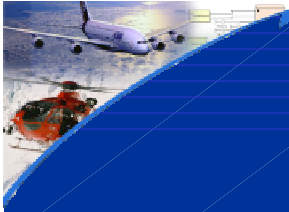




Estereel Technologies: An example of European High-Tech SME Development

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Company & brief Product Introduction

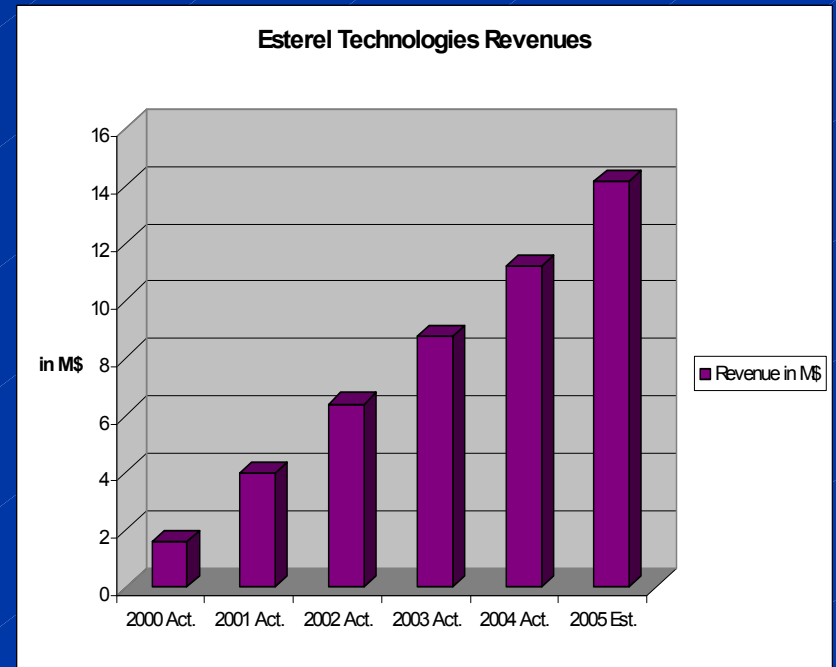


Who we are....

- ▶ Established in 1999
- ▶ Core Scientific concepts initially developed within public research
 - ▶ INRIA, École des Mines de Paris & CNRS (Verimag-Grenoble)
- ▶ We provide embedded systems development tools for
 - ▶ Safety-Critical embedded software (SCADE™)
 - ▶ Critical Electronic Components (Esterel Studio™)
- ▶ Our Customers are OEMs & suppliers
 - ▶ Aerospace & Defense
 - ▶ Automotive & Transportation
 - ▶ Semiconductors & Electronics
- ▶ Our Uniqueness
 - ▶ Software design tools and expertise covering our customers' *design processes* from specification to implementation
 - ▶ Unique formal methods and technologies enabling *automated* & *certified* implementation while meeting stringent safety requirements

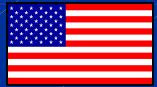
Corporate Profile

- ▶ Esterel Technologies headquarters
 - ▶ Elancourt, France
 - ▶ Mountain View, California
- ▶ 130 employees over 6 countries
- ▶ 80+ customer base
- ▶ 70+ universities worldwide teaching the use of Esterel Technologies solutions
- ▶ Our shareholders are staff, a majority of European VCs & Intel Capital
- ▶ Active participation in standardization bodies & ARTEMIS initiative
 - ▶ Members of DO-178C, MISRA, AUTOSAR, TTA Group, FlexRay & ARTEMIS consortia



- ▶ > 50% CAGR since creation

Esterel Worldwide Direct Presence



Mountain View, CA



Montreal, QC



Bracknell



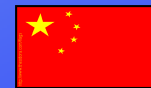
Paris, Sophia Antipolis,
Toulouse



Munich



New Jersey



Shanghai, China

► And channel partners in Russia, Japan, Israel & India



SCADE™

Commercial Product:

**The Market Leader for the Development
of Safety- and Mission-Critical Software**



Typical SCADE Aerospace & Defense Applications

- ▶ Flight control systems
 - ▶ Power management
 - ▶ Reconfiguration management
 - ▶ Autopilots
 - ▶ Engine control systems
 - ▶ Braking systems
 - ▶ Cockpit display & alarm management
 - ▶ Fuel management
-
- ▶ **EASA (Europe) and FAA (USA) certification**



SCADE Suite in the A380



- ▶ SCADE = Airbus corporate standard for all new airplanes developments
- ▶ SCADE is present in the following A380 systems:
 - ▶ Flight Control system
 - ▶ Flight Warning system
 - ▶ Electrical Load Management system
 - ▶ Anti Icing system
 - ▶ Braking and Steering system
 - ▶ Cockpit Display system
 - ▶ Part of ATSU (Board / Ground communications)
 - ▶ FADEC (Engine Control)
 - ▶ Cockpit Display
- ▶ Measured Results
 - ▶ 70% of the code automatically generated
 - ▶ Suppression of low level testing of the SW
 - ▶ Development costs **divided by 2**
 - ▶ Time to modify code **divided by 3**

Automotive, Rail & Heavy Duty SCADE Applications

- ▶ Airbags
- ▶ Braking Systems, ESP, ABS
- ▶ Chassis & suspension
- ▶ Engine regulation

- ▶ Interlocking systems control
- ▶ Signaling
- ▶ Ground stations
- ▶ Automatic Train Operations
- ▶ Train Control Systems

- ▶ Nuclear systems control & command
- ▶ Heavy Duty Land systems (tanks, tractors..)





SCADE in action & Recent Wins

▶ Flying & Driving:

- ▶ Airbus A340, A380
- ▶ Mirage 2000-9
- ▶ Rafale
- ▶ Ariane 5
- ▶ M51 (French ICBM..)
- ▶ Eurocopter EC 134, 145, 155, 225, NH90, Super Puma
- ▶ Chinese helicopters Z8, Z10
- ▶ Cessna Citation Mustang
- ▶ Dassault's Falcon 7X
- ▶ China's Shenzhou 2 rocket
- ▶ US Air Force F16
- ▶ Audi A6, A8
- ▶ PSA 407, 607
- ▶ BMW Motorcycles brakes
- ▶ Mercedes Class « S »
- ▶ > 10 Nuclear Power Plants !

▶ On-going projects !

- ▶ Boeing 787
- ▶ China's Shenzhou 6 rocket
- ▶ ESA's VEGA rocket
- ▶ Airbus A350, A400 M
- ▶ UK's Watchkeeper Unmanned Aerial Vehicle
- ▶ China's Regional Jet (CRJ 21)
- ▶ Russian Regional Jet (RRJ)
- ▶ US Presidential Helicopter
- ▶ P&W 210 FADECs
- ▶ Turbomeca FADECs
- ▶ John Deere tractors
- ▶ Qinetiq next generation tank systems
- ▶ Siemens Rail Transportation systems
- ▶ Honda motorbikes
- ▶ Toyota cars



Developing a High-Tech SME in Europe: Sharing our Return of Experience



Esterel Technologies & R&D Projects

- ▶ Esterel Technologies is part of several European & National R&D projects such as:
 - ▶ Within **FP5**:
 - ◆ **RISE** Project (Reliable Innovative Software for Embedded Systems, Drive-by-wire)
 - ◆ **IMCAD** Project (Improving the Cockpit Application Development process)
 - ▶ Within **FP6** (Integrated Projects, STREP):
 - ◆ **DECOS** Project (Dependable Embedded Components and Systems, Aeronautics & Automotive applications)
 - ◆ **ASSERT** Project (Automated proof based System & Software Engineering for Real Time, Space applications)
 - ◆ **INTEREST** Project (Integrating European System Tools, [\[Subject to EC contract\]](#))
 - ▶ Within **ITEA**:
 - ◆ The **P2I** & **Sophocles** Projects (Telecommunications)
 - ▶ Within “Pole de Competitivite” [System@tic](#) (Ile de France)
 - ◆ **SOFTWARE FACTORY** project



Esterel Technologies & ARTEMIS

- ▶ Esterel Technologies benefits from ARTEMIS and the expected JTI since
 - ▶ It is already leading the creation of one major part of the SRA (Strategic Research Agenda) and thus contributes to defining the priority R&D topics of the future
 - ▶ It sees benefits from the roadmaps to be created in ARTEMIS
 - ▶ It sees benefits from the links to large companies in various sectors
- ▶ The ARTEMIS platform is a new vehicle to unlock the potential of innovative SMEs in Europe



What does this bring to an SME like us ?

- ▶ Strategic contacts with key European industrial players: Airbus, Audi, THALES, Safran, etc...
- ▶ Technologies validated by customer needs
- ▶ Networking effect with Universities & academic research institutes
- ▶ Partnerships with other European SMEs to build critical mass on the market



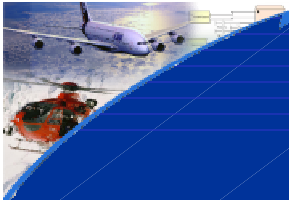
What should be done in addition ?

- ▶ European labor laws & related costs are putting our competitiveness at risk
 - ▶ We need additional flexibility
- ▶ Export is the name of the game: export support is helping only large companies
 - ▶ We need more export support beyond Europe
- ▶ European R&D projects could help more to network European SMEs between themselves
 - ▶ We need SME « **Networks of Excellence** »



Conclusion

- ▶ YES, Large Companies create markets
- ▶ BUT.....SMEs create TECHNOLOGY and JOBS !
- ▶ We need a European SMALL BUSINESS ACT to increase JOB CREATION thru SME development
- ▶ We need support for private / public initiatives such as ARTEMIS to foster our global competitiveness



Questions ?