

The Productivity Query Tool (PDQ)



Introducing the PDQ

ISBSG maintains a repository of data for Development and Enhancement (D&E) projects, releases and sprints. This data originates from consultancy and IT organisations from around the world. It covers all phases of the Project Life Cycle undertaken by the Development Team: Requirements, Design, Development, Test and Implementation.

The ISBSG Productivity Data Query (PDQ) is an interactive tool. It makes use of project data from the ISBSG Development and Enhancement Repository. The tool enables users to specify the attributes of their project, then it finds similar projects from the Repository. Project estimates are then quickly calculated on these matches. These estimates can then be used as a benchmark for the user's project. The estimates generated by the tool are:

- Project Delivery Rate (Effort hours spent per Function Point)
- Project Duration (calendar months)
- Speed of Delivery (Function Points delivered per calendar months)
- Defect Density (defects delivered per 1000 function points)
- Software Project Effort (Effort hours spent)

Example

To show how to use the PDQ tool, let's examine an example. We need to estimate an enhancement project of 800 Nesma/IFPUG function points for a government agency. The technology used is Java.

In the PDQ, we first enter the filters to be used when selecting the dataset. For this example, see Figure 1 below:

Step 1 – Enter the filters for your project.

FILTERS			
Functional Size (function points)	Development type	Year	Count Standard
500-1000 ⌵	Match All ⌵	last 5 year ⌵	FP ⌵

Figure 1: PDQ project filters

Then it's possible to select additional attributes, such as programming language, organization type, application type or maximum team size. Figure 2 displays the selection of attributes for the example, they are: a programming language of Java, organization type of "government" and function point counting method of "IFPUG 4+". The query can then be processed.

Project Attributes	Project Delivery Rate				Speed of Delivery				Defect Density			
	Matches	1st Quartile	Median	3rd Quartile	Matches	1st Quartile	Median	3rd Quartile	Matches	1st Quartile	Median	3rd Quartile
Primary Programming language <input type="text" value="Java"/>	78	4.35	7.60	10.68	76	142.05	98.80	65.28	17	57.30	6.90	4.90
Organisation Type <input type="text" value="Government"/>	38	6.53	9.60	14.53	37	78.70	49.50	38.90	23	38.00	16.70	10.25
Application Type <input type="text"/>												
Maximum Team Size <input type="text"/>												
Web Development <input type="text"/>												
Count Approach <input type="text" value="IFPUG 4+"/>	483	4.00	7.70	15.80	415	137.58	87.75	56.33	76	39.33	14.90	5.18

Figure 2: PDQ project attributes

In Figure 3, high-level estimates have been generated, based on the filters and attributes specified in figures 1 and 2. A total of 8 projects matched the specified filters and attributes. The data from these projects was used to calculate the project delivery rate, project work effort, speed of delivery and project duration shown below. This example gives a likely (i.e. median) of 6000 effort hours and a project duration of 10.7 months.

Step 3 – Enter your Function Point count and click Estimate. The projects selected for the result will contain ALL the attributes selected. Select wisely as selecting too many attributes may limit the amount of data to be included in your result.

Functional size (function points)	<input type="text" value="800"/>	<input type="button" value="Estimate"/>		
Estimates	Project Delivery Rate	Project Work Effort	Speed of Delivery	Project Duration
	Matched	8	Matched	8
Level 1 Dev Team	<i>(hours per function point)</i>	<i>(Hours)</i>	<i>Function points per month</i>	<i>(months)</i>
1st Quartile	3.58	2864.00	161.25	4.96
Median	7.50	6000.00	74.85	10.69
3rd Quartile	9.80	7840.00	58.80	13.61

ISBSG Data Version: 3.1

Figure 3: PDQ estimations

Conclusion

The PDQ tool is a light version of the ISBSG Developments & Enhancement (D&E) repository that allows the users to make basic queries and estimates on a subset of the D&E repository. To find more information about the PDQ can be found here:

<https://www.isbsg.org/productivity-data-query-tool/>

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 industry data of software development projects and maintenance & support activities. This 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 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/>