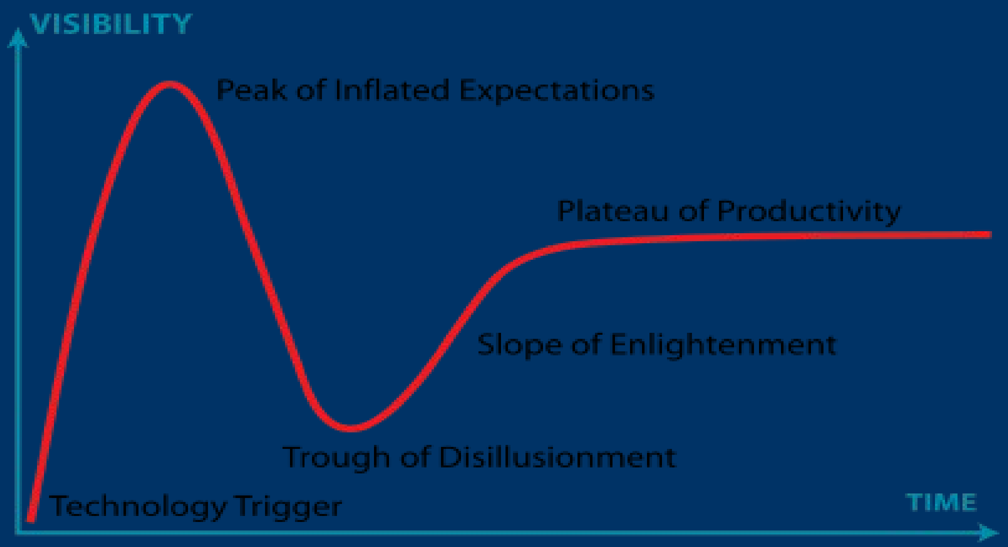
# ooRexx Group Therapy

The Fear of Objects

# The Gartner Hype Curve



- When Object Rexx was first designed during the Peak of Inflated Expectations era
  - ...it's now the Plateau of Productivity.
    - ...Resistance is Futile!

## Nouns and Verbs

- Design your application by identifying the entities you need to manipulate (the “nouns”) and the operations you need to perform on the entities (the “verbs”)
  - These are your starting classes and methods
  - Each class is a specialist at an individual task
  - Fine-grained objects working together to create a whole is the goal
  - Note that “Interitance” is NOT the starting point here.

# A DSECT is not an object

- This

```
::class tabelem
::attribute stcknum
::attribute artist
::attribute title
::attribute instock
::attribute price
```

- Is little different than this

```
TABELEM DSECT
STCKNUM DS     F
ARTIST  DS     CL24
TITLE   DS     CL24
INSTOCK DS     F
PRICE   DS     F
```

- An object is more than just data!

## Design the operations first

- Define the nouns, decide on the verbs...
  - Then decide in the data you need internally to implement the above
  - ::attribute methods define a “set” and “get” operation. It is part of your object interface.
    - Not all variables used inside the object are appropriate to expose as part of the interface.

## *Don't design your objects as collections*

- Separate the implementation of the object from its presence in a collection:
  - “a~setTitle(i, “This is the title”)”

    vs.
  - “a[i]~setTitle(“This is the title”)

## *The factory is not the car!*

- Classes are the factories that make objects
  - There is one factory, which can make many objects.
  - New objects are ordered from the factory (“new”)
  - Classes are themselves objects, so they can have their own methods defined
- Object instances are created by the factories
  - Object customization finishes when the factory calls “init” on the new object
  - One factory, many object instances

## *Keep the function close to the data*

- If code that uses a class is making many calls to object methods or changing many attributes, perhaps code should be refactored into a method of the target class.
  - This is particularly true if this occurs in more than one place!

## Understanding References

- Everything in ooRexx is done using references ("pointers") to objects
  - All variables. An assignment just updates the object reference
  - All expressions evaluate to a result object
  - All method/function arguments are passed as references
  - Some objects inherently contain references to other objects (e.g., the Collection classes)

## *Variables \= Objects*

- A variable is NOT the same as the object it references
  - A variable in an expression evaluates to an object reference, just like any other expression term
  - When used as a function/method argument, the receiving function/method only sees the evaluated object reference, not the originating variable
  - Multiple variables may point to the same object reference...
    - This is where “Immutability” becomes an important concept

## *Immutability*

- Some objects contain references to other objects that can be updated
- When referenced by multiple variables, the update is seen in multiple places.
  - None of the variables are changed...they still point to the original object
  - Assigning something to the variable updates the variable reference, severing the connection
- String objects are “immutable”, so you cannot see this effect with strings

## Consider this...

```
a = .myclass~new(“Fred”)
b = a    -- “B” and “A” point to same object
a~value = “Mike”  -- updates variable inside object
say a~value b~value  -- displays “Mike Mike”
a = .myclass~new(“Rick”)   -- “A” points to
                           -- different object
say a~value b~value  -- displays “Rick Mike”

::class myclass
::method init
expose value
use arg value

::attribute value
```