LIGHTer with 3D-Extrusion

-Industrial opportunity

-Presentation & Challenges for Sweden and SME’s out of an Entrepreneurs point of view.

Arsizio license 3D-extrusion, a globally patented production method that is used by paying customers and enables:

→ 10-40% Savings of material, weight & energy
→ 10-20% Higher efficiency in heat-transfer & solar-energy.
→ 20-80% Lower production costs
→ Elimination of machining and investments

3D-extrusion is 100% compatible with all production lines & materials in the 70 billion Euro industry:

-Aluminium, magnesium, plastic, rubber, TPE, TPV, composites & ceramics.

That makes licensing & production with 3D-extrusion a scalable business.
2 + 0,8 + 0,15 + 5 + 0,2 = 8,15 traditional cost

Total cost of conventional extrusion, material, machining & logistics

- 1.3 kg material
- Extrusion
- Logistic steps
- Machining
- Product
- Waste material

Total cost using Dynamic extrusion technique

- 1.0 kg material
- Dynamic extrusion
- Product

Reduce
- Investments
- Machining & Waste
- Weight
- Material cost
- Logistics

Improve
- Process value
- Performance
- Fatigue resistance
- Environment
- Profit

2 + 1 = 3 with 3D-Extrusion saving is 5,15 Euro
Opportunity:
Granted patents from US in the West to Japan in the East give Arsizio/Sweden “grip” on a 70 Billion Euro Potential.

Challenge: Get Swedish investors, industry & academica to take on the challenge with a small company (don’t “serve” the “big 5”, just because they can fund You today. Develop & invest in the technology they & foreign companies will ask for/need tomorrow).
Examples of customer segments & applications

- Design
- Battery cooling
- Solar Power & energy applications
- Product solutions
- Weight saving
- Ratio & aerodynamic
- Anti-slip
- Energy efficiency
Lightweight engineering
3D-extruded examples and speeds - aluminium

Thin, solid & hollow 3D-extrusions and typical production speeds.
Dynamically 3D-extruded profile with integrated 2mm deep & 2mm wide X-wise cooling channels (for battery/PV cooling)

Alternative machining-cost in specialised fully automated dedicated line for +100km profiles/year: over 30Euro/m. +investments.

3D-extruded result. Extrusion speed 0,8m/s in std 6 inch extrusionline (SAPA P3 in Vetl.). Tool fit in std dieholder. Butt-end 20-22mm Tolerances +-0,05mm (!)
Reference – Thule ”Wing bar” on global export
3D-extrusion technology give:
- 90% lower investments in tools
- 0% material waste
- 50% energy saved in production + lower fuel consumption
- 80% lower production cost
- 50% lower total production cost incl. material

Note:
The business with Thule, generates an income to Arsizio in the form of licensing and royalty revenues.
10-40% lower weight than with ordinary alu profiles: Lower Weight + less material + lower cost = higher value & possible competition to carbon fiber?

Challenge: fund the R&D necessary to prove potential in e.g. bumper-beams and reach TRL 7-8, so it can be marketed.
A) get end-users & institutes on the train today (co-financing)
B) fund it Yourself w. VC & EU
C) Make co-work with major player
D) Sell the opportunity abroad
Customers with global export and Interest from leaders.

- Non-discloseable projects & customers:
  - ZEV manufacturer
  - Global supplier in automotive & construction
  - Solar Energy company

Challenges:
- NDA´s prohibit us to market value towards VC´s
- Limited staff and Liquidity, -Limit pace of expansion
- Low interest from Swedish companies & institutes
- Sweden Not in forefront of extrusion and lightweight
- ”Expensive” research programmes 20-30% pay-back
- Licence & Royalties = incomes
- International Awards + projects & RFQ´s from End Users abroad
- Chance to make the World a Better Place
- The most exciting job: never develop – re-design, revolutionise.
- Combined with The Challenge itself.

Why don´t You just give UP?
Executive summary

- Patented paradigm shift
- In business w. references
- 70 Billion Euro Industry
- Scaleable business model
- 100% compatibility
- Award winning Company
- Weight/materials saving
- Energysaving
- 100% compatibility
- 200 – 3000 times faster than 3D printing(!)

Executive (provocative) Challenge Summary

- Financing/create Hype (Investors get Hype not Topology optimization)
- Get it up to TRL 7-8 and benchmark it against CFRP with LCA and costs.
- Find the right Partners, Licensees, Apprentices and Scientists to bring it out
- Build R&D cluster (is it possible in Sweden? Necessary to involve the “elite”?)
- Make institutes and Uni´s invest in it (don’t just follow big 5, lead them)
- Make R&D affordable in programmes/go abroad.
- Spread the word: educate customers, designers, consultants and students
- Build up a 3D-Extrusion Research facility/center in Sweden
3D-extruderade topologioptimerade profiler
3D-extruderade topologioptimerade lättmetallkomponenter (Al, Mg) som ett lättare, kostnadseffektivare, mer robust och miljövänligt alternativ i fordons & byggapplikationer.

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Arsizio presenterat vid workshop 13 maj viktigt att demonstrera vilken potential tekniken har, behöver intresse från OEM