How to Measure “Soft” Things?

Arsen Shoukourian, PhD
Emma Danielyan
Celebrating 30 Years
Innovating for thirty years... and counting.
What impacts on the success of our software development?
Process Regulation

• One MAY sometimes get faster.
• No estimations.
• Hard to name the reason of a failure (delay, low quality, etc).

• Deliver IN TIME.
• Near to precise estimations.
• Clear picture of improvements.
Adaptation of best practices from various process disciplines

CQG Development Processes

PSP & TSP
Best Practices

Agile
Best Practices

Extreme Programming
Best Practices

Own Ideas & Improvements
Improvements and addition of own ideas based on experience and historical data
Process support via set of tools
Data visibility via set of dashboards
Is this enough?
Lots of projects are stuck as soon as they get out of PD
Why?
It’s not just PD!

Production Line

Idea ➔ Product Implementation ➔ Product Qualification & Deployment ➔ Final Product

Production Line
Any measurements?

Product Implementation

Infrastructure
QA, SCM, OPS
No planning

Manager

How much will it take?

2 months...
I guess

Non-PD Employee
I need more resources!

Oh, really?

Non-PD Employee

Manager
No improvements

Manager

Non-PD Employee

Improvements?

There was a bad guy...
We need to track time!
Can we apply best practices from PD?
YES!
Designing the process

Manager

Process Designer

Non-PD Member

Non-PD Member
What projects are you working on?
What activities do you perform within each project?
How long and how often is an activity performed?
What outputs do you have?
Activities out of a project scope?
Can you describe your ordinary day?
People

Infrastructure Member

• Provides the whole information.
• Prepares all other team members.
• Ensures that processes correspond to the real state of things.
• Provides feedback on user-friendliness.
• Participates in pilot.

Infrastructure Manager

• Presents requirements.
• Ensures that solutions address real needs.
• Learns a lot of new things about his departments.

Process Designer

• Gathers the information and designs the process.
• Carries in the experience.
• Ensures that the discussion goes in the right direction and controls the flow of information.
Benefits, already!

- Real showstoppers encountered during work are remembered and raised: communication, tools, etc.
- Formal definition of activities requires clear understanding of responsibilities.
- A lot of ideas on improvement of the actual work are presented.
Designing activities

Work

Project Activities

- Environment Setup
- Release Testing
- Consulting
- Documentation
- Monitoring

Non-Project Activities

- Holidays
- vacations
- non-Value Added
- ...

Balance

Number of activities

Precise data
Harder to log
Logging time

- Identify the project an activity is performed for.
- Select the appropriate activity type.
- Log the time for that activity (either with timer or post-factum)
Tasks can act as an effective mechanism of planning and output reporting.

- Select the task activity is performed for.
- Select the appropriate activity type.
- Log the time for that activity.
Visibility

- Visibility is ensured by dashboards.
- A dashboard is designed to provide a specific view (project, team, etc.).

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.76%</td>
<td>Project A</td>
</tr>
<tr>
<td>24.55%</td>
<td>Project B</td>
</tr>
<tr>
<td>10.15%</td>
<td>Project C</td>
</tr>
<tr>
<td>27.54%</td>
<td>Other Project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.47%</td>
<td>Coding</td>
</tr>
<tr>
<td>0.31%</td>
<td>Inspection</td>
</tr>
<tr>
<td>0.15%</td>
<td>Inspection Issue Resolution</td>
</tr>
<tr>
<td>12.59%</td>
<td>Consulting</td>
</tr>
<tr>
<td>0.06%</td>
<td>Investigation</td>
</tr>
<tr>
<td>7.74%</td>
<td>Meetings</td>
</tr>
<tr>
<td>0.69%</td>
<td>Training Participation</td>
</tr>
<tr>
<td>0.28%</td>
<td>Performance Management</td>
</tr>
<tr>
<td>1.22%</td>
<td>Documentation</td>
</tr>
<tr>
<td>50.67%</td>
<td>Release Testing</td>
</tr>
<tr>
<td>24.82%</td>
<td>Vacations</td>
</tr>
</tbody>
</table>
Conclusions
Time and resources, identified to be spent on side activities (even not mentioned before), were concentrated on primary objectives.
Planning

The work of non-PD teams can be successfully planned within an iteration
Predictable Defect Density

Due to differentiation of testing activities, we’ve started to understand the possible defect density for each testing activity.
Unclear Activities

Several activities were identified to demand further investigation and speculation (e.g. Monitoring, Consulting, etc.)