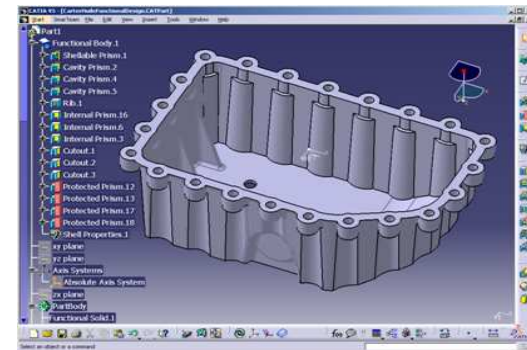
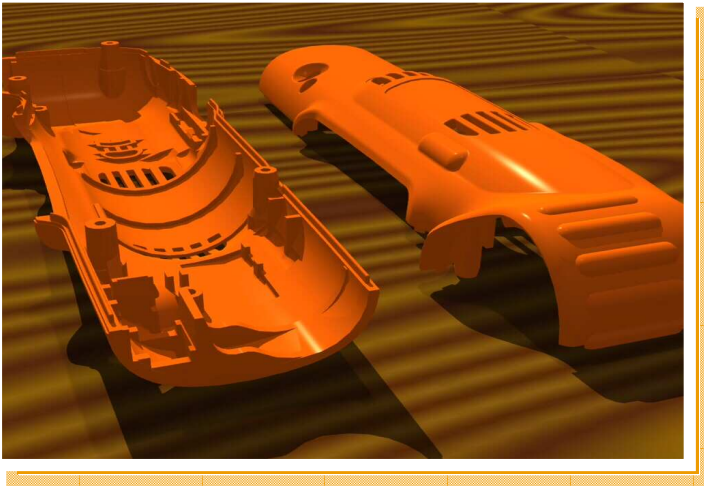


Functional Design



CATIA V5 Functional Design

1

CATIA V5 Functional Design: What is it ?

2

Added Value

3

Use Cases

4

How it works

5

Demonstration

CATIA V5 Functional Design : What is it?

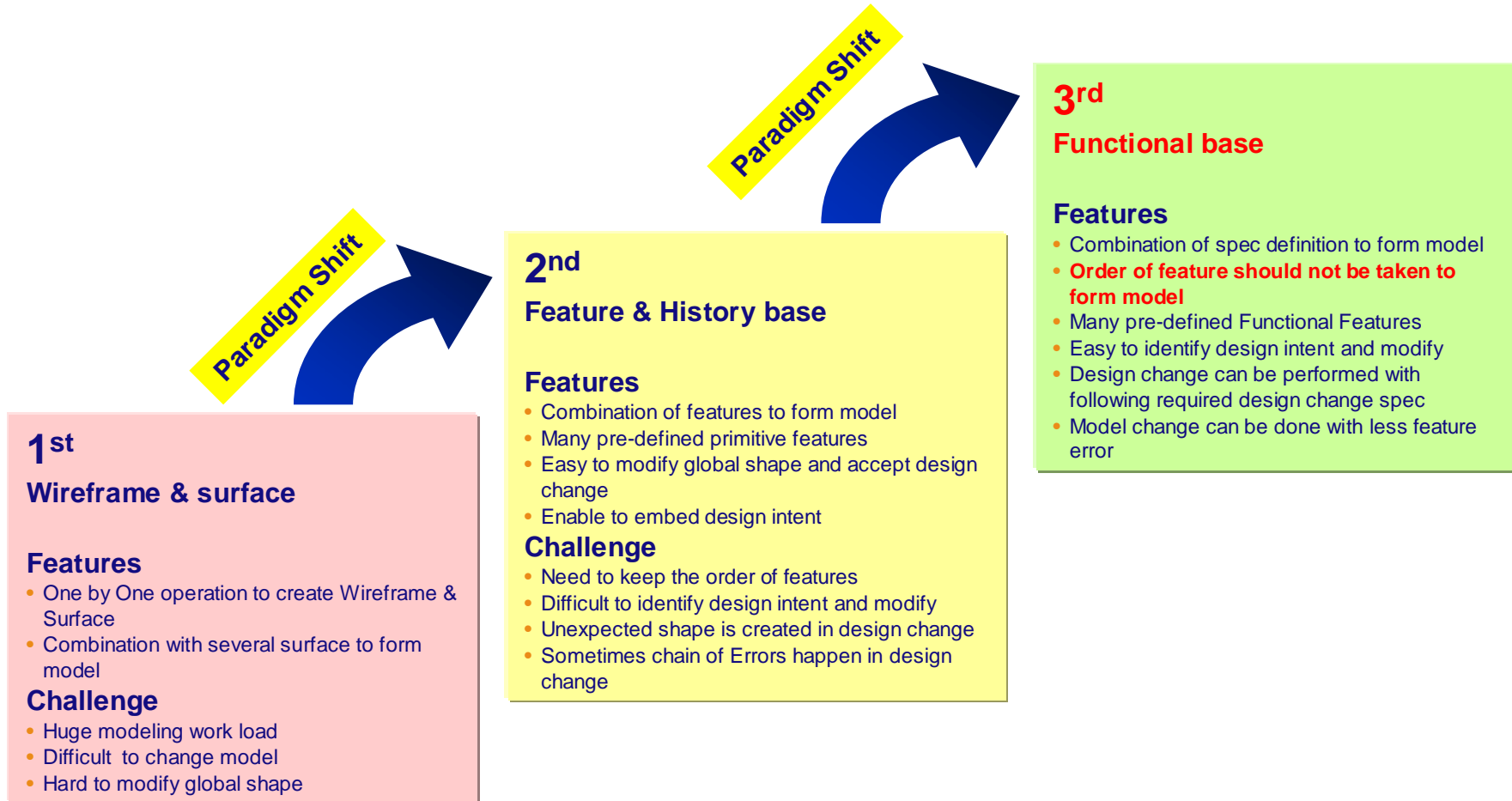
- A Molded Part can be Plastic ...
 » or not



CATIA V5 Functional Modelling : What is it?

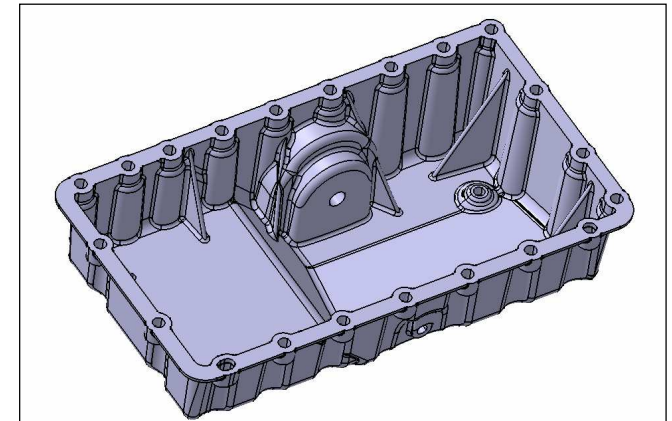
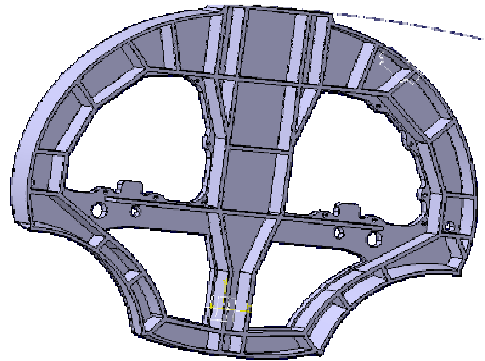
Functional modeling is the next step in modeling approach

Advantage, Productivity



CATIA V5 Functional Modelling : What is it?

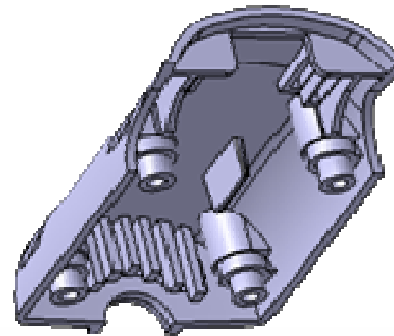
- The key characteristics
 - A unique and revolutionary technology in the world of CAD
 - Introduces features that encapsulate industry-specific behaviors (ribs, reinforcements, cutouts, rests, pockets, grills, bosses, draft, chamfers, lips, ...)
 - Shareable functional features allowing parallel design work of the project team.



2

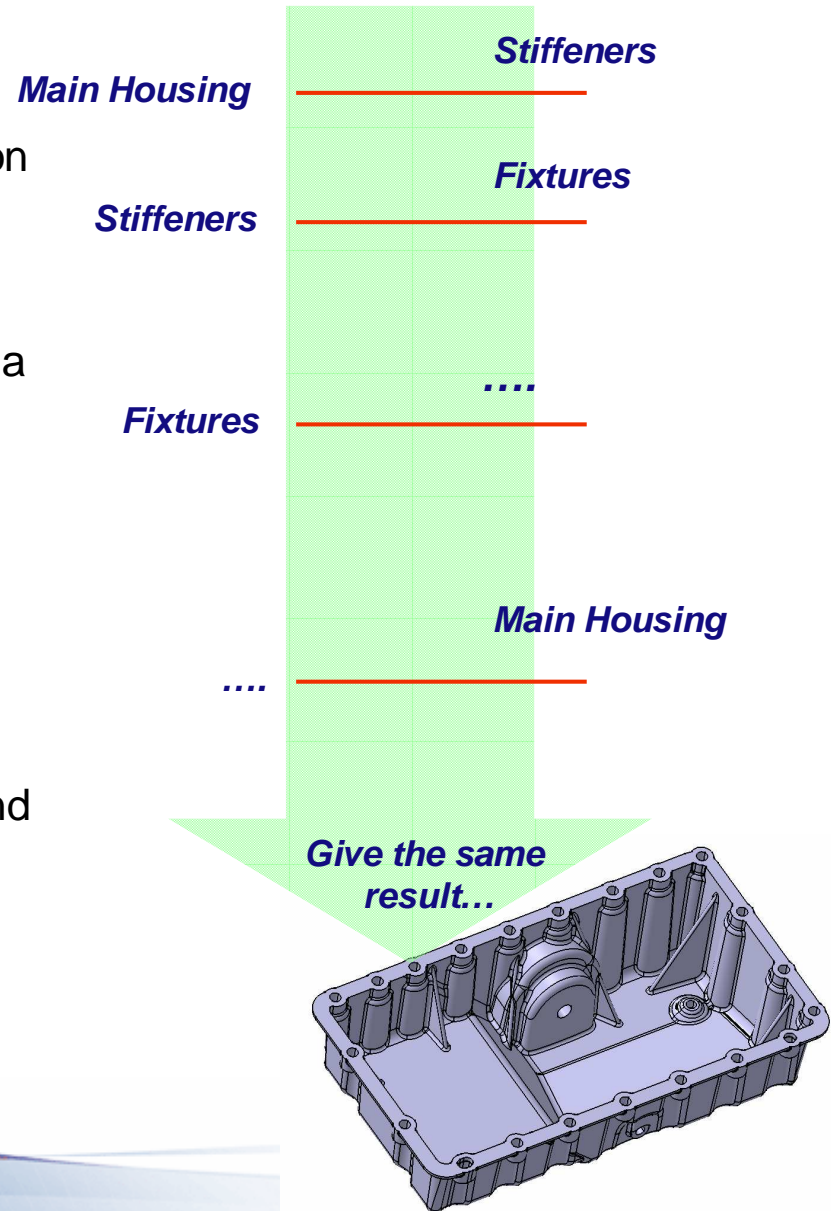
Value Proposition

- Added value
 - 30 to 50% time reduction to develop molded products
 - Quick and predictable model modifications
 - Concurrent engineering
 - Frees the designer from understanding the behavior of the design tool
 - Promotes innovative design
 - Fully compatible with other V5 features



Value Proposition

- History
 - The resulting geometry does not depend on the order of creation
- Robustness of the system
 - The functional feature can always provide a result
 - When modifying a specification
 - Even if all the features are not yet defined
- Process oriented and easy to use
 - End user manipulates process oriented features with a dedicated user interface and imbedding know-how

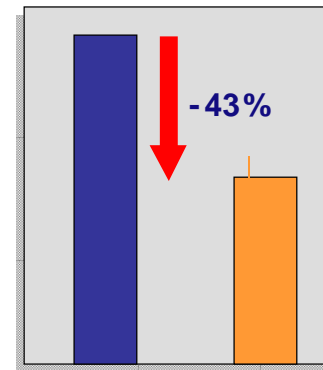


Customer Testimony

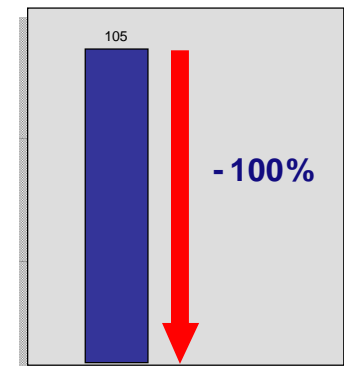
Home and Garden Appliance Worldwide Leader

What they say about Functional Modeling (FM1):

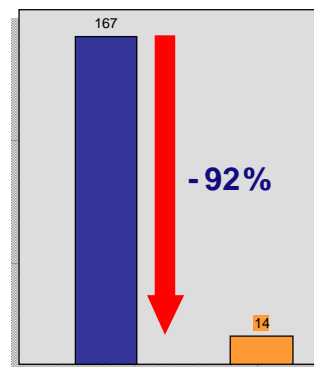
- Easy to use, intuitive
- Features based on Industry Know-how (vs. geometrical features).
- “All in one features”: boss, rib, grill, ...
- Preliminary design phase reduced to the minimum.
- Time freed to study more design variations.
- Reliability in modifications.
- Full freedom with features creation history.
- Performance improvement.
- Reduced model size.



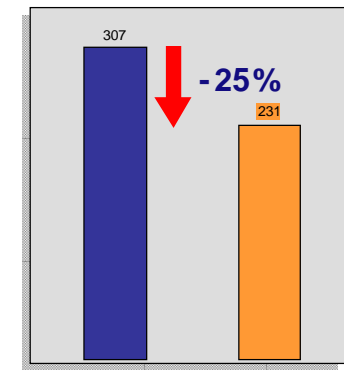
Nb of features



Drafts



Fillets



RAM (Mb)

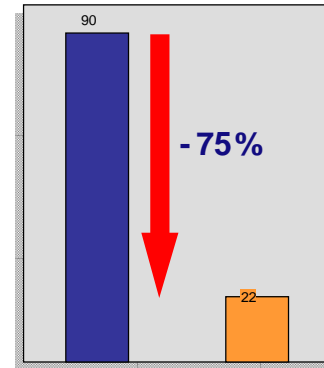
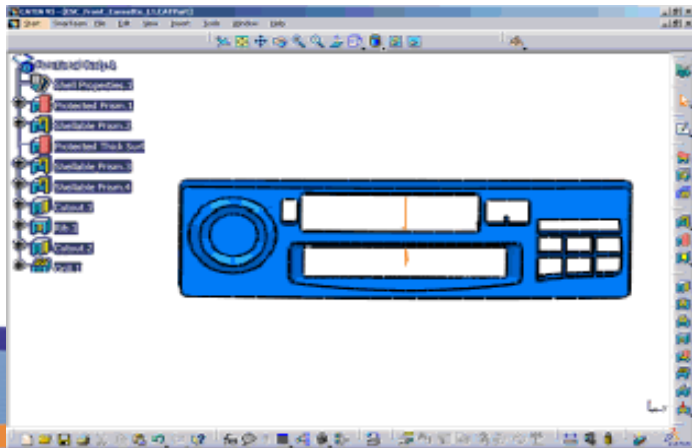
Without FM1

Benchmark

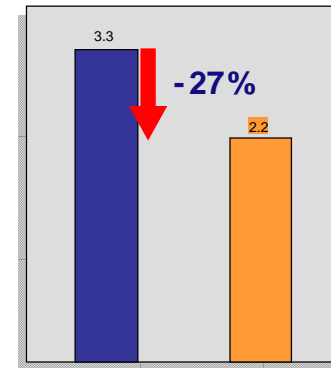
From a leading Car Audio manufacturer.

- ◆ **With Conventional Method**
 - Number of operations: 90
 - **Time = 25 minutes**

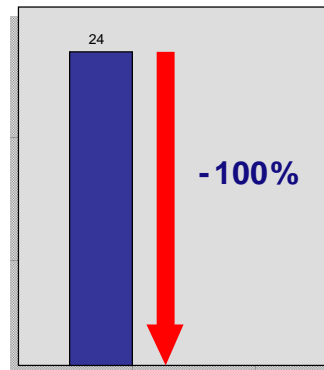
- **With Functional Modeling**
 - ▲ Number of operations = 22
 - ▲ **Time = 5 minutes**
 - ▲ No rigid approach as in case of conventional history based modeling.



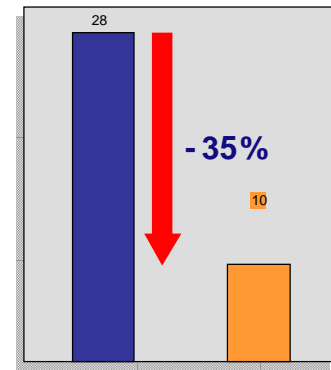
Nb of features



RAM (Mb)



Drafts



Filletts

■ Without FM1

■ With FM1

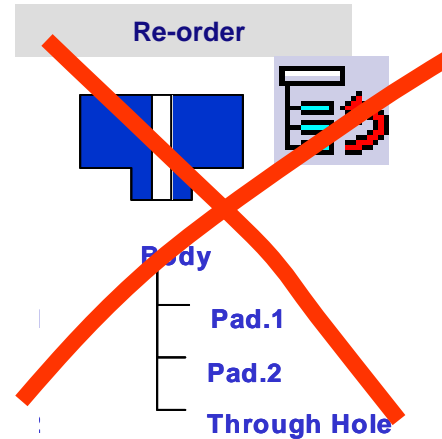
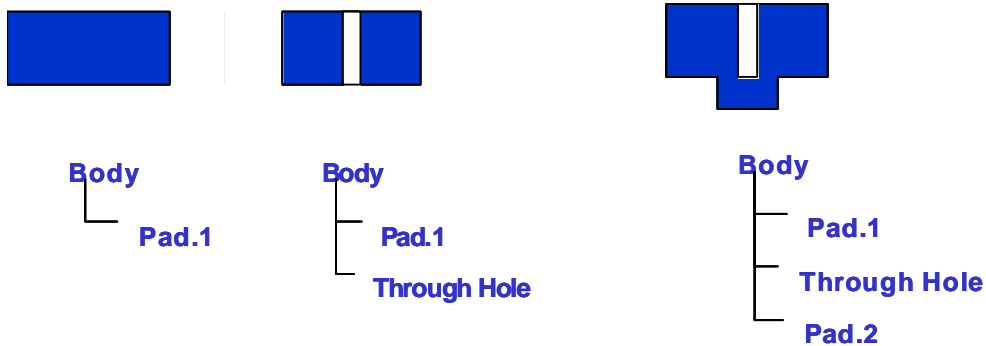


How it works

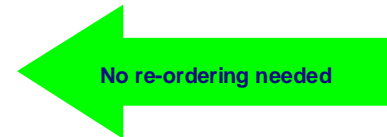
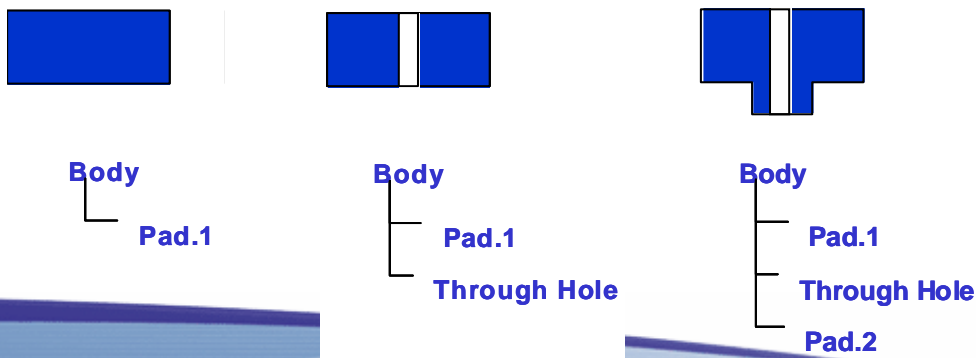
Intuitive design and easy modification

- Comparison of current vs. Functional Modelling Technology

History based



Unique Functional Modeling Based Technology :



Time Saving
Simplicity

How it works : Features with discipline oriented « behavior »

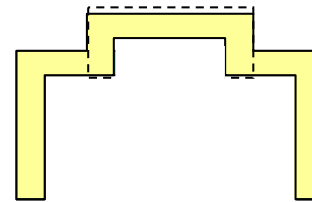
- What does discipline oriented mean « behavior » ?

Adding a Geometrical Feature:



Adding a Functional Feature:

- 1- Initial shell
 - 2- Add the feature
- Discipline Behavior



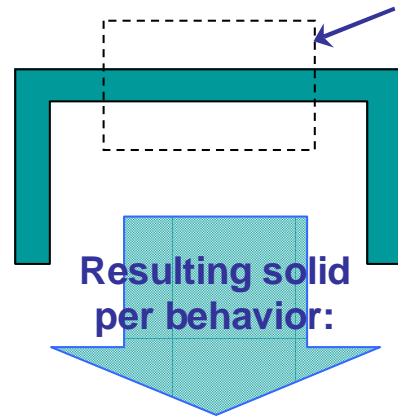
Time Saving
Simplicity
Robustness

Basic « Shape » Functional Features

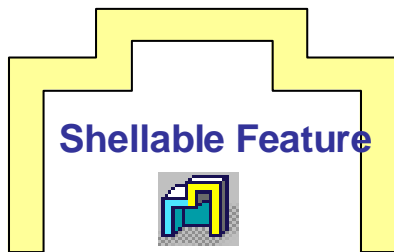
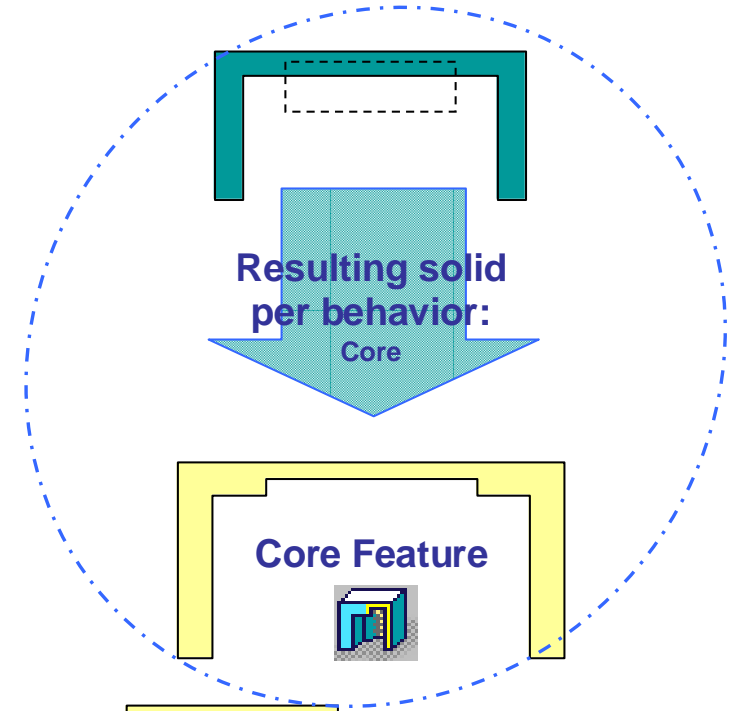
- 6 main « Shape » Features to define a molded Part



Existing Functional Body
(external shape, created by a previous shellable feature)



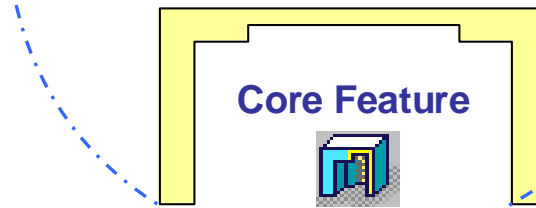
New shape feature
to be created inside a Functional Body



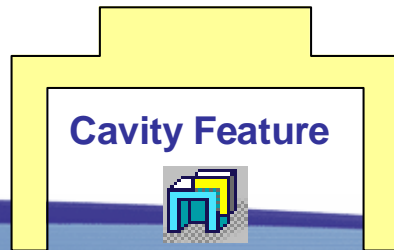
Shellable Feature



Protected Feature



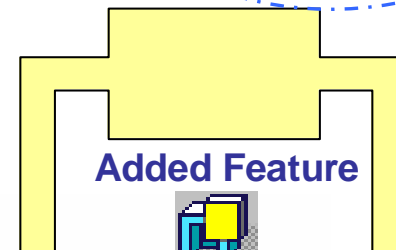
Core Feature



Cavity Feature



Internal Feature



Added Feature



