

cards Engineering
www.cards-engineering.com

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Agenda

- ▶ cards Engineering
 - ▶ short introduction
- ▶ SGE at Ford
 - ▶ Equipment in PD
 - ▶ Problem description
 - ▶ Problem solution

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Fast Facts

Legal Structure of the Company

- ▶ GmbH & Co. KG

Business Segments

- ▶ Integration of heterogeneous DP Systems
- ▶ Development of customised solutions from the spheres of banking, insurance, the media, manufacturing and the automotive industry.

Year of Foundation

- ▶ 1989




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Fast Facts

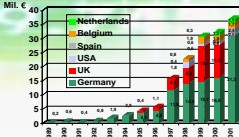
Employees

- ▶ Germany: 70
- ▶ Worldwide: 159

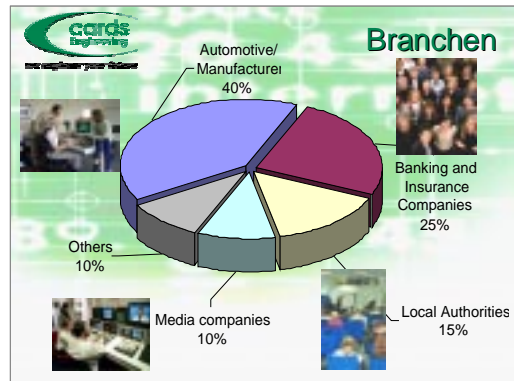
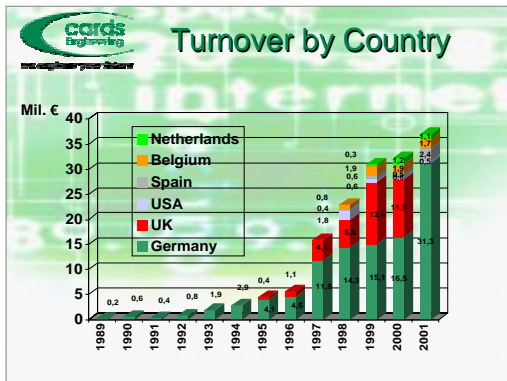


Turnover 2001

- ▶ Germany: EUR 31,3
- ▶ Worldwide: EUR 37,0



Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Netherlands	0.2	0.4	0.6	0.8	1.0	1.2	1.5	1.8	2.2	2.8	3.5	4.5	6.2
Belgium	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.0
Spain	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.0
USA	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.0
UK	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.0
Germany	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	2.2	3.0





Commercial Solutions

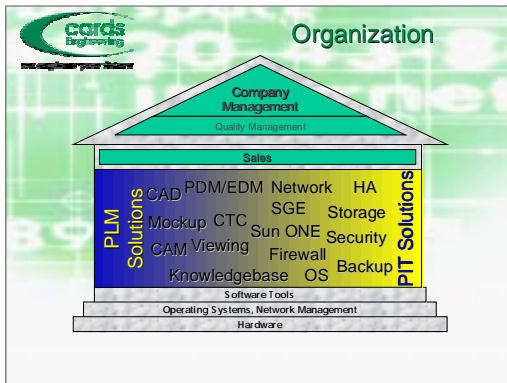

- ▶ Customer Care Package
- ▶ Service Management Centre
- ▶ IT Doc
- ▶ Server Based Enterprise Management
- ▶ Spider in the box
- ▶ HaCoS- High available Communication Server






Solutions in the Manufacturing field

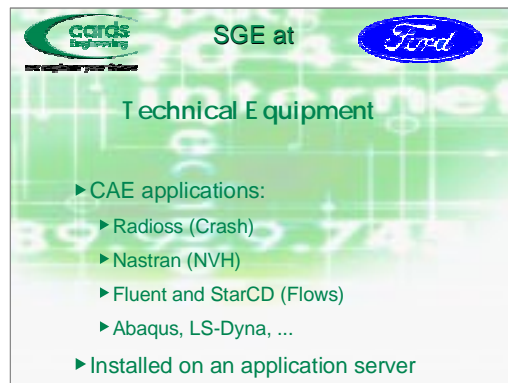
Training in the multi-CAD field:

- ▶ Best in Class Training
- ▶ CAX - CADD5
- ▶ Ideas and V4/V5
- ▶ EDM/PDM

Strong Relationship







SGE at 

Agenda

- ▶ Equipment in PD
- ▶ Problem description
- ▶ Problem solution



SGE at 

Problem Description

- ▶ Compute requests are increasing
- ▶ Compute Servers are expensive
 - ▶ high CPU and storage costs
- ▶ No additional compute servers



SGE at 

Problem Description

- ▶ Unix workstations already paid
- ▶ Unix workstations often idle
 - ▶ over night
 - ▶ on weekends
 - ▶ during meetings
 - ▶ ...



SGE at 

Agenda

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SGE at



Problem Solution

Installed SUN GridEngine v5.3

- ▶ Configured cluster
 - ▶ Collaboration between administrator and users
- ▶ Adapted CAE applications for the cluster
 - ▶ Wrote submit scripts
 - ▶ Changed startupscripts and config files



SGE at



Installation

- ▶ Installed SUN GridEngine on a file server
- ▶ Installed master and five shadows
 - ▶ Spool files on the file server
- ▶ Installed client files on ~80 workstations
 - ▶ Installation directory mounted via NFS
 - ▶ All client spool files and directories locally



SGE at



Configuration

- ▶ Developed a Load Sensor:
 - ▶ Switch queue to alarm mode if keyboard or mouse are used
 - ▶ Monitor available scratch space
 - ▶ Monitor number of users logged in

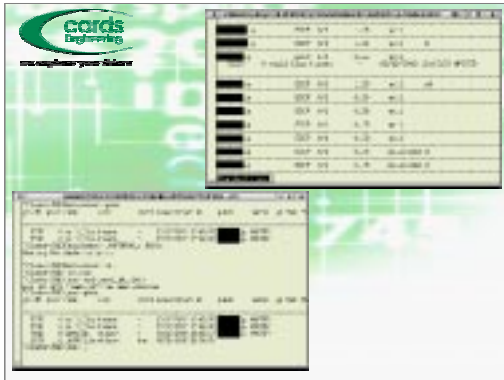


SGE at



Configuration

- ▶ Introduced calendar
 - ▶ Some w/s only available over night or on weekends
- ▶ Some workstations got low load threshold
 - ▶ Queue is automatically disabled if user wants to compute locally



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Adaptation of CAE applications

- ▶ Wrote submit scripts
- ▶ Changed startupscripts and config files
- ▶ Added scripts to the installation

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The image shows a software installation window with several sections: 'Installation Options', 'Installation Progress', and 'Installation Log'. The progress bar indicates the installation is in progress.

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The image shows a software configuration window with sections for 'Installation Options', 'Installation Progress', and 'Installation Log'. The progress bar indicates the configuration is in progress.



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