







How to measure productivity in software development

Traian Kaiser, GoTo Prague Conference, November 2011



Traian Kaiser

Director Agile Project Management & PMO (XING AG)



13 years of Internet-Business Companies: IBM, Yahoo, XING, ... MBA, Agilist, People Manager



~140 Employees in product development

Releases a year

50





What makes the difference?







facebook



bebo









	2008	2009	2010
Cost (Input)	23 Mio. €	33 Mio. €	38 Mio. €





Productivity in software development



Value of developed and distributed software solutions for business requirements (including quality and time).



Cost of created and distributed software solutions trough people, services and other resources needed.





"Software development is a creative and complex process. Effectiveness and efficiency can not be optimized independently of each other and the interactions are not detectable in their entirety."

Example 1 – Discovery Process

Balancing effectiveness vs. efficiency by investing time & money to find out if our user benefit from what we plan to do



Example 2 – Staffing

Performance differences between mediocre contributors and "artists" can be huge. In addition, working team patterns and team productivity is another game to play.



Example 3 – Optimization Problems



*Real project example by David J. Anderson from the Book "Kanban"



How can we measure productivity in software development



Reduce coordination and communication efforts

Value adding efforts to "the right things"

Reduce "Waste" (efforts without value)

7 Types of Waste to avoid... ... and how to measure them...

Partially Done Work (Blocked Cards/Tickets/Stories) Not used Documentation **Extra Features** (Feature- / Module usage metrics) Task Switching (Work In Progress) Handoffs (Cycle Time) **Delays** (Lead Time) **Defects** (Failure Load, Code Metrics, Test Coverage, Bugs per Line of Code, ...]

Communication & coordination to avoid are they measureable?...

Insufficent or excessive process / framework Unclear or inadequate division of organisation units, roles and responsibilities

Too many dependencies of all kind

Value Stream Mapping

Performance to Commit / Deadlines

Productive Time Analysis

Throughput / Velocity Variance



Value adding efforts to increase...

Additonal Sold / used products Milestone /Project KPIs Team KPIs User Impact Indicators

Customer Satisfaction User Ratings Number of Customer Complaints / 1000 Customer Net Promoter Score

Beware:

Efficiency metrics can be dysfunctional

Assumed efficiency metrics Working hours Utilization Lines of Code

Relative metrics & metric comparison Velocity

Metrics as replacement for trust All Metrics







Customer Satisfaction

Net Promoter Score

Number of Customer Complaints / 1000 Customer

User Test in our own lab

User Ratings (platform & mobile apps)



Key Performance indexes by dedicated Team

- Revenues
- **Customer Base**
- Activity rates

Other key indexes who drive our business (vary by Team)

Quality Metrics

- Code Metrics (just started)
- Automated test coverage
- Bugs per Team / Overall



Cycle Time & Lead Time





Visualization is a powerfull instrument

Inventory Started Designed Coded Complete



*Example by David J. Anderson





Productivity metrics can be dysfunctional. Used correctly as feedback channel, certain metrics could provide important information. Coupling effectiveness and efficiency metrics is essential.

Recognize dependencies between effectiveness and efficiency

Consider software development as a creative and complex process

XING X

Thank you Questions?



Traian Kaiser Director Agile Project Management & PMO XING-Profile: xing.to/traian

lean software development

See what's up in our Lean Software Development Group: http://www.xing.com/net/leansoftwaredevelopment/

> The Professional Network www.xing.com

DISCLAIMER

This presentation was produced in October 2011 by XING AG (the "Company") solely for use as an information source for potential business partners and is confidential. It has been made available to you solely for your own information and may not be copied, distributed or otherwise made available to any other person by any recipient. This presentation is not an offer for sale of securities in the United States. The distribution of this presentation to you does not constitute an offer or invitation to subscribe for, or purchase, any shares of the XING AG and neither this presentation nor anything contained herein shall form the basis of, or be relied on in connection with, any offer or commitment whatsoever.

The facts and information contained herein are as up-to-date as is reasonably possible and are subject to revision in the future. Neither the Company nor any of its subsidiaries, any directors, officers, employees, advisors nor any other person makes any representation or warranty, express or implied as to, and no reliance should be placed on, the accuracy or completeness of the information contained in this presentation. Neither the Company nor any of its subsidiaries, any directors, officers, employees, advisors or any other person shall have any liability whatsoever for any loss arising, directly or indirectly, from any use of this presentation. The same applies to information contained in other material made available at the presentation.

While all reasonable care has been taken to ensure the facts stated herein are accurate and that the opinions contained herein are fair and reasonable, this document is selective in nature and is intended to provide an introduction to, and overview of, the business of the Company. Where any information and statistics are quoted from any external source, such information or statistics should not be interpreted as having been adopted or endorsed by the Company as being accurate.

This presentation contains forward-looking statements relating to the business, financial performance and results of the Company and/or the industry in which the Company operates. These statements are generally identified by words such as "believes," "expects," "predicts," "intends," "projects," "plans," "estimates," "aims," "foresees," "anticipates," "targets," and similar expressions. The forward-looking statements, including but not limited to assumptions, opinions and views of the Company or information from third party sources, contained in this presentation are based on current plans, estimates, assumptions and projections and involve uncertainties and risks. Various factors could cause actual future results, performance or events to differ materially from those described in these statements. The Company does not represent or guarantee that the assumptions underlying such forward-looking statements are free from errors nor do they accept any responsibility for the future accuracy of the opinions expressed in this presentation. No obligation is assumed to update any forward-looking statements.