



# Internal Business Rules Analysis

**A Practical Method for Analyzing Internal Business Functions**

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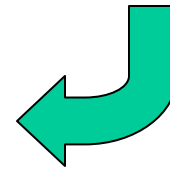
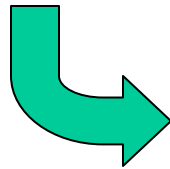
# Back in the 1970s ....

## Systems Analysis

Study of objects based on inputs, outputs and externally observed behaviors.

## Function Decomposition

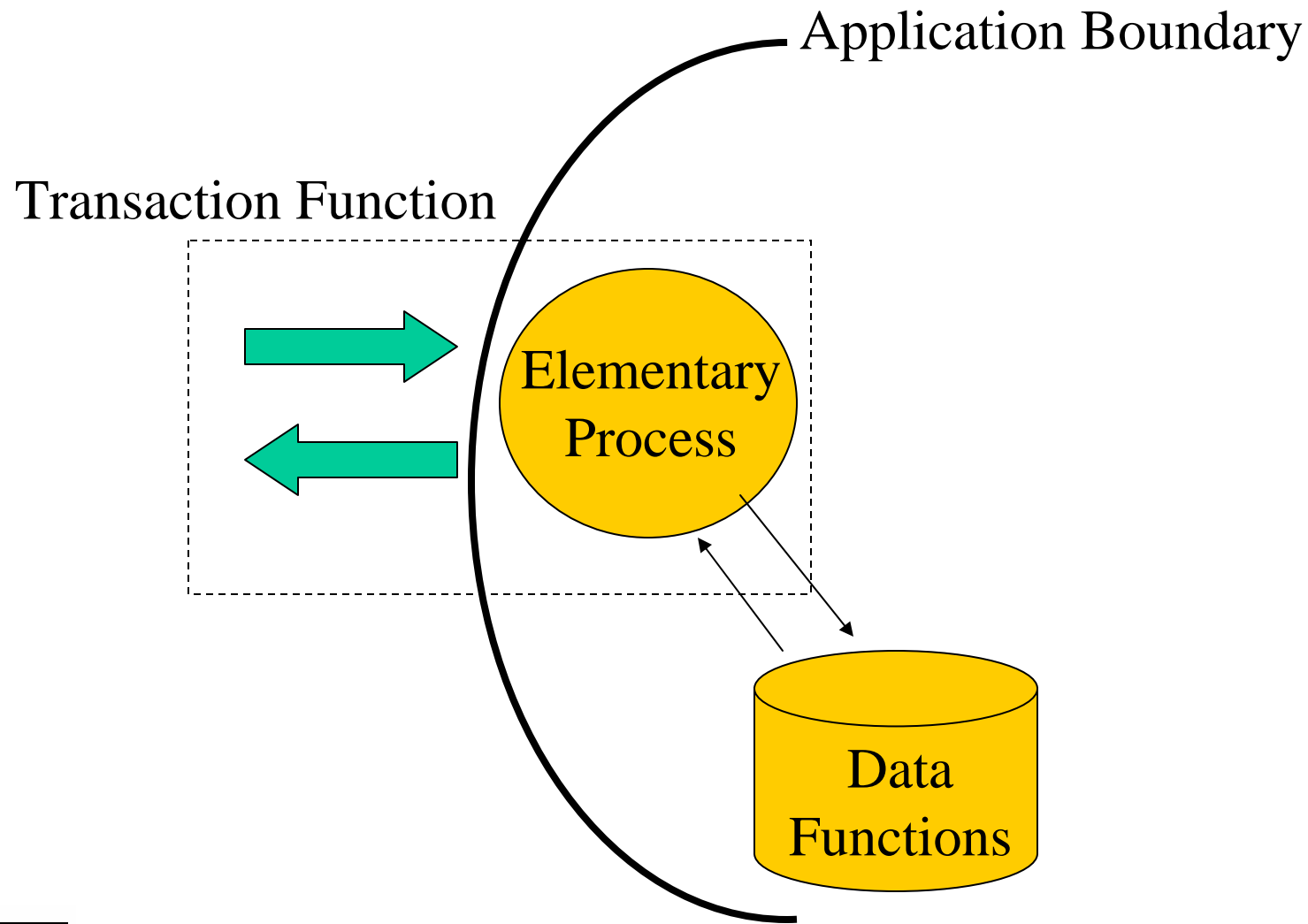
Study of objects based on a hierarchy of functions, from primary to elementary.



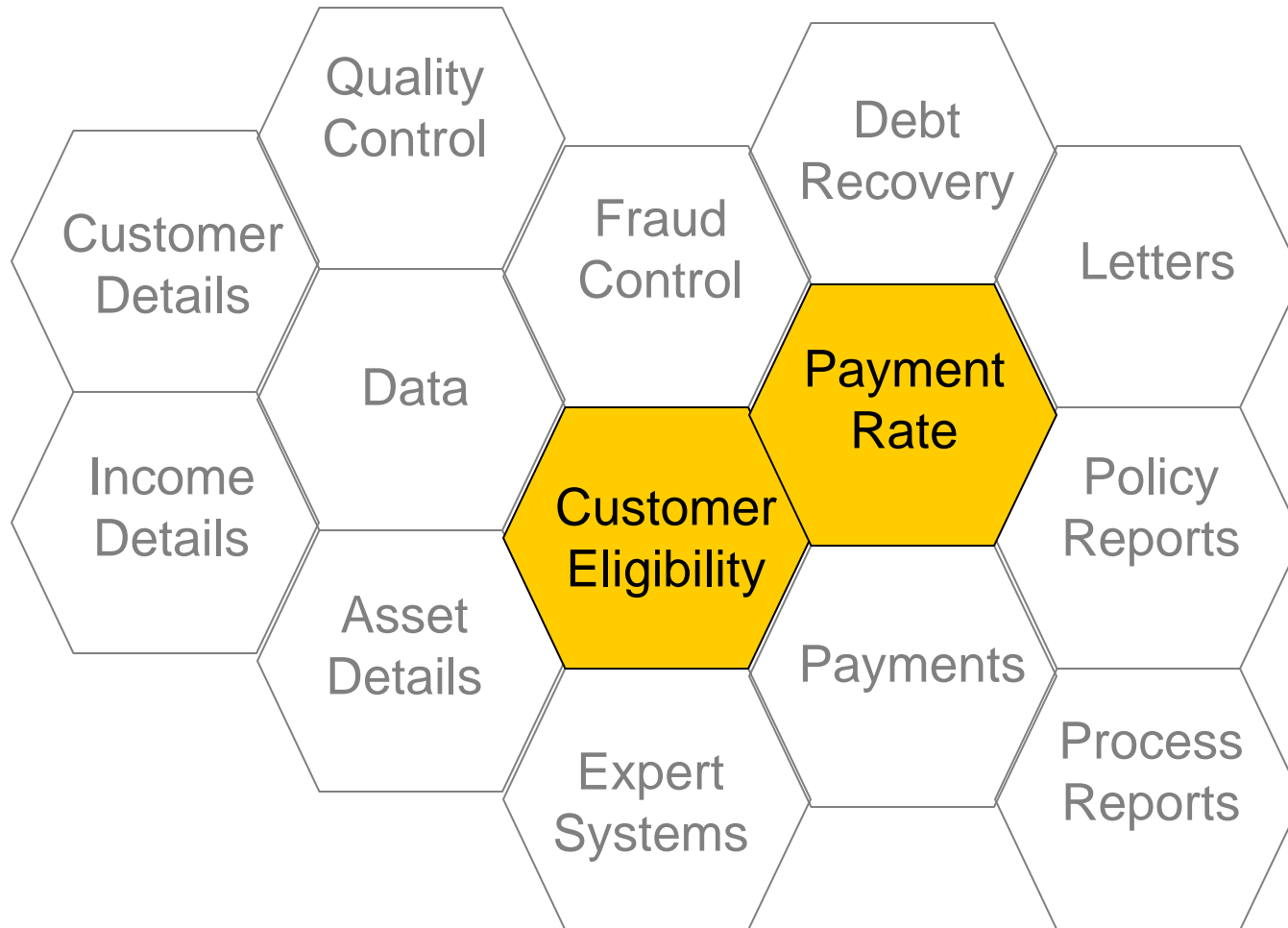
## **FPA**

Combines external perspective and hierarchy of functions.

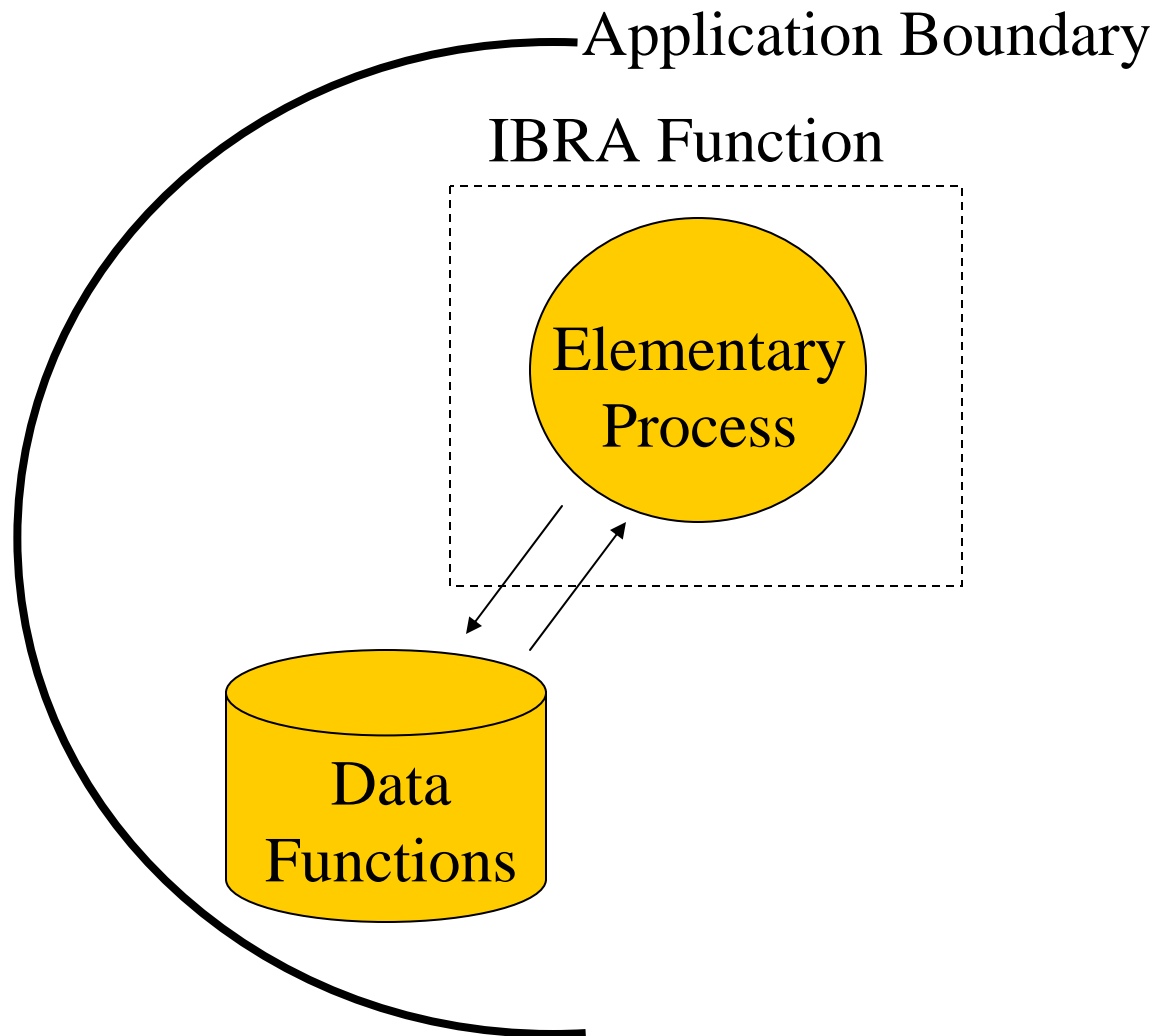
# IFPUG Transaction Function



# Internal Business Functions



# IBRA Function



## What is IBRA ?

- IBRA is a method for attributing function size to *Internal Business Functions*
- An *Internal Business Function* is a group of *Business Rules*
- Each *Internal Business Function* represents business requirements that are not part of a transaction function or a data function

# Business Rules

- There are many types of business rules  
eg. Procedural rules
- Function analysis focuses on WHAT
- Each rule in function analysis is expressed as  
*Declarative Statement* containing

*Names*

*Facts*

*Conditions*

# Names, Facts and Conditions

*Name*: a noun identifying an object, person or thing (e.g. customer, payment, invoice)

*Fact*: states a circumstance or characteristic (e.g.. the customer is married, the invoice has been paid)

*Condition*: a fact preceded by a conjunction (e.g. if the customer is married, when he invoice has been paid)



# Rule Words

To express a rule as a declarative statement we need some *rule words* to imply compulsion:

must (be)

should (be)

no

not

# Business Rule Examples

- The customer must not stay out late if the customer is married
- The payment should be authorised only if the goods were delivered
- The customer must be one of the following:
  - a CCF customer
  - an FTB customer

# Guidelines for Expressing Business Rules

- ✓ Make each rule statement a single sentence
- ✓ Express each step as a separate rule
- ✓ Start each rule with the subject name
- ✓ Use the singular form of the name
- ✓ List conditions at the end of the rule
- ✗ Avoid the use of action verbs
- ✗ Avoid the use of *and* and *or*
- ✗ Do not include unnecessary descriptive detail

## What a Business Rule is Not

- ✘ A business rule is not an internal business function
- ✘ A business rule is not computer program logic
- ✘ A business rule is not about how, where or when
- ✘ A business rule is not about navigation
- ✘ A business rule is not unstructured free-flowing narrative

# Internal Functions

- An IBRA function is a group of business rules that together describe some business process
- An elementary IBRA function is the smallest unit of activity that is meaningful to the user
- An elementary IBRA function typically contains a number of business rules

# Embedded Terms

Embedded terms have their usual (IFPUG) meanings - for example:

user: any person or thing that communicates or interacts with the software ...

processing logic: any requirement specifically requested by the user to perform an elementary function

# **IBRA** Function Types

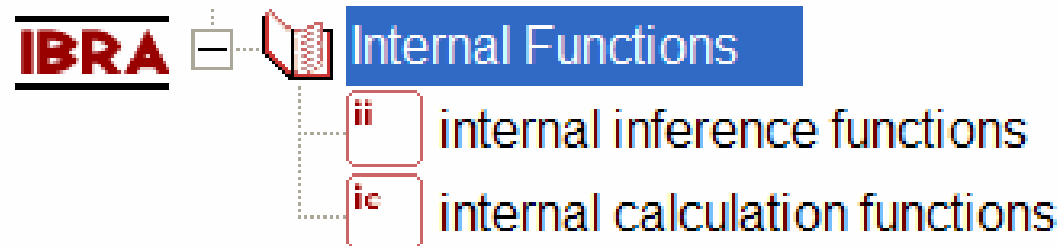
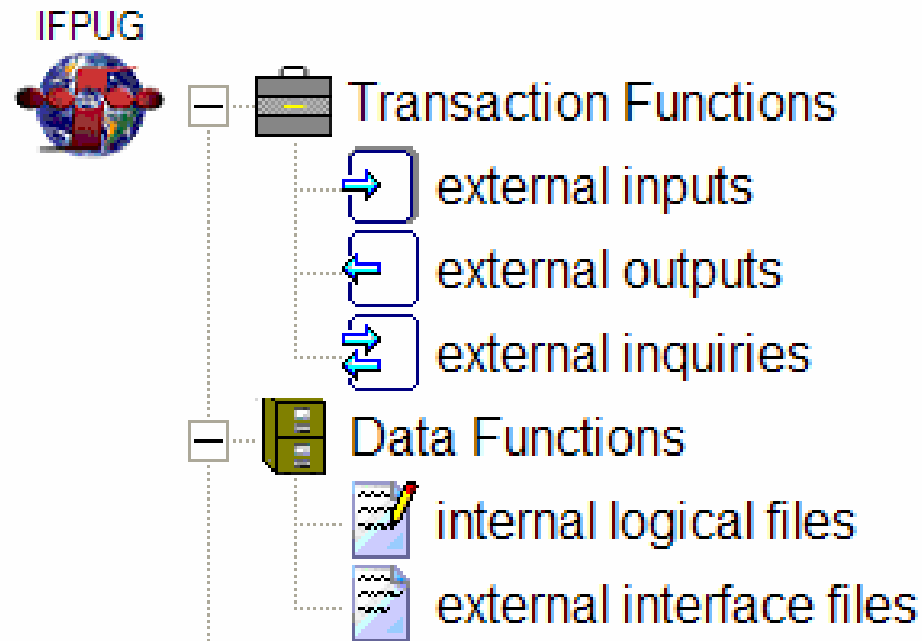
## Internal Calculation Function (IC)

The primary intent of an Internal Calculation function is to derive a numerical result by performing calculations on data from logical files

## Internal Inference Function (II)

The primary intent of an Internal Inference function is to obtain a Boolean result by applying evaluation rules to data from logical files

# Function Types





## **IBRA** Internal Calculation Function

May include processing logic to:

- ✓ execute mathematical formulae and calculations
- ✓ convert equivalent data values
- ✓ filter and select data
- ✓ analyze conditions
- ✓ reference one or more ILFs or EIFs

## **IBRA** Internal Inference Function

May include processing logic to:

- ✓ filter and select data
- ✓ analyse conditions
- ✓ reference one or more ILFs or EIFs
- ✓ derive data by transforming existing data
- ✓ perform calculations

# Processing Logic NOT Permitted

An IBRA function may NOT include processing logic to:

- ✘ validate captured information
- ✘ retrieve data or control information for display
- ✘ prepare data for presentation outside the system boundary
- ✘ receive data from outside the system boundary

## Calibration of **IBRA** Functions

Each internal function is assigned 3 IBRA FP

Consistency in identifying elementary internal functions is therefore important.

The Work Value of 1 IBRA FP is equivalent to work value of 1 IFPUG FP

## **IBRA** Function Characteristics

### Characteristics of a typical internal function

- ✓ up to 20 rules
- ✓ low numbers of DETs referenced (< 20) and logical files accessed (<4)

## **IBRA** Counting Procedure

- Identify each IBRA elementary function
- Classify each IBRA elementary function (optional)
- Validate each elementary IBRA function
- Calculate IBRA total function size

## Identify Elementary **IBRA** Function

- The function must be a unit of activity meaningful to the user
- The function must be self-contained
- The function must leave the application in a consistent state
- No data or control information may cross the application boundary; and
- The logic of the elementary function must either perform a calculation or infer a condition.

## Validate Elementary IBRA Function

For each IBRA function count:

- the number of business rules in the function

- the number of DETs accessed by the function

Check that the numbers of business rules and DETs are both less than 20 (the 20-20 rule)

If the 20-20 limits are significantly exceeded consider whether the function represents more than one elementary process.



## Calculate **IBRA** Total Function Size

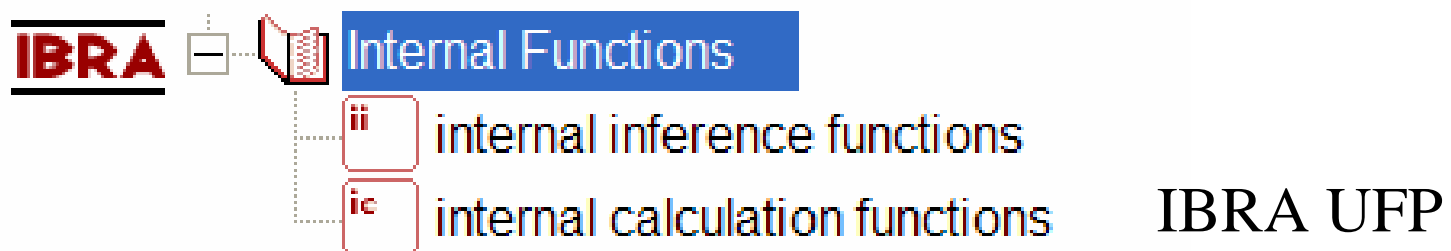
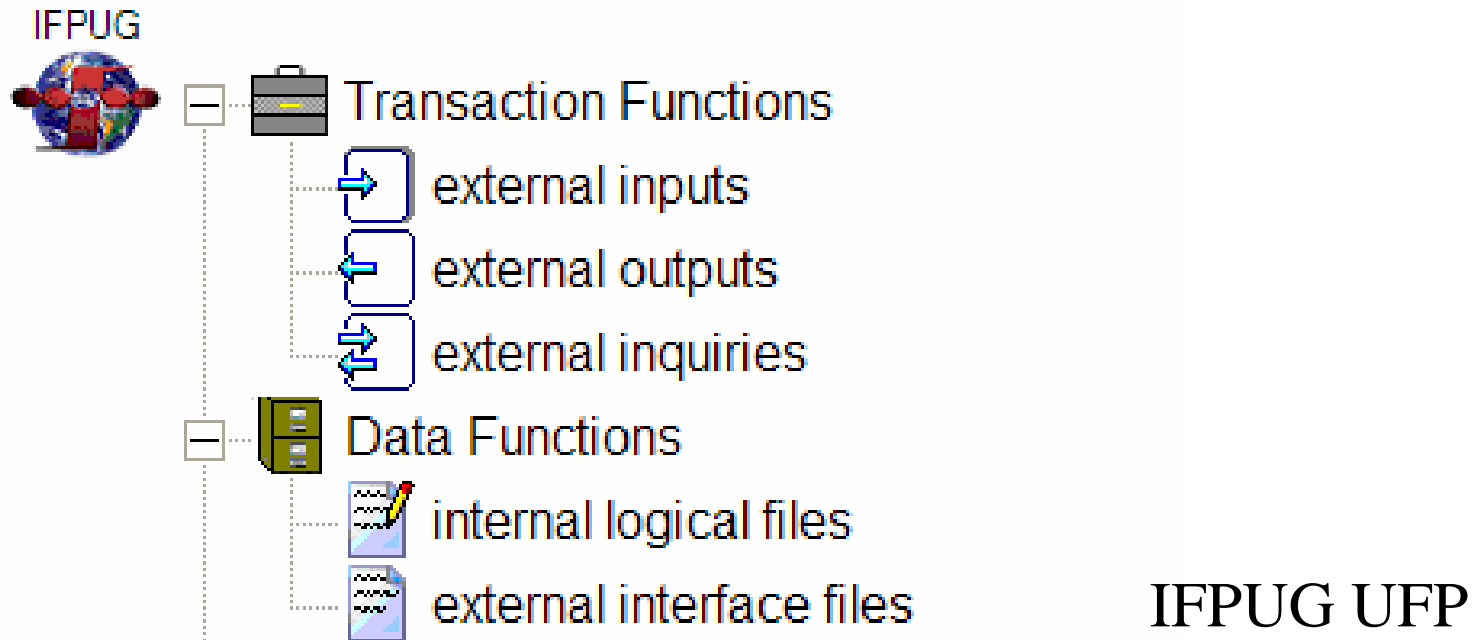
To calculate the IBRA total function size

Add up the size contribution of all the functions  
in the scope of the count

or

Multiply the number of elementary IBRA  
functions by 3

# **IBRA** Unadjusted Function Point Count



## **IBRA** Application & Project Counts

Application and project count aggregation rules follow the same principles as IFPUG

$$AFP_{IBRA} = UFP_{IBRA}$$

$$DFP_{IBRA} = UFP_{IBRA} + CFP_{IBRA}$$

## **IBRA** Enhancement Project Counts

An internal function is included in an enhancement project count if any of its business rules are changed

Enhancement impact on individual functions is not assessed

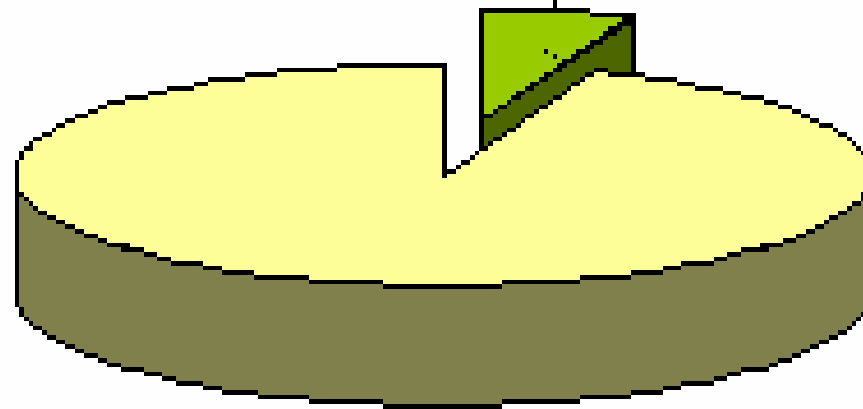
$$EFP_{IBRA} = ADD_{IBRA} + CHGA_{IBRA} + DEL_{IBRA} + CFP_{IBRA}$$

# **IBRA** Contribution to Portfolio Size

Applications Portfolio  
Size 60,000 FP

IBRA FP Size

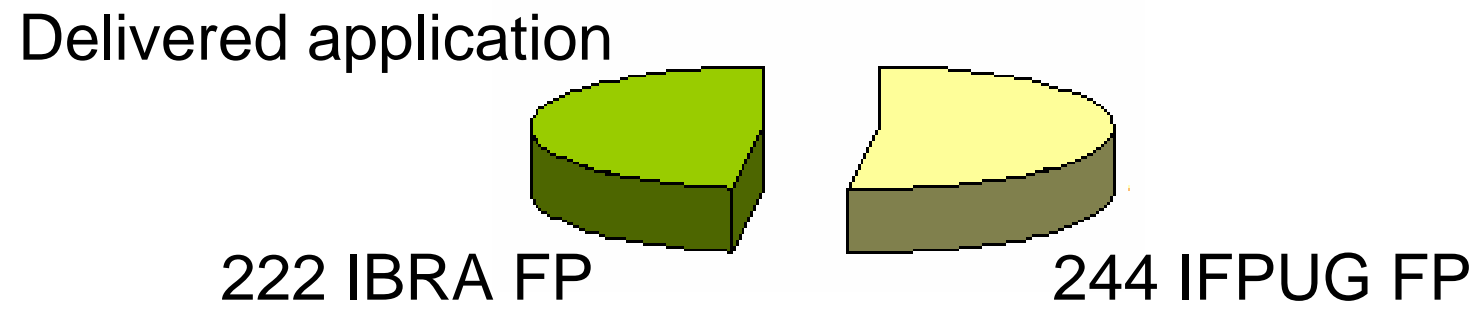
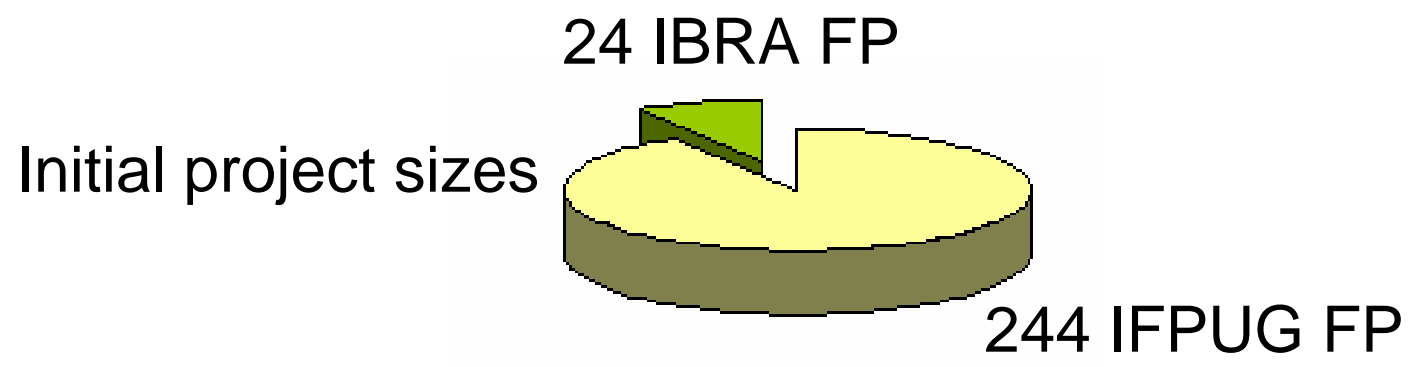
5.9%



IFPUG FP Size

94.1%

# IBRA Contribution to Project Size



# Completing the Picture

