A short history of CATIA & Dassault Systemes

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3 periods from the origin to now

1- The roots: from 1967 to 1981

2- The start-up: from 1981 to 1995

3- The maturity: from 1995 to nowadays
1- The roots: from 1967 to 1981

In the 60’s...

Critical requirements in the airplane industry:

- Aerodynamics through theoretical computation
- Stress analysis through theoretical computation
- Numerical Control Machining of « sculpted » parts
- First generation of computers and graphic terminals

Development of software to define shape of airplanes started at Dassault Aviation in 1967
1- The roots: from 1967 to 1981

in the 70’s...

- Creation of a CAD/CAM team at Dassault Aviation:
  - To develop master geometry software
  - To create the outer shape of the airplane
  - To deliver external shape data to design & manufacturing

- Acquisition in 1975 of CADAM (from Lockheed) for drafting

  Step by step all new airplanes are electronically defined:
  - External shapes in 3D (curves, surfaces, volumes)
  - Internal parts in 2D drafting
1- The roots: from 1967 to 1981

The first airplanes with external shapes 100% digital

(1969-1972)

Alphajet

Mercure

Curves defined & smoothed interactively
Surfaces defined & exploited in batch
1- The roots: from 1967 to 1981

1977: start of the CATIA development («CATI »)

- From 10 years experience in 3D mathematics
- Taking into account CADAM interactive user’s interface

To integrate better 3D and CADAM
To reduce design/manufacturing cycle time by 4
To allow deployment within Dassault Aviation
1- The roots: from 1967 to 1981

The first application of CATI
1- The roots: from 1967 to 1981

CATI becomes highly visible at Dassault Aviation...

Mr Marcel Dassault with Dominique Calmels (left) and Francis Bernard (right) (November 1980)
2- The start-up: from 1980 to 1995

Early 1981: Decision to create a new business with CATIA

- **Creation of Dassault Systemes**
  - Move the CAD/CAM team in Dassault Systemes
  - Activity: to develop CATIA for all industries

- **Alliance with IBM**
  - To sell and to support CATIA worldwide

Dassault Systemes starts with 15 people
IBM sells CADAM for 2D & CATIA for 3D
2- The start-up: from 1980 to 1995

We start the public story…

Motivation, CAD/CAM skills, Support of Dassault Group & IBM,

…but no knowledge of IT business!
1- The roots in the 70’s

CATIA VERSION 1.0...
2- The start-up: from 1980 to 1995

November 1981:
DS/IBM announce
CATIA Version 1.0
2- The start-up: from 1980 to 1995

The IBM offering: CADAM & CATIA
2- The start-up: from 1980 to 1995

1981/82: a very slow start...

1H 82 Sales target: 29 customers!
2- The start-up: from 1980 to 1995

1981/82: the first customers....

Dassault Aviation (Airplane, France)
Grumman (Airplane, USA)
SNECMA (Jet Engine, France)
Daimler-Benz (Automotive, Germany)
BMW (Automotive, Germany)
Honda (Automotive, Japan)
....
2- The start-up: from 1980 to 1995

1982: we start generating attention...
2- The start-up: from 1980 to 1995

1984: the major payers...

CV, IBM, Intergraph, Calma, Applicon, Mcauto,..
2- The start-up: from 1980 to 1995

1985: we have 400 customers…

200 people in Paris

Creation of DS America

With CADAM/CATIA,
IBM becomes Nb 1
2- The start-up: from 1980 to 1995

1986: Boeing selects CATIA and publishes it!

Half-page in all major French newspapers

« Boeing more French than ever ! »
2- The start-up: from 1980 to 1995

July 1987: we are very visible...

Today Dassault Systems boasts some of the brightest technical management in the CAD/CAM business. French engineers are generally better educated in mathematics than Americans, and these mathematical skills helped the company develop clean, well-structured programs. Dassault posted young technical managers to America where they worked in IBM offices. They learned to listen to customers and to translate their desires into features for CATIA.

Dassault's management seems to have a long-term vision about where their product is headed, and they share this vision with customers. Unlike IBM, which operates in secret, Dassault announces product plans at users meetings a year in advance of delivery. This gives Dassault a chance to get valuable feedback before final programming details are cast in concrete.

Overall Dassault's management is open, honest (at least by the standards of the CAD/CAM business), and professional. When Dassault's programmers can't do something or don't want to do it, they generally explain why. Sometimes they'll admit that it will take time to deliver additional functions they know are needed.

This professional attitude serves Dassault well in the long run. Because Dassault is open and reasonable, customers don't develop unrealistic expectations of CATIA. Without unrealistic expectations, there are fewer disappointments.

Growth is the biggest challenge faced by Dassault. Dassault Systems has grown from about 45 employees in 1981 to 320 today. If CATIA really takes off, the head count could grow to 600. Such growth might overtax Dassault's very bright young management team.
2- The start-up: from 1980 to 1995

And we start competing against CADAM...

Can CADAM Fight Back?

Can CADAM Inc. counter Dassault's offensive? Of course it can. CADAM is moving, albeit slowly, to address customer complaints and forestall defections. Kevin Clayton, a project engineer supporting CADAM users at Harnischfeger, a heavy equipment builder, says CADAM release 20.1.2 was very clean and ready to go into production without testing and debugging. He also says CADAM has improved operators manuals and illustrations.

CADAM is trying to promote its own solid modeler and three-dimensional surface design package as an alternative to CATIA. If CADAM can match Dassault's reliability, efficiency, and function, it can certainly keep customers from switching. Despite the
2- The start-up: from 1980 to 1995

A lot of work…
and a lot of fun…
2- The start-up: from 1980 to 1995

1991...10th anniversary:

1000 people

Subsidiaries in USA, Japan

2500 customers (40% Auto, 30% Aero, 30% others)

Software and service partners

IBM Strategic Partner

CADAM acquisition
2- The start-up: from 1980 to 1995

1991: on Version 3
the first Digital Mock-Ups.
2- The start-up: from 1980 to 1995

The solution evolution...

- **1981: Version 1 (5-8 products)**
  - Host MVS
  - Shape design, NC, …

- **1984: Version 2 (10 products)**
  - Host MVS, VM
  - Drafting, …

  - Host/IBM Workstation
  - Data management (CDM), …

- **1993: Version 4 (30-100+ products)**
  - Host/UNIX Workstations (IBM, HP, SUN, SGI)
  - Exact solids, Parametric design,…
2- The start-up: from 1980 to 1995

Problems don’t come only from customers…

15 January, 1994:
An earthquake destroys our offices in California
2- The start-up: from 1980 to 1995

Where are we in 1995?

- Version 4 in production at all major sites
- Market segment focus (from task to process-driven)
- Addressing all markets (Auto, Aero, F&A, Consumers goods, Shipbuilding, Plant design)
- Shift in IBM/DS relationship: Hardware independence
- 8000 customers
3- The maturity: from 1995 to nowadays

- **1996:** Dassault Systemes on the stock market (Nasdaq, …)

- **1997:**
  - Acquisition of Solidworks: to address the Design-Centric market
  - Acquisition of Deneb: to address Manufacturing  ➔ DELMIA
  - Disclose of CNEXT ➔ CATIA V5

Source: Gartner Group
3- The maturity: from 1995 to nowadays

1998:

- CATIA Version 5
  - A complete re-write of CATIA
  - UNIX, Windows platforms
  - An architecture to support PLM

- Acquisition of IBM PDM assets
  - Creation of ENOVIA
3- The maturity: from 1995 to nowadays

1999:
- Acquisition of Matra Datavision lab (Euclid)
- Acquisition of SmartTeam
  - To complement ENOVIA in the PDM arena

2000:
- Consolidation in DELMIA of Deneb, Safework & EAI-DELTA
  - A complete Manufacturing solution (robotics, ergonomics, process planning, …)
- Acquisition of SPATIAL
  - 3D Software components
3- The maturity: from 1995 to nowadays

2001:
- Acquisition of Structural Research & Analysis Corp (SRAC)
  *To complement CATIA Analysis solutions*

2002:
- Acquisition of Knowledge Technologies International (KTI)
  *To accelerate knowledge engineering developments*
- Win of Toyota Motor Corporation
  *Confirms the leadership of PLM V5 solution*
- Creation of a joint venture with Geometric Software Solutions
  *The first off-shore development lab in India*
CONCLUSION

An incredible success story…

- 1- A long-term vision
- 2- Strong management & professionals to execute
- 3- A customer-driven culture
- 4- A partnership-driven culture
- 5- and a lot of work…
- 6- and some luck…

More a human story…

than business & technology!