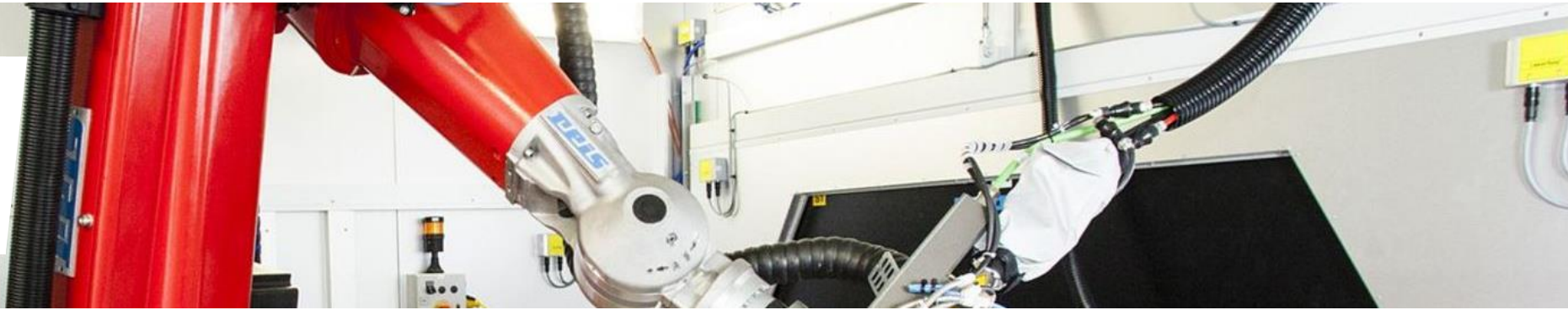


The new path to
realize the future of mobility

PEM Motion Office Mexico



„Engineering - Made in Germany“

PEM Motion was developed in 2014 within the innovative environment of RWTH Aachen University. Since then it has been offering consulting and development services in the future mobility sector with great success. Thanks to our offices in San Luis Potosí and Monterrey, we are able to serve our partners and clients all over the country.

We offer a wide range of development and consulting services for industrial production in our core competencies ...

BATTERY TECHNOLOGY



DIGITAL DRIVE



PROTOTYPING



PRODUCTION PLANNING



Today's dilemma: divergence in mobility innovation

There are currently two mutually exclusive approaches to move mobility into the future: creating bold visions on a white canvas or evolving the status quo incrementally. Neither approach delivers truly innovative, yet reality proven solutions.

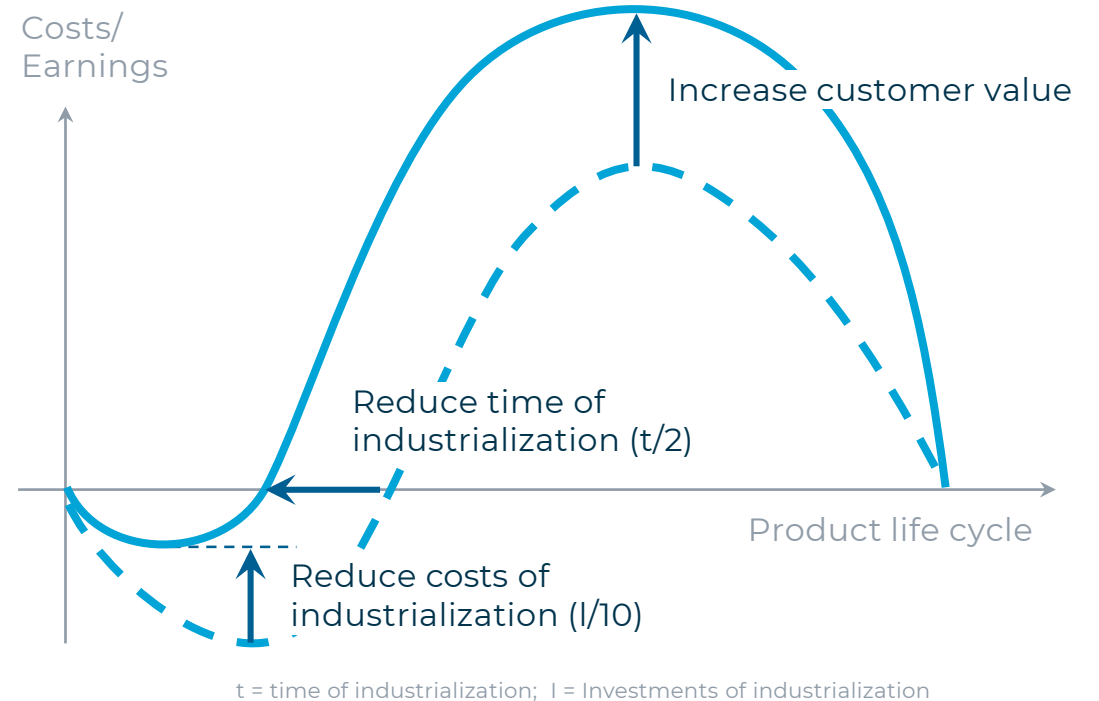
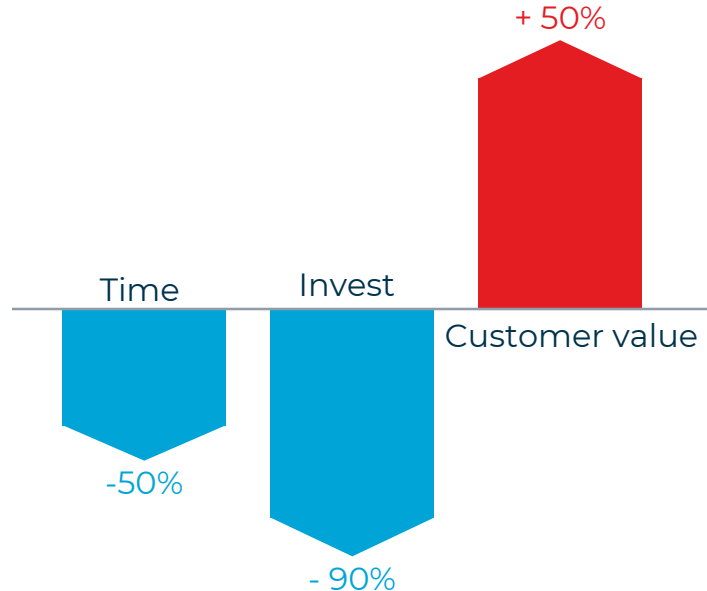
Begin with the end in mind

- + PEM Motion takes a different path!
- + We are the first to truly integrate envisioning and industrialization directly from the beginning.



How to combine visionary ideas & efficient industrialization?

By focusing on the RETURN ON ENGINEERING we dramatically increase the efficiency of the process to realize innovative results.



Source: Prof. Achim Kampker, Jürgen Gerdies, Prof. Günther Schuh (Eds.): Think Big, Start Small. StreetScooter. The e-mobile success story: Innovation processes radically more efficient. Springer Berlin Heidelberg (2017)
For more information see also www.returnon.engineering





Realizing the future of mobility: our show case StreetScooter

Challenge

Development and industrializing of affordable and functional electric mobility.

Approach

A radical reduction of the industrialization effort while increasing the consumer value to apply the Return on Engineering methodology.

Result

From drawing board to full scale production in only three years with the innovative PEM approach. The StreetScooter is in use today as the perfect tool with reduced costs for Deutsche Post and many other fleet customers.



Combining deep knowledge and practical skills

- + We merge an exceptional expertise in technology with a hands-on culture in a highly professional environment.
- + We proactively search for new solutions – often before even being asked.
- + To achieve exceptional results, we are willing to go the extra mile.



Bridging the gap between engineering and consulting

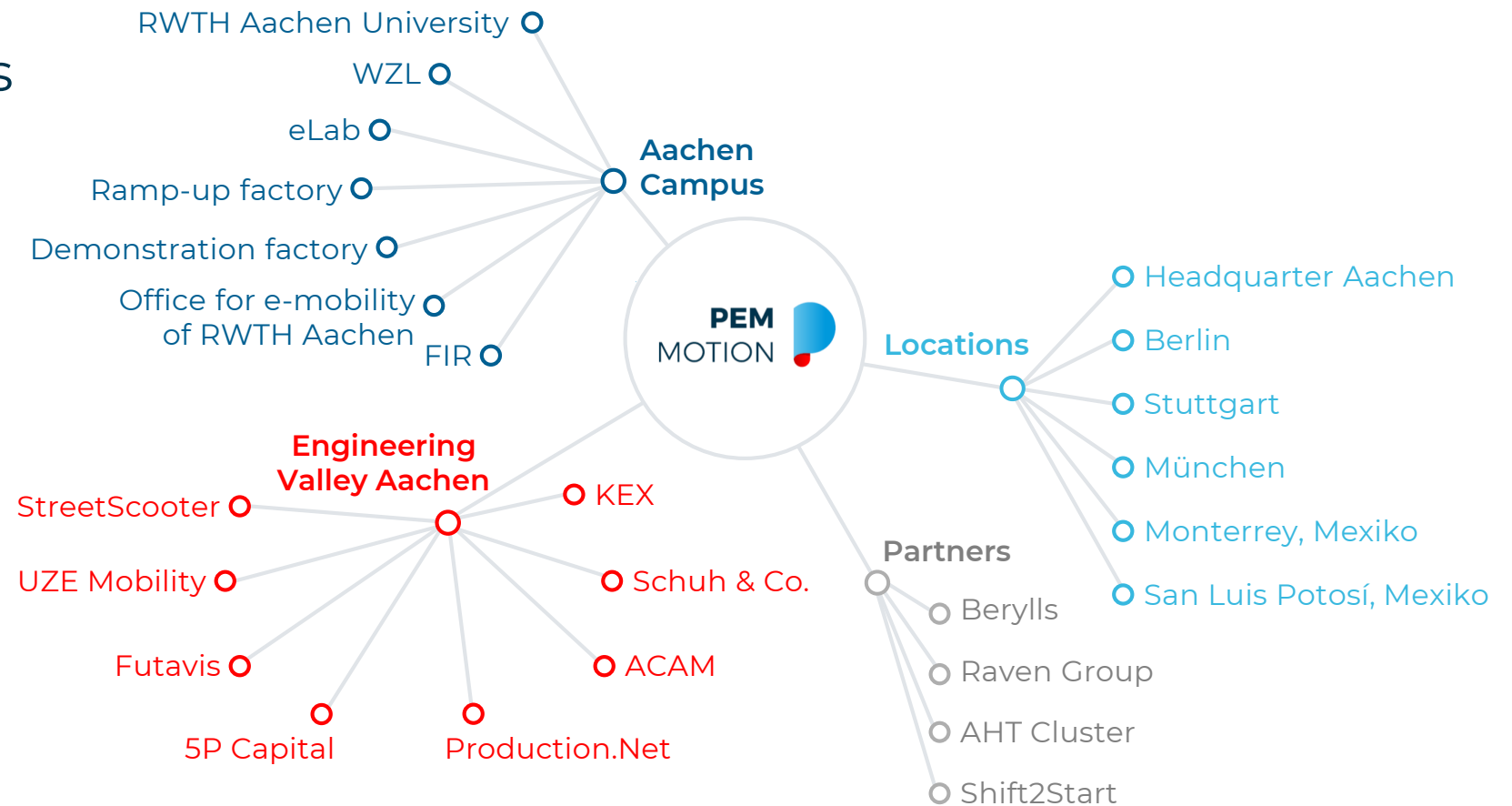
- + We shape the mobility of the future also through consulting services.
- + Our holistic view on product & production processes allows for tailor-made projects.
- + Being experts in e-mobility enables us to base our consulting support on deep technology know-how.



Leading player in an active eco system

We provide access to a large number of resources in the mobility sector.

With our established network we are able to pursue a high degree of vertical integration.

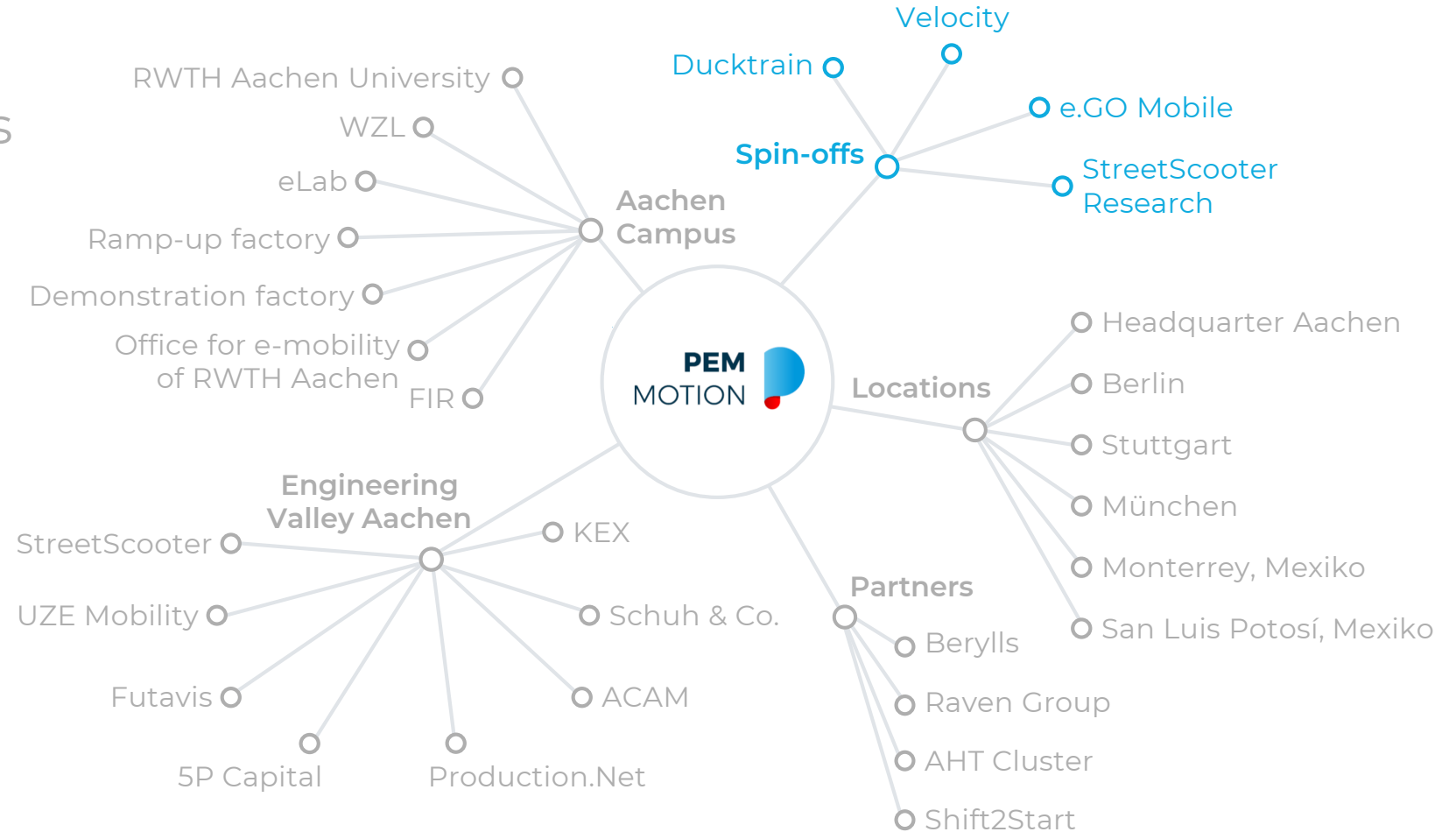


Leading player in an active eco system

We provide access to a large number of resources in the mobility sector.

With our established network we are able to pursue a high degree of vertical integration.

And: we do not only build future mobility, we also build companies!



Our offer of engineering and consulting services

BATTERY TECHNOLOGY



Product and process technologies for battery industrialization

- + Engineering: battery modules and packs
- + Fit 4 e-mobility: matching clients' current products to future mobility needs
- + Future mobility consulting: battery safety, purchasing and supply chain, flexible and cost efficient production
- + Testing and certification: battery cells and modules
- + Re-X expertise: re-use, remanufacturing and sustainable recycling

DIGITAL DRIVE



Digital solutions for future vehicles

- + E/E engineering
- + Mobile robotics and automation
- + Electric powertrain engineering
- + Requirements engineering
- + Data driven analytics

PROTOTYPING



Engineering from idea to production

- + Mechanical engineering, specification, concepts, design and simulation
- + Prototyping, model making and tooling for prototypes up to pre-series
- + Tools and fixtures production in 1 day
- + AM 4 X – Application analysis, design, training and manufacturing for 3D printing
- + Process development joining
- + Flexible body shop technologies and processes

PRODUCTION PLANNING



Agile production planning

- + Factory, assembly, body shop planning for electric vehicles and components
- + Invest reduction
- + Modular production architecture
- + Training and qualification
- + Ramp-up support



We globally work as one collaborative team

Together with our partners we focus on realizing the future of mobility. For global collaboration we also have offices in San Luis Potosí, Monterrey (Mexico) and Sacramento (USA).



PEM Motion Office Mexico

Due to our locations and partner network within Mexico, we are able to support our customers in the whole country.



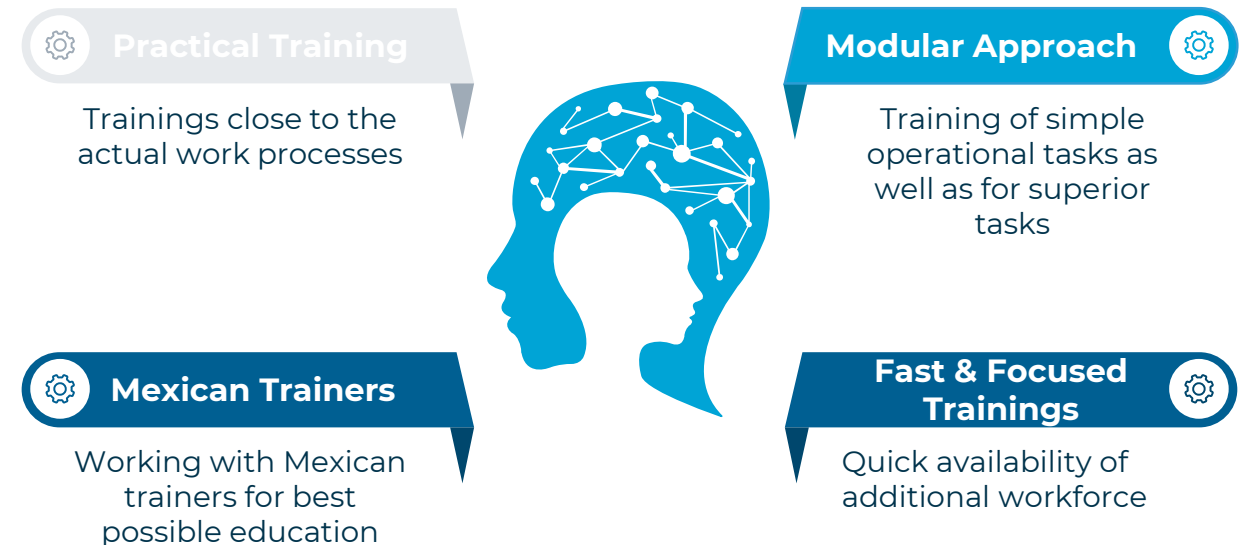
 PEM Offices

 PEM Partner Offices

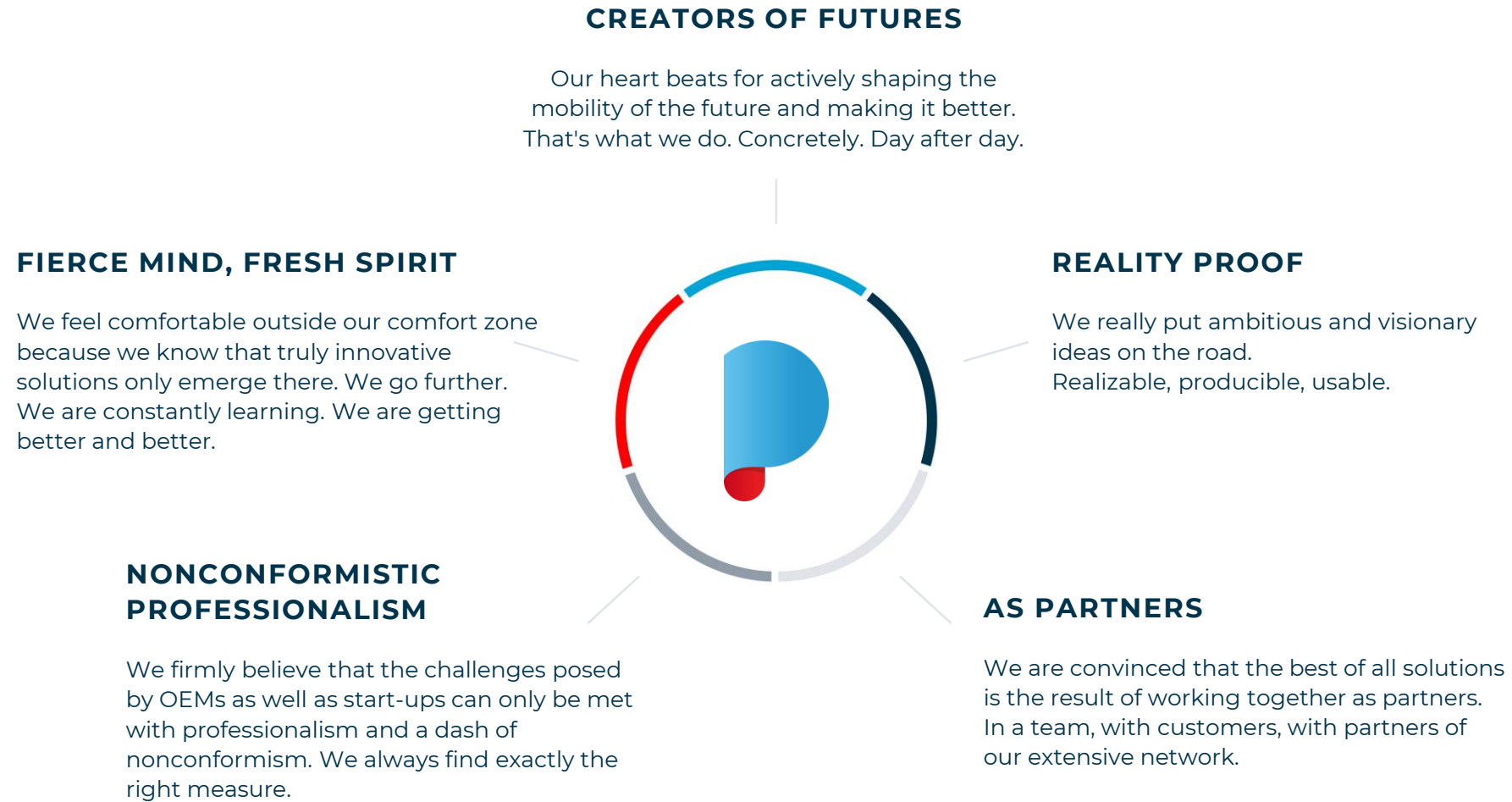


Additional service unit in Mexico: Qualification Programs

As a result of our connection to Germany's leading engineering university, we focus on building up capabilities by communicating the current German industry standards.



Our guiding principles



Our leading heads



Prof. Dr.-Ing. Achim Kampker
Partner



Dr.-Ing. Christoph Deutskens
Partner + CEO



Dr.-Ing. Heiner Hans Heimes
Vice President



Kai D. Kreisköther
Vice President



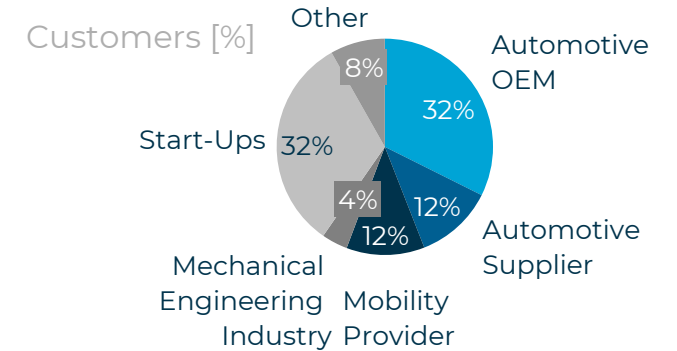
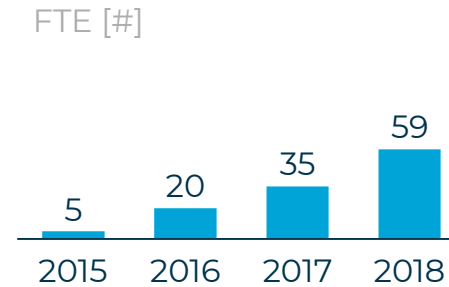
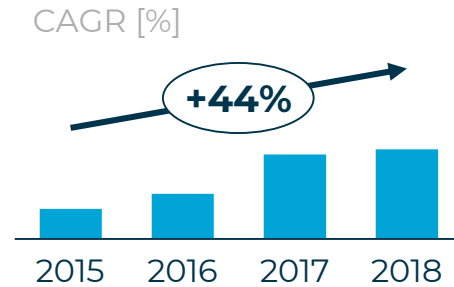
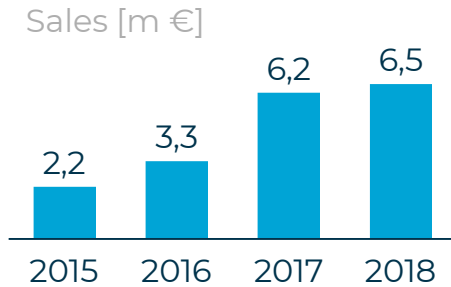
Dr.-Ing. Johannes Triebs
Vice President



Christoph Lienemann
Managing Director North America



A young organization with a proven track record



- + **Founded in 2014** as a spin-off from RWTH Aachen by talented innovators with a strong sense that today's mobility innovation needs a fresh approach.
- + **Rapid growth**, from one desk with two people to seven offices on three continents with more than 40 employees in 2018 and an average annual increase in turnover of 43,6%.
- + **Our diverse team** is our strength: from race team mechanic to experienced consultant, from highly motivated graduate to seasoned engineer from all over the world.

- + **Working from day one** with renowned automotive brands and ambitious start-ups.
- + **Top-level strategic partnerships** with two automotive manufacturers and one premium automotive consulting company.
- + **Latest contribution** of PEM Motion to a breakthrough innovation: a self-driving trailer with automated "follow-me" function that is now industrialized in our spin-off Ducktrain.



Examples of our contributions for the future of mobility



- + With the e.GO Life just being about to hit the roads, our spin-off e.GO Mobile addresses one of our very early hypothesis – if one makes it right, electric mobility can be affordable, attractive and fun!



- + Started as a research project to validate innovative production engineering methods, the StreetScooter quickly became the show case displaying that electric mobility can meet on-road requirements as well as financial targets.



- + Future mobility is way more than just 4-wheelers! We believe that more and more last-mile and urban devices will hit the road – in just another price-sensitive sector whose products require a consistent design in terms of producibility.



- + With our expertise in battery production, we support the planning of a 1 GWh industrial lithium ion battery cell production. Besides technical process planning and equipment supplier discussions with final selection, PEM also consults in factory design and business case.



Your contacts for Mexico and North America



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