

## **FPA according to NESMA and IFPUG; the present situation** (version August 1, 2011)

### **Preface**

When performing a benchmark it can be useful to be aware of the differences in counting guidelines between the NESMA and IFPUG FPA methods. From 1990 on NESMA and IFPUG have worked closely together to define a common standard. During the last few years the IFPUG counting guidelines have gone through several revisions. In former areas of dispute the IFPUG has mostly adopted the NESMA guidelines. Practically, this has resulted in a continually lower function point count for IFPUG for the same functional sample.

This document describes the present-day differences in the NESMA and IFPUG counting guidelines. If you want to know “what and when” was changed, please consult the separate document: “Historical review NESMA & IFPUG” (available in Dutch only).

Please keep in mind that it will normally take some time before major changes are known to and adopted by all IFPUG counters. The effects on benchmarking data will become apparent even later. In addition, benchmarking data can be based on older versions of the IFPUG counting guidelines. The NESMA counting guidelines have been stable since version 1.0 of the manual was published in 1989.

In the NESMA Counting Practices Manual version 2.0, a percentual difference was stated for the lower number of function points usually obtained by IFPUG. Unfortunately, this percentage, although merely meant to be an indicative value, was taken as a matter-of-fact. Because the remaining differences have been further reduced, this percentage is no longer valid.

### **Actual versions of the NESMA and IFPUG Counting Practices Manuals**

NESMA CPM 2.1 (2003)	NESMA Counting Practices Manual FPA, release.2.1, English) (*)
NESMA CPM 2.2 (2004)	NESMA Counting Practices Manual FPA, release.2.2, Dutch) (*)
IFPUG CPM 4.3 (2010)	IFPUG Counting Practices Manual FPA, release 4.3

(\*) NESMA CPM 2.1 is the version that was certified by ISO. The official name is:  
*“ISO/IEC IS 24570 Software Engineering - NESMA functional size measurement method version 2.1 - Definitions and counting guidelines for the application of Function Point Analysis”*

NESMA CPM 2.2 is an exact Dutch translation of NESMA CPM 2.1. However, some cosmetic modernizations were made in the examples (for example, GUI based screens in stead of text based). To avoid confusion, a new release number was assigned to the Dutch translation (2.2). However, the counting rules and guidelines are exactly identical. So NESMA CPM 2.1 and NESMA CPM 2.2 are completely interchangeable.

### **Practically the same guidelines**

NESMA and IFPUG both use the same terminology, albeit in a different language. The NESMA maintains a list of English-language words related to FPA. This can be downloaded from the NESMA site.

Both NESMA and IFPUG differentiate the same five types of user functions: ILGV (ILF), KGV (EIF), IF (EI), UF (EO), OF (EQ). The rules for determining the type and complexity of a function are the same, with a few exceptions:

- External Inquiry vs External Output
- Complexity of an External Inquiry
- Implicit Inquiry
- Code data (Code tables)
- Physical media
- Queries with multiple selections (“and/or” situations)

In the following each topic is highlighted.

### **External Inquiry vs. External Output**

For IFPUG, an External Inquiry is defined as a function that presents data to a user from a logical file (ILF or EIF) without undergoing additional processing (such as calculations, updates to an ILF, etc.). In all other cases it is considered an External Output.

For NESMA, the same rules apply, but in addition, a unique selection key must have been entered and the output must be fixed in scope. In some cases, therefore, IFPUG will count an External Inquiry, while NESMA counts the same function as an External Output (e.g. "Show all customers").

The impact of this difference *is marginal* for the number of function points for a system or project because only the type of function (External Inquiry or External Output) is affected; not the number of counted functions.

### **Complexity of an External Inquiry**

For NESMA the functional complexity of the input part of an External Inquiry is based on the complexity rules for an External Input function; the complexity of the output part is based on the rules for an External Output function. The more complex of the two will be used as the complexity of the External Inquiry.

For IFPUG the functional complexity is determined in the same way as all other transactions, by counting the number of data-element-types crossing the application boundary and identified in the data-functions.

In practice the impact of this difference *is marginal* for the number of function points for a system or project.

### **Implicit Inquiry**

When modifying or deleting data, the data is often first presented to the user for viewing. This is known as an "implicit inquiry".

For NESMA, the underlying goal of a function is always the primary objective. NESMA therefore does not consider the implicit inquiry as a separate transactional function, but as an integral part of the modify- or delete function. The data element types presented to the user by the implicit inquiry are therefore added to those counted in the modify- or delete function. NESMA will only count the External Inquiry if it is specifically identified by the user for the purpose of querying data.

IFPUG does not have specific rules for this situation in IFPUG CPM 4.3. Some IFPUG counters will therefore count this as a separate External Inquiry function (if counted nowhere else).

The impact of this difference is *marginal* for the number of function points in a system or project. Usually the user will have defined this function as an (explicit) inquiry (and it will thus be counted). The implicit inquiry will then not be counted (again) because the same function can not be counted twice.

### **Code tables**

In general, entities can be seen as being composed of primary data ("business objects") or composed of secondary data (supportive data).

In the case of primary data, both NESMA and IFPUG follow the same counting guidelines as of IFPUG CPM 4.2.

Secondary data usually consist of code-tables, also called "FPA-tables" by NESMA. As an example, consider the "translation table": article code → article description.

During data function counting, NESMA will classify all code tables as one ILF and/or one EIF. The number of record types will be set equal to the number of identified code tables. Altogether, the FPA-table-ILF will also count for one External Input, one External Inquiry and one External Output. For the FPA-table-EIF no transactional functions are counted, even though External Inputs or External inquiries may be present.

Since IFPUG CPM 4.2, IFPUG considers code tables to be an implementation of technical or quality requirements for the user, and not part of the functional requirements. In accordance with the ISO FSM

standard, IFPUG has therefore decided that code tables and the transactional functions associated with them, are not to be counted using function points.

Once again, the impact of this difference is *marginal* for the number of function points for a system or project. The difference will be *at most* 25 function points for an FPA table ILF, and 20 function points for an FPA table EIF.

### **Physical media**

Physical media is ignored in NESMA counting practices. NESMA looks at the underlying functionality. If the number of data element types and the logical processing are the same, input entered through different media will be counted as one External Input by NESMA. The same holds true for External Outputs. Reports that can be presented on different media (print, screen, etc.) are counted as one External Output function (when the number of data element types and the logical processing remain the same). In IFPUG CPM 4.3 no specific counting guidelines are given for this situation.

### **Inquiries containing multiple selection criteria (“and/or” situations)**

In the NESMA counting guidelines only mutually exclusive selections are to be counted. IFPUG has no specific guidelines for this situation. Some IFPUG counters therefore, count every conceivable combination of selection criteria as separate functions, which may result in large differences in function points among IFPUG counters. In IFPUG CPM 4.3 no specific counting guidelines are given for this situation.

### **Background information**

Background information can be found in the document “Historical Review NESMA and IFPUG” (in Dutch only).