HIGH TECH STARTUPS
2012 IN SWITZERLAND

2013/01/15
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a personal snapshot with focus on MEMS
Background
• startup.ch – online portal
• study published October 2012 (2nd time)
• private initiative to increase visibility

Modus Operandi
• 100 experts choose 100 best startups
• 100’000 companies founded 2007-2012
• spin-offs from companies not considered
Swiss Economy – Some Numbers

<table>
<thead>
<tr>
<th></th>
<th>CH</th>
<th>US</th>
<th>EU</th>
<th>SF Bay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants 2010</td>
<td>8M</td>
<td>315M</td>
<td>500M</td>
<td>7.2M</td>
</tr>
<tr>
<td>GDP (2011, IMF)</td>
<td>0.66T$</td>
<td>15T$</td>
<td>17T$</td>
<td>0.52T$</td>
</tr>
<tr>
<td>GDP/Capita, nominal</td>
<td>83k$</td>
<td>48k$</td>
<td>35k$</td>
<td>72k$</td>
</tr>
<tr>
<td>GDP/Capita, PPP (2011, IMF)</td>
<td>45k$</td>
<td>48k$</td>
<td>32k$</td>
<td>44k$2)</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>3.1% (04/2012)</td>
<td>7.9% (10/2012)</td>
<td>11.1% (07/2012)</td>
<td>7.5%1) (11/2012)</td>
</tr>
<tr>
<td>Expenditure Ratio 2008</td>
<td>35%</td>
<td>43%</td>
<td>47%</td>
<td>-</td>
</tr>
<tr>
<td>Public Debt % of GDP (IMF, 2011)</td>
<td>49%</td>
<td>103%</td>
<td>83%</td>
<td>-</td>
</tr>
<tr>
<td>Tax Rate (% of GDP)</td>
<td>29%</td>
<td>27%</td>
<td>39%</td>
<td>-</td>
</tr>
</tbody>
</table>

Data sources: IMF, wikipedia
1) proxy data for SF/oak/frem CA MSA 2) sf.org

source: interactive statistical atlas of Switzerland http://www.bfs.admin.ch/
Switzerland – fertile ground for startups:
• Center of Europe, 8m, multicultural
• Political Stability, Investment Security
• 100++ years of industry know-how
• Quality Label ‘Swiss Made’
• (General) High Level of Education
• Low Taxation, Efficient Administration (e.g. zero capital gain tax)
• Investment Availability
• High Quality of Life
• Innovation Centers
• Coaching/Transfer/Government Support
• Tech Incubators: ETH Zürich (ETHZ), EPF Lausanne (EPFL), CSEM and others...
Vision: adaptive polymer based optics as a smart, low-cost, yet high-quality alternative to traditional optics

Core Technology: Electro-Active Polymers (EAP)

Products:

- Focus Tunable Lens
- Laser Speckle Remover
- Deformable Lenses
- Transmission Gratings
- Refraction Gratings

Spin-Off ETH Zürich 2012 Top 6

2011 Top 1 Founded 2008
**Vision**

next-generation (MOEMS) - based laser scanning and microprojection technologies

**Products**

**LSCAN**

*Individual Micromirror Module*  
3-24kHz, 9-18 deg.

**MVVIEW**

*“world’s smallest laser microprojection system”*

**Core Technology**

Magnetically Actuated Scanning Micromirror  
CMOS-compatible actuation voltage (< 3V)  
High-frequency operation (up to 70kHz)  
Large scanning angle, $\leq 80^\circ$, with low power consumption  
Embedded scanning angle sensor

**Spin-Off**

ETH Zürich  
Founded 2006

2012 Top 8

2011 Top 4
Vision

thinner, low-power consumption displays dedicated to the future tablets and ultrabooks

Core Technology (not disclosed in detail)

• nanostructured fiber, < 200um
• spatially continuous illumination
• aimed at replacing white LED edge lighting

Products

• lighting solution
• optical fibre for:
  • LCD edgelighting
  • Microscopy illumination
• Machine vision inspection
• Medical / surgical lighting
• Scanners and copiers
Vision: develops and produces novel mid-infrared laser modules for simultaneous multi-gas detection

Products:
- Single-mode emission VECSEL
- Mid-infrared Center WL 3.0 - 4.5 µm
- Continuous tuning of up to 100 nm
- < 4° divergence
- Pulsed, duty cycle up to 0.1%
- Output power > 10 mWp

Core Technology:
- IV-VI Semiconductor Lasers
- PbTe, PbSe
- Piezo Tuning
- MEMS Tuning
Vision

*a breakthrough solution to continuously monitor fluctuations of intraocular pressure*

Core Technology

- Strain gauge, antenna and ASIC in contact lens
- Biocompatible materials
- On-Wafer fabrication
- EU approved, US on the way

Products

contact lens with integrated intraocular pressure sensor and wireless readout kit
Vision  relative humidity sensors and flow sensor solutions with unique performance

Core Technology

Relative Humidity: Capacitive (Polymer H₂O uptake)
Flow: SiN Membranes, incl. heater & T sensor
CMOS integrated (CMOS & post-processing)

Products

Gas Flow Sensors, Mass Flow Controllers
Liquid Flow Sensors, Differential Pressure Sensors, Relative Humidity and Temperature Sensors
Vision
unlock the information captured in images using sophisticated image recognition technology

Products
- Smart Ads
- Interactive Print
- Personal Memory in the Cloud
- API (Licensing)

Core Technology
- Compares taken image with database
- Feature Recognition
- Efficient Algorithm (SURF, Server Side)
- 28M images (2011)

Spin-Off ETH Zürich
Founded 2006
2006
2011 Top 16
n.q. 2012
Vision: efficient and cost effective energy conversion technology in the form of thermoelectric generators (TEGs)

Core Technology:

Seebeck: $\Delta T \rightarrow I$

Peltier: $I \rightarrow \Delta T$

Electroplating ‘thick’ layers of Materials with High Seebeck / Peltier Coefficients into flexible polymer molds
Vision: capturing CO₂ from air to increase energy security and to stabilize global CO₂ emissions

Core Technology:
Cyclic absorption-desorption process
Absorption – heating – desorption (by low-grade heat (e.g. solar), using silica-gel beads)

Products:
- CO₂
- On-Site CO₂ Capture
- Closed Carbon Cycle
Start your own Company!

...or find a cool job in Switzerland!

Complete list of Top 100 Startups 2012 in Switzerland on www.startup.ch

Thanks.