POLITECNICO
MILANO 1863

POWER ENJOY

Project Plan Document

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1 Introduction

1.1 Revision History

The history of document revisions is here recorded in tabular format, mapping the document version with the changes brought to document itself.

The current version of the document is highlighted by the version number in bold format.

Version	**Revision**
1.0	First released version.

1.2 Purpose

1.3 Scope

1.4 Definitions, Acronyms and Abbreviations

1.5 Reference Documents

2 Project Size, Effort and Cost Estimation

In this section the estimation process of the three key aspects for an effective project planning, namely size, effort and costs expected, is described in details, pointing out the rationale of each single step of the process itself.

The size estimation process is led by a **functionality-provided** based approach, whereby the estimation is made according to the functionalities that the software product is planned to provide. To support this strategy, *Function Points* technique is used.

Regarding the effort and cost estimation, the process is based on **algorithmic approach**, that is the use of an algorithmic model based on a simple equation which output depends on several factors regarding the project. The algorithmic model here used is based on *COCOMO II*.

2.1 Size Estimation

As explained in the introductory paragraph to this section, the size estimation effort is based on the estimation of the so-called *Function Points*. Function points are a statistical method of estimate the size of a software project evaluating the different functionalities provided by the software product in exam.

According to this approach, functionalities are divided into 5 **function types**, or category:

- **Internal Logical File.**
- **External Logical File.**
- **External Input.**
- **External Output.**
- **External Inquiry.**

For each of these type, a **weight** is associated. These weights are statistically determinated and vary according to the **complexity** of the function type. The complexity of a function type can be derivided consulting the related *rating tables*.

	Data elements		
RET	$1 \rightarrow 19$	$20 \rightarrow 50$	51+
1	Low	Low	Average
$2 \rightarrow 5$	Low	Average	High
6+	Average	High	High

In order to retrieve the number of function points assigned to the software product given a specific function type, a simple equation is applied:

$$PFP_t = N_t * FP_t, t \in T = [ILF, ELG, EI, EO, EINQ]$$

This equation returns the *partial function points* obtained by multiplying the number of functionalities of a certain catergory for the weight associated to that category.

The total number of function points assigned to the whole project is computed by the *Unadjusted Function Points* equation, which simply compute the sum of each PFP previously calculated.

$$UFP = \sum_t FPF_t, t \in T$$

2.2 Effort and Cost Estimation