Softverske metrike

Uvod

Udžbenik

- Software Development Metrics
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Kome su potrebne?

- Project Manager, Team Lead, Development Lead, Delivery Lead, Scrum Master itd.
  - need to steer work in progress and who want to measure the effectiveness of process improvement efforts.

Motivacija

- Anything you do in the course of your work ought to have a clear purpose. Otherwise, you're just performing random activities in order to stay busy

- You need to know, as early as possible, when actual performance is diverging from expected performance so that you can take appropriate corrective actions

Svrha metrika

- Directing the work toward a goal

- Guiding process improvements
  - make a case to change formal methods based on quantitative results from using a proposed new approach

Koje metrike?

- To choose metrics appropriate to your work context, you need to know what decisions you're trying to support through metrics

- You also need to understand how each metric is affected by a few key factors, such as

  - whether you're taking a traditional or adaptive approach to development

  - what sort of process model you're using

  - whether you're running discrete projects or carrying out continuous development and support

Rezultat mjerenja

- A measurement is a quantitative observation of one of the following:
  - Something relevant to the decisions you have to make
  - Information you have to report regarding the progress of development
  - The effects of process improvements

- Has informational, diagnostic, motivational, or predictive power of some kind. It helps you understand whether you're at risk of missing expected results, or whether changes in process or practices are resulting in improved performance

Pragmatično mjerenje

- Busywork: managers track all the metrics they can think of but they may or may not be able to tell you just why they're tracking any given metric

- It's better to be pragmatic: to have a clear purpose in mind for each metric you use
  - It provides information that helps a stakeholder make a decision
  - Ko je stakeholder u ovom kontekstu?

Trailing i leading indikatori

- Any metric that provides information about things that have already happened is considered a trailing indicator or lagging indicator

- Any metric that helps us predict how things will happen in the future is considered a leading indicator
    - A leading indicator often comprises a series of trailing indicators along with a calculated trend that suggests how things are likely to play out
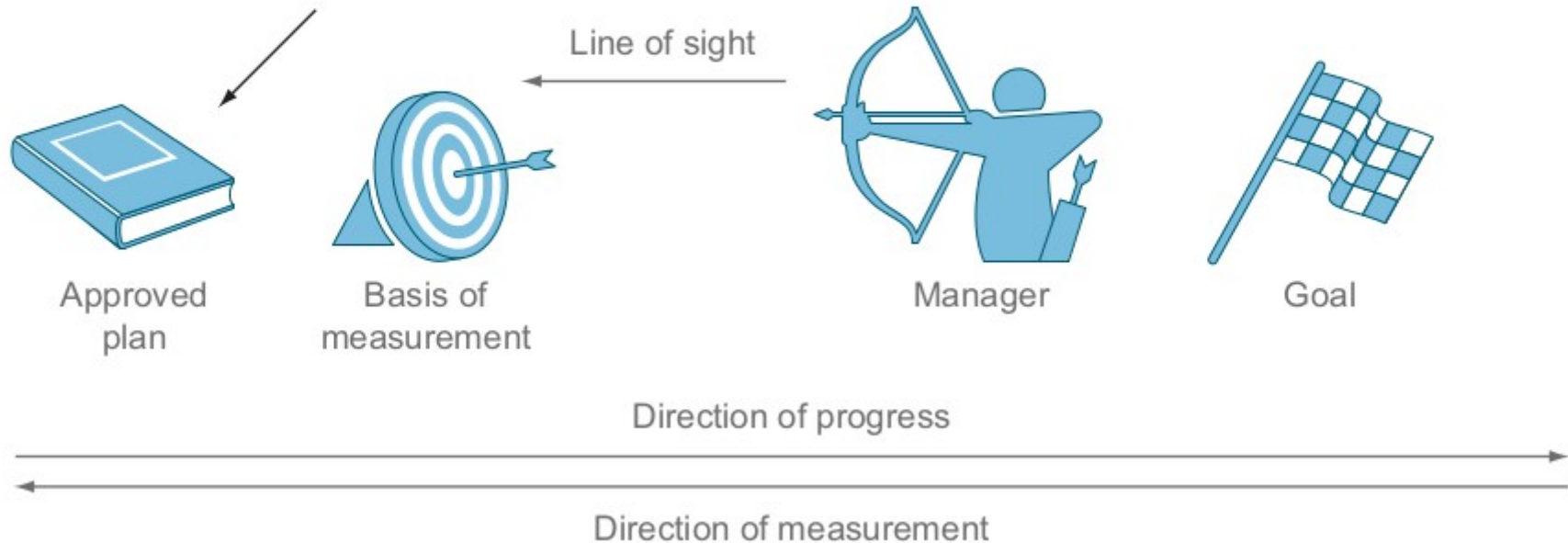
Efekti

- Informational
  - When a metric provides plain information, it serves an informational function

- Diagnostic
  - When a metric calls attention to a problem

- Motivational
  - When a metric influences people's behavior

Backward-facing metrika

- Traditional approach to software development involves a thorough analysis of stakeholder needs, a comprehensive solution design, a careful assessment of risks, and a fixed budget allocation in advance
  - With the traditional approach, the definition of expectations is in the comprehensive project plan that's created before development begins
  - As development progresses, the definition of success (the project plan) lies in the past
- Backward-facing metrics - you have to face the past in order to see your target

Backward-facing metrika 2

Traditional approach:
The approved plan is the definition of success.
When reality differs, reality must be made
to conform with the plan.

Line of sight

Approved plan

Basis of measurement

Manager
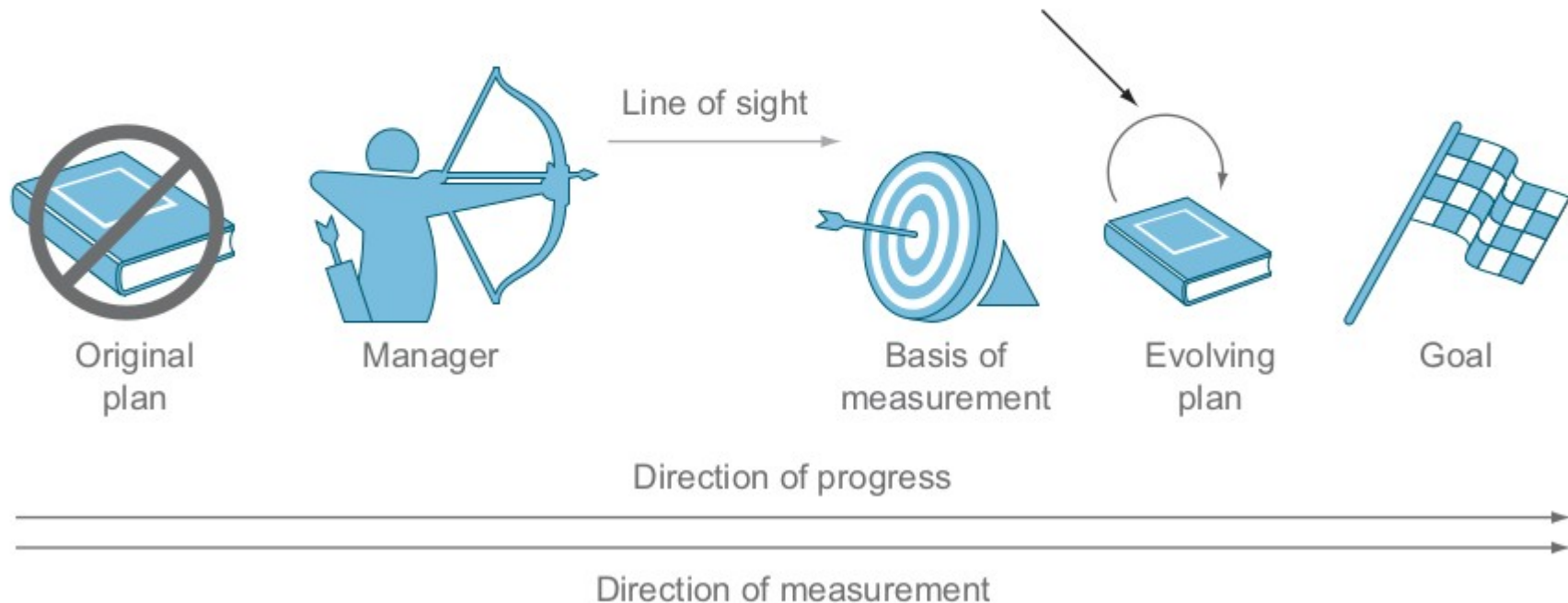
Goal

Direction of progress

Direction of measurement

Forward-facing metrika

- The adaptive approach involves defining a vision for the desired future state, performing sufficient analysis to get started, and exploring the solution space in collaboration with stakeholders through incremental delivery and frequent feedback
  - the definition of expectations is the point-in-time understanding of the future-state vision as of today
- forward-facing metrics - you have to face the future in order to see your target

Forward-facing metrika 2

Adaptive approach:
Success means meeting customer needs as of the date of delivery. The evolving plan is used for navigation. When reality differs from expectations, you adapt the plan.

Line of sight

Original plan

Manager

Basis of measurement

Evolving plan

Goal

Direction of progress

Direction of measurement

Triple constraint

- Triple constraint or iron triangle of scope, schedule, and budget
- With the traditional approach, the scope, schedule, and budget are all fully defined in advance. Metrics are used to track the development team's performance compared with the plan
- With the adaptive approach, one or two of these factors are left flexible on purpose. Metrics are used to assess whether the scope, schedule, or budget has to be adjusted to keep the work on track toward the future-state vision
- Some metrics are meaningful only with one approach or the other

Odabir metrike prema proces modelu

- Linear, software development must proceed in order through a distinct series of steps: business analysis, requirements specification, solution design, coding, testing, deployment, and support
- Iterative, the requirements are revisited time and again, and the solution is built up through a series of iterations
- Time-boxed, the same as the iterative model, with the addition of two defining characteristics: (1) each iteration is the same length, and (2) a potentially shippable increment of the solution is delivered by the end of each time-boxed iteration
- Continuous flow, maintaining a continuous flow, usually by controlling the level of work in process

Odabir metrike prema deliveru modu

- Software is built, delivered, and supported in one of two ways
  - as discrete projects or
  - as ongoing development and support (continuous beta)
  - The largest challenge when choosing metrics is the case when the same team has ongoing support responsibilities combined with project work

Predstavljanje metrike

Name of the metric

Question(s) answered

- What does this metric tell us? It tells us *this* and *that*.

Description

- A brief description of the metric Value
- The value we can obtain by using the metric

Dependencies

- Approach: traditional or adaptive
- Process model: linear, iterative, time-boxed, continuous flow, or any
- Delivery mode: discrete project or continuous development

Success factors

- Special considerations above and beyond the basic dependencies

Predstavljanje metrike 2

Metric: Earned value

Question(s) answered

- Are we on track to complete the planned scope on schedule and within the allocated budget?

Description

- The amount of budgeted cost that has been used up as of the reporting date
- Value
- Early warning of potential cost and/or schedule variance

Dependencies

- Approach: traditional
- Process model: any
- Delivery mode: discrete project

Success factors

- The initial definition of 100% of scope, schedule, and budget are firm and complete.