the inmates are running the asylum!

Using Quantified Value to Drive IT Projects

by Tom Gilb & Kai Gilb

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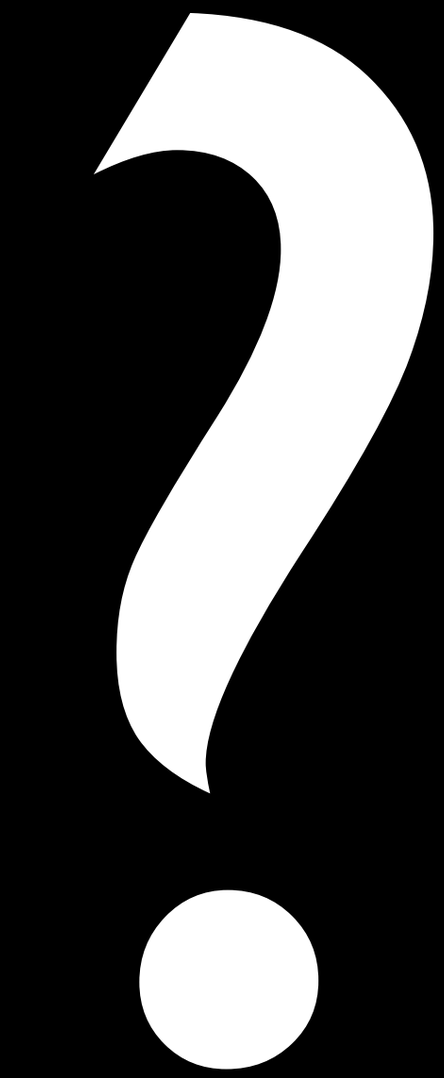
the inmates are running the asylum

We, the management, have a responsibility, one that the ‘developers’ don't worry about



deliver
value to stakeholders,
within limited resources.

Manifesto for Agile Software Development

We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

no *external* Value delivery?
not even a thought about most other *Stakeholders*?

It is all about YOU
"You, the developer, have become the center of the universe!"
(Scott Ambler)

Principles behind the Agile Manifesto

We follow these principles:

Our highest priority is to satisfy the *customer* through early and continuous delivery of valuable software.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the *primary* measure of progress.

Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

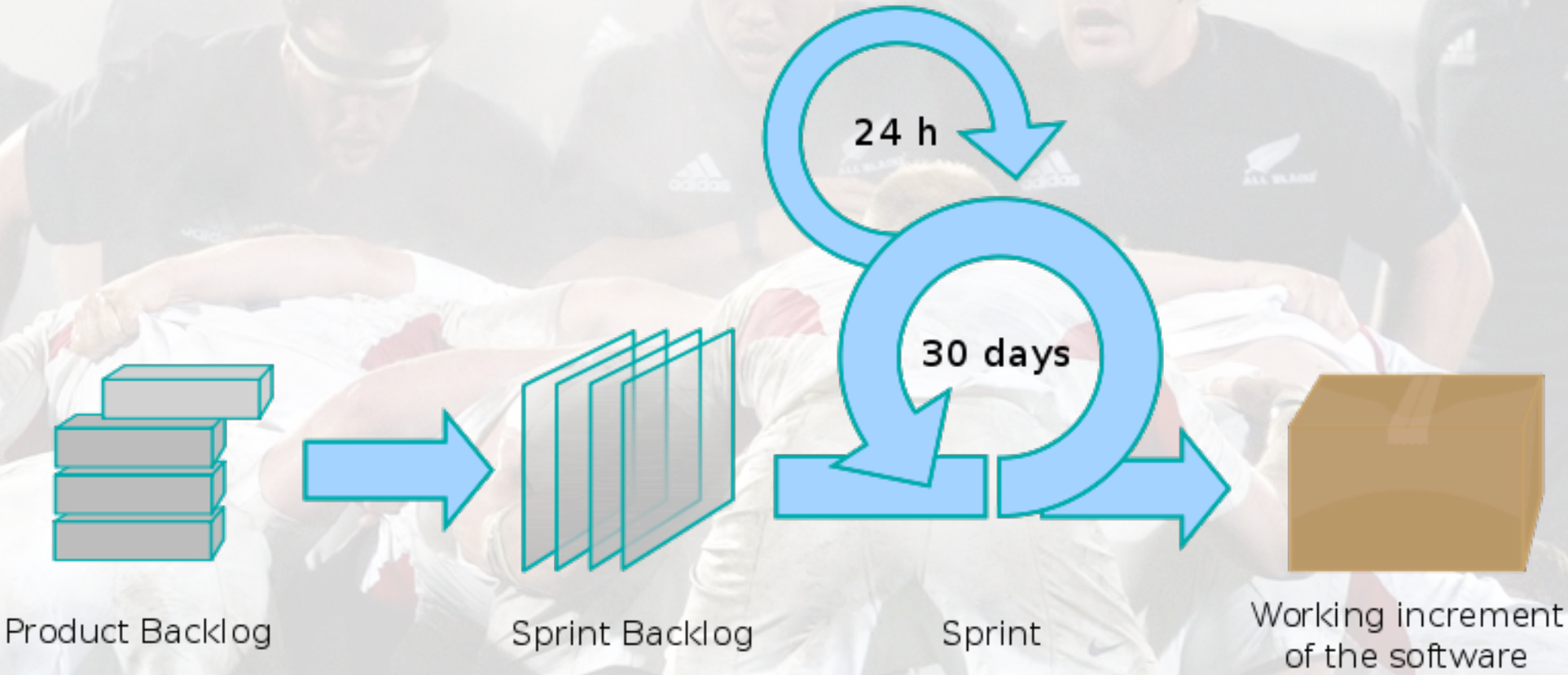
Continuous attention to technical excellence and good design enhances agility.

Simplicity--the art of maximizing the amount of work not done--is essential.

The best architectures, requirements, and designs emerge from self-organizing teams.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

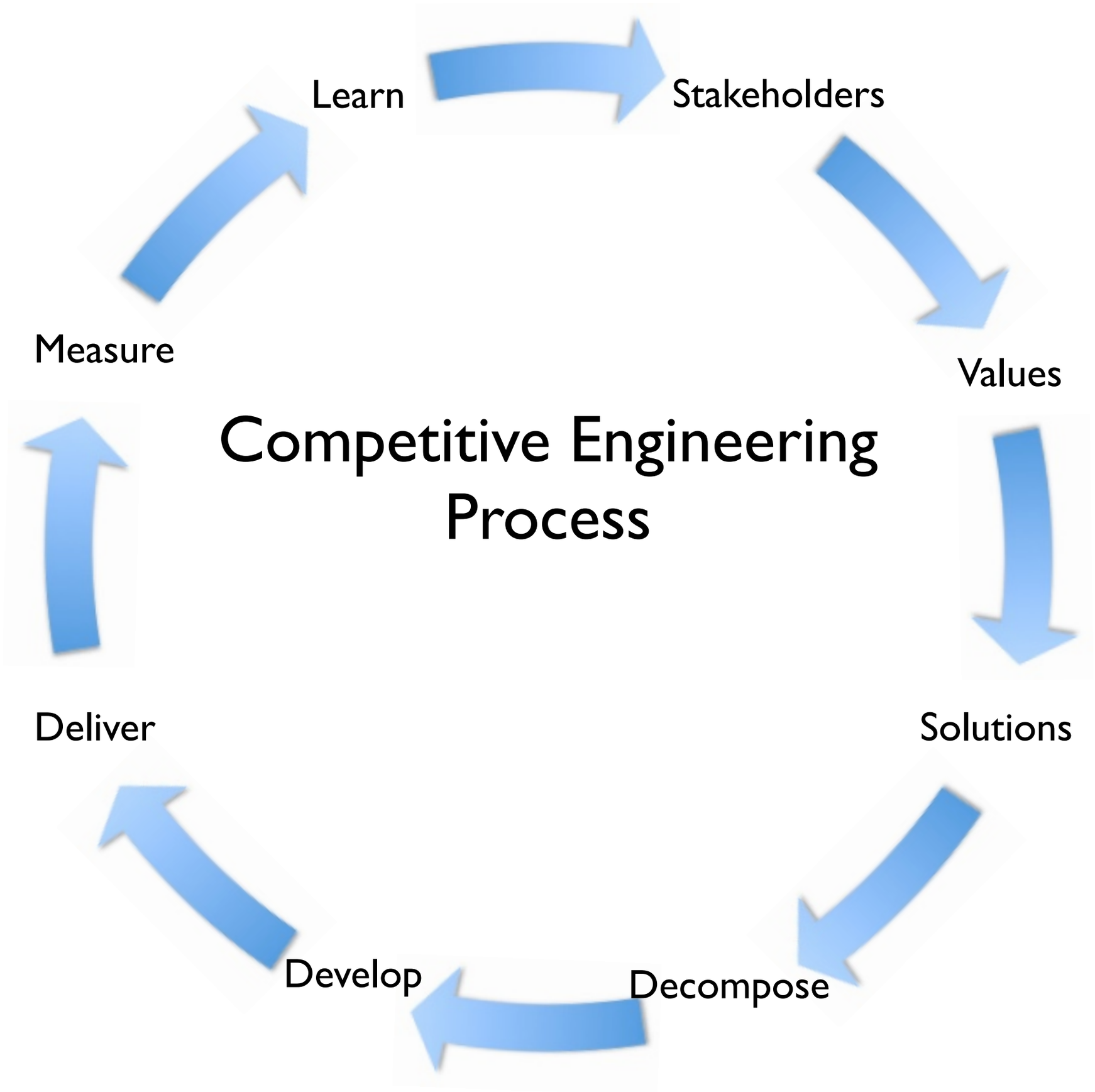
Scrum


24 h
30 days
Product Backlog
Sprint Backlog
Sprint
Working increment
of the software

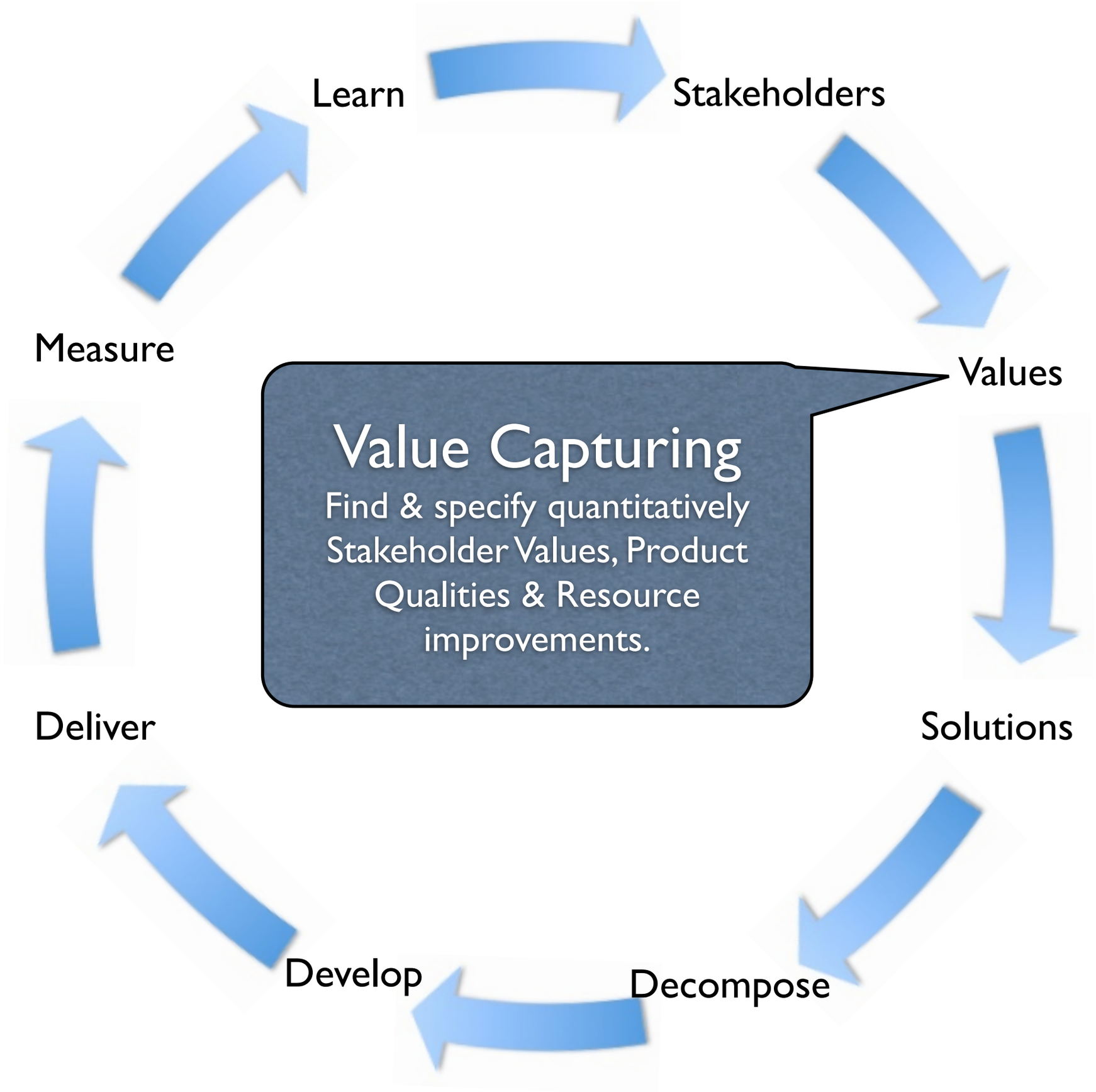
Should we not
understand and define
what our *stakeholders* value?

And set out to
deliver *that* value!

Competitive Engineering Process




Learn
Stakeholders
Values
Solutions
Decompose
Develop
Deliver
Measure
Identify Stakeholders
Who and what cares about the outcome of our project?


Learn
Stakeholders
Values
Solutions
Decompose
Develop
Deliver
Measure
Value Capturing
Find & specify quantitatively Stakeholder Values, Product Qualities & Resource improvements.


Learn
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Values
Solutions
Decompose
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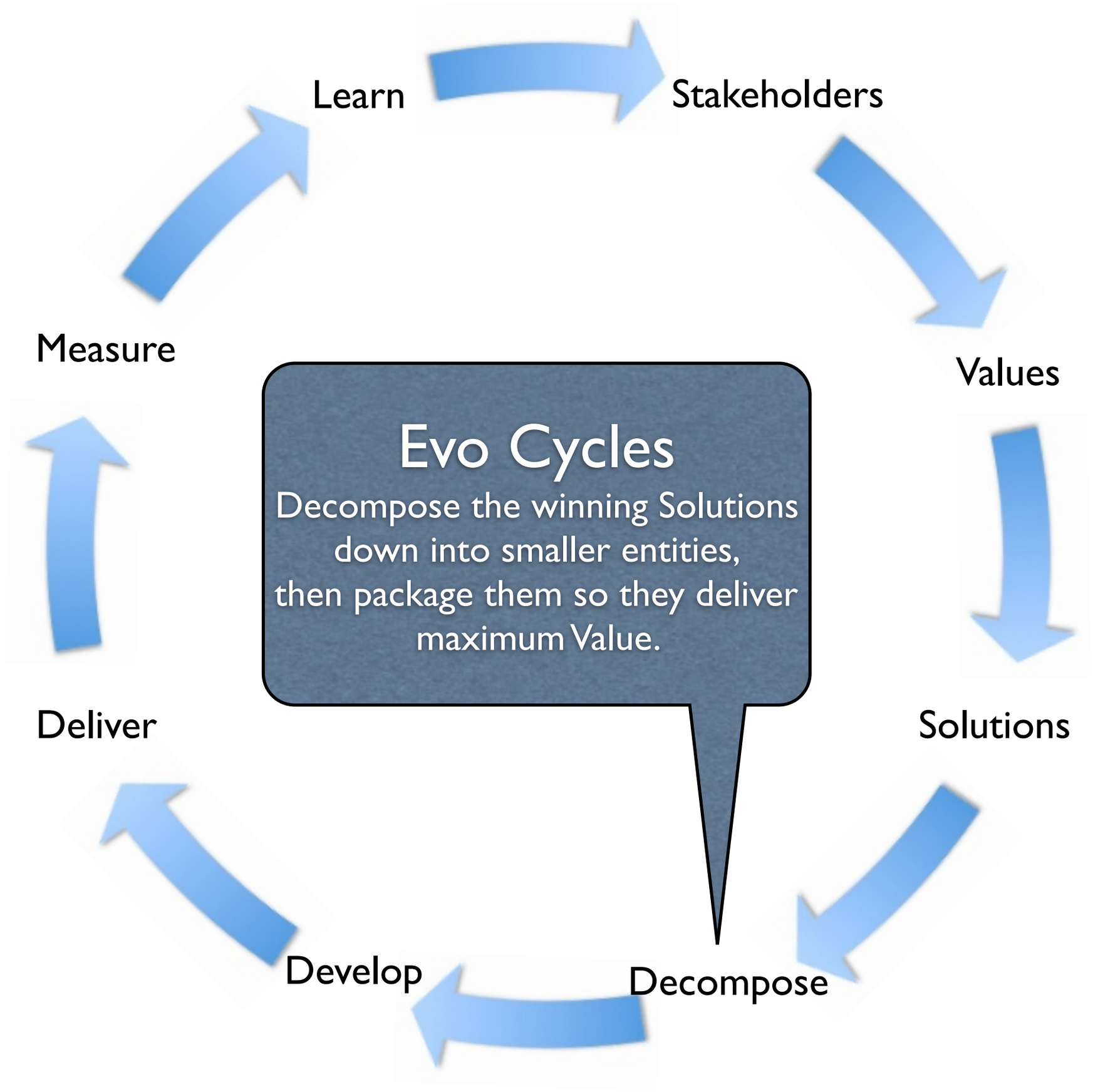
Deliver
Measure
Solution Prioritization
Find, Evaluate & Prioritize Solutions to satisfy Requirements.


Learn
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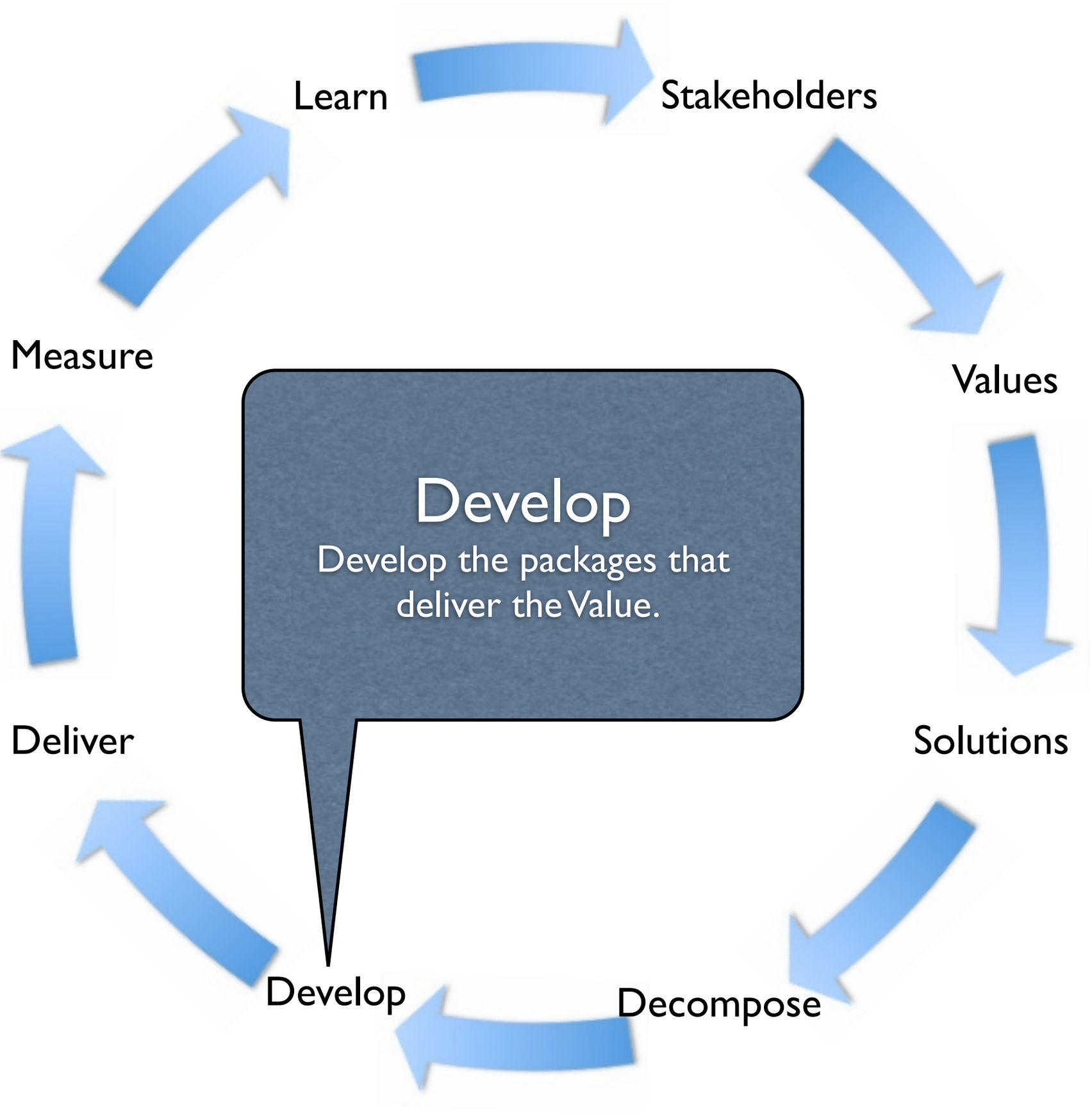
Deliver
Measure
Evo Cycles
Decompose the winning Solutions down into smaller entities, then package them so they deliver maximum Value.


Learn
Stakeholders
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Solutions
Decompose
Develop
Deliver
Measure
Develop
Develop the packages that deliver the Value.


Learn
Stakeholders
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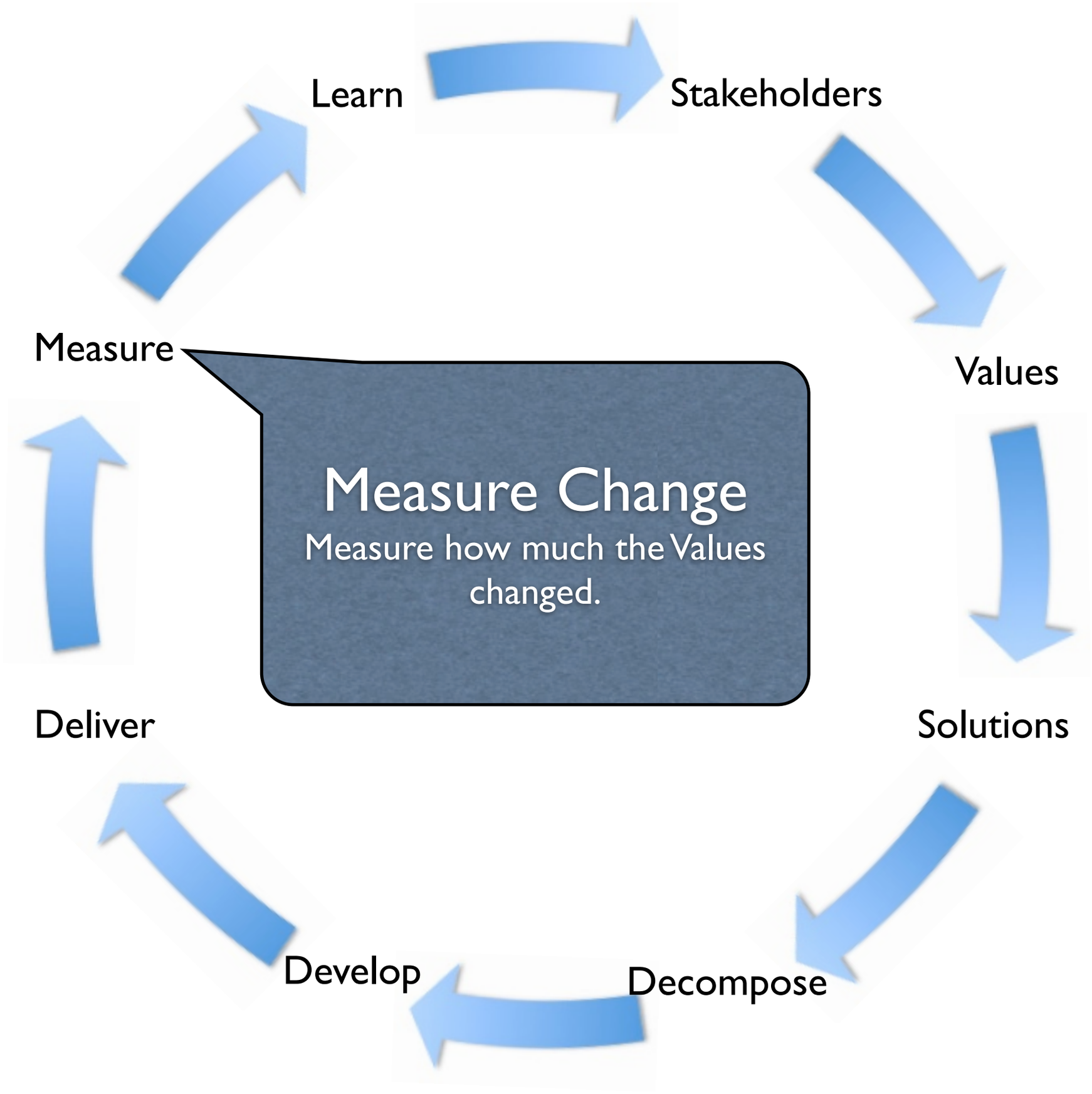
Solutions
Decompose
Develop
Deliver
Measure
Deliver
Deliver to Stakeholders
improved Value.
(not always a thing or code)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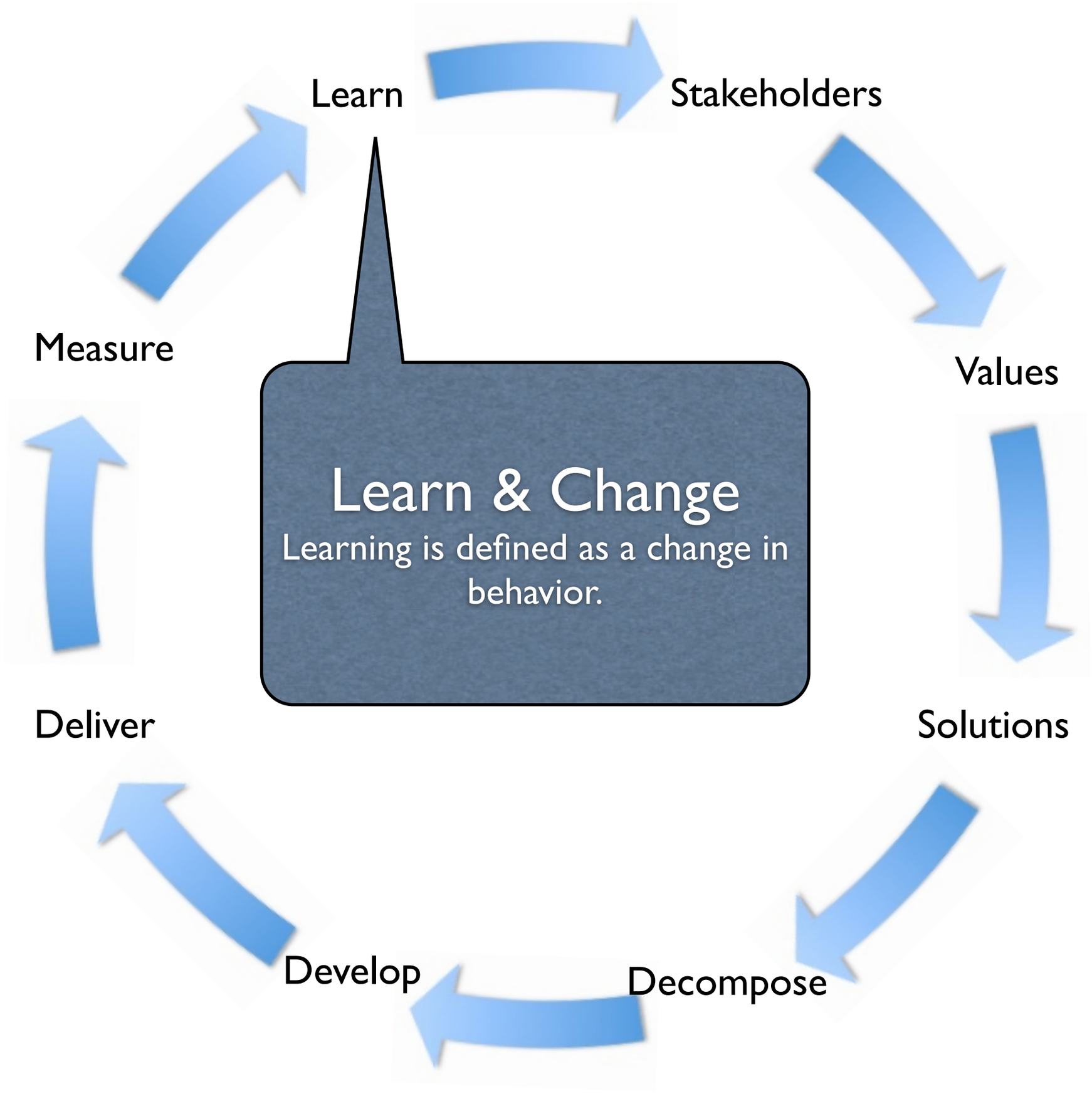
Deliver
Measure
Measure Change
Measure how much the Values changed.


Learn
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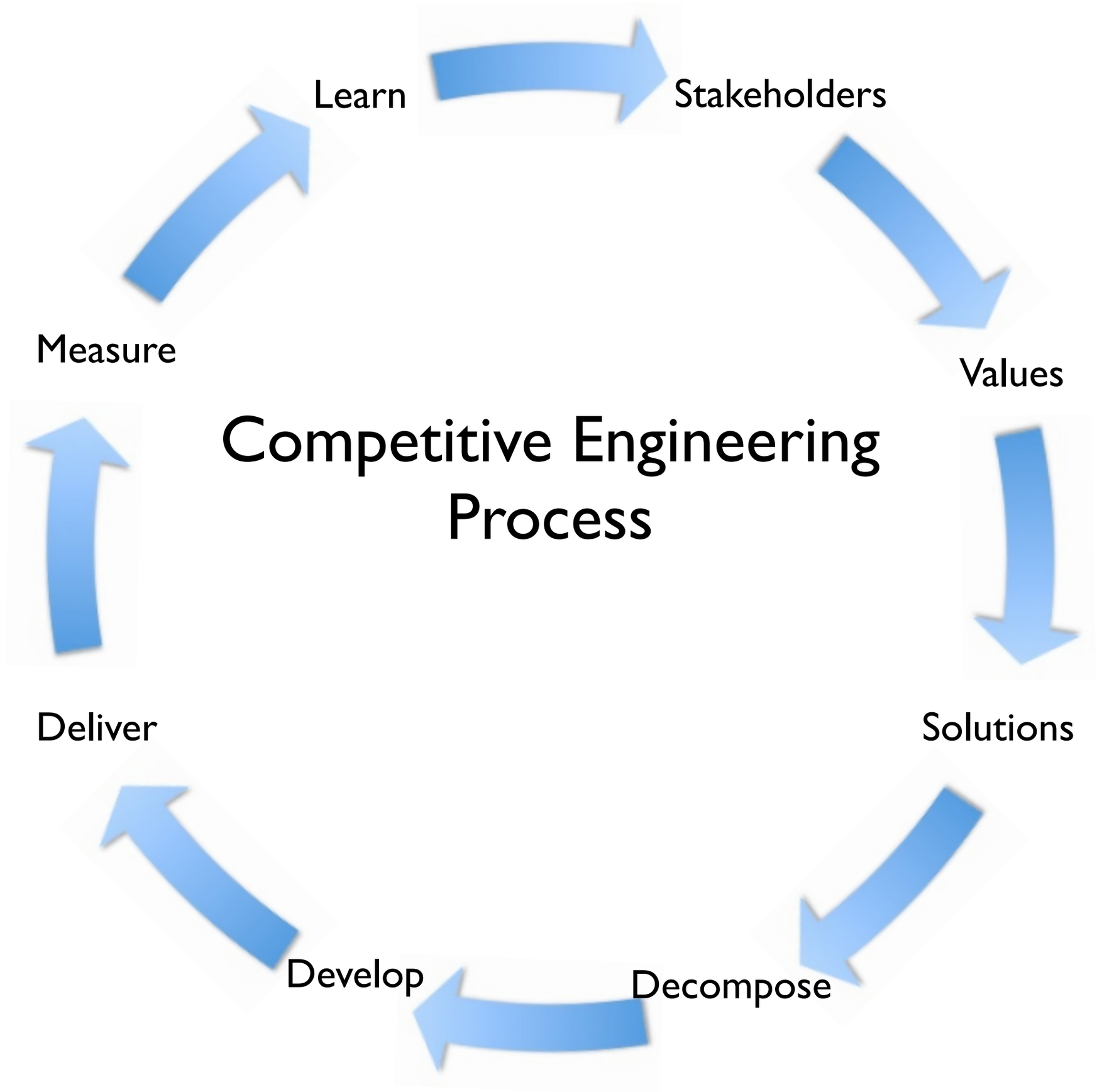
Measure
Learn & Change
Learning is defined as a change in behavior.

Competitive Engineering Process



Competitive Engineering Process

Learn

Stakeholders

Values

Solutions

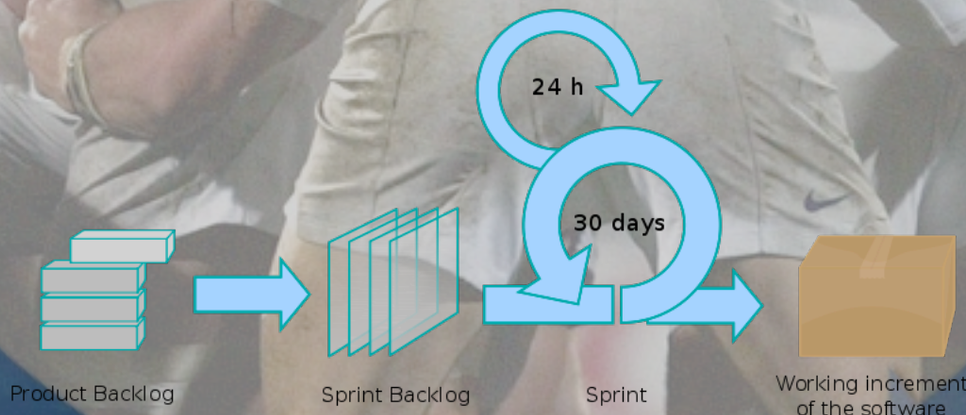
Decompose

Develop

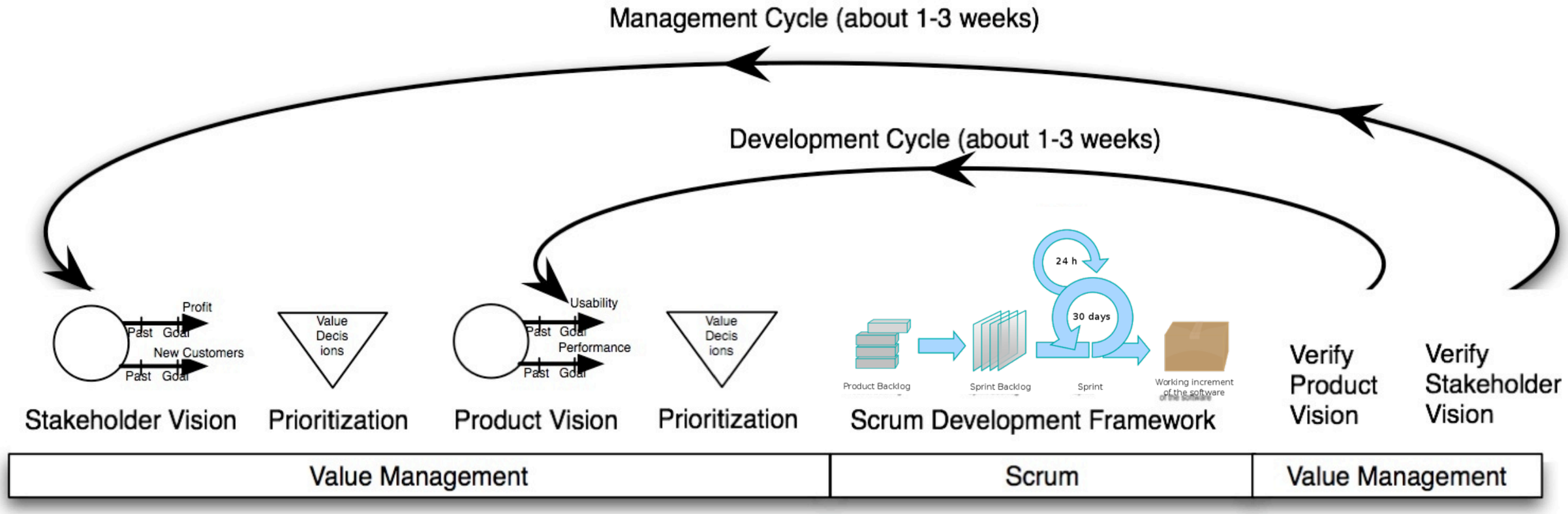
Deliver

Measure

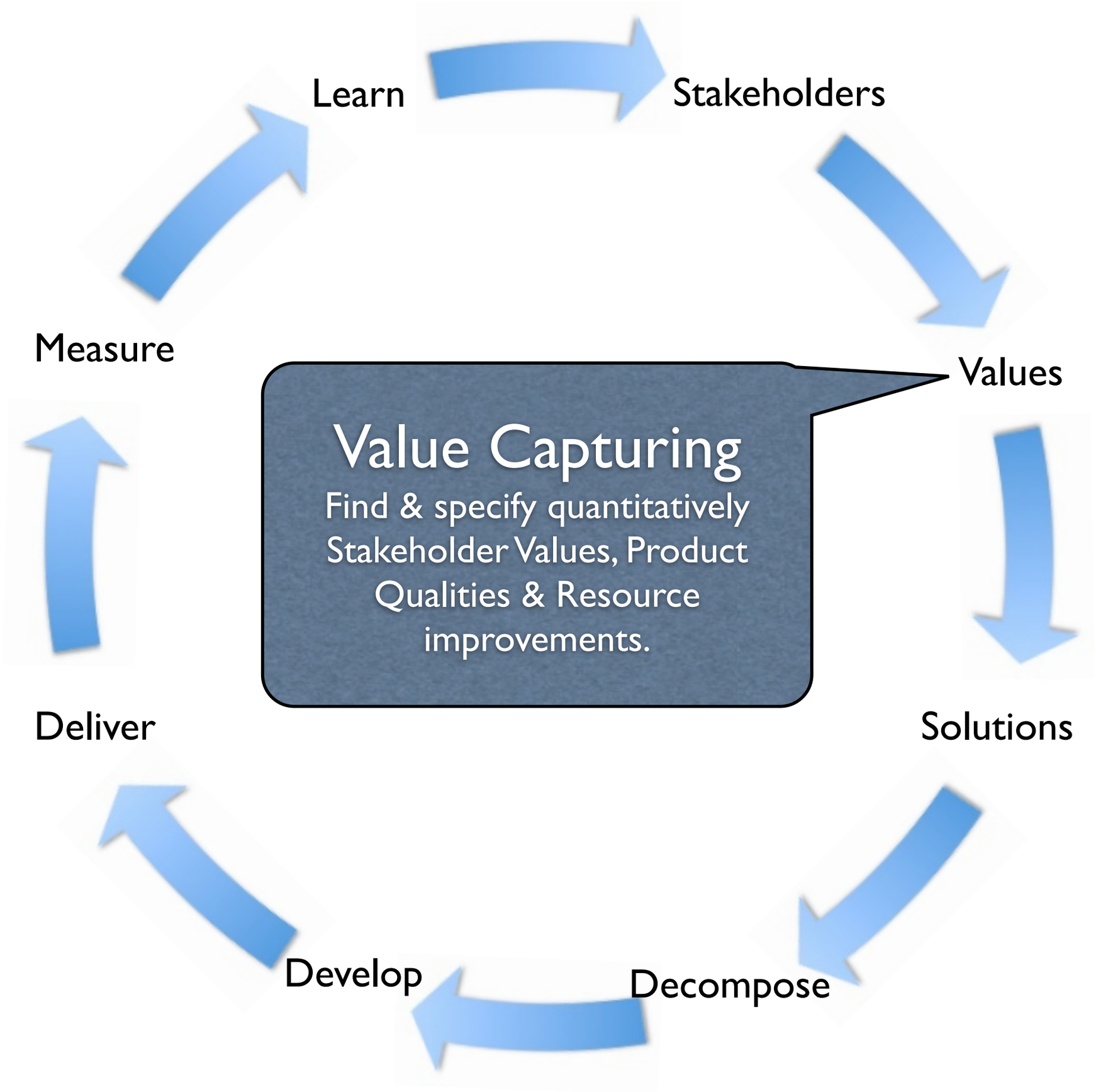
Developer



Competitive Engineering



examples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Value Capturing
Find & specify quantitatively Stakeholder Values, Product Qualities & Resource improvements.

Find.Fast

Scale: average time, in seconds, a User with def. [User-Experience, default=Normal] **uses to find what they and we want them to find.**

Lack of
clear top level project objectives
has seen real projects
fail for $100+ million

personal experience, **real case**

the 8 Bad Objectives , 8 years

1. Central to The Corporations business strategy is to be the world's **premier integrated** <domain> service provider.

2. Will provide a **much more efficient user experience.**

3. **Dramatically scale back** the time frequently needed after the last data is acquired to time align, depth correct, splice, merge, recompute and/or do whatever else is needed to generate the desired products.

4. Make the system **much easier to understand** and use than has been the case for previous system.than was previously the case.

5. A primary goal is to provide a **much more productive** system development environment than was previously the case.

6. Will provide a **richer set of functionality** for supporting next-generation logging tools and applications.

7. **Robustness is an essential** system requirement

8. **Major improvements in data quality** over current practice.

the 8 Bad Objectives , 8 years

7. **Robustness is an essential** system requirement

Robustness.Testability

Scale: **the duration of a defined [Volume] of testing**, or a defined [Type], by a defined [Skill Level] of system operator, under defined [Operating Conditions].

the 8 Bad Objectives , 8 years

7. **Robustness is an essential** system requirement

Robustness.Testability

Scale: the duration of a defined [**Volume**] of testing, or a defined [**Type**], by a defined [**Skill Level**] of system operator, under defined [**Operating Conditions**].

Goal [All Customer Use, **Volume** = 1,000,000 data items, **Type** = WireXXXX Vs DXX, **Skill Level** = First Time Novice, **Operating Conditions** = Field, {Sea Or Desert}] **<10 mins.**

the 8 Bad Objectives , 8 years

7. **Robustness is an essential** system requirement

Robustness.Testability

Type: Software Quality Requirement.
Version: 20 Oct 2006-10-20
Status: Demo draft,
Stakeholder: {Operator, Tester}.
Ambition: Rapid-duration automatic testing of <critical complex tests>, with extreme operator setup and initiation.

Scale: the duration of a defined [Volume] of testing, or a defined [Type], by a defined [Skill Level] of system operator, under defined [Operating Conditions].

Goal [All Customer Use, Volume = 1,000,000 data items, Type = WireXXXX Vs DXX, Skill = First Time Novice, Operating Conditions = Field, {Sea Or Desert}] **<10 mins.**

One Page

All Values on One page

P&L-Consistency&T P&L: **Scale:** total adjustments btw Flash/ Predict and Actual (T+1) signed off P&L. per day. **Past 60 Goal**: **15**

Speed-To-Deliver: **Scale**: average Calendar days needed from New Idea Approved until Idea Operational, for given Tasks, on given Markets.
Past [2009, Market = EURex, Task =Bond Execution] **2-3 months** ?
Goal [Deadline =End 20xz, Market = EURex, Task =Bond Execution] **5 days**

Operational-Control: **Scale**: % of trades per day, where the calculated economic difference between OUR CO and Marketplace/Clients, is less than "1 Yen"(or equivalent).
Past [April 20xx] **10%** change this to 90% NH **Goal** [Dec. 20xy] **100%**

Operational-Control.Consistent: **Scale**: % of defined [Trades] failing full STP across the transaction cycle. **Past** [April 20xx, Trades=Voice Trades] **95%**
Past [April 20xx, Trades=eTrades] **93%**
Goal [April 20xz, Trades=Voice Trades] <**95 ± 2%**>
Goal [April 20xz, Trades=eTrades] **98.5 ± 0.5 %**

Operational-Control.Timely.End&OvernightP&L Scale: number of times, per quarter, the P&L information is not delivered timely to the defined [Bach-Run].
Past [April 20xx, Batch-Run=Overnight] 1 **Goal** [Dec. 20xy, Batch-Run=Overnight] <**0.5**> **Past** [April 20xx, Batch-Run= **T+1**] **1 Goal** [Dec. 20xy, Batch-Run=End-Of-Day, Delay<1hour] **1**
Operational-Control.Timely.IntradayP&L Scale: number of times per day the intraday P&L process is delayed more than 0.5 sec.

Operational-Control.Timely.Trade-Bookings Scale: number of trades per day that are not booked on trade date. **Past** [April 20xx] **20 ?**

Front-Office-Trade-Management-Efficiency Scale: Time from Ticket Launch to trade updating real-time risk view
Past [20xx, Function = Risk Mgt, Region = Global] **~ 80s** +/- **45s** ??
Goal [End 20xz, Function = Risk Mgt, Region = Global] **~ 50%** better?
Managing Risk – Accurate – Consolidated – Real Time

Risk.Cross-Product Scale: % of financial products that risk metrics can be displayed in a single position blotter in a way appropriate for the trader (i.e. – around a benchmark vs. across the curve).
Past [April 20xx] **0%** 95%. **Goal** [Dec. 20xy] **100%**
Risk.Low-latency Scale: number of times per day the intraday risk metrics is delayed by more than 0.5 sec. **Past** [April 20xx, NA] **1%** **Past** [April 20xx, EMEA] ??**%** **Past** [April 20xx, AP] 100**% Goal** [Dec. 20xy] **0%**
Risk.Accuracy
Risk. user-configurable Scale: ??? pretty binary – feature is there or not – how do we represent?
Past [April 20xx] **1% Goal** [Dec. 20xy] **0%**
Operational Cost Efficiency Scale: <Increased efficiency (Straight through processing STP Rates)>
Cost-Per-Trade Scale: % reduction in Cost-Per-Trade
Goal (EOY 20xy, cost type = I 1 – REGION = ALL) **Reduce cost by 60%** (BW)
Goal (EOY 20xy, cost type = I 2 – REGION = ALL) **Reduce cost by x %**
Goal (EOY 20xy, cost type = E1 – REGION = ALL) **Reduce cost by x %**
Goal (EOY 20xy, cost type = E 2 – REGION = ALL) **Reduce cost by 100%**
Goal (EOY 20xy, cost type = E 3 – REGION = ALL) **Reduce cost by x %**


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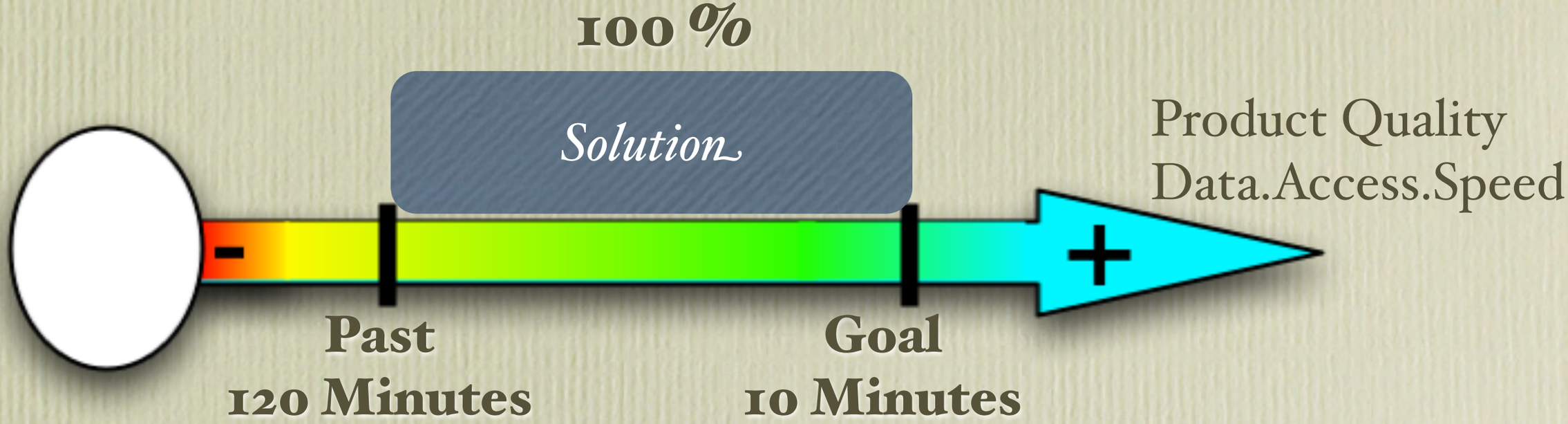
Solution Prioritization
Find, Evaluate & Prioritize Solutions to satisfy Requirements.

Solutions



Scale: Time,
from Trader wants access to trades,
until they are provided with the information onscreen.

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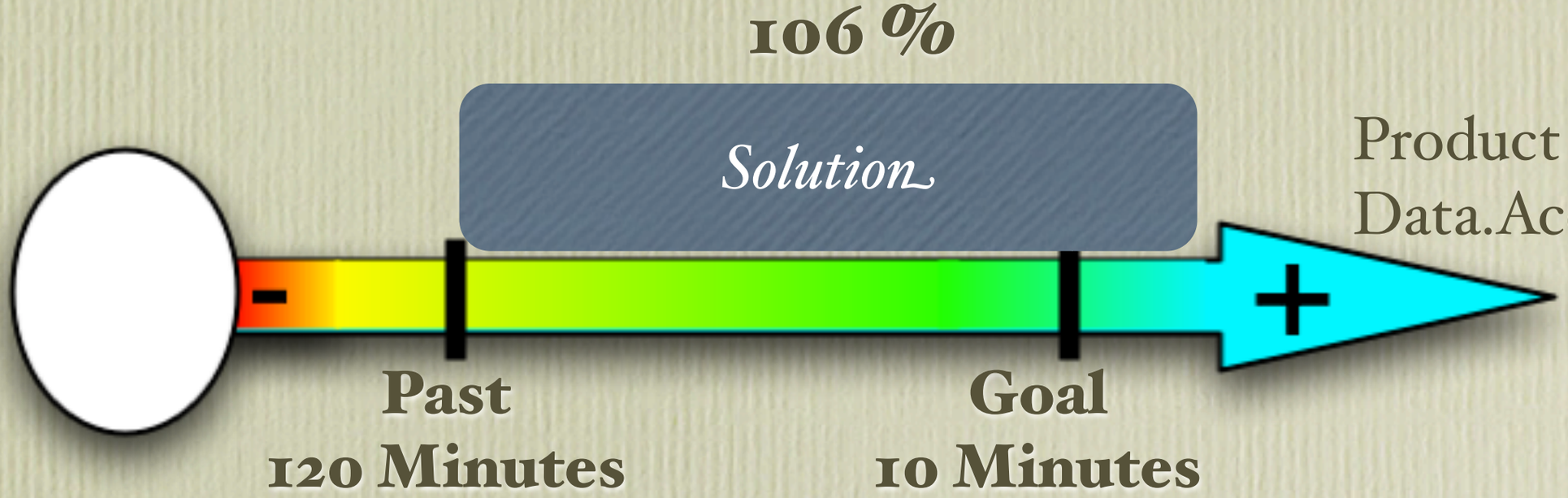

Scale: Time,
from Trader wants access to trades,
until they are provided with the information onscreen.

Can we compare apples and oranges?

		
Taste	60 %	40 %
Nutrition	50 %	40 %
Shelf Life	20 %	85 %
Price	60 %	40 %
Quality for $	130/60=2.2	165/40=4.1

Value Decision Tables

Business Goals	Training Costs	User Productivity
Profit	-10 %	40 %
Market Share	50 %	10 %
Resources	20 %	10 %

Stakeholder Val.	Intuitiveness	Performance
	-10 %	50 %
	10 %	10 %
Resources	2 %	5 %

Product Values	GUI Style Rex	Code Optimize
Intuitiveness	-10 %	40 %
Performance	50 %	80 %
Resources	1 %	2 %

Prioritized List
1.
2. Solution 9
3. Solution 7

Value Decision Tables

Business Goals	Training Costs	User Productivity
Profit	-10%	40%
Market Share	50%	10%
Resources	20%	10%

Stakeholder Val.	Intuitiveness	Performance
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Product Values	GUI Style Rex	Code Optimize
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Prioritized List
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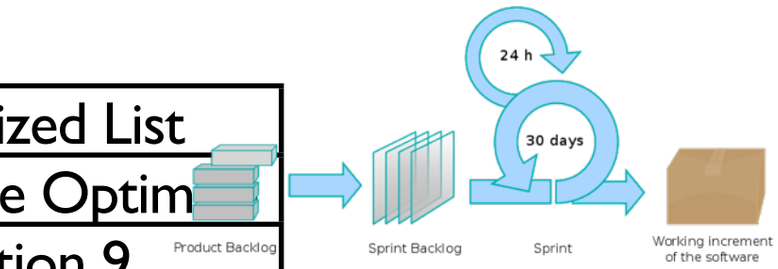
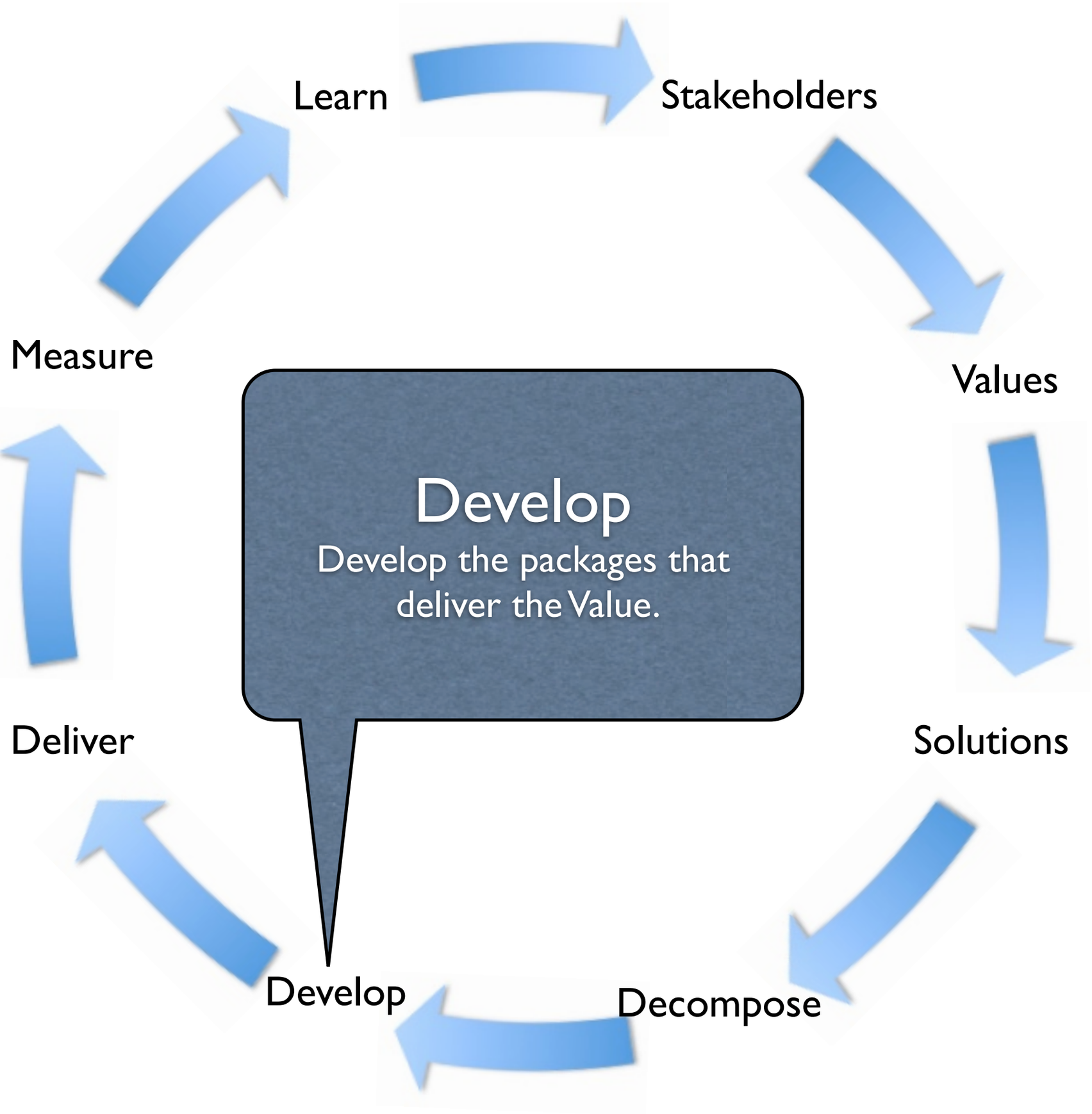


Scrum Develops

We measure improvements Learn and Repeat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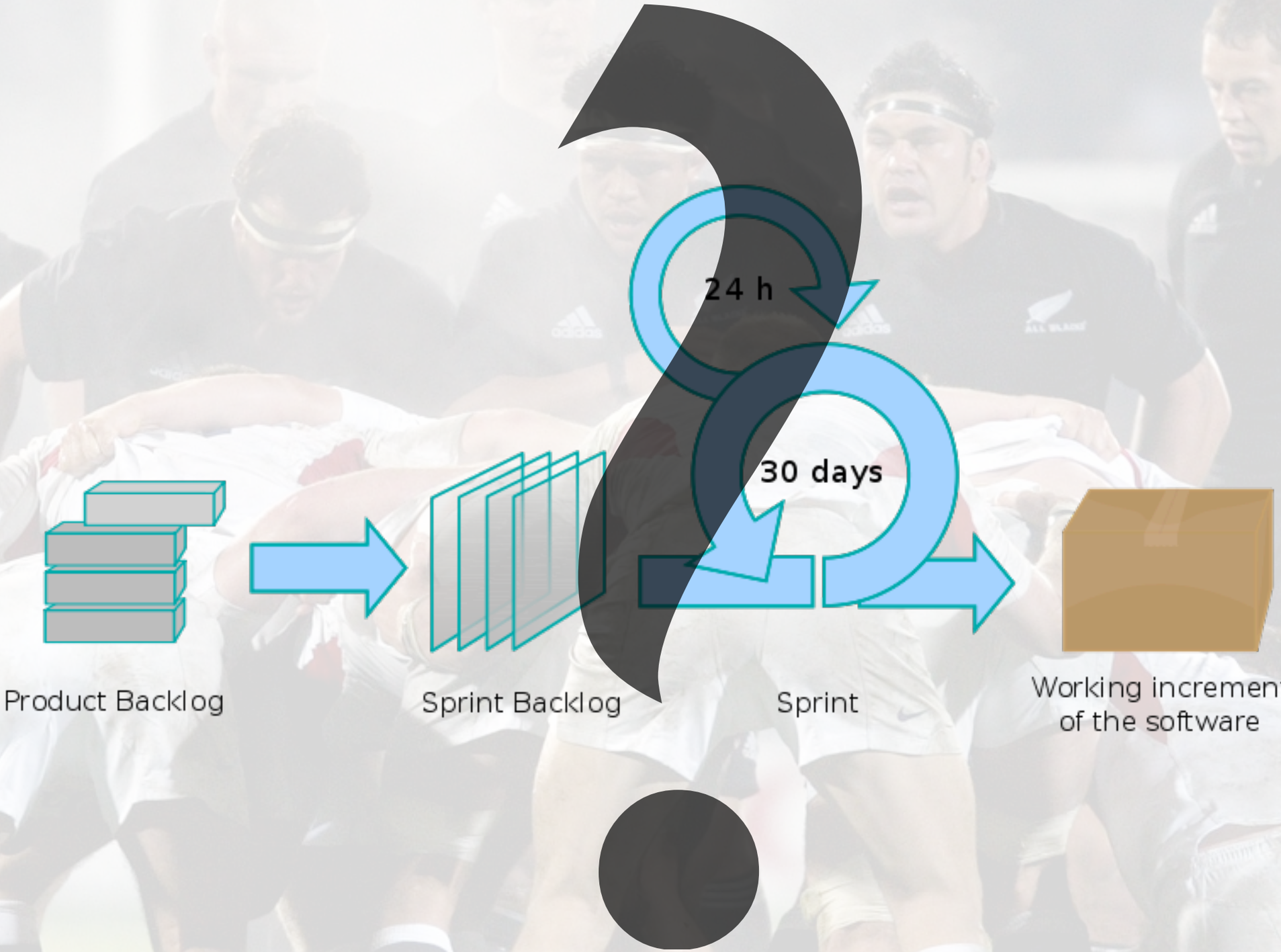
Deliver
Measure
Develop
Develop the packages that deliver the Value.

Scrum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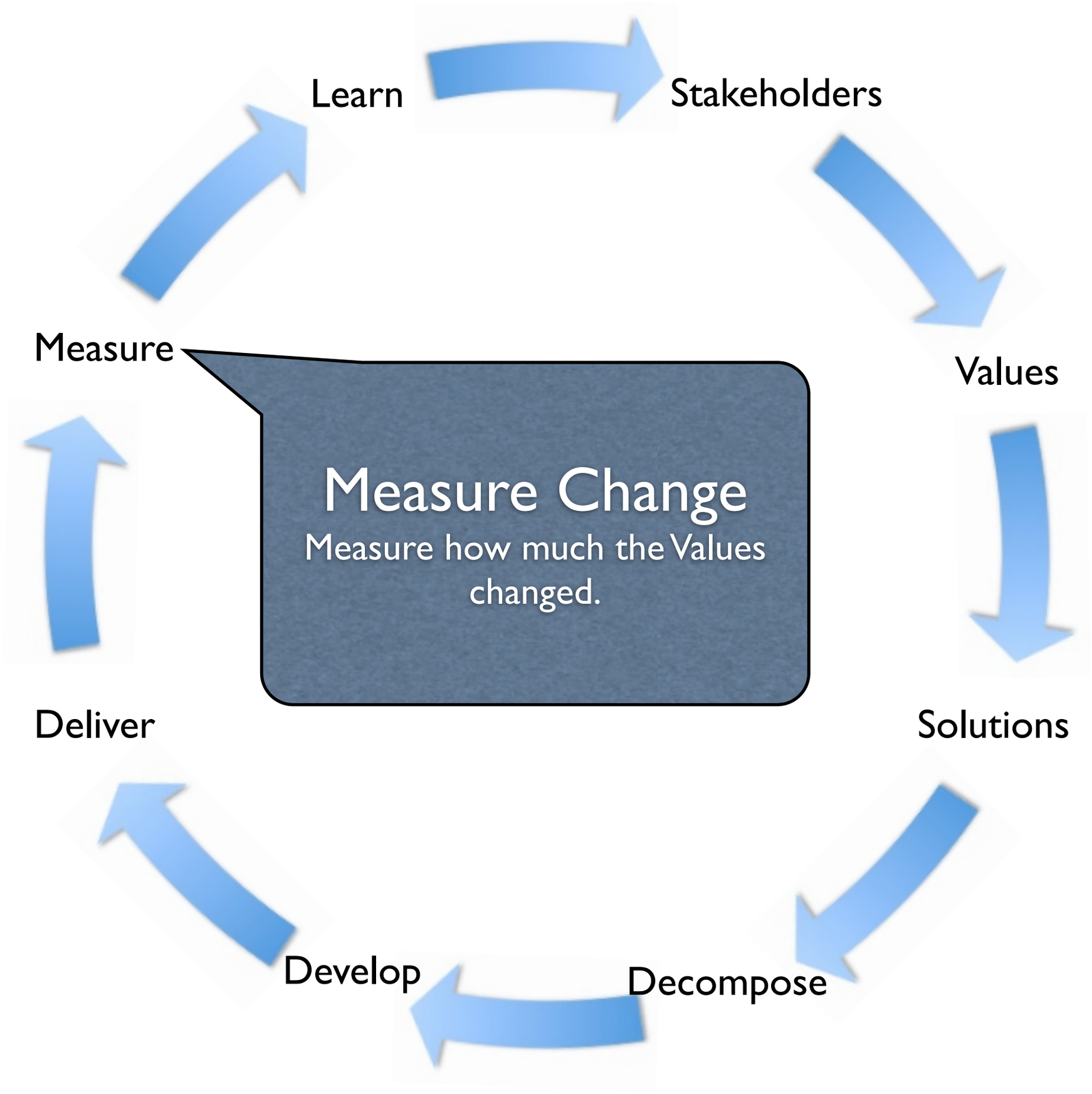
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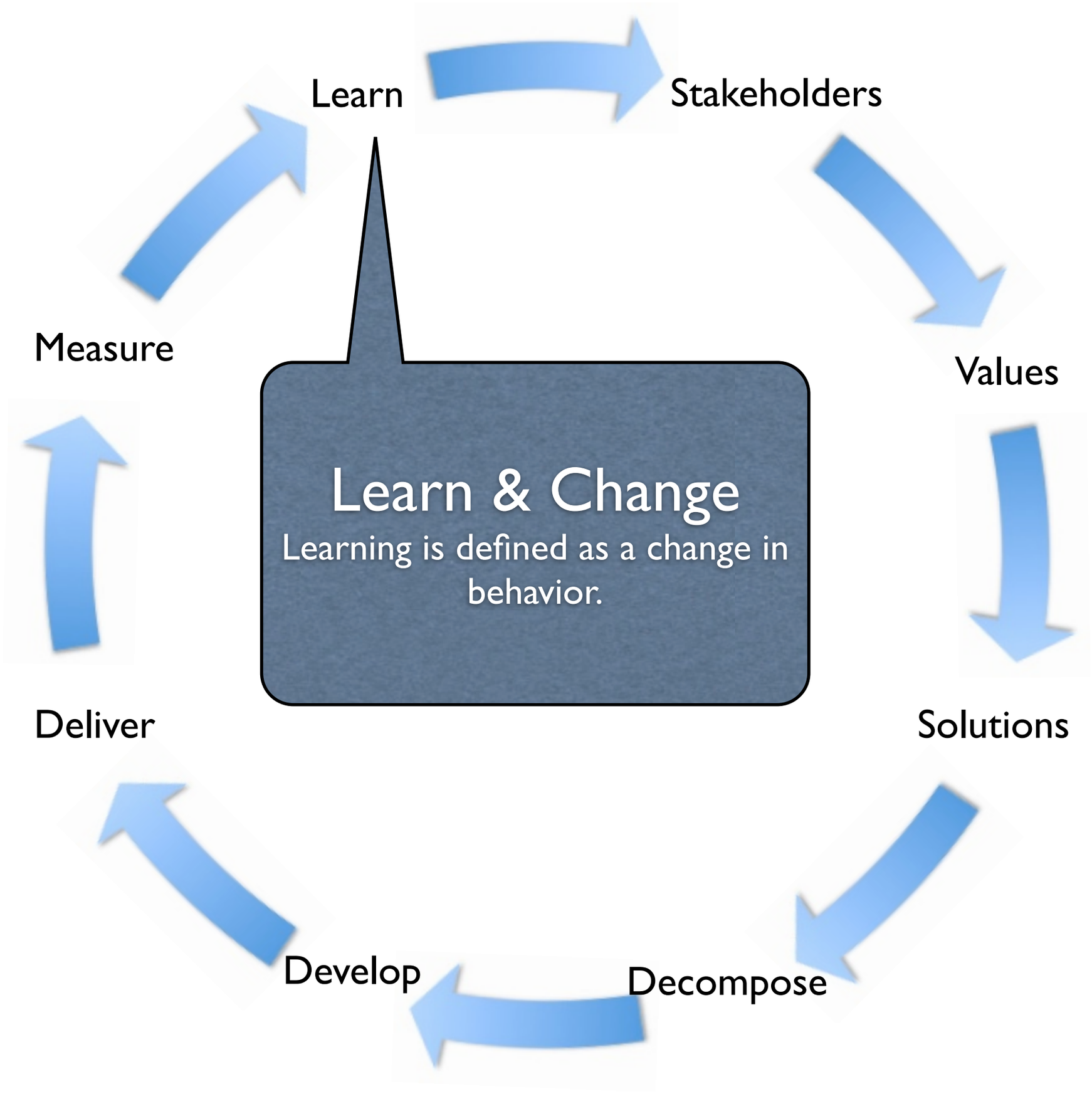
Measure how much the Values changed.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Learn & Change
Learning is defined as a change in behavior.

Results, from focussing on delivering numeric Value to Stakeholders, has been dramatic.

Job Description:

Implement a specific CRM system in a big telecom organization.

Jens Evensen - Avenir

Stakeholders

Values

Solutions

Decompose

Stakeholders

Values

Solutions

Decompose

Stakeholders

Values

Solutions

Decompose

Stakeholders

Values

Solutions

Decompose

Stakeholders

"and so he did !"
Saving his client about
$ 10, 000.000 per Year

LosingContracts

Scale: $ lost per year, in expiring contracts.

Past [at meeting] $ 10, 000.000

Goal [2 weeks later] **$ 0**

Jens Evensen - Avenir

Decompose

THE DESIGN LONDON STORY

An Energy Producing Waterless Toilet System

Impact Estimation Table for Gates GCE Project

Key Values	Designs / Actions: Detailed risk assessment with associated impact estimation table for methods of mitigation	Research trip to madagascar (x3)	Detailed design research	Building financial models at community level	Research into existing sanitation projects	Creation of knowledge 'database'	Codification of our acquired knowledge	etc...	Total Impact	Safety Factor
	Impact (% progress towards target from given action)									
Improve Sanitation Target: 25% - 75% Unit: Waste collected / waste produced by user group	10	20	40	18	15	0	0		103	1.03
Sustainability and Longevity Target: 0$ - 0$ Unit: Cost to single user per month	0	5	20	50	10	0	0		85	0.85
Story and Data Target: 0.4 - 0.8 Unit: Average of factors rated 0.0 – 1.0	5	35	20	20	3	15	5		98	0.98
Managing Risk Target: 0.2 – 0.8 Unit: Average of factors rated 0.0 – 1.0	50	20	20	15	15	0	3		123	1.23
Methodology Target: 0.4 – 0.8 Unit: Average of factors rated 0.0 – 1.0	15	0	0	0	0	0	10		25	0.25
Diffusing Knowledge Target 0.15 – 0.8 Unit: Average of factors rated 0.0 – 1.0	0	8	0	0	10	50	15	0	83	0.83
Total impact of design / action	80	88	100	98	53	65	33	0		
Total cost of design / action (person days)	8	30	20	15	5	15	4	0		
Benefit to cost ratio	10	2.9	5.0	6.5	10.6	4.3	8.3	####		

Design London – Royal College of Art | Imperial College London

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Diffusing Knowledge Target 0.15 – 0.8 Unit: Average of factors rated 0.0 – 1.0	0	8	0	0	10	50	15		83	0.83
Total impact of design / action	80	88	100	98	53	65	33	0		
Total cost of design / action (person days)	8	30	20	15	5	15	4	0		
Benefit to cost ratio	10	2.9	5.0	6.5	10.6	4.3	8.3	####		

Confirmit.
everywhere

Paradigm Shift

With Competitive Engineering, our requirements process changed.

- **Previously** we focused mostly on **function requirements.**
- We realized that **it's the product *quality (value)* requirements that** really **separate us from our competitors**.

Description of requirement/work task	Past	Status
Usability.Productivity: Time for the system to generate a survey	7200 sec	15 sec
Usability.Productivity: Time to set up a typical specified Market Research-report (MR)	65 min	20 min
Usability.Productivity: Time to grant a set of End-users access to a Report set and distribute report login info.	80 min	5 min
Usability.Intuitiveness: The time in minutes it takes a medium experienced programmer to define a complete and correct data transfer definition with Confirmit Web Services without any user documentation or any other aid	15 min	5 min
Performance.Runtime.Concurrency: Maximum number of simultaneous respondents executing a survey with a click rate of 20 sec and an response time<500 ms, given a defined [Survey-Complexity] and a defined [Server Configuration, Typical]	250 users	6000

the inmates are running the asylum

We, the management, have a responsibility, one that the ‘developers’ don't worry about

?

deliver
value to stakeholders,
within limited resources.

Reading

"Quantified Top-Level Critical Value-Objectives-the main levers of power for CIOs" (cases, slides)
http://www.gilb.com/tiki-download_file.php?fileId=481

"Vision Engineering" paper (CEO level)
http://www.gilb.com/tiki-download_file.php?fileId=237

Evo, book manuscript: Kai Gilb,
http://www.gilb.com/tiki-download_file.php?fileId=27

Much more at www.Gilb.com/downloads

Scrum

"Agile Now What" Paper by Kai Gilb
http://www.gilb.com/tiki-download_file.php?fileId=30

Software Development Business Contribution

Value Delivery in Systems Engineering
http://www.gilb.com/tiki-download_file.php?fileId=137

Managing Maintenance

Designing Maintainability in Software Engineering: a Quantified Approach
http://www.gilb.com/tiki-download_file.php?fileId=138

Updates in Agile Development

Value-Driven Development
http://www.gilb.com/tiki-download_file.php?fileId=431

Software Security

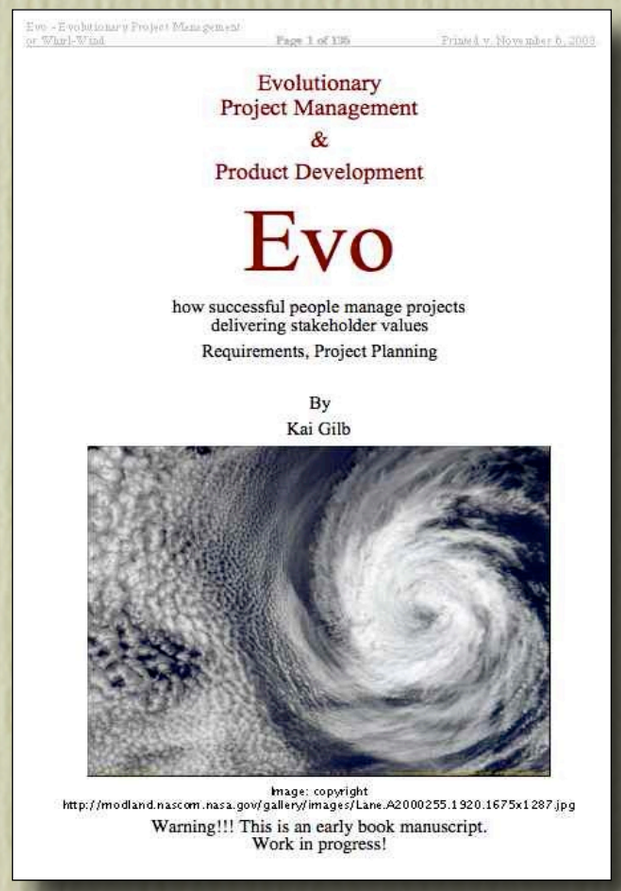
How to Quantify Security
http://www.gilb.com/tiki-download_file.php?fileId=40

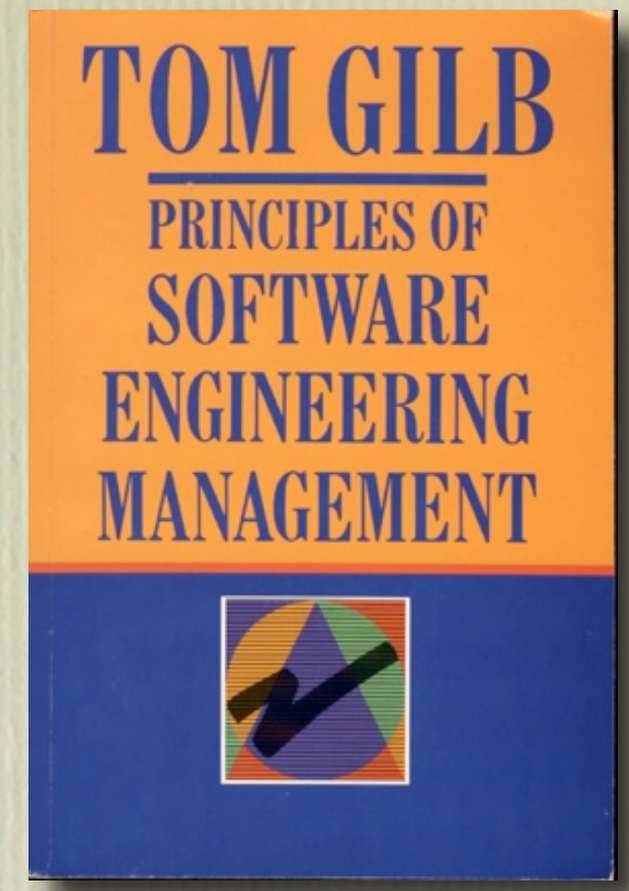
Succeeding with Geographically Distributed Teams

Virtual Team Communication:
http://www.gilb.com/tiki-download_file.php?fileId=112

Improving Productivity

Engineering Productivity:
http://www.gilb.com/tiki-download_file.php?fileId=144





Email Tom@Gilb.com with subject: "BOOK"

Kai and I are happy to discuss with you one-on-one. And by email. Challenge us to help quantify *your* stakeholders' critical objectives.

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