

EWI-focus 4

Een aantrekkelijk Vlaanderen voor onderzoekers



International Researchers: Industry Case

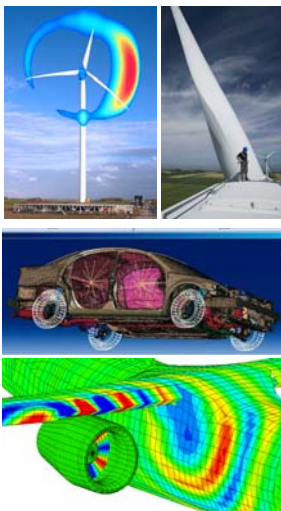
Herman Van der Auweraer

LMS International

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LMS, 30 Years of Engineering Innovation



- Spin-off K.U.Leuven 1980
- Partner in **engineering innovation** in the mechanical and mechatronic industries: software and services
- Addressing **critical product performances** (noise, durability, energy...) by testing and simulation
- B2B model: our customers are design departments
- Main markets: automotive, aerospace, mechanical industries, household equipment.
- More than **5.000** companies use LMS products
- Europe: 39%, Asia: 39%, Americas: 22%
- Talented people, **1000+** professionals
- **30+** locations worldwide,
- Committed to innovation : **25% of budget in R&D**
Strong financial track record of **profitable growth**

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Drivers for Innovation



- LMS is focusing on the **Industry's Agenda** towards better, globally competitive and greener products -> global context of *"A Smarter and More Responsible Planet"*
- LMS creates **Next Generation Test and Simulation Platforms** for vehicles that are:
 - **Safe**
 - **Eco-efficient**
 - **Comfortable**
 - **Competitive**
- **Making it work**
 - **Innovation in Technology** and in **Design Processes** (e.g. Interoperability)
 - **Transforming** Technology Solutions in **Products and Market Value**
 - **Rethink organisation and processes**
 - **Skills & People**

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People: cornerstone of the success

- **People & skills are key assets:**
 - Committed and motivated staff
 - Professional HR organisation -> invest in people
 - Continuous training
 - Competence management
 - Appreciation of technical as well as managerial careers
 - ...
 - *Make people grow and develop themselves*
 - **As international company**, we look for an international people basis
- **What does this mean for R&D?**

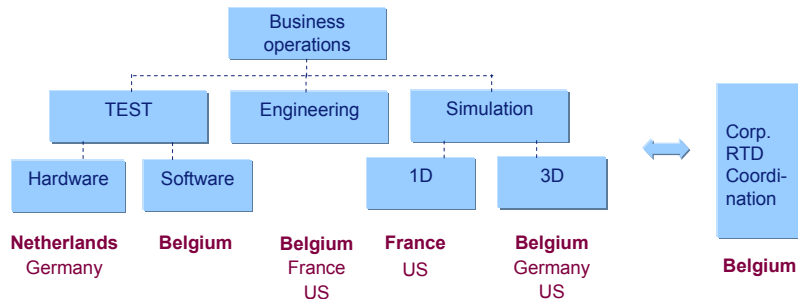
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People: cornerstone of the success

■ Our R&D organisation:

- LMS R&D is organised in 3 operations divisions (TEST, Simulation, Engineering) and 5 units (TEST software & hardware, Simulation 3D & 1D, engineering).
- Research and Technology Development (RTD) implemented per unit
- With central coordination and support -> Matrix



- Per unit: RTD manager, RTD team leaders, senior researchers, fellows, students

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People: cornerstone of the success

■ R&D Profiles:

- Researchers with methods expertise (senior), or good engineering basis (junior)
- Who can work in team, are creative, take responsibility, result oriented
- Mix of core staff and temporary staff
 - RTD Managers
 - Core staff: key functions, central method experts
 - Temporary staff: project engineers & some senior experts (post-doc)
 - Evolve to core staff
 - Evolve into other company functions
 - Return to their home institute
 - Pursue a career outside the company
- Student internships (# 20..30 per year)
 - Thesis projects and/or stage projects 3...6 months
 - Good recruiting basis
 - Links with their university
 - Budgets need to be allocated (housing, expenses)
- Local students for thesis or stage (4..8 weeks)

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People: cornerstone of the success

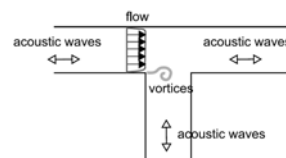
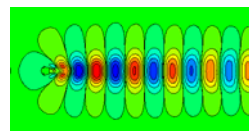
- **It all starts with recruitment**
 - National and International
 - **Problem of finding the people locally** (inflow of engineering and science students)
 - Need for **acquiring new expertise (outside “our box”)**
 - **As international company**, we look for an international people basis
 - To operate in an international market place
 - To operate in a international R&D organisation
 - To take up functions in our international organisation at large
- **Challenges to attract staff:**
 - Our topics and company image/style appeal to young people, but...
 - How to make ourselves known as interesting employer?
 - How to make our vacancies known?
 - Interviewing and hiring
 - Specific issues

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Some examples... PhD in industry

- **Paula Martinez (Spain)**
 - MSc Industrial Engineering
 - University of Zaragoza (Spain), 2005
 - Started as ESR in LMS in 2006, FP6 EST SIMVIA2
 - **FP6 MC AETHER ESR at LMS (2007-2010)**
 - Research on Numerical Aeroacoustics
 - Registered as a PhD student at KULeuven
 - Advisor prof. Wim Desmet
 - PhD defended in August 2010
 - Currently **Research Engineer** in Acoustic Simulation
 - **Recruitment:**
 - ESR Marie Curie vacancy on **Cordis/Euraxess**



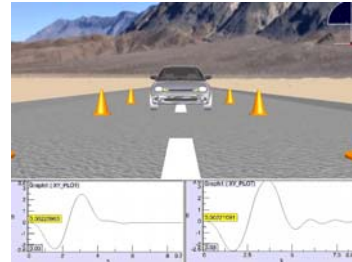
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Some examples... PhD in industry

■ Marco Gubitosa (Italy)

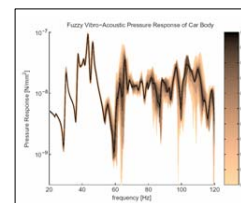
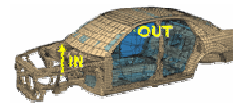
- M.Sc. in Mechanical Engineering
- Politecnico di Milano, 2007
- Stage project in Leonardo da Vinci programme
- Thesis project at LMS
- **ESR for EC Marie Curie FP6 EST SIMVIA2** (6 months)
- Currently **ESR for EC Marie Curie FP7 ITN "VECOM"** (36 months) at LMS
- Enrolled in K.U.Leuven **PhD program**
 - Vehicle Dynamics
 - Active vehicle systems
 - Hybrid simulation methodologies
- **Recruitment**
 - Long relation with university
 - Partner in Leonardo -> stage
 - Hired for Marie Curie PhD project



Some examples... PhD in industry

■ Stijn Donders (Netherlands)

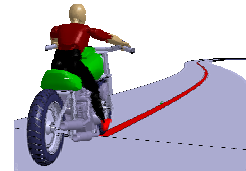
- M.Sc. in Applied Physics Univ. Twente (NL), 2002
- **Marie Curie ESR fellow at LMS** (Oct '02 – Sept '04)
 - Enrolled in K.U.Leuven PhD program while at LMS;
 - Advisors: prof. W. Desmet and D. Vandepitte (PMA)
 - PhD in 2008 on "CAE Methodologies for Robust Automotive NVH Design"
- Hired as **Research Engineer** for Structures & NVH Simulation
- LMS Responsible for **Marie Curie RTN "MADUSE"**
- (Co-)author of **FP7 MC ITN "VECOM"**
- At present: **R&D Project Manager** LMS Simulation Division
- **Recruitment:**
 - Long standing contact with his professor (M. Verhaegen)
 - Application to the LMS website



Some examples... Post-doc in industry

▪ Alessandro Toso (Italy)

- M.Sc. Aerospace Engineering (Politecnico di Milano)
 - Adaptive Predictive control of flutter
- PhD Aerospace Engineering (Politecnico di Milano)
 - Active control of noise and vibration in helicopter cabins
- PostDoc Virginia Tech – USA
 - Aerodynamic Turbulent Drag Reduction
 - Aircraft Interior Noise Reduction
 - Optimization of Microphones for Transparent Hearing
- Currently **ER FP6 MC MYMOSA** at LMS (Motorcycle Safety)
 - Integration of Sensors in Multibody simulation
 - Crash Avoidance Maneuvers
 - Test-rig (cooperation with other fellows)
- **Recruitment:**
 - Knew LMS as a company
 - MC ER vacancy published on **Cordis/Euraxess**

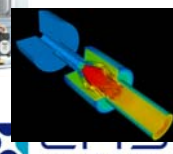


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Some examples... Post-doc in industry

▪ B. Karthik (India)

- Master of Technology, Aerospace Eng., IIT Madras India 1998
- PhD, IIT Madras India 2004
- Project Officer, Industrial Consultancy & Sponsored Research, IIT Madras (1998-2003)
- Research Associate (MUSCLES –EC Project), University of Cambridge Engineering Department (2003-2005)
- Lead Engineer, Advanced Technology Operations, GE Energy India (2006-2008)
- **Post-doc at LMS, FP6 MC-ITN AETHER** 2008-2010
 - Combustion Dynamics & Mitigation
 - Helicopter Aerodynamics & Rotor Noise
- Researcher in the EC Clean Sky JTI project
- Currently **Technical Account Manager** in our customer support simulation department
- **Recruitment:**
 - Knew LMS software already in India
 - Knew LMS principal researcher from Cambridge

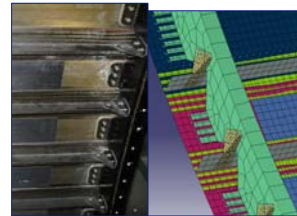


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Some examples... Post-doc in industry

■ Marcin Luczak (Poland)

- M.Sc. in Turbomachinery and Fluid Mechanics at the Technical University of Gdansk (PL), 1996
- Ph. D. Institute of Fluid Flow Machinery Polish Academy of Sciences (PL), 2003
- **FP6 MC-EIF fellow at LMS** (2007 – 2009)
 - Composite material testing and modeling
 - Uncertainty & Variability Quantification
 - High Performance Computing (HPC) Optimization
- Currently with LMS as **Senior Research Engineer**
- Active in setting up new RTD projects and research activities in Wind Energy and Composites
- **Recruitment:**
 - Contacts with Polish professors of our network
 - Own initiative to submit the EIF



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Recruitment approaches

- Publication of job offers
 - Job offers on websites
 - **International research websites (Euraxess...)** -> well looked at in the international research community
 - Question: how accessible are these websites for industry RTD positions when there is no RTD project related to it? (Euraxess: OK)
 - **Own website** (essentially reaching the people that already know us)
 - Through **university channels (internal postings) & websites (external postings)**, e.g. New Baekeland candidate: selected from India -> leverage on university relations
 - General publication of vacancies at conferences etc -> limited success

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Recruitment approaches

- Publication of job offers
 - Through **direct contacts with national/international university relations**
 - Many of these are **research partners** (FPx, Marie Curie, EUREKA...)
 - Several of these were **former visiting researchers**, stage students, MC fellows ... (Firenze, Trieste, Ancona, Calabria, Bari...)
 - With several of which **structured hosting contracts** are in place such as Erasmus, Leonardo, LLL, Vulcanus (e.g. Brasov, Bergamo-Milano, Gdansk, Krakow, Ancona...) -> successful fellows are the best advocates
 - **International fellows at regional academic partners** -> offer a position & at the same time strengthen link with university (Erasmus students, post-docs...)
 - ***Be informed of promising new graduates***
 - ***Quality guarantee***

Recruitment approaches

- Requires maintaining (& investing in) **strategic relations with multiple universities**
 - Involve them in projects
 - Hosting students & thesis, hosting visiting researchers
 - Giving seminars, provide software, develop lab cases
 - Sponsor events
 - ...
 - ***Build trust-relationship with key professors***

Recruitment approaches

- **Recruitment at a distances is not evident**
 - Screening of applications -> skills, background, motivation, track record, language and reporting skills, references
 - Telephone interview to make shortlist -> involving directly involved staff
 - Pay the ticket for an interview
 - Technical managers -> technical skills, language & reporting skills
 - Division and/or research responsables -> compatibility with objectives
 - HR -> compatibility with the company values, attitude, **broader career perspective & potential**
 - Advantage of step-stone approach ("salmon")
 - Stage or thesis project
 - Temporary contract on a project
 - Integration in permanent staff
 - **Personal recommendation by known professors/experts is of large value**

Recruitment approaches

- **Specific issues**
 - EU citizens: works transparently
 - Non-EU citizens:
 - VISA -> difficulty in the pre-hiring phase (e.g. preparing a grant application)
 - Work permit
 - Residence permit (good support from Leuven city administration)
 - Main problem is the impossibility to host people at "stagiair" conditions
 - Forced to enter into employment contracts for non-EU citizen
-> Excludes promising internship candidates from Brazil, India, China, South-Africa, Egypt....
 - Financial issues
 - Regular salary scales applied
 - Marie Curie fellows get specific salary conditions cfr EC contract, (salary + net allowances), net total slightly above regular scales.
 - Some work permit difficulties with non-EU MC fellows due to limited formal salary component in MC contracts

Integration

- All recruited researchers (“regular” employees as well as fellows) receive the same treatment regarding HR support, training, benefits...
- We have specific responsables for administration (residence/work permits) contracts incl. also contracts with sending institutes, programmes & programme officers, housing, travel arrangements...
- Each new visiting researcher gets an appointed coach who defines the training program, first assignments, external visits and secondments, conferences...
- All researchers belong to a team, a unit, a division... and are taken up in the related meetings & social events (sports...)
- The large international (young) research community at LMS is quite self-supporting and open for newcomers -> rather quick adoption
- All researchers become part of the Performance Management cycle
- In case of integration, start-up or performance problems which cannot be solved on team-level, this is reported to central RTD coordination to look for a solution
- In practice, very few problems occur

Summary: People are cornerstone of our success

- **People & skills are key assets:**
 - *Make people grow and develop themselves*
 - **It all starts with recruitment -> International**
 - Problem of finding the people locally (inflow engineering and science students)
 - Acquiring new expertise outside “our box”
 - Prepare staff for working in an international environment
- **Building out a “community” of researchers: offering the industry experience**
 - Hosting Visiting Researchers (post-docs, associate professors)
 - Marie Curie fellowships -> participating to and driving several ITN/IAPP projects
 - Hosting local & international thesis students & stage projects
- **Requires a strong research network**
 - **Invest** in university relations: partnering, seminars, visits, software & systems
 - **Leverage:** visitors become your network -> future professors, customers, partners
 - **Share** the experience -> commitment to the spin-off community (Leuven.Inc)

Designing smart products for a greener world
LMS - your engineering innovation partner



Thank you

