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Project Size Unit (PSU)



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Calculation feature in
Project Management tools - Requirements

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For more information about PSU and other Software Measurement & Quality issues, please visit:

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1 Document Information

1.1 Executive Summary

This document proposes the list of User Requirements related to the insertion of some features of PSU (Project Size Unit) within a Project Management tool.

In particular, those features will be organized by goal: calculation, reporting, import/export from/to the organizational PHD (*Project Historical Database*).

1.2 History

Revision	Date	Changes since last revision
0.0	12/12/2006	First issue

1.3 Acronyms

Acronym	Description
F/Q/T	Functional / Quality / Technical (referred to the nature of a requirement)
FUR	Functional User Requirement
H/M/L	High/Medium/Low (referred to tasks complexity)
HF	Homogeneity Factor
HLR	High-Level Requirement
M/Q/T	Management / Quality / Technical (referred to the nature of a task)
PHD	Project Historical Database
PSU	Project Size Unit (http://www.geocities.com/lbu_measure/psu/psu.htm)
PSU _{am}	PSU for Quality-Management Tasks
PSU _t	PSU for Technical Tasks
RHLR	Refined HLR
UR	User Requirement

1.4 References

[BUGL05]	BUGLIONE L., <i>Project Size Unit – Measurement Manual</i> , version 1.01, PSU-MM-101e, October 2005
[BUGL06]	BUGLIONE L., <i>Dimensionamento e Stima dei Progetti ICT. Un metodo per la valutazione comprensiva degli aspetti non funzionali</i> , Presentation, 18 September 2006, URL: www.cnipa.gov.it
[PSU--]	BUGLIONE L., <i>Project Size Unit – homepage</i> , URL: http://www.geocities.com/lbu_measure/psu/psu.htm

2 Introduction

One of the most relevant issues of interest for personnel devoted to the estimation process is to obtain values with the lowest MRE (Mean Relative Error) as possible and – at the same time – to need the lowest time as possible to update estimates for any requirements variation – also if a minor one – in particular in the early SLC phases of a project.

The automation of any functionality – properly validated and stable – allows to increase process productivity and minimize the effort needed to verify processed data with manual or semi-manual tools.

2.1 Project Size Unit (PSU)

Project Size Unit (PSU) represents a Project Management technique that, refining high-level user requirements (RHLLR) and related operative tasks shown in a WBS, allows obtaining a value expressing the size of the project to associate to the overall effort generated by those tasks.

For more detailed information, please refer to “PSU Measurement Manual” [BUGL05] and to PSU homepage [PSU---].

2.2 PSU calculation: Spreadsheet vs. “improved” PM tools

At PSU homepage (www.geocities.com/lbu_measure/psu/psu.htm) it is possible to download PSU calculation template and – as suggested in the Measurement Manual – the effort needed to compute PSU starting from the project WBS is c.a. few hours.

Using the MS-Excel spreadsheet, each time a project requirement will be modified and each subsequent modification of the WBS on its Gantt chart, the Estimator will write such modification twice: both on Gantt chart (as usual) and on the PSU spreadsheet. Working on the “task” entity, a possible advantage for Estimators will be to insert directly the PSU counting & reporting features directly inside a Project Management tool.

Some possible advantages (+):

- To eliminate the effort needed to calculate PSU, because in such way ‘copy & paste’ from the PM tool up to the PSU spreadsheet will be not anymore needed, working directly on tasks inserted into the current project on the PM tool.
- To integrate the reports related to the calculation as well as project data currently present on the PSU spreadsheet with other info yet inserted on the PM tool (i.e. project title, Project Manager name, Star-End dates, SLC applied, etc.): this will improve the creation of a data record to be inserted into the organizational PHD.

Some possible limitations (-):

- Modifications can imply changes in the source code, therefore some high-level profile analysis and programming resources are needed, with an effort needed anyway higher than the one needed to modify the PSU spreadsheet.
- Unavailability of technical requirements needed to implement and modify the PM tool selected.

2.3 Some possible Project Management (PM) tools

Next tables show a list of possible Project Management tools with their URL, listed in two main categories: Commercial and Open Source tools.

COMMERCIAL TOOLS

Title	Company	URL
MS-Project	Microsoft	http://office.microsoft.com/it-it/project/default.aspx
Primavera	Primavera Systems	http://www.primavera.com/
Project.net	Project.Net	http://www.project.net

A further series of lists is available in Wikipedia:

http://en.wikipedia.org/wiki/Project_management_software

OPEN SOURCE TOOLS

Title	URL
GanttProject	http://ganttproject.biz/
dotProject	http://sourceforge.net/projects/dotproject/
NetOffice	http://sourceforge.net/projects/netoffice/
GanttPV	http://sourceforge.net/projects/ganttpv/

A further series of lists is available in SourceForge: <http://sourceforge.net/>

3 User Requirements

Next sections contain User Requirements referred to the possibility to have directly into a Project Management tool the PSU features for calculating, reporting and exporting project data to the organizational PHD.

Each requirement has been identified by a letter and a double digit, in order to show respectively the requirement type and a progressive number within each type.

3.1 G - General

- **G01:** All PSU-related functionalities will be presented through a first-level menu item, opportunely sub-levelled.
- **G02:** Two possible users' types will be defined: PSU administrator and PSU user. The first one will be able to modify the *weighting system*, while the second one will be able to only use such weights, applied in PSU calculation. A *login* window that recognizes the user type will be created, allowing (or not) to access such functionalities.
- **G03:** The *weighting system* needed for calculating PSU must be established and modifiable exclusively by PSU administrators and available in read-only mode by PSU users.
- **G04:** Every month the application will verify with any people accessed as "*administrator*" if he/she wish to modify the current weighting system or to confirm it for the following month.
- **G05:** The application will preview the insertion of the proper data columns, in line with what requested by the technique and yet shown in the MS-Excel spreadsheet available on the PSU website [http://www.geocities.com/lbu_measure/psu/psu.htm] (i.e.: task classification: M/Q/T, SLC phases,...)
- **G06:** Functionalities for counting, reporting and data export will be accessible both from a menu item, shortcuts and buttons on the PM application toolbar.
- **G07:** For each low-level task it will be possible to insert all details included in the PSU template in MS-Excel format (M/Q/T classification, Functional/Non-Functional, SLC phase, ...)

3.2 C – Calculation

- **C01:** The application will compute PSU using the computation algorithm included in the most recent version of the PSU "Measurement Manual".
- **C02:** A pre-requisite for running the PSU computation will be the completion of data for each task introduced into the WBS. Otherwise, the application will present an error message, informing the user about the missing of some data and inviting him/her to conclude the insertion.

3.3 R - Reporting

- **R01:** The application will provide reporting about the count, showing in table format the following information:
 - Number of PSU
 - Total number
 - PSU_t
 - PSU_{qm}
 - effort in m/d, in absolute and % values
 - by SLC phase

- by task type (M/Q/T)
 - number of tasks, in absolute and % values
 - by type: tecnici (T) e non tecnici (M/Q)
 - by task complexity: high / médium / low (both technical and non-technical)
 - by SLC phase
- **R02:** Reports will be produced by visualizing data on a *secondary window* or by saving data on a file offering TXT, XML, PDF formats. In the ‘visualization’ case, the application will ask the user about the possibility to save data in those formats.

3.4 E – Exporting data to PHD

- **E01:** Data referred to the project and PSU calculation will be exported in CVS, XML, TXT formats.
- **E02:** There will be two data groups to be exported: *organizational* and *technical* ones, as suggested in the PSU “Measurement Manual”.

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