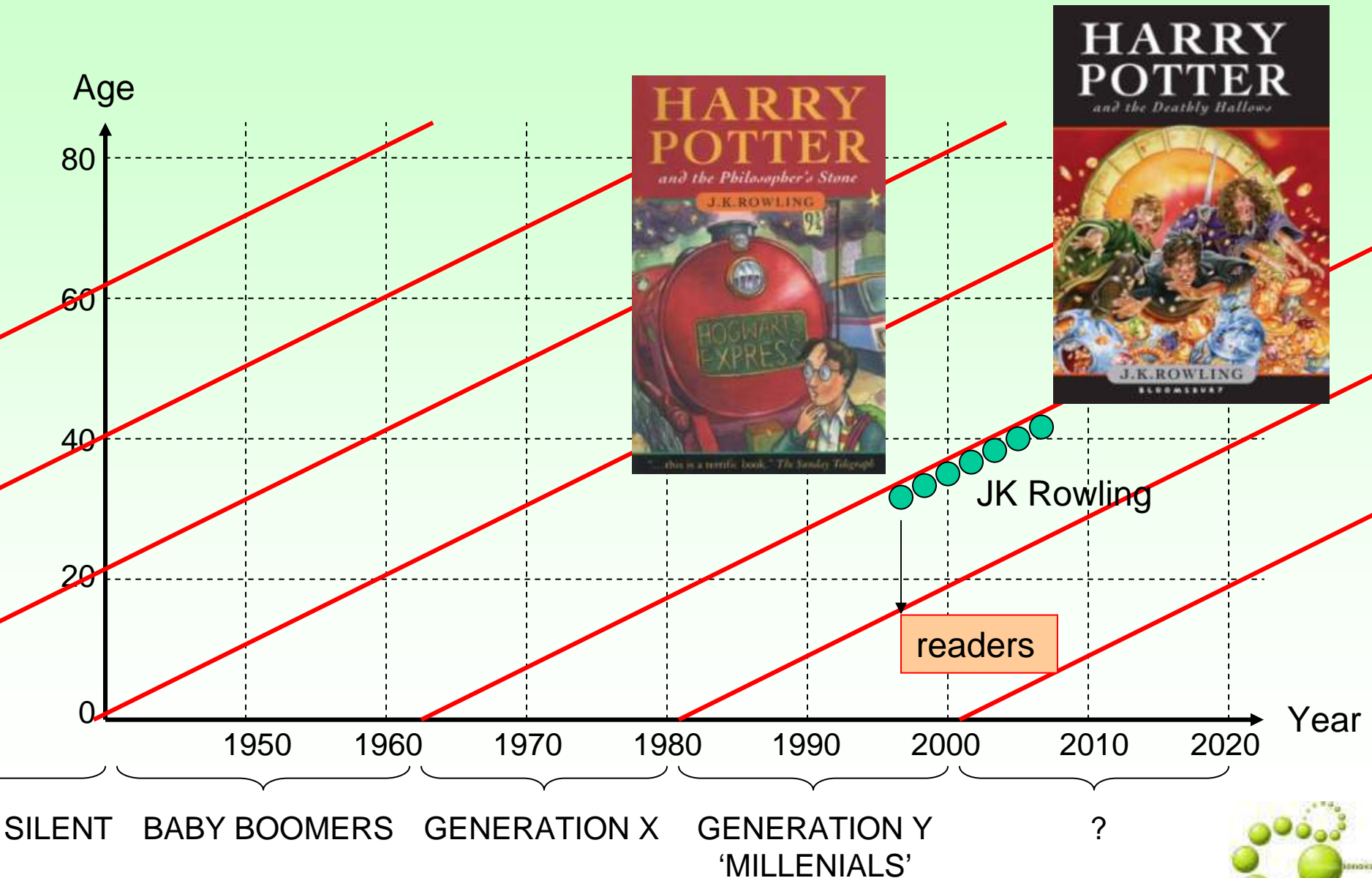
**SILENT**   **BABY BOOMERS**   **GENERATION X**   **GENERATION Y 'MILLENNIALS'**   **Not Yet Named**



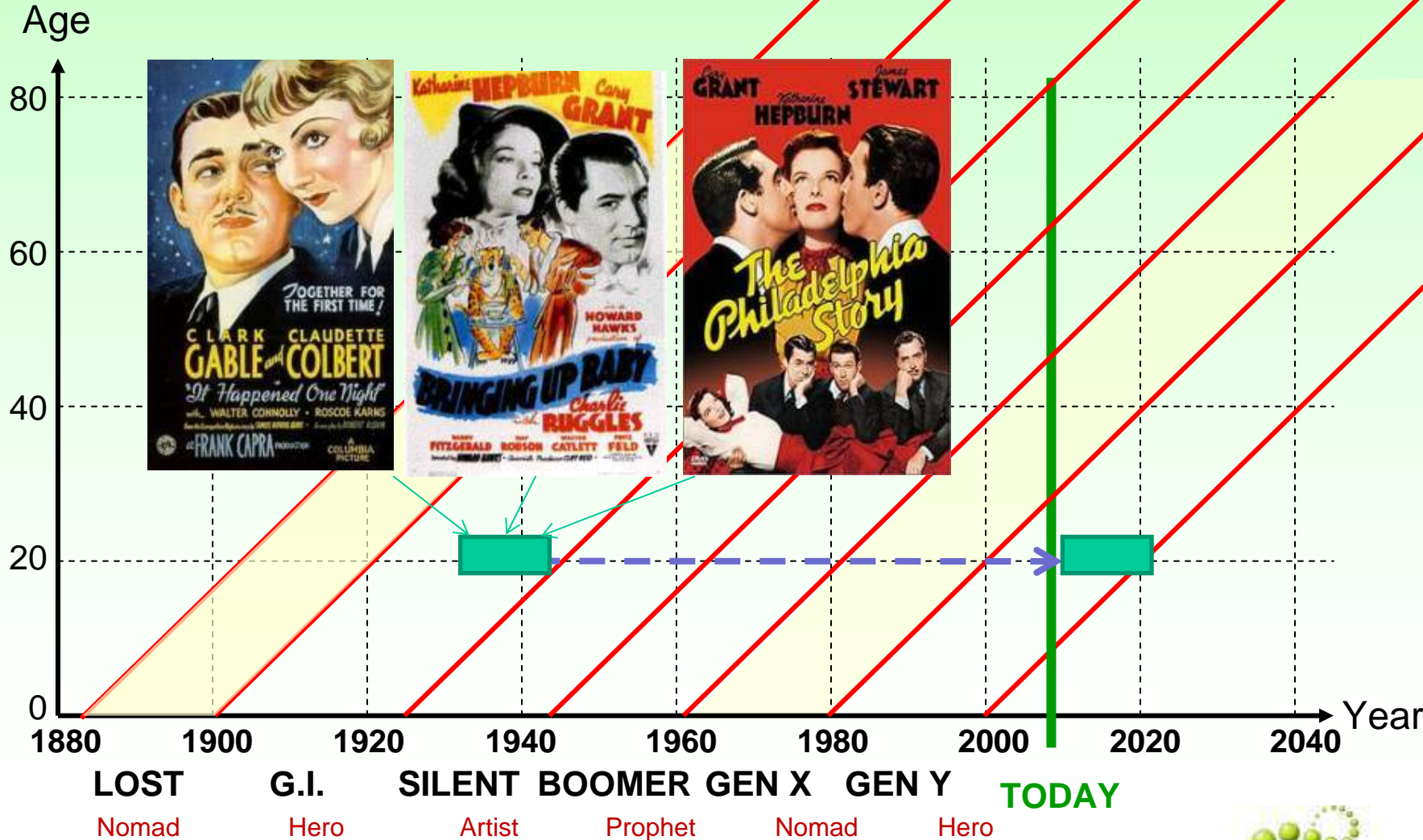
# The Impact Of Cultural Shifts On VotC



# The Impact Of Cultural Shifts On Timing



# The Impact Of Cultural Shifts On Timing

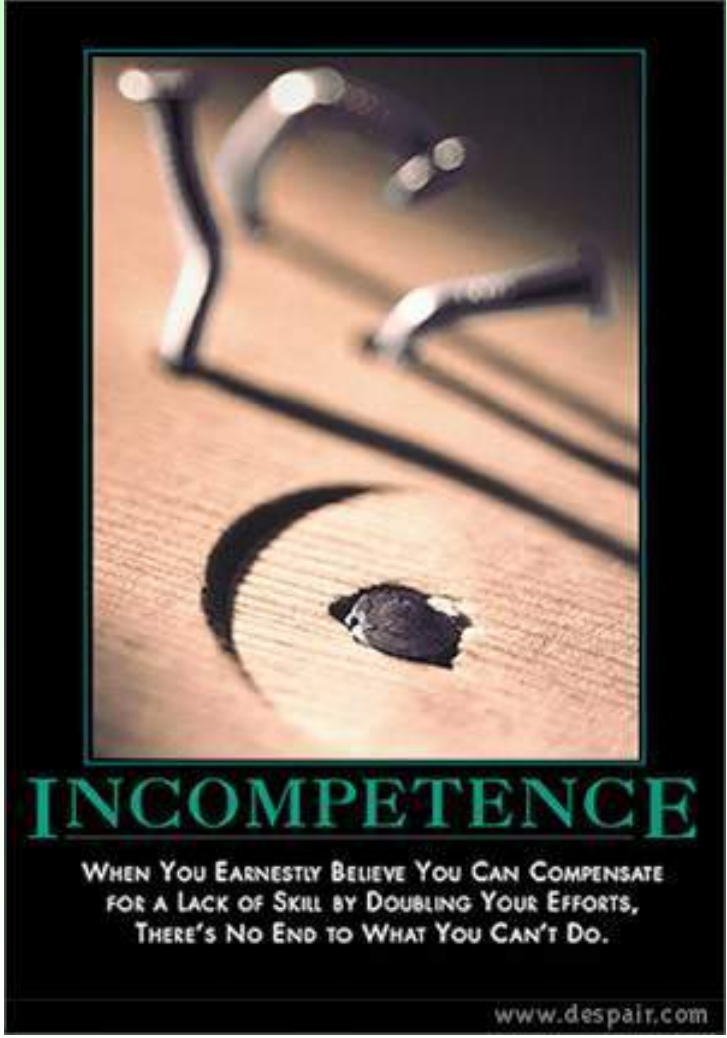


# Generation Y – Key Life Contradiction



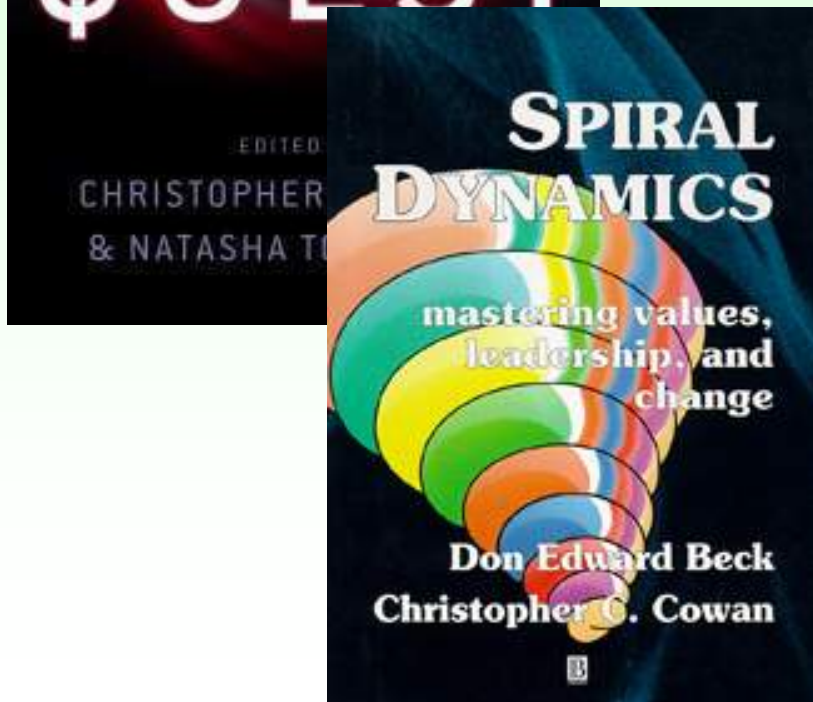
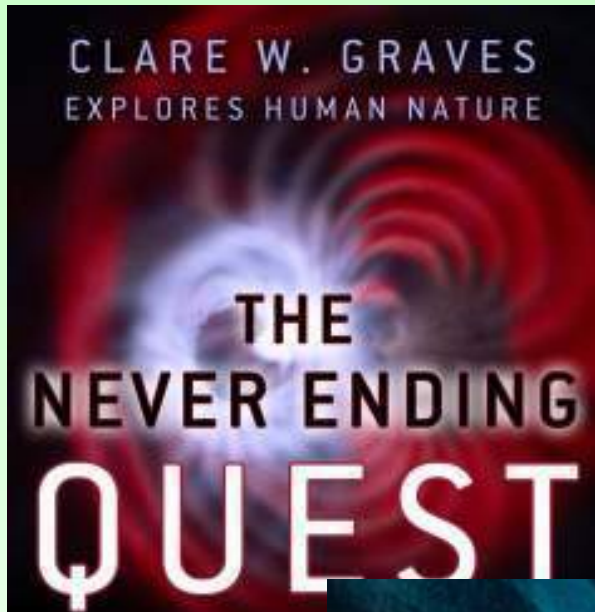
Hero  
(told they can do anything)

v



Unskilled  
(can't do anything)





- \* 40+ years of research
- \* The social and psychological equivalent of TRIZ: study and distillation of the way the world works
- \* Repeating Patterns: Discontinuous Shifts in consciousness/thinking
- \* 'Social System DNA'





Beige	1. Survival	newborn infant, Alzheimer's victim, shell-shock
Purple	2. Tribal	gangs/tribal rituals/magic blood oath
Red	3. Feudal	power gods/ego, feudal rule, heroic, predatory 'terrible two's'
Blue	4. Order	codes of conduct, hierarchy/order, 'moral majority' chivalry, puritan
Orange	5. Scientific	materialism, competitive, self-interest, 'nature tamed', 'management by objective
Green	6. Communitarian	'sensitive-self', deep ecology. 'politically correct' reconciliation/consensus/networking
Yellow	7. Holarchy	flexibility/adaptive, inter-dependence, co-opetition
Turquoise	8. Holistic	universal order, 'Theory of Everything', spiritual harmony



# Pleasure Seeking

# Pain Avoiding

1. Survival

reproduction

food, water, warmth, safety

2. Tribal

good fortune, 'one of the gang'  
revenge

curses/spells/rejection/isolation

3. Feudal

ego-gratification, 'my way'  
mass adulation, rebellion

defeat, loss of power  
rivals/threats

4. Order

stability, obedience, medals  
status, promotion

change, rebellion from others  
loss of status, outcast

5. Scientific

peer recognition, 'best in show'  
biggest/best/fastest, merit pay

losing, 'keeping up with the  
Jones'

6. Communitarian

'making a difference', harmony  
'maximise my potential'

orange or blue attitudes  
aggression/conflict/hierarchy

7. Hierarchy

knowledgeable/'wise', 'life-long  
learning', discovery/challenge

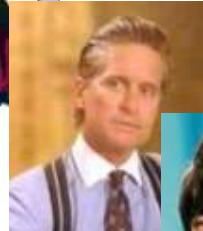
sub-optimization, rigidity  
'stupid rules'

8. Holistic

'defining the jigsaw', 'wrong  
jungle', empathy/trust

non-holistic  
non-spiritual





8. Holistic

6. Communitarian

4. Order

2. Tribal

1. Survival

3. Feudal

5. Scientific

7. Holarch

Collective

Social Focus

Individual

# Recursive Individual-Collective-individual Cycles

# 2D Trend Map... Developing Individuals & Teams

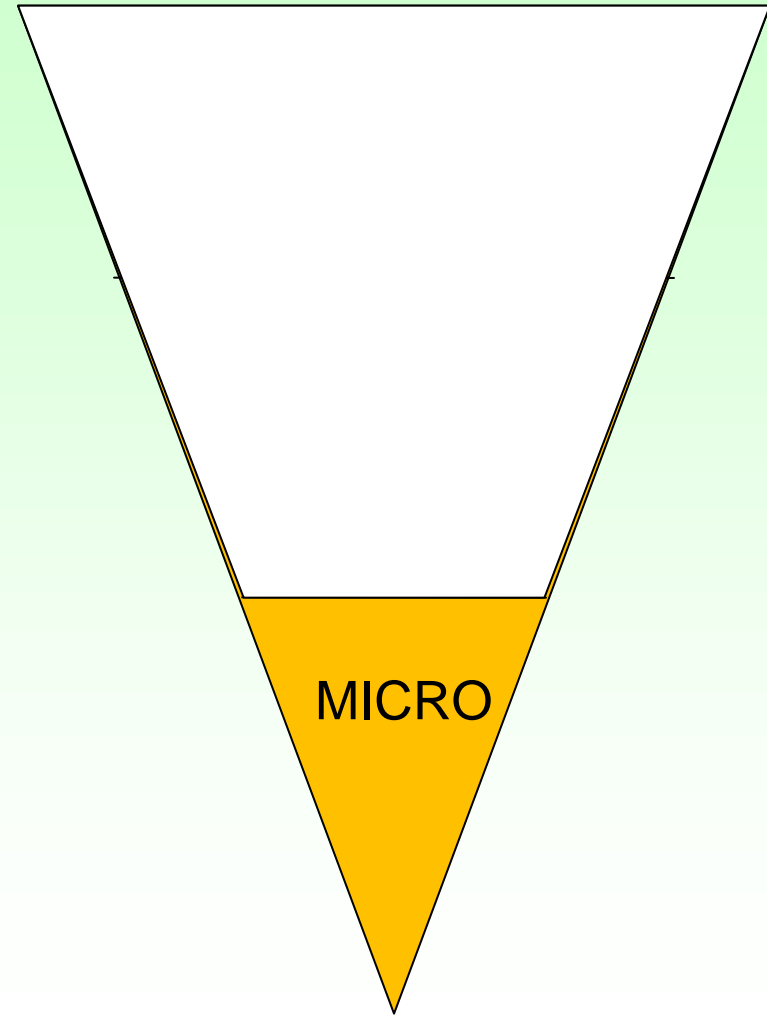
	NOMAD	HERO	ARTIST	PROPHET
1. Survival (AN)				
2. Tribal (BO)				
3. Feudal (CP)		Heroic + hedonistic		
4. Order (DQ)	Pragmatic + moralistic	Heroic + moralistic		<b>moralistic</b>
5. Scientific (ER)	Pragmatic+ optimising	Heroic + manipulative		moralistic + manipulating
6. Communitarian (FS)	Pragmatic + indecisive	Heroic + communitarian		moralistic + indecisive
7. Holarchy (A'N')	Pragmatic + flexible			moralistic + flexible
8. Holistic (B'O')				



	NOMAD	HERO	ARTIST	PROPHET
1. Survival				
2. Tribal				
3. Feudal	<b>Middlemen</b>			
4. Order				
5. Scientific	<b>Ms Independent</b>			
6. Communitarian				<b>Karma Queen</b>
7. Holarchy				
8. Holistic				

# Maps Of The World

**Voice  
Of The  
Customer**



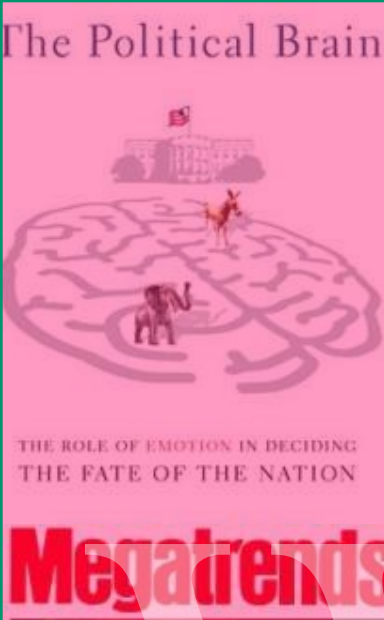
# Consumer Trends – What's Going On?

Every retailer spends time capturing and analysing consumer trend information. Almost invariably, once the information is captured, the future will very quickly deviate from what the trend predicts. Even though, we can look at any individual trend and say to ourselves 'yes, I can see that this is a logical trend relevant to my operations' What is going on here?

- ageing population
- longer life expectation (active for longer)
- greater determination to live life to the full
- sharp increase in single-occupancy homes/single parent families
- increasing importance of the extended family
- increasing property prices – children staying home longer
- increasingly sedentary lifestyle (compensated by guilt-trips to gym)
- increasing safety/health consciousness
- increasing religious/spiritual awareness
- 'chutneys' – hand-made goods
- authenticity
- increasing risk aversion
- increasing awareness of sustainability/environmental issues
- Internet shopping/delivery of consumables
- desire for 'little luxuries' – affordably expensive rewards
- highly aspirational materialistic lifestyles ('I-want-more' culture)
- increasing desire to simplify a complex world
- desire for more convenience in mundane tasks
- rising power and influence of female
- disappearance of Mr/Mrs 'Average' – desire for individuality
- desire for 'cocooning' (nest-building)
- higher expectations as customer/greater inclination to complain
- 'Big Mother'



The Political Brain



THE ROLE OF EMOTION IN DECIDING THE FATE OF THE NATION

Karma Queens,  
**GEEK GODS**  
& Innerpreneurs

Meet the 9 Consumer Types Shaping Today's Marketplace



RON RENTEL  
WITH JOE ZELNIK

THE HUMMER  
AND  
THE MINI



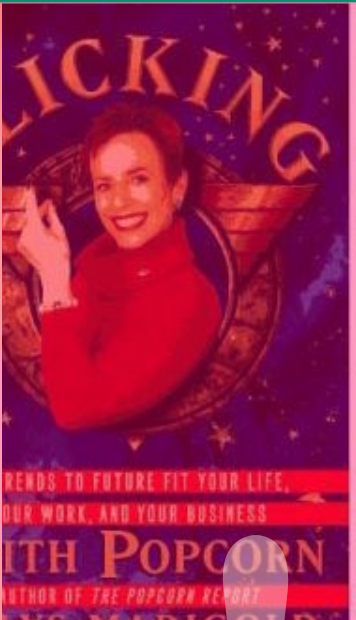
NAVIGATING  
THE CONTRADICTIONS  
OF THE NEW  
TREND LANDSCAPE

ROBYN WATERS  
Author of The Trendmaster's Guide  
Former Vice President of Trend, Design,  
and Product Development at Target

Surprising tales of the way we live today



**PICKING**



TRENDS TO FUTURE FIT YOUR LIFE,  
YOUR WORK, AND YOUR BUSINESS

WITH **POPCORN**

AUTHOR OF THE POPCORN REPORT  
VS. MARGOLIN

**Megatrends**

Ten New  
Directions  
Transforming  
Our Lives

Updated  
Especially for this Edition!  
With a New Introduction

**John Naisbit**

**TRENDS**

from Central Saint Martins  
Edited by Robin Taylor  
2009/10

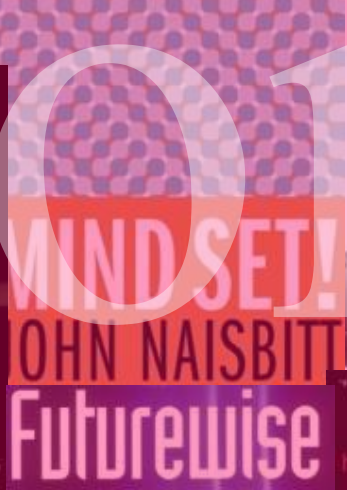


secrets

**MIND SET!**

JOHN NAISBIT

**Futurewise**  
Six Faces of Global Change



... fascinating ... fun!  
Independent

The  
Trendmaster's  
Guide  
Get a Jump  
on What  
Will Happen  
Next  
by  
Robyn Waters



MARIAN SALZMAN  
IRA MATATHIA

**NEXT**

TRENDS FOR THE FUTURE

**NOW**

**MEGATREND**  
ASIA

GLOBAL  
TRENDS  
BY JOHN NAISBIT  
AND GUY SHERIDAN

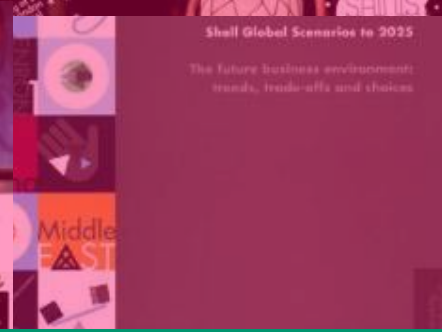
John Naisbit

**Learning**  
FROM THE  
FUTURE



Shell Global Scenarios to 2025

The future business environment:  
trends, trade-offs and choices



Middle  
East

1 ast  
2 rban  
3 ribal  
4 niversal  
5 adical  
6 thical

he extreme future

THE TOP TRENDS  
THAT WILL RESHAPE  
THE WORLD  
IN THE NEXT  
20 YEARS

JAMES CANTON, Ph.D.  
CEO and Chairman, Institute for Global Futures

THE  
**SCENARIO  
PLANNING**  
HANDBOOK





# I-Want-It-Now/Life-On-Credit

The existence of easy credit means that many people have switched their spending philosophy from 'buy after I saved' to 'buy-now, pay-later'. The average personal credit card debt in many nations now exceeds 6 months of salary.



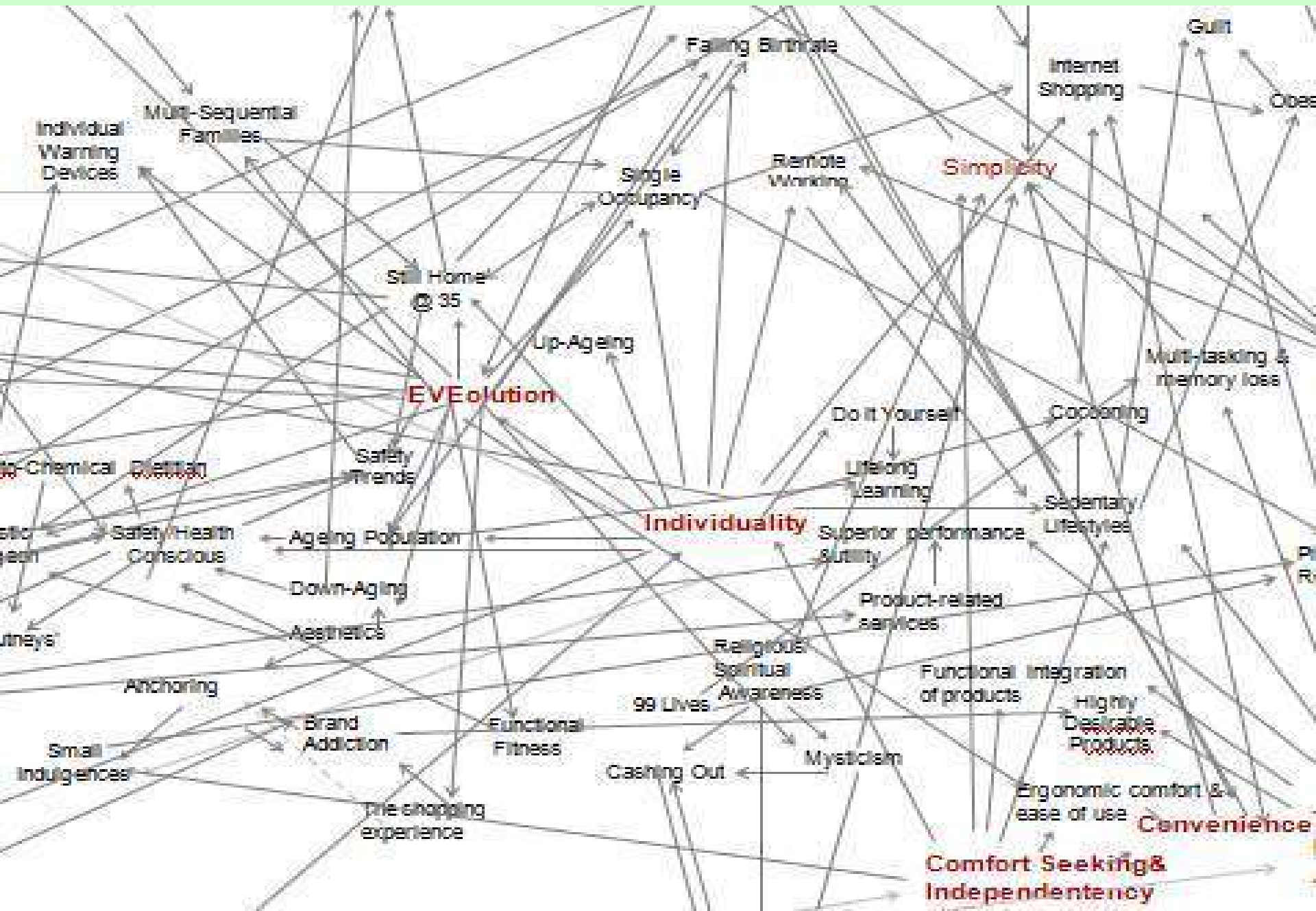
## Re-enforcing Trends

- Convenience
- Cocooning
- Individuality
- Brand Addiction
- Little Luxuries
- Internet Shopping
- Ms Independent

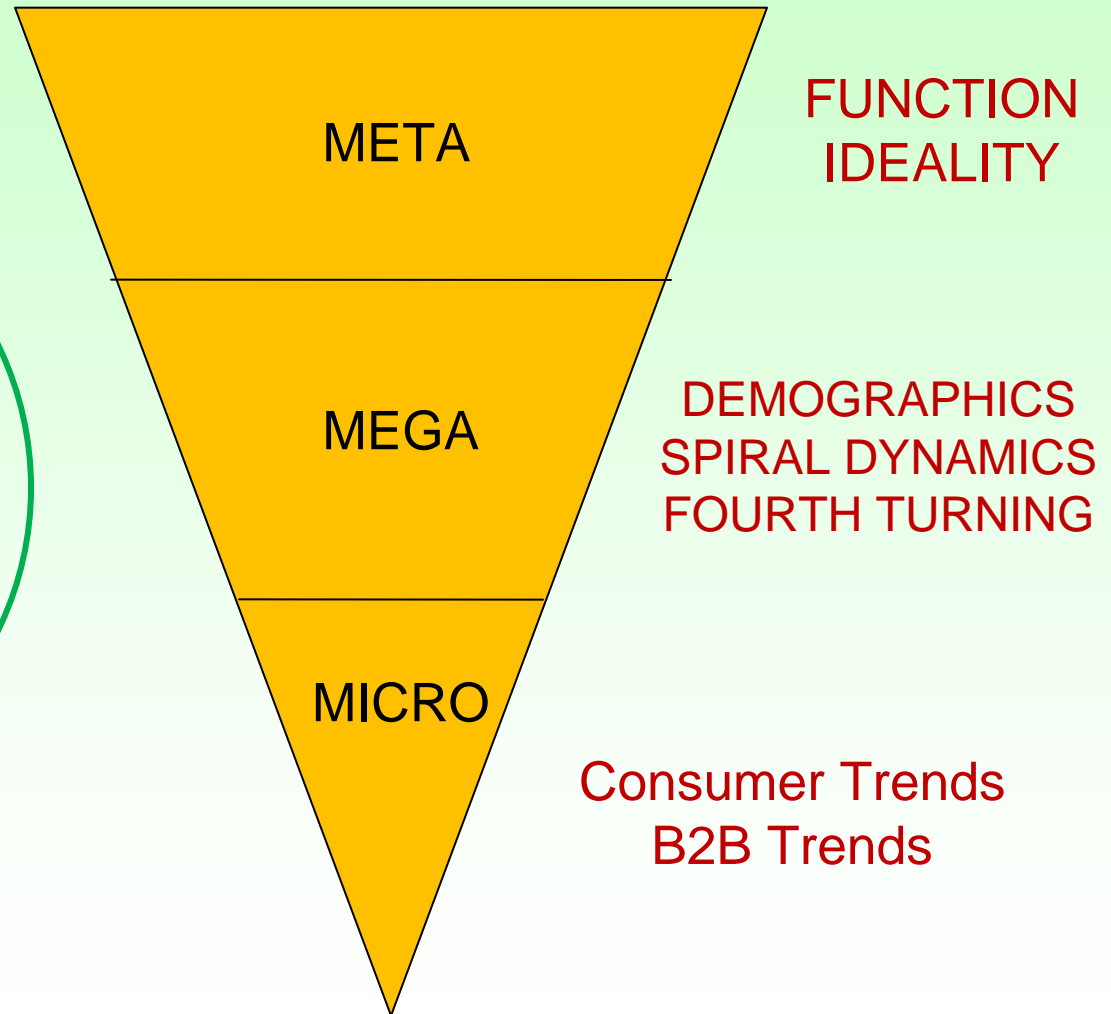
## Contradicting Trends

- Guilt
- Spiritual Life
- Save Our Society
- TechnoFear
- Anti-sumers
- X-anonymous
- Opting Out
- Hyper-Local

# Everything Connected To Everything Else



# Maps Of The World



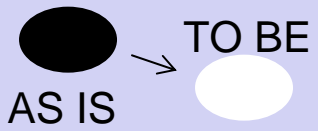
# Maps Of The World

PEOPLE TRENDS

SPIRAL DYNAMICS  
& GENERATIONS

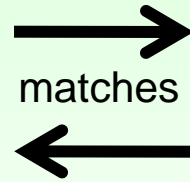
DEMOGRAPHICS

FUNCTION  
PERFECTION



# Innovation Happens When....

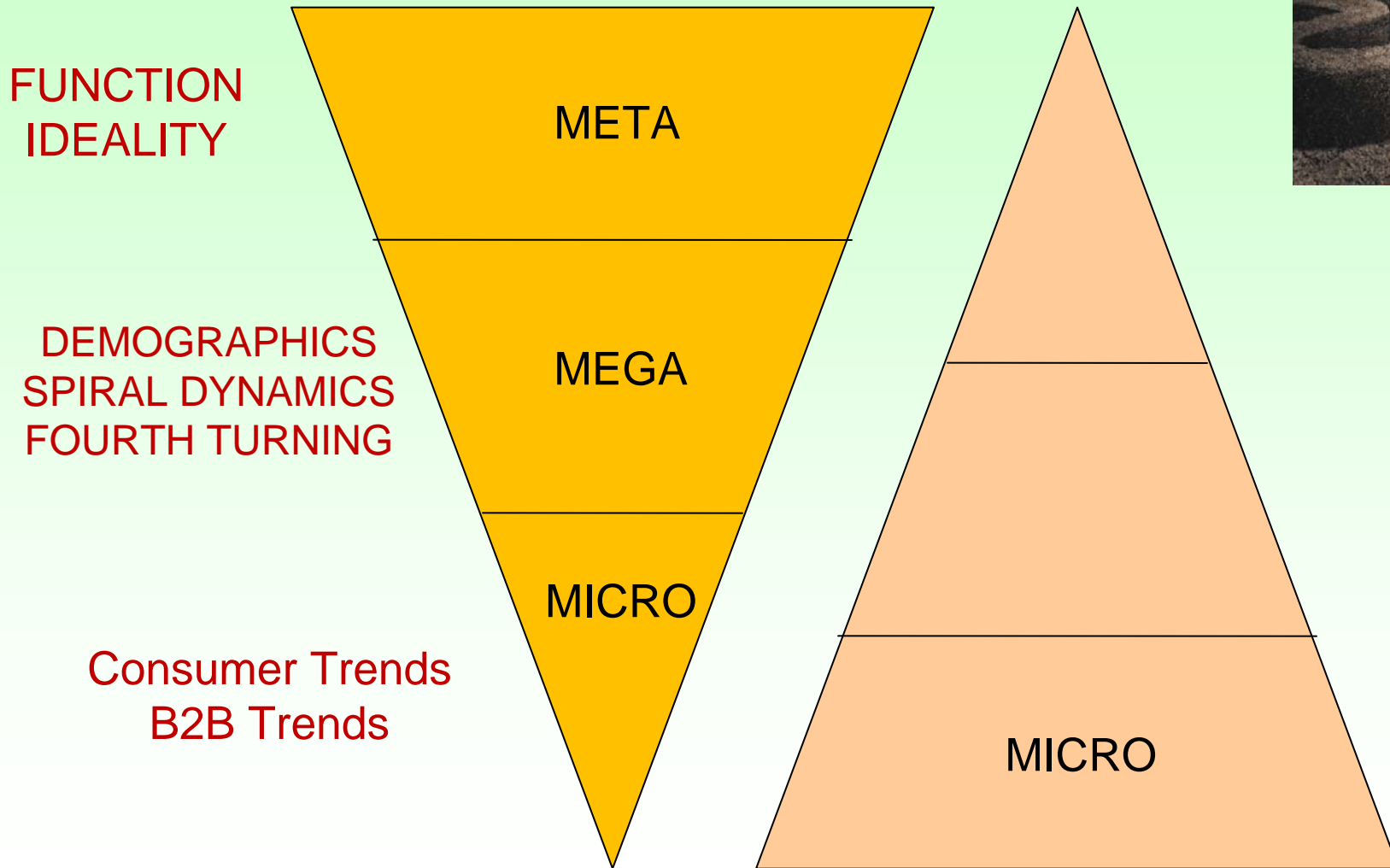
**Voice  
Of The  
Customer**



**Voice  
Of The  
System**



# Maps Of The World



FUNCTION  
IDEALITY

META

MEGA

MICRO

DEMOGRAPHICS  
SPIRAL DYNAMICS  
FOURTH TURNING

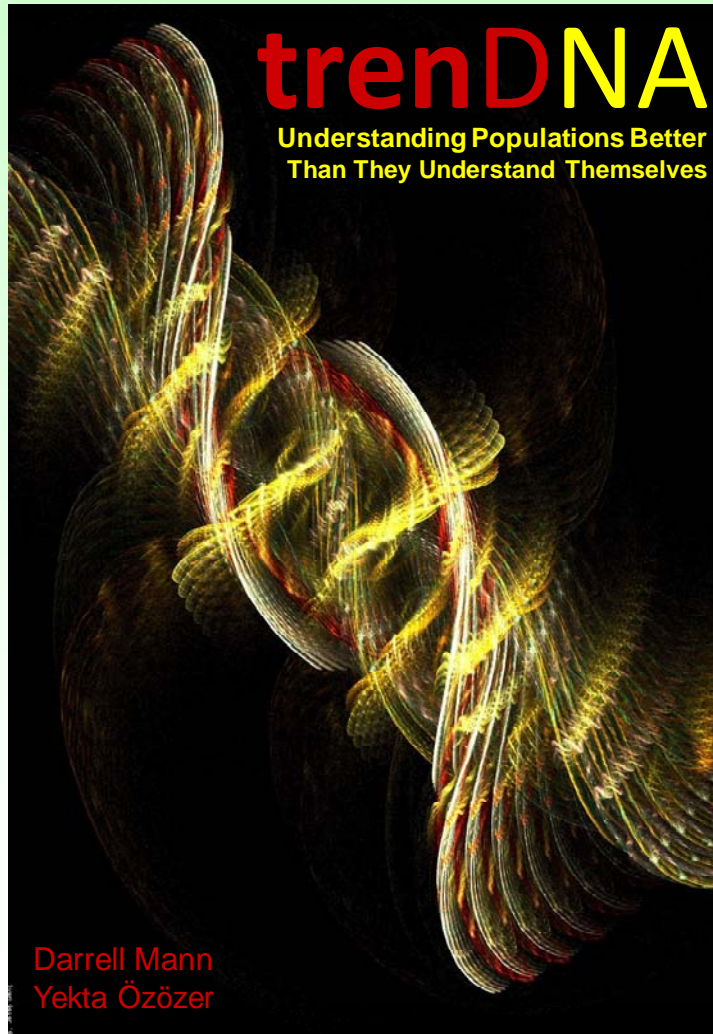
Consumer Trends  
B2B Trends

MICRO

Identifies **CONTRADICTION** .... Solves it



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