

Appendix 1

Formulas and Matrices

Matrices

See Tables A1.1 through A1.8.

Table A1.1 Internal Logical File (ILF) and External Interface File (EIF) Complexity Matrix

	1 to 19 DETs	20 to 50 DETs	51 or More DETs
1 RET	Low	Low	Average
2 to 5 RETs	Low	Average	High
6 or More RETs	Average	High	High

Table A1.2 Internal Logical File (ILF) Translation Table

Functional Complexity Rating	Function Points
Low	7
Average	10
High	15

Table A1.3 External Interface File (EIF) Translation Table

Functional Complexity Rating	Function Points
Low	5
Average	7
High	10

Table A1.4 External Input (EI) Complexity Matrix

	1 to 4 DETs	5 to 15 DETs	16 or More DETs
0 to 1 FTR	Low	Low	Average
2 FTRs	Low	Average	High
3 or More FTRs	Average	High	High

Table A1.5 External Output (EO) and External Inquiry (EQ) Complexity Matrix

	1 to 5 DETs	6 to 19 DETs	20 or More DETs
0 to 1 FTR	Low	Low	Average
2 to 3 FTRs	Low	Average	High
4 or More FTRs	Average	High	High

Note: An EQ has a minimum of 1 FTR.

Table A1.6 External Input (EI) and External Inquiry (EQ) Translation Table

Functional Complexity Rating	Function Points
Low	3
Average	4
High	5

Table A1.7 External Output (EO) Translation Table

<i>Functional Complexity Rating</i>	<i>Function Points</i>
Low	4
Average	5
High	7

- CFP is the size of the conversion functionality.
- DEL is the size of the functions being deleted by the enhancement project.

Initial Application Functional Size

$$AFP = ADD$$

where:

- AFP is the application function point count.
- ADD is the size of the functions to be delivered to the user by the development project (excluding the size of any conversion functionality) or the functionality that exists whenever the application is measured.

Formulas**Functional Size Formulas****Enhancement Project Functional Size**

$$EFP = ADD + CHGA + CFP + DEL$$

where:

- EFP is the enhancement project function point count.
- ADD is the size of the functions being added by the enhancement project.
- CHGA is the size of the functions being changed by the enhancement project (as they are/will be after implementation).

Application Functional Size Measurement to Reflect Enhancements

$$AFPA = (AFPB + ADD + CHGA) - (CHGB + DEL)$$

where:

Table A1.8 Functional Size Calculation Table					
<i>Function Type</i>		<i>Functional Complexity</i>		<i>Complexity Totals</i>	<i>Function Type Totals</i>
ILF	_____	Low	× 7 =	_____	
	_____	Average	× 10 =	_____	
	_____	High	× 15 =	_____	
EIF	_____	Low	× 5 =	_____	
	_____	Average	× 7 =	_____	
	_____	High	× 10 =	_____	
EI	_____	Low	× 3 =	_____	
	_____	Average	× 4 =	_____	
	_____	High	× 6 =	_____	
EQ	_____	Low	× 3 =	_____	
	_____	Average	× 4 =	_____	
	_____	High	× 6 =	_____	
EO	_____	Low	× 4 =	_____	
	_____	Average	× 5 =	_____	
	_____	High	× 7 =	_____	
Total functional size					

- AFPA is the application function point count after the enhancement project.
- AFPB is the application function point count before the enhancement project.
- ADD is the size of the functions being added by the enhancement project.
- CHGA is the size of the functions being changed by the enhancement project (as they are/will be after implementation).
- CHGB is the size of the functions being changed by the enhancement project (as they are/were before the project commenced).
- DEL is the size of the functions being deleted by the enhancement project.

Adjusted Functional Size Formulas

Value Adjustment Factor (VAF)

$$\text{VAF} = (\text{TDI} \times 0.01) + 0.65$$

where TDI is the Total Degree Of Influence obtained by summing the degrees of influence for each General System Characteristic.

Adjusted Development Project Functional Size (aDFP)

$$\text{aDFP} = \text{DFP} \times \text{VAF}$$

where:

- aDFP is the adjusted development project functional size.
- DFP is the development project functional size ($\text{DFP} = \text{ADD} + \text{CFP}$).
- VAF is the Value Adjustment Factor.

Adjusted Enhancement Project Functional Size (aEFP)

$$\text{aEFP} = [(\text{ADD} + \text{CHGA} + \text{CFP}) \times \text{VAFA}] + (\text{DEL} \times \text{VAFB})$$

where:

- aEFP is the adjusted enhancement project functional size.
- ADD is the size of the functions being added by the enhancement project.
- CHGA is the size of the functions being changed by the enhancement project (as they are/will be after implementation).
- CFP is the size of the conversion functionality.
- VAFA is the Value Adjustment Factor of the application after the enhancement project is complete.

- DEL is the size of the functions being deleted by the enhancement project.
- VAFB is the Value Adjustment Factor of the application before the enhancement project begins.

Adjusted Application Functional Size

This section provides the formulas to calculate the adjusted application functional size. There are two variations of this formula:

- Formula to establish the initial adjusted functional size for an application
- Formula to reestablish the adjusted functional size for an application after an enhancement project has changed the application functionality

Initial Adjusted Application Functional Size (aAFP)

$$\text{aAFP} = \text{ADD} \times \text{VAF}$$

where:

- aAFP is the initial adjusted application functional size.
- ADD is the size of the functions by the development project to be delivered to the user or the functionality that exists whenever the application is measured.
- VAF is the Value Adjustment Factor of the application.

Adjusted Application Functional Size After Enhancement Projects (aAFPA)

$$\text{aAFPA} = [(\text{AFPB} + \text{ADD} + \text{CHGA}) - (\text{CHGB} + \text{DEL})] \times \text{VAFA}$$

where:

- aAFPA is the adjusted application functional size after the enhancement project.
- AFPB is the application functional size before the enhancement project begins.
- ADD is the size of the functions being added by the enhancement project.
- CHGA is the size of the functions being changed by the enhancement project (as they are/will be after implementation).
- CHGB is the size of the functions being changed by the enhancement project (as they are/were before the project commenced).
- DEL is the size of the functions being deleted by the enhancement project.
- VAFA is the Value Adjustment Factor of the application after the enhancement project is complete.