

SKINNYPACK™

TECHNOLOGY



February 28th, 2017



Innovative Plastic Leaders

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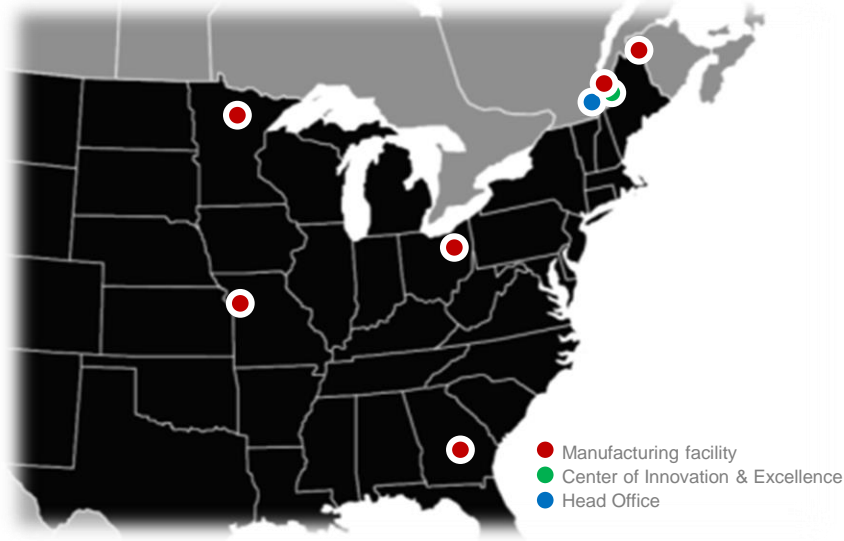
A long history of innovation

IPL: 78 years of history...





MANUFACTURING NETWORK



6 facilities

- **Cambridge, Ohio**
- **Edmundston, NB**
- **Lee's Summit, MO**
- **Forsyth, GA**
- **Remer, MN**
- **St-Damien, QC**



CIE, St-Damien, QC

12,000 sq.ft.
Characterization and
Prototyping lab

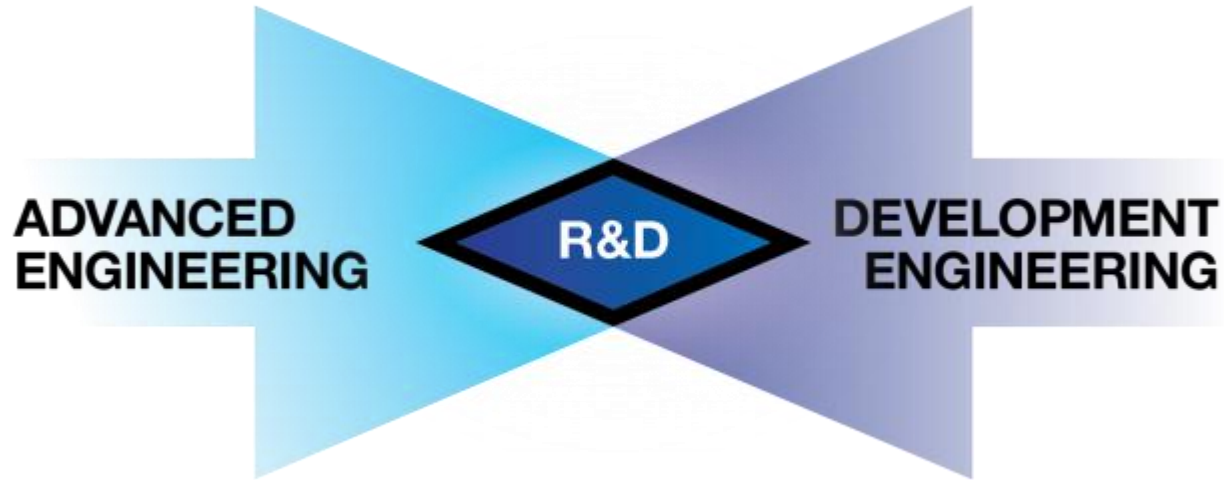


Head office Levis, QC

10,000 sq.ft.
Marketing and R&D head
quarters

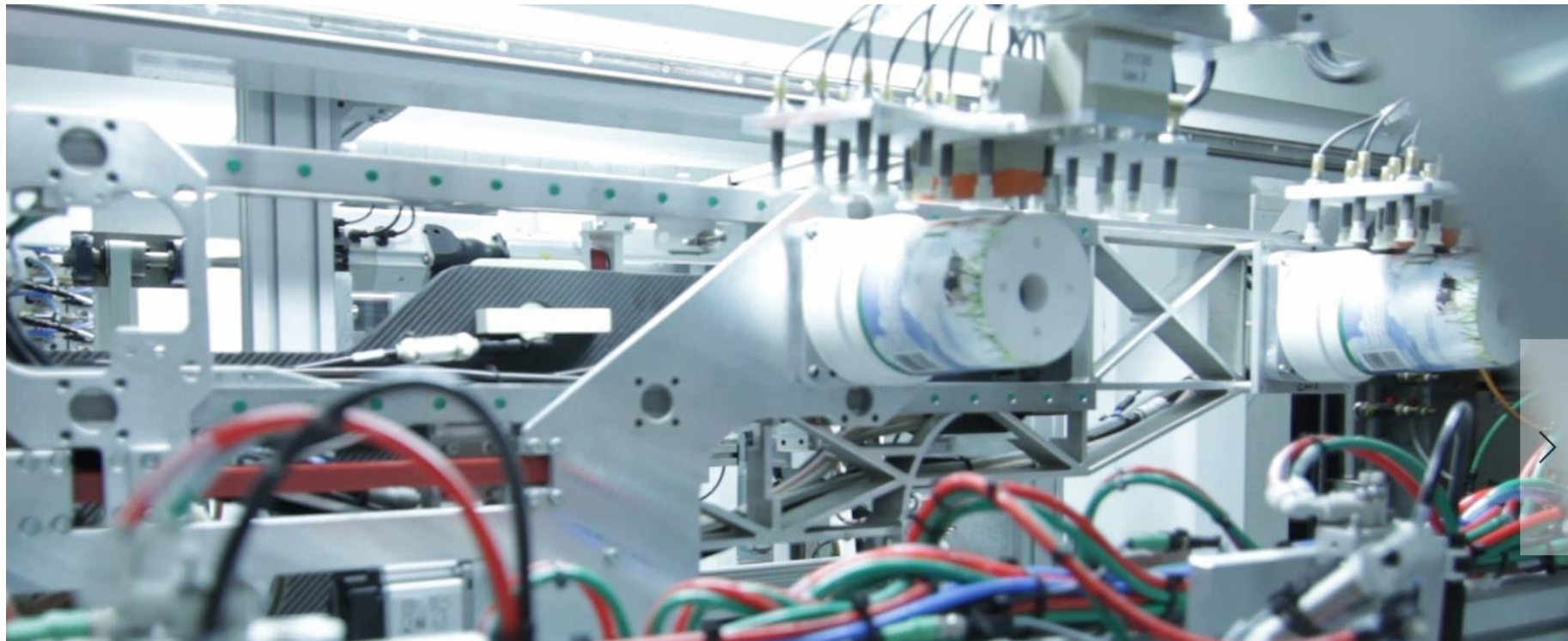


R&D STRUCTURE





IN MOULD LABELING





RECENT PRODUCT LAUNCHES

SEALPACK ROUND 510
DIP CONTAINERS



TAMPER EVIDENT
RECTANGULAR
CONTAINERS



ICECREAM IML LID



TRUSTPACK



CLUB YOGURT
CONTAINERS

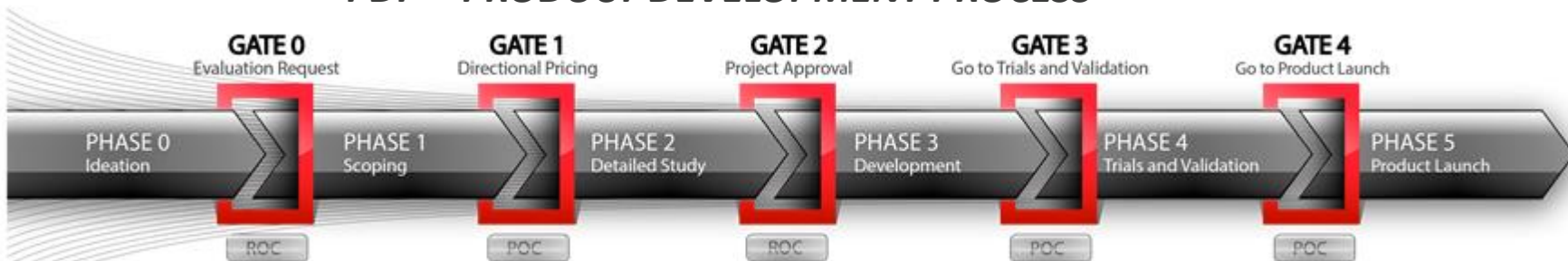


31 products
developed
in 24 months

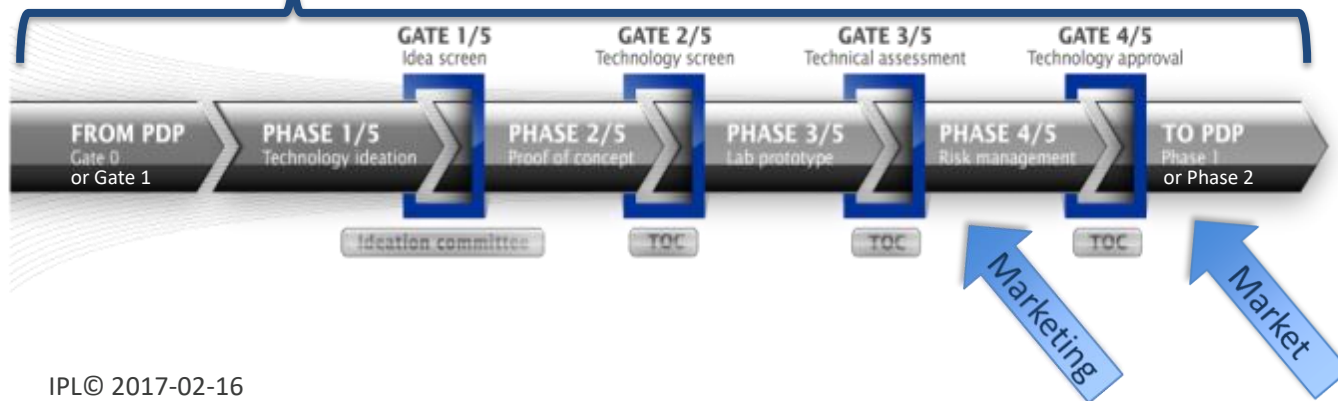


R&D PROCESSES INTERACTION

PDP – PRODUCT DEVELOPMENT PROCESS

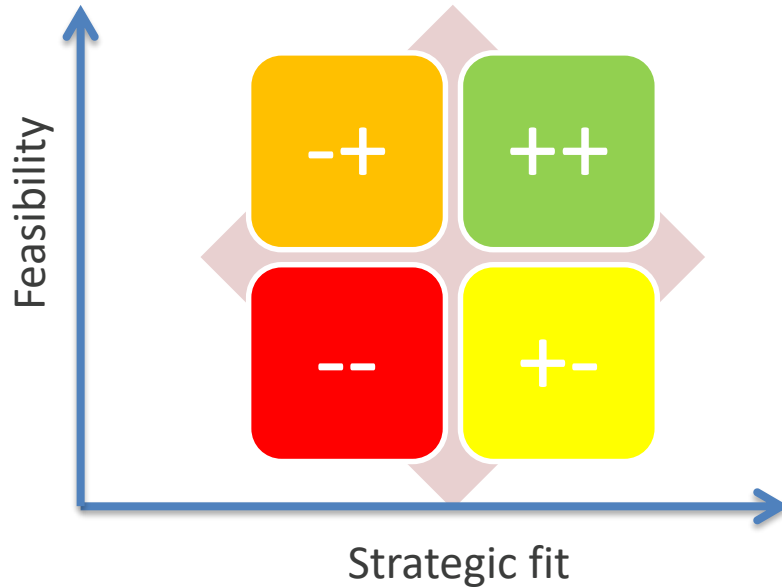


TRL- TECHNOLOGY READINESS LEVEL





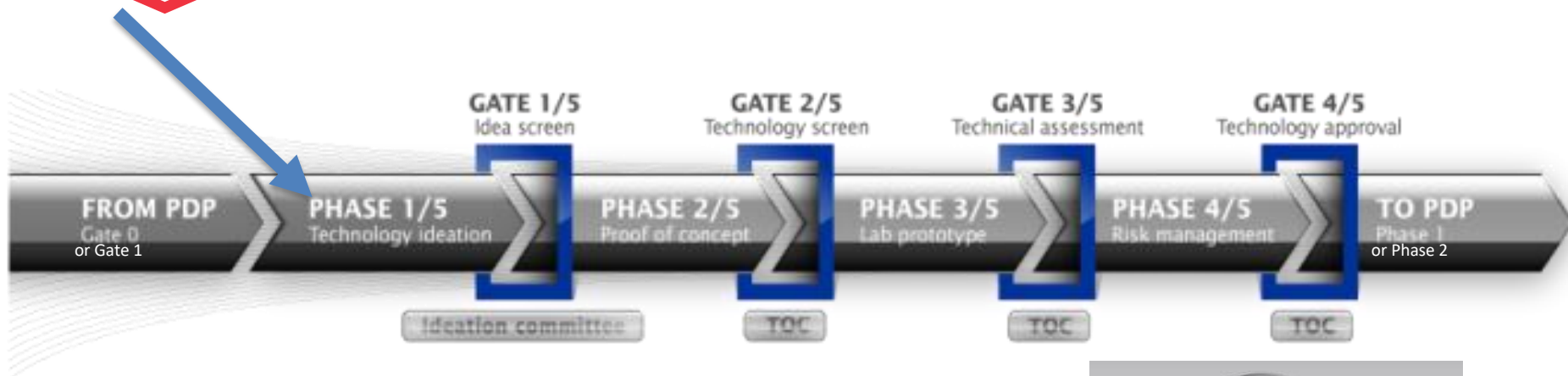
IDEATION COMMITTEE



- Strategic fit
 - Is the idea that directly affects one of our market segments
 - Market status
 - Value for the market
- Feasibility
 - Technical feasibility
 - Synergy: Do we or is that one of our partners possess the equipment today to realize the idea?
 - External factor



TRL PHASE 1/5 (Technology ideation)



Preliminary technology analysis

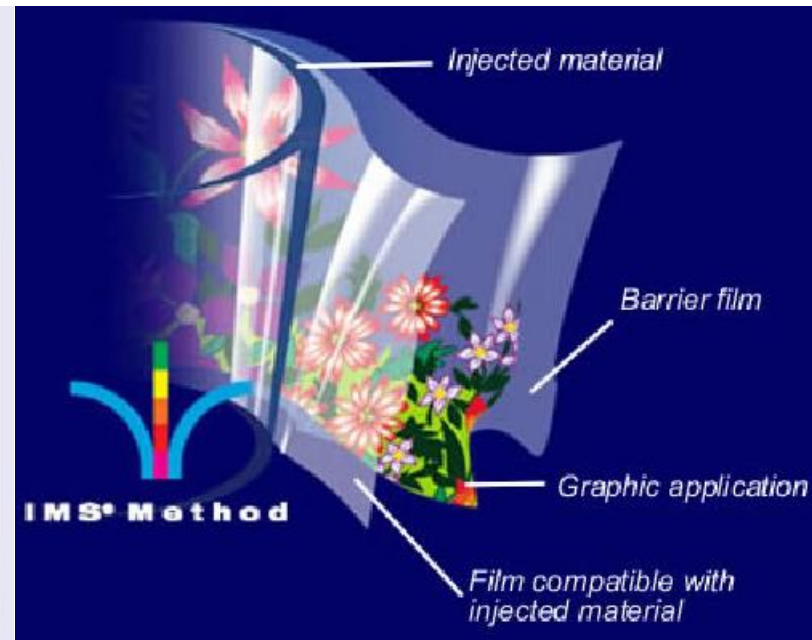
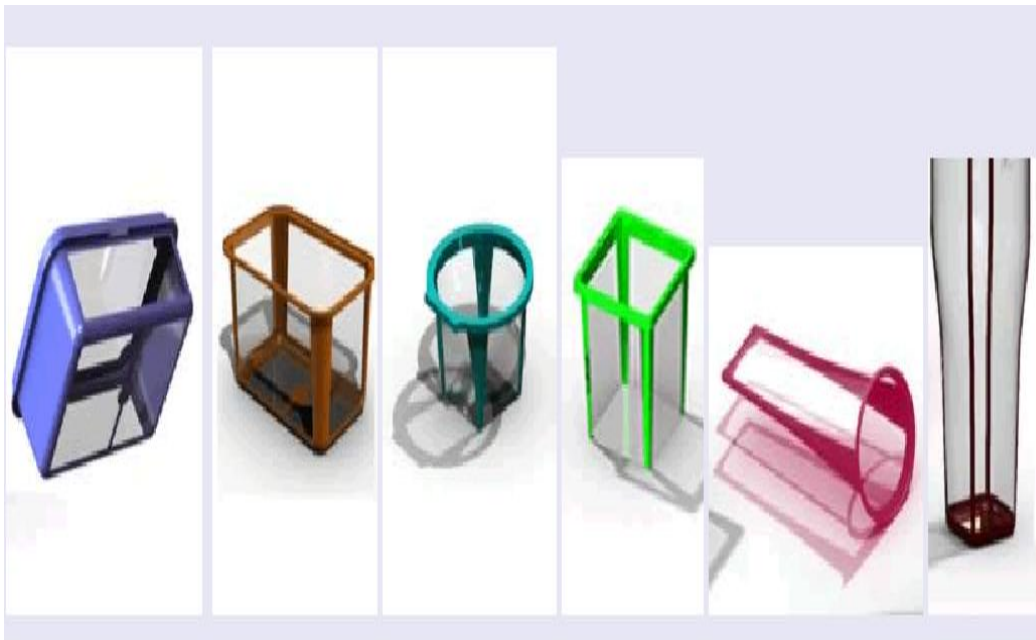
- Identify ideas that deserve a more thorough assessment
- Controlled confidential information





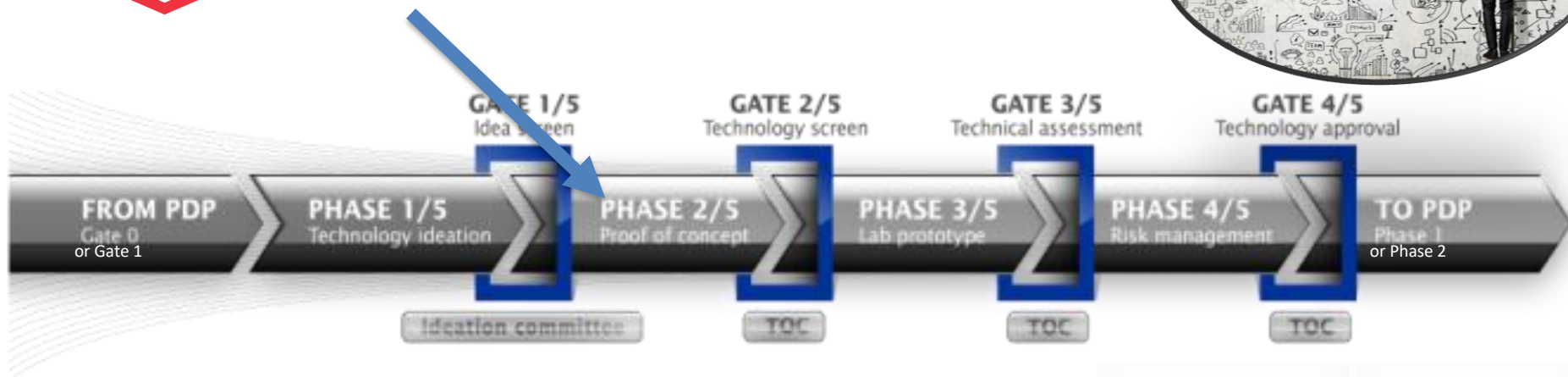
TRL PHASE 1/5 (Technology ideation)

CRIQ - Open source intelligence - April 2009 bulletin :
Plant for innovative **lightweight packaging** planned for Tyneside



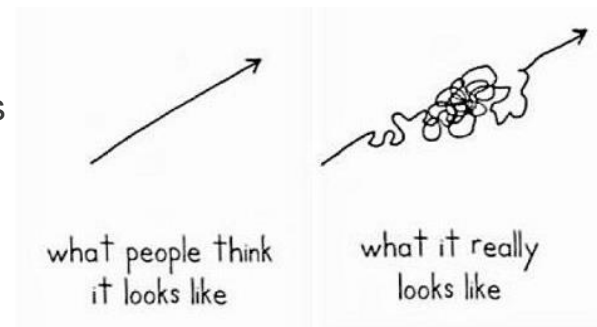


TRL PHASE 2/5 (Proof of concept)



Lab Prototype (<10 parts)

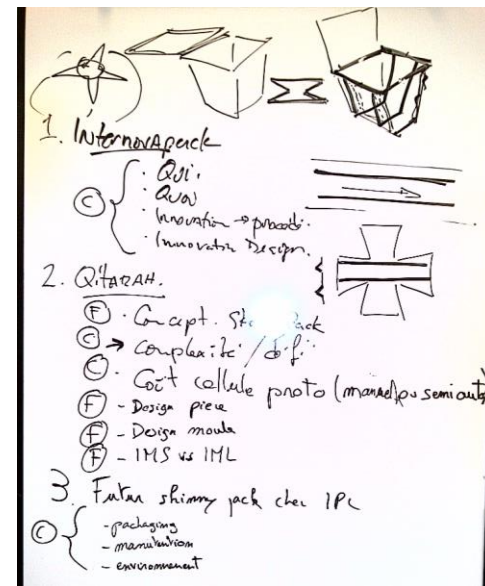
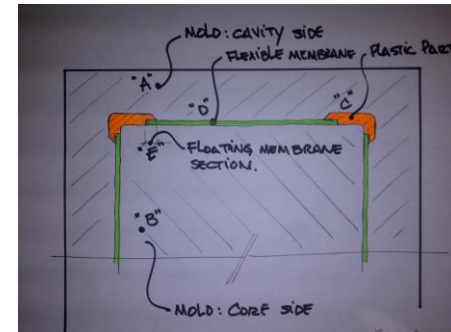
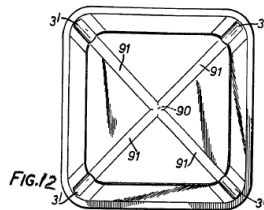
- Conduct analytical or laboratory experiments to validate paper studies
- Prior art search
- Controlled confidential information





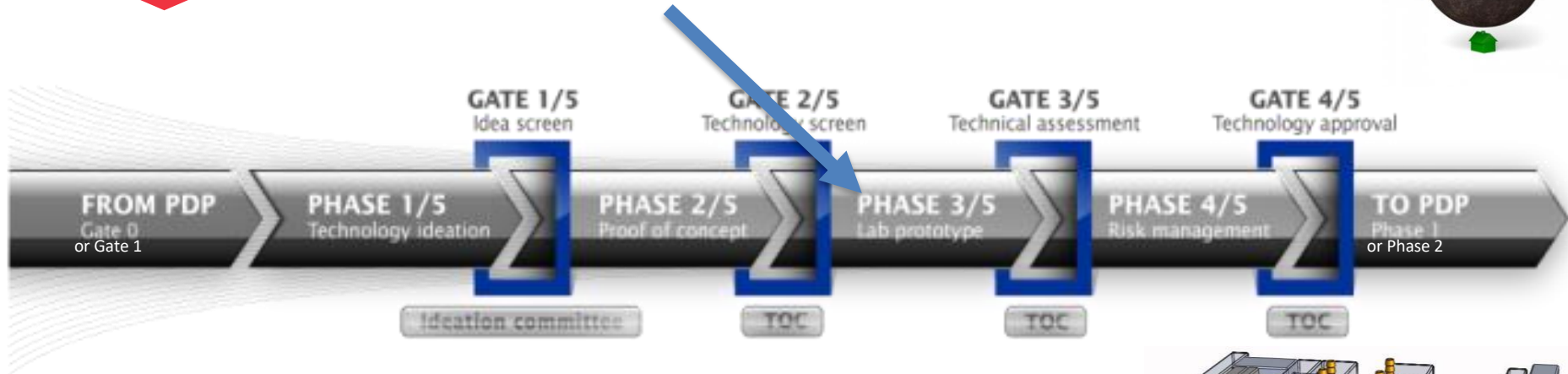
TRL PHASE 2/5 (Proof of concept)

- Search intellectual property
 - March 1970 - GB1348370
- Initial contact with InternovaPack
- 2 visits Italy
- Development of a partnership agreement



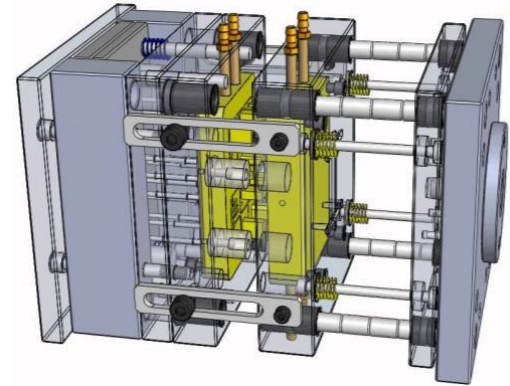


TRL PHASE 3/5 (Functional prototype)



Functional Prototype (~500 parts)

- Required investments
- Processes to ensure manufacturability, efficiency and quality are in place and are sufficient to produce technology demonstrators
- Prototype build
- Controlled confidential information





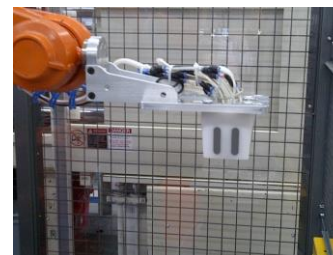
TRL PHASE 3/5 (Functional prototype)



SEAL PACK SQUARE

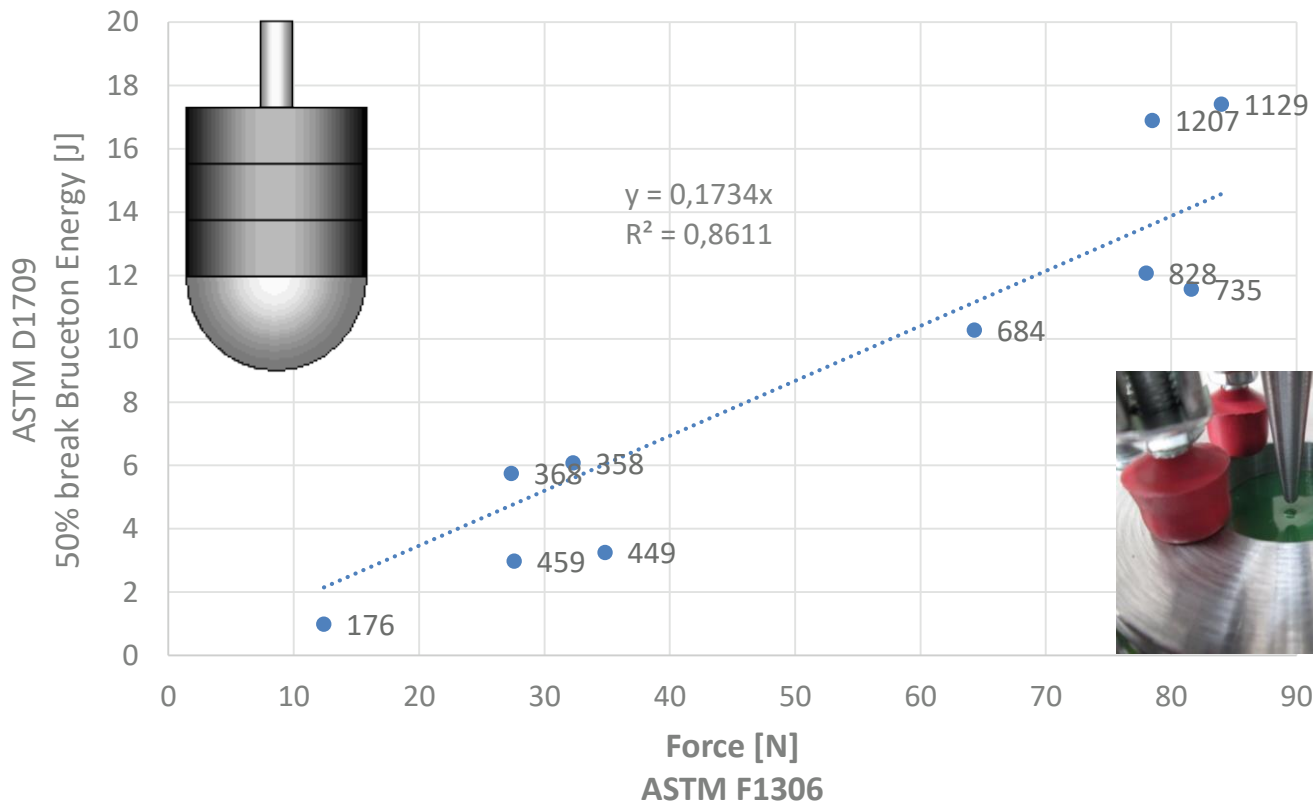
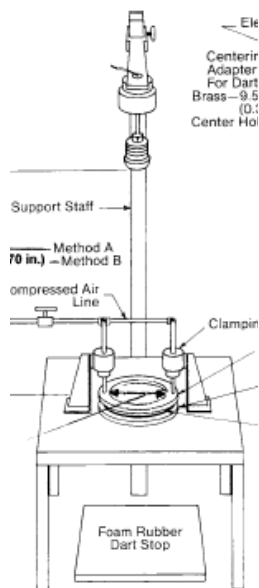


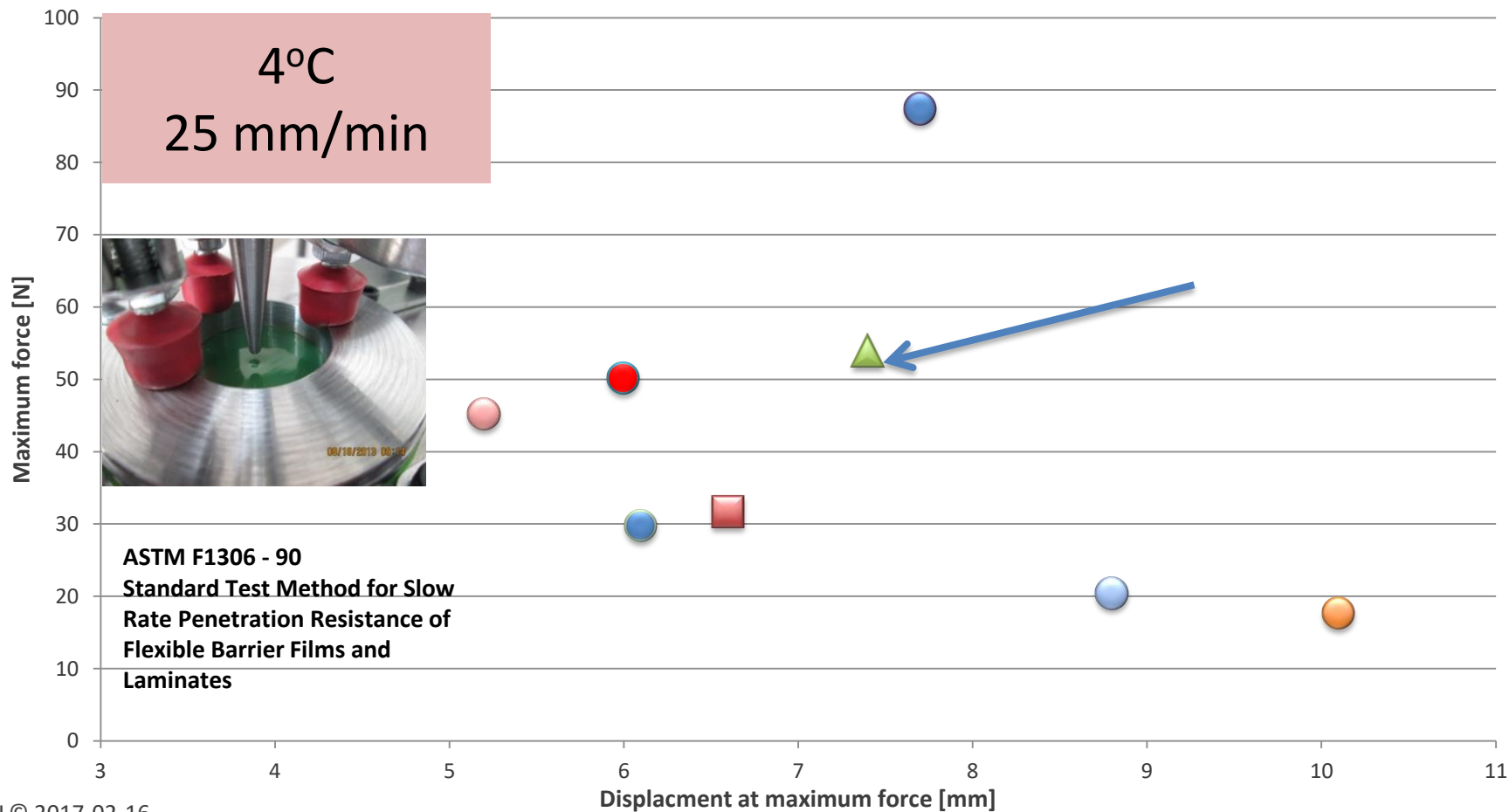
- Order 1 mold from Internovapack
 - Mold code name : Qitarah
 - First trials in Italy
- Landscaping Cell 6 axes (cycle, etc.)
- Development of the film for application





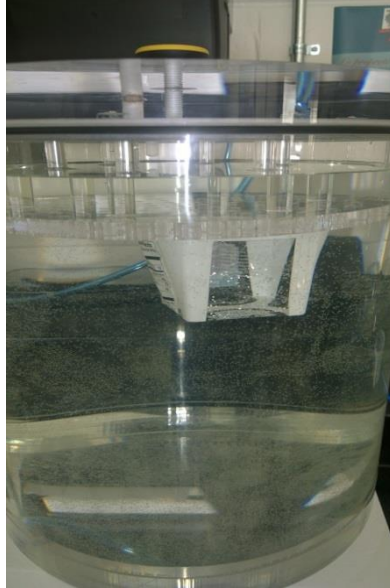
CORRELATION







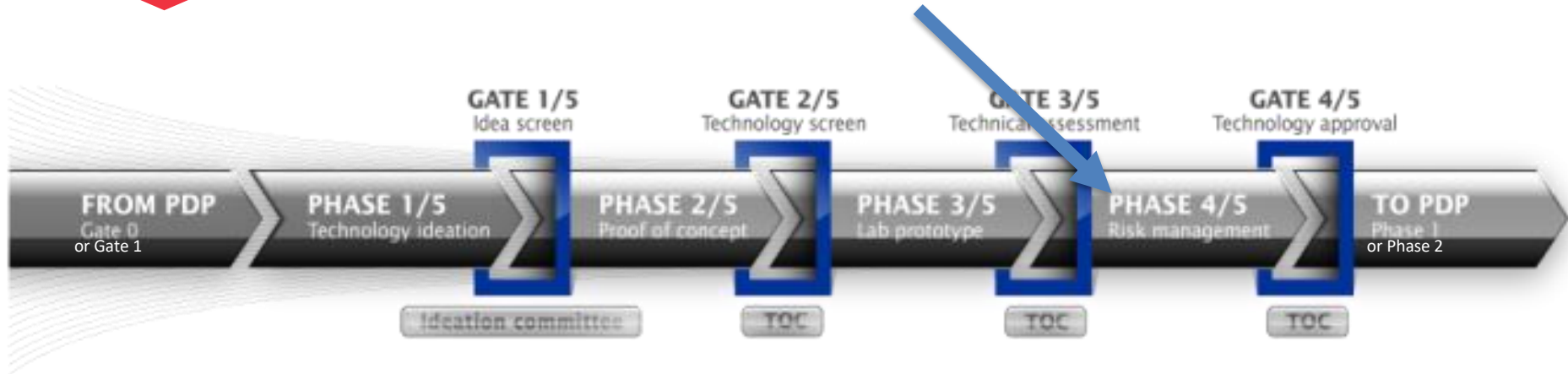
ASTM D3078 : Determination of Leaks in Flexible Packaging by Bubble Emission



85 kPa for 30 secondes



TRL PHASE 4/5 (Risk management)



PFMEA (~5000 parts)

- Manufacturing strategy refined and integrated with Risk Management Plan
- Controlled confidential information



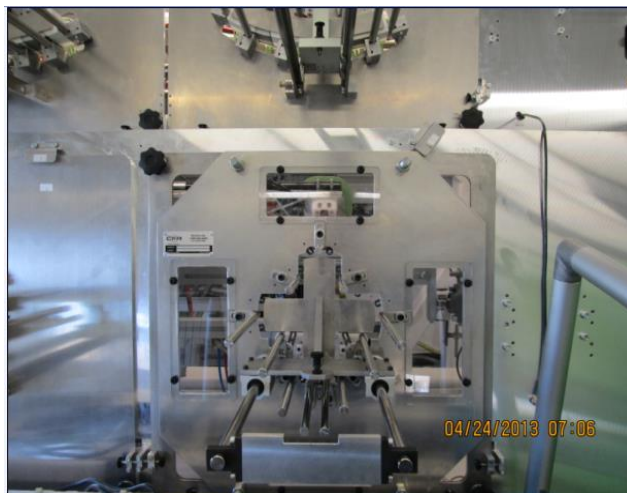
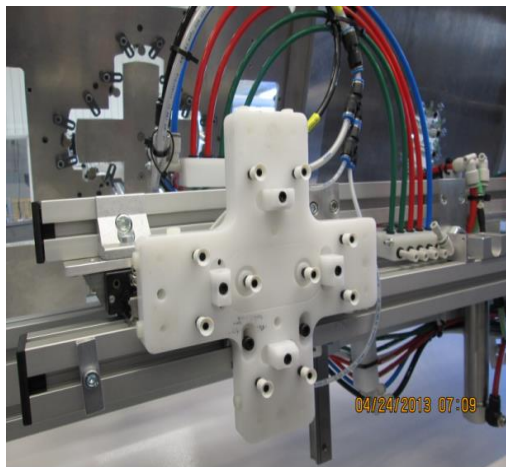
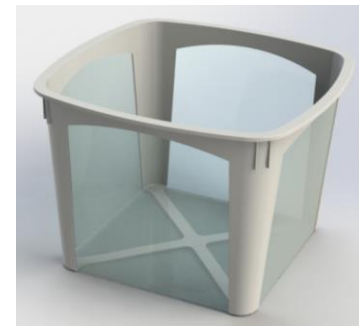


TRL PHASE 4/5 (Risk management)

Augusta mold (Qitarah 2^e gen)

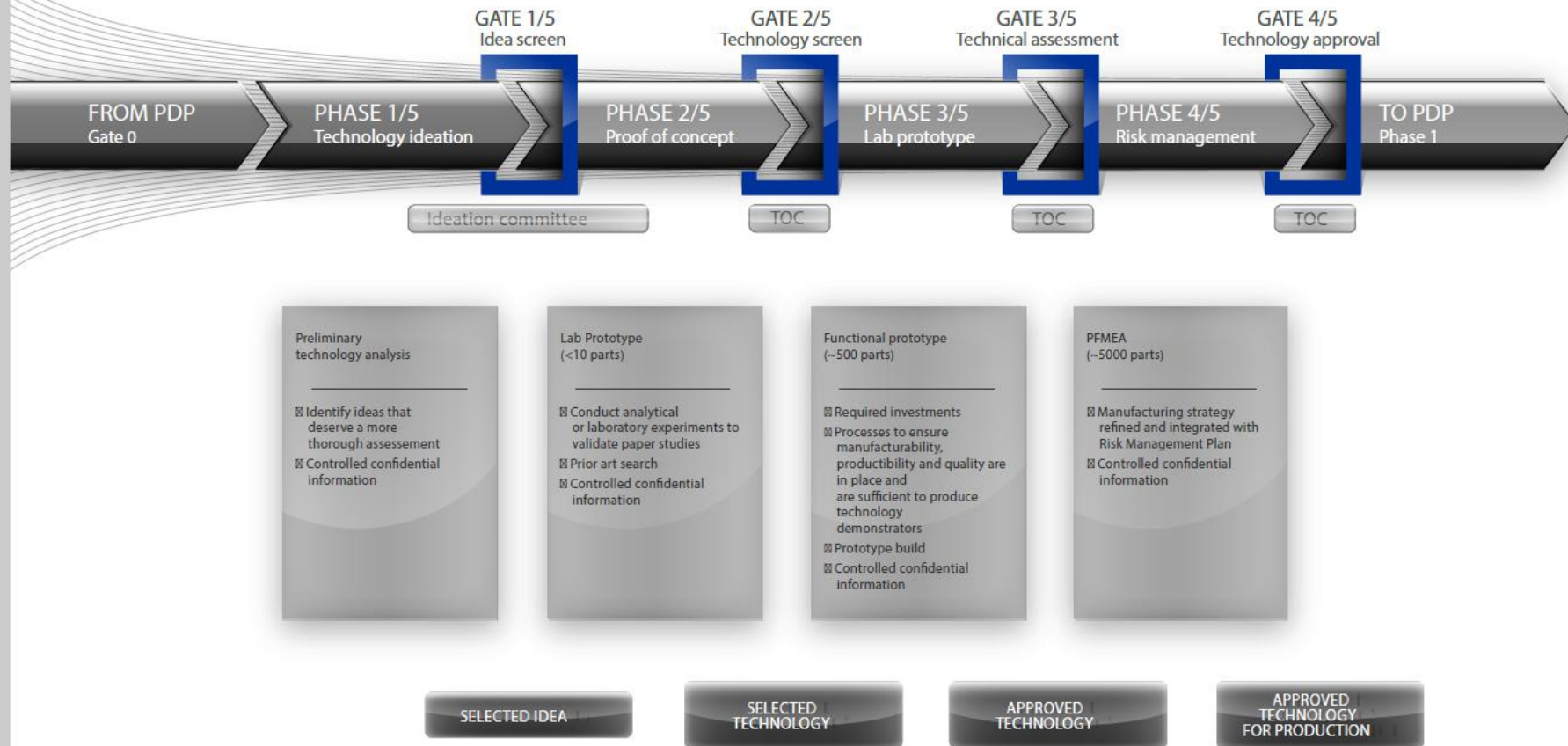
Molding on the E310 with IML robot

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R&D *TECHNOLOGY READINESS LEVEL*





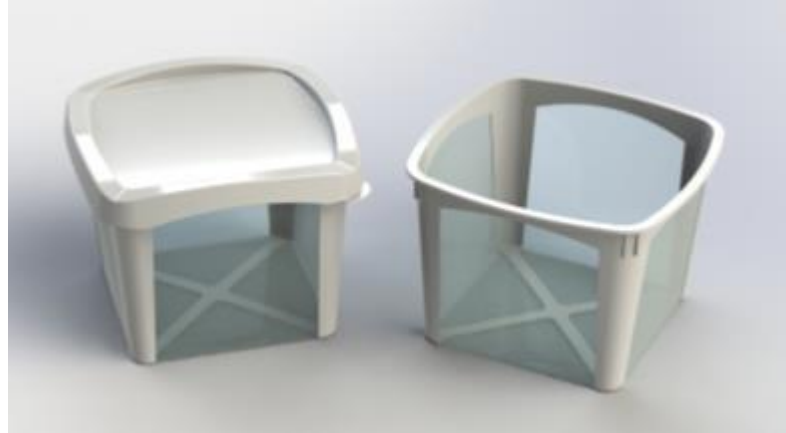
SKINNY**PACK**[™]
TECHNOLOGY

Sustainability



SealPack Square 16oz = 15.4g

vs SkinnyPack 16oz square (AUGUSTA) 7g



SealPack Square : the thinnest wall injection molded part design by IPL so far



www.internovapack.it

SKINNY**PACK**TM
TECHNOLOGY



2015 DuPont Awards
for Packaging Innovation

IPL'S SKINNYPACKTM
TECHNOLOGY EARNS
THE HIGHEST HONOR!





R&D PROCESSES INTERACTION

PDP – PRODUCT DEVELOPMENT PROCESS

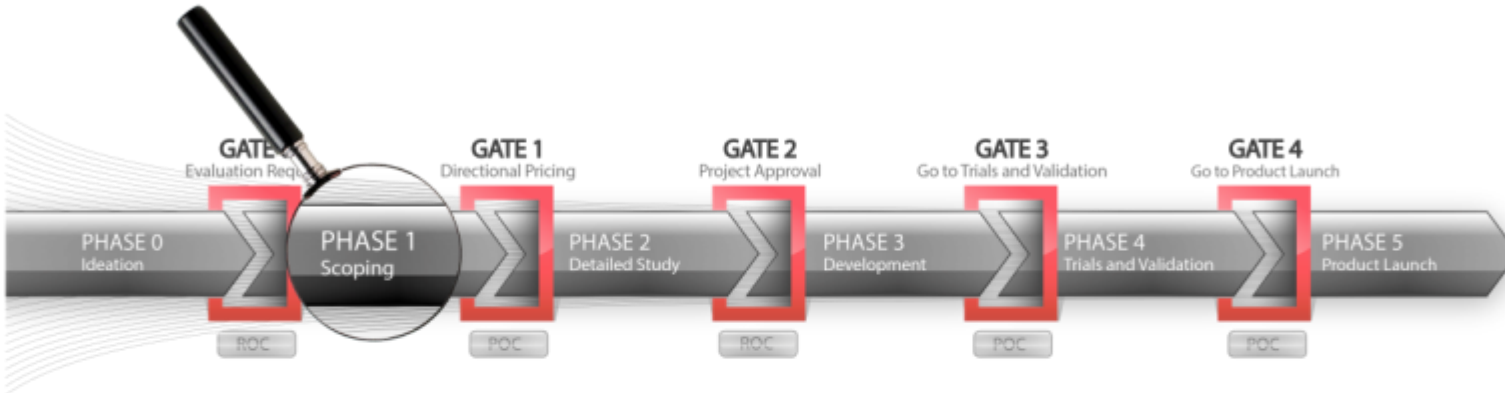


TRL- TECHNOLOGY READINESS LEVEL





PDP PHASE 1 (SCOPING)

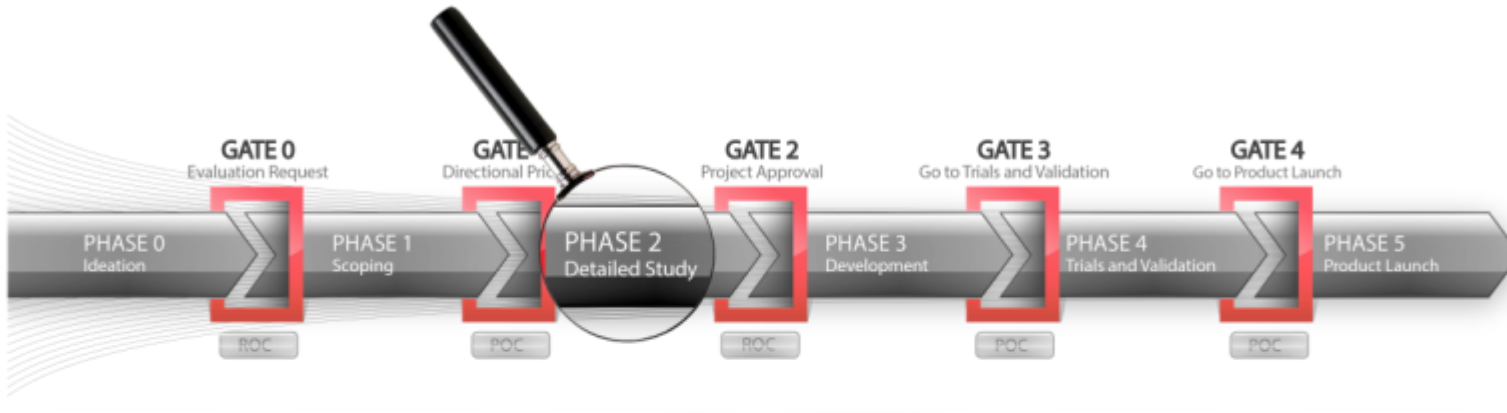


- Assign team and code name
- Design scoping
 - ✓ Free hand sketches
 - ✓ Renderings
 - ✓ Rapid prototyping





PDP PHASE 2 (DETAILED STUDY)



- Prototype molds could be developed
 - ✓ Validate functionality and physical properties
 - ✓ Perform smaller scale market tests



CIE INJECTION MOLDING EQUIPMENT

- Toshiba 120T
 - Engel 195T with 6 axis robot
 - Engel 300T with flexible side entry robot
-
- **Around 20 prototype molds / year**





PDP PHASE 3 - DEVELOPMENT



- Production mold
 - ✓ Flexible platforms (machine / robot / mold base)
 - ✓ Possible cavitation 2, 4, 6



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TECHNOLOGY





Thank you!

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