

Dr. Christoph Schneeberger
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ANTEFIL
COMPOSITE TECH

**Transforming lightweight
structures**



Meet Patrick, CEO of 'Composite Parts Inc.'



“

We manufacture
lightweight structures
using fibre-reinforced
plastics



On Patrick's way to work ...



Slow production, hazardous resins, no recycling

Manufacturing
 ≥ 1 day cycle time
 up to \$ 500 k per blade



80+ meters



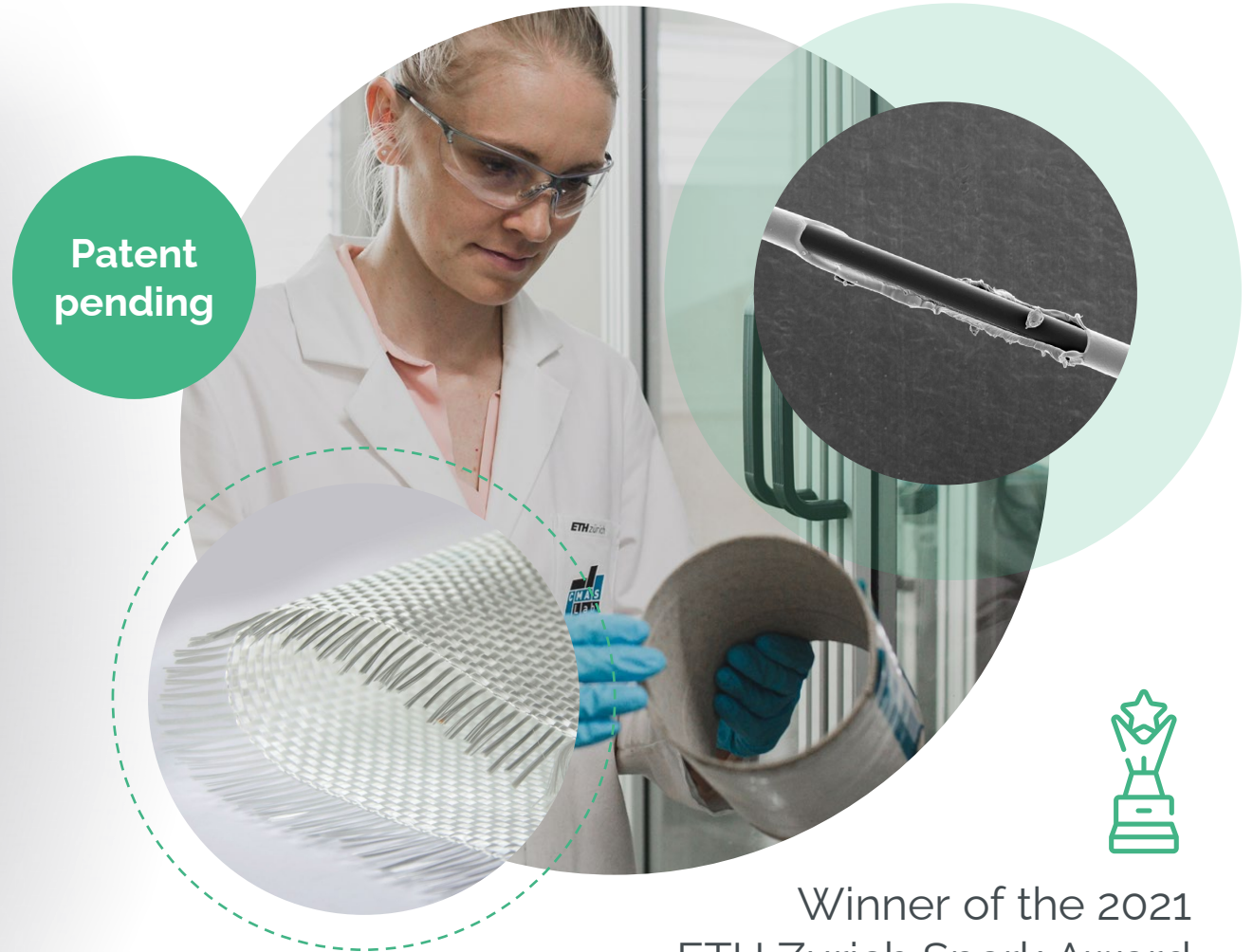
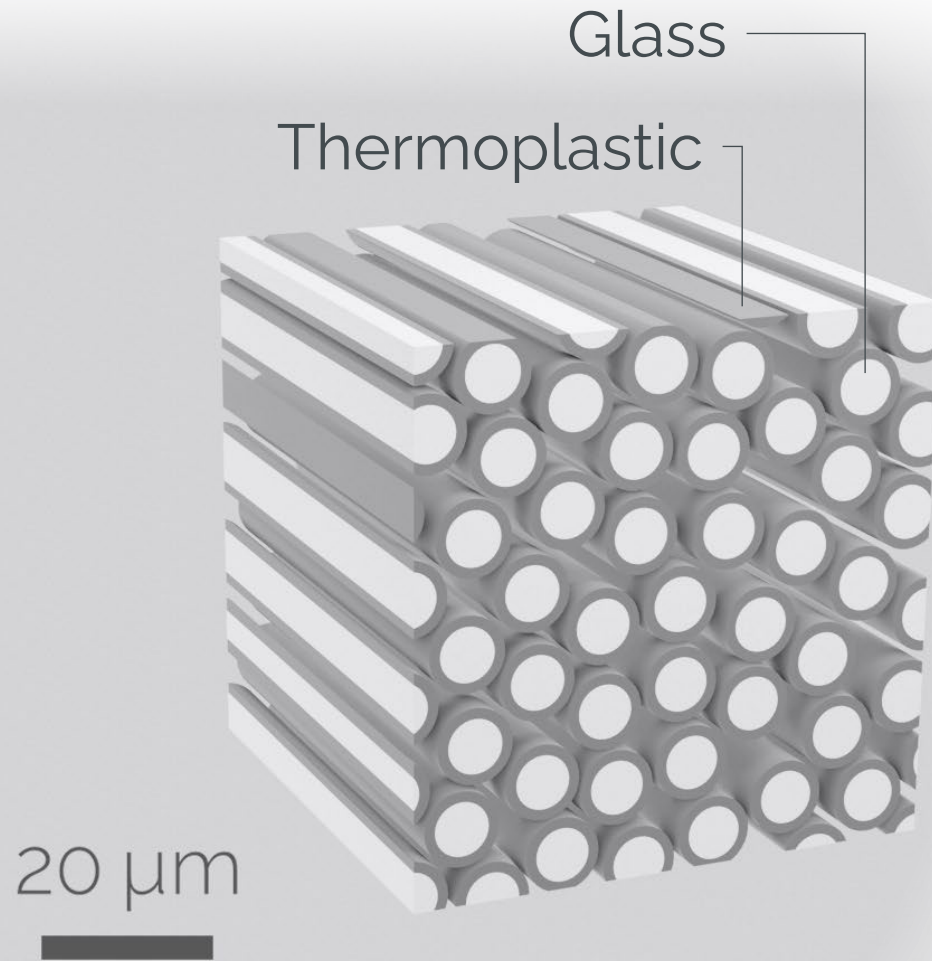
Decommissioning
 \geq \$ 400 k per turbine



... what if?



The ANTEFIL technology advantage



Patent pending



Winner of the 2021
ETH Zurich Spark Award

Our value propositions



Lower cycle time

no impregnation & curing
lower energy demand



Aerospace quality

uniform distribution
of fibres



Welding enabled

no adhesives



Recycling enabled

no more landfilling

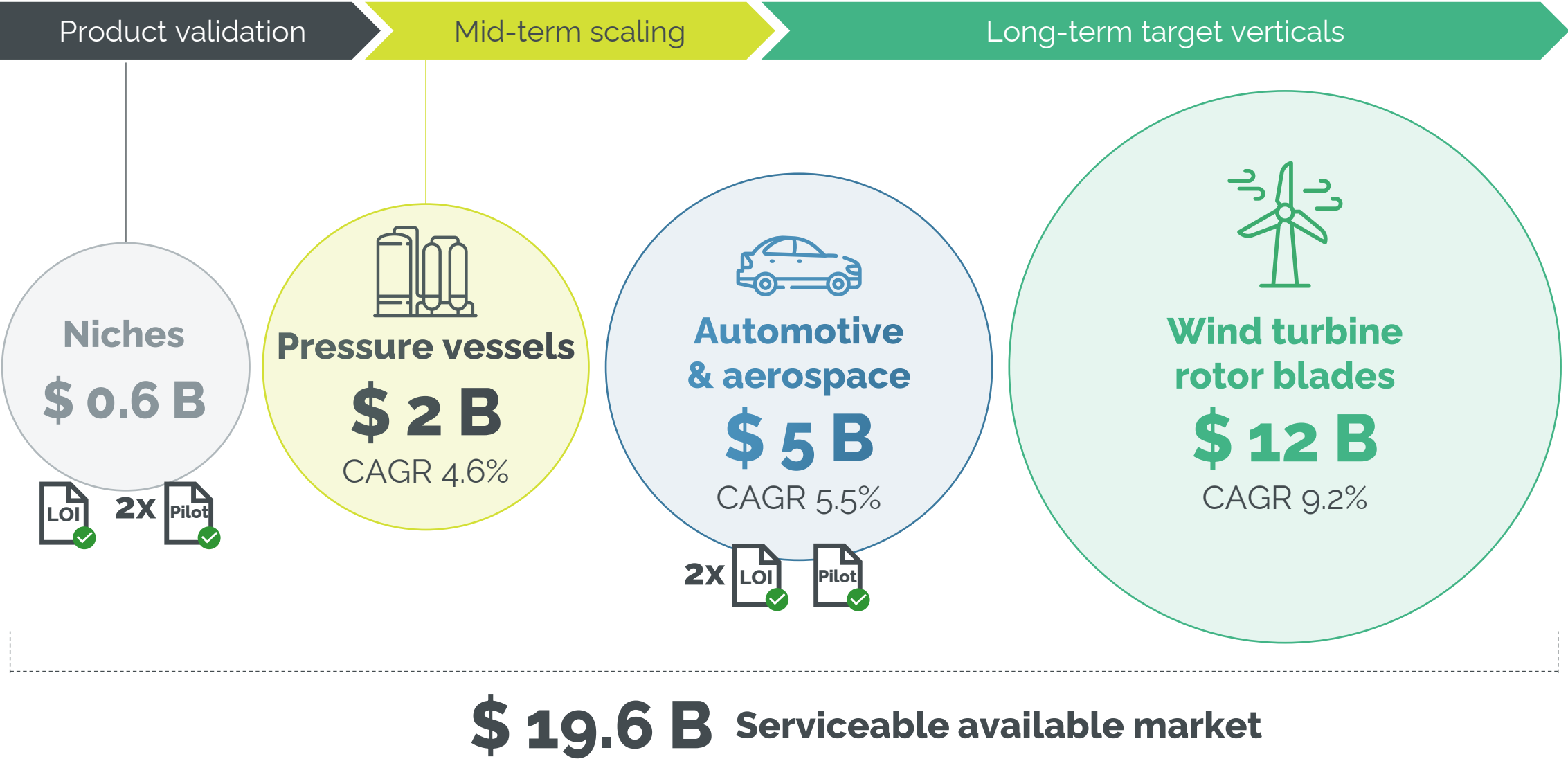


Safe

no protection needed



Our road-to-market



We are a complimentary team of experts

The pragmatist



Christoph Schneeberger

Dr. sc. ETH ME

Sales & marketing
Fundraising & partnerships
Recruiting/HR
Representation & PR

The creative



Nicole Aegerter

MSc ETH Materials

Production
Product development
Engineering
Lab management

The visionary



Paolo Ermanni

Prof. Dr. ETH ME

Research & development
Innovation management
Academic partnerships

The experienced



Thomas Billeter

Dr. UZH Economics

Financing strategy
Legal & contracts
Finance & controlling



+Full-time employee

Alex Luijten

Process engineer



Industry & markets advisor

Dr. Christian Fischer

CEO & co-founder Bcomp



Processing advisor

Prof. Dr. Joanna Wong

Assistant professor UCalgary

Exclusive pilot partnership offer

1. Sample pilot

Get **exclusive first access** and test Antefil's hybrid fibre technology

Opportunity to influence our product development early on



3-6 months

2. Fibre production scaling

We scale our fibre production and **incorporate your input**

6-9 months

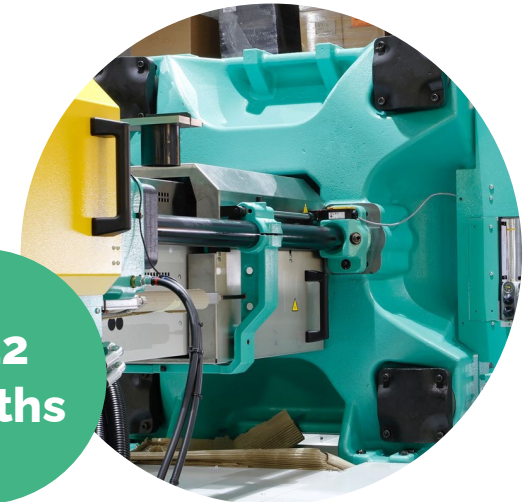
Increase your influence via a **co-funded innovation project**

5 slots available
Exclusivity within your area of activity (non-compete)

3. Application pilot

Receive batches of **hybrid fibres and textiles**

Test the developed product at **demonstrator scale** in **your application**



6-12 months

Join the ANTEFIL mission!

We are raising
CHF 1.5 M
 equity investment
 until Q1/2022

to

- Grow marketing & engineering teams
- Realize pilot production
- Enable component-sized pilots with customers

We support the UN Sustainable Development Goals



7 AFFORDABLE AND
CLEAN ENERGY



“
Let's transform the
way we produce
lightweight
structures!”

8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION





ANTEFIL

COMPOSITE TECH

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BASF
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 Innosuisse

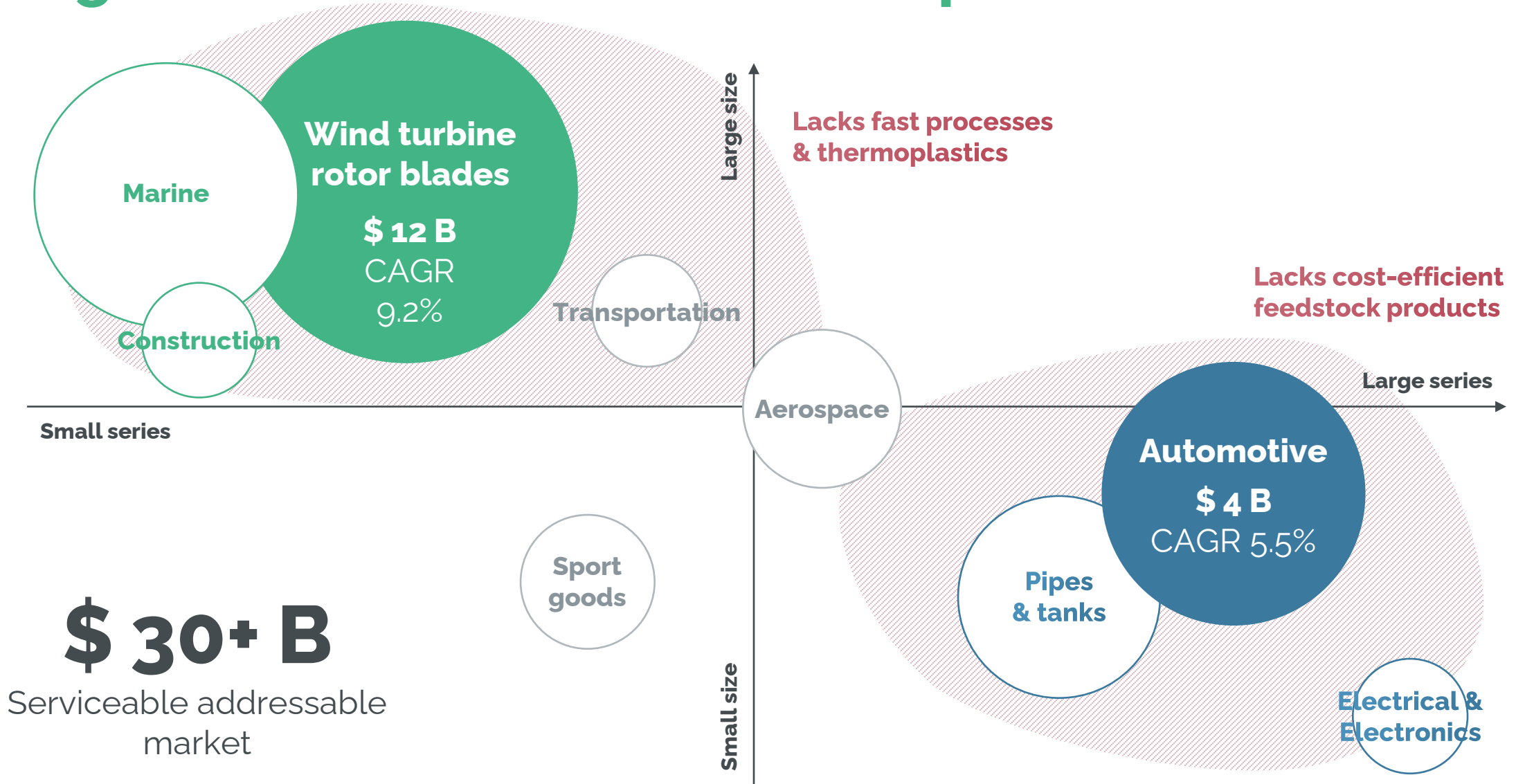
SWISS
SUSTAINABILITY
CHALLENGE

**WISSENSCHAFT.
BEWEGEN**
GEBERT RUF STIFTUNG

VENTURE
KICKSTART
YOUR WIGTECH
BUSINESS **KICK**

BACKUP SLIDES

Large markets with room for competition



Expensive feedstock for large series

Feedstock production
speed ≤ 0.5 m/min
temperatures $\geq 200^{\circ}\text{C}$

>10
CHF/kg



Part production
low market penetration

Slow, hazardous resins, no recycling for large size

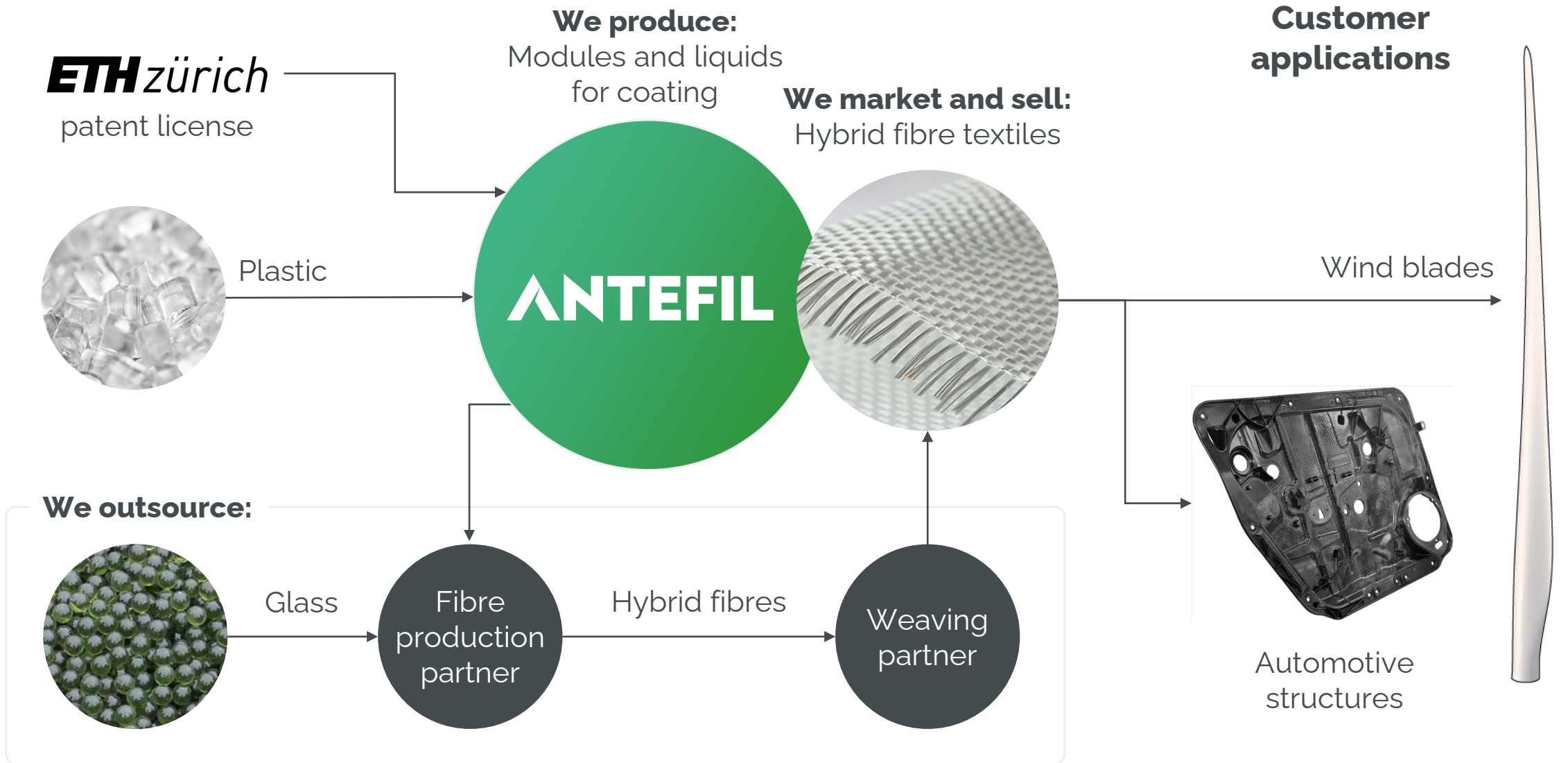
Manufacturing
 ≥ 1 day cycle time
up to \$ 500 k per blade

80+ meters



Decommissioning
 $\geq \$ 400$ k per turbine

Our asset-light production model



Business case automotive

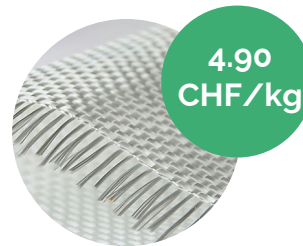
Example customer



Automotive door systems



Value proposition



Reducing direct material costs
by factor 2

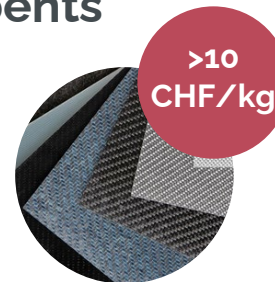
No process adaptation needed,
easy switch

Flexible textiles enables
complex geometries

Potential key account 2028

- 10 car models supplied
- 50'000 cars/model/year
- 2.0 kg/car
- **1 kt/year material sold**
- **Direct material cost: 4.9 MCHF/y**
instead of >10 MCHF/y (-51%)
- **Revenue for Antefil: 4.9 MCHF/y**
(14.4% of predicted revenue in automotive & aerospace)

Incumbents



Road to production

- Sample pilots
- Demonstrator(s)
- Pre-series
- OEM qualification
- Full scale production

Impact & business case wind power

Value proposition



Reducing
cycle time
**by over a
third**

Minimal process adaptation
needed, **easy switch**

Equal or improved
mechanical performance

Empowers desired move to
split blade designs and
**circular use of composite
materials**

Potential key account 2028

- 160 production days/year
- 3'500 kg/blade at 3.00 CHF/kg
- 16 h cycle time instead of 24 h

● **840 t/year material sold**

○ **Revenue for Antefil: 2.5 MCHF/y**

- 52 t CO₂ eq. / t material

● **-43.7 kt CO₂ eq./year through circular use!**

○ eq. to 722'258 trees grown for 10 years

○ eq. to running 9.1 wind turbines for a year



○ **Production output:
240 blades/y**
instead of
160 blades/y (+50%)

● **up to 50% faster
adaptation of
wind power!**

Establishing relationships with key market players

Product validation

Mid-term scaling

Long-term target verticals

Niches \$ 0.6 B

Confidential



Confidential



c-fmaier
COMPOSITES



Ensinger



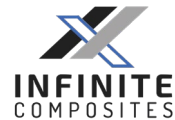
STÖCKLI

FACTION

Pressure vessels \$ 2 B
CAGR 4.6%



faurecia
inspiring mobility



COMPOSITE TECHNOLOGY DEVELOPMENT, INC.
ENGINEERED MATERIAL SOLUTIONS

Automotive & aerospace \$ 5 B
CAGR 5.5%

brose
Technik für Automobile



faurecia
inspiring mobility



AIRBUS



PILATUS

Wind power \$ 12 B
CAGR 9.2%

Vestas



GE Renewable Energy

LM WIND POWER
a GE Renewable Energy business

ENERCON
ENERGIE FÜR DIE WELT

GOLDWIND

NORDEX
We've got the power.

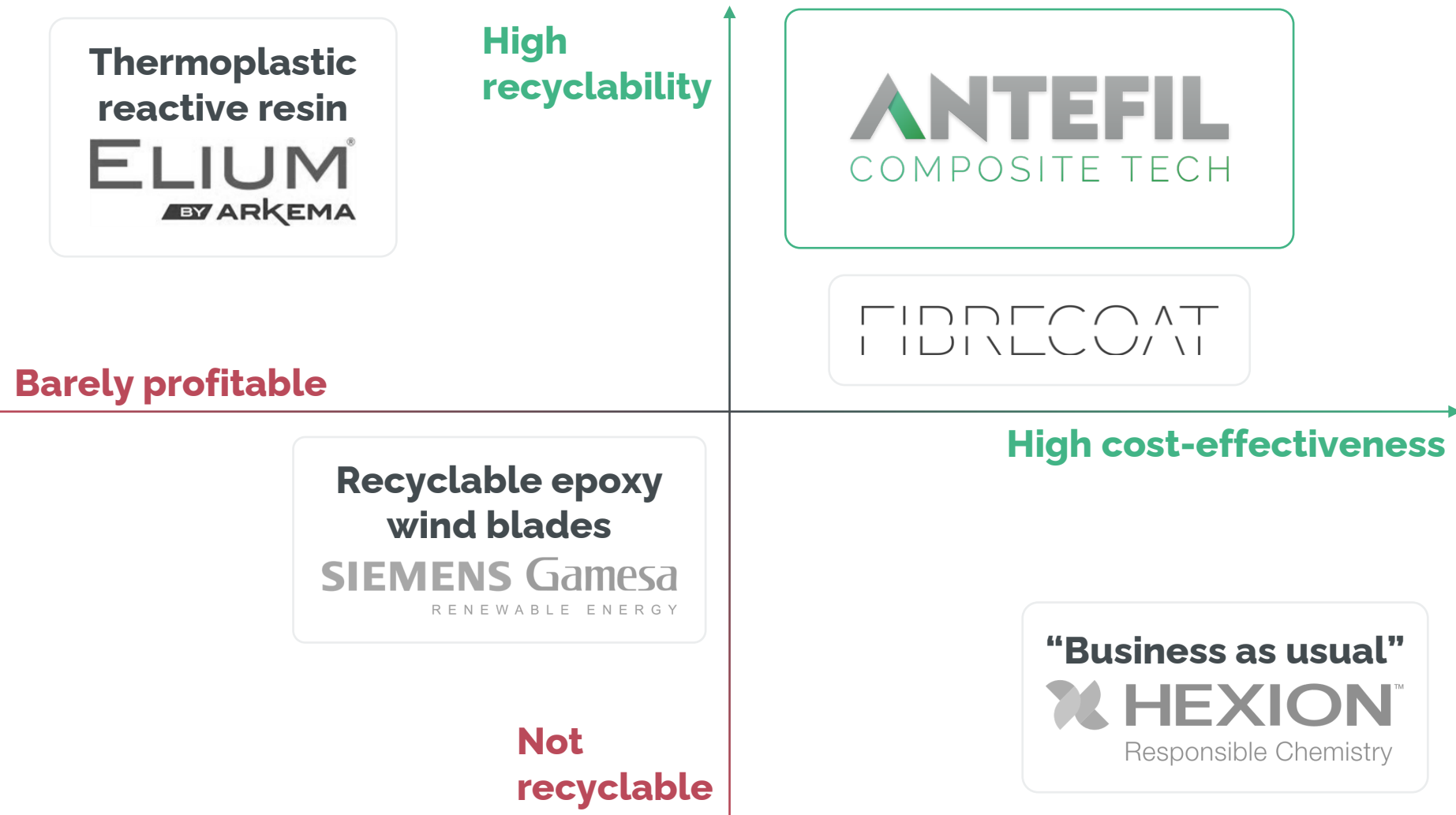


Desire confirmed

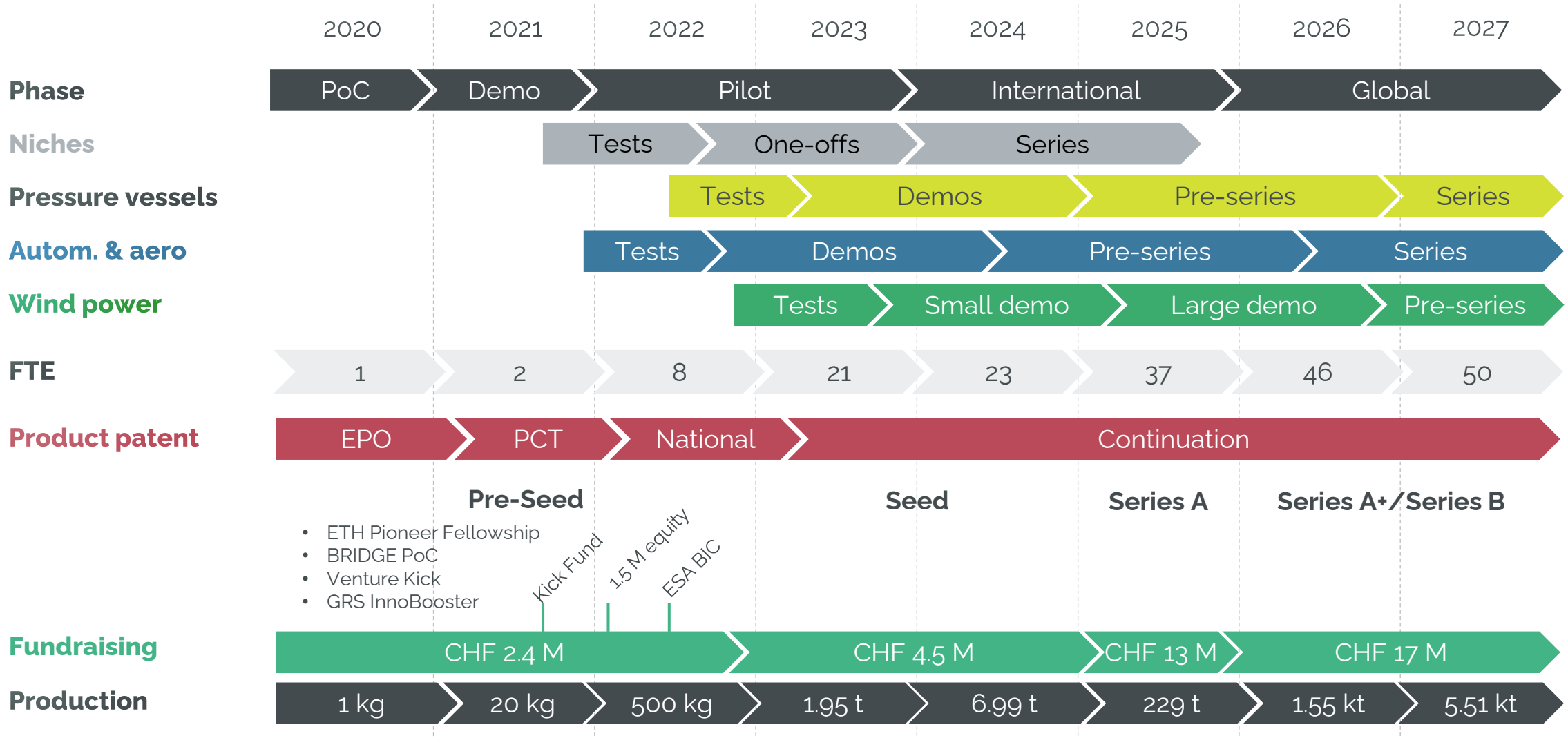


In discussion

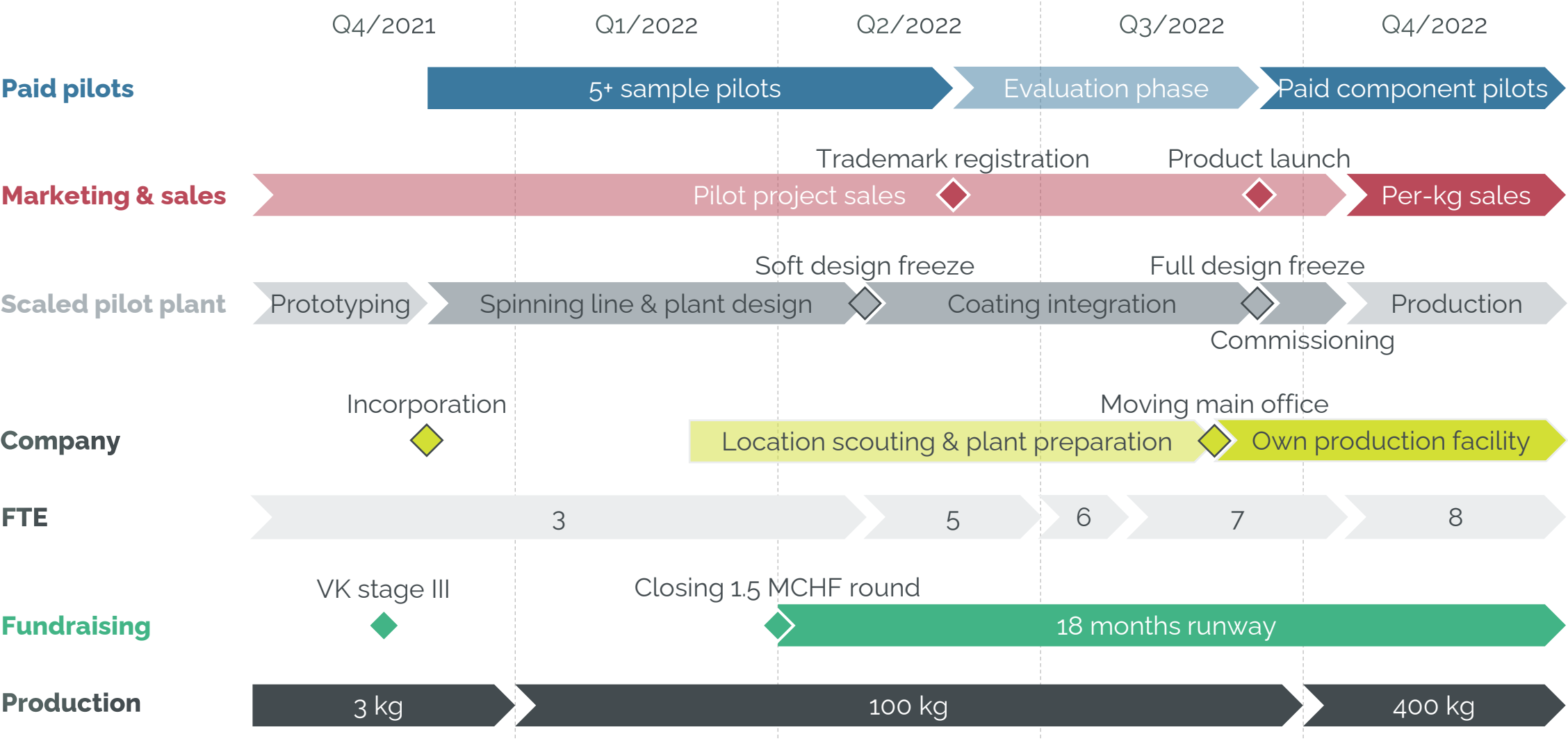
Competitive landscape



Roadmap



12-month roadmap



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We want to reach >50 MCHF revenues by 2028

	2021	2022	2023	2024	2025	2026	2027	2028	2031	2035
Total material sales	-	-	1.95 t	6.99 t	229 t	1.55 kt	5.51 kt	8.57 kt	123 kt	1.05 Mt
Total revenue	10.0 k	160 k	375 k	855 M	1.61 M	11.6 M	40.6 M	58.5 M	560 M	3.47 B
Gross margin	5.30 k	84.8 k	193 k	432 k	663 k	7.76 M	28.8 M	92.1 M	339 M	1.67 B
<i>Relative to revenues</i>	53.0%	53.0%	51.4%	50.5%	41.1%	66.8%	70.9%	70.2%	60.6%	48.2%
EBITDA	-202 k	-434 k	-1.21 M	-1.71 M	-2.62 M	2.64 M	19.7 M	29.5 M	259 M	1.19 B
<i>Relative to revenues</i>	-2017%	-271%	-322%	-199%	-162%	22.7%	48.4%	50.4%	46.3%	34.2%
EBIT	-204 k	-511 k	-1.35 M	-2.16 M	-5.14 M	-1.51 M	15.5 M	19.5 M	225 M	1.10 B
<i>Relative to revenues</i>	-2038%	-319%	-360%	-252%	-319%	-13.0%	38.2%	33.3%	40.1%	31.9%
Net profit	-204 k	-511 k	-1.35 M	-2.16 M	-5.14 M	-1.66 M	13.2 M	16.6 M	191 M	938 M
<i>Relative to revenues</i>	-2038%	-319%	-360%	-252%	-319%	-14.3%	32.5%	28.3%	34.1%	27.1%

All financials given in CHF

Financing strategy

Amount	Source	When	To get where and use of funds
✓ 150 k	ETH Pioneer Fellowship	04/2020	Technology development, business model
✓ 130 k (+32.5 k extension)	BRIDGE Proof of Concept	08/2020	Technology development, business model
✓ 10 k	Venture Kick stage I	02/2021	Business model, coaching
✓ 40 k	Venture Kick stage II	06/2021	Marketing, business case, material testing
✓ 100 k	Own savings	10/2021	Incorporation capital
✓ 150 k	Gebert RUF Stiftung InnoBooster	12/2021	Pivot to asset-light business model
2 x 100 k	Venture Kick stage III + Kick Fund	12/2021	Scaling production line with partner
27.5 k	ESA BIC incentive scheme	02/2022	Onboarding staff for product development for space application
1.5 M	Pre-seed round	03/2022	Scaled pilot production
192.5 k	ESA BIC incubation boost	06/2022	Onboarding staff for scaling, further product development and sales
4.5 M	Seed round	2023	Scaling to first series production factory w/ partner
13 M	Series A round	2025	Expanding first factory

Added value through expert partners

Fibre production partners



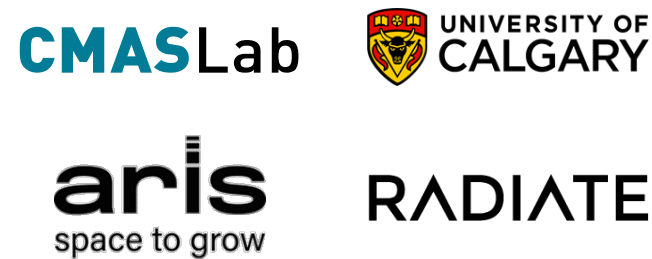
Textile/weaving partners



IP partners



R&D partners



Legal partner



☐ Desire confirmed ☐ In discussion

IP & licensing

Manufacturing



Plastic

+



FTO

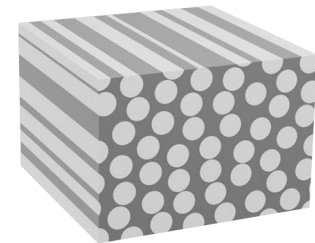
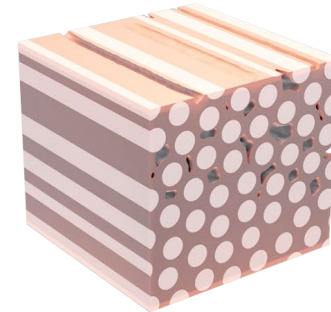
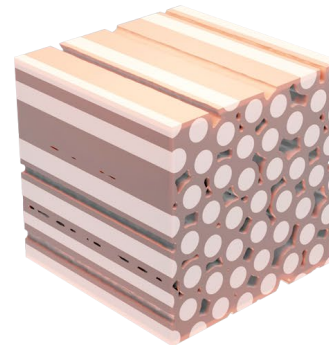
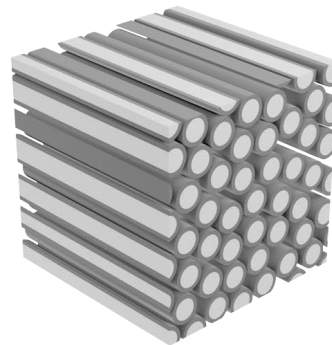


Glass

Patent protects:

Unique structure of coating enabling large structure manufacturing

Planned licensing agreement with ETH transfer



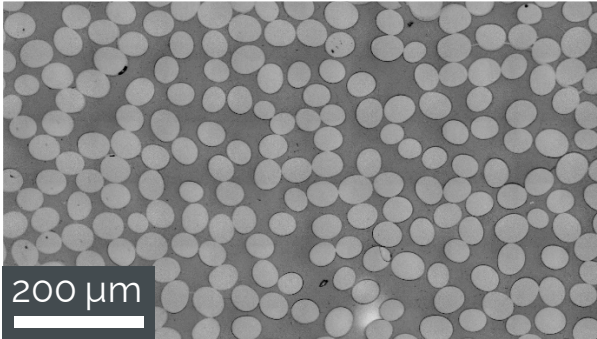
Minimal pressure



Heat

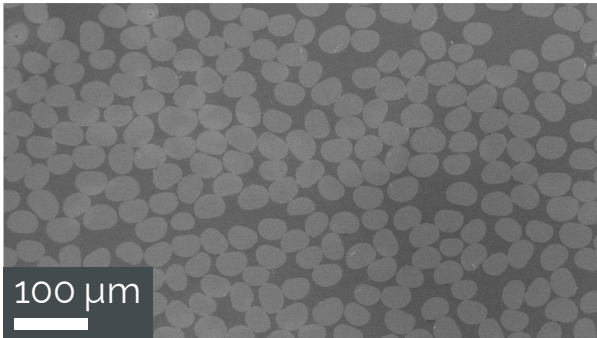
Patent
in PCT
phase

Your choice of manufacturing process



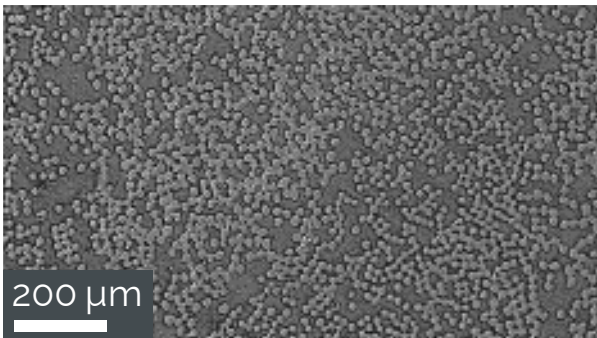
Heated vacuum bag

Replace thermosets: no impregnation, no curing
Replace autoclave: oven, heated mold, heated wire mesh



Stamp forming

Fastest possible conversion process
Preforming at room temperature possible
Replace organosheets: lower material cost

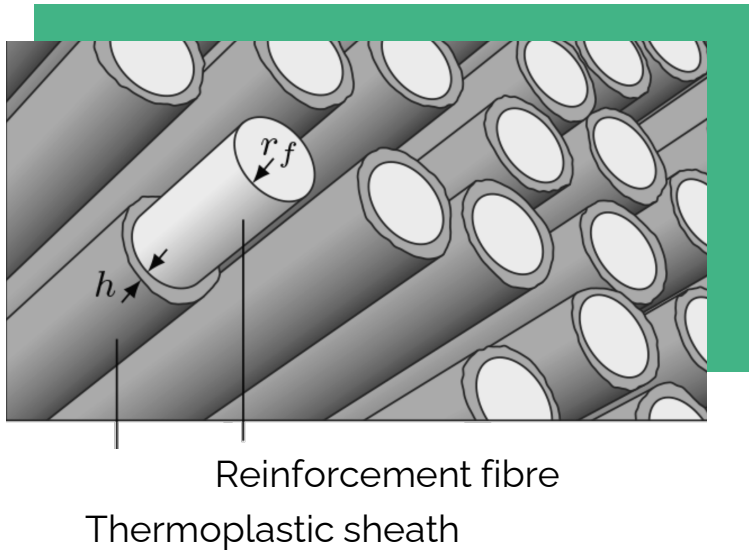


Pultrusion

Thermoset replacement: no exothermic reaction
Guaranteed full impregnation and wet-out



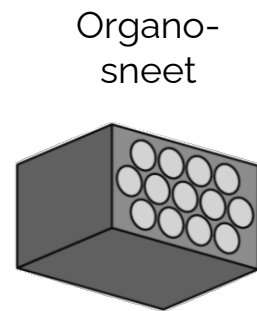
Improvement through combination



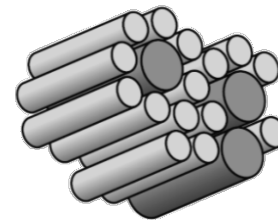
**Processable as fast
as organosheets**



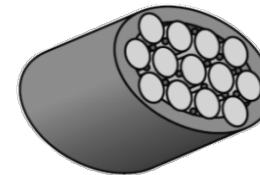
**Drapes like
hybrid textiles**



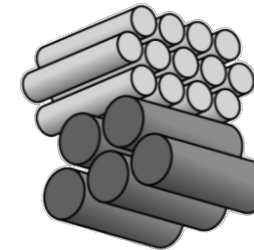
Organo-
sheet



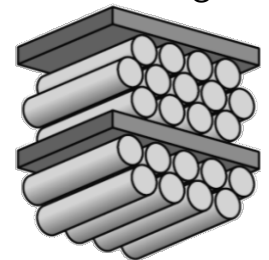
Commingled
yarn



FIT



Co-woven
fabric



Film
stacking

low

Flow length, cycle time geometrical complexity

high

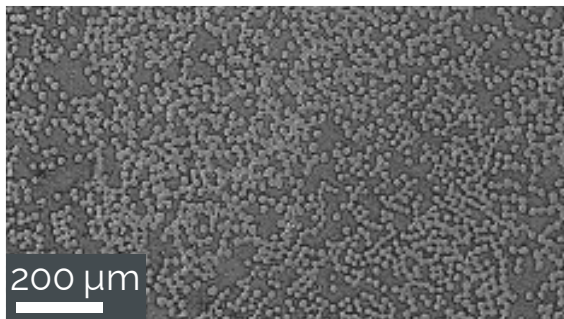
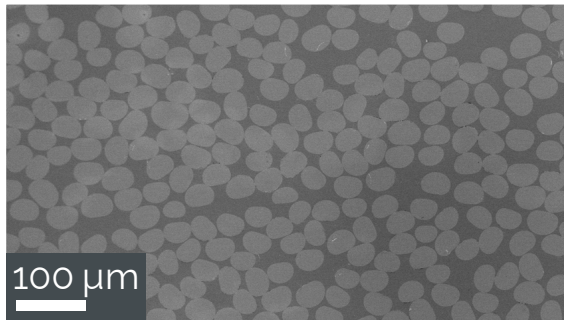
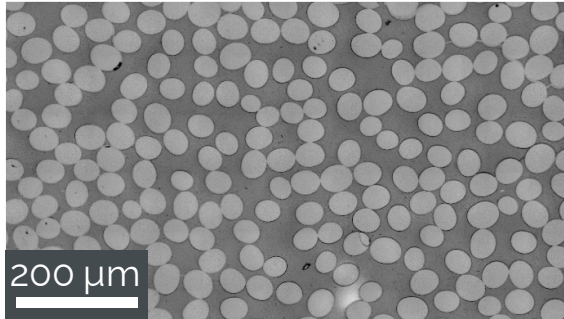
high

Material cost

low

Source: C. Schneeberger, J. C. H. Wong, and P. Ermanni. Hybrid bicomponent fibres for thermoplastic composite preforms. *Compos. Part A Appl. Sci. Manuf.* 103, 69–73 (2017).

Outperforming hybrid yarns



ANTEFIL fibres



**Heated
vacuum bag**



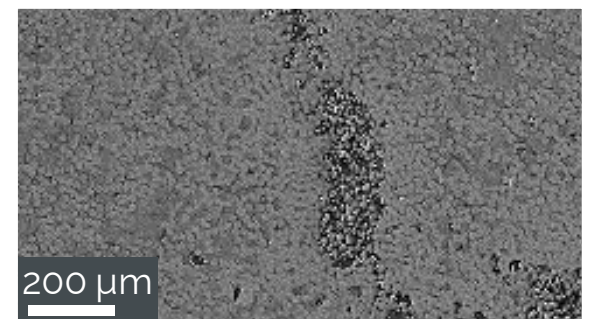
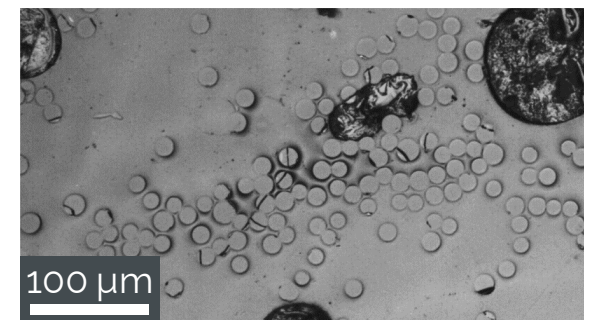
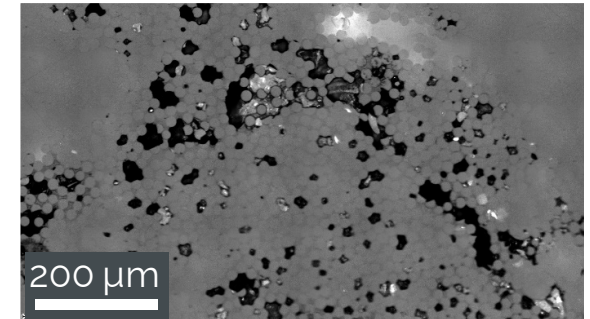
Stamp forming
no pre-consolidation



Pultrusion



Commingle yarns



Coating (matrix) materials

Polycarbonate
e.g. Makrolon 3108

Polymethyl methacrylate
e.g. Plexiglas 7N

Other amorphous coatings possible
e.g. ABS, PLA, PS
high performance plastics require further
research e.g. PSU, PEI

Semi-crystalline coatings
in development, e.g. PA

Christoph Schneeberger

Personal information: Born June 7th 1988 in Rothrist, Switzerland, Swiss, married to Elena Schneeberger, one child
Current position: Executive lead, ETH Pioneer Fellow, BRIDGE Fellow
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8092 Zurich, Switzerland
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cschneeberger@antefil.com



Education

Since 2020	CAS in Entrepreneurial Leadership in Technology Ventures, ETH Zurich
2015 – 2020	Doctor of Sciences, Mechanical & Process Engineering, ETH Zurich
2013 – 2015	Master of Science, Mechanical & Process Engineering, ETH Zurich
2009 – 2012	Bachelor of Science, Mechanical & Process Engineering, ETH Zurich
2008	Matura, Canton of Aargau, Kantonsschule Zofingen

Professional career

Since Apr 2020	Executive lead of project Antefil Composite Tech as Scientific Assistant at ETH Zurich, funded as ETH Pioneer Fellow since Apr 2020 and as BRIDGE Fellow (Proof of Concept program) since Aug 2020
Sep 2019 – Dec 2019	Visiting Researcher under a Mitacs Globalink Research Award at the Laboratory of Engineering Materials, Schulich School of Engineering, University of Calgary
Apr 2015 – Mar 2020	Scientific Assistant at the Laboratory of Composite Materials and Adaptive Structures, Department of Mechanical and Process Engineering, ETH Zurich
May 2013 – Aug 2013	Intern at Helbling Technik, Instruments & Tools, Wil SG
Oct 2013 – Apr 2013	Intern at BMW Group, series development of conventional springs/dampers, Munich
Sep 2011 – Jan 2012	Teaching Assistant (Hilfsassistent), Dimensionieren I, Centre of Structure Technologies, ETH Zurich

Current field of activity

Development and commercialization of novel intermediate materials for high-volume manufacturing of thermoplastic composites based on hybrid bicomponent fibres.

Awards

- ETH Zurich Spark Award 2021

Current appointments

- Student Member of the Society for Advancement of Material and Process Engineering (SAMPE)
- Member of the Society of Automotive Engineers

Past appointments

- Advisor of 2 Master's theses, 10 semester theses, 10 Bachelor's theses, and 4 internships at the Laboratory of Composite Materials and Adaptive Structures, ETH Zurich
- Member of the Swiss Competence Center for Energy Research – Efficient Technologies and Systems for Mobility (SCCER Mobility), Capacity Area A3
- Co-advisor to the focus project "3DCarb" at the Laboratory of Composite Materials and Adaptive

- Structures, ETH Zurich
- Academic Motorsports Club Zurich (AMZ), Formula Student seasons 2010/11 and 2011/12

Authored and co-authored grants

- Antefil Composite Tech. Venture Kick stage I, project no. 773-21, 2021.
- Antefil Composite Tech – Bicomponent fibres for high-volume composites. BRIDGE Proof of Concept, project no. 40B1-0_193702, 2020.
- Antefil Composite Tech – Hybrid bicomponent fibres for composites. Pioneer Fellowship, ETH Zurich, project no. PIO-16 19-2, 2019.
- Hybrid Bicomponent Fibres for 3D Printing. Mitacs Globalink Research Award (Canada), 2019.
- Glass mono-filament spinning machine. Scientific Equipment Program (SEP), ETH Zurich, 2017.
- Bicomponent Fibres for Thermoplastic Composites: Towards New Intermediate Materials for High Volume Manufacturing using Stamp Forming. Swiss National Science Foundation, project no. 200021_165994, 2016.

Selected publications

- C. Schneeberger, N. Aegerter, and P. Ermanni, An impregnation-free value chain for large thermoplastic matrix composites. SAMPE Europe 21 Conference, Baden, Switzerland, September 29-30, 2021.
- N. Aegerter, M. Volk, C. Maio, C. Schneeberger, and P. Ermanni, Pultrusion of hybrid bicomponent fibers for 3D printing of continuous fiber reinforced thermoplastics. Advanced Industrial and Engineering Polymer Research, in press, 2021. <https://doi.org/10.1016/j.aiepr.2021.07.004>
- C. Schneeberger, N. Aegerter, S. Birk, S. Arreguin, J. C.H. Wong, and P. Ermanni, Direct stamp forming of flexible hybrid fibre preforms for thermoplastic composites. SAMPE Europe Conference 2020 (virtual), Amsterdam, Netherlands, September 30 – October 1, 2020.
- Hybrid bicomponent fibres for thermoplastic composites – Towards new intermediate materials for high volume manufacturing using stamp forming. Doctoral diss. no. 26785, ETH Zurich, 2020.
- N. Aegerter, C. Schneeberger, S. Arreguin, J. C.H. Wong, and P. Ermanni, A scalable process for making hybrid bicomponent fibers for the efficient manufacturing of thermoplastic composites. 4th International Conference & Exhibition on Thermoplastic Composites (ITHEC 2018), Bremen, Germany, pp.131-134, October 30-31, 2018.
- C. Schneeberger, J. C.H. Wong, and P. Ermanni, Hybrid Bicomponent Fibres for Thermoplastic Composite Preforms. Composites Part A: Applied Science and Manufacturing, vol. 103, pp. 69-73, Oxford: Elsevier, 2017. <https://doi.org/10.1016/j.compositesa.2017.09.008>
- N. Aegerter, C. Schneeberger, J. Wong, and P. Ermanni, Empirical Optimization of Kiss-Roll Coating for High-Speed Bicomponent Fibre Production. SAMPE Europe Conference & Exhibition 2017 Stuttgart, 2017.
- C. Schneeberger, N. Aegerter, J. C.H. Wong, and P. Ermanni, Manufacture of Hybrid Bicomponent Fibers by Kiss-roll Coating. 21st International Conference on Composite Materials (ICCM-21), Xi'an, China, pp.3846, August 20-25, 2017.
- C. Schneeberger, J. C.H. Wong, and P. Ermanni, Bicomponent Polymer/Glass Fibres for Stamp Forming. SAMPE Europe Conference 16, Liège, Belgium, pp.168-175, September 13-15, 2016.
- C. Schneeberger, J. C.H. Wong, and P. Ermanni, Manufacturing of Bicomponent Fibers for Thermoplastic Composites: A Feasibility Study. 17th European Conference on Composite Materials, ECCM17, Munich, Germany, June 26-30, 2016.

Nicole Aegerter

Personal information: Born July 20th 1992 in Aarau, Switzerland, Swiss citizen
Current position: Operational lead, Doctoral Candidate
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Education

Since 2018 Doctor of Sciences, Mechanical & Process Engineering, ETH Zurich
2015 – 2017 Master of Science, Materials Science, ETH Zurich
2011 – 2015 Bachelor of Science, Materials Science, ETH Zurich
2011 High School Exchange Program, Selkirk Secondary School, Kimberley, Canada
2010 Matura, Canton of Graubünden, Schweizerische Alpine Mittelschule Davos

Professional career

Since Apr 2020 Operational lead of project Antefil Composite Tech at ETH Zurich
Since Nov 2017 Scientific Assistant at the Laboratory of Composite Materials and Adaptive Structures, Department of Mechanical and Process Engineering, ETH Zurich
Sep 2016 – May 2017 Teaching Assistant, Department of Mathematics, ETH Zurich
Oct 2014 – Aug 2015 Trainee at Geberit International AG, Division of Technology and Innovation, Jona
Aug 2014 – Sep 2014 Scientific Assistant at Redance GmbH, Zurich

Current field of activity

Development and scaling of novel efficient processes for the production of hybrid bicomponent fibres, a novel intermediate material for high-volume manufacturing of thermoplastic composites.

Awards

- ETH Zurich Spark Award 2021
- Forbes 30 under 30 Europe 2021 Feature Honoree, category “Manufacturing & Industry”
- Master’s thesis awarded by “Schweizerischer Verband für Materialwissenschaft und Technologie”
- Matura thesis honored by the Davos Society of Natural Sciences

Current appointments

- Student Member of the Society for Advancement of Material and Process Engineering (SAMPE)

Past appointments

- Advisor of 4 Master’s theses, 5 semester theses, 5 Bachelor’s theses at the Laboratory of Composite Materials and Adaptive Structures, ETH Zurich
- Member of the Swiss Competence Center for Energy Research – Efficient Technologies and Systems for Mobility (SCCER Mobility), Capacity Area A3
- Moderator of a student work group during ETH Week 2019 on the future in mobility
- Challenge Rumantsch, prototype creation to develop Rumantsch culture using the design thinking method. Project was awarded a ticket to appear in the ETH pavilion at WEF Davos in 2018.

- Coach, referee and active club member of uni hockey team on competitive sports level
- Group leader in High School Exchange Orientation Camps in Toronto (2012) and London (2014 & 2015)

Authored and co-authored grants

- Antefil Composite Tech. Venture Kick stage I, project no. 773-21, 2021.
- Antefil Composite Tech – Bicomponent fibres for high-volume composites. BRIDGE Proof of Concept, project no. 40B1-0_193702, 2020.
- Antefil Composite Tech – Hybrid bicomponent fibres for composites. Pioneer Fellowship, ETH Zurich, project no. PIO-16 19-2, 2019.

Selected publications

- C. Schneeberger, N. Aegerter, and P. Ermanni, An impregnation-free value chain for large thermoplastic matrix composites. SAMPE Europe 21 Conference, Baden, Switzerland, September 29-30, 2021.
- N. Aegerter, M. Volk, C. Maio, C. Schneeberger, and P. Ermanni, Pultrusion of hybrid bicomponent fibers for 3D printing of continuous fiber reinforced thermoplastics. Advanced Industrial and Engineering Polymer Research, in press, 2021. <https://doi.org/10.1016/j.aiepr.2021.07.004>
- C. Schneeberger, N. Aegerter, S. Birk, S. Arreguin, J. C.H. Wong, and P. Ermanni, Direct stamp forming of flexible hybrid fibre preforms for thermoplastic composites. SAMPE Europe Conference 2020 (virtual), Amsterdam, Netherlands, September 30 – October 1, 2020.
- S. Bodkhe, L. Vigo, S. Zhu, O. Testoni, N. Aegerter, and P. Ermanni, 3D Printing to Integrate Actuators Into Composites. Additive Manufacturing, vol. 35, pp. 101290, Amsterdam: Elsevier, 2020. <https://doi.org/10.1016/j.addma.2020.101290>
- N. Aegerter, C. Schneeberger, S. Arreguin, J. C.H. Wong, and P. Ermanni, A scalable process for making hybrid bicomponent fibers for the efficient manufacturing of thermoplastic composites. 4th International Conference & Exhibition on Thermoplastic Composites (ITHEC 2018), Bremen, Germany, pp.131-134, October 30-31, 2018.
- N. Aegerter, C. Schneeberger, J. Wong, and P. Ermanni, Empirical Optimization of Kiss-Roll Coating for High-Speed Bicomponent Fibre Production. SAMPE Europe Conference & Exhibition 2017 Stuttgart, 2017.
- Empirical Optimization of Kiss Roll Coating for High-Speed Bicomponent Fibre Production. Master’s thesis at the Laboratory of Composite Materials and Adaptive Structures (CMASLab), ETH Zurich, 2017.
- C. Schneeberger, N. Aegerter, J. C.H. Wong, and P. Ermanni, Manufacture of Hybrid Bicomponent Fibers by Kiss-roll Coating. 21st International Conference on Composite Materials (ICCM-21), Xi'an, China, pp.3846, August 20-25, 2017.
- Experimental Investigation of Fluid Coating Methods on the Microscale. Semester thesis at the Laboratory of Composite Materials and Adaptive Structures (CMASLab), ETH Zurich, 2017.

Paolo Ermanni

Personal information: Born June 15th 1959 in Sorengo, Switzerland, Swiss, married to Christiane, four children

Current position: Technology lead, Vice Rector for Continuing Education, Professor of Composite Materials and Adaptive Structures

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Education

1985 - 1990 Doctor of Technical Science, ETH Zurich
1978 - 1984 Diploma, Mechanical Engineering, ETH Zurich
1978 Scientific Matura, Liceo Cantonale Lugano

Professional career

Since Apr 2020 Technology lead and host of project Antefil Composite Tech at ETH Zurich
Since Apr 2003 Professor of Composite Materials and Adaptive Structures, Department of Mechanical and Process Engineering, ETH Zurich

Apr 1998 – Mar 2003 Associate Professor of Structure Technologies, Department of Mechanical and Process Engineering, ETH Zurich

Jan 1997 – Mar 1998 Consultant (Manager), A.T. Kearney, Milan

Jan 1991 – Dec 1996 Senior Engineer, Structure-pre-development and later Project Manager, Airbus Germany, Hamburg

Apr 1985 – Nov 1991 Research and Teaching Assistant, Institute of Design Methods and Construction, ETH Zurich

Jan 1985 – Mar 1985 Research Assistant, Institute of Biomedical Engineering, ETH Zurich

Field of research

The research activity of the group spans from material science to novel engineering applications, covering (i) design, fabrication and characterization of intelligent material systems, including their integration in active and passive smart structures, (ii) understanding and control of complex impregnation and curing phenomena, and (iii) development of models and more efficient numerical methods to analyze the physical behavior of material and structures and to design optimized composite and adaptive structures.

Current appointments

- Vice Rector for Continuing Education, ETH Zurich
- Academic Director of the Centro Stefano Franscini (CSF)
- Past-President of the European Chapter of the Society for Advancement of Material and Process Engineering (SAMPE)
- Member of the Council of the European Society for Composite Materials (ESCM)
- Member of the Editorial Board of Composite Science & Technology
- Field Editor of the CEAS Aeronautical Journal
- Member of International Advisory Board, Intl. Conference on Flow Processes in Composite Materials (FPCM) and Intl. Conference on Adaptive Structure Technologies (ICAST)
- Reviewer activities: manuscript review for several journals: e.g. Composite Science and Technologies, Composites Part A, Journal of Composite Materials, Journal of Intelligent Materials and Systems, Smart Materials and Structures
- Reviewer activities: project review for various funding agencies: DFG (Germany), FNR (Luxembourg), NRC (Canada), SNF (Switzerland), Innosuisse (Switzerland)

Publications

178 papers in archival publications (source: Web of Science),
191 conference contributions,
4 contributions in books.
Comprehensive list: <https://www.structures.ethz.ch/publications>

Spin-offs

Supported 5 previous start-ups originating from his lab, among them 9T Labs AG, Evolutionary Engineering AG (now Ansys Switzerland GmbH), and compliant concept AG.