DACMA

Reaching net zero with carbon removal solutions at scale

March-2024

We are building industry-grade direct air capture solutions that can be scaled to the gigaton range

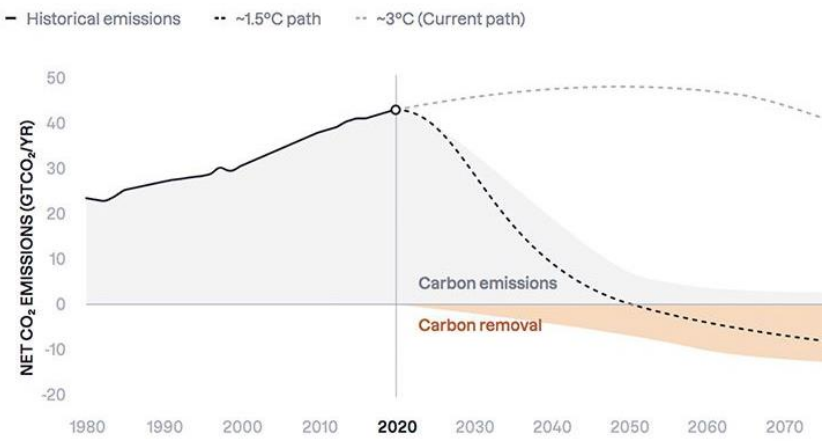
300TA of commercial deployments already now

Current costs around €400 per ton[1)] going down to <€ 100 per ton in 2030

Notes: 1) Levelized cost; Glossary: TA = tons captured p.a.

DACMA

Carbon removal is critical to reach net zero in time, but current technology solutions are too expensive and hard to scale



Renewable energies and energy efficiency will not be enough to reach net zero. Climate experts suggest 10bn tons of CO2 to be removed annually by 2050.

~$750
Average cost per ton of CO2 saved with DAC currently

0.01 Mt
of installed annual DAC capacity globally today

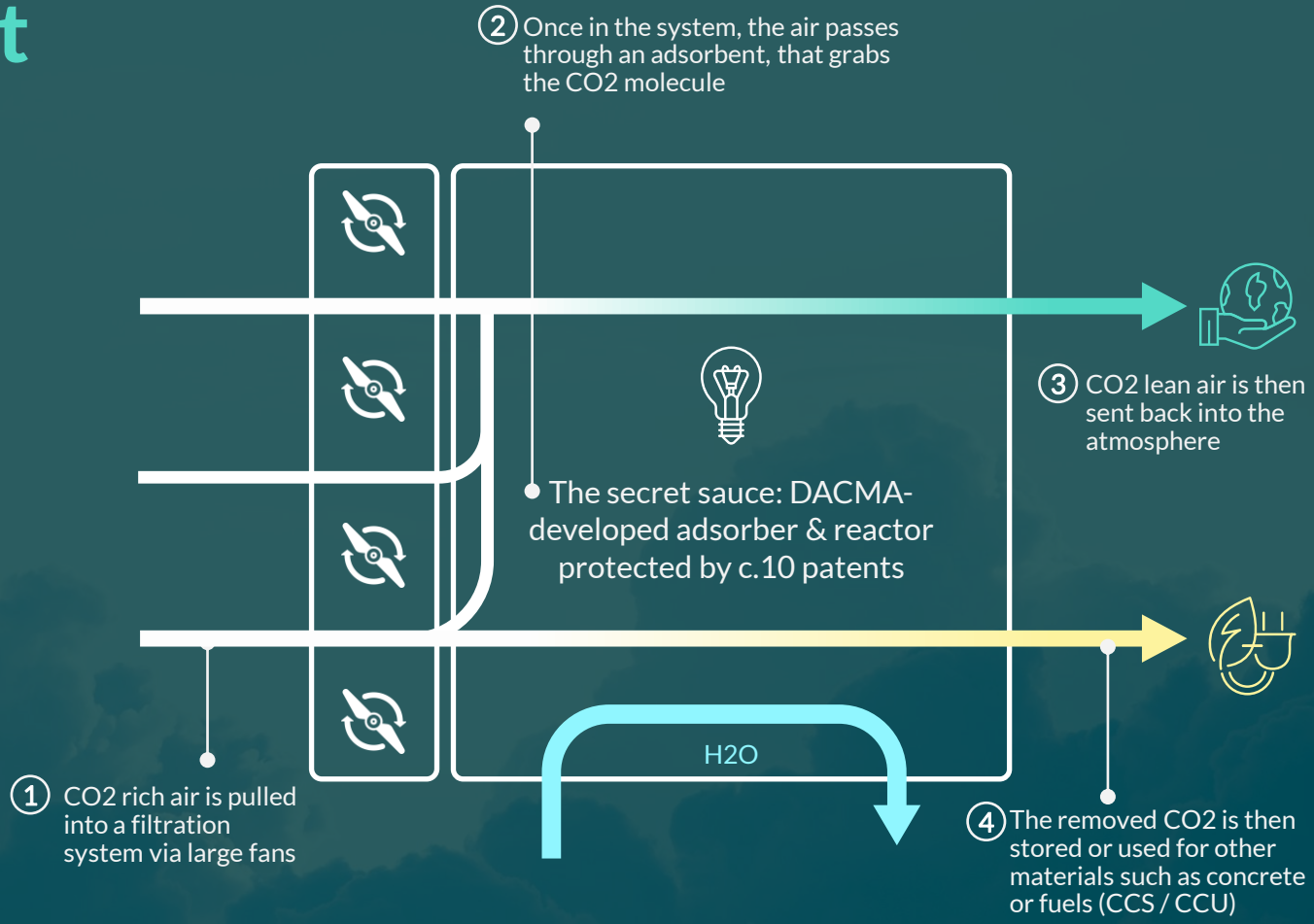
8,500x
required upscaling to meet 2030 industry expectation

Source: McKinsey, IEA; Glossary: DAC = Direct air capture

DACMA

DACMA has developed a unique approach to direct air capture (DAC) that removes CO2 from the atmosphere

- Energy-efficient
- Modular and scalable design
- Cost-effective
- Exchangeable adsorbent
- Paired with renewables
- Patented reactor design



0.01Mt today →

New regulations urge companys to deal with carbon removal now.

- By 2025, all large businesses will have to report on their plans for net zero
- More than $11 trillion of investments in carbon dioxide removal (CDR) needed to deliver net zero by 2050
- Major policies include the SEC's Climate Disclosure Rule (U.S.) and the Corporate Sustainability Reporting Directive (EU)
- How does DAC benefit customers? Attractive CO2 tax credits, utilization of captured CO2 (e.g. e-fuels) and cash effect from depreciation of the DAC unit

DACMA

1,000Mt

of CO2 to be removed p.a. with DAC by 2050

100,000x

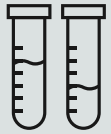
growth over the next 26 years, implying a 56% CAGR

Source: McKinsey, IEA; Glossary: Mt = Megaton

DACMA tackles a gigantic market opportunity, with multiple technologies currently being in development

DACMA

Many peers lacking delivery capabilities while still in proto-type stage



Liquid adsorbents
(High water consumption and waste generation)

Carbon Engineering

CARBON ATLANTIS

GCT
Greenlyte Carbon Technologies

Solid adsorbents
(Low energy and water consumption)

DACMA

climeworks

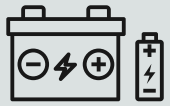
GLOBAL THERMOSTAT

CarbonCapture™

REMOVR
Carbon Removal Solutions

AVNOS

NEOCARBON



Electrochemical solutions
(In very early development stage)

MISSION ZERO TECHNOLOGIES

VERDOX

RepAir

Source: Management estimate

Leading edge in technology and product readiness

	DACMA	CarbonCapture	climeworks	REMOVR Carbon Removal Solutions	NEOCARBON
Technology	Solid adsorbents	Solid adsorbents	Solid adsorbents	Solid adsorbents	Solid adsorbents
Prototype (>60 TA per unit)	✓	?	✓	-	-
Commercial deployments	✓	✓	✓	✓	-
Installed capacity by Q2/24	315TA[1)]	-	7,000TA+	50	-
Easily adaptable to different climate conditions	✓	-	-	-	-
Swift integration of improved adsorbents	✓	✓	-	-	-

DACMA has a clear edge in technological leadership and product readiness. Market demand is huge and can easily sustain several successful players.

Notes: 1) Including DAC facility in Brazil to be completed by June 2024; Source: Management estimate

Strong technological USP in a market with high entry barriers

- Modular design that can be scaled to the gigaton range
- Easily adaptable to extreme climate conditions such as high seas or desert landscapes
- Significantly lower energy consumption compared to peer group
- Modified thermal vacuum swing adsorption process (TVSA-X) with integrated process optimization & exchangeable adsorber
- Integrated in sustainable CO2 use cases such as e-fuels and abatement programs
- 3 patents granted and 7 applied in Europe and U.S.
- Successfully performed an in-depth lifecycle assessment

Scalable and patent-protected DAC technology operating at unparalleled energy efficiency based on 10+ years of R&D

DACMA

Modular, flexible & scalable platform

Well established supply chain network across the globe

GEMÜ ebmpapst PHOENIX CONTACT KLIEWE + 15 more

We sell and deploy DAC units and will accelerate growth through a technology licensing model

DACMA

DAC solutions (today)

We design, develop and sell state-of-the-art DAC units, while providing customers with end-to-end project management from system planning to installation.

- System planning
- Feasibility studies
- DAC unit manufacturing
- DAC unit delivery
- Installation & commissioning
- After sales service

Potential customers

e.on, EDF, 1POINTFIVE, HIF, REPSOL SINOPEC

Model: Unit sale + ancillary revenues

Dedicated service & maintenance (2025)

Long-term service level agreements with customers will unlock recurring revenues.

Model: Percentage fee on the installed DAC base

Technology licensing (202X)

Upside beyond the business plan

For accelerated growth, we will sell technology licenses to enable partners to build and manage DAC plants on their own.

Model: High-margin licensing fee

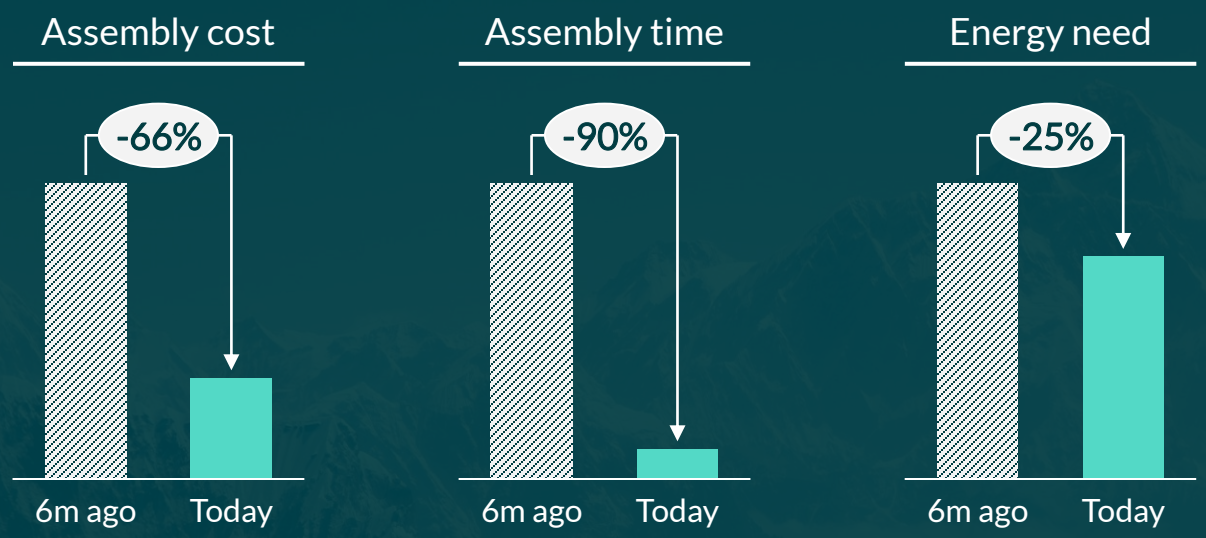
Potential partners

TotalEnergies, aramco, ExxonMobil, SIEMENS energy

Significant progress in technology development while building the organizational foundation

DACMA

Technology progress over L6M



Partnerships

Hochschule Flensburg University of Applied Sciences
SENAI CIMATEC
REPSOL
KIT Karlsruher Institut für Technologie
iuta
HAW HAMBURG CC4E
TUHH Technische Universität Hamburg
PUCRS
Universität Hamburg DER FORSCHUNG | DER LEHRE | DER BILDUNG
BASF

4.3m
total revenue FY2023

>100m
commercial projects in discussion

10
technology patents granted and filed

REPSOL

Spain-based Repsol invested EUR 3.5m in DACMA in late 2023 (thereof EUR 3m as project financing). They have looked at 50+ startups in the DAC space before making their first investment.

Experienced leadership team driven by high degree of technical expertise

DACMA

Jörg Spitzner

CEO & Founder

Serial founder with technical background in mechanical & process engineering. Over 40 years of experience in aerospace and wind energy.

AIRBUS HAW HAMBURG

Benjamin Scharrer

Chief Technology Officer

Background in wind energy and aircraft manufacturing research. Responsible for driving innovation and maintaining a high-quality development process.

FH AACHEN UNIVERSITY OF APPLIED SCIENCES

Alexander Backs

Chief Production Officer

Combining 15+ years of experience in lightweight design, composites and additive manufacturing with the ability to scale operations effectively.

HAW HAMBURG

Daniel Meyfarth

Director of Project Management

Seasoned professional engineer with two decades of experience in managing and delivering large-scale infrastructure projects across the globe.

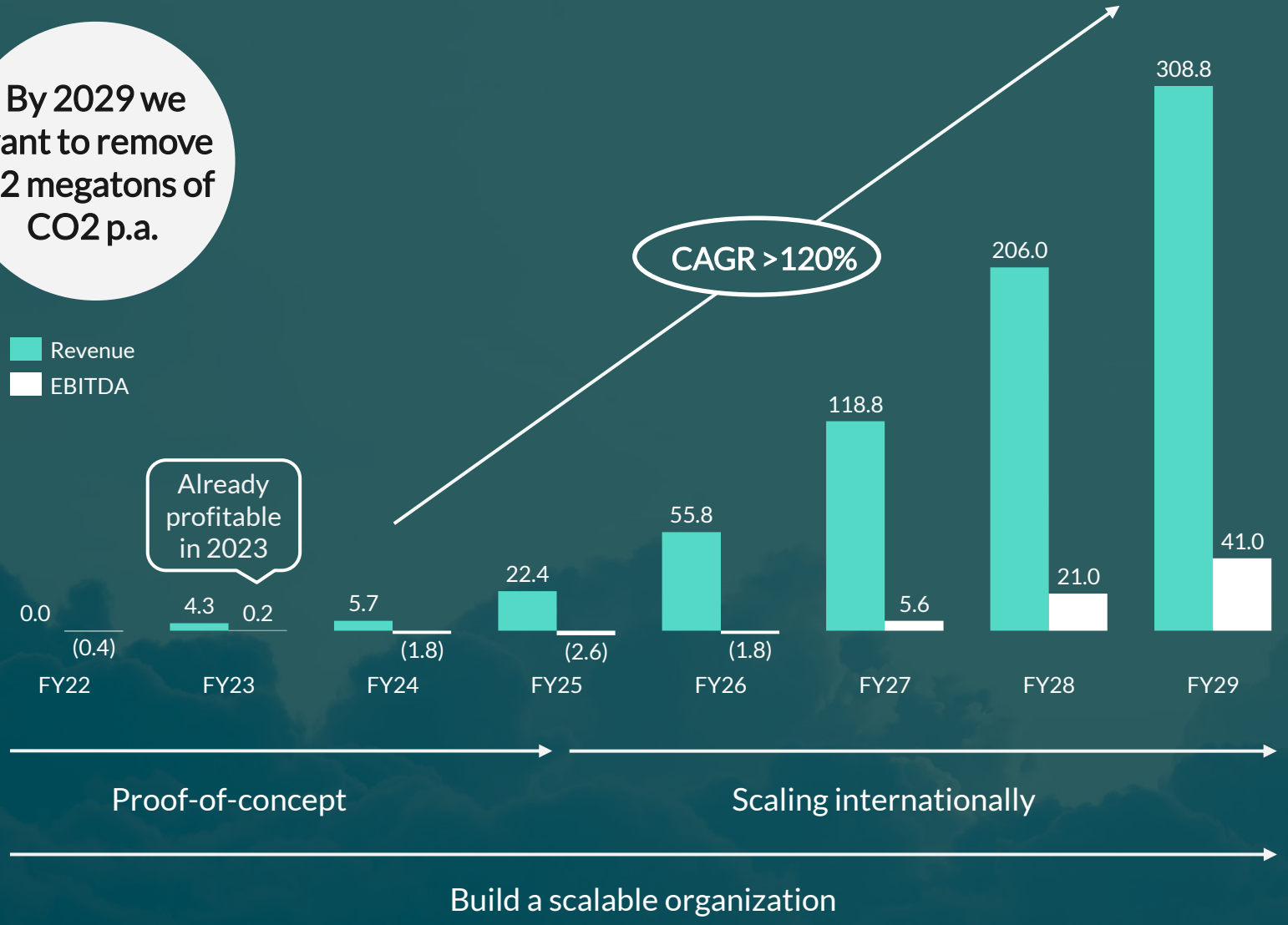
ENERCON ENERGIE FÜR DIE WELT DB NETZE bertrandt

Supported by a team of ~20 researchers, engineers and scientists based in Hamburg, Germany

Clear strategy towards achieve breakeven again in 2027

DACMA

By 2029 we want to remove 0.2 megatons of CO2 p.a.



Key assumptions on revenues

- Revenues are largely comprised of DAC solution sales
- Sale price charged per unit refers to DACMAs direct cost base plus a mark-up ranging from 60-65%

Key assumptions on costs

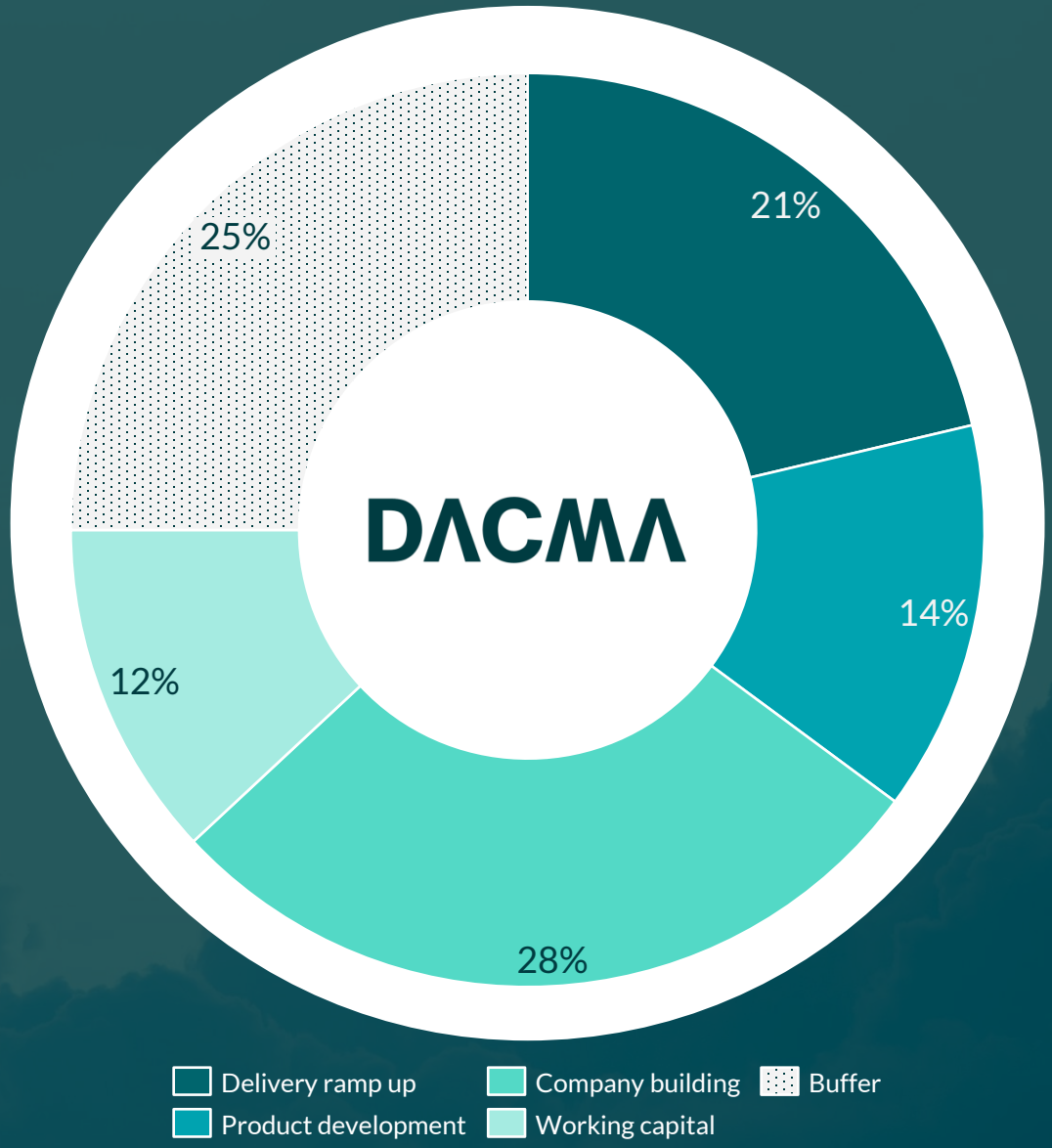
- Production cost are expected to decrease significantly over the business plan period. Cost decreases are passed on to customers
- Heavy investments in building the organization and production capabilities from 2024 onwards
- Operating leverage expected for personnel expenses and other OPEX

Breakeven

- Breakeven and positive cash flow expected for 2027

We are looking to raise EUR 20m to enhance our direct air capture solution and scale our organization

To date, we have raised EUR 500k equity investment from global energy company Repsol, which holds approx. 10% of total shares in DACMA GmbH. The remaining shares are held by Mr. Spitzner and family.



Notes: Use of funds includes all costs excl. direct costs and other cash requirements from 2024 to 2026

Six UN sustainability goals are directly addressed

DACMA

Mitigate climate change and **move closer to net zero**

Utilization of captured carbon through **e-fuels facilitates more sustainable energy mix**

Capturing CO2 emissions emitted elsewhere

State-of-the-art DAC technology enables **carbon removal** from the atmosphere

Improve air quality in both cities and rural areas

Technology can easily be **shipped around the globe** and improve air quality where most needed

Make an impact and join DACMA's mission to carbon removal

DACMA

EUR 20m

Investment round

Giant market opportunity

USD 160bn global market by 2030 with huge whitespace to be captured by technology vendors

Innovation lead

Among the most advanced and most scalable direct air capture solutions in the market

Ready to scale

Team of 25 has put years of work into the technology and is ready for the next level

Massive reduction of CO_2 emissions

Globally, DACMA's technology will save a cumulative 1Mt of CO2 by 2031

Well established supply chain network

Manufacturing partners and suppliers are able to support DACMA's growth ambitions

Fast scalability

Break-even in 2027 and more than EUR 300m total revenues by 2029

Next steps and contact details

DACMA

Potential next steps

1. Discussion of initial questions with Quantum Partners
2. Management meetings
3. Indicative Offer / term-sheet by beginning of May, 2024
4. Due-Diligence: Full access to VDR, Q&A
5. Discussion of Investment / Shareholder Agreement
6. Signing by end of June, 2024

Quantum Partners exclusively advises DACMA GmbH in this fundraising process. Please guide all communication through us.

Achim Lederle
Managing Partner

+49 172 2136 622

lederle@quantum-partners.de

Lorenz Fuglsang
Vice President

+49 151 2724 6670

fuglsang@quantum-partners.de

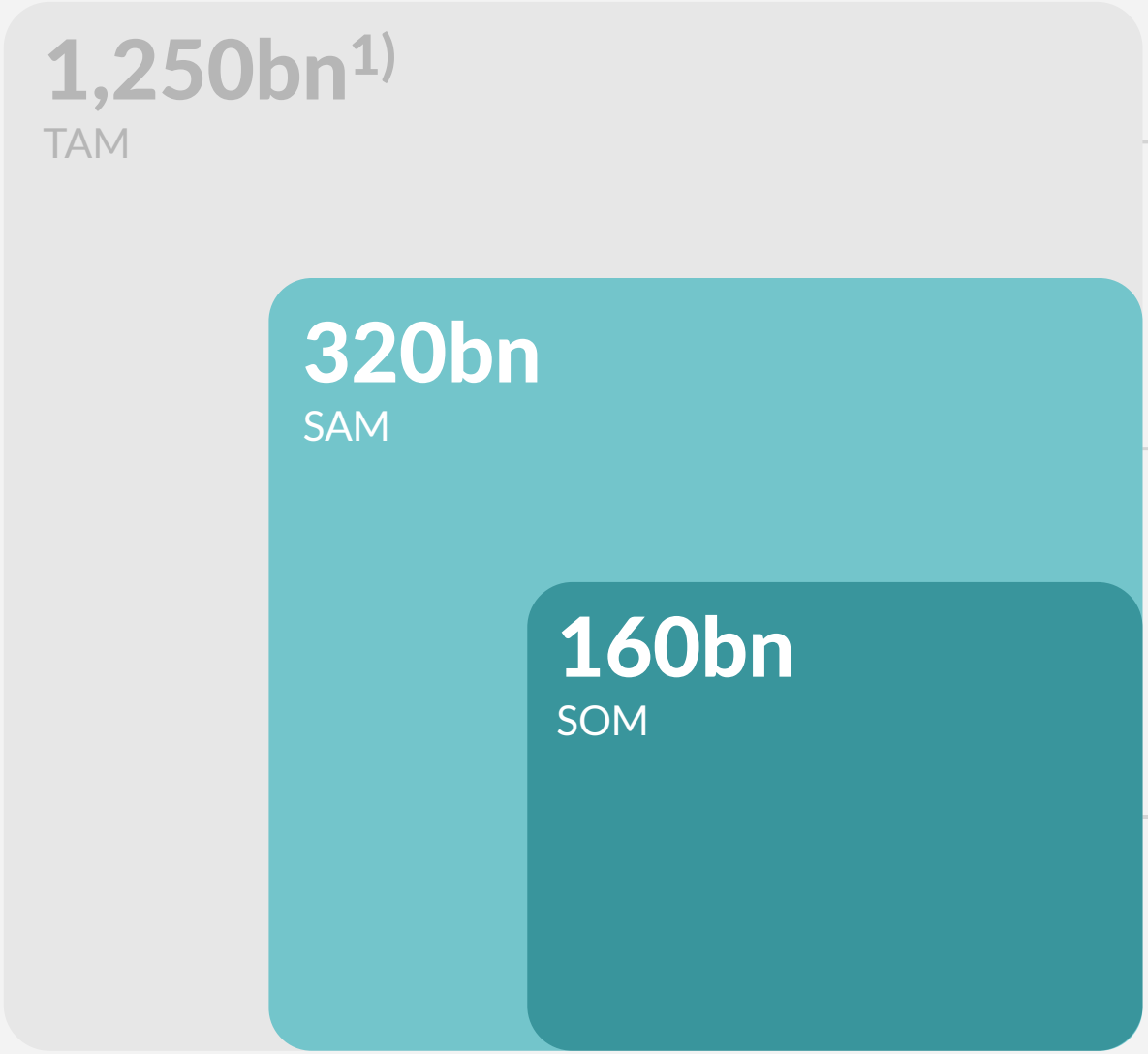
Morris Bieber
Associate

+49 176 926 65746

bieber@quantum-partners.de

Market sizing

DACMA



According to McKinsey, delivering carbon removel capacities for net zero will likely **USD 500-2,000bn of cumulative investment by 2030**

In the IEA Net Zero Emissions Scenario, DAC technologies capture more than **85 Mt of CO2 in 2030**. Market size based on levelized costs of **USD150 / ton of CO2 removed**

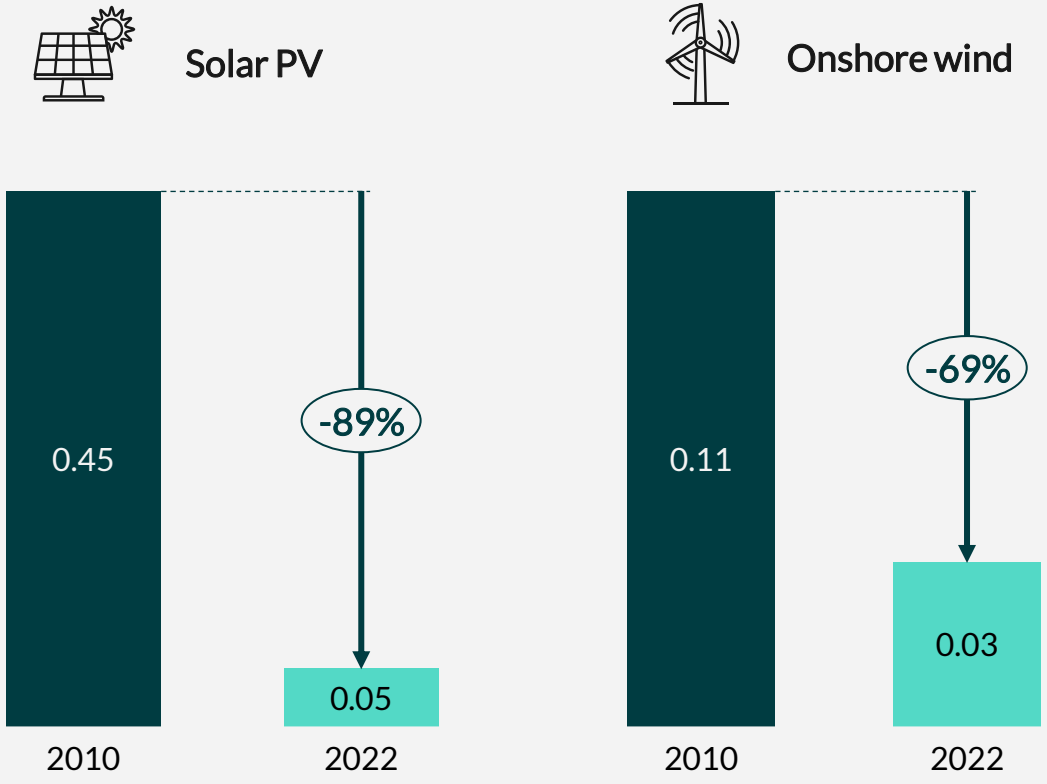
Assuming **50%** of levelized cost refer to **upfront investments** paid to manufacturers

Note: 1) Midpoint; Source: McKinsey, IEA

Cost reductions to continue as technology and supply chain matures

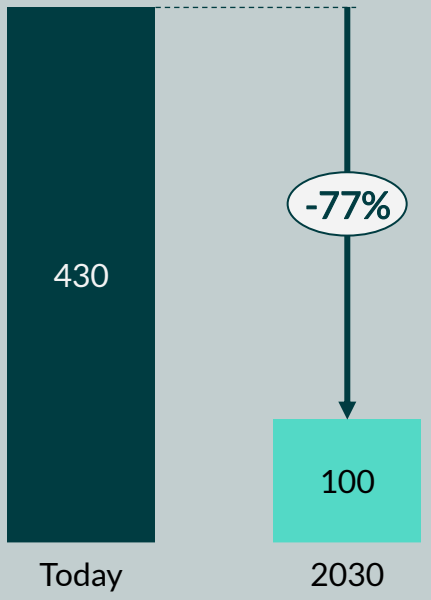
Significant cost improvements in renewable technologies

[Levelized cost of energy in 2022 USD / kWh]



Similar trajectory in DAC

[Levelized cost in EUR / ton CO2 removed[1)]]



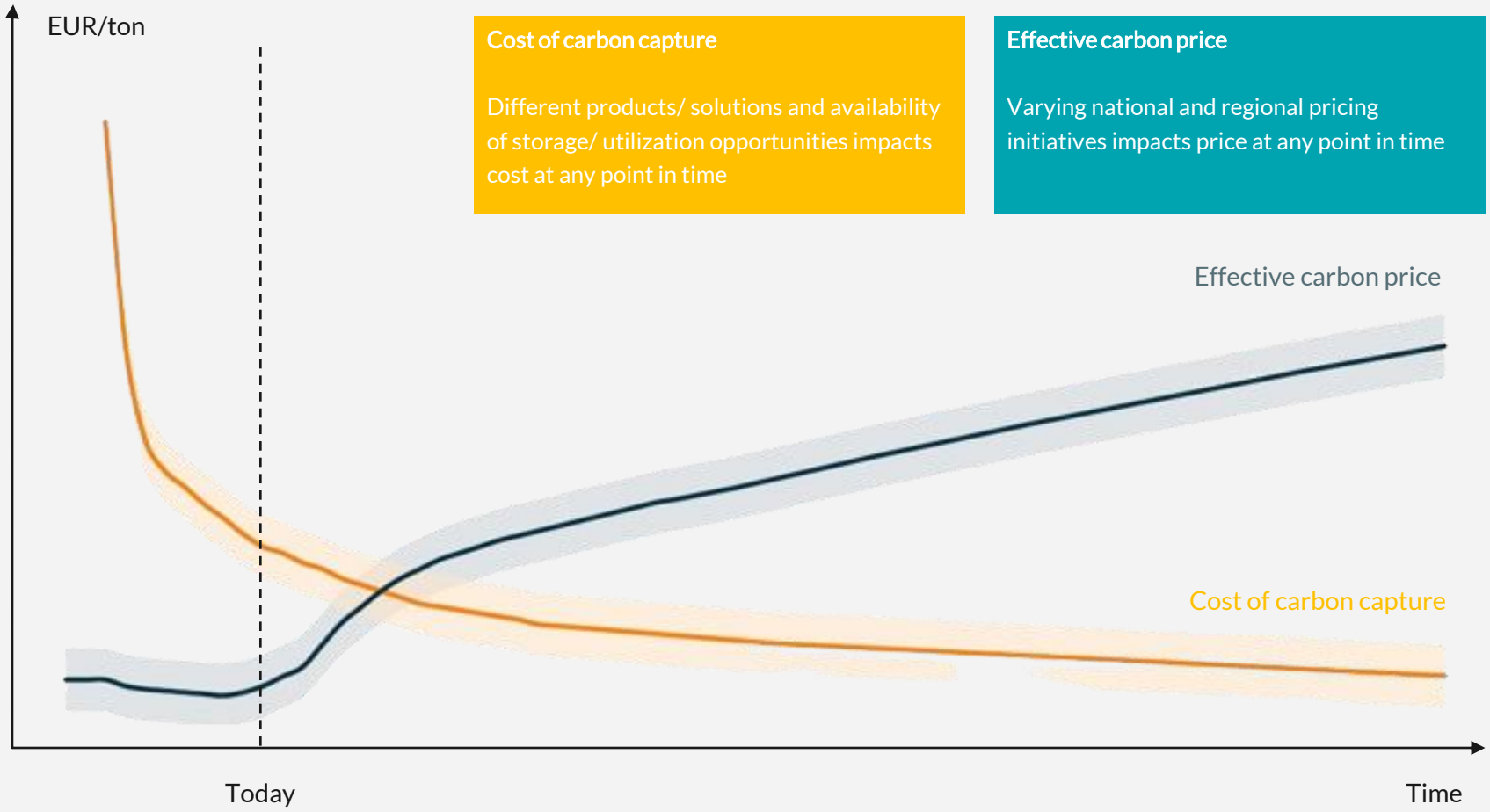
Overall cost reduction drivers

- Standardisation
- Improving technology
- Economies of scale
- More competitive supply chain

Notes: 1) Including Capex and Opex; Source: Renewable Power Generation Costs in 2022, Irena;

Project economics turning positive

More favourable market dynamics are leading to positive project economics (illustrative)



Continuous cost reductions

- ✓ Standardisations
- ✓ Technology development
- ✓ Competitive supply chains
- ✓ Learning-by-doing

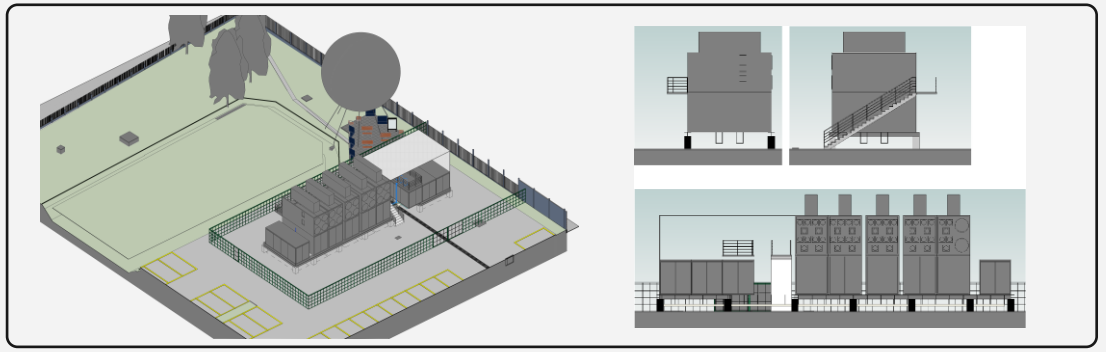
- ✓ Utilization of capt. CO2
- ✓ New carbon taxes or attractive tax credits
- ✓ Public sentiment and regulatory requirements

Favourable price development

DACMA

Case in point
Brazils largest DAC project installed by DACMA

Customer	Repsol Sinopec Brasil & PUCRS
Location	Porto Alegre, Brazil
Size	315 TA
Energy source	Solar PV
CO2 usage	Geological storage
Project completion	June 2024



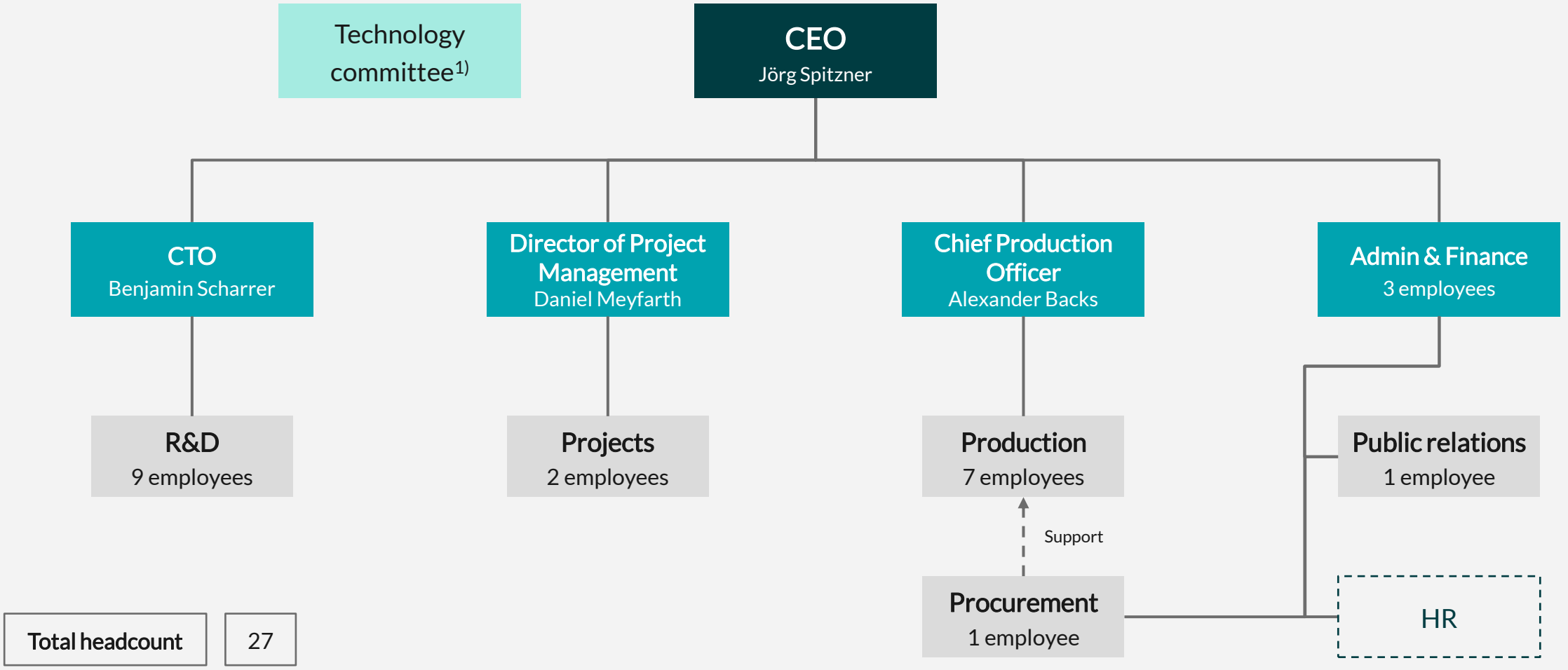
Envisaged timeline	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Product design											
Manufacturing											
Commissioning Germany											
Transportation											
Installation											
Commissioning Brazil											

Jose Javier Salinero Rodriguez
Head of R&D, Repsol Sinopec Brazil

"The ONLY direct air capture project in Brazil and a cross-country collaboration with Repsol Sinopec, DACMA and PUCRS University. A disruptive commitment to a more decarbonized world. Being part of this project is a privilege and a unique opportunity to add value to society."

Organizational chart

DACMA



Notes: As of March 2024; Headcount figures including 5 student workers / interns; 1) Comprised of scientists from Repsol

DACMA

Accelerate international growth by selling DAC technology licenses to partners

WHY?

Licensing technology allows DACMA to expand its market presence and create a new revenue stream through partners' networks, without requiring large capital investments. This strategy will enhance profitability via high-margin licensing fees and royalties while mitigating risks by transferring operational management to partners. It enables DACMA to focus on its core strength: innovation.

HOW?

DACMA must carefully select partners with the right capabilities and strategic fit. Establishing a support system for partners, including training and performance reviews, is crucial to maintaining the technology's competitiveness in evolving markets. DACMA envisages a combination of one-time and recurring revenues from partners to deploy its DAC plants.

WHO?

Potential licensing partners

TotalEnergies, SIEMENS energy, aramco, eDF, ExxonMobil

Impressions






Unmatched R&D excellence and field experience






Disclaimer

Quantum Partners GmbH (‘Quantum’) makes this memorandum available to potential interested parties on behalf of DACMA GmbH (‘DACMA‘). Quantum does not guarantee the correctness or completeness of the information included in this memorandum or of any other oral or written information made available to the interested party. Quantum does not demand that the information made available by DACMA be independently verified. It therefore does not accept any liability or guarantee in relation to the target figures and projections included in this memorandum.

All recipients of this memorandum agree that the information included is strictly confidential, and that they will not pass that information on either themselves or through third parties without the prior written consent of Quantum. No part of the content of this document may be copied, reproduced or made accessible to third parties without the prior written consent of Quantum.

This memorandum is non-binding and subject to alteration. It does not constitute (either for Quantum or for DACMA) a legally binding commitment to the sale or purchase of business shares or other assets. The content of this memorandum is not for use on a legally, commercially or fiscally binding basis – it is solely for information purposes. All interested parties should do their own analysis, checks and evaluation in order to carry out a detailed verification. Any recipients of this memorandum who do not intend to pursue this project further are requested to return the memorandum to Quantum immediately and without being asked to and to destroy any additional hard or soft copies.

Contact

Website
www.quantum-partners.de

Company details
Quantum Partners GmbH, Türkenstraße 5,
80333 Munich, Germany