

# Certain to Win

## John Boyd's Strategy in the 21st Century

*Or, any position other than first is a tie for last.*

Chet Richards

J. Addams & Partners, Inc.

— Sun Tzu: c. 500 B.C.

— Col John Boyd, USAF: 1927 - 1997

prepared by Prof. Sornette, ETH Zurich

**Wars don't always turn out  
as expected**

**Business doesn't either**

**But it's not inevitable**

Automobiles	<b>Toyota, Nissan</b>
Retailing	<b>Wal-Mart, Target</b>
Airlines	<b>Southwest, JetBlue, Singapore, Emirates, Ryanair, AirTran</b>
Computers	<b>Dell, Apple</b>

# Time is special

- Time is the only physical parameter with a direction (the “arrow of time.”)
- You don’t have an unlimited supply.
- Once it’s gone, it’s gone.
- **Sure sign you’re not using Boyd’s strategies:** you try to solve problems by throwing more time at them.



*I may lose a battle; I will never lose a minute.*

Napoleon

A time-compressed company does the same thing as a pilot in an OODA Loop ... It’s the competitor who acts on information faster who is in the best position to win.

# **Using time as a weapon: The "H-Y War" 1981 - 1983**

- Honda Motorcycles introduced or replaced 113 models, effectively turning over its entire product line twice.
- Yamaha, which also started with about 60 models, was only able to manage 37 changes in product line over the same 18 months.
- Observation: As a result, Honda was able to incorporate (and test in the marketplace) a much wider variety of styling & technology. But that alone would not have been decisive.

## H-Y War: The Results

- **Key point:** Honda succeeded in making motorcycle design a matter of fashion, where newness and freshness are important attributes to customers.
- Next to a Honda, Yamaha's bikes looked old, unimaginative, unattractive.
- Yamaha was left with 12 months of unsold (and unsellable) inventory.

Stalk & Hout, *Competing Against Time*, 59

Comment: a classic example of  
"shaping the marketplace."



Business is a dogfight.  
Your job as a leader:  
Outmaneuver the competition, respond decisively to fast-changing conditions, and defeat your rivals. That's why the OODA loop, the brainchild of "40 Second" Boyd, an unconventional fighter pilot, is one of today's most important ideas in battle or in business.

Keith Hammonds, "The Strategy of the Fighter Pilot," *Fast Company*, June 2002.

**John Boyd - USAF**  
**The Fighter Pilot Who Changed the Art of Air Warfare**  
by Robert Coram



"Forty-Second Boyd": he had a standing offer to all pilots that if they could defeat them in simulated air-to-air combat in under 40 seconds, he would pay them \$40.

As an instructor at the Fighter Weapons School (FWS) at Nellis AFB, he fought students, cadre pilots, Marine and Navy pilots, and pilots from a dozen countries, who were attending the FWS as part of the Mutual Defense Assistance Pact.

He never lost.

Developed the [Aerial Attack Study](#): After the study was declassified, foreign pilots passing through Nellis took it home where it changed the way every air force in the world flies and fights. Even today, more than 40 years later, nothing substantial has been added to the Aerial Attack Study.

After a six-year assignment at Nellis, Boyd returned to college for another undergraduate degree. He went to the Georgia Institute of Technology where, one night while studying for an exam in thermodynamics, he had the epiphany that became his famous [Energy-Maneuverability Theory](#), or E-M Theory, as it came to be known.

The E-M Theory changed everything that everyone thought they knew about fighter combat. It enabled fighter pilots to evaluate their energy potential at any altitude and at any maneuver. And, perhaps more importantly, the energy potential of their adversary. It changed forever the way aircraft are fought in combat.

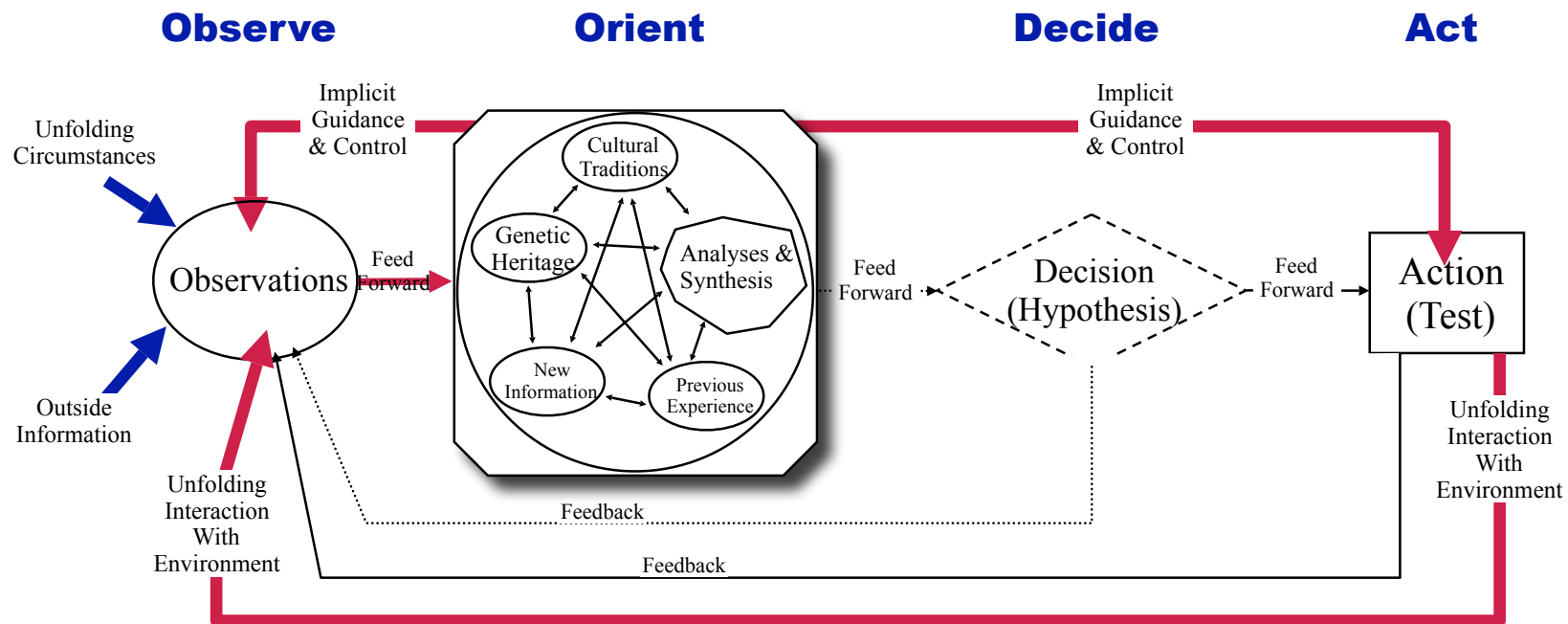
Boyd then used E-M as a design tool. Until E-M came along, fighter aircraft had been designed to fly fast in a straight line or fly high to reach enemy bombers. The F-X, which became the F-15, was the first Air Force fighter ever designed with maneuvering specifications. Boyd was the father of the F-15, the F-16, and the F-18.

America has dominated the skies for the past 30 years because of John Boyd.

After he retired, he developed a theory of combat that, according to Vice President Dick Cheney who was Secretary of Defense at the time, was responsible for [America's swift and decisive victory in the Gulf war](#).



# An OODA "loop" with power



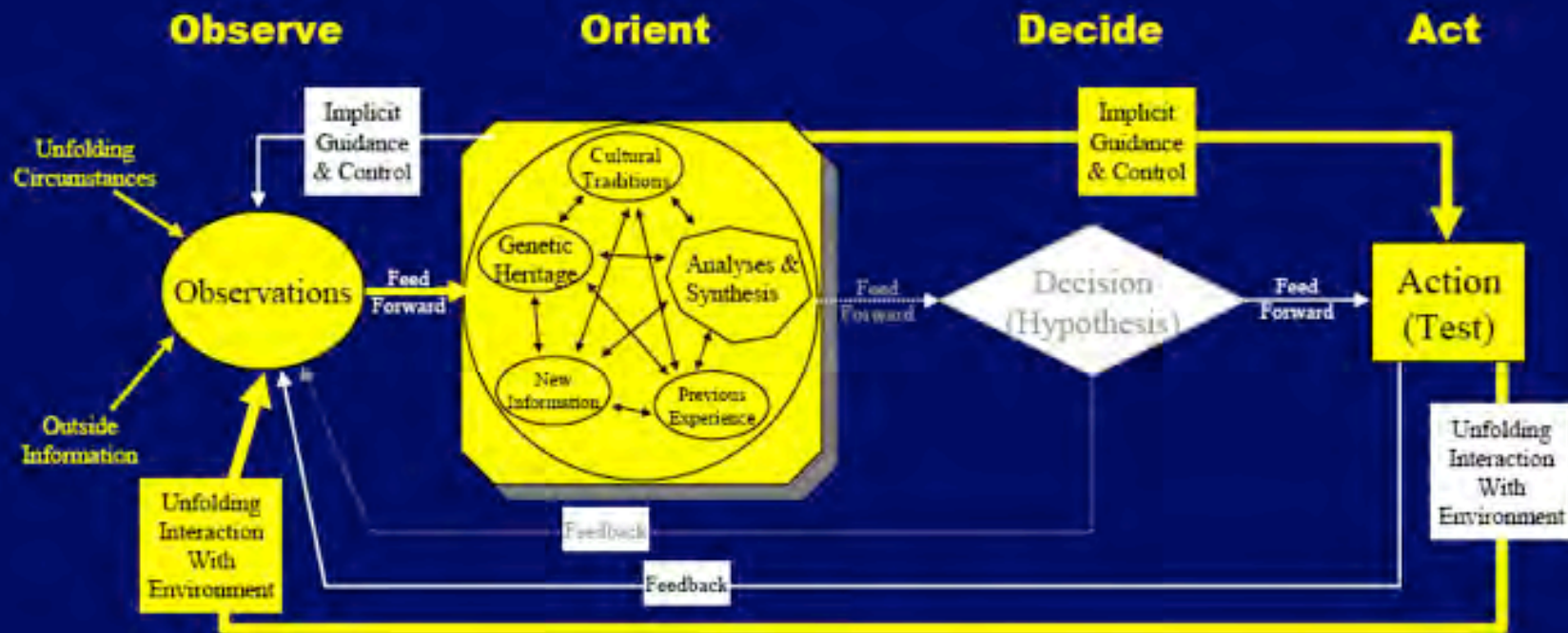
J. R. Boyd, "the Essence of Winning and Losing," 1995.

"Orientation is the *Schwerpunkt*." *Organic Design*, 16.

"Emphasize **implicit** over **explicit** in order to gain a favorable mismatch in friction and time (ours lower than any adversary's)." *Organic Design*, 22.

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

# Pumping up OODA “Loop” Speed

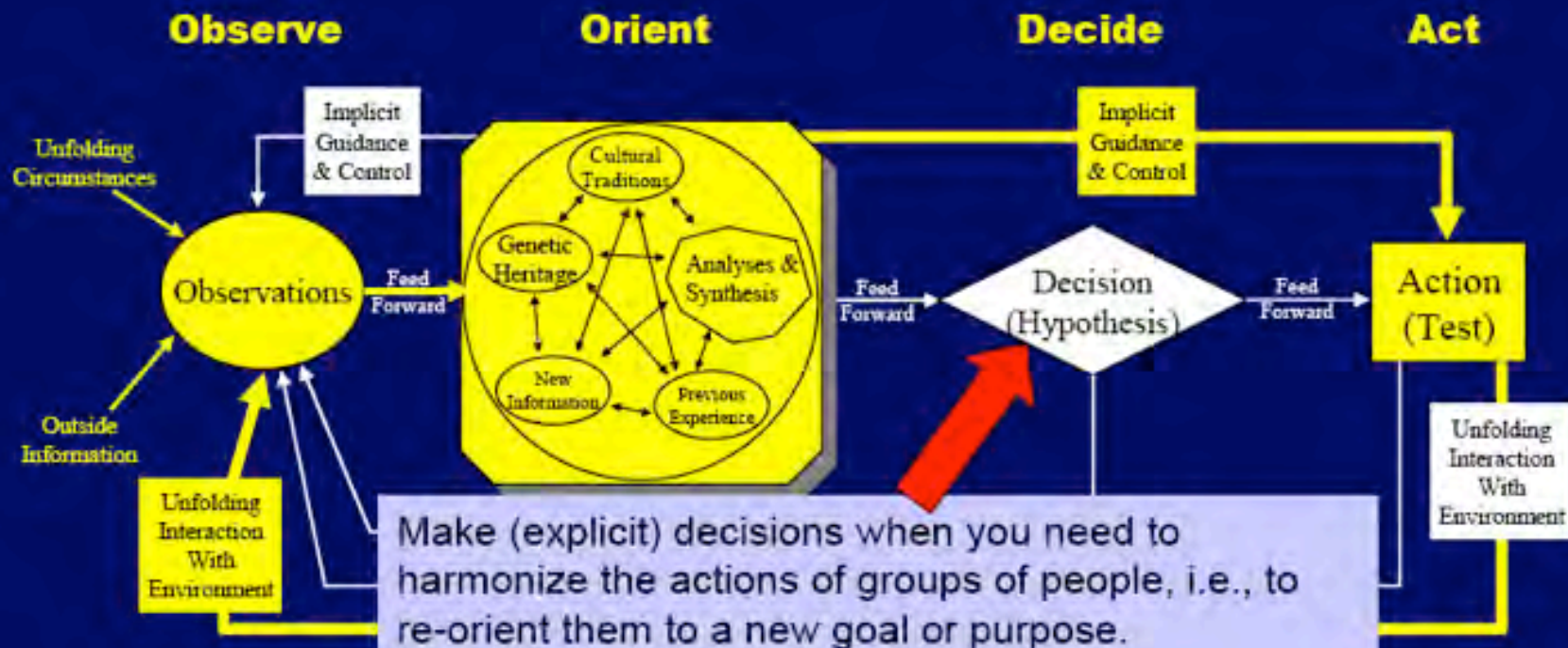


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# Sometimes, You Just Have to Make a Decision



Make (explicit) decisions when you need to harmonize the actions of groups of people, i.e., to re-orient them to a new goal or purpose.

However:

- Until they reorient, their actions will still be influenced by their implicit guidance and controls, and
- Decision making and reorientation always take time.



## Put simply

- Good news is dangerous
- Bad news is the only thing that will save you, **if**:
  - You find it before it finds you
  - You correct your orientation
  - You act upon it

And “loyalty checks” are deadly.



# Question

What determines OODA loop speed?

Answer:

- Ultimately, a moral climate/culture/environment that encourages people to use their initiatives to further the goals of the organization
- Under such a climate, people will solve the technical problems

## **Boyd's organizational climate: *The Principles of the Blitzkrieg***

- **Fingerspitzengefühl** - Zen-like quality of intuitive understanding. Ability to sense when the time is ripe for action. Built through years of progressively more challenging experience.
- **Einheit** - Has the connotation of "mutual trust" and implies a common outlook towards business problems. Built through common experience. *Fingerspitzengefühl* at the organizational level.

## Boyd's organizational climate: *Continued*

- **Schwerpunkt** - Any concept that gives focus and direction to our efforts. In ambiguous situations, answers the question, "What do I do next?" Requires leadership.
- **Auftragstaktik** - Tell team members what needs to be accomplished, get their agreement to accomplish it, then hold them strictly accountable for doing it - **but don't prescribe how**. Requires very high levels of mutual trust.



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# Constructing a climate for fast OODA loops

The Tao of military operations lies in harmonizing people.

Zhuge Liang, c. 300 AD

The issue of human nature is the most basic problem ...

***The most important factor is maintaining a  
relationship of trust between labor and  
management.***

Shigeo Shingo, one of the architects  
of the Toyota Production System. (emphasis added)

The employees themselves are completely in charge.

Toyota Motor Company, "Toyota Production System," 1992,  
describing the virtues of the kanban system

## Flowdown: *Schwerpunkt* for manufacturing

The Toyota Production System, quite simply, is about shortening the time it takes to convert customer orders into vehicle deliveries.



This tells everybody in Toyota manufacturing: “When in doubt, take the action that has the biggest impact on order-to-delivery time”.

## Another *Schwerpunkt*



- Most CEOs are focused on achieving their financial and operational goals, and on executing a strategy. But Apple's Steve Jobs believes his company's ultimate advantage comes from its ability to make unique, or as he calls them, "**insanely great**" products.
- Jobs's entire company is focused on that task.

Peter Burrows, "Commentary: Apple's Blueprint for Genius," *BusinessWeek* Online Extra, March 21, 2005

# ***Augtragstaktik*—what “commitment” means**

As part of this concept, the subordinate is given the right to challenge or question the feasibility of the mission if:

- he feels his superior's ideas on what can be achieved are not in accord with the existing situation or
- he feels his superior has not given him adequate resources to carry it out.

Likewise, the superior has **every right to expect his subordinate to carry out the mission** contract when agreement is reached on what can be achieved consistent with the existing situation and resources provided.

J. R. Boyd, *Patterns of Conflict*, 76

## Another example

“As you know, Mary, it is the board’s intent to keep a balance between manufacturing in the US and sourcing overseas. Sales of our current product, however, are below the level we need, and it will be at least six months until the new line is ready.

“I’d like you to take over domestic sales and raise our revenues at least 10% (more would be great) until the new line debuts in May. This will allow us [[in order to]] to avoid a highly disruptive interruption of our US-based manufacturing operations. Be careful, however, not to do anything that might hurt the launch of the new line.”

# **If you were Mary ...**

**Why are sales below forecast?**

**Ageing product line, relative to the competition?**

**Poor sales strategy?**

**Lack of sales training?**

**Poor sales management?**

**Poor execution by the fulfillment side of the house?**

**Poor quality?**

**What are my constraints?**

**More sales staff? Transfer star salespeople from another territory?**

**Do I have any pricing power?**

**Crash training program? Funding for this?**

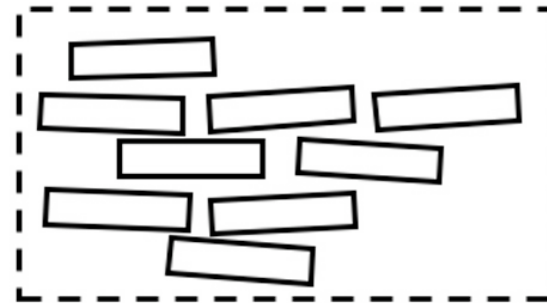
**Any short-term improvements possible in the product?**

# It's really pretty simple

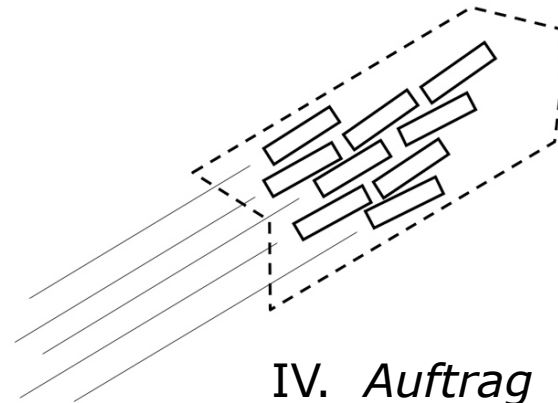
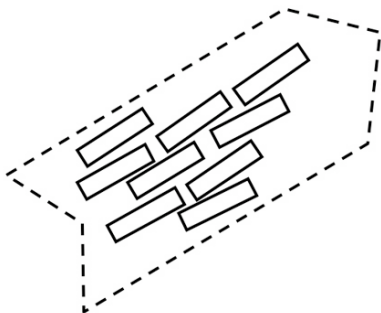
I. (Individual)  
*Fingerspitzengefühl*



II. *Einheit*



III. *Schwerpunkt*



IV. *Auftrag*



# The Payoff: Operating inside their OODA “loops”

- In War:
  - Keep the initiative: Set up and exploit situations before they can respond (again and again)
  - “Command” both sides
  - Catch the other side flat footed: Make them seem slow, unresponsive, clumsy; pump up Murphy’s Law (entropy)
- In Business: Meet expectations & create value, **but also delight**. Turn customers into fanatics.





Whether it is in the personal realm of the individual warrior, or in the public domain of an entire nation or culture, the essence of the swordless art is **to make resourcefulness your resource.**

Thomas Cleary,  
*The Japanese Art of War, 77*

To flourish and grow in the

- many-sided
- uncertain, and
- ever-changing world

that surrounds us suggests that we must make **intuitive within ourselves** those many practices we need to meet the exigencies of that world.

—John R. Boyd, *A Discourse on Winning & Losing*

# Effective Forces Play the Cheng / Ch'i Game

- **Sun Tzu:** “Making armies able to take on opponents without being defeated is a matter of **unorthodox** (*ch'i*) and **orthodox** (*cheng*) methods ... give rise to each other like a beginning-less circle – who could exhaust them?”
- **Boyd:** “... to gain a feel for the ways the *cheng / ch'i* game has been (and can be) played.”
- Can be played on multiple levels, i.e., if opponent knows we like *cheng / ch'i*, we can exploit that fact also (Hitler at invasion of France, 1944)



You don't wait for the future.  
You create it.

Hwang Chang Gyu,  
President, Samsung Semiconductor  
*BusinessWeek*, 25 October 2004, 58

