

## Practical orientation for the use of the NESMA Measurement Spread Sheet

- 1) The sheet is divided in three parts: *Measurement*, *Functions* and *Summary* (see the figure below). Each tab contains specific fields that need to be filled out appropriately, according to the following description. Noticed that some cells are automatically filled (gray background) and should not be modified due to the fact that its value is derived by formulas that reference other cells.

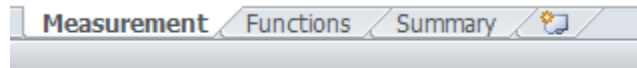



Figure 1 – Tabs

- 2) The first part refers to information about the measurement, such as artifacts and tools used, **measurement purpose**, or the type of measurement, etc. This is represented in the figure below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC					
1																																	
2	<b>Measurement Identification</b>																																
3																																	
4	Company															\$/FP	0,00	Cost	R\$	-													
5	Application															FP			-														
6	Project																																
7	Responsibile															Creation																	
8	Peer Reviewed by:															Revision																	
9	<a href="#">Look here for directions on how to use the Excel sheet.</a>																																
10	<b>Type of Measurement</b>	Estimation																															
11		Development Project																															
12		Enhancement Project																															
13		Aplication ( Baseline )																															
14																																	
15																																	
16	<b>Measurement Purpose</b>																																
17																																	
18																																	
19																																	
20																																	
21																																	
22																																	

<b>Summary</b>	Functional Size (FP)		Impact	Local FP
	ADD	-	1,00	-
	CHG	-	0,50	-
	DEL	-	0,50	-
	-		-	

Figure 2 – Measurement Identification

The fields **\$/FP**, **Impact factor** and **Local FP** are used in applications where this sheet model is used for Systems Development and Enhancement Service Orders Measurements whose production measurement is done using Function Point Analysis. These are out of the scope of this document. It is proposed that this model be immersed in a context in which there's a measurement quality guarantee and that that it possess fields for the registration of the **Responsible** individual for the measurement (same with the **creation date**) and fields for **Peer Reviewer** (same with the **revision date**). The **Type of Measurement** options are not exclusive: The first field, **Estimation**, is attributed to an



- **Tested Functions – T:** Relevant only when the *NESMA* Test Functions Points are used

**-DETs After:** Quantity of Data Types after the enhancement project necessary in the determination of the data or transaction function complexity

**-FTR/RET After:** Quantity of Referenced Files of the transaction function **after the enhancement project** or the amount of RET in a data function after the enhancement project.

The following fields should only be filled out for **Modified Functions:**

**-DET Before (original):** Quantity of Data Types that a data or transaction function possesses **before the enhancement project.**

**-DET of Change (A/M/D):** *Quantity of Added, Modified or Deleted DETs in an enhancement Project.*

**-% Change DET:** This is calculated automatically, in accordance with the formula below:

$$(\%) \text{ Change} = \frac{(\sum \text{DET}_{\text{ADD, ALT, DEL}} \times 100)}{\sum \text{DET}_{\text{Original}}}$$

**Figure 4 – Percentage Change of Data Types**

**-FTRs Before (original):**Quantity of Referenced Files that a transaction file possesses before an enhancement project.

**-FTR Change (A/M/D):** Quantity of Referenced Files that were **Added, Modified or Deleted** in an enhancement project.

(Notice that this field should only be used for Transaction Functions).

**-% Change FTR:** Calculated automatically (only for transaction functions), in accordance with the following formula:

$$(\%) \text{ Change} = \frac{(\sum \text{FTR}_{\text{ADD, ALT, DEL}} \times 100)}{\sum \text{FTR}_{\text{Original}}}$$

Figure 5 – Percentage Change of Referenced Files

-**Impact Factor:** Calculated automatically, in accordance with the following tables (for modified functions):

-For Data Functions:

<b>(%) Change</b>	$\leq 1/3 \text{ (x 100\%)}$	$\leq 2/3 \text{ (x 100\%)}$	$\leq 100\%$	$> 100\%$
<b>Impact Factor</b>	<b>0.25</b>	<b>0.50</b>	<b>0.75</b>	<b>1.00</b>

Figure 6 – Impact Factor tables for Data Functions

-For Transaction Functions:

<b>(%) FTR \ (%) DET</b>	$\leq 2/3 \text{ (x 100\%)}$	$\leq 100 \%$	$> 100 \%$
$\leq 1/3 \text{ (x 100\%)}$	<b>0.25</b>	<b>0.50</b>	<b>0.75</b>
$\leq 2/3 \text{ (x 100\%)}$	<b>0.50</b>	<b>0.75</b>	<b>1.00</b>
$\leq 100 \%$	<b>0.75</b>	<b>1.00</b>	<b>1.25</b>
$> 100 \%$	<b>1.00</b>	<b>1.25</b>	<b>1.50</b>

Figure 7 – Impact Factor Table for Transaction Functions

For **Added Functions**, the IF is always the same, **1.00**.

For **Deleted Functions or that changed in the type (ILF ↔ EIF)**, the IF is always considered as **0.4**.

**-Complexity:** Calculated by the spread sheet in accordance with the quantity of Data Element Types and the quantity of Files Referenced, according to the function type in the case of a detailed measurement or based on the function as well in the case of an Estimated Measurement (NESMA) has the following potential values:

- Low
- Medium
- High

**-FP:** Measurement Function Point Contribution respective to the function, this is calculated by the spread sheet.

The Complexity as well as the FP column use the tables below to arrive to a certain measurement:

<b>Complexity</b>				
<b>ILF and EIF</b>				
<b>Record Element Types (RET)</b>	<b>Data Element Type (DET)</b>			
	<20	20-50	>50	
	1	Low	Low	Medium
	2-5	Low	Medium	High
>5	Medium	High	High	
<b>EI</b>				
<b>File Types Referenced (FTR)</b>	<b>Data Element Type (DET)</b>			
	<5	5 - 15	> 15	
	<2	Low	Low	Medium
	2	Low	Medium	High
>2	Medium	High	High	

<b>EO and EQ</b>				
<b>File Types Referenced (FTR)</b>	<b>Data Element Type (DET)</b>			
	< 6	6 - 19	> 19	
	< 2 *	Low	Low	Medium
	2 -3	Low	Medium	High
> 3	Medium	High	High	

<b>Contribution</b>			
<b>Functionality Type</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
Internal Logical File (ILF)	x7	x10	x15
External Interface File (EIF)	x5	x7	x10
External Input (EI)	x3	x4	x6
External Output (EO)	x4	x5	x7
External Inquiry (EQ)	x3	x4	x6

Figure 8 – Complexity Table

**-EFP:**This is calculated automatically, using the following formula:  $EFP = FP \times FL$

**-Origin:** Use this aspect to document the requirement that caused the functional measurement in the enhancement project.

**-Observations:**Use this space to document which inputs were used to identify the respective function. Which use case, which spread sheet, which report...something that allows for a proper and agile justification.

- 4) The third tab contains information in regards to the measurement or estimation summary, using the previous tabs as inputs.



### Sumario de la Medición

Application :		Project :			
Responsable :		Peer Reviewed by: :			
Company :		\$/FP = 0	Cost= R\$ 0,00	FP = 0	
Function Type	Functional Complexity		Total by Complex.		%
EI	0	Low	x 3	0	38,7%
	3	Average	x 4	12	
	0	High	x 6	0	
	<b>Total</b>	<b>3</b>	<b>Total</b>	<b>12</b>	
EO	0	Low	x 4	0	0,0%
	0	Average	x 5	0	
	0	High	x 7	0	
	<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>	
EQ	0	Low	x 3	0	0,0%
	0	Average	x 4	0	
	0	High	x 6	0	
	<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>	
ILF	2	Low	x 7	14	45,2%
	0	Average	x 10	0	
	0	High	x 15	0	
	<b>Total</b>	<b>2</b>	<b>Total</b>	<b>14</b>	
EIF	1	Low	x 5	5	16,1%
	0	Average	x 7	0	
	0	High	x 10	0	
	<b>Total</b>	<b>1</b>	<b>Total</b>	<b>5</b>	

% by Function Type

Figure 9 – Measurement Summary (1)

Figure 10 presents a summary of the functions by type and complexity. The pie chart below represents a function point percent distribution by type. You can also see the different function point counts by type of analysis such as Detailed Measurement, an Estimated Measurement (NESMA) and an Indicative Measurement (NESMA).

Total FP (Detailed Measurement)	<u>31</u>
Total FP (Estimated Measurement)	<u>31</u>
Total FP (Indicative Measurement)	<u>85</u>

**% by Function Type**

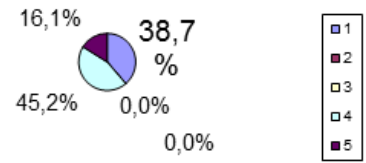


Figure 10 – Measurement Summary (2)

Go ahead and use the spread sheet to better familiarize yourself with it.