Cannon Contribution to Innovation and Sustainability

Max Taverna
Who is Cannon?

Cannon

DEDICATED INDUSTRIAL SOLUTIONS

• RENEWABLE ENERGY PLANTS
• INDUSTRIAL BOILERS
• WATER & WASTE WATER TREATMENT SYSTEMS
• POLYURETHANE & REACTIVE POLYMERS
• PLASTICS ENGINEERING SOLUTIONS
• INDUSTRIAL ELECTRONICS
Who is Cannon?
Over 230 Million Euro

- **60%** Plastics technologies
- **38%** Steam & Water
- **2%** Other
Turnover 2015

- Americas: 20%
- Europe: 38%
- Middle East: 8%
- Far East: 22%
- Rest of the World: 12%
1006 Employees
620 in Italy
386 in r. of the world
Cannon Culture – 4 i’s

**INNOVATION**
Investing over 5% of global turnover in R&D
Over 400 patents filed in 50 years

**INDEPENDENCE**
Privately owned, never linked to financial institutions or funds.
Profit oriented, but not constrained by short-term results

**INTERNATIONALITY**
Multi-lingual, multi-cultural environment
Fully owned local business units and independent agents
Representatives in over 40 countries

**INTEGRITY**
Not only honest, but also fully committed to perform an excellent job,
without distractions or deviations from assigned tasks.
Innovation – a Daily Practice

R&D Labs in Italy, USA, UK

5% of Turnover always invested in R&D
Innovation – Some Examples

1974 – Patented the RRIM head
1979 – Patented the FPL head
1986 – Patented the RotoPlug jig for fridge cabinets
1987 – Patented the Drum for fridge doors
1997 – Patented the CO₂-based Car Dio system for flex foams
2010 – Developed the VAI system for rigid foams (*)
2013 – Developed the CRESIM system for using recycled Carbon fibres (*)

2014 – Launched the K-12 Project for Energy Efficient rigid foams (*)

(*) LIFE+ Projects
Innovation – Some Results

- More than 25,000 FPL and RIM heads sold worldwide. Widely copied...
- More than 2,000 RotoPlug jig and Drum systems installed worldwide. Widely copied...
- More than 50 CarDio plants operating worldwide. Widely copied...
- The World Leading fridge makers use VAI systems in their production plants.
- Cannon honoured by EPA (USA) for exceptional contribution to Global Environmental Protection Award (1999).
2010-2013 ENERG-ICE – with DOW Italia

- To improve the insulation performance of fridges and freezers whilst simultaneously improving productivity.
- Thin cavity walls found in refrigerators, with the presence of wiring and cables, create friction for the foam flow, even more critical using faster reactivity.
- **Depressurising the fridge cavity** during the injection process resulted of fundamental importance in assisting the expansion of the highly reactive foam.
- Awarded as one of the six "Best of The Best LIFE Projects 2013".
- Obtained the **Product Stewardship Award from Federchimica**, the Italian Federation of Chemical Companies.
ENERG-ICE Reduced PU foam cell size

- Current pu foam process: $K-f_{10} = 19.5 \text{ mW/m.K}$
- ENERG-ICE PU foam PROCESS: $K-f_{10} = 18.0 \text{ mW/m.K}$
2012-2016 – CRESIM

• To develop an innovative processes to make composite parts with high mechanical and aesthetical characteristics obtained with Recycled Carbon Fibre (rCF) derived by very expensive scraps.

• Three application methods have been developed for Polyurethane, Epoxy and Vinyl Ester formulations.

• More than ten different parts have been developed in 42-months, including improved satellite dishes for defence communications, a skate board for sport and leisure applications, automotive parts for German and Italian vehicles or Japanese bikes and an hollow part for the arm of an high-speed packaging robot.
Cannon & LIFE Projects

2012-2016 – CRESIM

RECYCLE & REUSE

CIRCULAR ECONOMY

Design
Production

Repair

Sale

Use
2014-2017 – K-12

- To develop a disruptive technology to dramatically improve Energy Efficiency of household appliances, using innovative PUR foams.
- Partners: Cannon Afros – Dow EMEAI – Whirlpool EMEA
- Duration: August 2014 – November 2017
- The project connects new chemistry with technology innovations, avoiding any use of Green House Gases as blowing agents with a new appliance production technology driven by reducing the carbon footprint of manufacturing operations, addressing any technology requirements and regional needs.
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Thank you for your attention!
Max Taverna