

The Scrum Master's Guide to Predictability: Leveraging Functional Size and ISBSG Data



Introduction

The ISBSG repository contains a vast array of project data and includes data for projects undertaken in an agile way of working. This enables analysis of the differences between traditional projects and agile projects.

ISBSG collects industry data, where output is measured using ISO/IEC standardized and therefore objective, repeatable, auditable methods, such as Nesma, IFPUG and COSMIC function points.

Typical key metrics based on function points are:

- Project Delivery Rate (PDR)¹: Hours spent per function point
- Cost efficiency: Cost (or Price) per function point
- Quality: Defects per function point (in test and/or 1st month of production)
- Delivery Speed: Function points delivered per calendar month.

The ISBSG 'New Development & Enhancement' repository contains thousands of completed projects for which these metrics are calculated. This allows organizations to make better decisions based on facts instead of opinions.

In this short report we'll dive into the benefits of using functional size and standardized metrics based on ISBSG data especially for Scrum Masters.

Discussion

In the rapidly evolving landscape of Agile software development, the role of the Scrum Master has shifted from simple process facilitation to driving measurable organizational value. While qualitative assessments and team-specific metrics offer internal insights, they often lack the objective rigor required for high-level forecasting and industry benchmarking.

This paper explores the strategic advantages of integrating **ISBSG data** with objective functional sizing to provide a standardized framework for performance. By adopting a metric-driven approach centered on the **Project Delivery Rate (PDR)**, Scrum Masters can move beyond subjective estimation. They can offer stakeholders a

¹ The PDR is the inverse of the universal concept of Productivity (output/input) as it is easier to process for human minds, which usually struggles with metrics with many decimals

transparent and evidence-based view of productivity that is grounded in global industry standards.

What does a Scrum Master do?

The role of a Scrum Master is centered on fostering an environment where a self-organizing team can thrive and deliver high-quality increments of value. Rather than acting as a traditional project manager who dictates tasks, the Scrum Master is a "servant leader" and coach, ensuring that the team adheres to Scrum theory, practices, and rules. Their daily responsibilities involve facilitating key events, removing "impediments" that block progress, and protecting the team from outside interruptions. By focusing on the health of the process and the dynamics of the group, they help the team continuously improve its efficiency and predictability over time.

Why does the Scrum Master need Functional Size?

The Scrum Master needs **Functional Size** to move away from the "black box" of subjective estimation and toward a reliable, repeatable measure of what is actually being delivered.

While Story Points are useful for internal team coordination, they lack a fixed reference point, making it difficult to compare performance across different teams or against industry standards. By using a method like **Functional Size Measurement** (ISO certified methods are Nesma, IFPUG and COSMIC), the Scrum Master can quantify the software based on its objective components.

This objective measurement provides a stable denominator for calculating productivity. It enables the Scrum Master to identify if a team's "velocity" is truly increasing or if the definition of a "point" is simply drifting. Ultimately, Functional Size allows the Scrum Master to protect the team from unrealistic external pressure by providing hard evidence of the team's historical capacity to transform effort into functional value.

Key Advantages of Functional Size in Scrum

- **Standardization:** Provides a universal language that persists even if the team composition or sprint length changes.
- **Improved Forecasting:** Enables more accurate long-term release planning by using historical **PDR (Project Delivery Rate)**.
- **Focus on Value:** Forces the team and Product Owner to look at the software through the lens of user transactions and data storage, ensuring the focus remains on functional delivery.

Benefits for Scrum Masters

Using objective metrics derived from ISO-certified functional sizing methods (i.e., IFPUG, Nesma or COSMIC) provides a Scrum Master with a "gold standard" for measuring delivery that Story Points cannot offer.

When this functional size is paired with **ISBSG (International Software Benchmarking Standards Group)** data, the Scrum Master gains access to thousands of completed projects to use as a baseline. This allows the Scrum Master to move from internal guessing to external validation, identifying whether the team's **Project Delivery Rate (PDR)** is competitive or if specific impediments are causing the team to deviate from industry-standard productivity levels.

Strategic Benefits for the Scrum Master

- **Evidence-Based Retrospectives:** Instead of debating feelings, the team can analyze their PDR (Effort / Functional Size) to see the literal impact of process changes or technical debt over time.
- **Defensible Forecasting:** When stakeholders ask for "when" or "how much," the Scrum Master can use ISBSG benchmarks to provide a range of probable outcomes based on real-world industry performance for similar technology stacks.
- **Removing Estimation Bias:** Objective metrics bypass the "optimism bias" often found in planning poker, providing a cold, hard look at the functional volume the team is capable of handling per sprint.
- **Benchmarking "Value per Sprint":** By tracking the delivery of standardized units, the Scrum Master can demonstrate the team's increasing maturity and efficiency to the Product Owner and upper management using universally recognized metrics.

Using data from the **International Software Benchmarking Standards Group (ISBSG)** provides a foundation of objective reality that moves conversations away from "gut feelings" toward evidence-based management. For a Scrum Master, this data is invaluable for:

- **Setting Realistic Expectations:** Comparing your team's historical performance against industry benchmarks helps in setting achievable sprint goals and long-term release plans.
- **Identifying Process Gaps:** If the team's delivery rate is significantly lower than the industry average for similar technologies, it can highlight systemic issues in the workflow that need addressing during retrospectives.

- **Justifying Resource Needs:** Having hard data makes it much easier to argue for better tools, training, or additional team members by showing the tangible impact these factors have on productivity elsewhere in the industry.

There are many more advantages of using objective and standardized size measurement and team performance metrics over subjective team-specific relative guesstimates of effort like Story Points!

Integrating Objective Metrics into the Sprint Review

To truly leverage the power of **ISBSG data** and **Functional Size**, the Scrum Master should introduce these metrics during the Sprint Review. This transforms the meeting from a simple feature demo into a high-level strategic evaluation of delivery health. By presenting the **Project Delivery Rate (PDR)** alongside the completed functional units, the team can provide the Product Owner with a transparent view of the "cost per unit of value."

How to Present These Metrics

- **The "Unit of Delivery" Summary:** Report the total **Functional Size** completed in the sprint using the chosen ISO certified standard. This creates a consistent record of progress, independent of the team's internal technical complexity.
- **Productivity Benchmarking:** Show the current sprint's **PDR** (effort/FP) against the team's rolling average and the ISBSG industry benchmark for similar technology stacks. An example is shown in the graph shown in Figure 1.

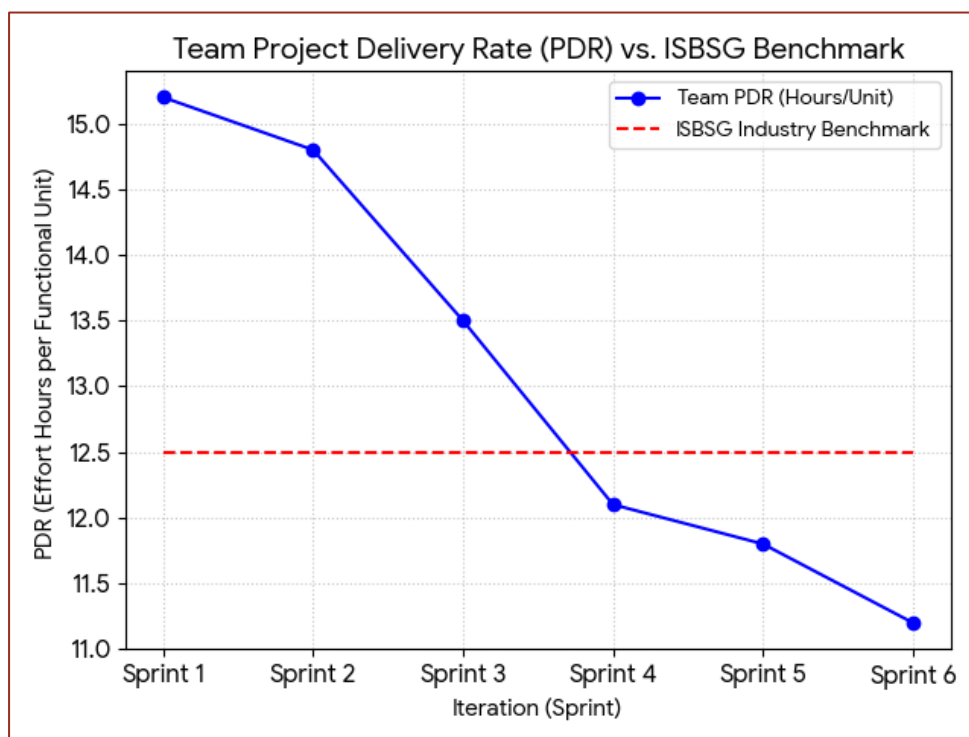


Figure 1: PDR over time and compared to the ISBSG benchmark

- **Predictive Forecasting:** Use the historical PDR to update the release burn-down chart. Instead of guessing based on story points, you can now provide a data-backed estimate of how many sprints are required to finish the remaining functional backlog.

Benefits for Stakeholders

1. **Transparency:** Stakeholders see a "price-per-function" metric that makes sense to the business, rather than abstract points.
2. **Early Warning System:** If the PDR begins to climb (meaning more effort is required for the same functional output), it serves as an early indicator of rising technical debt or scope creep.
3. **Investment Validation:** By comparing the team's performance to **ISBSG data**, the organization can objectively see the return on investment for their Agile transformation.

Conclusions

The integration of **standardized functional size measurement (FSM)** with **ISBSG benchmark data** provides the Scrum Master with a powerful, evidence-based framework for navigating the complexities of software delivery. By moving away from subjective estimation and adopting a universal language, organizations can achieve a level of transparency and predictability previously out of reach.

In addition, integrating **ISBSG data** and objective sizing methods transforms the Scrum Master's role from managing perceptions to managing performance. By grounding team velocity in a standardized functional unit, the Scrum Master provides a transparent, "inflation-proof" metric that bridges the gap between technical delivery and business value. Leveraging these industry benchmarks does not just improve the accuracy of forecasting; it empowers the Scrum Master to protect the team with hard evidence and guide continuous improvement through a clear, data-driven lens. Ultimately, adopting these objective metrics ensures that the journey toward Agility is measured not by the volume of effort expended, but by the tangible functional value delivered to the organization.

If you wish to do your own analysis, or if you are interested to use the ISBSG data for cost estimation, benchmarking, performance measurement, procurement, etc., please subscribe to the data here: <https://www.isbsg.org/project-data/>

The International Software Benchmarking Standards Group (ISBSG)

The ISBSG is a not-for-profit organization founded in 1997 by a group of National Software Metrics Associations. Their aim was to promote the use of IT industry data to improve software processes and products.

ISBSG is an independent international organization that collects and provides industry data for software development projects and maintenance & support activities. The aim is to help all organizations (commercial and government, suppliers and customers) in the software industry to understand and to improve their performance and decision making.

ISBSG sets the standards of software data collection, software data analysis and software project benchmarking processes. It is considered to be the international thought leader in these practices.

The ISBSG mission is to support commercial and public organizations to improve the estimation, planning, control and management of IT software projects and/or maintenance and support contracts.

To achieve this ISBSG maintains and grows 2 repositories of IT software development/maintenance & support data. This data originates from trusted, international IT organizations and can be obtained for a modest fee from the website www.isbsg.org/project-data/

Help us to collect data

ISBSG is always looking for new data. In return for your data submission, we issue a free benchmark report that shows the performance in your project or contract against relevant industry peers.

Please submit your data through one of the forms listed on <http://isbsg.org/submit-data/>

A specific Agile/Scrum data collections questionnaire can be downloaded here:

<https://cutt.ly/4vnuXVT>

Partners

This page will help you to find an ISBSG partner in your country:

<https://www.isbsg.org/board/>