CEDRAT TECHNOLOGIES
Feedback on FP7 MSCA

Feb 17, 2015
Frank Claeyssen
CEDRAT TECHNOLOGIES
AGENDA

- Cedrat Technologies at glance
- FP7 MSCA ITN IMESCON
- FP7 MSCA IAPP SMART-NEST
- Conclusion
CTEC at a glance

- Innovative Mechatronic Technologies
  - Piezoelectric & Magnetic
  - Actuators, Sensors & Electronics
  - Mechatronic & detection functions

- Activities
  - Products: COTS & Custom
  - Engineering: Consulting & Projects
  - Training

- High-Tech SME HQ in Meylan, near Grenoble (France)

- 40 employees
  - Sales & Back office
  - Engineering Teams: Electrical, Mechanical & Mechatronic Eng.
  - Lab & Production Team
FP7 MSCA ITN IMESCON

- PEOPLE 2010 Marie Curie Actions / Initial Training Networks
  - Grant Agreement No 264672
  - Project Officer – REA – Patrick Herlant
  - Start date – May 1st, 2011
  - End date – April 30th, 2015
  - Project budget – 2,25 M.EUR

- Project partners:
  - 6 Full Network Partners
  - 5 Associated Partners

- Project goal: to recruit 12 researchers for total 324 fellow-months
  - Recruitment of 11 Early Stage Researchers (ESR) - 312 fellow-months
  - Recruitment of 1 Experienced Researcher (ER) - 12 fellow months
FP7 MSCA ITN IMESCON

- Full Network Partners (Level 1):
  - Inst. of Fluid Flow Machinery, (IMP PAN), Poland, Coordinator
  - University of Liverpool (LIV), UK
  - Katholieke Universiteit Leuven (K.U.Leuven), Belgium
  - LMS International NV (LMS), Belgium
  - CEDRAT Technologies (CEDRAT), France
  - Wytwornia Sprzetu Komunikacyjnego PZL-Swidnik (PZL-Swidnik), Poland

- Associated Partners (Level2):
  - AGUSTA S.P.A. (Agusta), Italy
  - Westland Helicopters (Westland), UK
  - Fibre Optic Sensors and Sensing Systems (FOS&S), Belgium
  - Academic Computer Centre in Gdansk (TASK), Poland
  - Axsym Limited (Axsym), UK
Recruitment

- publish job vacancy internationally
- webpages, press, conferences, mobility portals, etc.
- must be advertised via Euraxess webpage
- publish job vacancy on project’s and your institution’s webpage
FP7 MSCA ITN IMESCON

Recruitment

- recruit under employment contract with full social security, taxation, etc.
- full-time employment
- provide assistance in administrative procedures (visas, work permits, etc.)
- agree with recruited researcher Personal Career Development Plan
- ensure the fellow is trained under the project
- sign and submit obligatory documents (employment contract, DoC, Personal Career Development Plan, questionnaires)
- provide secondment opportunities
- enable fellow access to the complementary training (i.e. grant writing, project management, language classes, etc.)
- ensure the fellow participates in conferences, workshop, summer schools
Eligibility / Experience years rule - full-time equivalent in research

- Early Stage Researchers (ESR)
  - research experience ≤ 4 years
  - no PhD

- Experienced Researchers (ER) still in their early career
  - PhD or at least 4 years of research experience
  - total research experience ≤ 5 years

Eligibility / Mobility rule

- researchers must not have resided or carried out their main activity (studies, work, etc.) in the country of their host organization for more than 12 months in the 3 years immediately prior to the reference date
Grant = Costs:

- **Cost category A – Living Allowance**
  - ESR – 36,700 EUR per year / ER – 56,400 EUR per year

- **Cost category A – Mobility Allowance**
  - family – 800 EUR per fellow-month / no family – 500 EUR per fellow-month

- **Cost category B – Travel Allowance**
  - one payment for every 12 months: ~1000 EUR depend on distance

- **Cost category C – Career Exploratory Allowance**
  - fixed amount of 2,000 EUR

- **Cost category D – Contribution to the participation expenses of researchers**
  - fixed rate of 600 EUR per fellow-month

- **Cost category E – Expenses for the activities carried out by the host**
  - fixed amount of 1,200 EUR per fellow-month

- **Cost category H – Overheads**
  - 10% of the total costs
### IMESCON

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<th>WP (leader)</th>
<th>WP1 (LV)</th>
<th>WP2 (PZL Swidnik)</th>
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<th>WP5 (IMP PAN)</th>
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#### Timeline

- **Total PM**: 324
- **Start**: 2011
- **End**: 2015

#### Network coordination and management

- Thematic Workshops and Dissemination Tasks
- Complementary skills (Personal Career Plan)
- Project Coordination Committee progress monitoring
- Deliverables and milestones

#### Management

- ToK
- Skills
- Monitoring
- Deliverables and milestones

#### Network coordination and management

- Thematic Workshops and Dissemination Tasks
- Complementary skills (Personal Career Plan)
- Project Coordination Committee progress monitoring
- Deliverables and milestones
## Planned distribution of funds

According to Gantt chart – excl. Management

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FP7 MSCA ITN IMESCON

- At CTEC: 2 ESR recruitments via Euraxess
  - N.9: Alexander KRAS, Mechanical Engineer, Poland
  - N.10: Mouhanned BRAHIM, Electronic Engineer, Tunisia
  - Duration = 18 months
  - Contract = CDD
Innovative MEthods of Separated Flow CONtrol in Aeronautics

CTEC activities: Active flaps in helicopter blades

- Alexander KRAS: Amplified Piezo Actuator
- Mouhaned BRAHIM: High power electronics
FP7 IMESCON / A. Kras

- Development of a dedicated APA piezo actuator for flap
  - CFRP shell (carbon/epoxy composite) for APA 500L
  - Integrated Position Sensor (ECS type)
  - Reliability, thermal issues

FP7 IMESCON / M. BRAHIM

- Development of a Switching Amplifier SA75 for piezo
  - Modeling to predict performance
  - Internal close loop to improve THD
  - Losses in the piezo ceramics due to the switching

Output

- APA-CRFP: Sales started in 2014
- SA75X amplifier: Sales started in 2014

- A.KRAS: Today employed at CEDRAT TECHNOLOGIES in France
- M.BRAHIM: Today in PhD at SUPELEC in France
FP7 MSCA IAPP SMART-NEST

- PEOPLE 2010 Marie Curie Actions / Industry–Academia Partnership and Pathways
  - Grant Agreement No 284995
  - Project Officer – REA J.B Veret
  - Start date – January 1st, 2012
  - End date – Dec 31th, 2015
  - Project budget – 1,75 M.EUR

- Project partners:
  - 6 Full Network Partners

- Project goal:
  - 32 researchers exchanges for total 172 fellow-months
FP7 MSCA IAPP SMART-NEST

- Full Network Partners (Level 1):
  - IPPT, Poland, Coordinator
  - ECL, France
  - U.SARRLANDES, Germany
  - Adaptronica, Poland
  - Cedrat Technologies, France
  - I-Deal, Germany
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FP7 MSCA IAPP SMART-NEST

- Smart Techno. for Transport Safety - Innovation Cluster Nesting
  - CTEC activities
    - Structural Health Monitoring (SHM)
    - New actuators, motors & dampers
  - Secondments of 7 researchers
FP7 MSCA IAPP SMART-NEST

- Secondments for CTEC
  - N.23 from LZPQ: Ramanan Venkat, 3 months, 2013
    • Testing of Electronics LWDS for piezo SHM
  - N.18 from IPPT: Pawel Wójcicki, 5 months, 2013
    • Design of Electronics (acquisition) for piezo SHM
  - N.17 from IPPT: Piotr Pawłowski, 2 months, 2014
    • Testing of Piezo motor
  - N.19 from IPPT: Cezary Graczykowski, 2 months, 2014
    • Modelling of Piezo motor
  - N.13 from IPPT: Thomas Zieliński, 4 months, 2014
    • Analysis of Piezo motor vibration & noise
  - N.15 from IPPT: Gregorz Mikułowski, 2 months, 2014
    • Design of Electromagnetic dampers
CONCLUSION on MSCA ITN & IAPP

- **ITN**
  - Young engineer to recruit & train
  - Large Contract duration
  - Low skill, but good flexibility (due to recruitment & training & duration)
  - Interesting solution for R&D and recruiting engineer
  - High impact on CTEC business

- **IAPP**
  - Experimented researcher (with high salary) provided by a Lab
  - Short Contract duration
  - High skill, but not so flexible (due to specialization & short duration)
  - Interesting solution for R&D when very good match with company
  - Medium impact on CTEC business but to be seen in the future …