

DevOps at Five

Michael T. Nygard - Cognitect

How Did We Get Here?

2009 - Patrick Debois

<http://github.com/jedi4ever>
@patrickdebois

but...

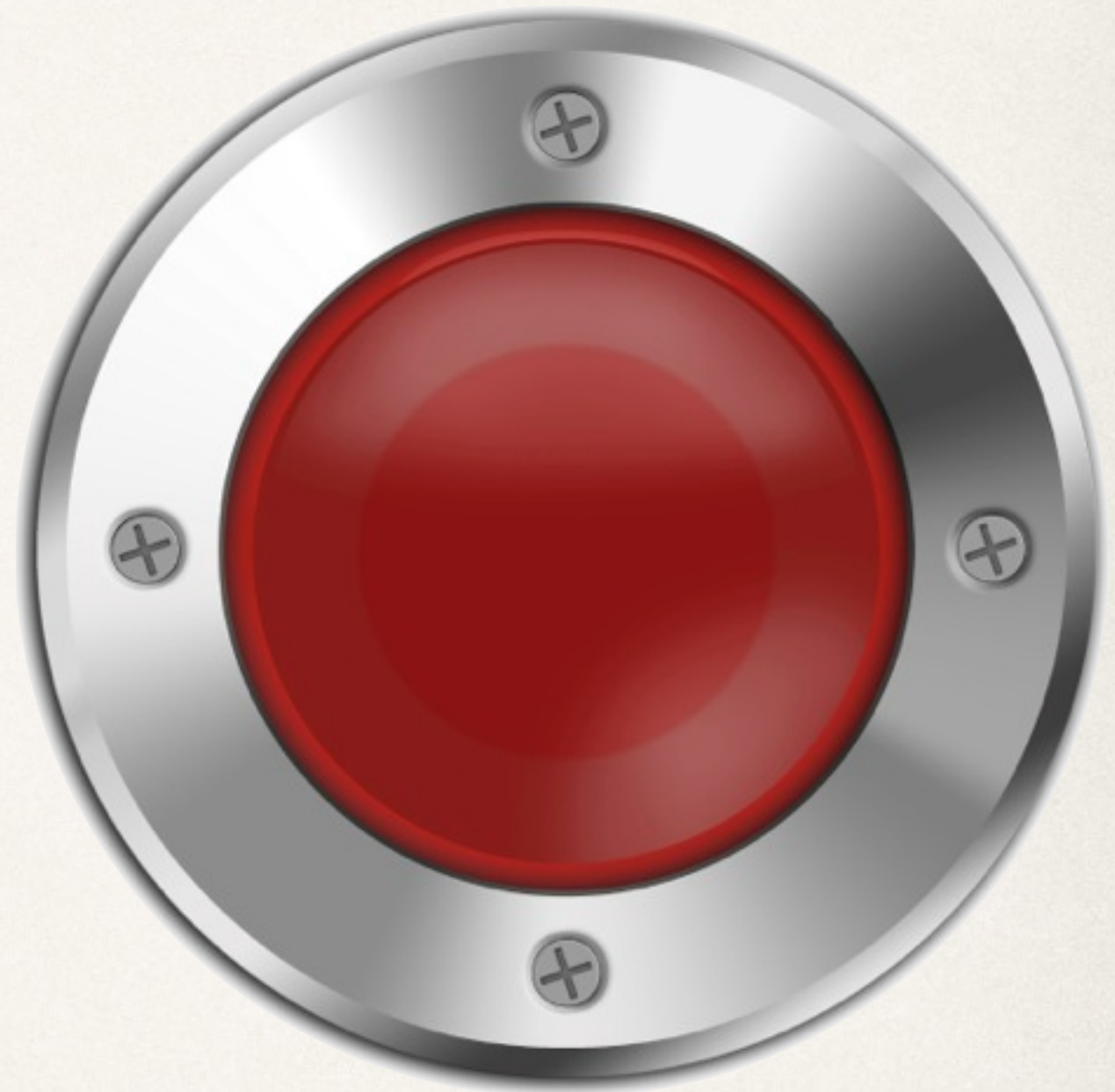
... many antecedents

Predecessor	When
“Agile Infrastructure”	mid-2000’s
“Infrastructure as Code”	early-2000’s
Infrastructure 2.0	early-2000’s
cfengine (Mark Burgess, @markburgess_osl)	1993 (!)

My Own Journey

Developer in Ops-land

- ❖ Wrote code to monitor internals
- ❖ Production module structure
- ❖ Version control configs
- ❖ Operator decompiling Java code to find bugs
- ❖ Ranting to developers about importance of production ops



What is this thing we're doing?

Web Ops?
High velocity operations?
Agile Operations?

DevOps

DevOps?

John Willis - The Demings of DevOps

@botchagalupe

CAMS

- ✦ Culture
- ✦ Automation
- ✦ Measurement
- ✦ Sharing

Culture

- ❖ Fast feedback
- ❖ Direct connections
- ❖ Data-based communication
- ❖ Collaborative, low-ceremony
- ❖ Enablement, not self-protection

Sound familiar?

- ❖ Simplicity
- ❖ Communication
- ❖ Feedback
- ❖ Respect
- ❖ Courage

Automation

- ❖ Lightweight tools, readiness to discard or change tools
- ❖ Open-source bias
- ❖ Automate for leverage to change
- ❖ Embrace & adopt “developer” tools
 - ❖ Source control
 - ❖ Code-based configuration

Measurement

- ❖ Measure *everything*
- ❖ Number of pizzas ordered by dev teams
 - ❖ Could be a leading indicator for turnover

Sharing

- ❖ Share information
- ❖ Share power
- ❖ Share knowledge

Donella Meadows – Leverage Points in a System

12. Constants, parameters, numbers

...

8. Strength of negative feedback loops

7. Gain around driving positive feedback loops

6. **Structure of information flows**

5. Rules of the system

...

You will never teach yourself out of
a job.

— Me

John Allspaw – Patron Saint of Ops

@allspaw

Allspaw Opens Our Eyes

10 deploys per day

Dev & ops cooperation at Flickr

John Allspaw & Paul Hammond

Velocity 2009

Human Factors and System Safety

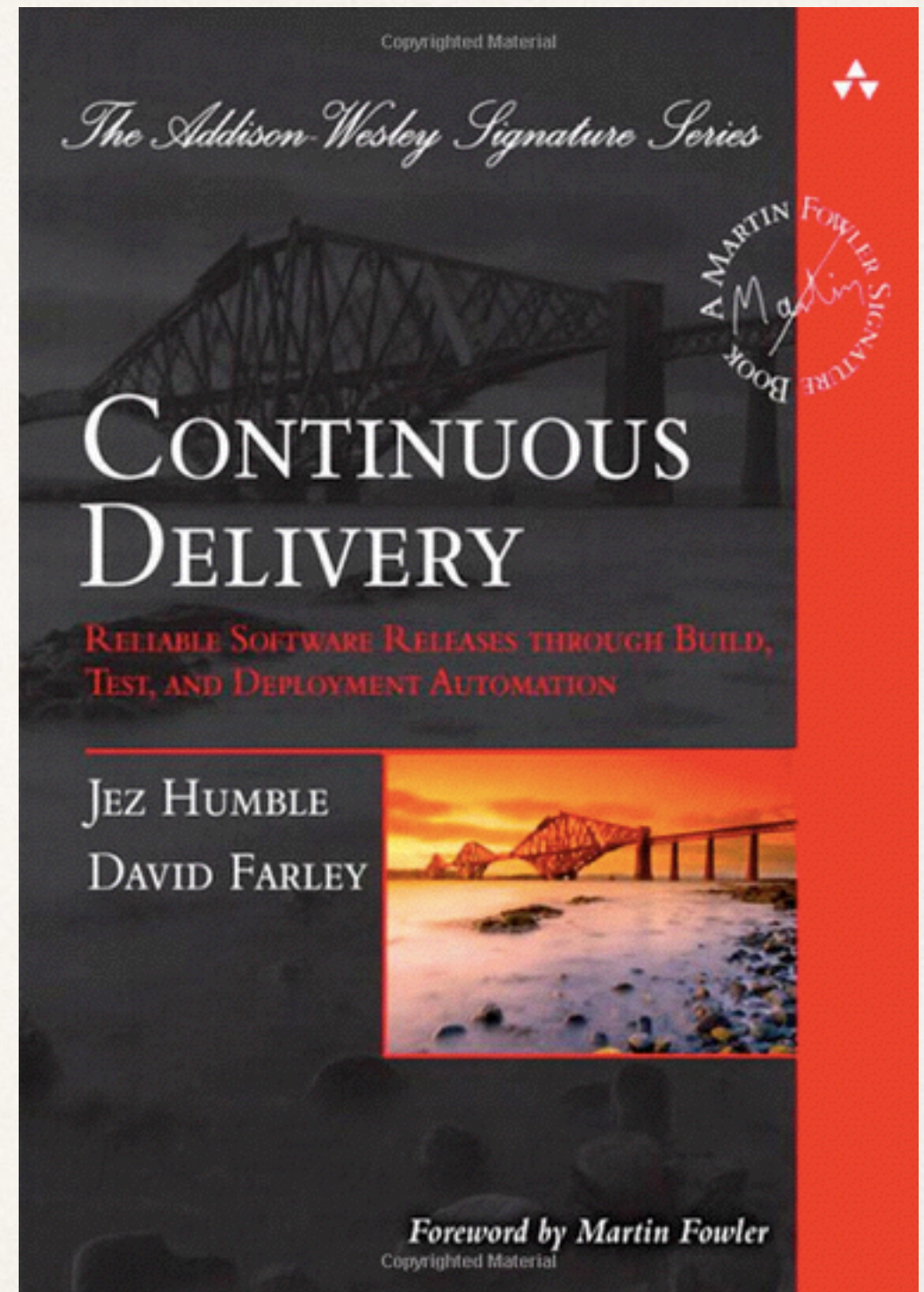
- ❖ People are part of the system
- ❖ Beware failure-inducing systems, unruly technology
- ❖ Blameless post-mortems

Jez Humble – Continuous Delivery

@jezhumble

Continuous Delivery

- ❖ Patterns for delivering software value
- ❖ Deployment and more
- ❖ Integrating value stream



Stakeholders

Dev

QA

Ops

Users

Stakeholders

Dev

QA

Ops

Users



Agile Development

DevOps



Stakeholders

Dev

QA

Ops

Users



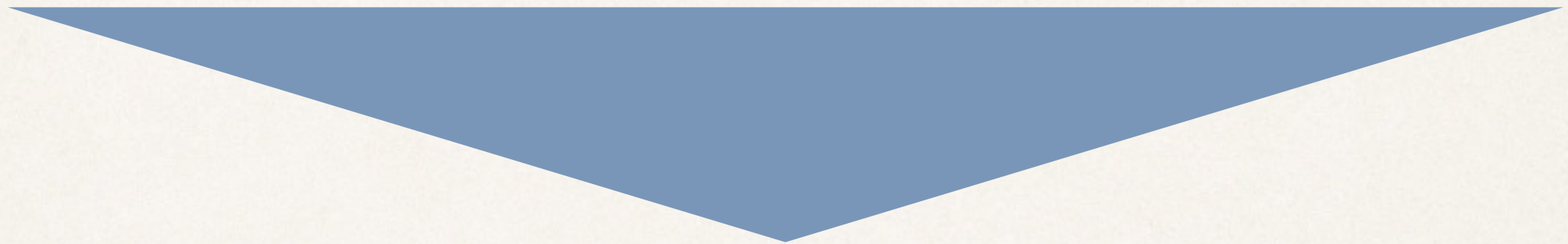
Agile Development

CAMS

Human
Factors

Agile
Values

CD



DevOps

Where Are We Now?

Area	Grade
Deployment	A-
Provisioning	B
Logging	A+
Monitoring	A+
Anomaly Detection	C
System Comprehension	D+

Antifragility – Systems That Improve From Randomness



Antifragility – Systems That Improve From Randomness

- ❖ Deployments == downtime
- ❖ More deployments -> resilience to partial failure

Development is Production

Statistical Sophistication

Effective Web Experimentation as a *Homo Narrens*

Dan McKinley
@mcfunley

<http://mcfunley.com/effective-web-experimentation-as-a-homo-narrans>

Some Cautions

expectations

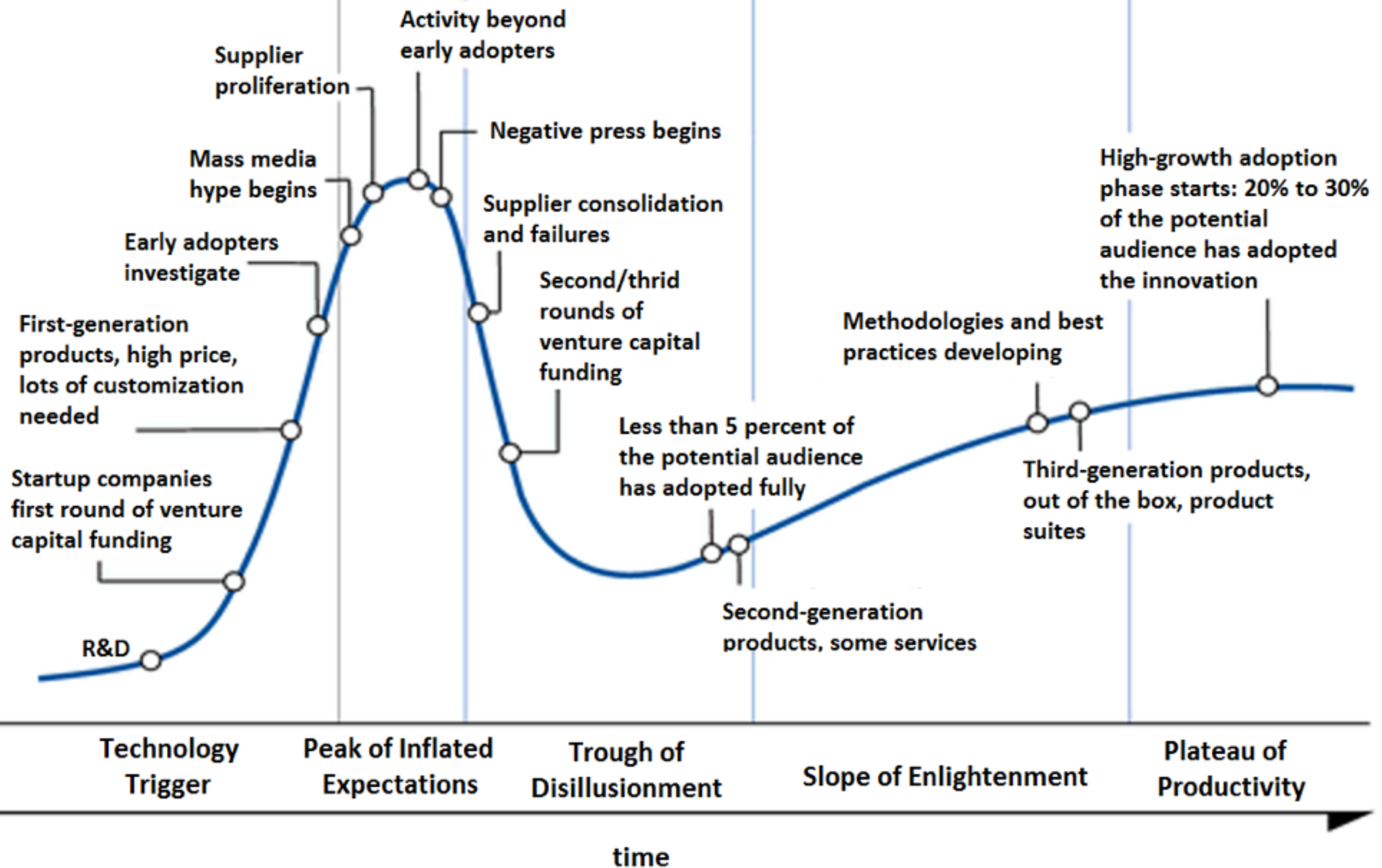
On the
Rise

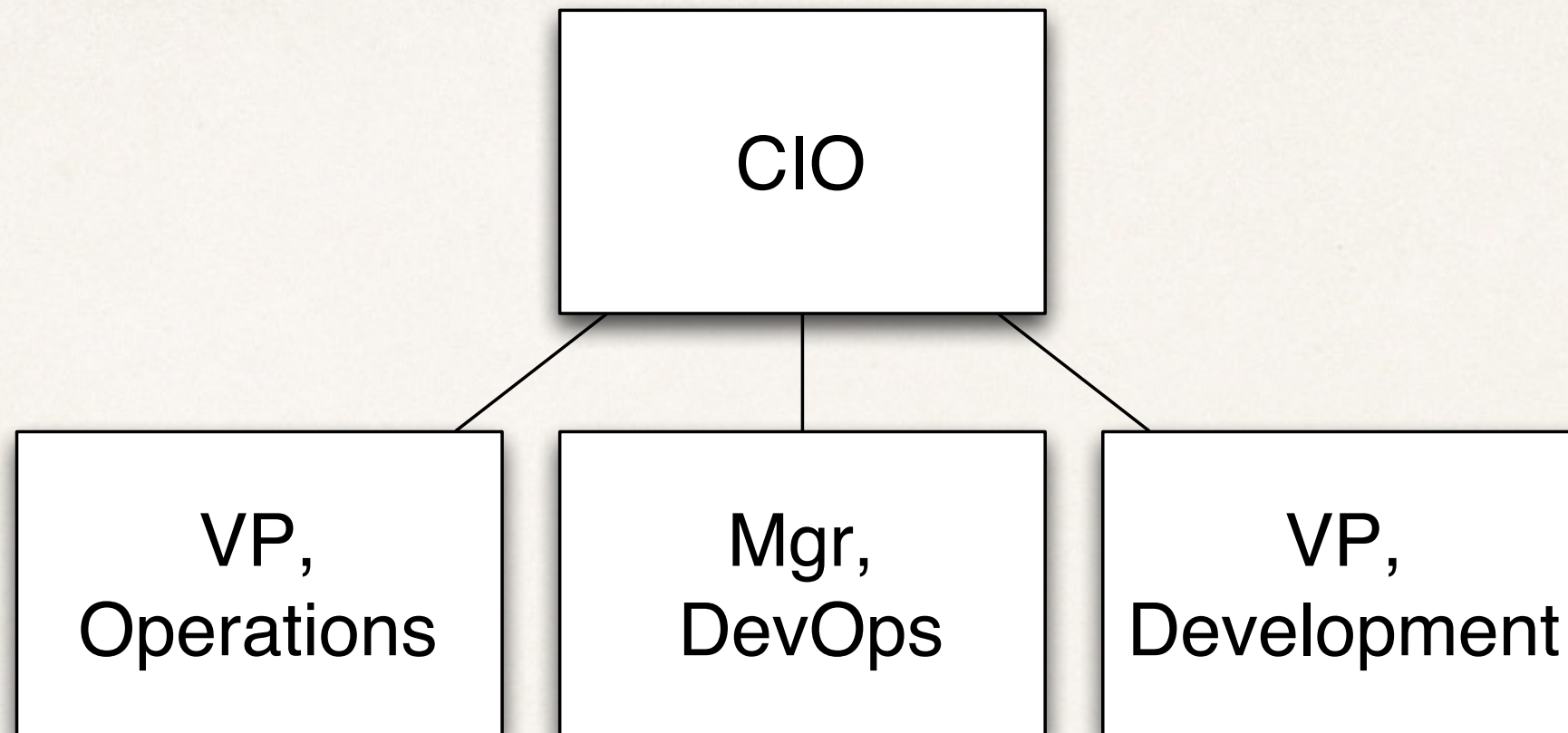
At the
Peak

Sliding Into
the Trough

Climbing
the Slope

Entering
the Plateau





Problems Yet To Solve

- ✧ The Paradox of Automation



The Making of a Fly: The Genetics of Animal Design (Paperback)

by Peter A. Lawrence

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All

New (2 from \$18,651,718.08)

Used (11 from \$42.56)

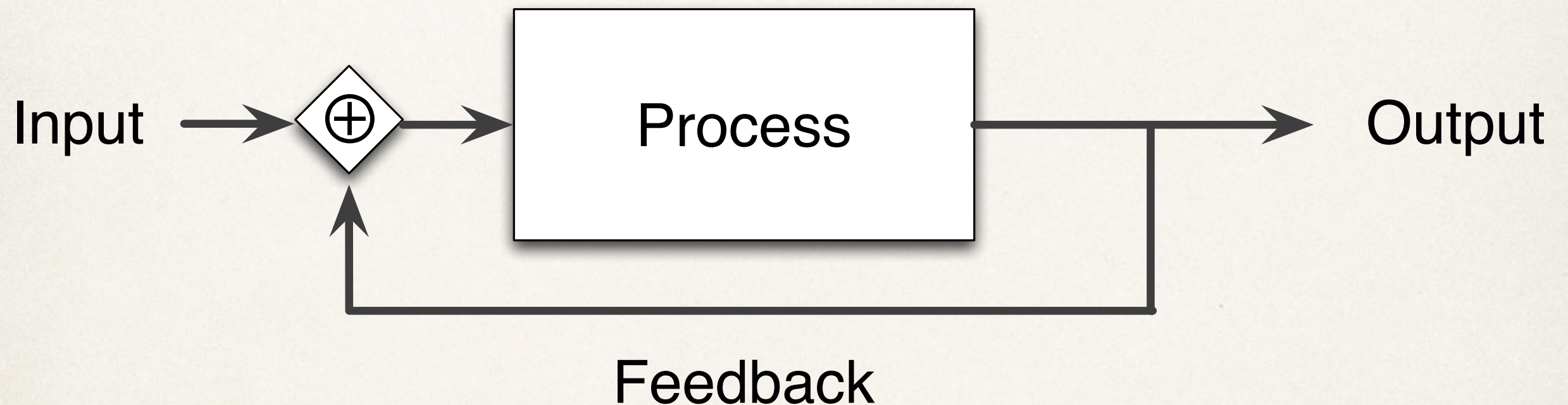
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New 1-2 of 2 offers

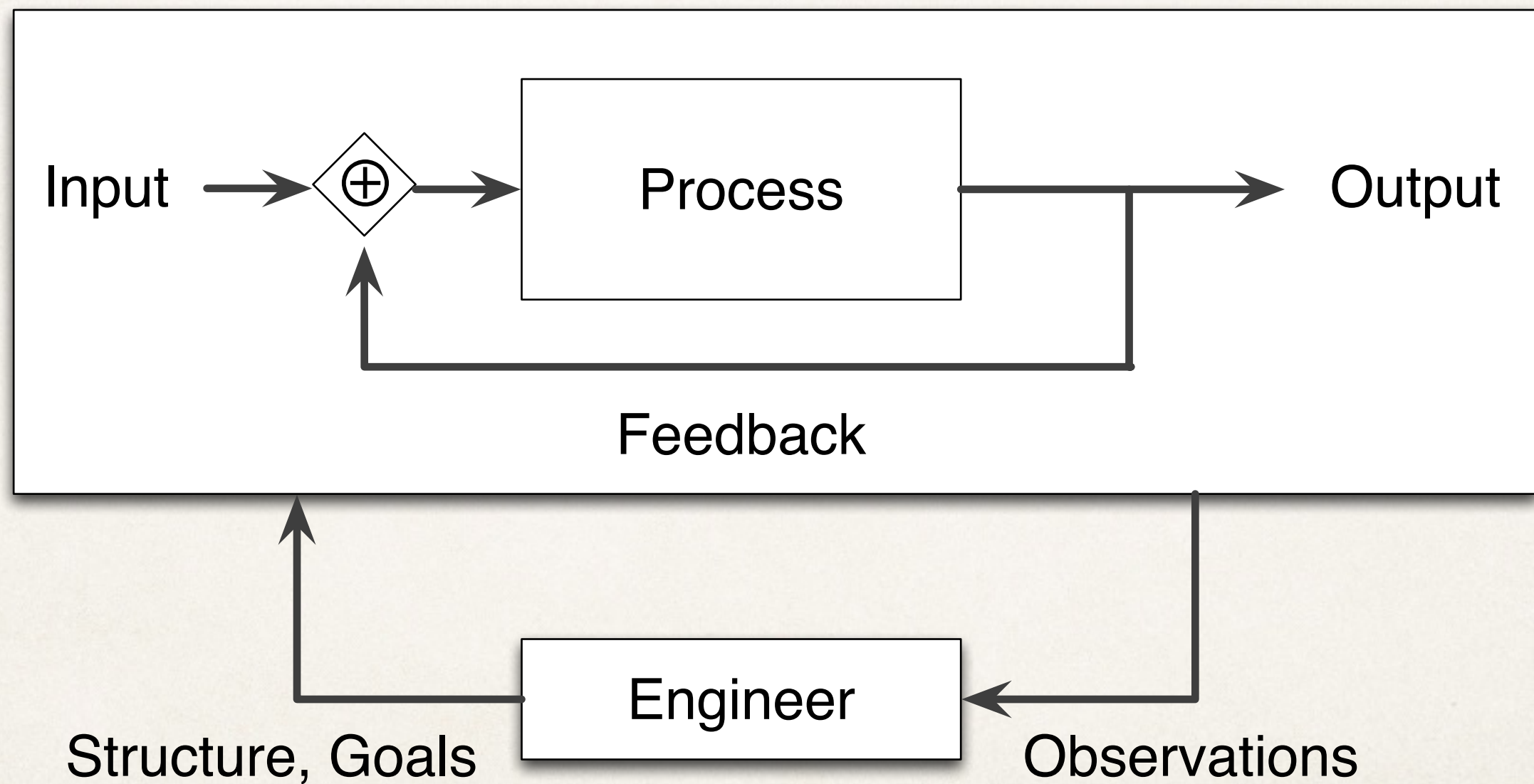
Price + Shipping	Condition	Seller Information
\$18,651,718.08 + \$3.99 shipping	New	Seller: profnath Seller Rating: 93% positive over In Stock. Ships from NJ, United States. Domestic shipping rates and return policy . Brand new, Perfect condition, Satisfaction Guar
\$23,698,655.93 + \$3.99 shipping	New	Seller: bordeebook Seller Rating: 93% positive over In Stock. Ships from United States. Domestic shipping rates and return policy . New item in excellent condition. Not used. May Satisfaction guaranteed!

Seller	Strategy	Pricing
profnath	Price arbitrage	99.8% of highest observed
bordeebook	Reputation arbitrage	127% of highest observed

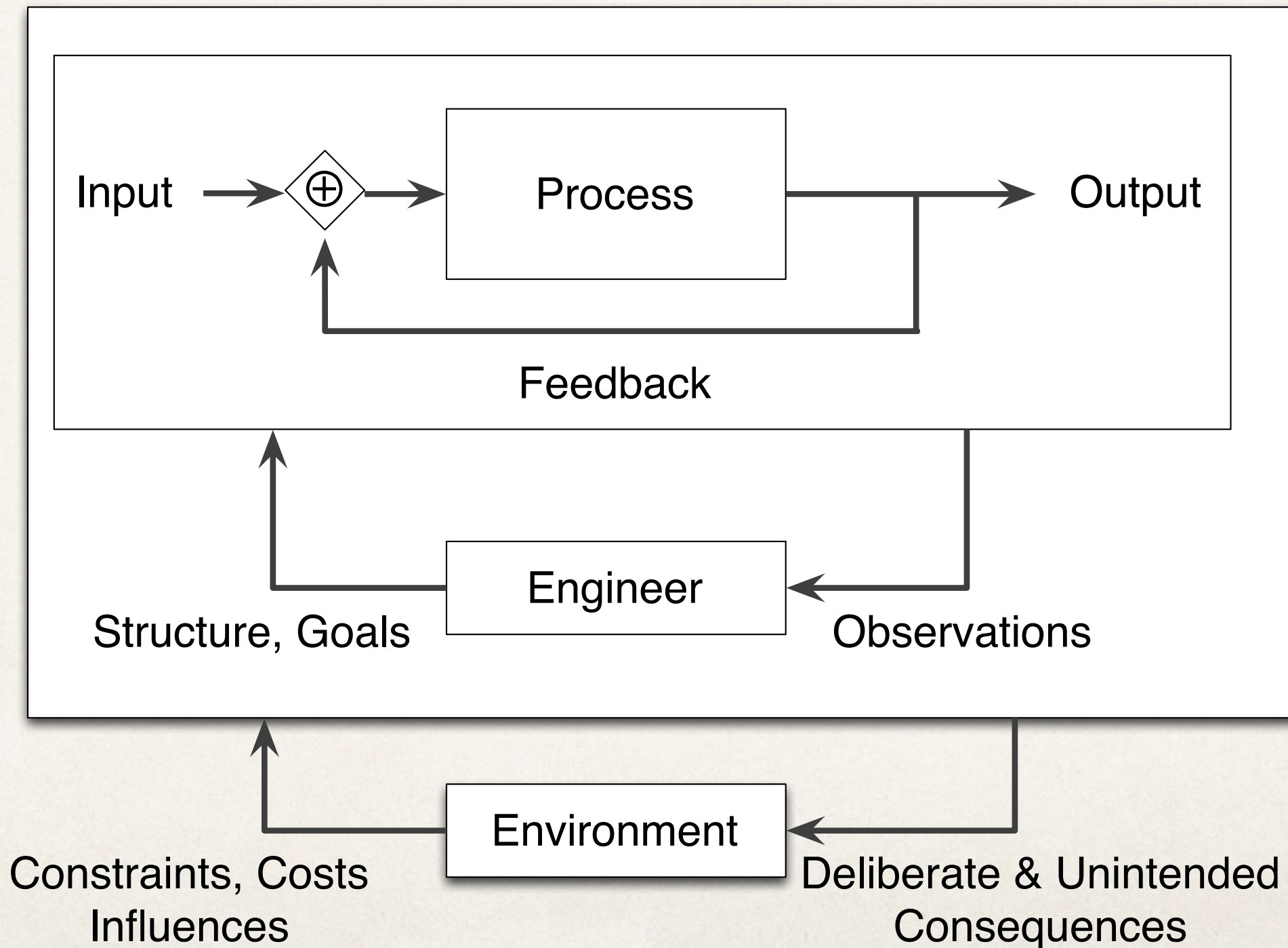
First-Order Cybernetics



Second-Order Cybernetics



Third-Order Cybernetics



Where Does This Apply?

- ❖ Systems Managing Systems
- ❖ Autoscaling
- ❖ Deployment
- ❖ Spot pricing
- ❖ Anomaly detection

Problems Yet To Solve

- ✧ The Paradox of Automation
- ✧ Legacy Organizations

Legacy Orgs

- ❖ ITIL
- ❖ Separation of Duties
- ❖ Managerial antagonism
- ❖ History of distrust & blame
- ❖ IT under threat from Cloud Computing as well

What is Next?

Beware Dilution

Keep the Faith

Don't Fight Stupid, Make More Awesome

Jesse Robbins
@jesserobbins

Thanks!

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[@mtnygard](https://twitter.com/mtnygard)