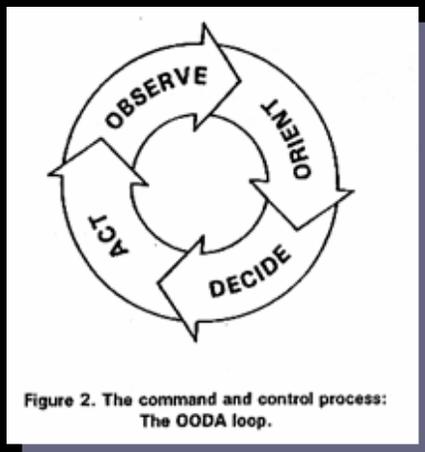


A Discourse on Winning And Losing



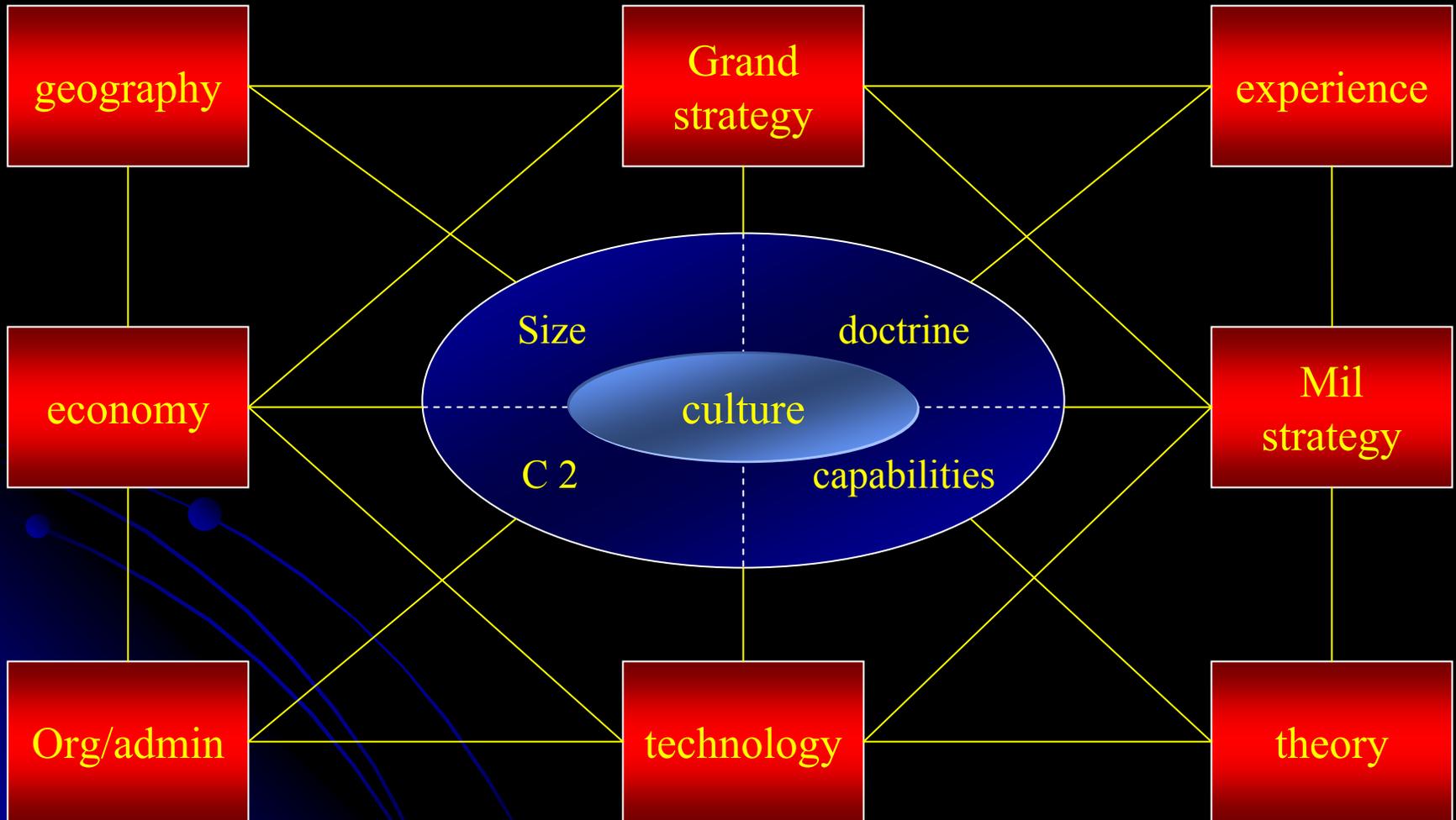
Core ideas & Themes Of



Boyd's 'Theory of intellectual evolution and growth'

Col Dr. Frans Osinga
AWC Sept 25, 2007

Innovation drivers (or not)



Innovation drivers (Murray/Millett)

Deep – shallow
Revolutionary – evolutionary
Incidental – structured/institutionalized
Short term – long term

Context	technological change	Strategy
procedures	operational change	operations
equipment	technical change	tactics

It is more important to make correct decisions at the political and strategic level than it is at the operational and tactical level...
political and strategic mistakes live forever....

some insights on innovation

- Neoliberalism (Posen) is only partly right: threat, competition, power position rules in part, for some more than for others
 - Change in threat is not sufficient condition for the military to undertake change
 - Internal factors matter perhaps more than external factors: domestic politics and bureaucratic warfare (interservice rivalry)
- Failure does not always lead to innovation, but to more failure (Cyert/March)
- Caveats on techno innovation
 - Victory does not necessarily imply the vindication of recent technological innovation
 - Technology diffuses fast so others will follow quickly (E.O. Goldman)
 - Civilian technology may matter more than military technology
 - Technology is just one dimension of strategic advantage, and perhaps the least important one (Gray)
 - Technological innovation is easier than adapting doctrine, culture and organization accordingly, and those matter much more (Murray)
 - Technological enthusiasm may not bring expected operations benefits (Demchak, O'Hanlon)
 - There are adaptive enemies (Scales) and they consistently beat conventional forces (van Creveld, Lind, Hammes)
 - Technological novelty matters less than its social consequences, the political, the strategic and operational realities: context rules (as does Clausewitz) (Gray)

And some more

- Domestic and strategic culture may inhibit change (Farrell) (JSF or Eurofighter?, war or peacekeeping?)
- The US is not the rest: there are different ways to be effective and relevant
- States may undertake military change for reasons of identity, legitimacy or prestige rather than improve military effectiveness (which may or may not cohere with actual strategic needs)
- Emulation may be rational or not
- Lack of emulation by others may indicate lead nation is wrong, or too far ahead, or may imply risk of overdependence (Farrell/Terriff)
- Innovation may be rational in particular from a service specific perspective
- Organizations resist change
 - No/insufficient civilian intervention and incentives
 - things are fine
 - Operations take priority
 - Interservice rivalry
 - Service biases/parochialism
 - Vested interests, programs, career paths, missions
 - Service identity
 - Bureaucratic politics
 - Service culture (permissive to bottom up initiatives?)

prerequisites for real innovation

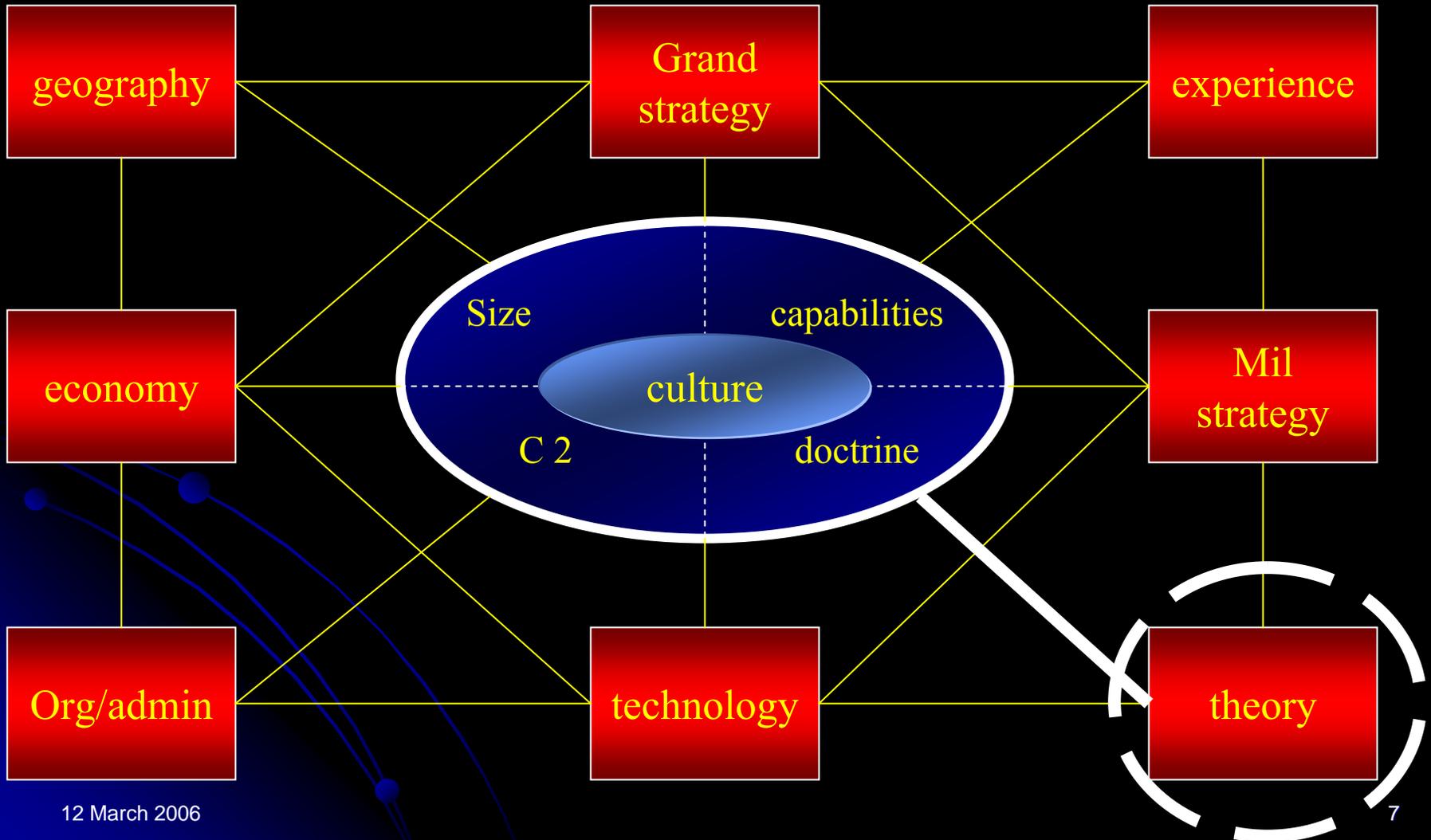
(Murray/Millett/MacGregor Knox)

- **Open debate**
- **Deliberate study**
- **Critical thought/analysis**
- **No doctrinal rigidity**
- **PME**
- **Culture of innovation**
- **Clear institutional conceptions and interest in developing a new form of war**
- **Failure tolerant**
- **Specific mil. Problem**
- **Techo + doctrine**

No institutional rigidity/bias

against feedback that contradicts doctrine, conceptions or existing force structures

Innovation drivers (or not)



What people think he meant

- Get inside OODA loop
- Decision cycle
- C2 process
- Decide & act quicker
- Disrupt info flow
- Take out C2

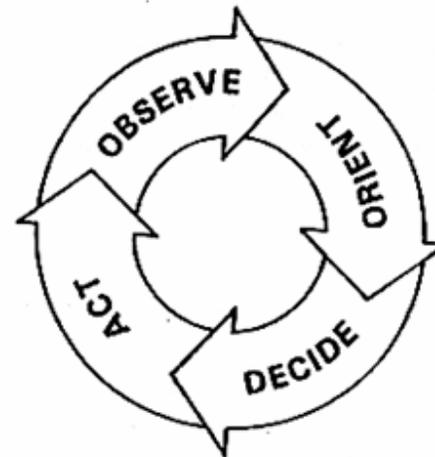
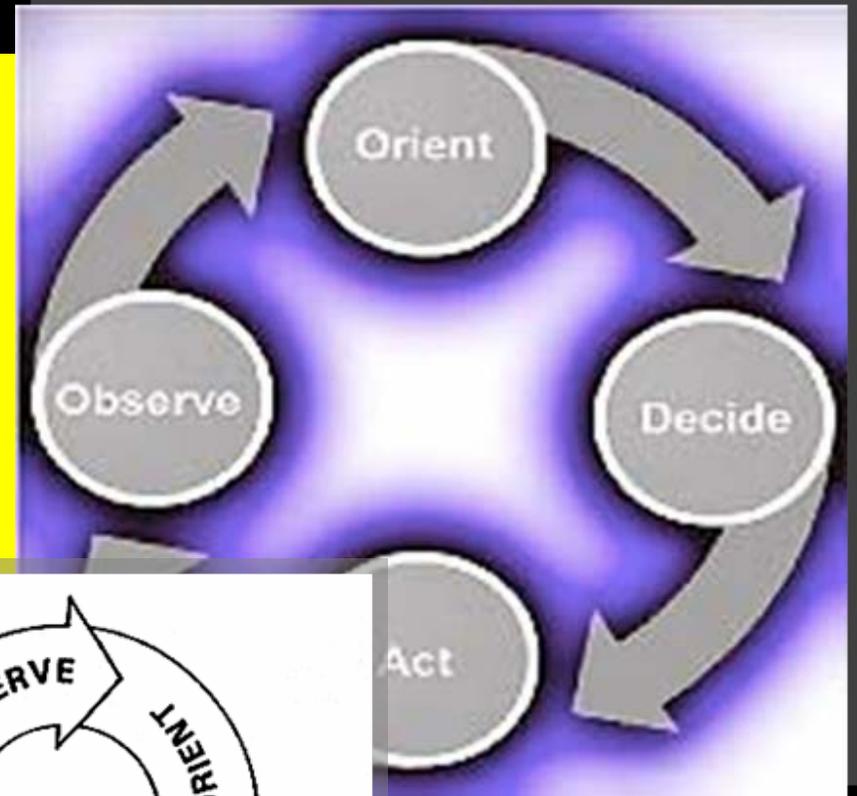
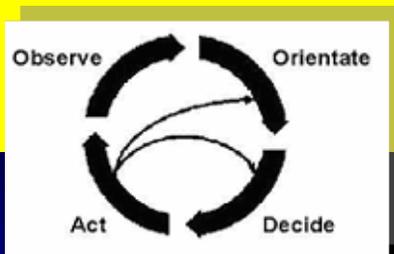


Figure 2. The command and control process:
The OODA loop.

First improvement: what goes on before the OODA loop

- Vehicle of his ideas: A Discourse
 - **Essay *Destruction and Creation***
 - ***A New Conception for Air to Air Combat***
 - ***Patterns of Conflict***
 - ***Organic Design for Command & Control***
 - ***Strategic game of ? & ?***
 - ***Conceptual spiral***
 - ***The Essence of Winning and Losing***

- **A Discourse is:**
 - An epistemological investigation
 - A military history & search for patterns of winning and losing
 - An argument against
 - attritionist mindset
 - Against predictability
 - Techno fetishism
 - A philosophy for command and control
 - A redefinition of strategy
 - A search for the essence of strategic interaction
 - A plea for organizational learning and adaptability
 - An argument on strategic thinking

Second improvement: the formative factors; a fertile ground

- Post Vietnam turbulence
 - US Army & Marine Corps
 - Low morale
 - Trauma of defeat
 - End of conscription
 - Refocus on conventional ops Europe
 - Often outnumbered
 - Need for new doctrine/identity
 - Carter/Reagan era
 - Surprise Yom Kippur/Afghanistan
 - Techno spending up
 - Spiraling costs
- US strat culture (Gray, 1986)
 - Indifference to history
 - Engineering style
 - Technical fix
 - Impatience
 - Blindness to cultural differences
 - Indifference to strategy
 - Evasion of politics
 - Resort to force
 - Jominian
 - Emphasis on the technical and logistical rather than the politically well informed and and operational agile

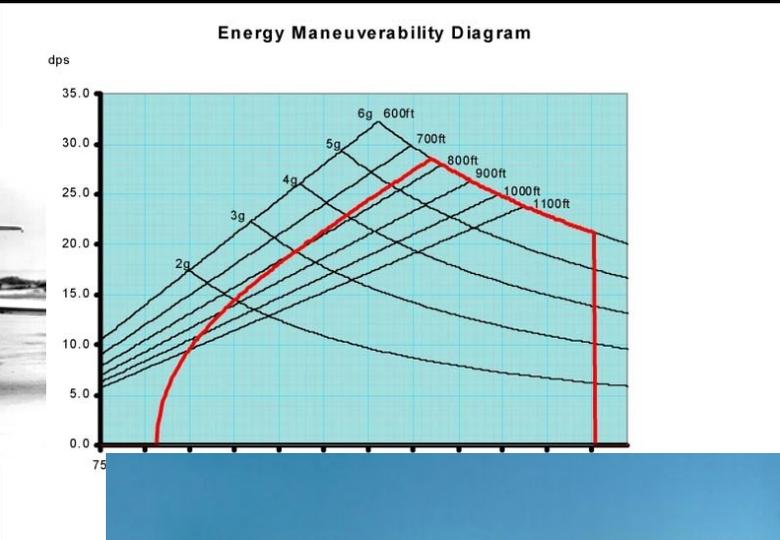
Focus on intangibles, leadership, morale
Back to operational art; beyond tactics
Critique of managerial mindset & attritionist approach
& Techno-fetishism & ever rising complexity

Deep Intellectual/doctrinal innovation vs shallow technological innovation

Mind over matter

Second improvement: the formative factors

- Fighter background



NEW CONCEPTION

Action

Exploit operations and weapons that:

- Generate a rapidly changing environment (quick-clear observations, orientation and decisions, fast tempo, fast transient maneuvers, quick kill)
- Inhibit an adversary's capacity to adapt to such an environment (cloud or distort his observations, orientation, and decisions)

Idea

- Simultaneously compress own time and stretch-out adversary time to generate a favorable mismatch in time/ability to shape and adapt to change.

Goal

Collapse adversary's system into confusion and disorder by causing him to over and under react to activity that appears simultaneously menacing as well as ambiguous, chaotic or misleading.

IMPRESSION

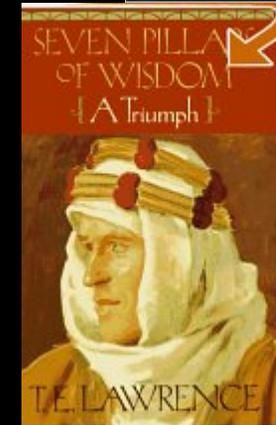
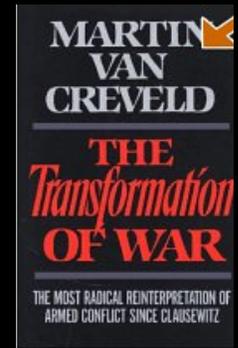
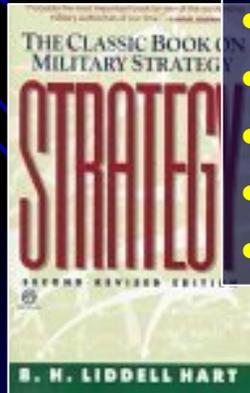
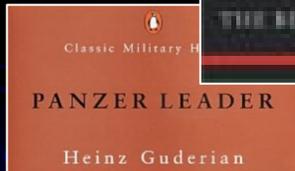
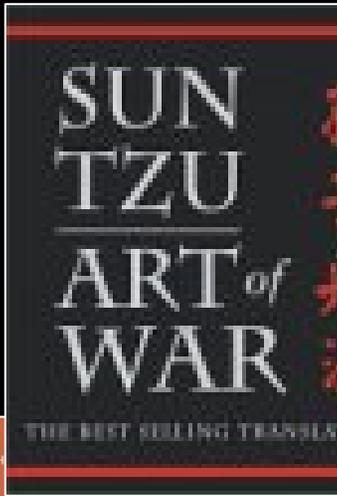
- In examining these many points of view one is bombarded with the notion that:
 - It is advantageous to possess a **variety of responses** that can be applied rapidly to gain sustenance, avoid danger, and diminish adversary's capacity for independent action.
 - The simpler organisms - those that make-up man as well as man working with other men in a higher level context - must cooperate or, better yet, **harmonize their activities** in their endeavors to survive as an organic synthesis.
 - To **shape and adapt to change one cannot be passive**; instead one must take the **initiative**.
- Put more simply and directly: the above comments leave one with the impression that **variety/rapidity/harmony/initiative** (and their interaction) seem to be key qualities that permit one to shape and adapt to an ever-changing environment.
- With, this impression in mind together with our notion of getting inside an adversary's O-O-D-A loop we will proceed in our historical investigation.

So not just rapid OODA

Second improvement: the formative factors

- Existing strategic theory

- Dispersion & Concentration
- Surprise & Deception
- Friction & uncertainty
- Shock & paralysis
- Avoid battle & Speed
- Unpredictability & Maneuver
- Schwerpunkte & Nebenpunkte
- Mission command & leadership
- Harmony & Initiative
- Morale and cohesion
- Action & reaction
- Variety & predictability
- Intuition & method
- Linear & non-linear
- Western & non-western
- Conventional & irregular



Historical Pattern

Carl von Clausewitz - 'on war' 1832

Critique

- Clausewitz over-emphasized Decisive Battle and under-emphasized Strategic Maneuver.
- Clausewitz emphasized method and routine at the tactical level.

Why?

- Clausewitz was concerned with trying to overcome, or reduce, friction/uncertainty. He failed to address the idea of magnifying adversary's friction/uncertainty.
- Clausewitz was concerned with trying to exhaust adversary by influencing him to increase his expenditure of effort. He failed to address, or develop, the idea of trying to paralyze adversary by denying him to opportunity to expend effort.
- Clausewitz incorrectly stated: 'a center of gravity is always found where the mass is concentrated most densely' - then argued that this is the place where the blows must be aimed and where the decision should be reached. He failed to develop idea of generating many non-cooperative centers of gravity by striking at those vulnerable, yet critical, tendons, connections, and activities that permit a larger system center of gravity to exist.

? Raises Question?

What does all this mean?

IMPACT OF 19TH CENTURY TECHNOLOGY ON WAR

Defense prevails over offense

Key Ingredients

- Railroad/Telegraph
- Quick Fire Artillery
- Machine Gun
- Repeating Rifle
- Barbed Wire
- Trenches

Early Trends

- Emphasis toward massed firepower and large armies supported by rail logistics.
- Increased emphasis on a holding defense and flanking or wide turning maneuvers into adversary rear to gain a decision.
- Continued use of frontal assaults by large stereotyped infantry formations (e.g. regiments, battalions), supported by artillery barrages, against regions of strong resistance.

Result

Huge armies, and massed firepower and other vast needs supported through a narrow fixed logistics network, together with tactical assaults by large stereotyped formations, **suppressed ambiguity, deception, and mobility hence surprise of any operation**

physical

cognitive

ESSENCE OF ATTRITION WARFARE

Create and Exploit

- Destructive Force:
Weapons (mechanical, chemical, biological, nuclear, etc.) that kill, maim, and/or other wise generate widespread destruction.
- Protection:
Ability to minimize the concentrated and explosive expression of destructive force by taking cover behind natural or manmade obstacles, by dispersion of people and resources, and by being obscure using camouflage, smoke, etc., together with cover and dispersion.
- Mobility
Speed or rapidity to focus destructive force of move away from adversary's destructive focus

Payoff

- Frightful and debilitating attrition via widespread destruction as basis to:
 - Break enemy's will to resist
 - Seize and hold terrain objectives

Aim

Compel enemy to surrender and sue for peace

World War I

A way out

Idea

- Infiltration Tactics

- Guerrilla Tactics

Authors

Capt. Andre Laffargue

Gen von. Hutier?

Gen. Ludendorff

T.E. Lawrence

Paul von Lettow/Vorbeck

HISTORICAL PATTERN

SUN TZU - The art of war - Around 400 BC

Theme

- Harmony
- Deception
- Swiftness-of-Action
- Fluidity-of-Action
- Dispersion/Concentration
- Surprise
- Shock

Strategy

- Probe enemy's organization and dispositions to unmask his strengths, weaknesses, patterns of movement and intentions
- 'Shape' enemy's perception of world to manipulate his plans and actions
- Attack enemy's plans as best policy. Next best disrupt his alliances. Next best attack his army. Attack cities only when there is no alternative.
- Employ Cheng and Ch'I maneuvers to quickly and unexpectedly hurl strength against weaknesses.

Desired Outcome

- Subdue enemy without fighting
- Avoid protracted war

WHICH LEAD TO:

Logic trail

Essence of Blitzkrieg

Employ a Nebenpunkte/Schwerpunkt maneuver philosophy to generate ambiguity, realize deception, exploit superior mobility, and focus violence as basis to quickly:

- Create many opportunities to penetrate weaknesses in the form of any moral or mental inadequacies as well as any gaps or exposed flanks that open into adversary's vulnerable rear and interior, hence -
- Create and exploit opportunities to repeatedly penetrate adversary organism, at all levels (tactical, grand tactical, and strategic) and in many ways, in order to splinter, envelop, and roll-up/wipe-out isolated remnants, thereby generate confusion and disorder, hence -
- Create and exploit opportunities to disrupt his system for communication, command, and support, as well as undermine or seize those connections or centers that he depends upon, thus shake his will or capacity to decisively commit his back-up echelons, operational reserves, and/or strategic reserves, thereby magnify adversary's confusion and disorder and convince him to give up.

Intent

- Create grand tactical success then exploit and expand it into strategic success for a decisive victory

Implication

- Blitzers, by being able to infiltrate or penetrate or get inside adversary's system, **generate many moral-mental-physical non-cooperative (or isolated) centers of gravity**, as well as undermine or seize those centers of gravity adversary depends upon, **in order to magnify friction, produce paralysis, and bring about adversary collapse.**

Connection physical-mental-moral

&

Individual-group-command

Modern Guerrilla Campaign

Essence

- **Capitalize on corruption, injustice, incompetence**, etc. (or their appearances) as basis to **generate atmosphere of mistrust and discord** in order to sever moral bonds that bind people to existing regime.

Simultaneously

- **Share existing burdens with people** and work with them to root out and punish corruption, remove injustice, eliminate grievances, etc., as basis to **form moral bonds** between people and guerrillas in order to bind people to guerrilla philosophy and ideals.

Intent

- Shape and exploit crises environment that permits guerrilla vanguards or cadres to pump-up guerrilla resolve, attract the uncommitted, and drain-away adversary resolve as foundation to replace existing regime with guerrilla regime.

Implication

- Guerrillas, by being able to penetrate the very essence of their adversary's moral-mental-physical being, generate many ~~moral-mental-physical non-cooperative (or isolated) centers of gravity~~, as well as subvert or seize those centers of gravity that adversary regime must depend upon, in order to **magnify friction, produce paralysis, and bring about collapse.**

Similar to Blitzkrieg

Yet,

- **Guerrillas shape or influence moral-mental-physical atmosphere** so that potential adversaries, as well as the uncommitted, are drawn toward guerrilla philosophy and are empathetic toward guerrilla success.

**Positive
&
negative**

Modern Guerrilla Campaign

Key to Success

- Ability to continuously demonstrate government weakness, erode government influence, and cause government to alienate itself from people.
- Support of people (both psychological and physical) for intelligence, recruits, shelter, transportation, refuge, food, money, and medical aid.
- Access to (more or less permanent) safe sanctuaries or base areas and/or fluid bases that can be shifted from place to place, away from enemy forces - in order to rest, recuperate, repair materiel, etc., as well as indoctrinate, train, and equip recruits. people.
- Use of stealth/fast-tempo/fluidity-of-action coupled with cohesion of guerrilla bands as basis for:
 - dispersion, to arouse people, to avoid adversary strength, and to force government to thin-out, or disperse, its strength;
 - concentration, to hit and wipe-out isolated fractions;
 - shifting of effort (in these as well as other activities), in order to gain and keep initiative

Unique & novel
synthesis

Blitz/Guerrilla Theme

Essence

- Avoid battles - instead penetrate adversary to **subvert, disrupt, or seize those connections, centers, and activities that provide cohesion** (e.g., psychological/moral bonds, communications, lines of communication, command and supply centers,....)
- **Exploit ambiguity, deception, superior mobility, and sudden violence to generate initial surprise and shock followed by surprise and shock again, again, again.....**
- Roll-up/wipe out the isolated units or remnants created by the subversion, surprise, shock, disruption, and seizure.

Intent

Exploit subversion, surprise, shock, disruption, and seizure to generate confusion, disorder, panic, etc., thereby **shatter cohesion, paralyze effort, and bring about adversary collapse.**

Message

•Blitz and Guerrillas, by being able to operate in a **directed, yet more indistinct, more irregular, and quicker** manner than their adversaries, can:

•Repeatedly **concentrate or disperse more inconspicuously** and/or more quickly from or to lower levels of distinction (organizational, operational, and environmental) **without losing internal harmony**, as well as,

•Repeatedly and unexpectedly infiltrate or penetrate adversaries' vulnerabilities and weaknesses in order to **splinter, isolate or envelop, and overwhelm disconnected remnants** of adversary organism.

Or put another way

•Blitz and Guerrillas, by operating in a **directed, yet more indistinct, more irregular, and quicker manner**, operate inside their adversaries' observation-orientation-decision-action loops or get inside their mind-time-space as basis to penetrate the moral-mental-physical being of their adversaries in order to pull them apart, and bring about their collapse.

Underlying idea

•Such **amorphous, lethal, and unpredictable activity** by Blitz and Guerrillas make them appear **awesome and unstoppable** which altogether produce **uncertainty, doubt, mistrust, confusion, disorder, fear, panic,...** and **ultimately collapse** - a notion implied by Sun Tzu around 400 B.C. and more recently by J.F.C. Fuller after observing the impact of Ludendorff's infiltration tactics in 1918.

**So much more than just
Rapid oda looping
& info superiority**

On pattern recognition and mismatches

4 Information coping mechanisms

Editing or elimination by aspects.
Decomposition.
Pattern Recognition (I've seen him do this before).
Framing.

4 Cognitive Decision Rules

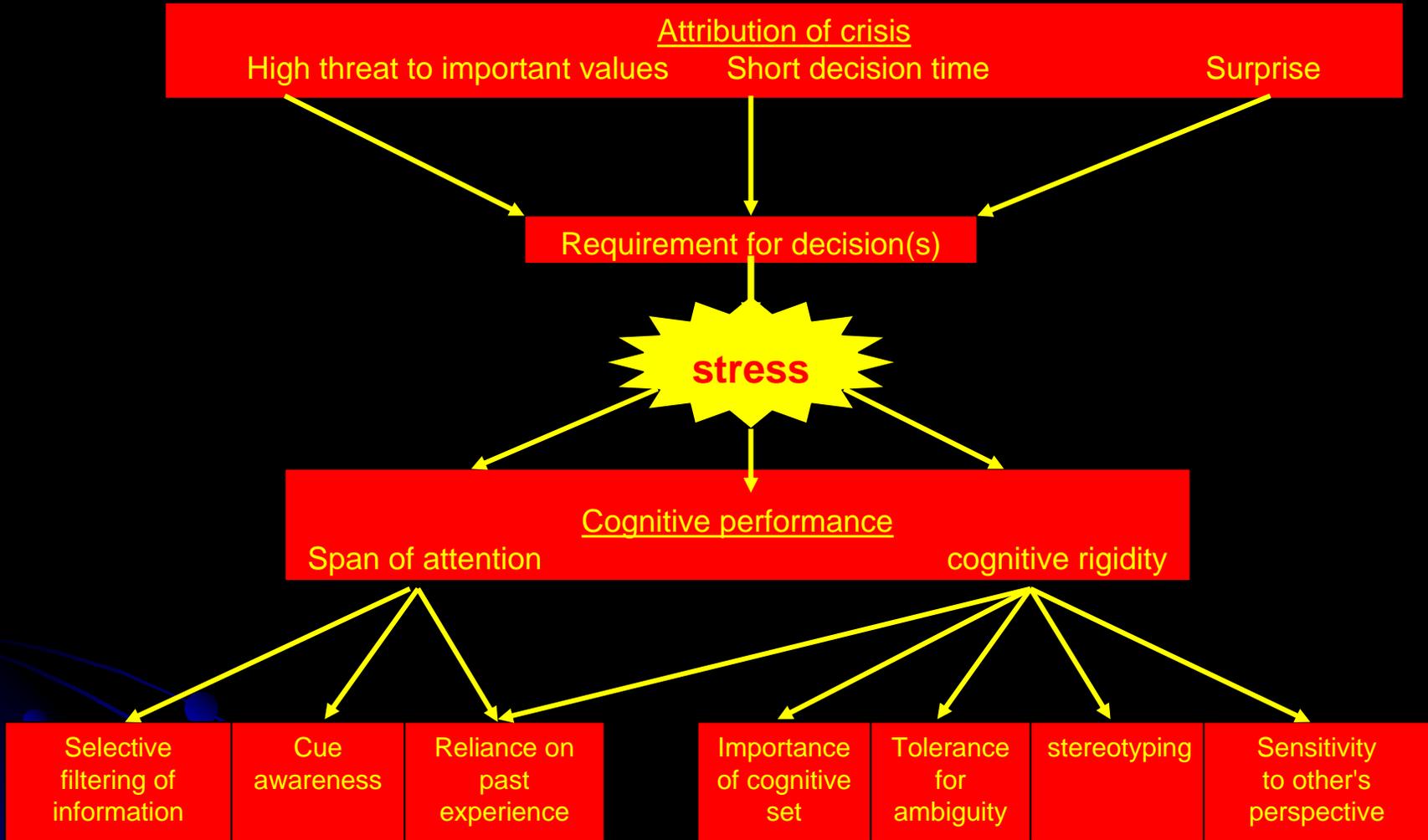
Satisficing (follow SOPs).
Analogizing (it looks like...).
Incrementalism (lets stick to the plan and change it a little).

3 Perceptual Biases

Conditioning of expectations (you see what you expect to see).
Resistance to change (it will take a lot of info to prove you're wrong).
Impact of ambiguity (ambiguous info prolongs the situation)

3 Cognitive Biases

Attribution of causality (it must be caused by this obvious fact)
Estimation of probability: *availability bias, anchoring bias, overconfidence bias*
Evaluation of evidence (what we know must be right).



ESSENCE OF MANEUVER CONFLICT

Create, Exploit and Magnify

- Ambiguity

Alternative or competing impressions of events as they may or may not be.

- Deception

An impression of events as they are not.

- Novelty

Impressions associated with events/ideas that are unfamiliar or have not been experienced before.

- Fast Transient Maneuvers

Irregular and rapid/abrupt shift from one maneuver event/state to another

- Effort (Cheng/Ch'I or Nebenpunkte/Schwerpunkte

an expenditure of energy or an irruption of violence - focused into, or thru, features that permit an organic whole to exist.

Payoff

- Disorientation

Mismatch between events one observes or imagines and events (or efforts) he must react or adapt to.

- Disruption

State of being split-apart, broken-up or torn asunder.

- Overload

A welter of threatening events/efforts **beyond one's mental or physical capacity to adapt or endure.**

Focus = mental

Aim

• Generate many non-cooperative centers of gravity, as well as disorient, disrupt or overload those that adversary depend upon, in order to magnify friction, shatter cohesion, produce paralysis, and bring about his collapse.

Or equivalently

• Uncover, create and exploit many vulnerabilities and weaknesses, hence many opportunities, to pull adversary apart and isolate remnants for mop-up or absorption

OBSERVATIONS REGARDING MANEUVER

- Ambiguity, deception, novelty, mobility, and violence (or threat thereof) are used to generate surprise and shock.
- Fire and movement are used in combination, like Cheng/Ch'I or Nebenpunkte/Schwerpunkt, to tie-up, divert, or drain-away adversary attention and strength in order to expose as well as menace and exploit vulnerabilities or weaknesses elsewhere.
- Indications of success tend to be qualitative and are related to the widespread onset of confusion and disorder, frequent envelopment's, high prisoner counts, or any other phenomena that suggests inability to adapt to change.



Mental & moral effects
Result in physical effects

ESSENCE OF MORAL CONFLICT

Create, Exploit and Magnify

- Menace:
impressions of danger to one's well being and survival
- Uncertainty:
Impressions or atmosphere, generated by events that appear ambiguous, erratic, contradictory, unfamiliar, chaotic, etc.
- Mistrust:
Atmosphere of doubt and suspicion that loosens human bonds among members of an organic whole or between organic wholes.

Idea

- Surface, fear, anxiety and alienation in order to generate many non-cooperative centers of gravity, as well as subvert those that adversary depends upon, thereby magnify internal friction.

Focus = moral

Aim

Destroy moral bonds that permit an organic whole to exist.

ESSENCE OF MORAL CONFLICT

Negative Factors

- Menace
impressions of danger to one's well-being and survival.
- Uncertainty:
Impressions, or atmosphere, generated by events that appear ambiguous, erratic, contradictory, unfamiliar, chaotic, etc.
- Mistrust:
Atmosphere of doubt and suspicion that loosens human bonds among members of an organic whole or between organic wholes.

Counterweights

- Initiative
Internal drive to think and take action without being urged
- Adaptability
Power to adjust or change in order to cope with new or unforeseen circumstances
- Harmony
Interaction of apparently disconnected events or entities in a connected way.

Aim

* Pump-up friction via negative factors to breed fear, anxiety and alienation in order to generate man non-cooperative centers of gravity, as well as subvert those that adversary depend upon, thereby sever moral bonds that permit adversary to exist as an organic whole

Simultaneously

* Build up and play counterweights against negative factors to diminish internal friction, as well as surface courage, confidence and esprit thereby make possible the human interactions needed to create moral bonds that permit us, as an organic whole, to shape and adapt to change.

PATTERN FOR SUCCESSFUL OPERATIONS

GOAL

- Diminish adversary's freedom-of-action while improving our freedom-of-action, so that our adversary cannot cope while we can cope with events/efforts as they unfold.

PLAN

- Probe and test adversary to understand strengths, weaknesses, maneuvers, and intentions
- **Employ a variety of measures that interweave menace-uncertainty-mistrust with tangles of ambiguity-deception-novelty as basis to sever adversary's moral ties and disorient or twist his mental images, hence mask-distort-magnify our presence and activities**
- Select initiative (or response) that is least expected
- Establish focus of main effort together with other (related) effort and pursue directions that permit many happenings, offer many branches, and threaten alternative objectives
- Move along paths of least resistance (to reinforce and exploit success)

Pattern recognition/mismatches

Focus
Mental & moral

- Exploit, rather than disrupt or destroy, those differences, frictions, obsessions etc., of adversary organism that interfere with his ability to cope with unfolding circumstances.
- Subvert, disorient, disrupt, overload, or seize adversary's vulnerable, yet critical, connections, centers, and activities that provide cohesion and permit coherent observation-orientation-decision-action in order to dismember organism and isolate remnants for absorption or mop-up

Pattern recognition/mismatches

ACTION

- Observe-orient-decide-act more inconspicuously, more quickly and with more irregularity as basis to keep or gain initiative as well as shape and shift main effort: to repeatedly and unexpectedly penetrate vulnerabilities and weaknesses exposed by that effort or other effort(s) that tie-up, divert, or drain-away adversary attention (and strength) elsewhere

SUPPORT

- Superior mobile communications
- Only essential Logistics

To maintain cohesion of overall effort and sustain appropriate pace of operations within available resources.

IMPRESSIONS

- Plan and Action statements suggest that we are trying to:
 - Penetrate adversary system and mask own system against his penetration;
 - **Create a variety of impressions** of what is occurring and what is about to occur;
 - **Generate mismatches** between what seems to be and what is;
 - **Push adversary beyond his ability to adapt.**
- Intentions that make-up Plan cannot happen without application of transients that make-up Action.

THEME FOR DISINTEGRATION AND COLLAPSE

- Lethal effort:

Tie-up, divert, or drain way adversary attention and strength as well as (or thereby) overload critical vulnerabilities and generate weaknesses.

- Maneuver:

Subvert, disorient, disrupt, overload, or seize those vulnerable yet critical connections, centers, and activities as basis to penetrate, splinter, and isolate remnants of adversary organism for mop-up or absorption.

- Moral:

Create an atmosphere of fear, anxiety, and alienation to sever human bonds that permit an organic whole to exist.

Idea

- Destroy adversary's moral-mental-physical harmony, produce paralysis, and collapse his will to resist.

Aim

Render adversary powerless by denying him the opportunity to cope with unfolding circumstances

THEME FOR VITALITY AND GROWTH

Unifying Vision

- A grand ideal, overarching theme or noble philosophy that represents a coherent paradigm within which individuals as well as societies can shape and adapt unfolding circumstances - yet offers a way to expose flaws of competing or adversary systems.

Ingredients Needed to Pursue Vision

- * Insight
Ability to peer into and discern the inner nature or workings of things
- * Initiative
Internal drive to think and take action without being urged
- * Adaptability
Power to adjust or change in order to cope with new or unforeseen circumstances
- * Harmony
Power to perceive or create interaction of apparently disconnected events or entities in a connected way.

Aim

Improve fitness as an organic whole to shape and expand influence or power over the course of events in the world

UNDERLYING INSIGHT

Unless one can penetrate adversary's moral-mental-physical being, and sever those interacting bonds that permit him to exist as an organic whole, subvert shatter, seize those moral-mental-physical bastions, connections, or activities that he depends upon, one will find it exceedingly difficult, if not impossible, to collapse adversary's will to resist.

Which lead to

THE NAME OF THE GAME

Morally-mentally-physically isolate adversary from allies or any outside support as well as isolate elements of adversary or adversaries from one another and overwhelm them by being able to penetrate and splinter their moral-mental-physical being at any and all levels.

WRAP-UP

- or summarizing in another, yet similar way -

We have in a nutshell:

The Art of Success

- Appear to be an unsolvable cryptogram while operating in a directed way to penetrate adversary vulnerabilities and weaknesses in order to isolate him from his allies, pull him apart, and collapse his will to resist.

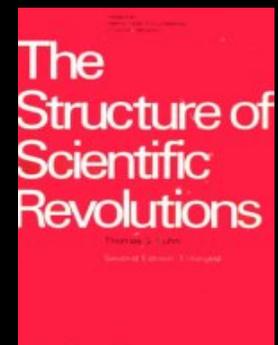
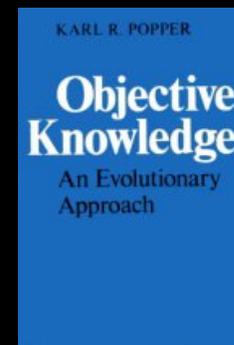
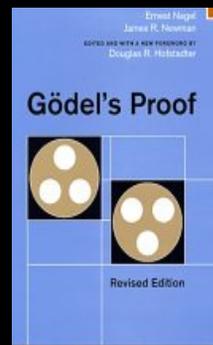
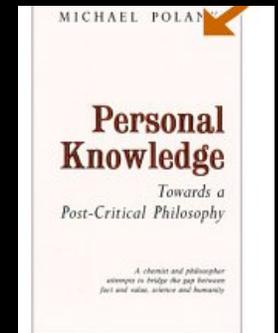
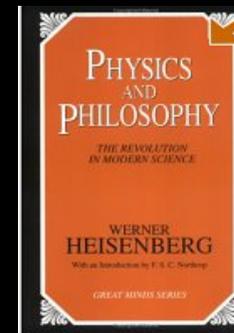
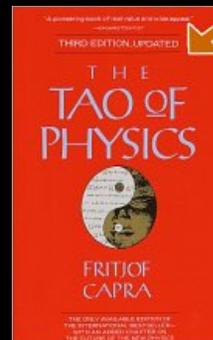
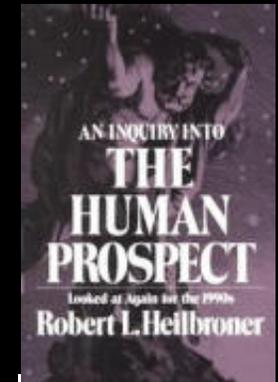
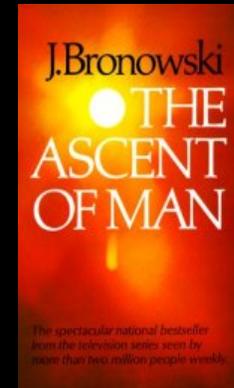
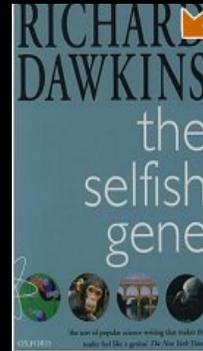
Yet

- Shape or influence events so that we not only magnify our spirit and strength but also influence potential adversaries as well as the uncommitted so that they are drawn toward our philosophy and are empathetic toward our success.

Second improvement: the formative factors

Scientific zeitgeist

- Paradigm shift
 - Non-deterministic
 - Holistic
 - Non-linear
 - Incompleteness
- Second law of thermo
- Social construction of knowledge
- Hypothesis - test
- Induction + deduction
- Destruction + construction
- Analysis + synthesis
- Variety of mental models
- Multi-spectrality
- Interaction-isolation
- Pervasive uncertainty
- Constant change/competition
- Evolution



? - WHAT'S THE POINT OF ALL THIS - ?

We can't just look at our own personal experiences or use the same mental recipes over and over again; **we've got to look at other disciplines and activities and relate or connect them to what we know from experiences and the strategic world we live in.**

If we can do this

We will be able to surface new repertoires and (hopefully) develop a fingerspitzengefühl for folding our adversaries back inside themselves, morally-mentally-physically-- so that they can neither appreciate nor cope with what's happening -- without suffering the same fate ourselves.

? - WHAT DOES THIS EXAMPLE SUGGEST - ?

To discern what is going on we must interact in a variety of ways with our environment.

IN OTHER WORDS

We must be able to examine the world from a number of perspectives so that we can generate mental images or impressions that correspond to that world.

MORE TO THE POINT

We will use this scheme of pulling things apart (analysis) and putting them back together (synthesis) in new combinations to find how apparently unrelated ideas and actions can be related to one another.

HUMAN NATURE

Starting point 1: competition

Goal

- Survive, survive on own terms, or improve our capacity for independent action.

The competition for limited resources
to satisfy these desires may force one to:

- Diminish adversary's capacity for independent action, or deny him to opportunity to survive on his own terms, or make it impossible for him to survive at all.

Implication

- Life is conflict, survival, and conquest

Starting point 1b: adapt

COMMENT

In addressing any question about conflict, survival, and conquest one is naturally led to the

Theory of Evolution by Natural Selection and The Conduct of War

since both treat conflict, survival, and conquest in a very fundamental way. In this regard, many sources (a few on natural selection and many on war) are reviewed; many points of view are exposed

J.F.C. Fuller

Darwin c.s.

SELECTION FROM AN UNPUBLISHED ESSAY

(incorporated in Strategic Game of ? & ?)

“Destruction and Creation”, by Yours Truly

Starting point 2: pervasive uncertainty

According to Godel’s Incompleteness Theorems, Heisenberg’s Uncertainty Principle, and the Second Law of Thermodynamics one cannot determine the character or nature of a system within itself. Moreover, attempts to do so lead to confusion and disorder.

ILLUMINATING EXAMPLE

Starting point 2: pervasive uncertainty

? - What does the Second Law of Thermodynamics say - ?

All natural processes generate entropy.

? - What did Heisenberg say - ?

One cannot simultaneously fix or determine precisely
the momentum and position of a particle.

? - What did Godel say - ?

One cannot determine the consistency of a system within itself.

THESE FEATURES INCLUDE:

- Uncertainty associated with the unconfinement, undecidability, incompleteness theorems of mathematics and logic.
- Numerical imprecision associated with using the rational and irrational numbers in the calculation and measurement processes.
- Quantum uncertainty associated with Planck's Constant and Heisenberg's Uncertainty Principle.
- Entropy increase associated with the Second Law of Thermodynamics.
- Irregular or erratic behaviour associated with far-from-equilibrium, open, nonlinear processes or systems with feedback.
- Incomprehensibility associated with inability to completely screen, filter, or otherwise consider spaghetti-like influences from a plethora of everchanging, erratic, or unknown outside events.
- Mutations associated with environment pressure, replication errors, or unknown influences in molecular and evolutionary biology.
- Ambiguity associated with natural languages as they are used and interact with one another.
- Novelty generated by the thinking and actions of unique individuals and their many-sided interactions with each other.

UNDERLYING MESSAGE

There is no way out, unless we can eliminate the features just cited. Since we don't know how to do this: we must continue the whirl of reorientation, mismatches, analyses/synthesis over and over again ad infinitum as a basis to comprehend, shape, and adapt to an unfolding, evolving reality that remains uncertain, everchanging, unpredictable.

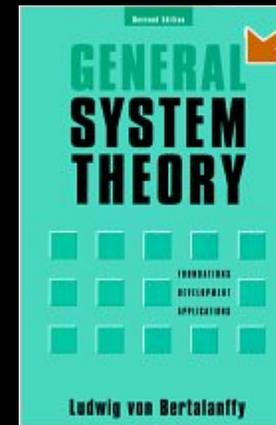
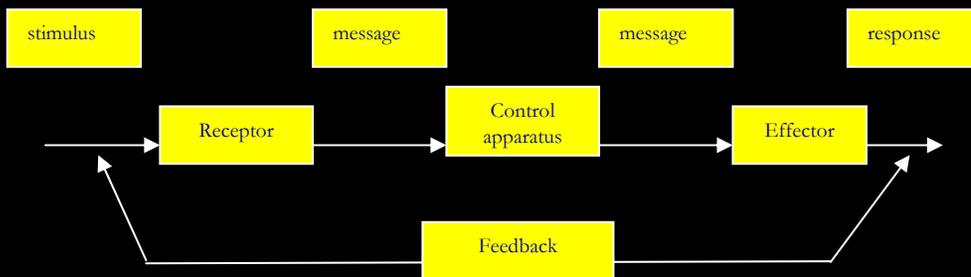
POINT

Since survival and growth are directly connected with the uncertain, everchanging, unpredictable world of winning and losing we will exploit this whirling (conceptual) spiral of orientation, mismatches, analyses/synthesis, reorientation, mismatches, analyses/synthesis... so that we can comprehend, cope with, and shape, as well as be shaped by that world and the novelty that arises out of it.

Second improvement: the formative factors

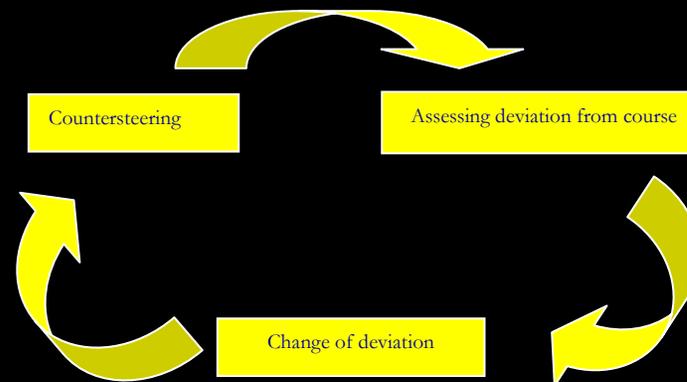
- Scientific zeitgeist

- Cybernetics
- Open system



“We express this by saying that living systems are basically open systems. An **open system** is defined as a system in exchange of matter with its environment, presenting import and export, building up and breaking down of its material components. **Closed systems** are systems which are considered to be isolated from their environment”.

(Bertalanffy)

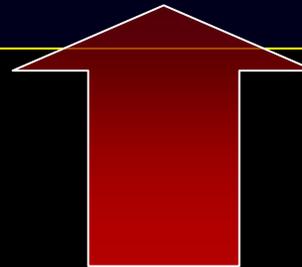
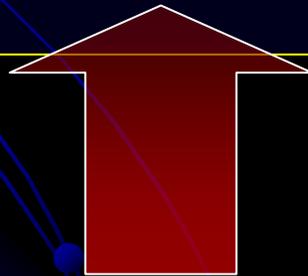


! - SIMPLY STATED - !

As human beings, we cannot exist without an external or surrounding environment from which we can draw sustenance, nourishment, or support.

IN OTHER WORDS

Interaction permits vitality and growth will isolation leads to decay and disintegration.



Third improvement: the formative factors

- Scientific zeitgeist

- Cybernetics
- Open system
- Non-linearity/complexity:
Complex Adaptive System



CAS informed strategems

- Ensure a large variety of conceptual lenses;
- Organize in semi-autonomous cells, avoid rigid hierarchical structures/culture;
- Use multiple strategies/avenues;
- Affect the accuracy of the cognitive/feedback process. If comprehension helps to achieve cohesion, and maintain purposeful behavior, the corollary is that confusion helps to create collapse;
- Overload his cognitive capacity;
- Eliminate (and/or threaten) particular crucial (real or imaginary) subsystems;
- Diminish the variety of subsystems (affecting the capability to respond to a variety of threats, and diminishing the decision- or adaptation space) alternatively achieving and maintaining a relative and relevant advantage in variety;
- Disrupt the moral, physical and/or informational vertical and horizontal relations (i.e. cohesion) among subsystems;
- Close the enemy off from his physical/social environment;
- Disrupt the information flow between the environment and the system and,
- Ensure the irrelevance of the schemata of the opponent, or the inability to validate those while ensuring sufficient accuracy of one's own schemata;
- Change the nature of war: waging a form of warfare that does not correspond to the opponent's doctrine and strategic preference (schemata);
- Change the environment in terms of alliances, location and/or stakes involved.

SELECTIONS FROM BOOKS (from Strategic Game of ? & ?)

“Order Out of Chaos”, by Ilya Prigogine and Isabelle Stengers

“Equilibrium thermodynamics provides a satisfactory explanation for a vast number of physicochemical phenomena. Yet it may be asked whether the concept of equilibrium structures encompasses the different structures we encounter in nature. Obviously the answer is no.”

“Equilibrium structures can be seen as the results of statistical compensation for the activity of microscopic elements (molecules, atoms). By definition they are inert at the global level... Once they have been formed they may be isolated and maintained indefinitely without further interaction with their environment. When we examine a biological cell or a city, however, the situation is quite different: not only are these systems open, but also they exist only because they are open. They feed on the flux of matter and energy coming to them from the outside world. We can isolate a crystal, but cities and cells die when cut off from their environment. They form an integral part of the world from which they can draw sustenance, and they cannot be separated from the fluxes that they incessantly transform.”

descriptors of an ecosystem

interdependence,
feedback (and cyclical flow of resources),
cooperation,
partnership,
flexibility
diversity.

traditional versus emerging worldview

Traditional

Reductionism
Linear causality
Objective reality
Determinism
Survival of the fittest
Focus on discrete entities
Linear relationships
Newtonian physics perspectives
World is predictable
Modern
Focus on hierarchy
Prediction
Based on 19th Century physics
Equilibrium/stability/deterministic dynamics
Focus on averages

Emerging

holism
mutual causality
perspective reality
~~indeterminism~~
adaptive self-organization
focus on relationships between entities
non-linear relationships
quantum physics perspectives
world is novel and probabilistic
post-modern
focus on heterarchy (within levels)
understanding
based on biology
structure/pattern/self-organization/life cycles
focus on variation

PULLING ALL THIS TOGETHER
WE HAVE IN A NUTSHELL

The Art of Success

Shape or influence the moral-mental-physical atmosphere what we are a part of, live in, and feed upon so that we not only magnify our inner spirit and strength, but also influence potential adversaries and current adversaries as well as the uncommitted so that they are drawn toward our philosophy and are empathic toward our success;

yet be able to

Morally-mentally-physically isolate our adversaries from their allies and outside support as well as isolate them from one another, in order to: magnify their internal friction, produce paralysis, bring about their collapse; and/or bring about a change in their political/economic/social philosophy so that they can no longer inhibit our vitality and growth.

NOW WE CAN SEE BY
GOING BACK TO THE BEGINNING

The Strategic Game
is one of
Interaction and Isolation

A game in which we must be able to diminish adversary's ability to communicate or interact with his environment while sustaining or improving ours.

NOW

GOING BACK TO THE BEGINNING

? - What is Strategy - ?

A mental tapestry of changing intentions for harmonising and focusing our efforts as a basis for realising some aim or purpose in an unfolding and often unforeseen world of many bewildering events and many contending interests.

Theme: uncertainty, conflict

? - What is the Aim or Purpose of Strategy - ?

To improve our ability to shape and adapt to unfolding circumstances, so that we (as individuals or as groups or as a culture or as a nation-state) survive on our own terms.

Theme: we need superior adaptability

? - What is the Central Theme and What Are the Key Ideas that Underlie Strategy - ?

The central theme is one of interaction/isolation while the key ideas are the moral-mental-physical means toward realising this interaction/isolation.

Theme: prevent the opponent from doing so

? - How Do We Play to this Theme and Activate these Ideas - ?

By an instinctive see-saw of analysis and synthesis across a variety of domains, or across competing/independent channels of information, in order to spontaneously generate new mental images or impressions that match-up with an unfolding world of uncertainty and change.

Theme: innovate, learn, constantly

POINT

(from Conceptual Spiral)

Since survival and growth are directly connected with the uncertain, everchanging, unpredictable world of winning and losing we will exploit this whirling (conceptual) spiral of orientation, mismatches, analyses/synthesis, reorientation, mismatches, analyses/synthesis... so that we can comprehend, cope with, and shape, as well as be shaped by that world and the novelty that arises out of it.

NOW

If we connect this continuing whirl of reorientation, mismatches, analyses/synthesis and the novelty that arises out of it with the previous discussion we can see that we have:

A Conceptual Spiral for

- Exploration
 - Thinking
 - Learning
 - Comprehending
- Discovery
 - Doing
 - Unlearning
 - Shaping
- Innovation
 - Achieving
 - Relearning
 - Adapting

Hence a Conceptual Spiral for generating

• Insight

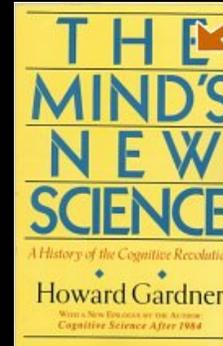
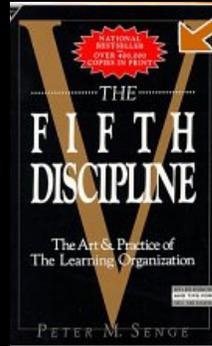
Imagination

- Initiative

Third improvement: the formative factors

Scientific zeitgeist

- Cybernetics
- Open systems
- Non-linearity/complexity:
Complex Adaptive System
- Cognitive science
- Creativity
- Organizational learning



Mental agility
&
Organizational agility

characteristics of creative people

Thinking abilities

Use metaphors in thinking
Flexible decision maker
Uses broad categories
Uses mental images
Can cope with novelty
Can break mental sets
Finds order in chaos

Personality characteristics

Willing to take intellectual risk
Curiosity and inquisitiveness
Openness to new experiences
Tolerates ambiguity
Broad range of interests
Playful with ideas
Intuitive

Thinking styles

Challenges assumptions
Looks for novelty and gaps in knowledge
Draws new ideas out of existing knowledge

Organizational learning

Mental agility
&
Organizational agility

- Organizational learning:
 - Is the process of improving actions through better knowledge and understanding;
 - means increasing an organization's capacity to take effective action;
 - a process of detecting and correcting error;
 - the process by which knowledge about action-outcome relationships between the organization and the environment is developed;
- Organizations are seen as learning by encoding inferences from history into routines that guide behavior;
- Organizational learning occurs through shared insights, knowledge, and mental models [and] builds on past knowledge and experience – that is, on memory;
- An entity learns if, through its processing of information, the range of potential behaviors is increased.

positive and negative indicators of learning organizations

Positive indicators

Anticipatory
Long-term focus
Change=opportunity
Adapts to change

Operating characteristics

Simple structure
Participative management style
Strong networking
Open flow of information
External scanning encouraged
Encourage questioning and review
Innovation/experimentation encouraged
Failures used as learning opportunities

Negative indicators

Reactive
Short term focus
Change=threat
Static organization

Culture

complex & bureaucratic
directive/autocratic
lack of sharing/disconnected functions
information used as power base
insular/lacking external contacts
closed mind-set/tunnel vision
non-risk-taking
failure punished



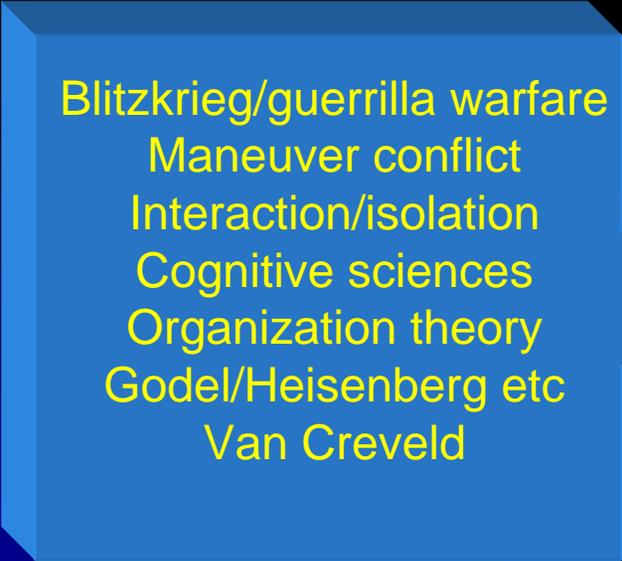
Mental agility
&
Organizational agility

Characteristics of learning organizations

- ❑ a loosely structured organization, unfettered by rigid internal hierarchies and overspecialization, would be more amenable to:
 - ❑ a free internal debate that would facilitate organizational learning and so facilitate change.
 - ❑ a broad base of contributors and data sources;
 - ❑ a process for sharing diverse perspectives and points of view and
 - ❑ a willingness to embrace contradictory and unexpected findings;
 - ❑ quick feedback;
 - ❑ forums for brainstorming in which new ideas are generated and creative thinking should be stimulated.
 - ❑ adopt a dialectic mode in which various views are debated and tested.
- ❑ When information is transformed into action, new approaches must be tried, even when they result in some mistakes and failures

Mental agility
&
Organizational agility

Organic design for Command and Control



Blitzkrieg/guerrilla warfare
Maneuver conflict
Interaction/isolation
Cognitive sciences
Organization theory
Godel/Heisenberg etc
Van Creveld



Leadership
Organizational culture
Organizational cohesion
Organizational adaptability

WORLD WAR II BLITZKRIEG

Key to Success

Restatement

- Emphasis on a common outlook and freedom-of action that are exploited by MISSION and Schwerpunkt concepts to fix responsibilities as well as to rapidly shape, focus, and shift operations and support at all levels.
- Flexible command-based on a common outlook and freedom-of-action that are exploited by Mission and Schwerpunkt - that encourages lower-level combat leaders (forward) to exploit opportunities generated by rapid action within a broad loosely woven scheme laid down from central command.
- Intelligence, reconnaissance (air and ground) and stratagem emphasized before and during combat operations to unmask and shape patterns of adversary strengths, weaknesses, moves and intentions.
- Broad use of Schwerpunkt concept coupled with fast-tempo/fluidity-of-action of armored teams and air support permit Blitzers to repeatedly reshape strength and rapidly shift it against, or through, weaknesses thereby generate doubt and uncertainty which magnify into panic and chaos.
- Superior mobile communications to maintain cohesion of overall effort and to enable higher command levels to allocate reserves and support and to reshape as well as shift focus of main effort.
- Essential and only essential logistics tail (using airlift when appropriate and necessary) to support high speed movement and rapid shift among routes of advance.

Now, by applying the ideas of Darwin, the Second Law, Heisenberg, and Godel to Clausewitz one can see that:

- He who can generate many non-cooperative centers of gravity magnifies friction. Why? Many non-cooperative centers of gravity within a system restrict interaction and adaptability of system with its surroundings, thereby leading to a focus inward (i.e., within itself), which in turn generates confusion, hence, by definition, magnifies friction or entropy.

MESSAGE

* Suppress tendency to build-up explicit internal arrangements that hinder interaction with external world

instead

* Arrange setting and circumstances so that leaders and subordinates alike are given opportunity to continuously interact with external world, and with each other, in order to more quickly make many-sided implicit cross-referencing projections, empathies, correlations, and rejections as well as create the similar images or impressions, hence a similar implicit orientation, needed to form an organic whole.

Why?

- * A similar implicit orientation for commanders and subordinates alike will allow them to:
 - Diminish friction and reduce time, thereby permit them to:
 - Exploit variety/rapidity while maintaining harmony/initiative, thereby permit them to:
 - Get inside adversary's O-O-D-A loops, thereby:
 - Magnify adversary's friction and stretch-out his time (for a favorable mismatch in friction and time), thereby:
 - Deny adversary the opportunity to cope with events/efforts as they unfold

MESSAGE

Expose individuals, with different skills and abilities, against a variety of situations --
whereby each individual can observe and orient himself simultaneously to the others
and to the variety of changing situations.

? - WHY - ?

In such an environment, harmony, or focus and direction, in operations is created by
the bonds of implicit communications and trust that evolve as a consequence of the
similar mental images or impressions each individual creates and commits to memory
by repeatedly sharing the same variety of experiences in the same ways.

BENEFICIAL PAYOFF

A command and control system, whose secret lies in what's unstated or not
communicated to one another (in an explicit sense) -- in order to exploit lower-level
initiative yet realize higher-level intent, thereby diminish friction and compress time,
hence gain both quickness and security.

POINT

Any command and control system that forces adherents to look inward, leads to dissolution/disintegration (i.e., system comes unglued).

IN A MUCH LARGER SENSE

Without the implicit bonds or connections, associated with similar images or impressions, there can be neither harmony nor individual initiative within a collective entity, therefore, no way that such an organic whole can stay together and cope with a many-sided uncertain and everchanging environment.

or equivalently

Without implicit bonds or connections, we magnify friction, produce paralysis, and get system collapse.

- **Fingerspitzengefühl**
 - “feel,” superb competence, magic, coup d’oeil, intuition, RPD
- **Einheit**
 - unity, cohesion, mutual trust, tolerance of risk, promotion of low level initiative
 - Shared core of moral & ethical behavior (values)
 - Based upon common experiences (doctrine)
 - Common view of overall goals (mission)
- **Schwerpunkt**
 - focus and direction
- **Auftragstaktik**
 - mission “order”, contract
 - Wide freedom to lower levels
 - Sets boundaries

Decentralized tactically
Centralized strategically
Cellular/network
Implicit communication
Optimized for local uncertainty
Fostering innovation

Final improvement: The essence of winning and losing

Key statements

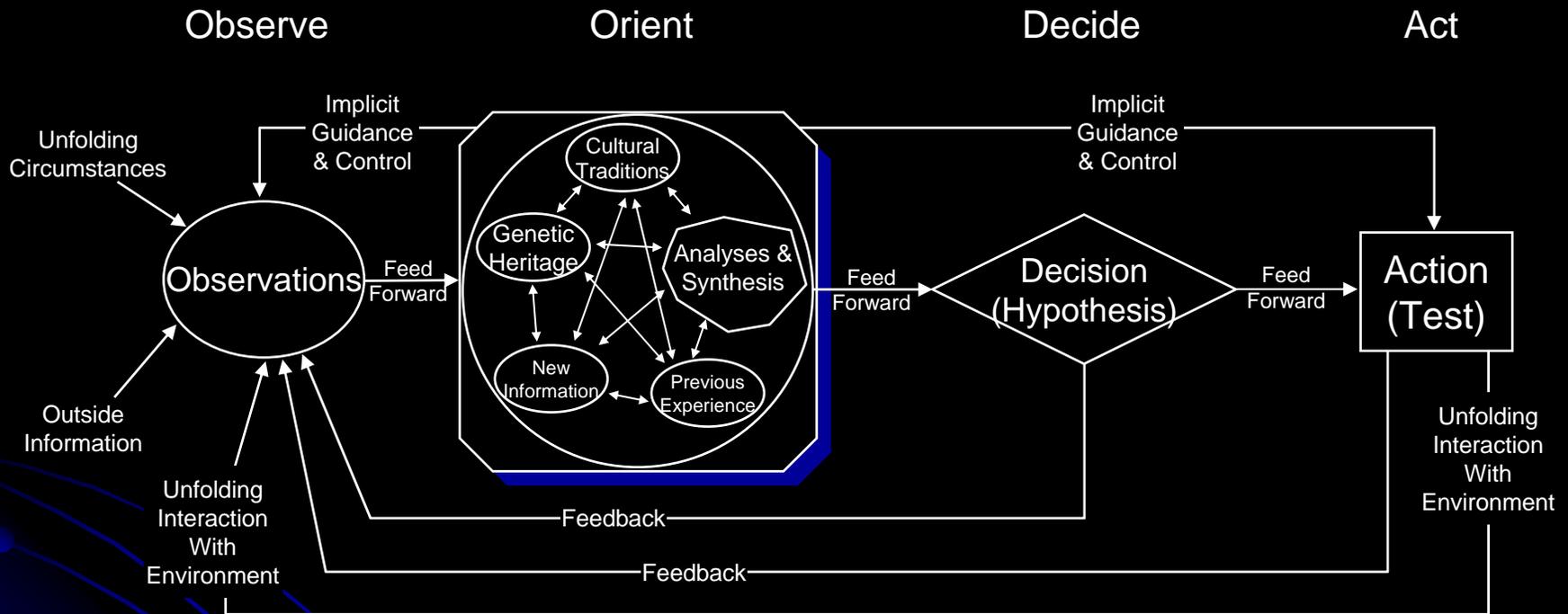
- **Without our genetic heritage, cultural traditions, and previous experience**, we do not possess and **implicit** repertoire of psychological skills shaped by environments and changes that have been previously experienced.
- Without **analysis and synthesis**, across a variety of domains or across a variety of competing/independent channels of information, we cannot evolve new repertoires to deal with unfamiliar phenomena or unforeseen change
- **Without a many-sided implicit cross-referencing process of projection, empathy, correlation**, and rejection (across these many different domains or channels of information, we cannot even do **analysis and synthesis**).
- **Without OODA loops** we can neither sense, hence observe, thereby collect a variety of information for the above process, nor decide as well as implement actions in accord with those processes.

Or put in another way

- **Without OODA loops** embracing all the above and **without the ability to get inside other OODA loops** (or other environments), we will find it impossible to comprehend, shape, adapt to, and in turn be shaped by an unfolding, evolving reality that is uncertain, everchanging, unpredictable.

- The key statements of this presentation, the OODA loop sketch and related insights represent an evolving, open-ended, far from equilibrium process of self-organization, emergence and natural selection

Final improvement: The real OODA "Loop" Sketch

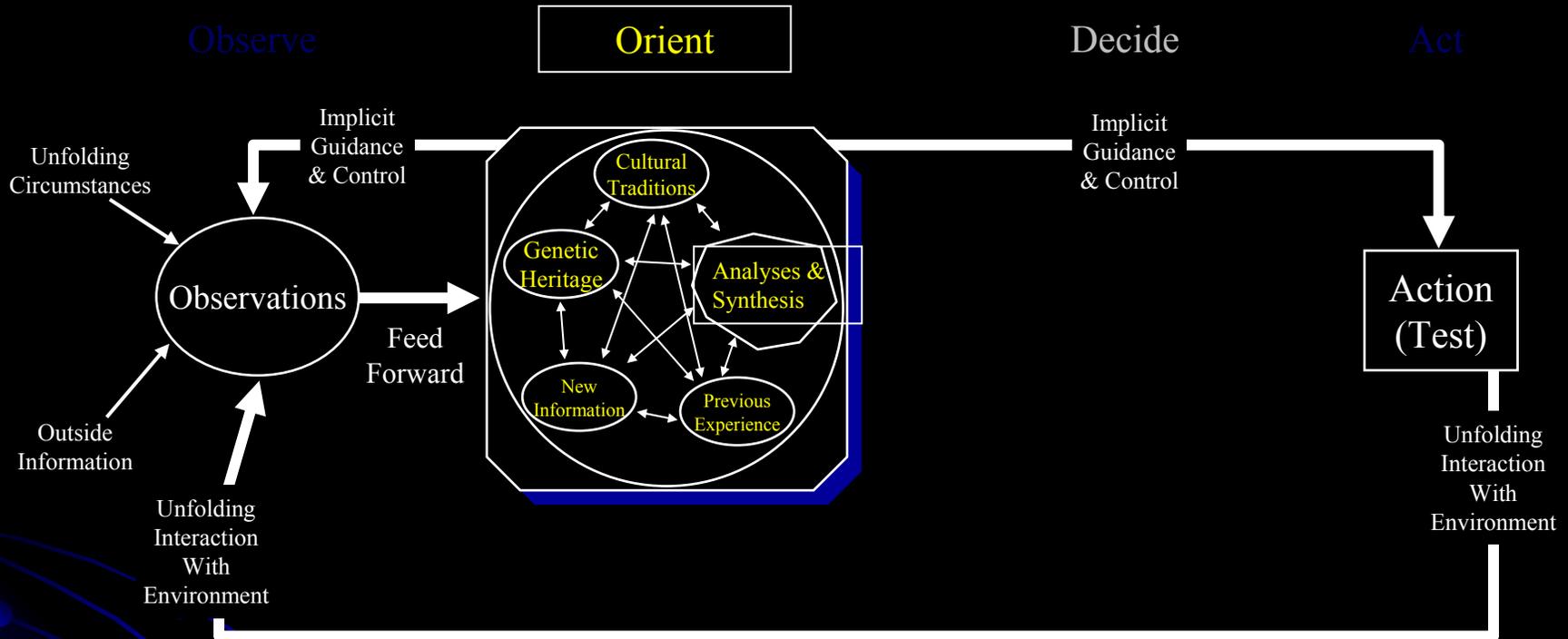


Note how orientation shapes observation, shapes decision, shapes action, and in turn is shaped by the feedback and other phenomena coming into our sensing or observing window.

Also note how the entire "loop" (not just orientation) is an ongoing many-sided implicit cross-referencing process of projection, empathy, correlation, and rejection.

Competitive advantage comes from quickness over the entire "loop," not just or even primarily from the O-to-O-to-D-to-A sequence.

Pumping up OODA “Loop” Speed

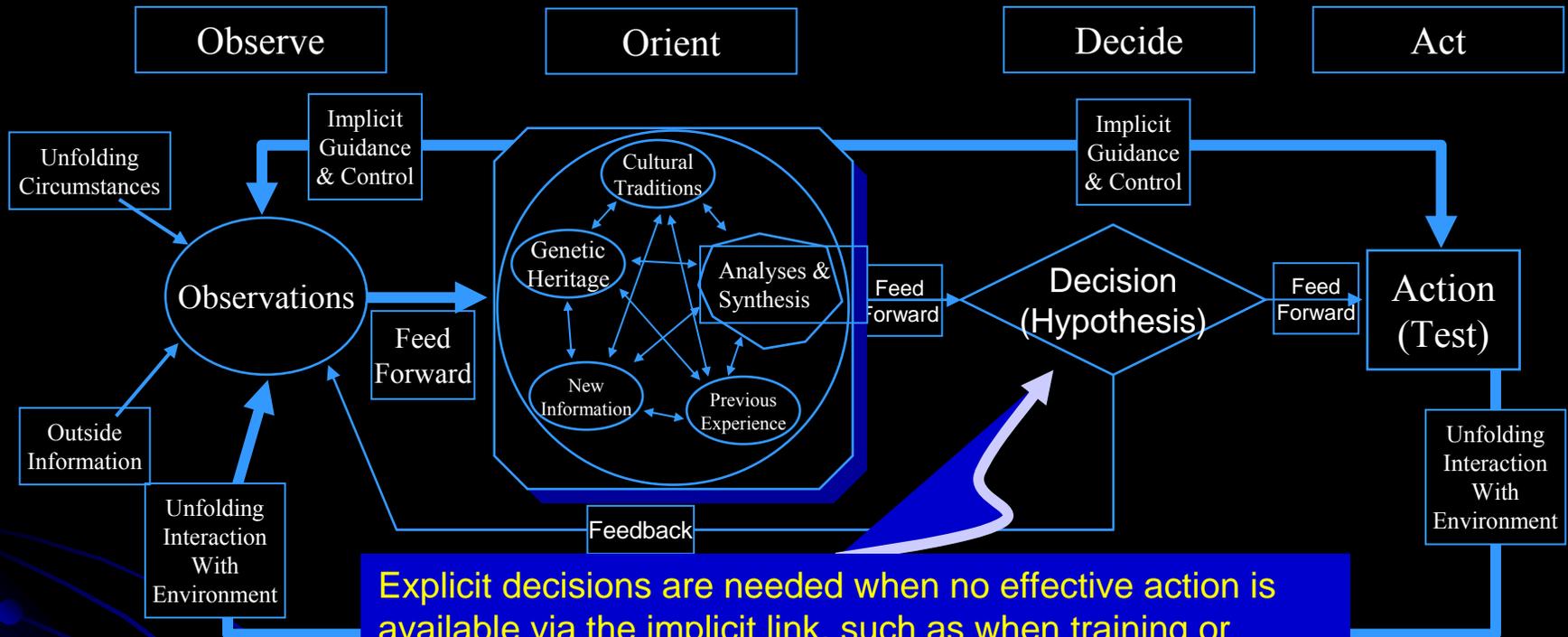


“Orientation is the *Schwerpunkt*.” *Organic Design*, 16.

“Emphasize implicit over explicit in order to gain a favorable mismatch in friction and time.” *Organic Design*, 22.

“Interaction permits vitality and growth, while isolation leads to decay and disintegration.” *Strategic Game*, 29.

Sometimes, You Just Have to Make a Decision

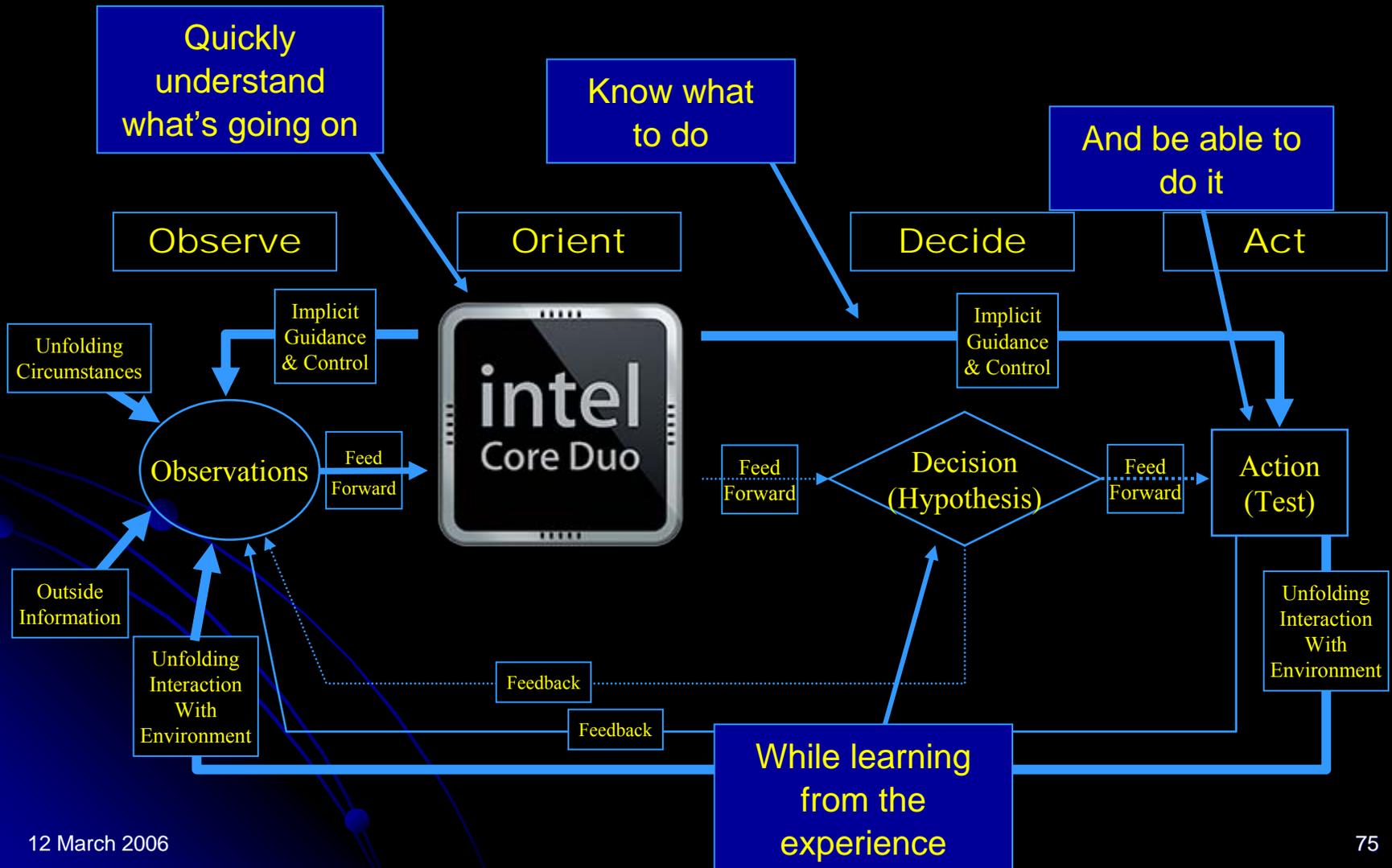


Explicit decisions are needed when no effective action is available via the implicit link, such as when training or experimenting.

However:

- Actions will still be influenced by (existing) implicit guidance and controls until these are reset by learning
- Explicit decision making and reorientation (learning) always take time

What OODA "loop" speed really means



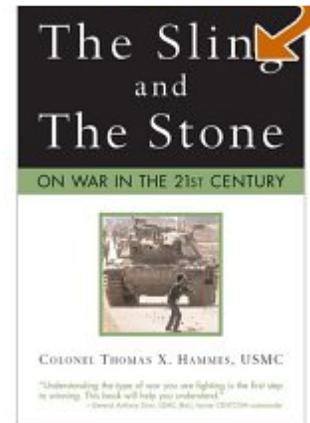
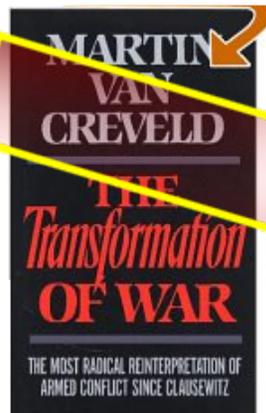
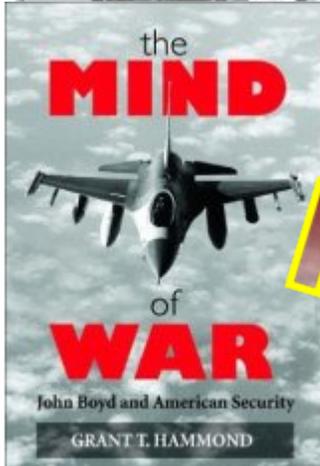
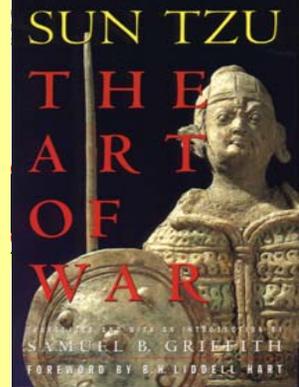
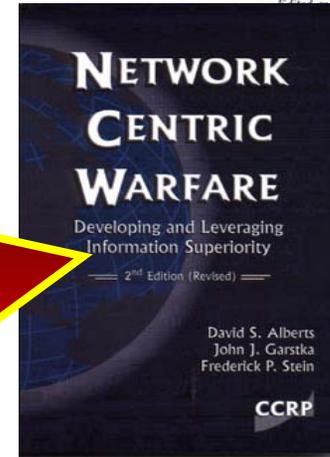
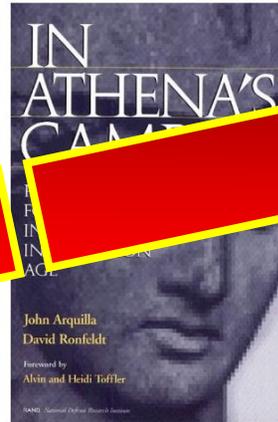
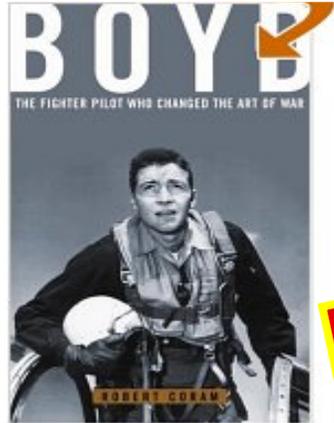
CARL VON CLAUSEWITZ

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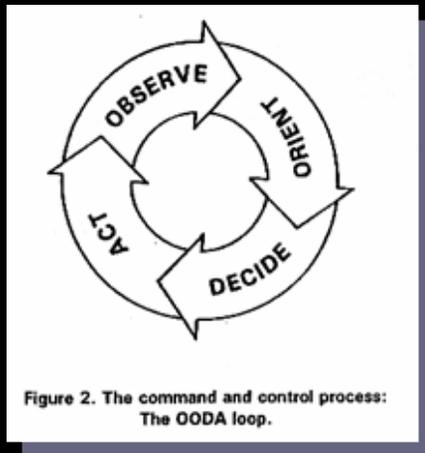
Indeal Edition

Edited and Translated by

and PETER PARET



A Discourse on ~~Winning And Losing~~ Innovation



Core ideas & Themes Of



Boyd's 'Theory of intellectual evolution and growth'

Col Dr. Frans Osinga
AWC Nov 15, 2006