CARBON NANOTUBES AS ADDITIVES FOR 3D PRINTING MATERIALS
3D PRINTERING INDUSTRY

PROBLEM:
low mechanical strength & durability
only prototyping is possible
We developed ADDITIVE MATERIALS based on CNTs which will allow to print

**REAL THINGS** for **REAL USE**!

- increase strength in **340%**
- increase durability by **4 times**
- reduce CO2 in **22%**
Our additives can be used in polymers, plastics, metals for:

- Aerospace and Defense
- Healthcare
- Automotive
- Industrial
- Consumer Products
- Education and Research
- Others
Market size of 3D printing industry

16B EUR in 2020 with CAGR 26.4%*

*Source: © Statista 2020
BUSINESS MODEL

Selling Additives

10K EUR per kg

Technology licensing

Royalty %

3D PRINTING MATERIALS PRODUCERS

In the next 2 years: production capacity - 480 kg/additives/year. 6 clients.
Annual revenue 5.9M EUR, profit 3.9M EUR
POTENTIAL CUSTOMERS
Producers of 3D printing materials/equipments & Chemical producers

PILOTING TESTS:
- Liquid polymers (resins) – 3 MoUs
- Filaments – 3 MoUs

PRE-ORDER:
- for 24kg of our additives per 1 year (estimated revenue 240K EUR)
COMPETITIVE ADVANTAGES

3D Strong

- CNTs Purity level: 99.5%
- Modified additives depend on applications

Competitors

- CNTs Purity level: 65-75%
- A unified approach to additives is not suitable for all applications
### 3DStrong Additive Product Sheet

<table>
<thead>
<tr>
<th>Technical properties:</th>
<th>Control samples: Material based on acrylate polymer</th>
<th>Samples with wt% 0.001 of 3DStrong CNTs</th>
<th>Increased by (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile stress at destruction (MPa)</td>
<td>12-20</td>
<td>41-55</td>
<td>+200</td>
</tr>
<tr>
<td>Tensile flexibility module (MPa)</td>
<td>490-650</td>
<td>2200-2600</td>
<td>+320</td>
</tr>
<tr>
<td>Tensile stress at flow (MPa)</td>
<td>9.7-15</td>
<td>50-56</td>
<td>+330</td>
</tr>
<tr>
<td>Tensile deformation at flow (%)</td>
<td>6.9-7.7</td>
<td>4.5-4.7</td>
<td>-37</td>
</tr>
<tr>
<td>Tensile deformation at destruction (%)</td>
<td>17-49</td>
<td>5.1-9.5</td>
<td>-78</td>
</tr>
</tbody>
</table>

**Benefits:**

Our technology of using modified CNTs as additives for 3D printing materials allows achieving the values of mechanical characteristics (e.g., tensile stress at destruction) corresponding to that of the materials themselves (without additives) due to the strong bonding of layers by means of CNTs.
**IP PROTECTION**

- Know-how in process of CNTs manufacturing
- Know-hows in CNTs modification and in process of bonding additives with materials

**Carbon nanotubes**

**Modifier based on CNT**

**The particle with modified CNT**
3D Strong TEAM

Marija Korabovska
CEO, Co-founder
17 years of experience in entrepreneurship, MBA

R&D Team
3 scientists
+25 years experience in Nanotechnology field

3D Strong hits the top 5 promising Carbon Nanotube Startups Impacting Engineering

Source: StartUs Insights Platform
OUR AIMS FOR 2021

• Launching our additives and filaments to the market;
• Establishing small-scale production;
• Fundraising.
INVESTMENT RAISED:

1STAGE - 150K EUR
SELF-FUNDED, ABC GROUP, CR FUND, EIT
RAW MATERIALS, ERAF

NEEDS:

2STAGE - 500K EUR
PRODUCTION IN SITE (10KG/MONTH)

120 KG ADDITIVES/YEAR
3 CLIENTS
ANNUAL REVENUE 1,5M EUR
PROFIT 780K EUR