



THE SOFTWARE DELIVERY EXPERTS

4-Quadrants of Agile Metrics:

A balanced approach to measuring agile success

Presenter

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Presentation Outline

- What is measurement?
- Metrics dysfunctions to avoid
- 4 quadrants of agile metrics
- Metrics methods
- Final thoughts

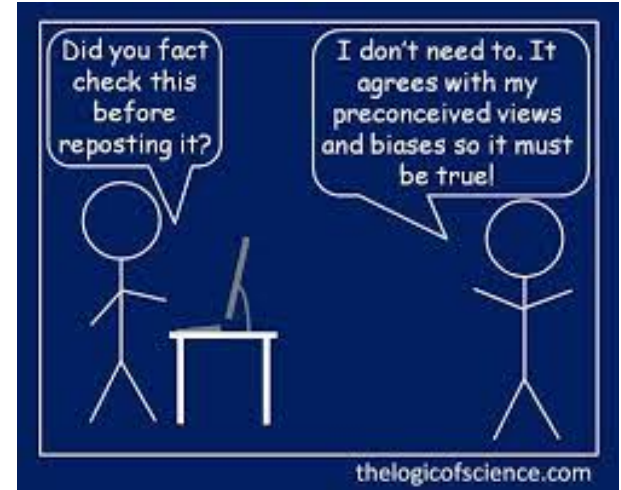
What is measurement?

What is measurement?

- “Measurement is the process by which numbers or symbols are assigned to attributes of entities in the real world in such a way as to characterize them according to clearly defined rules.” – NE Fenton & SL Pfleeger
- “Measurement is the empirical, objective assignment of numbers, according to a rule derived from a model or theory, to attributes of objects or events with the intent of describing them.” – Cem Kaner & Walter P. Bond

What is a metric?

- A system or standard of measurement
- Metrics provide a model of real world activities
 - A model is a simplified abstraction of reality based on a theory or observation
 - Models are susceptible to bias
 - Reality is “messy”
 - Context is important
 - “Tell the story”, but beware of confirmation bias



Basic rules for metrics

- Keep metrics simple
- Align metrics with goals
- Clearly define each metric
- Ensure the metrics are actionable

Metrics in an Agile Context

- Agile generally avoids metrics
 - “Working software is the primary measure of progress.”
 - Greater reliance on qualitative not quantitative insights
 - Time/effort to track metrics vs. sprint length / usefulness of the data

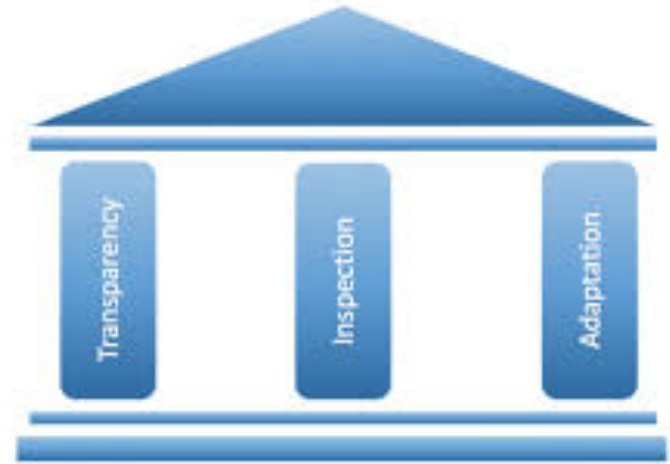


Agile

“Working software is the primary
measure of progress.”

Empirical Process Control

- Decisions and changes to processes are based on observation, experimentation, and experience
 - Transparency, inspection, and adaptation
- Metrics support EPC by providing data for analysis and decision-making



Dysfunctional Metrics

Software Metrics: Ten Traps to Avoid - Karl Wiegers

- Lack of Management Commitment
- Measuring Too Much, Too Soon
- Measuring Too Little, Too Late
- Measuring the Wrong Things
- Imprecise Metrics Definitions
- Using Metrics Data to Evaluate Individuals
- Using Metrics to Motivate, Rather than to Understand
- Collecting Data That is Not Used
- Lack of Communication & Training
- Misinterpreting Metrics Data

Measuring the Wrong Things

- Bob Galen's unhealthy agile metrics
 - Leading Metrics: focus on the beginning of the process rather than the result or outcome
 - Planning quality: measuring how well you planned
 - Requirements quality: measuring requirement completeness
 - Estimation quality: measuring estimation variance to actual effort
 - Arbitrary results: measuring work produced by the team that may negatively impact the quality of the result
 - # LoC produced
 - # Requirements written

Using Metrics to Measure Individuals

- These metrics, at best, are meaningless in an agile context and, at worst, drive bad behavior
- Discourages team collaboration & may inhibit team trust
 - Dev Done / Test Done
 - Daily # Tests Executed
 - # Bugs Found



“I could be a more effective member of the team if the others would just shut up and go away.”

Using Metrics to Motivate, Rather than Understand

- The Hawthorne Effect
 - Alteration of behavior due to being observed
 - Collecting a metric may influence the behavior being measured

Monday November 13, 1995



Collecting Data that is Not Used

- “Simplicity – the art of maximizing the amount of work not done – is essential.”
 - Not aligned to organizational and/or team goals
 - Limited insight; unable to make risk-based decisions



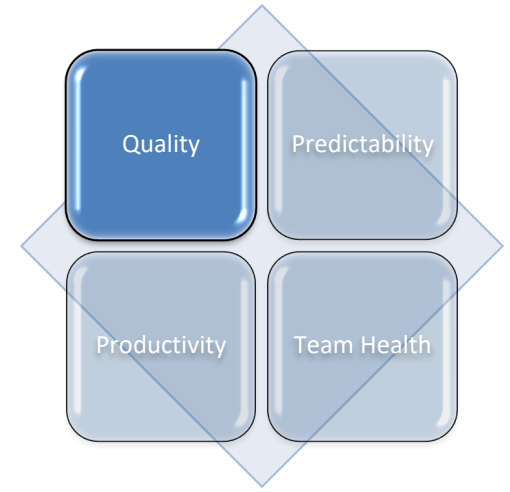
4-Quadrants of Agile Metrics

4-Quadrants



Quality

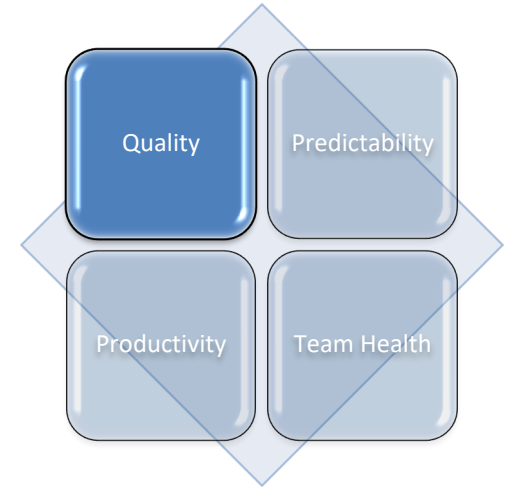
- Feature Value
 - Revenue
 - Cost reduction
 - Stakeholder perception (satisfaction survey)
- Defect Escapes
 - Production defects trend by severity



Quality is value to some person
- Jerry Weinberg

Quality

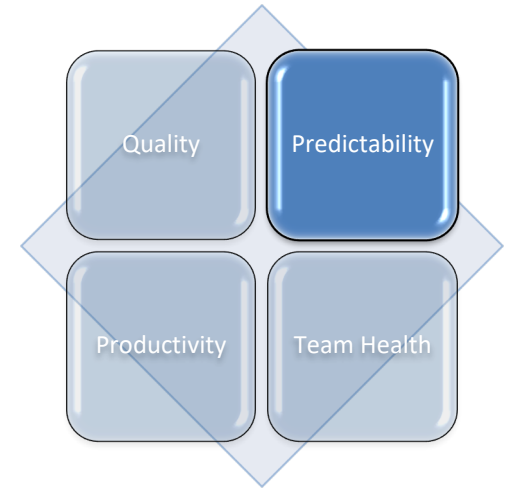
- Defect Trending
 - By sprint
 - By release
 - By team
- Automation ROI
 - Cost/effort vs # defects found



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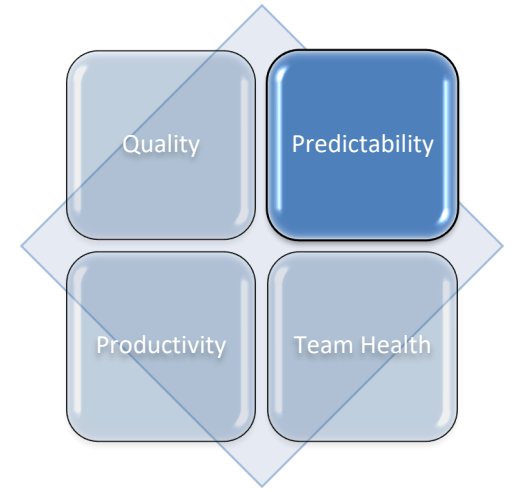
Predictability

- Velocity
 - Sustainable pace
 - Minimal fluctuation
- Delivery Success Rate
 - Success criteria: time, cost, scope, quality
 - Percentage of successful releases over time



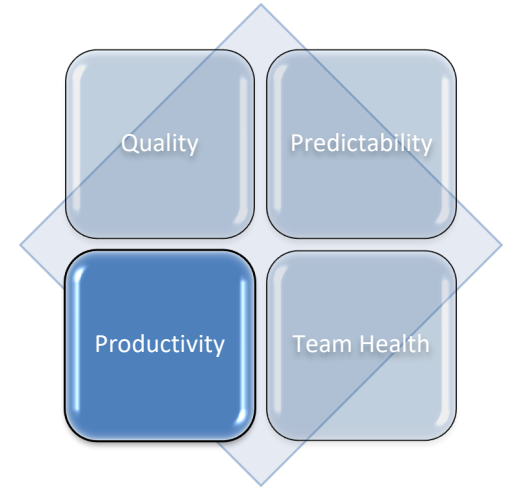
Predictability

- Capacity Variance
 - Sprint-level planned capacity vs actual capacity
 - % capacity vs % points / stories completed



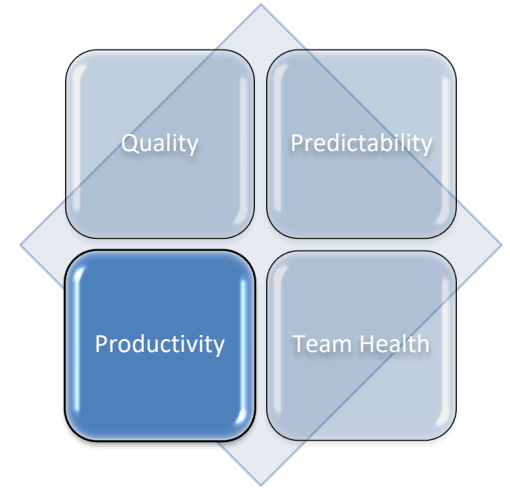
Productivity

- Throughput
 - # of stories per day/week
- Feature ROI
 - Cost to deliver vs revenue generated or savings realized



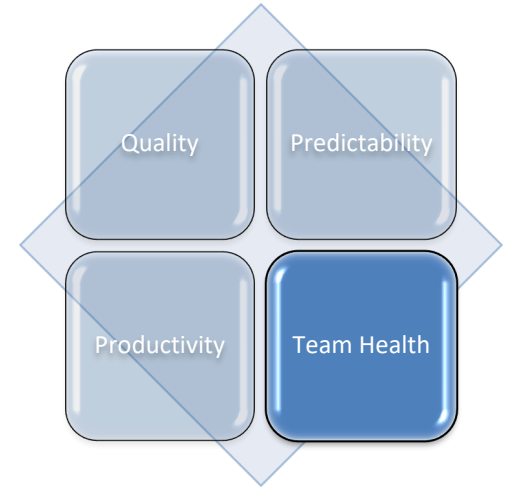
Productivity

- Value Delivered
 - Cost to deliver vs customer usage or customer perception
 - Net Promoter Score
- Swooping (anti-pattern)
 - % of planned capacity taken by “swooping” leadership behavior
 - Track drag/interruptions (#, time)



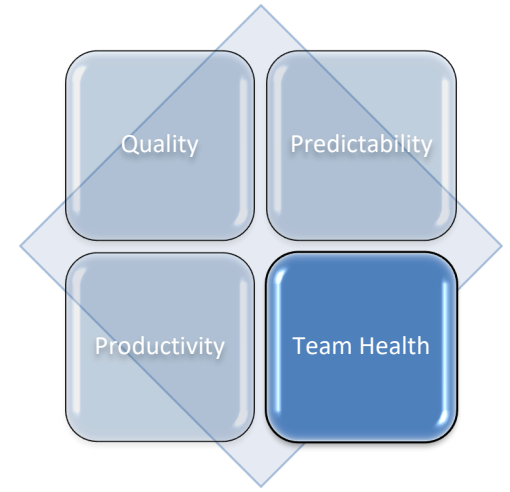
Team Health

- Agile Mindset
 - Utilize internal/external review process
 - Measure across multiple groups
 - Team
 - Management
 - Leadership
 - Inside/outside IT



Team Health

- Trust/Safety
 - None / Negotiated / Conditional / Cooperative / Unconditional Trust
- Swarming
 - Top priority story completion rate
 - Throughput for top stories
- Experimentation/Innovation
 - Number / types of experiments / innovations by team



Final Thoughts

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- 4 Quadrants present a “balanced” view of organizational agility
 - Team-ward and organizational-wide view
 - Trends over time show where (and how) agility is changing the organization

Final Thoughts

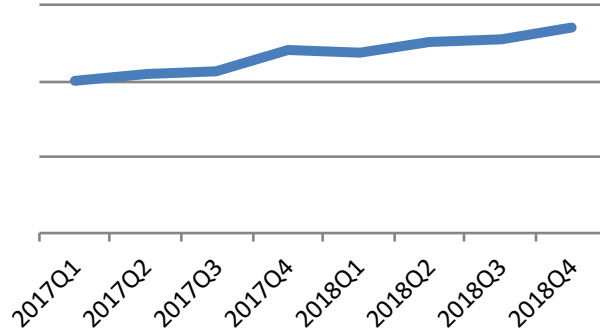
- Teams, managers, and leaders should regularly review the metrics to
 - Provide insights on areas for improvement
 - Demonstrate value of changes / experiments or agility in general

Questions?

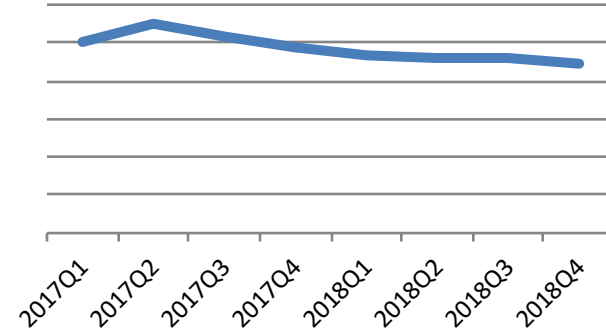


Sample Quality Metrics

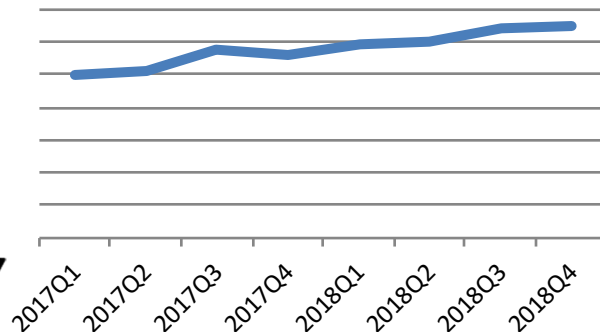
Revenue



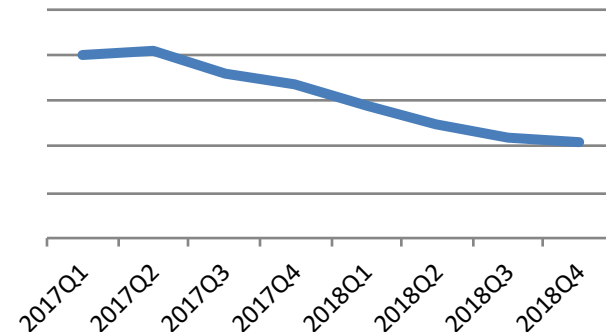
Cost Reduction



Stakeholder Perception

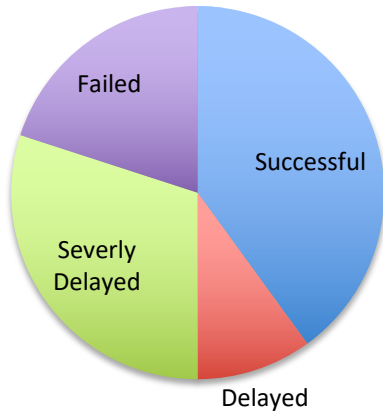


Sev-1 Escapes



Sample Predictability Metrics

2016



2017

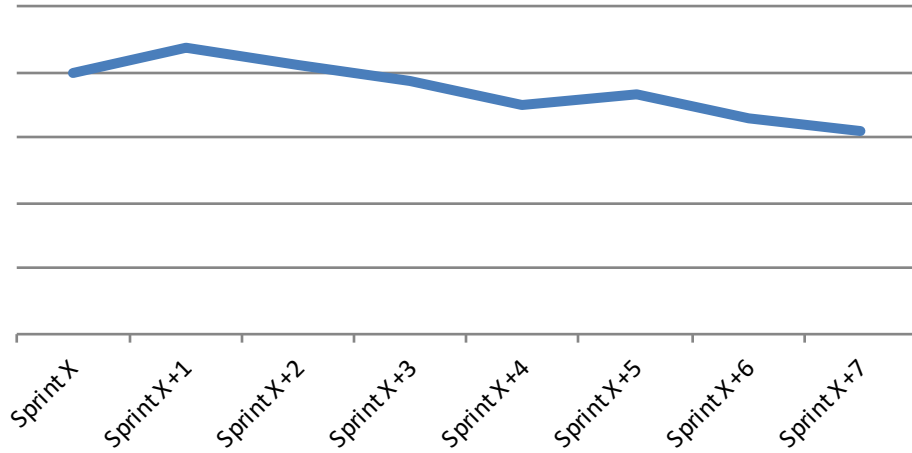


2018

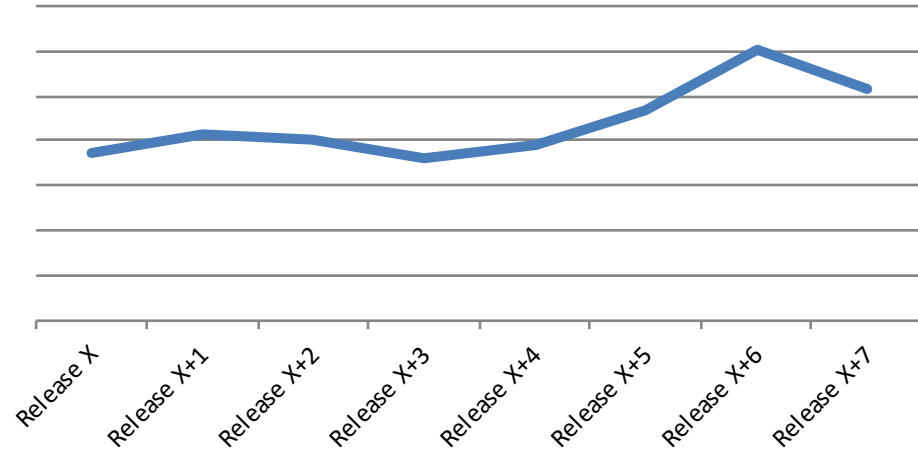


Sample Productivity Metrics

% Swooping



NPS



Sample Team Health Metrics

Organizational Trust

