

Renewable resources



Green hydrogen is produced using alkaline electrolyzers

Gas separators (diaphragms/membranes) are the core components of electrolyzers



Hydrogen use

Hydrogen storage

Industry



Hydrogen mobility



Power-to-X
CO₂-free
energy systems
(grid and off-grid)

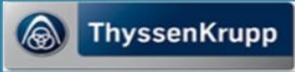













Courtesy: E.ON

MEMBRANSENZ TIMELINE

Incorporation GmbH, Bochum DE

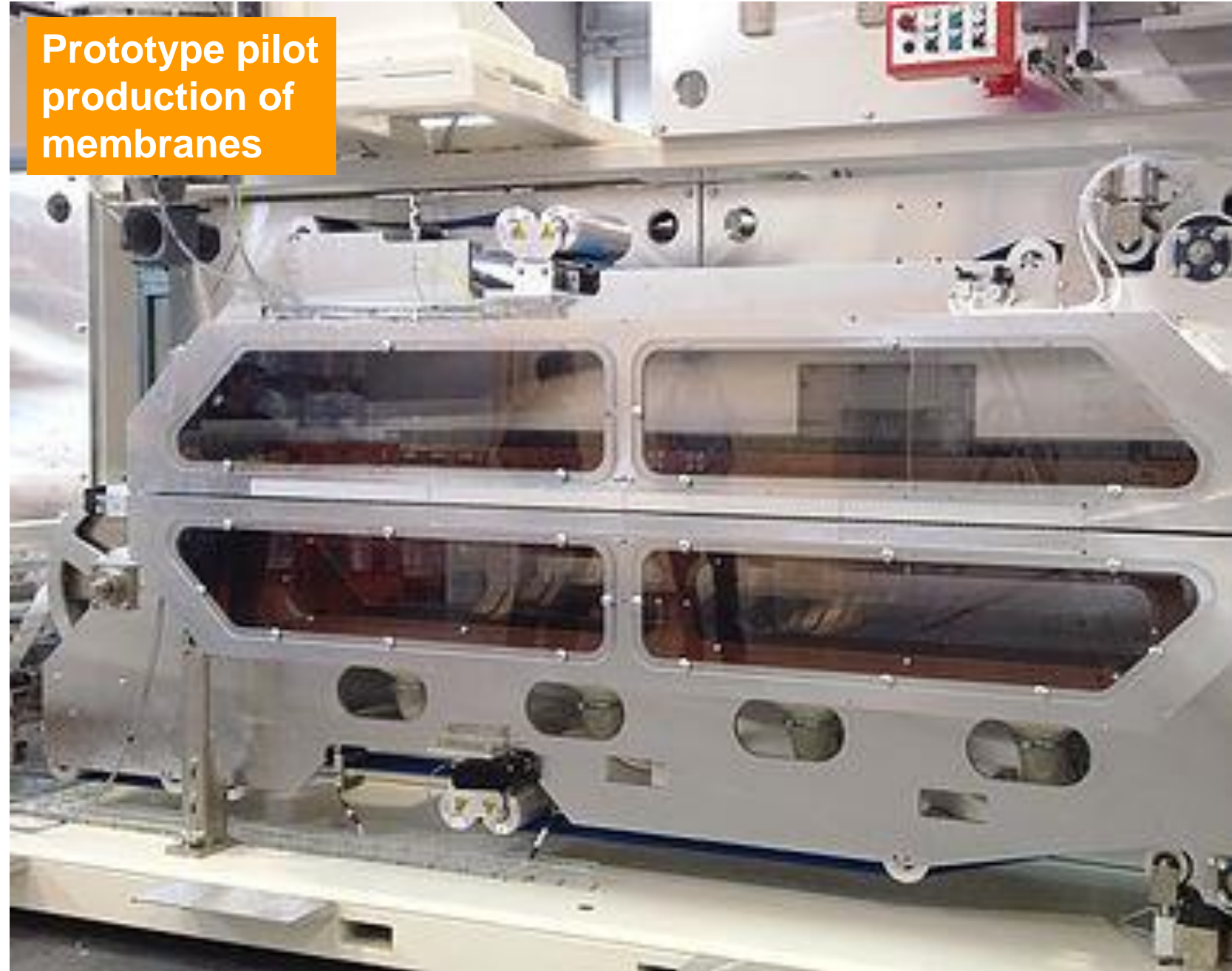


Patent - Membrane mat. - Process - Applicaton	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid orange; padding: 5px; background-color: orange; color: white;">DE filed</div> <div style="border: 1px solid orange; padding: 5px; background-color: orange; color: white;">PCT filed</div> <div style="border: 1px solid orange; padding: 5px; background-color: orange; color: white;">National phase entry: EP, USA, JP, PRC, IN</div> </div> <p style="text-align: right;"><i>New patents</i></p>
Prototypes' tests	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  DE </div> <div style="text-align: center;">  BE </div> <div style="text-align: center;">  DK </div> </div> <p style="text-align: right;"><i>Field testing JP, CA</i></p>
Production up-scale	<p style="text-align: center;"><i>DE trials</i></p> <p style="text-align: right;"><i>FR pilot production</i></p>
Finance - Awards - Grants	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <i>Gold Winner 2017</i> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  Existenzgründungen aus der Wissenschaft </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  RUHR EXPLORES SOLVATION CLUSTER OF EXCELLENCE - EXC 1069 </div> <div style="text-align: center;">  </div> </div> <div style="text-align: right; margin-top: 20px;">   KMU-innovativ </div>
R&D <i>New products / production technologies</i>	<p style="text-align: center;"><i>alkaline electrolyzers' membranes</i></p> <p style="text-align: right;"><i>photocatalytic water splitting membranes</i></p>

MEMBRANE PRODUCTION: LAB PROTOTYPE – PILOT PRODUCTION



Lab modular
membrane
production

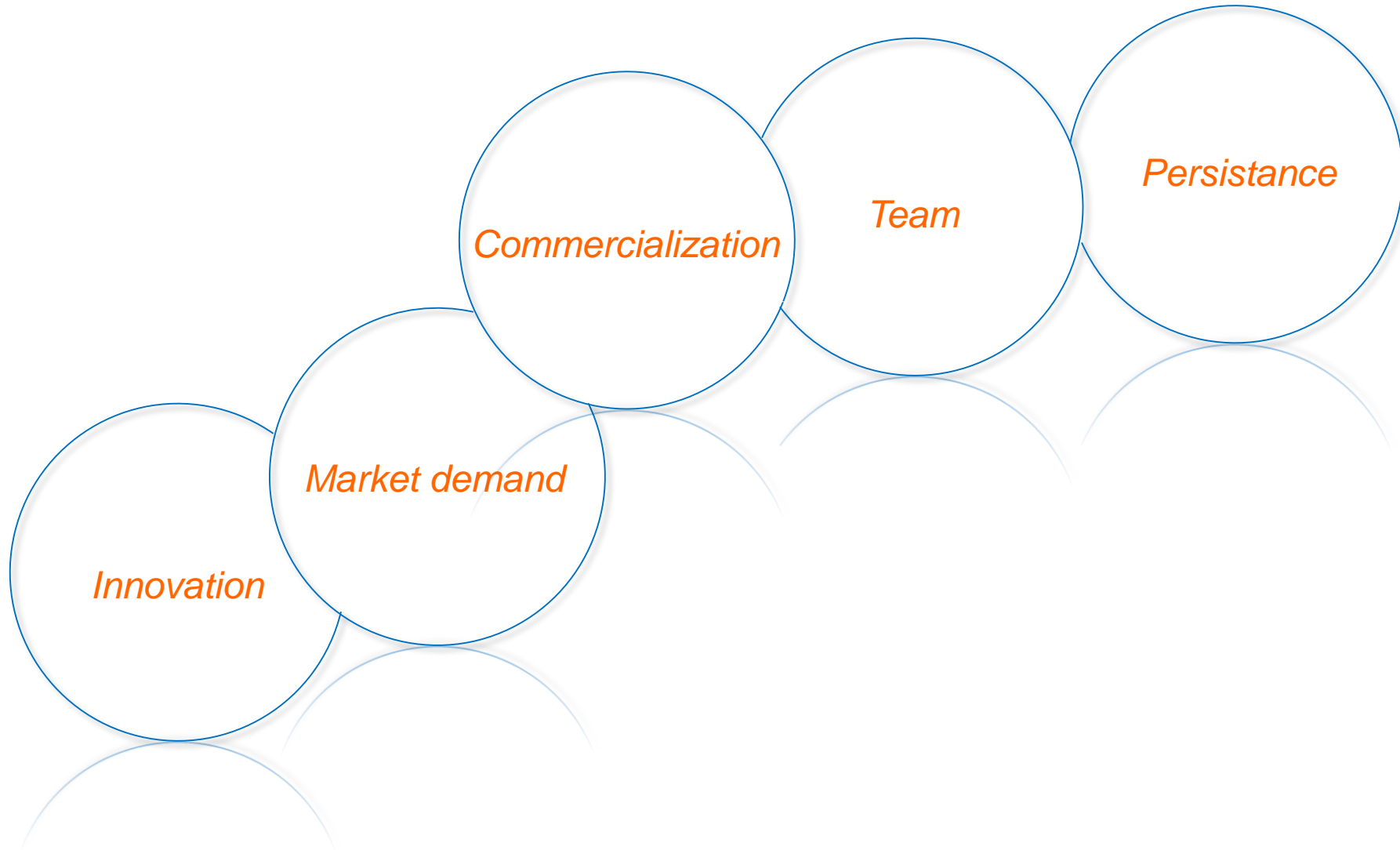


Prototype pilot
production of
membranes

**SME INSTRUMENT PHASE 1
MEMBRASENZ
PROPOSAL SUBMISSION TIMELINE**



KEY POINTS



CORRECTIONS

MEMBRASENZ proposal 1st submission – excellent from the point of technology, but to get the funding the following had to be emphasised:

- **Market talk**
 - market opportunity,
 - how this is achievable taking into account the competition.
- **Expanded market talk** in the implementation section - in-depth business information, competitions, costs, value chain, supply chain, relation to customers (Lols), market trends
- **Winning team** - well defined roles

MEMBRASENZ TEAM



**Dr Jelena
Stojadinovic**
CEO/Founder



Dr Vincent Cremet
R&D



Xi Fan
Marketing,
logistics



Gordana Glisic
Administration



Albert Darboven
J. J. Darboven



Jan Kröger
GEA President
AT & CH



Dr Martin Storb
JSP V.-President

MENTORS



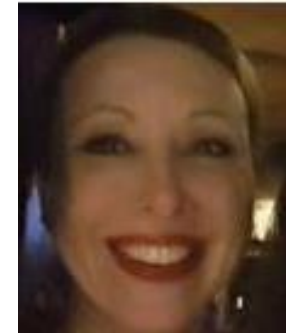
Dr Roland Kirchhof
pro Ruhrgebiet



Fabrice Digonett
DOW
New Business
Develop. Leader



Peter Böhni PhD
Bühler Director
EPFL Innovation
Satelite



D. Helen Shapiro
Make it Work!
President

Female entrepreneurship awards



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GERMANY

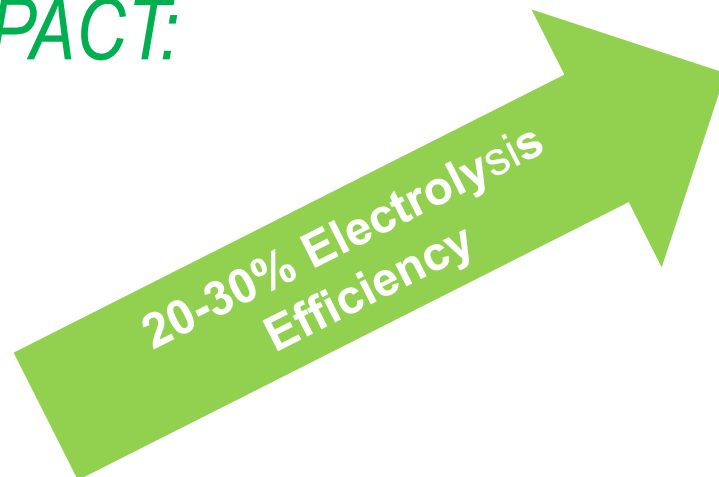
www.hannovermesse.de/en/supporting-program/specials/womenpower/

INTERNATIONAL

ADVANTAGES OF MEMBRASENZ vs STATE-OF-THE-ART ZIRFON MEMBRANE

Features	MEMBRASENZ	Zirfon AGFA (BE)
Electricity savings during electrolysis	✓	✗
H ₂ purity	✓	✓
Thermal stability	✓	✗
Easy installation / maintenance	✓	✗
Variable product thickness	✓	✗

IMPACT:



- reduced electrolysis OPEX costs (millions € savings per electrolyser / year)
- reduced H₂ price
- contribution to a faster worldwide breakthrough of hydrogen technology