Israel Gat
Cutter Consortium
@agileexec
http://theagileexecutive.com
Andrew Shafer - Rabble Rouser - Cloudscaling

@littleidea - http://stochasticresonance.wordpress.com

Thursday 16 June 2011
INFORMED
To Compare

http://www.flickr.com/photos/thebusybrain/2492945625/

Thursday 16 June 2011
MOTIVATION

If a pretty poster and a cute saying are all it takes to motivate you, you probably have a very easy job. The kind robots will be doing soon.

http://www.flickr.com/photos/topshampatti/219953012/
To Understand
To Protect
To Improve

http://www.flickr.com/photos/vizzzual-dot-com/2655969483/
Describing a Metric

• basis of measurement
Describing a Metric

• basis of measurement
• assumptions
Describing a Metric

• basis of measurement
• assumptions
• level and usage
Describing a Metric

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Describing a Metric

• basis of measurement
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• when to use
• when to stop

http://www.flickr.com/photos/chandramarsono/4324373384/

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Describing a Metric

• basis of measurement
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• when to use
• when to stop
• how to game

http://www.flickr.com/photos/chandramarsono/4324373384/
Describing a Metric

• basis of measurement
• assumptions
• level and usage
• desired trend
• when to use
• when to stop
• how to game
• warnings
Beware of Vanity Metrics

UNACTIONABLE
INACCESSIBLE
UNAUDITABLE

http://www.flickr.com/photos/centralasian/5829549813/
Red is good, Green is worthless
TRUST ME,
I DO THIS ALL THE TIME.
“In truth, a good case could be made that if your knowledge is meagre and unsatisfactory, the last thing in the world you should do is make measurements; the chance is negligible that you will measure the right things accidentally.”

George Miller

http://stochasticresonance.wordpress.com/2008/08/03/miles-per-gallon/
What we can learn from monitoring

http://www.experimentalistsanonymous.com/stuff/paralleluniverse/images/2edmoneyshot.jpg
Availability

Processes, Port, SSH Login
Network, Memory, CPU

<table>
<thead>
<tr>
<th>Service</th>
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Capacity

Processes, Port, SSH Login
Network, Memory, CPU
Capacity

Processes, Port, SSH Login
Network, Memory, CPU

Memory usage - by week

- apps: Cur: 385.93M Min: 208.85M Avg: 521.01M Max: 1.24G
- page_tables: Cur: 13.08M Min: 6.50M Avg: 11.08M Max: 14.63M

Thursday 16 June 2011
Health

Thresholds

http://www.smiley-faces.org/wallpaper/smiley-face-wallpaper-001.jpg
http://www.geocities.jp/nikonikocalendar/index_en.html
Health

Thresholds

http://www.smiley-faces.org/wallpaper/smiley-face-wallpaper-001.jpg
http://www.geocities.jp/nikonikocalendar/index_en.html
Metric versus Diagnostic

Does it contribute to the bottom line?

- Yes → Metric
- No → Diagnostic

Measurement → Does it contribute to the bottom line? → Metric → Yes

Pete Behrens, Trail Ridge Consulting

http://www.slideshare.net/krivitsky/agile-metrics-presentation-654259

Thursday 16 June 2011
Performance

SSH, HTTP, NTP
Performance

SSH, HTTP, NTP

# Servers/Admin

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Performance

SSH, HTTP, NTP

# Servers/Admin

# Line of Code/Developer
“Gameable”

Level 2 - Team Level

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Aggregation

DEV
Project Team
DEV
DEV
DEV

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Burn up chart
Team Utilization

![Velocity Chart]

- Iteration 1: 12 Story Points (Planned)
- Iteration 2: 16 Story Points (Delivered)
- Iteration 3: 8 Story Points (Delivered)
- Iteration 4: 2 Story Points (Planned)
“Velocity also has a **direction** component”
What about efficiency?
The only valid measurement of code quality: WTFs/minute

Good code.

Bad code.
Incentives & Behaviors
Level 3 - Integration Level

Development

Operations
Integration

WEB → APP → DB
Collaboration

DEV

QA

OPS

# of deploys / day

http://fc04.deviantart.net/fs70/f/2010/108/2/3/Pac_Man_Widescreen_by_mololov_arts.jpg

Thursday 16 June 2011
Counting Collaboration

More interaction doesn’t mean a better party
Measuring Collaboration?

“Play Nice Study”

http://www.healthylarimer.org/documents/PlayNice.ppt
Levels Collaboration

Collaboration
Coalition
Coordination
Cooperation
Cooperation

provide information

somewhat defined roles

formal communication

decisions made independently
Coordination

• share information & resources
• defined roles
• frequent communication
• some shared decision making

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Coalition

- share ideas
- share resources
- frequent & prioritized communication
- all members have a vote on decisions

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Collaboration

• members belong to one system
• frequent communication characterized by mutual trust
• consensus on all decisions
Knowledge sharing

Transactive Memory System

- Individual Understandings
- Team Developing Consensus
- Team “Working Together”

- Exchange information to develop and align individual understandings
  - Negotiate
  - Brainstorm
  - Critique
  - Discover differences
  - Enrich ideas
  - Guide
  - Distribute

- Synchronize Adjust Assemble

- Feedback

- Team Product

- Feedback

- Knowledge maintained by individual for others on team
- Knowledge of who knows what on team and how to access it
- Private knowledge possibly useful to team


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Team Resilience

10th Floor Test

to take a random machine in your infrastructure, drop it from the 10th floor, and be able to restore your infrastructure to working within 5-10 minutes.

Truck Factor

The number of people on your team who have to be hit with a truck before the project is in serious trouble.

Resilience should be a 4th management objective,

alongside Better/Faster/Cheaper

John Allspaw

http://www.kitchensoap.com/

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Black Hole Theory

Absorbs light, to see the effects you need to look at nearby objects

http://www.collaborate.com/blog/2010/01/28/musing-metrics-collaboration

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Quest for proof

- Saving time or Money (tangible)
- Increase Quality (tangible... but less so)
- Innovating and/or providing decision support (tangible but less than quality)
- Easing access to and interactions with subject-matter experts (intangible)


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More vs Better Widgets

Add more servers

Tune existing servers

Process Improvement

Quality Improvement

Easier

More Difficult!!

http://socialconsulting.wordpress.com/2009/02/24/measuring-collaboration/

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Collaboration Challenge

“Maximize Team Utility”

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Level 4 - Business Level
AHA

KA-CHING!
Return on Investment

HIGH SCORE

1ST  220  ADM
2ND  212  ZOF
3RD  207  RJB
4TH  177  MYA
5TH  135  MAR

CREDIT 0  INSERT NEW DIST
Inventory (WIP)
Time to Market

http://stefanroock.wordpress.com/2010/03/02/kanban-definition-of-lead-time-and-cycle-time/
Mean Time Between Failure

GAME OVER

PRESS START
Mean Time Between Resolution
Video games ruined my life. Good thing I have two extra lives.

Technical Debt
Leaks
Debt Metaphor

not all debt is created equal

http://www.flickr.com/photos/shoot-art/4536509717/

http://www.flickr.com/photos/shoot-art/4536509717/
Customer Responsiveness

![Diagram showing the relationship between Cost of Change (CoC), Customer Responsiveness, Actual CoC, Product Release, Technical Debt, and Optimal CoC over years.]
Types of Tech debt

“oops”
unintentional

“yeah I know”
intentional

“we’ll fix it the next minor revision”
short term (tactical)

“we’ll fix it the next major revision”
long term (strategical)
**FIGURE 1**
Application Technical Debt and Business Value as a Function of Structural Quality Violations (Conceptual)

Source: CAST

Vicious Cycle of Technical Debt

- (More) Relentless Pressure
- Take Technical Debt
- Fail to Pay Debt Back
- Neglect Maintenance
- Technical Debt Accrues
- Diminished Dev Velocity

Israel Gat

Symptoms - Measurable

- Poor Customer Responsiveness
- Long Delivery Times
- Late deliveries
- Lots of defects (Toxic Code)
- Rising Development costs
- Frustrated & Poor performing Teams

Secret Sauce

The Team Knows

When we deploy our changes, the system will be ...

<table>
<thead>
<tr>
<th></th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>More complex (-) or simpler (+) than before</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harder (-) or easier (+) to maintain and support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harder (-) or easier (+) to enhance or build on next time</td>
<td></td>
<td></td>
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</tbody>
</table>

Rather than voting out of 5 however, they are comparing the system before they touched it to the way it will be after they deploy their changes. Specifically their votes will be as follows:

- 0 means that there is no real change in the measure;
- +1 means things are better than before and +2 means a lot better; and
- -1 means things are worse or more complicated than before and -2 means even more so.

Now simply average the answers to give a score for each question.

Hold regular retrospectives or reflection sessions should highlight the ongoing impact of building (or removing) complexity from your life if you want a solid predictor of the impact is will have over time, try using this creeping doom graph (which can also be a virtuous circle graph if you are actively making things better each week).
As a Team
End User Perspective

• END to END monitoring
• User Experience (browser testing)
• External parties (Email, ISP, Plugins)
Participatory Design
"Crowd" - Monitoring

Sudden Change in User Activity Pattern

Detection of problem?

A/B Testing

Thursday 16 June 2011
Spend more time creatively, early in the process.
Design Strategies

To Design is Human

To Design does not require super powers

Design used to be a collective or shared ability


http://www.psych.lancs.ac.uk/people/lindenball.html
Open Innovation

Wikipedia

Open Source

Shared Config Management

Shared Infrastructures
Novice vs Expert

- depth first
- vertical oriented
- can not deal with uncertainty

- breath first, depth dives
- horizontal oriented
- uncertainty = options

Linden Ball


http://www.psych.lancs.ac.uk/people/lindenball.html

Thursday 16 June 2011
Continuous Evolution

“Problem space evolves with the solution”

http://www.amazon.com/Research-Design-Thinking-Nigel-Cross/dp/9062757960

http://www.psych.lancs.ac.uk/people/lindenball.html
Cultural Taxonomy

William Schneider 1998 “Why Good Management Ideas Fail - Understanding Your Corporate Culture”
http://www.parshift.com/Speakers/Speak016.htm
Cultural Taxonomy

Networked

Communal

Fragmented

Mercenary
tl;dr

- avoid vanity metrics
- insight > data
- don`t hate the player
- hate the game
- business value good
- beware of technical debt
Questions?
Thank you!