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# BeamXpert GmbH a „Senior“ Start-up

Dr. Bernd Eppich  
BeamXpert GmbH

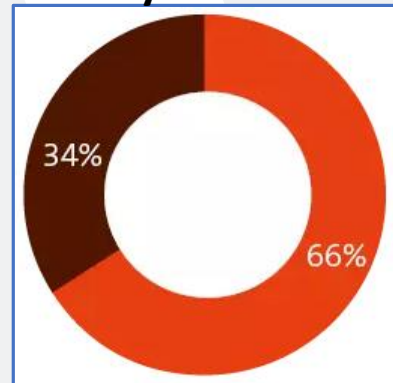
# Senior Entrepreneurship

- Founders in the U.S. tech sector are 45 years old **on average** <sup>1</sup>
- "Senior entrepreneurship" is becoming increasingly important due to the aging of the population, especially in (post-) industrial countries.[...]. In these countries, **older people** are now founding companies **more frequently than younger people**. <sup>2</sup>
- In **Germany**, founders are **just as common** among 18-24 year-olds [...] as they are among 55-64 year-olds <sup>2</sup>

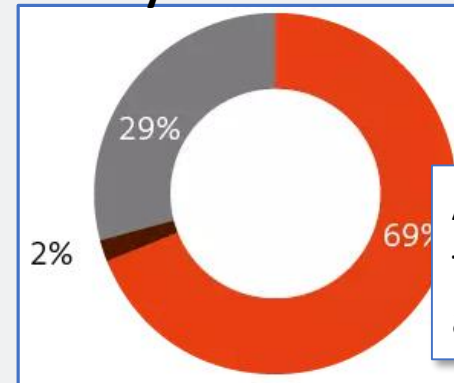
Motivation:

- more independence
- increase income
- secure the income

18-24 year-old



55-64 year-old



Another possible reason:  
to start **something new**  
as long it is still possible

<sup>1</sup> <https://www.fuer-gruender.de/wissen/geschaeftsidee-finden/how-to-startup/senior-entrepreneurship/>

<sup>2</sup> <https://www.rkw-kompetenzzentrum.de/gruendung/blog/senior-entrepreneurship-in-deutschland/>

# The BeamXpert GmbH

- Spin-off from Ferdinand-Braun-Institute (FBH) in Berlin-Adlershof
- Founded on December 1, 2017
- Founders: Dr. Bernd Eppich and Dr. Guido Mann
- Subject:

“Sale of hardware, software and services related to the measurement, analysis and description of optical radiation”

- Supported by EXIST Business Start-up Grant from 03/2017 to 02/2018
- Market entry: 10/2018
- **Only one single product: software “BeamXpertDESIGNER”**



# Our product: BeamXpertDESIGNER

## What is BeamXpertDESIGNER?

- Optic design software for laser radiation
- Numerical propagation of laser radiation through optical systems
- Focused on (non-sophisticated) everyday tasks
- Prediction of beam propagation parameters (ISO 11145, ISO 11146)
- Detection of aberrations (deterioration of beam quality, increase of  $M^2$ )
- Estimation of fiber coupling efficiencies

# Unique selling points

- Very easy to use (much easier than other products)
- Quick to learn (much quicker than other products)
- Precisely tailored to the application field (more specialized than other products)
- Real-time simulation
- Lower price
- “Good-old” license model (lifetime)

# How it all began: as a tool for own use

Early 1990s

- Diploma thesis and doctoral dissertation in the field of laser physics
- Recurring task: layout of simple optical systems, prediction of beam parameters
- 1st approach: Calculator
- 2<sup>nd</sup> approach: Mathcad
- 3<sup>rd</sup> approach: WinABCD, self-written 2D graphical software for simple systems with no branches, no detection of aberrations  
→ First sales in the name of the institute as research sample to (randomly) interested parties
- 4<sup>th</sup> approach: WinABCD-3D, 3D graphical software for complex systems including aberration detection and optimization capabilities

2016

→ Oops: is that possibly a "product" now?



*Idea:  
Let's make a  
start-up!*

- Purpose:

## University-Based Business Start-Ups

EXIST supports university graduates, scientists and students in preparing their technology-oriented and knowledge-based start-ups.

- Duration: 1 year
- Modest basic personal funding
- Modest funding for material procurement
- Obligatory funding for coachings
- Non-refundable

Sounds good? It is even better! →

- Formally, the application is made by the institution (not by you, although you will write it!).
- All purchase is done by the institution (i.e. you can benefit from their resources).
- The institute provides the infrastructure (office, telephone, internet access, purchase, etc.).
- Your personal payment is made by EXIST. You are no longer employed by the institute and are no longer bound by instructions.
- I.e. you are fully capable of (legally) acting without having to worry about a legal form first. The formal foundation of your start-up takes place only towards the end of the funding.
- All properties purchased from the grant initially belong to the institution and are to be transferred to the founders at the end of the grant.



- Although application is done by the institution, it **must** include a **business plan**, which has to be created by **you**.
- Funding includes a fixed portion that **must** be spent on **coaching measures**. For what kind of coaching exactly, you can choose (e.g. marketing, legal issues, etc.).
- Funding is accompanied by **mandatory networking activities**.

→ The entire program is very well thought out and invaluable.

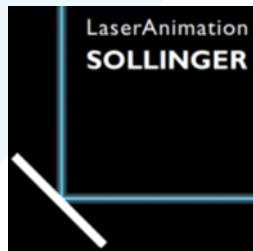
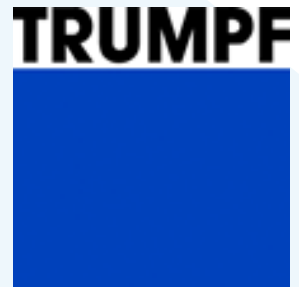
# First challenges (supported by coaching)

- Company name (sounds eays? It isn't!)
  - Possible trademark conflicts
  - Is a suitable domain name freely available?
  - Trademark strategy must be developed
- Legal issues (e.g. components database)
- First marketing measures
- Which legal form to choose (GmbH, GbR,...)
- Financing and „exit“ strategy
- Pricing (→ Networking)

# Networking

- 25 years in laser physics:
    - Former colleagues (diploma and doctorate students)
    - Companies and institutions from former collaborative projects
  - Acting as beta testers in the final development phase
  - Survey:
    - Benefits and shortcomings
    - Feature requests
    - Saved working time
    - Price suggestion
- } Product price determination!
- First customers, first income from sales

# First customers (selection):



# Distribution

- Europe
    - Germany
    - Swiss
    - Denmark
    - Finland
    - UK
    - France
    - Netherlands
    - Czech Republic
  - USA
  - South Korea
  - China
- One-man companies
    - ↓
  - SME
    - ↓
  - International enterprises
  - Scientific institutes
  - Universities

# Current state

- 4 years and still living!!! 😊
- Very satisfied customers, no complaints 😊
- But: still not enough sales to live on alone 😞
- What's the problem?
  - Trust!
  - Word-of-mouth less effective than hoped for
  - Marketing (which, when, where, costs...)
  - Market niche perhaps too small after all?

**We are still optimistic! (And its fun!)**



make light matter

# Thank You for Your Attention!

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