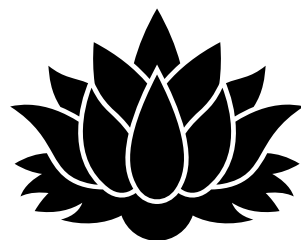# *The Essence of Winning and Losing —* Deconstructed

Or, where did the OODA loop come from, and what is it supposed to do?

Illustrating *The Essence of Winning and Losing*, by John R. Boyd, 1996.
Available for download at https://slightlyeastofnew.com/439-2/

Starting point
What's the purpose behind all of this?

To flourish and grow in a many-sided, uncertain and ever-changing world that surrounds us suggests that we have to make intuitive within ourselves those many practices we need to meet the exigencies of that world.

From Boyd's "Abstract" for his
Discourse on Winning and Losing

Starting point
What's the purpose behind all of this?

To flourish and grow in a many-sided, uncertain and ever-changing world that surrounds us suggests that we have to make intuitive within ourselves those many practices we need to meet the exigencies of that world.

Boyd called these practices our "implicit repertoire." In *The Essence of Winning and Losing*, he addresses:

- What is the source of these practices?

- How do we add to our collection as circumstances change?

With that in mind, let's look into *The Essence of Winning and Losing (TEoWL)*

Where we get implicit repertoire

- Genetic heritage

- Cultural traditions

- Previous experiences

Enable*

Implicit repertoire
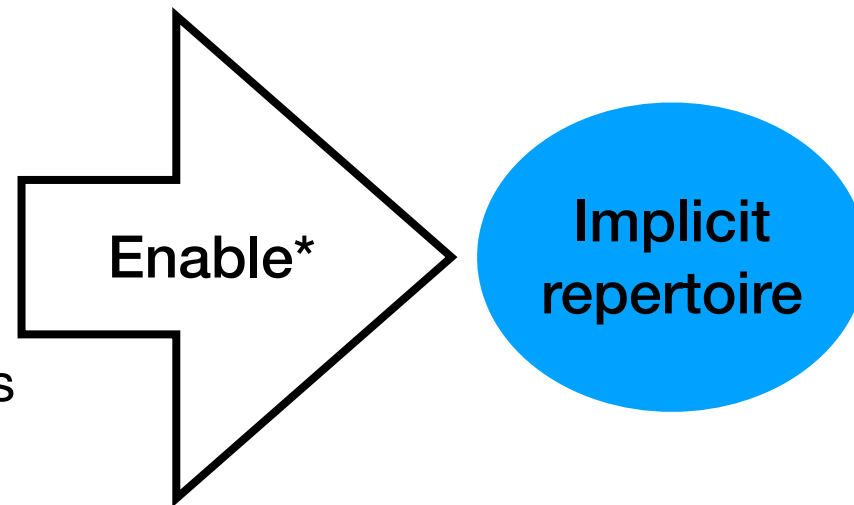
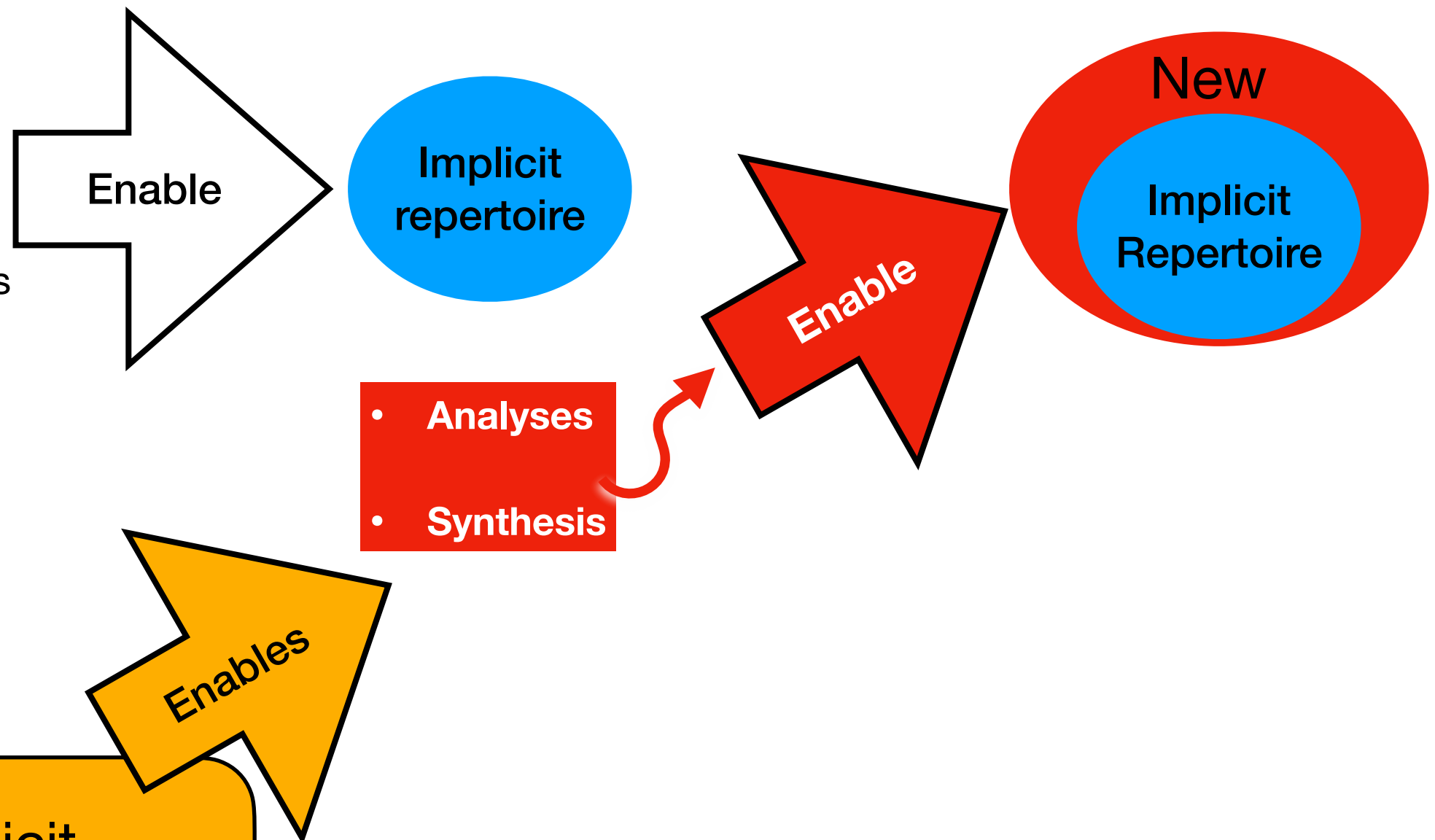*My condensation of Boyd's original: Without what's on the left, you cannot have what's on the right: They are necessary, but not, perhaps, sufficient

TEoWL, p. 1

How we get new implicit repertoire

- Genetic heritage

- Cultural traditions

- Previous experiences

Enable ➡

Implicit repertoire

- **Analyses**

- **Synthesis**

Enable

New

Implicit Repertoire

TEoWL, p. 1
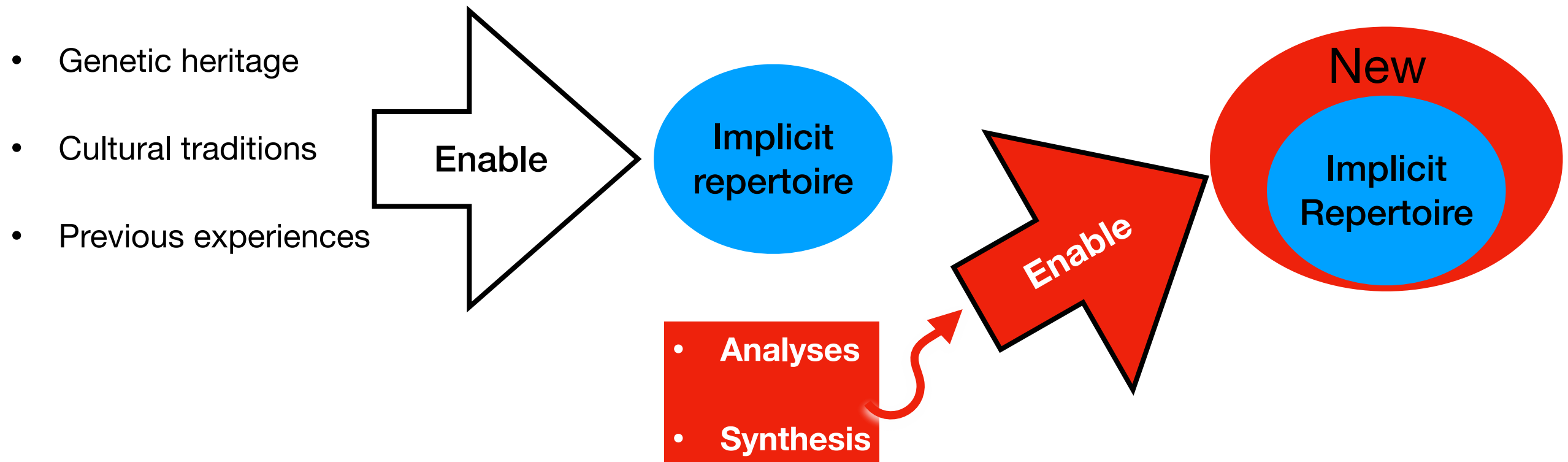
What feeds analyses and synthesis

- Genetic heritage

- Cultural traditions

- Previous experiences

Enable →

Implicit repertoire

Enable →

New

Implicit Repertoire

- **Analyses**

- **Synthesis**

Enables →

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

TEoWL, p. 1

An Aside: Mismatches

Detail of the upper right

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

Enables

- **Analyses**
- **Synthesis**

Enables

Spotting mismatches

Enables

Enables

Novelty

Enables

Updated Orientation

New Implicit Repertoire
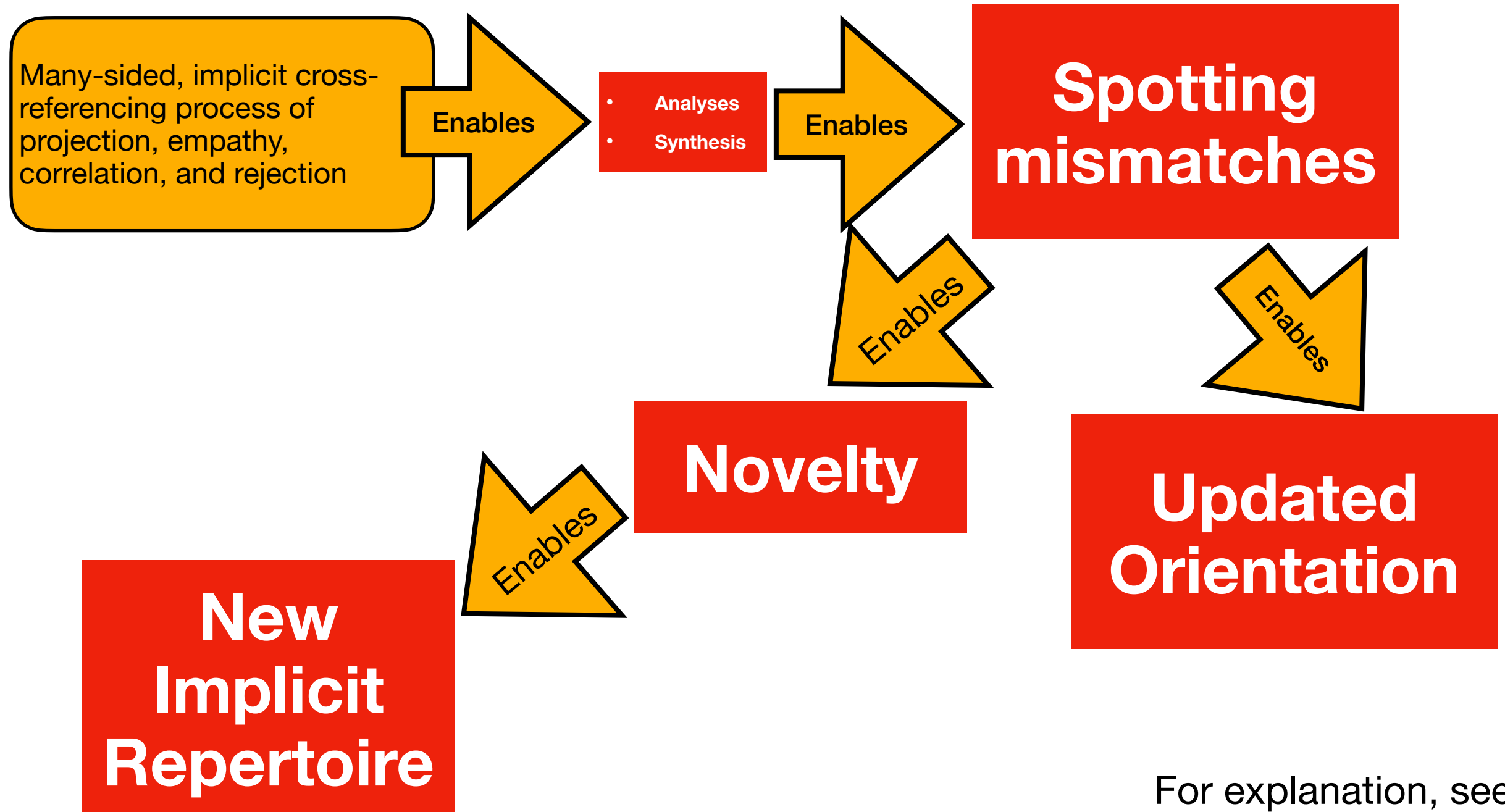
For explanation, see *Conceptual Spiral* (1992)
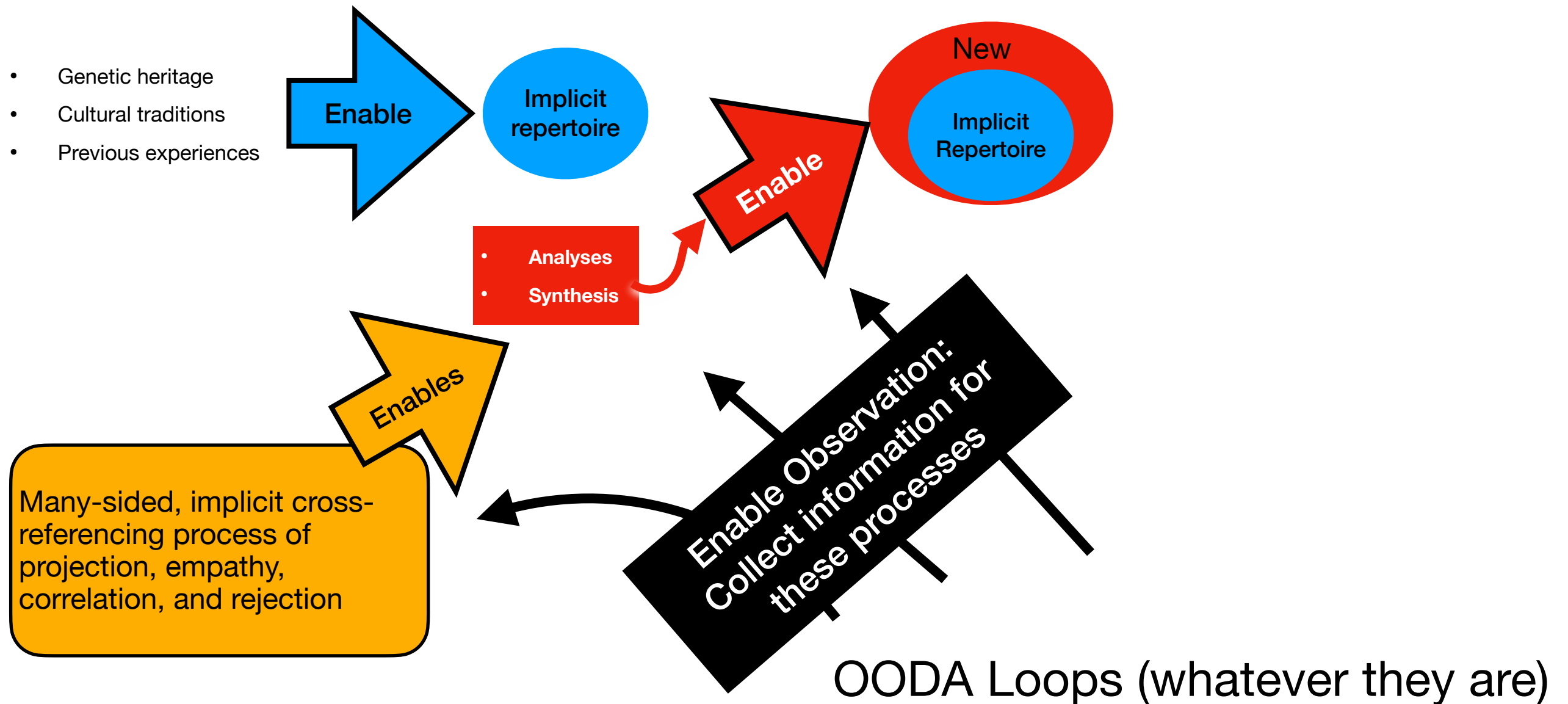
What about the OODA loop?
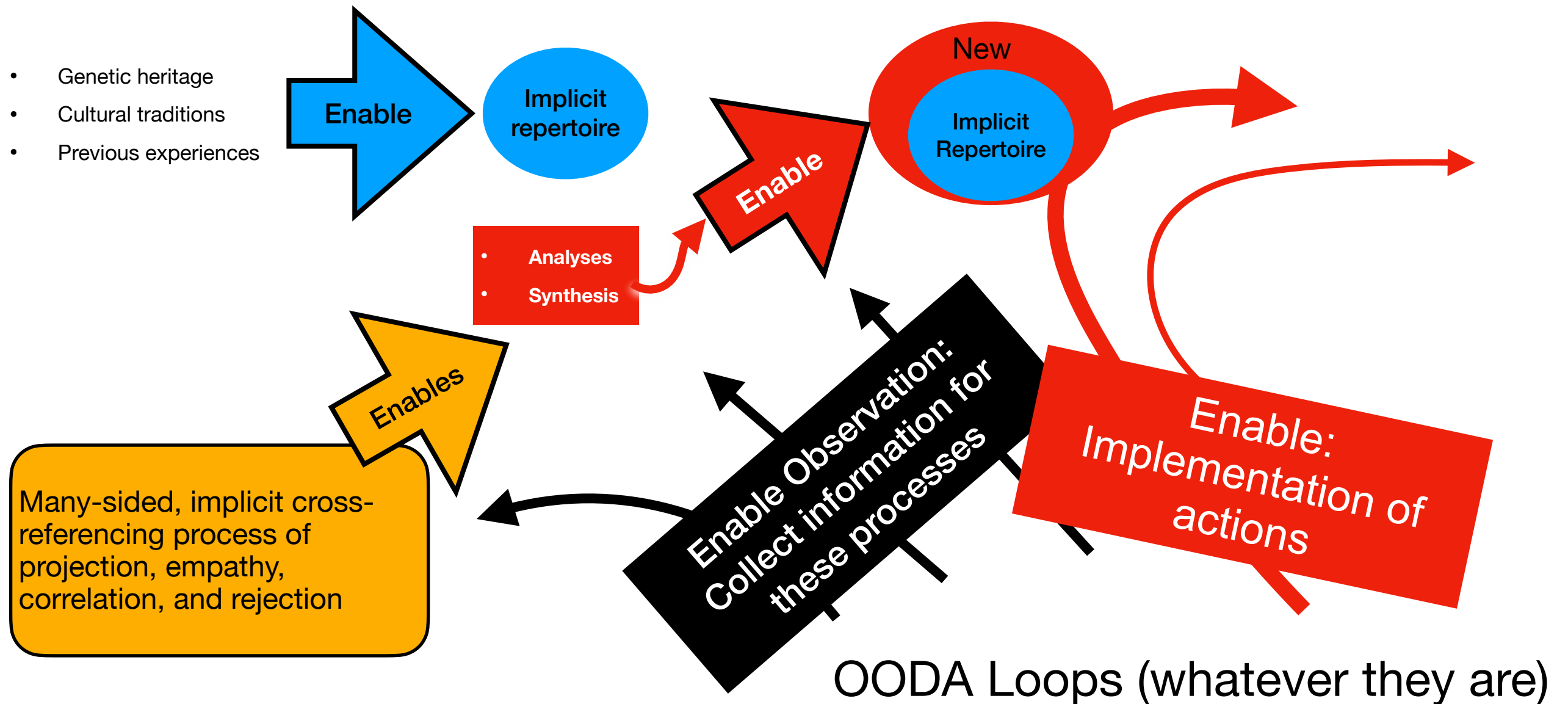## It serves two critical functions

"Without OODA loops,

- "We can neither sense, hence observe, thereby collect a variety of information for the above processes

- "nor decide as well as implement actions in accord with these processes."

The Essence of Winning and Losing, slide 1

OODA Loops: Observations

- Genetic heritage
- Cultural traditions
- Previous experiences

Enable

Implicit repertoire

- Analyses
- Synthesis

Enable

New

Implicit Repertoire

Enables

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

Enable Observation: Collect information for these processes

OODA Loops (whatever they are)

OODA Loops: Actions

- Genetic heritage
- Cultural traditions
- Previous experiences

Enable → **Implicit repertoire**

- **Analyses**
- **Synthesis**

Enable → **New** **Implicit Repertoire**

Enables

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

Enable Observation: Collect information for these processes

Enable: Implementation of actions

OODA Loops (whatever they are)

Given that, how do we construct an OODA Loop?

Constructing an OODA "loop"

Step one: "Orient" and"Decide"

- Genetic heritage
- Cultural traditions
- Previous experiences

Enable

Implicit repertoire

Enable

New

Implicit Repertoire

Decision by implicit guidance and control

Analyses

Synthesis

Enables

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

Orient

Cultural Traditions

Genetic Heritage

Analyses & Synthesis

New Information

Previous Experience

Feed Forward

Decide

Implicit Guidance & Control

Decision (Hypothesis)

An "Orient" block
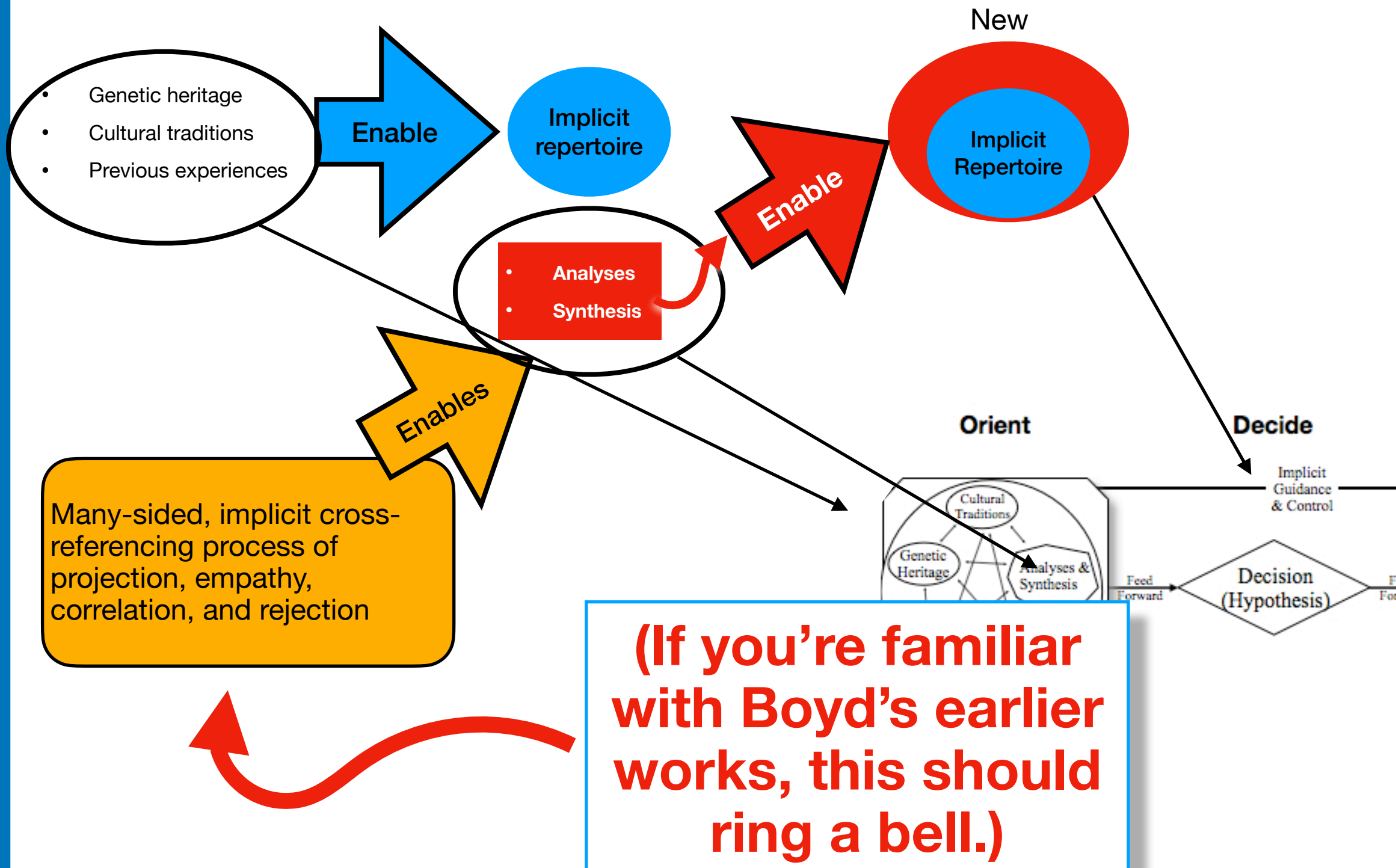
For those cases where explicit decision are required.

13

That gives us a first cut.

How do we add "Observe" and "Act"?

Completing an OODA "loop"
We already have a clue about "Observe" and "Act"

- Genetic heritage
- Cultural traditions
- Previous experiences

Enable → Implicit repertoire

New

Implicit Repertoire

- **Analyses**
- **Synthesis**

Enable

Enables

Many-sided, implicit cross-referencing process of projection, empathy, correlation, and rejection

Orient

Decide

Cultural Traditions

Genetic Heritage

Analyses & Synthesis

Feed Forward

Decision (Hypothesis)

Implicit Guidance & Control

(If you're familiar with Boyd's earlier works, this should ring a bell.)

Filling out the OODA "loop"
Start with Boyd's definition of "orientation"

Orientation is an interactive process of many-sided implicit cross-referencing projections, empathies, correlations, and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances.

In other words, Boyd's definition of "Orientation" from 1987 fits the requirement in the mustard colored boxes in earlier slides.

Organic Design, 15 (1987)

"Orientation" implies action

The "A" component

Orientation is an interactive process of many-sided implicit cross-referencing projections, empathies, correlations, and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances.

Into the external world, therefore involve Action

Organic Design, 15 (1987)

And observation

The first "O"

Orientation is an interactive process of many-sided implicit cross-referencing projections, empathies, correlations, and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances.

Involve sensing, and
so <u>Observations</u>

Organic Design, 15 (1987)

So, when Boyd put it all together
After many explorations and iterations

The OODA "Loop" Sketch
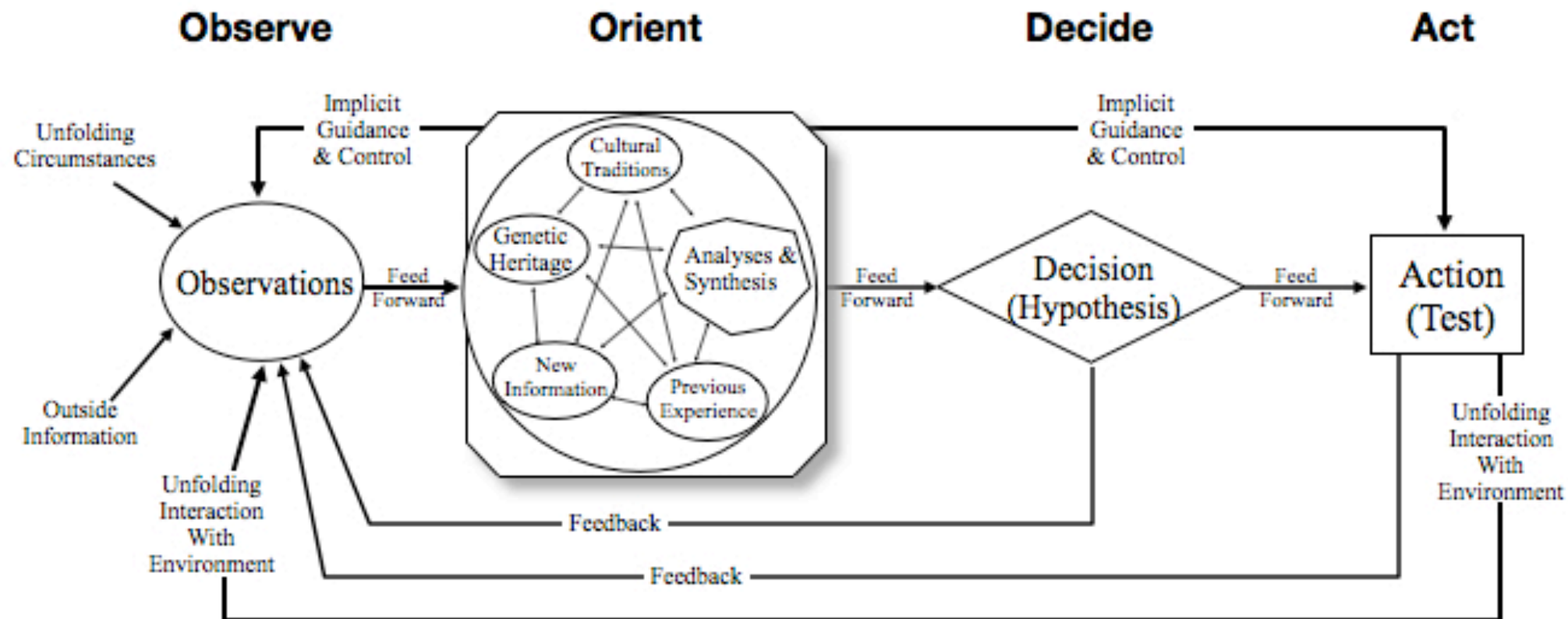
From *The Essence of Winning and Losing*, slide 3

However, if you look closely

The orientation process Boyd defined in 1987 differs significantly from what he put in the <u>Orient block</u>:

> ***Orientation*** is an interactive process of many-sided implicit cross-referencing projections, empathies, correlations, and rejections that is shaped by and shapes the interplay of genetic heritage, cultural tradition, previous experiences, and unfolding circumstances.

Orient

Boyd's definition of "orientation" from 1987. Without such a process, we cannot do analyses and arrive at a synthesis.
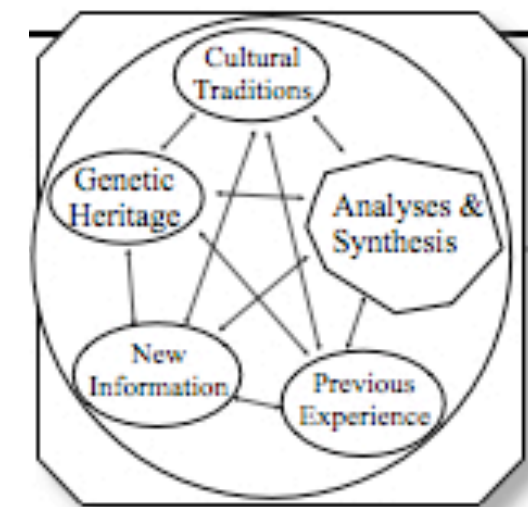
The Orient block from his 1996 OODA "loop" sketch

Specifically:

- Analyses and synthesis are components <u>inside</u> of the new Orient block, not simply processes enabled by it.

- Analyses and synthesis require an input process (observation/ sensing) — not part of the Orient block in Boyd's sketch.

- Analyses and synthesis require actions, in order to test and refine the synthesis and fine tune orientation.

- In other words, <u>the Orient block isn't sufficient for the enabling of analyses and synthesis that Boyd stated on p. 1 of *TEoWL*</u>. These processes also require observation and actions (and the ability to select them either implicitly or explicitly). <u>The entire OODA "loop" *is* sufficient</u>.

- Boyd summarized this on the bottom of his OODA "loop" sketch.
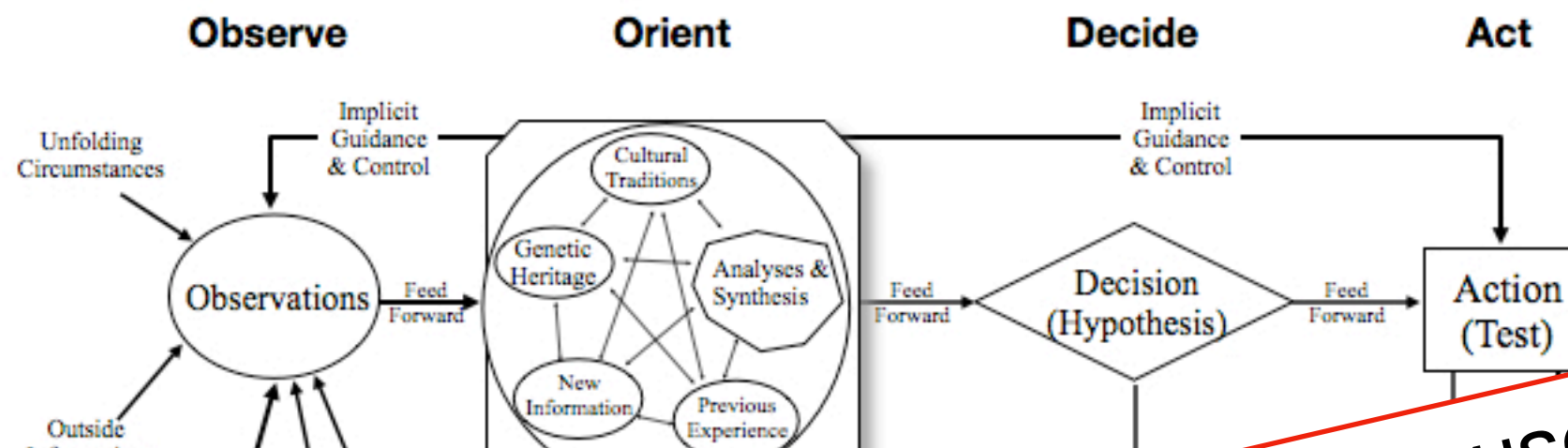
The OODA "Loop" Sketch
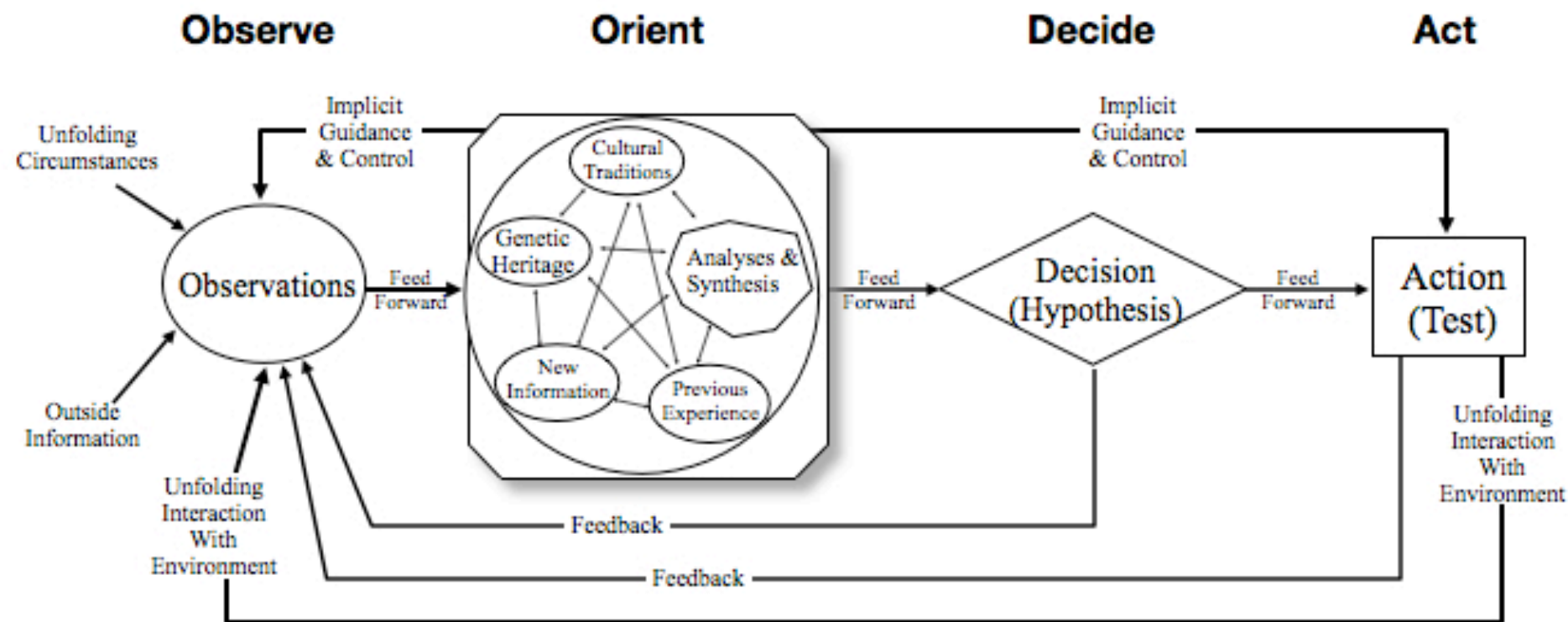
Note how orientation shapes observation, shapes decision, shapes action, and in turn is shaped by the feedback and other phenomena coming into our sensing or observing window.

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

(Emphasis added)

The Essence of Winning and Losing, slide 3

Now, step back and consider that the arrows represent flows of information and energy

Observe **Orient** **Decide** **Act**

Unfolding Circumstances

Implicit Guidance & Control

Implicit Guidance & Control

Observations

Feed Forward

Cultural Traditions

Genetic Heritage

Analyses & Synthesis

New Information

Previous Experience

Feed Forward

Decision (Hypothesis)

Feed Forward

Action (Test)

Outside

Note how orientation shapes observation, shapes decision...
by the feedback and other phenomena coming...

Also note how the entire "loo...
referencing proc...

Most of the components are changing because of these flows: new information, new experiences, new analyses, new syntheses, and as a result, new implicit repertoire and new orientation. And as the components change, they change the flows.

To simplify a bit

Note how orientation shapes observation, shapes decision, shapes action, [...] [...] [...] by the feedback and other phenomena coming into our sensing [...]

Also note how the entire "loop" (not just orie[...] referencing process of projection [...]

Most of the components are changing because of these flows: new information, new experiences, new analyses, new syntheses, and as a result, new implicit repertoire and new orientation. And as the components change, they change the flows.

What we have is a "far-from-equilibrium" structure

- Think of equilibrium as being a completely still pool of water

- Whirlpools, tornados and other vortexes, for example, can only exist when they are moving, "far from" that equilibrium: They depend on the flux of energy constantly moving in from the outside world. Furthermore, they self-organize, under the right conditions, and evolve as those conditions change.

- Thus, Boyd concluded that:

> By pulling all this together, we can see that the key statements, OODA loop sketch, and related insights represent an evolving, open-ended, far-from-equilibrium process of self-organization, emergence, and natural selection. *The Essence of Winning and Losing*, slide 4

A Final Aside

(We need to rename this block. Something else starting with "O")
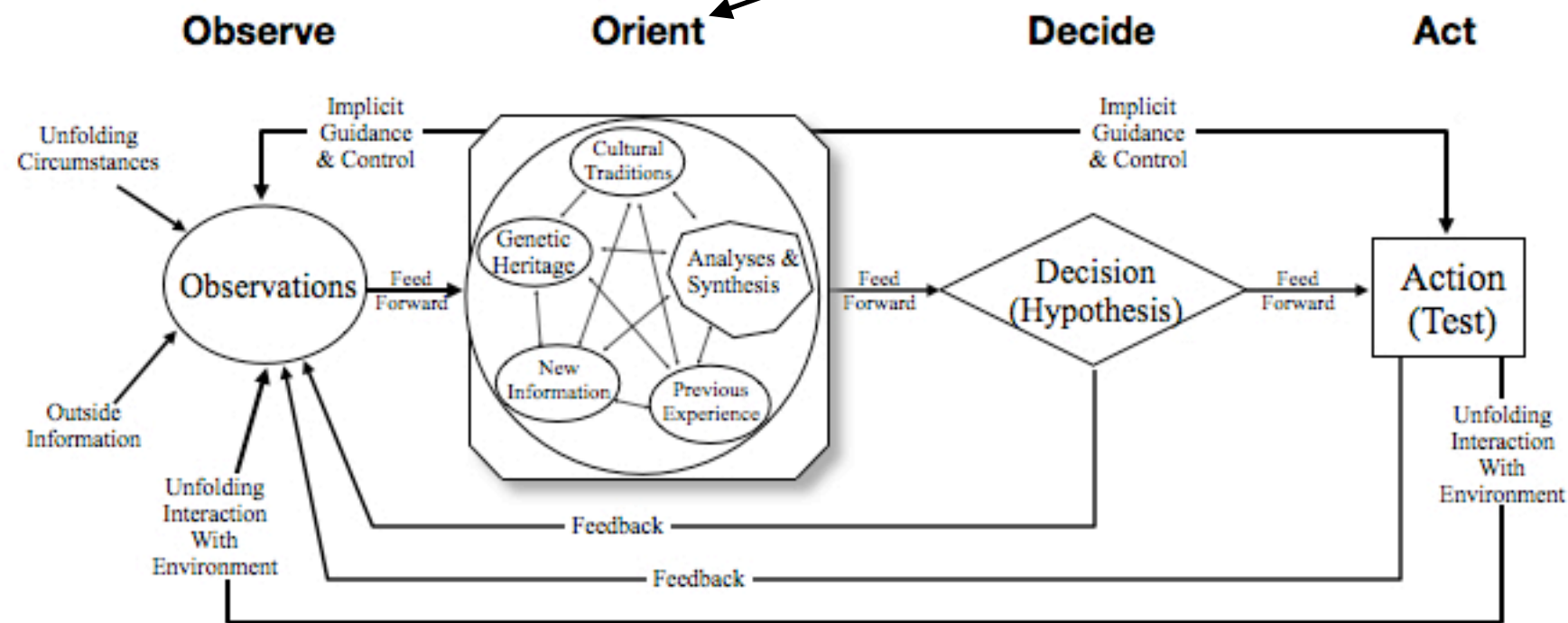
Note how orientation shapes observation, shapes decision, shapes action, and in turn is shaped by the feedback and other phenomena coming into our sensing or observing window.

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

(Emphasis added)

The Essence of Winning and Losing, slide 3, to which I made one small change.