Discrete 3D surfaces of revolution

English Presentation

Zied Ben Othmane
Thomas Benoist
Adrien Bisutti
Lydie Richaume

University of Poitiers

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Outline

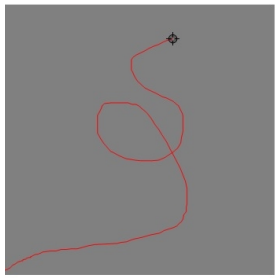
Outline

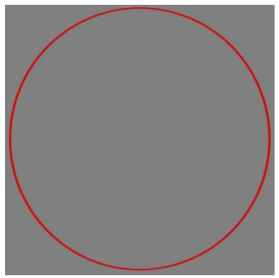
Collaborators and clients

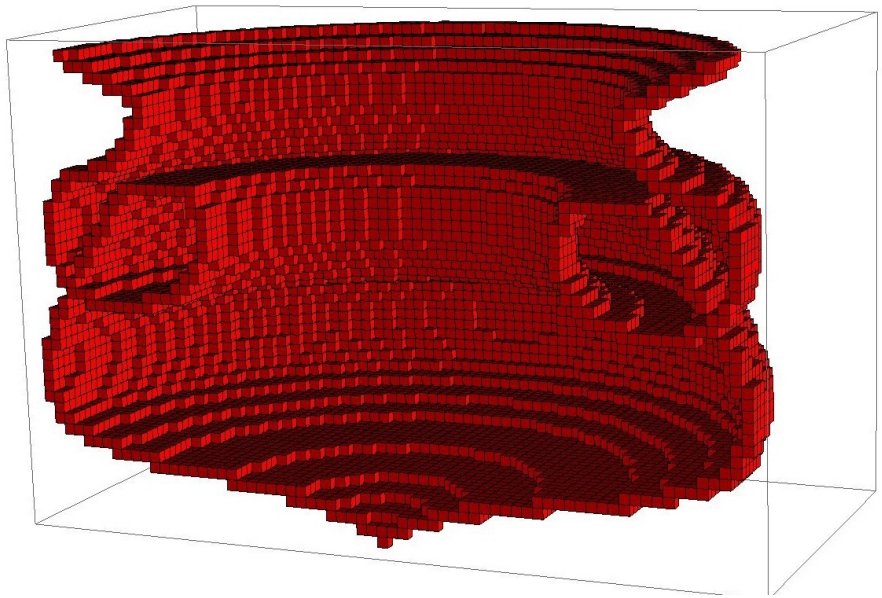
- Clients :
  - Éric ANDRES (Professor and former director of XLIM-SIC department)
  - Gaëlle LARGETEAU-SKAPIN (University lecturer, Discrete geometry)
- Exemple of final user :
  - Aurélie MOURIER (Artist)
- Pedagogic Supervisor :
  - Philippe MESEURE (Professor, Computer Graphics)

Context

- Éric Andres and Gaëlle Largeteau-Skapin developped a new algorithm to model discrete surfaces of revolution.
- Display the result with Mathematica







- Need of a tool useable by everyone and everywhere

Outline

Roles

- Team composition :
  - Thomas BENOIST - Project manager
  - Zied BEN OTHMANE - Quality manager
  - Adrien BISUTTI - Risks manager
  - Lydie RICHAUME - Tasks manager

Meetings

- Milestone meetings :
  - With the clients
  - First meeting : around December 20th, 2015
  - Possibility to add meetings during the project
- Audits
  - In presence of the auditor, the clients and the pedagogic supervisor
  - Followup meeting, Progress meeting, Delivery, Presentation
- Meeting with the pedagogic supervisor every week

Outline

Tasks

<table>
<tr><td colspan="2">1 - Documentation, test and users help</td></tr>
<tr><td colspan="2">2 - Design</td></tr>
<tr><td>3 - Kernel functional</td><td>4 - Minimal interface</td></tr>
<tr><td>6 - Fonctionnalies adding</td><td rowspan="3">5, 7, 10 - IHM enhancement</td></tr>
<tr><td>8 - Free hand curve</td></tr>
<tr><td>9 - Data management</td></tr>
<tr><td colspan="2">11 - User's curve</td></tr>
<tr><td colspan="2">12 - Technical report</td></tr>
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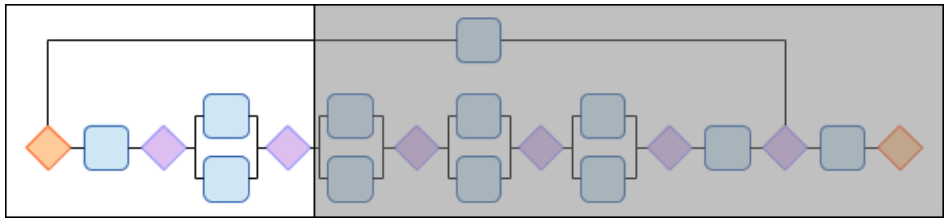
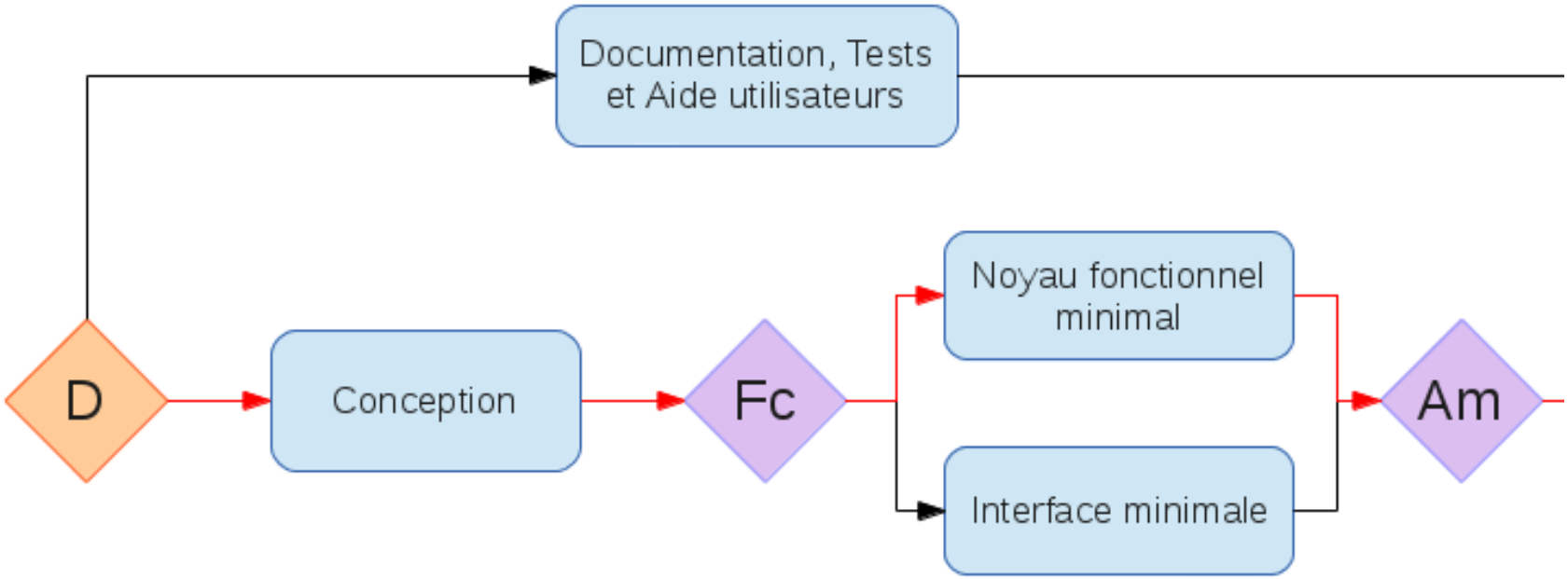
Pert



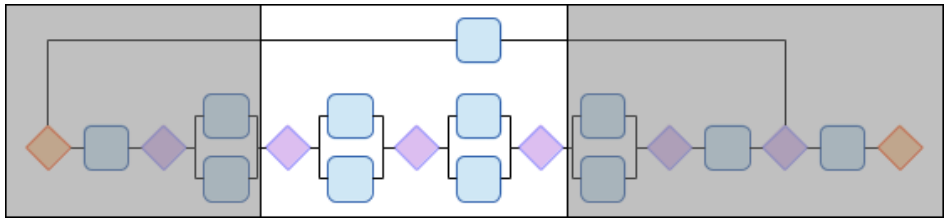


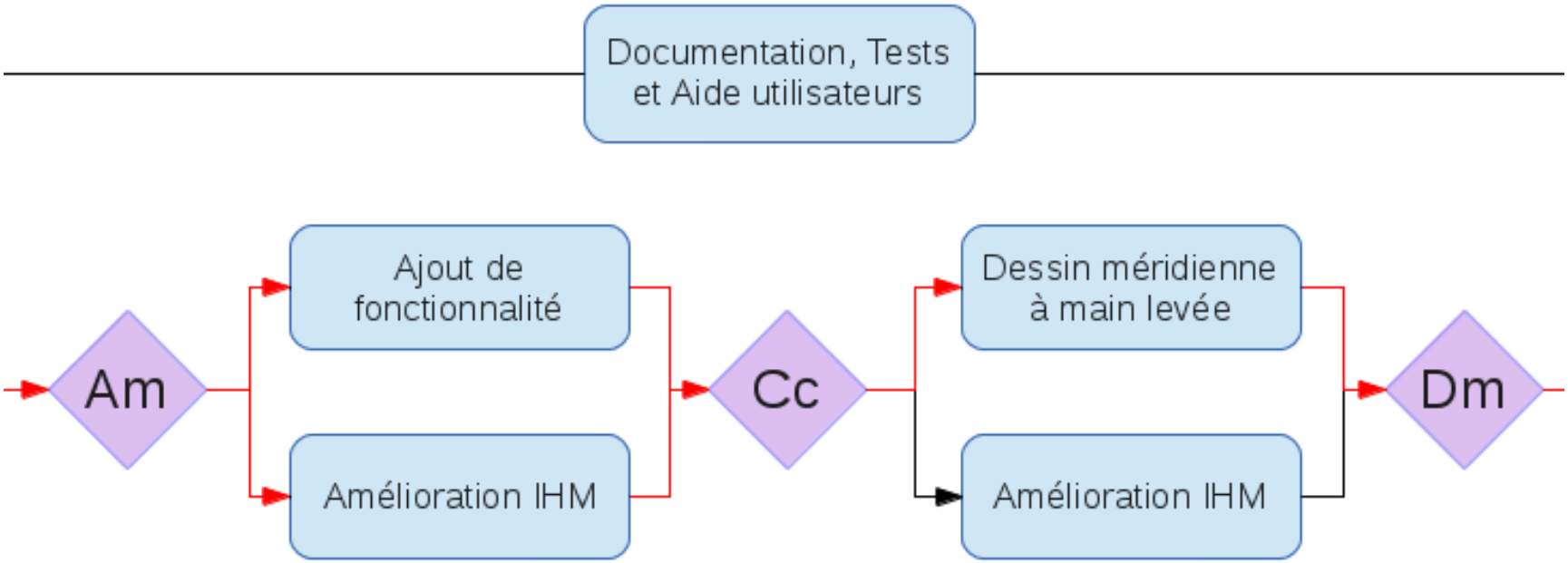
D : Start (30/10)

Am : Minimal appli. (24/12)

Fc : End of design (16/12)

Pert



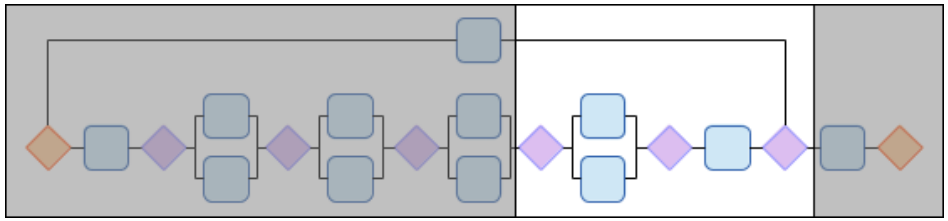


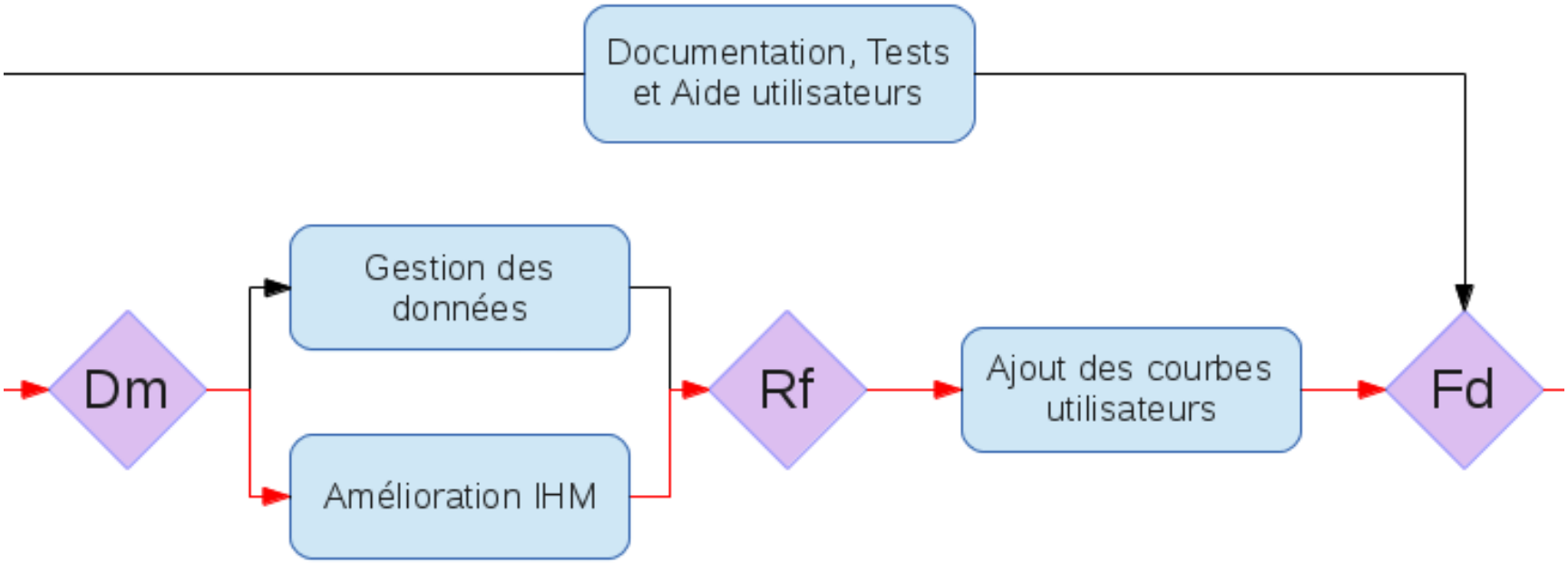
Am : Minimal appli(24/12)

Dm : Hand free drawing (28/01)

Cc : Courb choice(20/01)

Pert



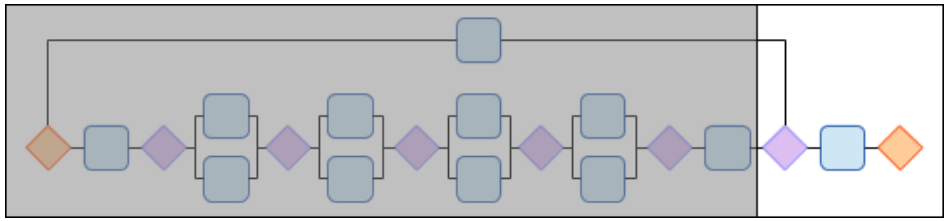


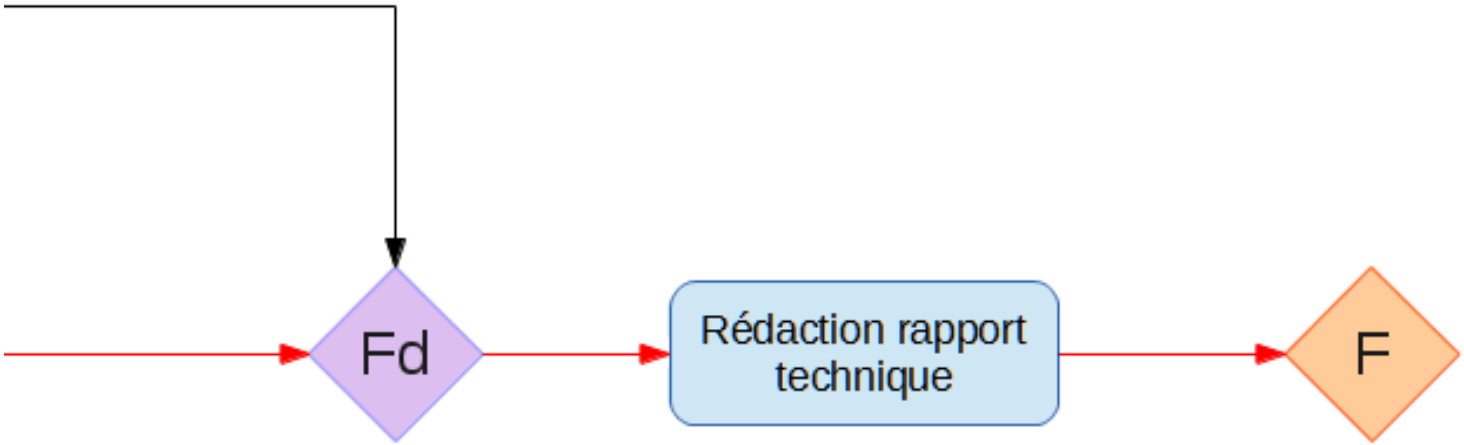
Dm : Hand free drawing (28/01)

Fd : End of Development (02/03)

Rf : Write formula (19/02)

Pert

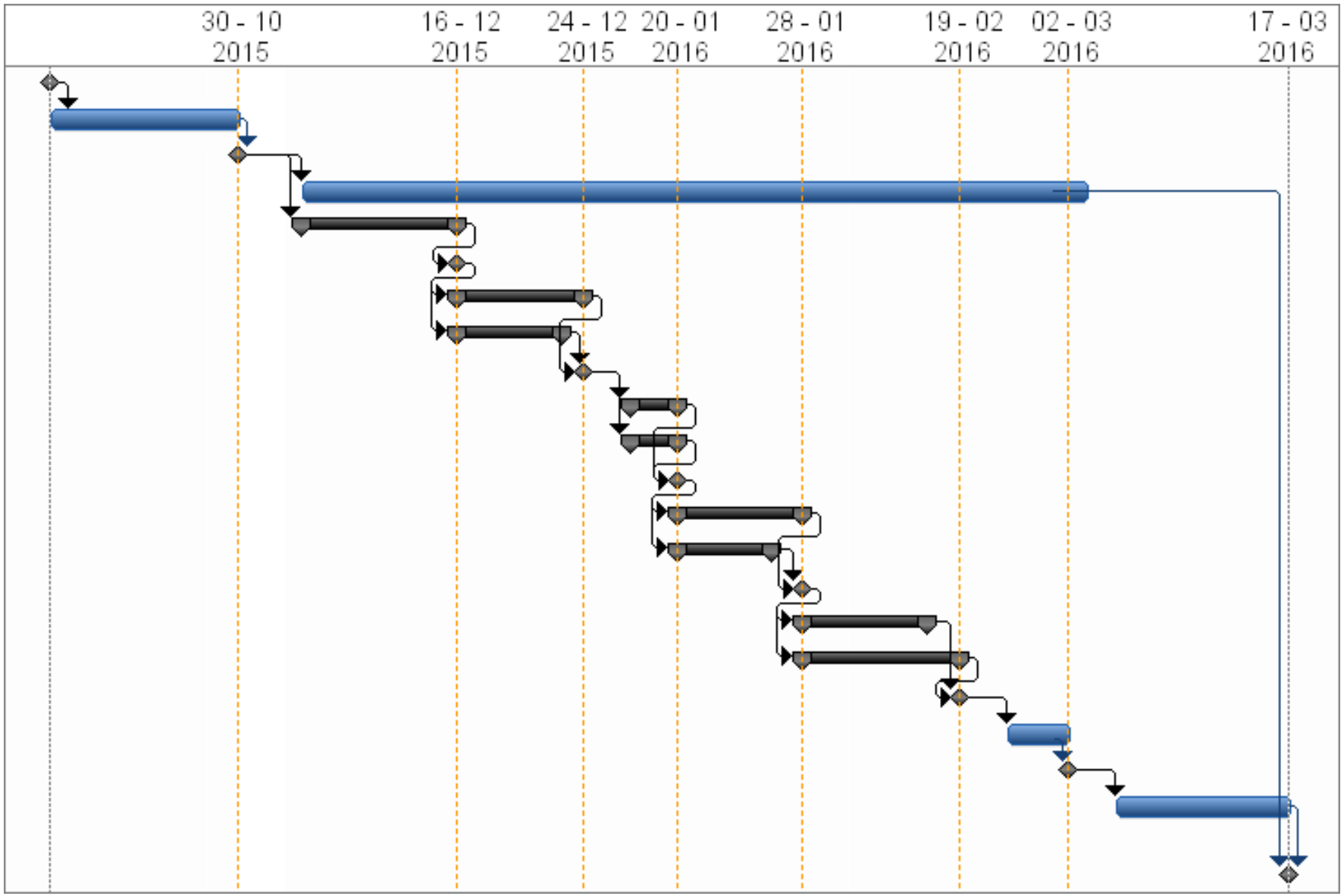




Fd : End of Development (02/03)

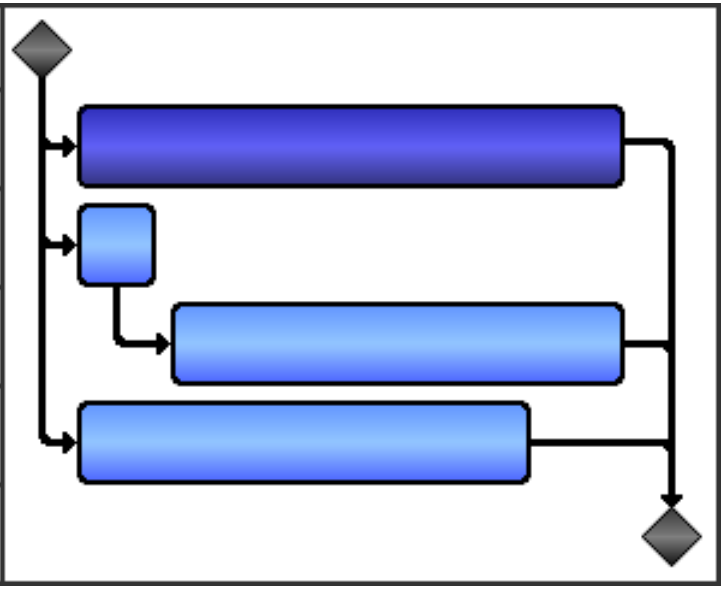
F : Fin (17/03)

Gantt


30 - 10
2015
16 - 12
2015
24 - 12
2015
20 - 01
2016
28 - 01
2016
19 - 02
2016
02 - 03
2016
17 - 03
2016

Gantt

Jalon Fin conception
6. Réalisation noyau minimal fonctionnel
7. Transcription de l'algorithme
8. Rendu 3D
9. Implémentation des classes
Jalon Application minimale



Progress

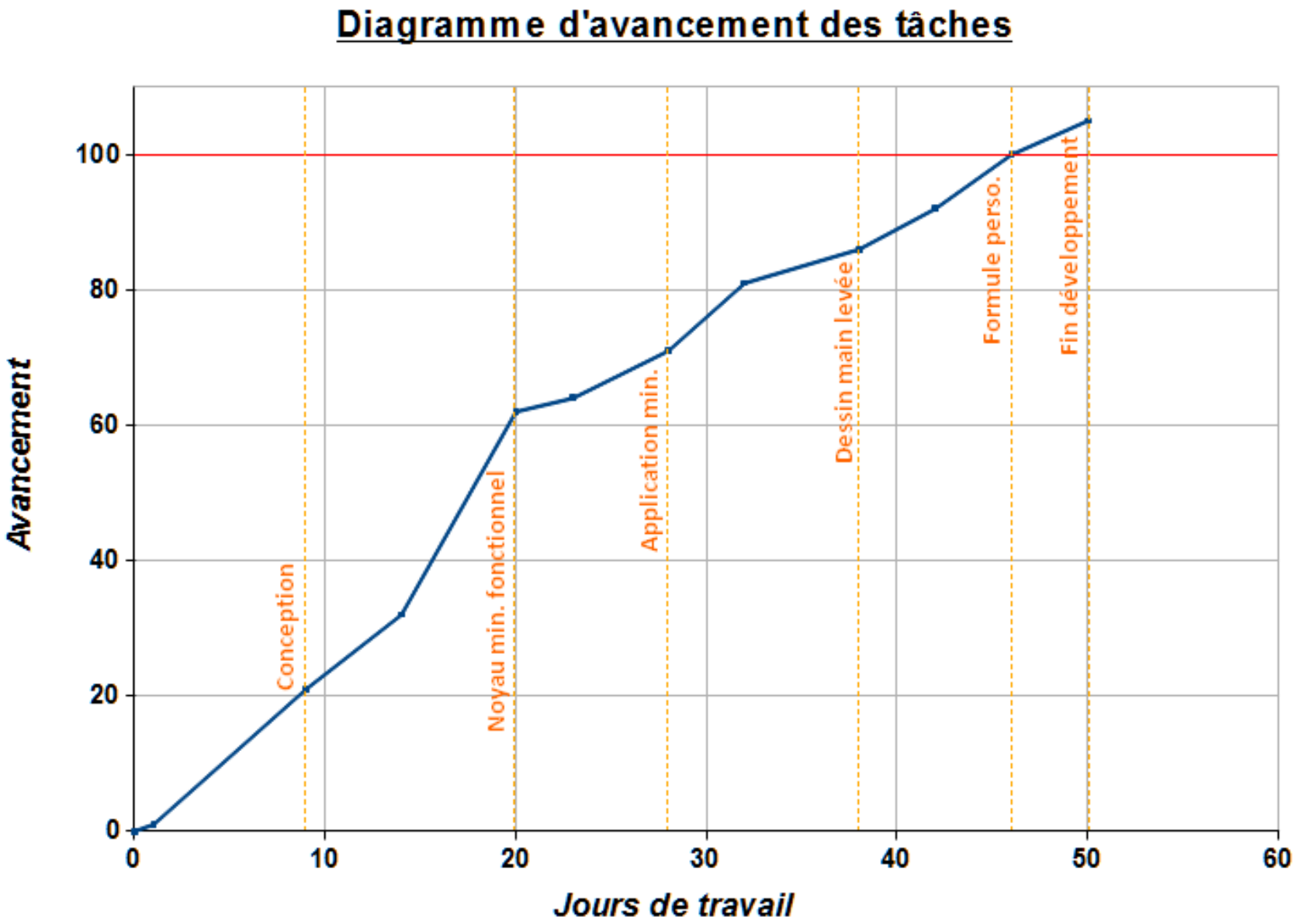


Diagramme d'avancement des tâches
Avancement
Jours de travail
0
20
40
60
80
100
0
10
20
30
40
50
60
Conception
Noyau min. fonctionnel
Application min.
Dessin main levée
Formule perso.
Fin développement

Deliverables

Nº	Deliverable	Planned date
1	Interface and algorithm result	12/23
2	Minimal application	01/21
3	Free hand drawing and curves with editable parameters	01/29
4	Equations and export	02/19
5	Final application and documentation	03/02

Deliverables types :

- Software version : all
- User documentation : all
- Technical documentation : 1 and 5

Outline

Specifics risks

List of identified risks :

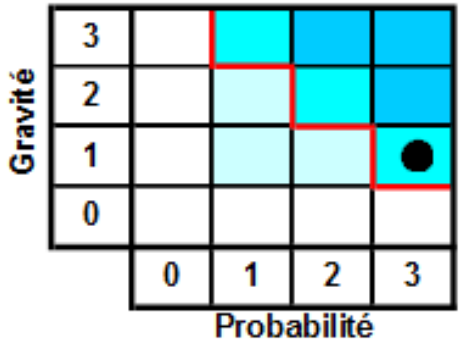
- Generation algorithm evolution (criticality : 2)
- Difficulty to transcript the algorithm (Mathematica $\rightarrow$ Javascript) (1)
- Interface will be developed for two types of users (1)
- 3D Rendering using too much resources (1)
- Server linked problems (0)

Specifics risks

- Generation algorithm evolution

Evaluation de la criticité (cf. guide D060-QG1)

Gravité	0	1	2	3
Délai		●		
Coûts	●			
Recettes	●			
Perf. Tech.	●			
Autre...				
Globale		●		



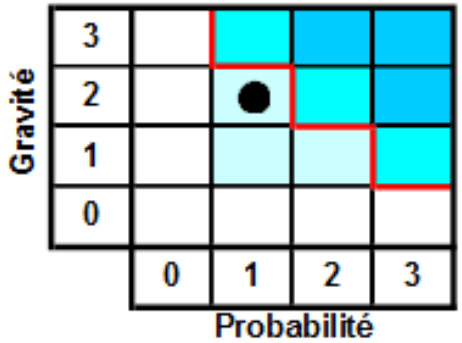
Criticité du risque	
0	RISQUE NON CRITIQUE
1	
2	RISQUE CRITIQUE
3	

Specifics risks

- Interface will be developed for two types of users

Evaluation de la criticité (cf. guide D060-QG1)

Gravité	0	1	2	3
Délai	●			
Coûts	●			
Recettes	●			
Perf. Tech.	●			
Autre...			●	
Globale			●	



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Specifics risks

- Server linked problems

Evaluation de la criticité (cf. guide D060-QG1)

Gravité	0	1	2	3
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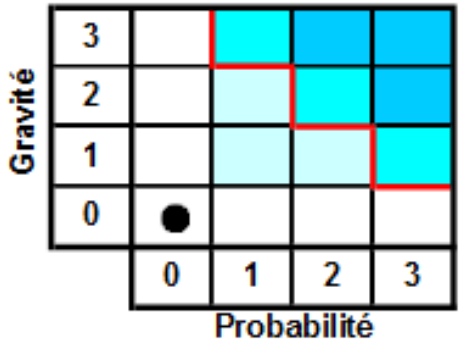


Criticité du risque	
0	RISQUE NON CRITIQUE
1	
2	RISQUE CRITIQUE
3	

Generic risks

- New clients (criticality : 1)
- Non-compliance of the requirements (1)
- Non usability of tools (1)
- Insufficient intern communication (1)

Outline

Application

- Spiral development
  - Deliverable for every developments cycles (Software version and documentation associated)
  - Documentation and tests during every developments cycles
  - Adaptation to the client requests
  - Six developments cycles
- Quality insurance plan
  - QIP : ISO-9126 standard
  - Given a quality note according to different criteria
  - internal and external tests

Tests

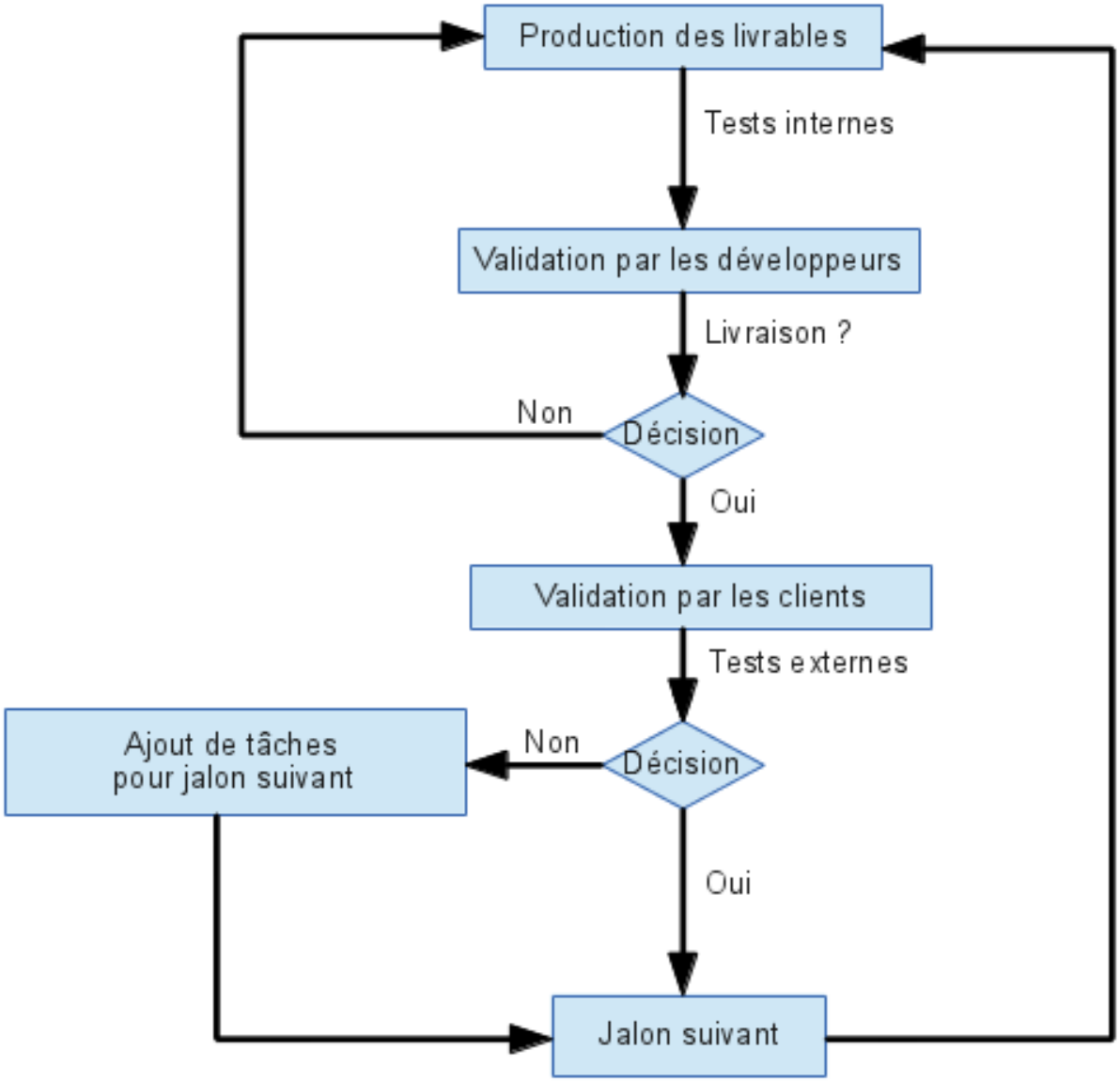
Internal tests

- Quality code mesurment
- Tests plan defined by the quality manager
- Unit tests conducted by the developers
- Integration tests conducted by the quality manager

External tests

- Validation of the application by the clients and the quality manager
  - Functionalities validation
  - Interface validation
- Quiz scripts given to the clients

Quality insurance plan



Outline

Costs

- Project cost :
  - Junior engineer : 3 000 € / month
  - 4 persons during 10 weeks
  - Cost price : 30 000 €
  - Selling price proposed : 40 000 €
- Distribution of payments :
  - 30% when the requirements are signed (12 000 €)
  - 10% for every deliverables (4 000 €)
  - 30% for the final delivery

Outline

Conclusion

- Cycles organization $\rightarrow$ incremental development
- Validation with the clients
- Only one critical risk
- Next milestone : Design phase

Discrete surfaces of revolution

English presentation

Thanks for your attention.

Are there any questions ?