Covid-19 pandemic and 3D Printing

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Some actions in Aalto related to covid-19

Act early: remote teaching & research – laboratories temporally closed, now opening with restrictions

Help example in:
Modelling of the spread in aerosols
Statically analysis of the spreading
Helsinki GSE situation room - economics
Help to establish local manufacturing, 3D printing etc.

Expected that funding for University will decrease next year – especially external funding.
3D printing

From 2D slices to 3D form
- simple & easy for automation
- Building layer by layer

3D model  STL  Layers
Some of current challenges

- Extreme high global need of certain medical stuff
- Limited manufacturing in most of countries
- Availability of certain parts/products/raw materials
- High prices & delivery times
- Export restrictions
- Maintenance – restrictions in traveling
Possibilities of 3D printing

- No minimum order quantities
- Reduction of delivery time
- Local manufacturing
- Data can travel where physical parts cannot
- Parts do not have to pass through borders / customs
- Positive environmental impact – use only needed material
- Upgraded parts
- Emergency parts
- Repairing existing components
3D printing examples for covid

Nasal swaps for taking sample for testing

Face mask + lid

Venturi valve

Holder face shield
Other possibilities for 3D printing

• Spare parts for hospitals, factories, waterworks etc. Keep up the things running
• Increase the local manufacturing – not so depended on global supply chains
• Innovation potential – optimize the geometry and product
• Continuous improvement cycle
Key takeaways

• In 3D printing need to know which process and material to select. Universities have knowledge.

• If there is a problem – solution might be closer than you think – open your eyes and share the problem

• We need to work together: companies, government, universities etc. We are in the same boat!

• Need to take risks that can be controlled! Do not hide behind normal protocols and regulations!

• Not approved one might be better than having none at all
Questions?

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