

**NETZSCH**

Leading Thermal Analysis ■

***Case study: How to address multidirectional industry segments through strategic marketing***

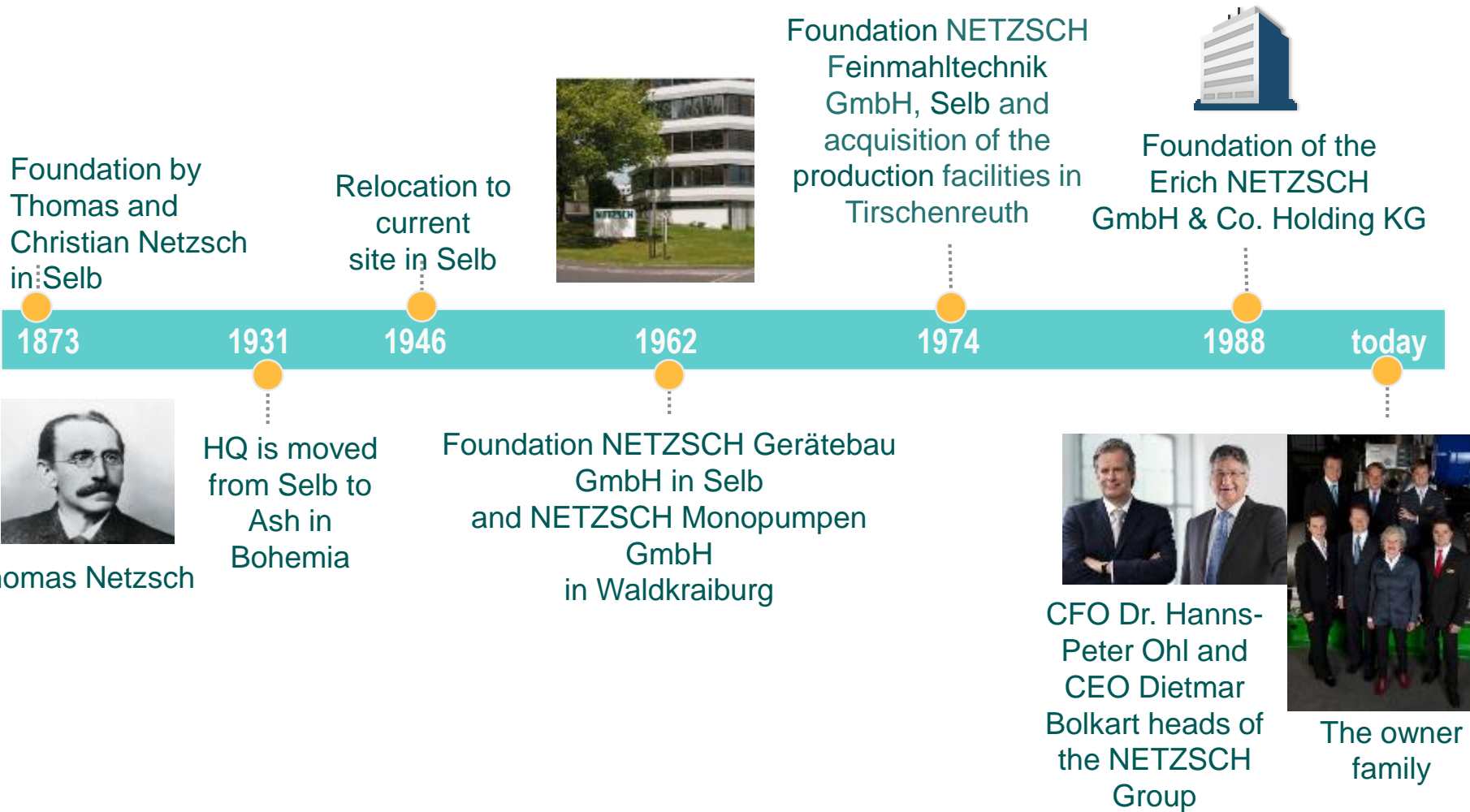
The story about business field management  
Ceramics Leadership Summit 2017 – Cleveland  
Alexander Frenzl, Business Field Manager Glass, Ceramics and Building Materials

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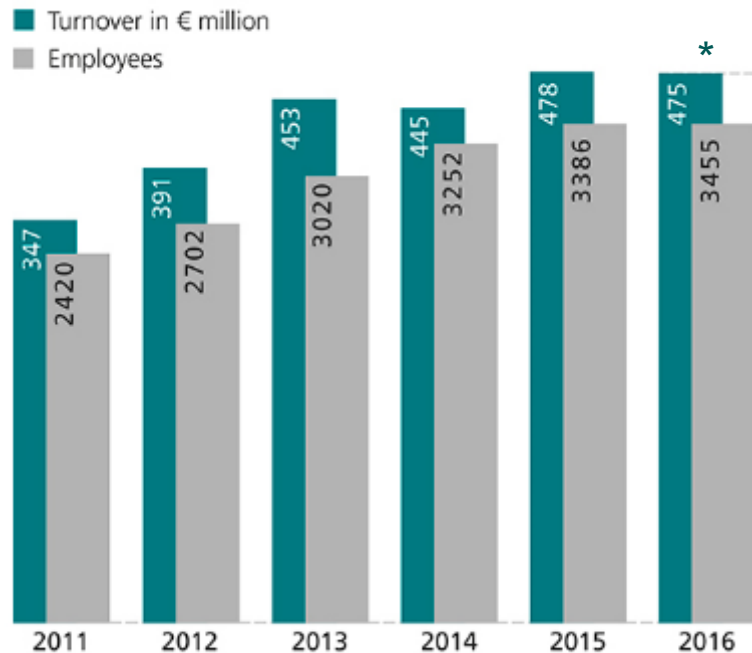
## Introduction of NETZSCH Analyzing & Testing and the NETZSCH Group

1. Stop: Inside Out – Start: Outside In
2. Tech Quality vs. Touch Quality
3. A real case – far away from ceramics
4. Summary

# The NETZSCH-Group – family owned in 5<sup>th</sup> generation



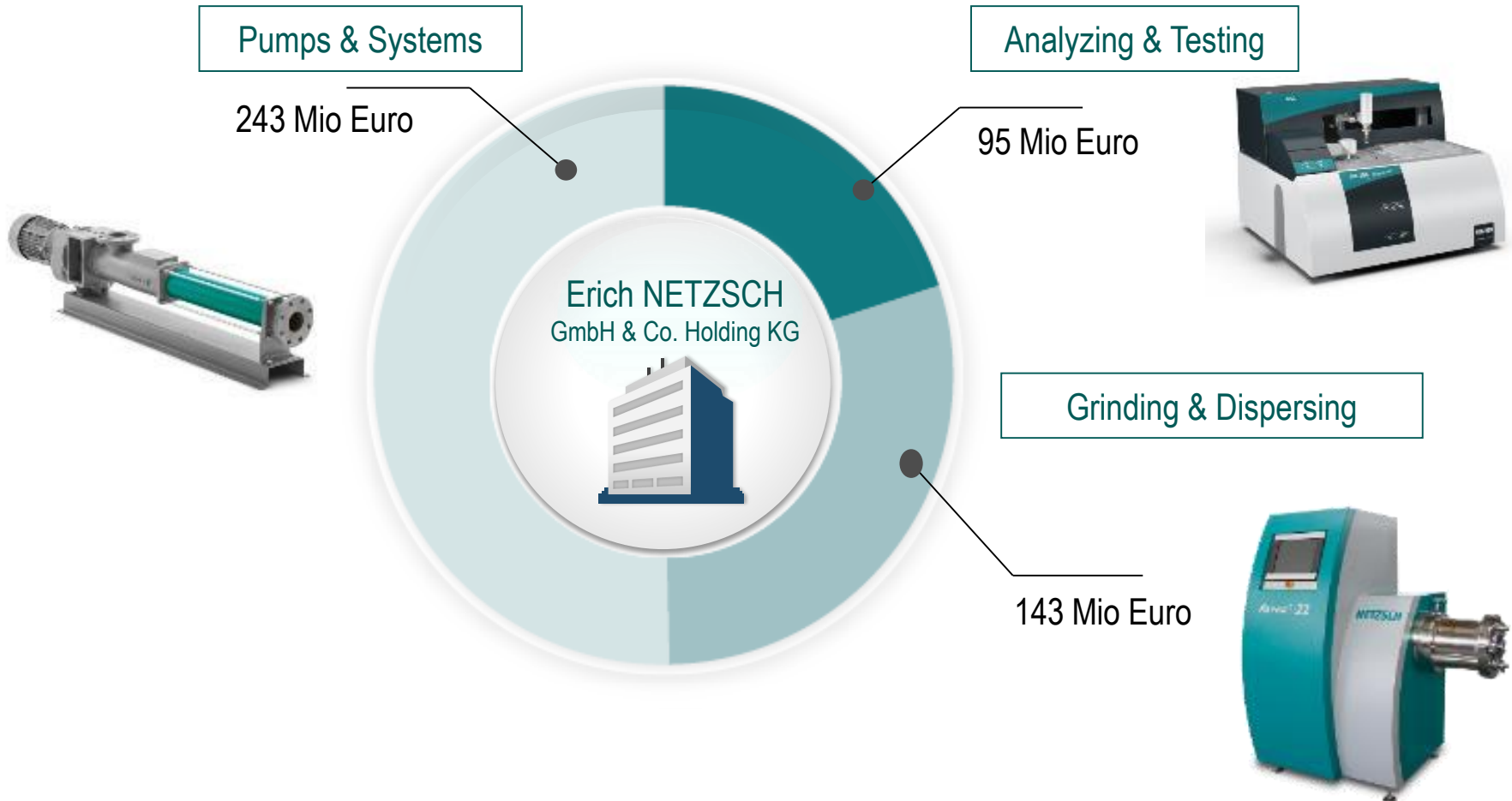
# The NETZSCH-Group – Turnover and employees



Group development over the last 6 years

- Turnover group FY16: (consolidated) €475 Million
- Employees: around 3500
- Locations: 210 sales and production centers in 35 countries across the globe

\*consolidated turnover



Conveyance of low viscosity to semisolid media as well as of media with and without solids in the following fields of application:

Environment & Energy, Chemicals & Paper, Food & Pharmaceuticals, Oil & Gas, Dosing & Emptying



## NEMO® Progressing Cavity Pumps

Standard pumps, hopper pumps, hygienic pumps, immersible pumps, multi-phase pumps, high-pressure pumps and pumps for special applications.

Universally usable in all fields of industry.

## Dosing Pumps/ Barrel Emptying Systems

Dosing pumps, automated dosing systems for one and two components, dispensers and hand dispersers, dosing components and controls, barrel emptying systems. For highest demands in automated sealing.

## TORNADO® Rotary Lobe Pumps

Standard and hygienic pumps, mobile pumps, pumps for special applications.

For low to medium viscous media.

## Grinding Systems

M.Ovas®, Macerator, Twin Shaft Macerator.

Mainly for environmental applications.

## World-leading technologies in mechanical process engineering



### Wet Grinding

Horizontal and vertical agitator bead mills for grinding down to the nanometer range



### Dry Grinding

Machines for the fine grinding of solids of every hardness for any required end fineness



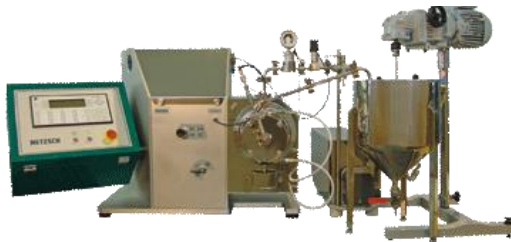
### Mixing

Comprehensive product line for mixing of solids into liquids



### Classifying

Dynamic air classifiers for bulk solids in the micron range



### Laboratory Machines

Laboratory machine program for wet and dry grinding, mixing, dispersing, de-aerating and classifying



### Systems / Plants

Customized, turn-key plants for applications from the dry and wet grinding field



### Services

Competent advisory service with a comprehensive and worldwide service



Products and services for applications in the low- and high-temperature range  
from  $-260^{\circ}\text{C}$  up to  $2800^{\circ}\text{C}$



## Thermal Analysis

Determination of changes in dimension and mass, phase transitions and enthalpies as functions of the temperature

## Thermophysical Characteristics

Determination of thermal conductivity, specific heat and thermal expansion coefficient

## Accelerating Rate Calorimetry

Analysis of degradation and reaction processes with regard to temperature, dissipated heat and pressure curve

## Services

Contract measurements, seminars, trainings, meetings and consulting





Differential Scanning  
Calorimetry/Differential  
Calorimetry



Thermogravimetry



Simultaneous  
Thermal Analysis  
DSC/TGA



Evolved gas analysis



Accelerating Rate Calorimetry



Seebeck Coefficient and  
Electrical Conductivity

Method	DSC DTA	TGA	STA	QMS FT-IR	ARC	SBA	Method
	TMA DIL	DMA	DEA	LFA HFM/GHP Thermoreflectance	RUL HMOR		



Thermomechanical Analysis  
and Dilatometry



Dynamic Mechanical Analysis



Dielectric Analysis



Thermal Diffusivity and Conductivity



Refractories





DSC 3500 *Sirius*®



SBA 458 *Nemesis*®



DMA EPLEXOR® 500 N

TGA and DSC ASC for  
up to 204 samples



STA 2500 *Regulus*®



STA 449 *F5 Jupiter*®



HFM 446 *Lambda Small*

2013

2014

2015

2016



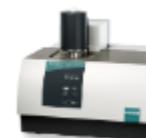
DSC 214 *Polyma*®



HFM 436 *Lambda*



DIL 402 *Expedis*®



LFA 467 *HT HyperFlash*®



LFA 467 *HyperFlash*®



Coin Cell Module for  
MMC 274 *Nexus*®



## DSC

Glass transition as well as melting-, crystallization- curing- and reaction-behavior

## DMA

Stiffness and damping behavior, Visco-elastic properties

## TG-FT-IR

Thermal stability, decomposition behavior and content of residual solvents

## DEA

Cure monitoring



## DIL

Expansion  
and sintering  
behavior

## STA

Burnout of  
binders,  
reaction behavior,  
thermal stability

## DSC DTA

Phase  
transitions

## LFA

Thermal  
diffusivity and  
conductivity



## DSC

Phase transitions

## DIL

Expansion behavior

## STA

Oxidation behavior, corrosion

## LFA

Thermal diffusivity and conductivity



## DSC

Phase transitions,  
reaction behavior

## DIL

Expansion  
behavior,  
stiffness

## STA

Phase transitions,  
decomposition  
behavior

## HFM TCT GHP

Thermal conductivity





## DSC

Gelation,  
melting,  
crystallization,  
polymorphism

## TG

Content of water  
and solvents,  
thermal stability

## STA

Composition,  
reaction- and  
decomposition  
behavior

## DSC

Purity,  
compatibility,  
denaturation

... we are selling products!

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**NETZSCH**



Source: <http://www.klenke-druck.de>

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This is Fritz. Fritz is a sales manager!

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... we all talking about benefits of our products!

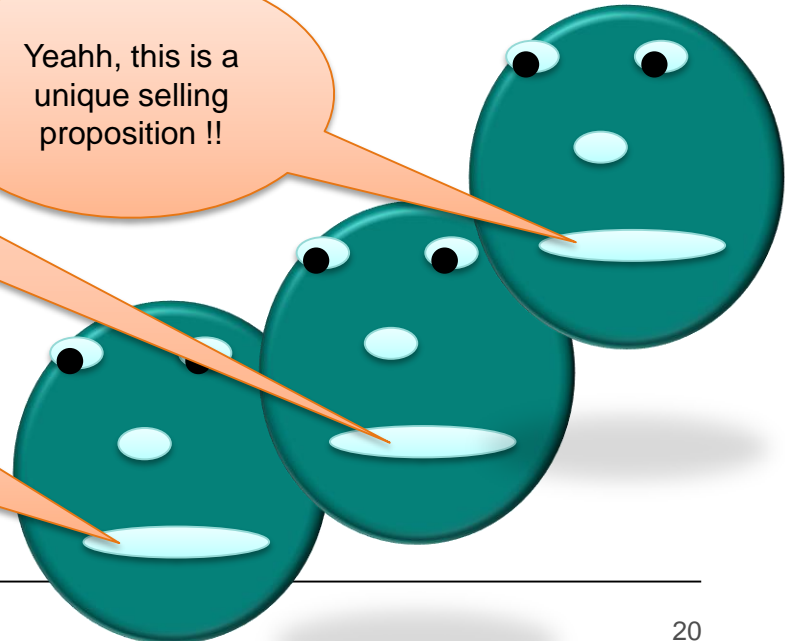


Our customer benefit is, that we can measure the CTE\* of a ceramic part up to 2800°C !!

We need to highlight that on our website !!

Yeahh, this is a unique selling proposition !!

Wow, no one else can that !!



\*CTE: Coefficient of Thermal Expansion

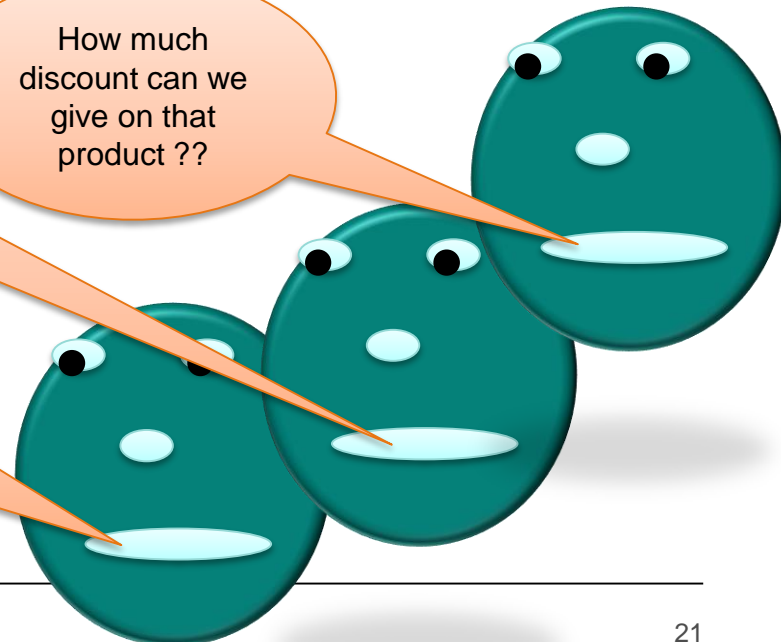


Now, we will never loose against the competition due to temperature range !!

Wow, I will put that on the next tender !!

How much discount can we give on that product ??

Yeahh, that's great !!



1

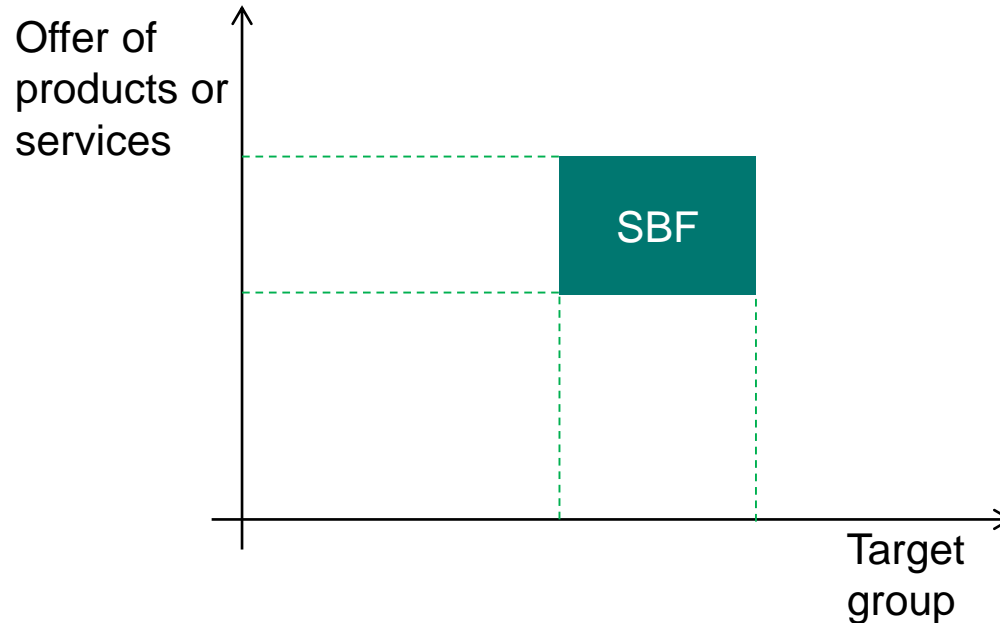
Stop: Inside out - Begin: Outside in



THINK LIKE YOUR CUSTOMER !



# Business Field Management



- Whenever we specifically can merge our offer of products or services to the needs of a specific target group, we are talking about a strategic business field.
- A portfolio of strategic business fields is managed by a business field manager.
- We convey our strategic business fields from an association of materials and specific target groups in an appropriate market segmentation





## Polymer

*Polymers - Thermoplastics*

*Polymers – Elastomers, Rubber*

*Polymers - Duromers/Thermosets*

*Paints and Coatings*

*Adhesives*

*Composites – Reinforced Polymers*



## Glass, Ceramics & Building Materials

*Cement, Plaster, Concrete, Asphalt*

*Ceramics*

*Clays, Earths, Sands and Minerals*

*Composites – Building Materials*

*Glass*

*Insulating Materials*

*Refractories*

A business field corresponds to a **specific market group**. From a business field results a **customer target group** that needs to be **strategically addressed** through **appropriate marketing, sales support and product development**.

**„Responsible for content and implementation of the corporate strategy in each business field“**

**Summary of market requirements to the portfolio in the business fields and enforcement in the relevant areas of the company via authorization of the executive board**

<u>R&amp;D</u>	<u>Sales</u>	<u>Marketing &amp; Communication</u>
Applications Product Requirements Market Prices	Events Key Opinion Leaders Unique Selling Points (Comparative Competiton Advantages)	Content Media/Tools Competition

Thus, the GFMS fulfill these tasks, they are involved in both - the development of the division's strategy as well as in the budget processes for the business unit and for its core countries.







**2**

Tech Quality vs. Touch Quality

# The Power of the Headline

„What the product can“ vs. „What the product is“

**NETZSCH**

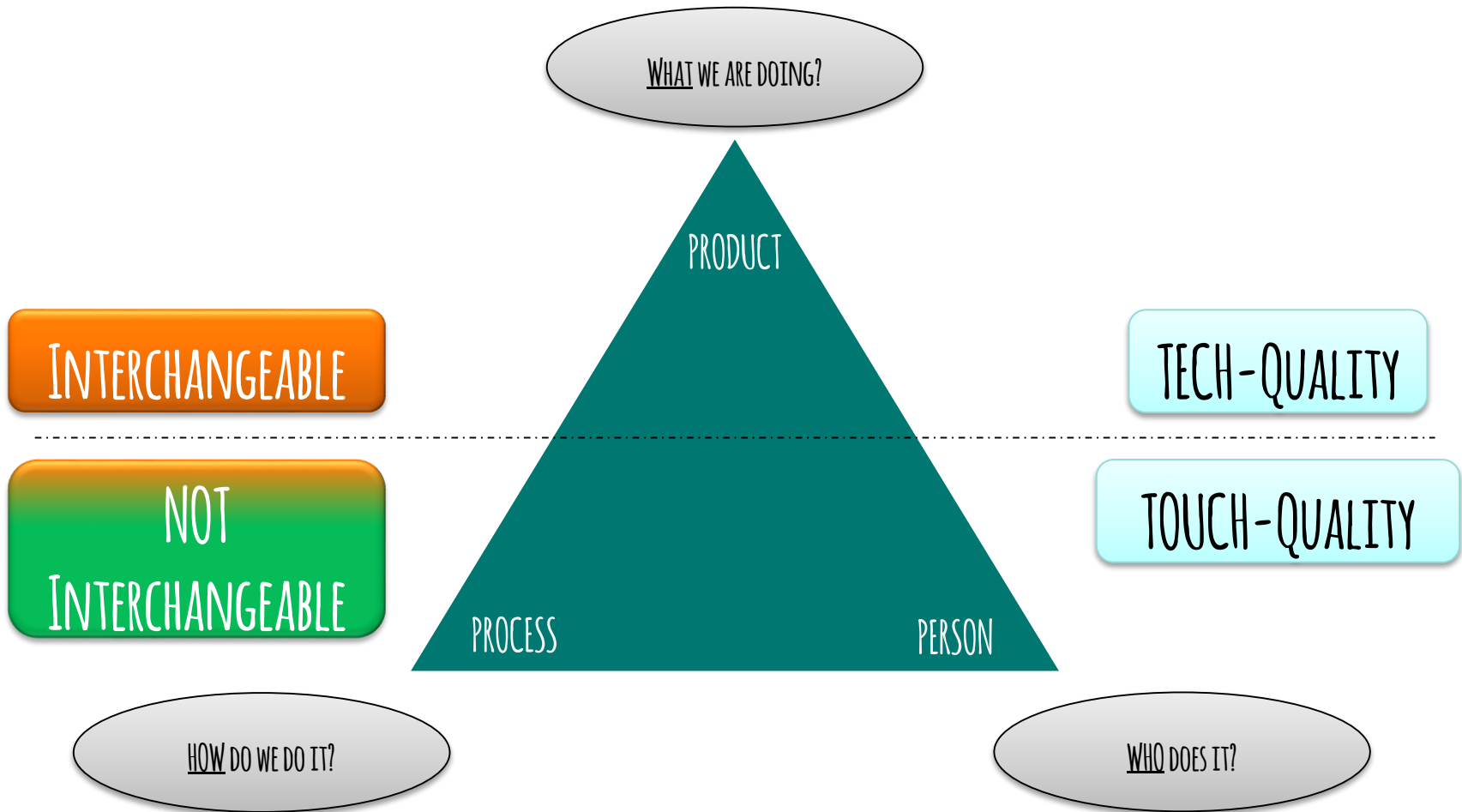
~~The XP-2000 makes the difference~~

~~Up to 2800°C~~

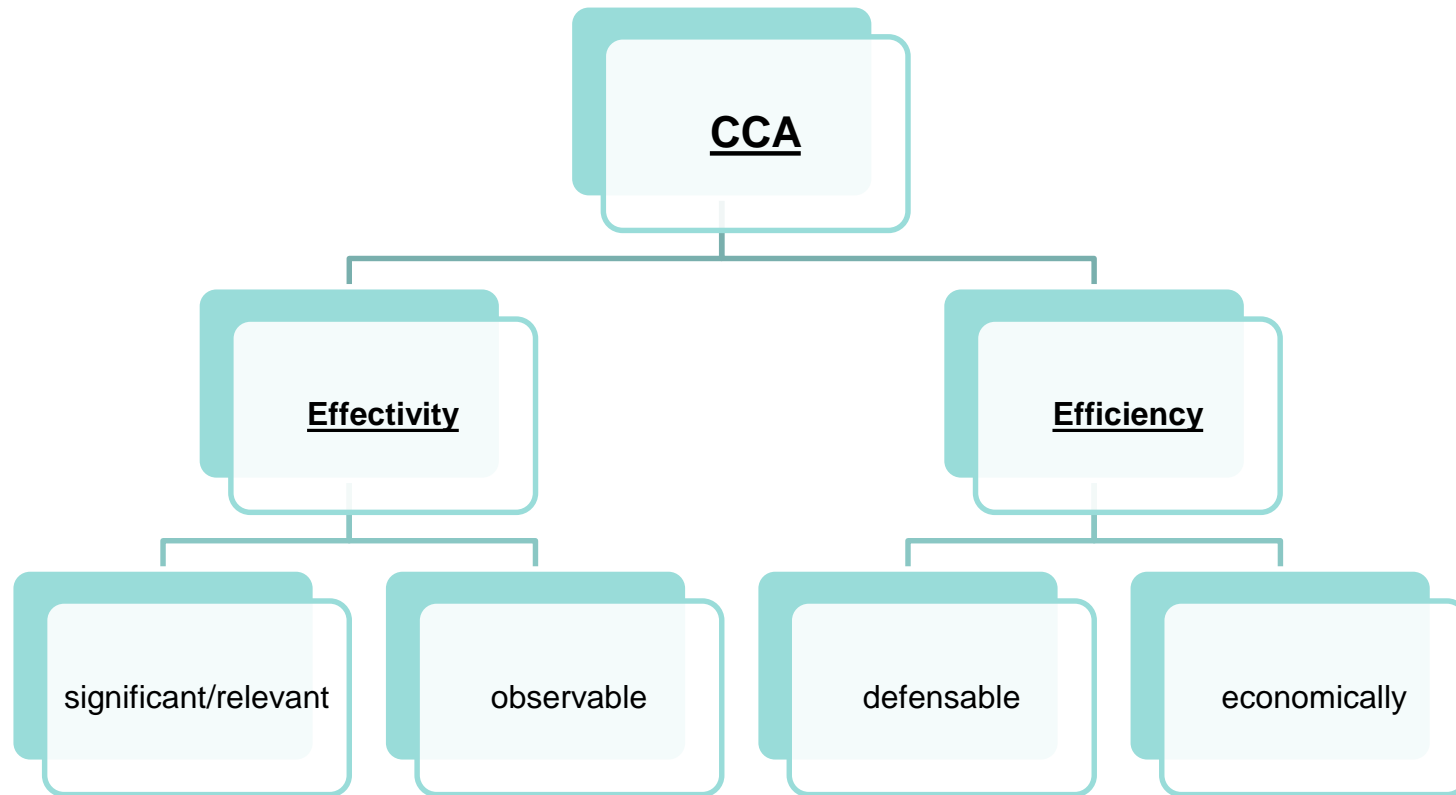
~~Including Load Option~~

~~Come and see the new  
DIL 402 Expedis Classic~~

~~Highest Reproducibility  
and Baseline stability~~

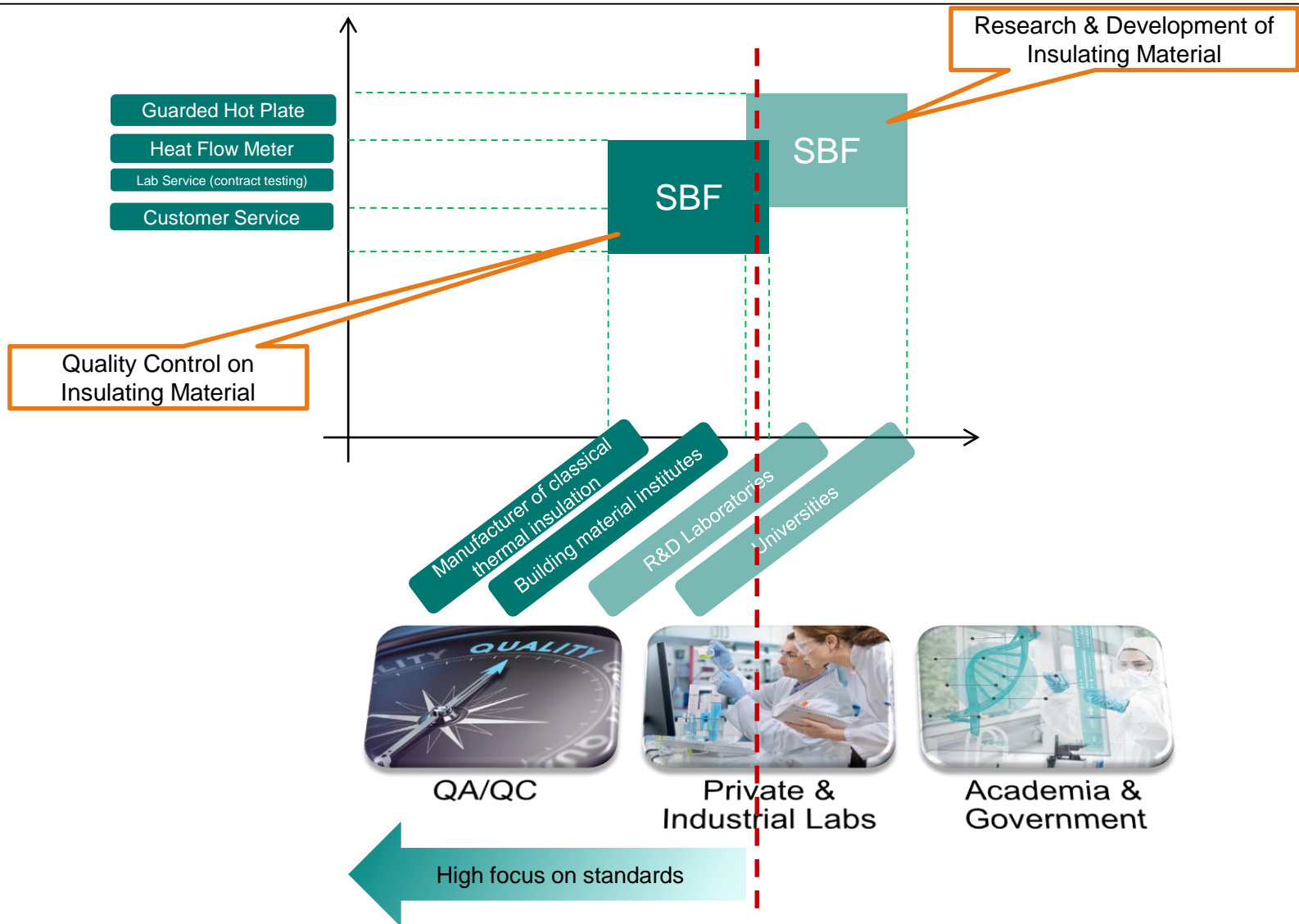




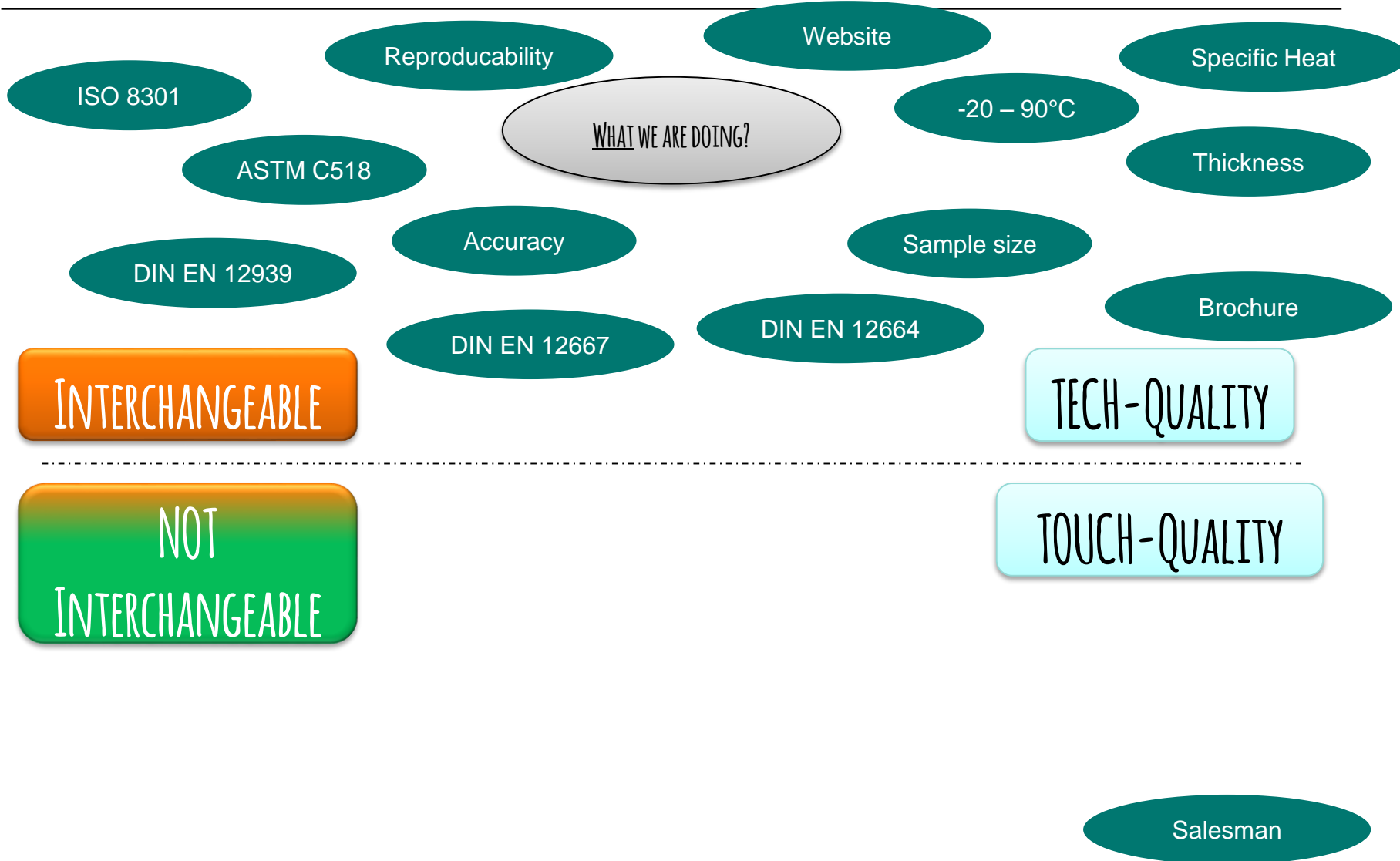


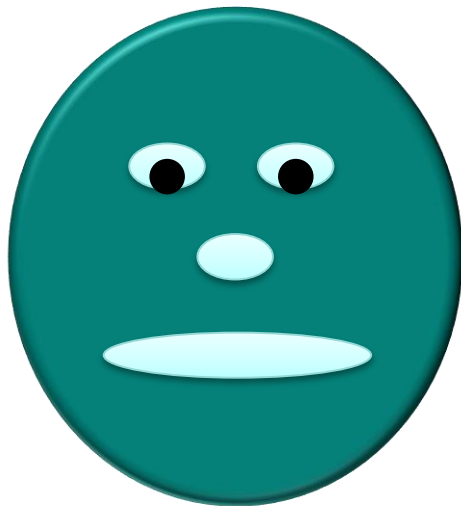
**If I buy \*your company\***  
**Instead of \*your competition\***  
**I will get \*customer benefit\***  
**because \*reason\*!**

# 3 A real case



# The whole world talks about technical details....



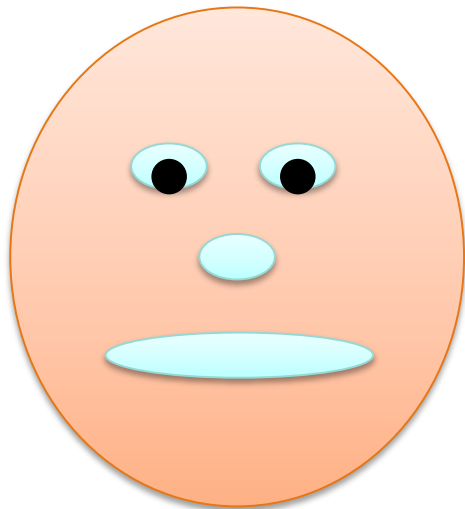


We will do an advertisement in a magazine for building & construction...

Wait a minute...

Our main features are:

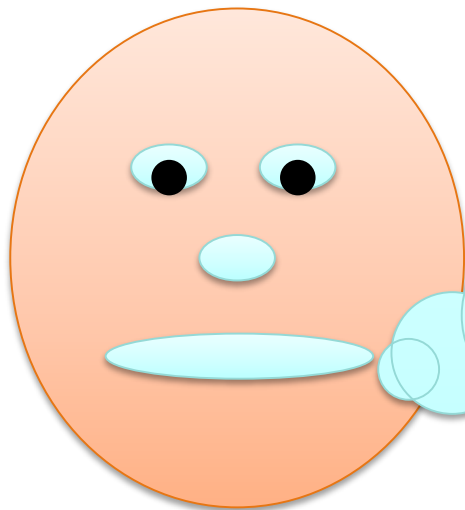
1. Measurement of Thermal Conductivity from -10°C to 80°C
2. Integrated Load Option
3. Measurement of specific heat capacity
4. SmartMode-Software
5. The newest HFM on the market



I need a new method to measure C518

Wait I minute... I need to determine....

1. R-Values of my material
2. The Thickness of my material
3. The transfer factor of my material
4. ....at 10°C
5. I need to do documentation and statistics
6. I need to calculate the thermal conductivity
7. My Lambda 90/90 is my leading value for CE-Declaration
8. ....



Oh... I need to calibrate the instrument every month  
And need to check the calibration from time to time!

Hopefully this is not difficult!

The instruments are not that expensive, but how much are  
the costs over time?

Hhhm Software, we want to switch to Windows 10 in a  
couple of months... hopefully that works.

I'm not the expert up to know. Hopefully we will not have  
trouble with my results.

Who ensures, that my calibration will be right...

What will I use for documentation and statistics? Excel?



For HFM (Industrial Quality Control on Insulating materials) customer uses-cases are clearly defined in PRODUCT STANDARDS

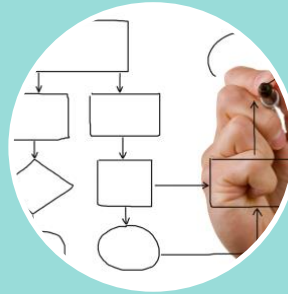


For HFM (Industrial Quality Control on Insulating materials) customer uses-cases are clearly defined in PRODUCT STANDARDS



## Instrument Standards

- ISO 8301
- ASTM C518



## Process Standards

- DIN EN 12664
- DIN EN 12667
- DIN EN 12939
  
- DIN EN 1946
  
- DIN EN 13172



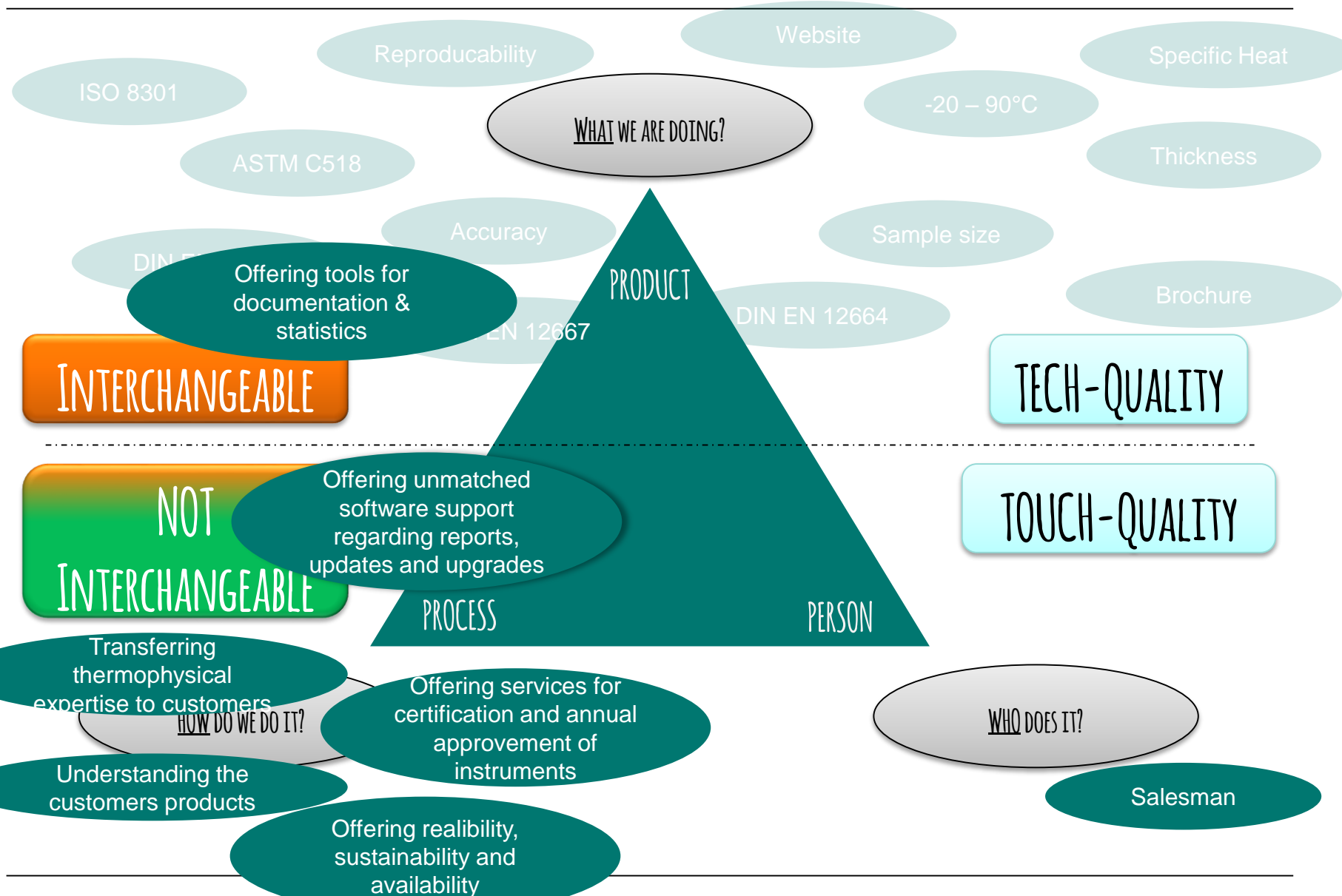
## Product Standards

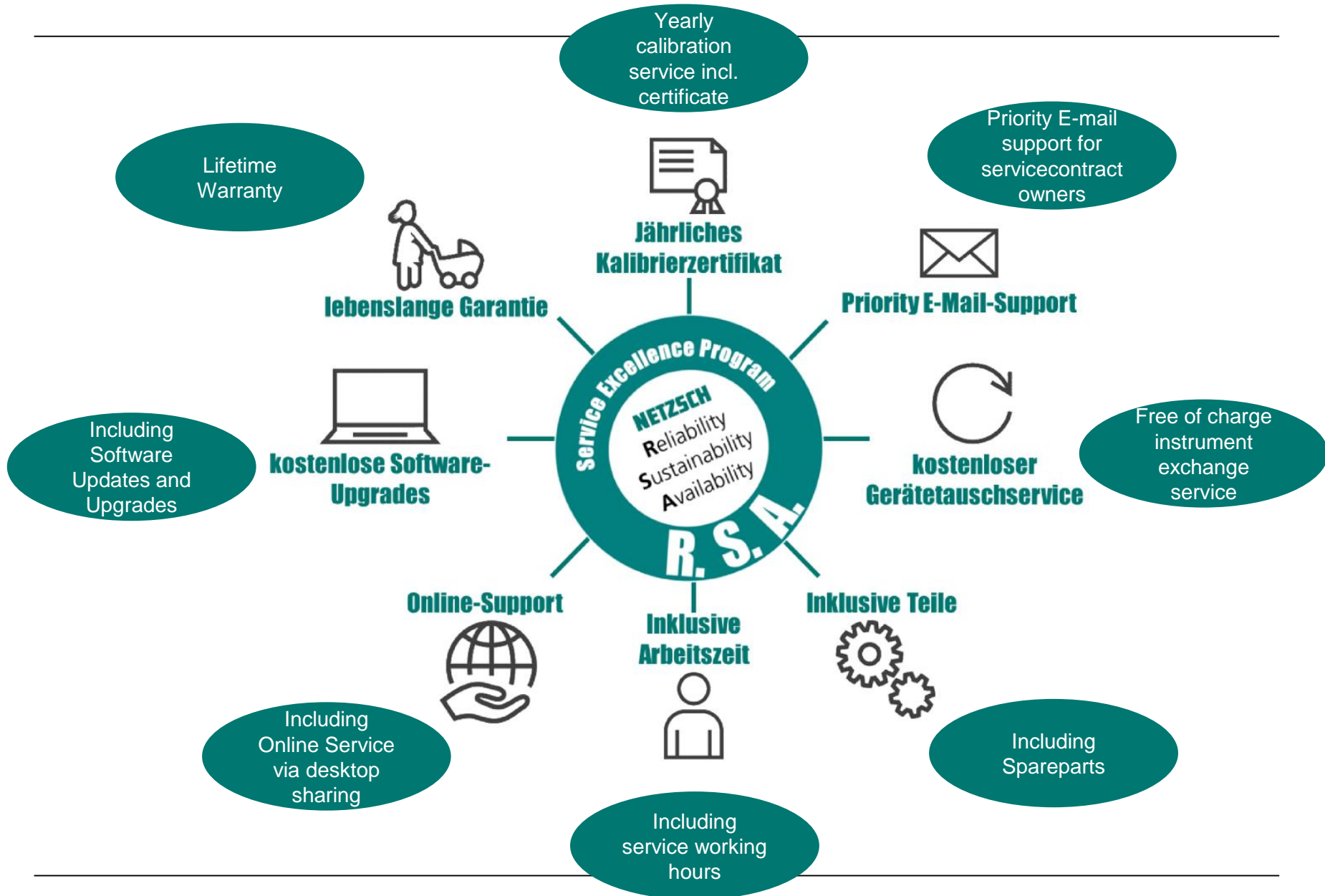
- DIN EN 13162
- DIN EN 13163
- DIN EN 13164
- DIN EN 13165
- DIN EN 13166
- DIN EN 13167
- DIN EN 13168
- DIN EN 13169
- DIN EN 13170
- DIN EN 13171

NETZSCH view

Customer view

- 
- The user of the instruments must have a good understanding of the interaction of material properties and thermal transport mechanisms
  - Take different specimen from the **same size** out of 1 m<sup>2</sup> of material. Smallest side must be **not less than 300mm**.
  - **Don't do any preconditioning** – excepting in cases of dispute – then preconditioning for 6h in 23°C/50% humidity is recommended.
  - Decide, whether your material **absorbs water or not**. If it absorbs water more than 0,01 kg/m<sup>3</sup>/h based on a thermal conductivity of 1 W/m/K use a foil to cover the material and prevent moisture absorption.
  - Measure the **thermal conductivity at 10°C** – or at **other temperatures** if the thermal **dependencies** between the **thermal insulation properties and temperature are known**.
  - Test Procedure regarding DIN EN 12667 and DIN EN 12939
  
  - The manufacturer shall have at least **ten test results** for the heat transfer resistance or the thermal conductivity from factory or external direct measurements in order to calculate the **nominal values**.
  - The **nominal values** are determined from the **Lambda 90/90** value
  - To get a statistical Lambda 90/90 value at least **10 direct measurements** are necessary.
  - The test frequency is 1/d
  - Add the measurements to QA-Systems and do documentation
  - Once a year the production and documentation is checked by an external institute to get your certification





**4**

Summary

- 
- Define strategic business fields
  - Define resources for the business field
  - Define target groups
  - Define target people (personas)
  - Talk with target people about their daily problems
  - Learn from customers on their application
  - Define a potential product-portfolio for each target group
  - Align your portfolio on the target group
  - Address customer benefits in the „language“ of your target group
  - Drive relevant content for your target group
  - Spread the content...(Website, Social Media, Webinars ...)
  - ...and you'll be able to invite people to your „birthday party“ that you don't know up to now
  - Be THE partner in a strong and long lasting relationship and keep track on the customer's market

My youngest son,  
Noel!  
8 years old – that  
was my first idea on  
a long, long way of  
business field  
management

*Every Nanometer counts!*

The new Dilatometer DIL 402 *Expedit*  
with revolutionary *NanoEye* measuring cell

Find out more in our live talk  
„Force controlled measurement cell in dilatometry“  
on 21<sup>st</sup> March in lecture hall 01111/TU Berlin/  
main building/ground floor

Get access to our webcast  
on dilatometry and win our  
ceramics-properties mug

[www.netzsch.com/n26056](http://www.netzsch.com/n26056)

**NETZSCH**  
Leading Thermal Analysis ■

The advertisement features a young boy in a purple jacket and blue pants, standing next to a large vertical scale. He is pointing upwards with an open mouth, as if shouting or calling out. To his left is a black and white dilatometer machine. Below the machine is a white mug with the NETZSCH logo and a QR code. The background is a teal gradient.

Believe me!  
All I do, I do with  
all my heart!



Thank you, for your attention!

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**NETZSCH**

## **Alexander Frenzl**

Geschäftsfeldmanager Glas, Keramik und Baustoffe

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**GERMANY**

