Profitable Retreading

The resource factor

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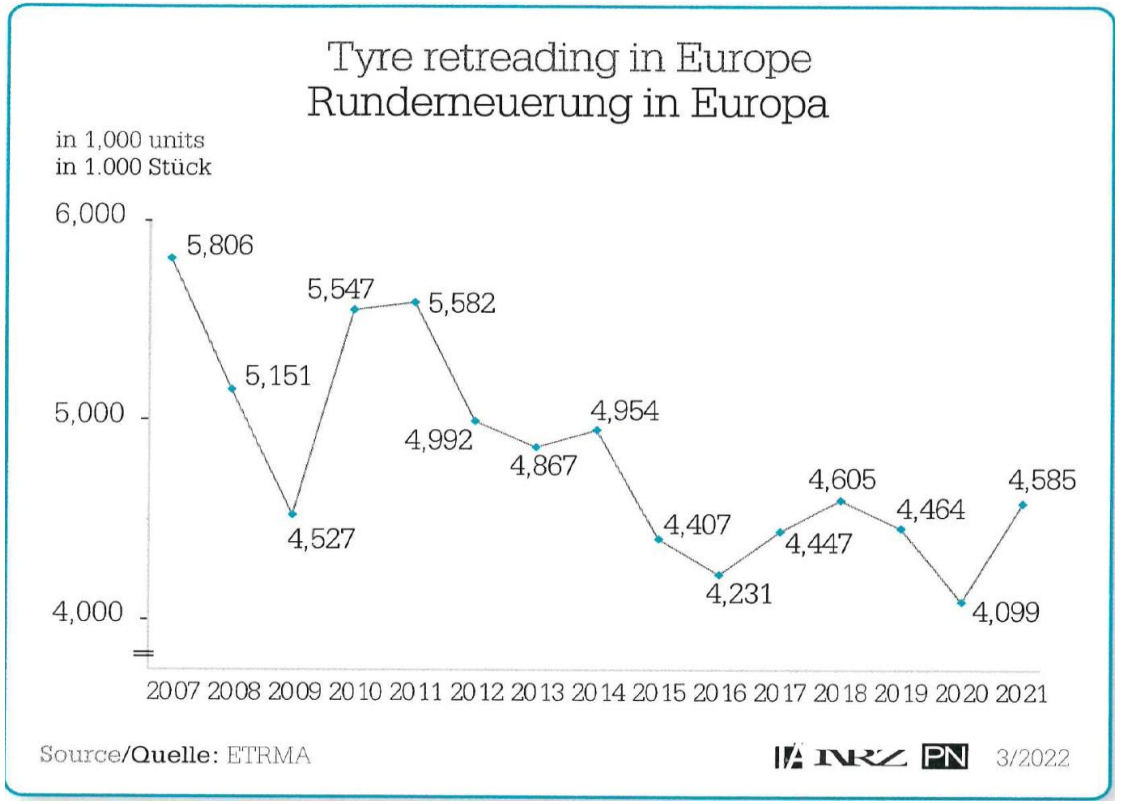
Business Development

Retreading in Europe

Statistics show that the number of retreads in Europe have started growing after many years of a down drain. There are various reasons for this development. However the retreaders should not rest on this success – they should now initiate actions and investments to maintain or become robust to increasing operating costs.

Build and extend strong relationship to customers. This will help to decrease significant fluctuations in business development:

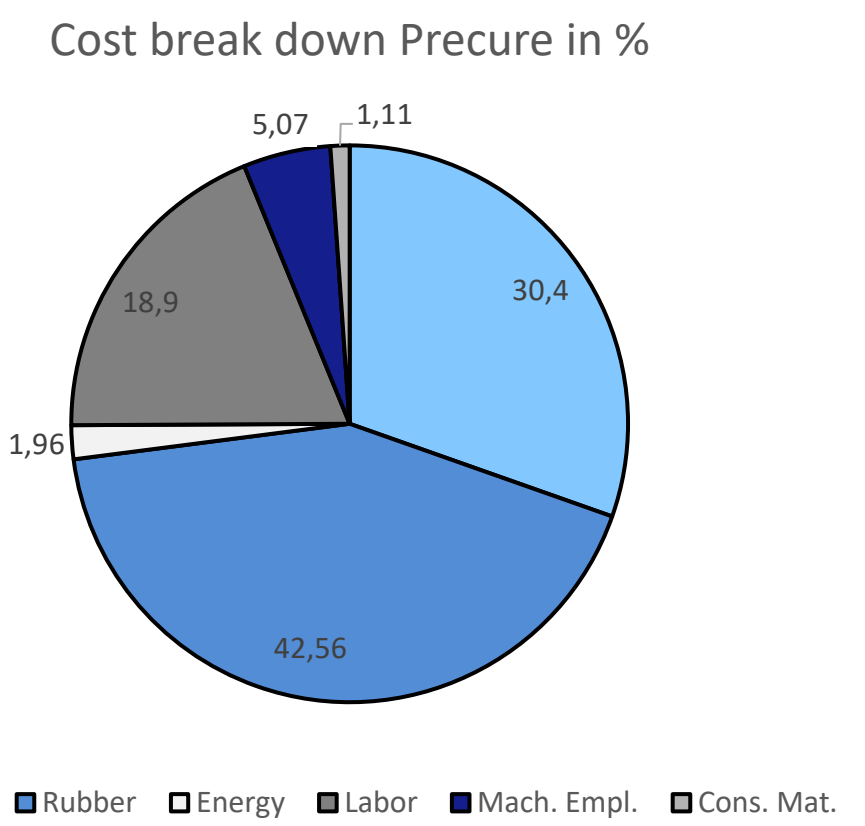
reliable product quality
competitive pricing
product availability
service and support

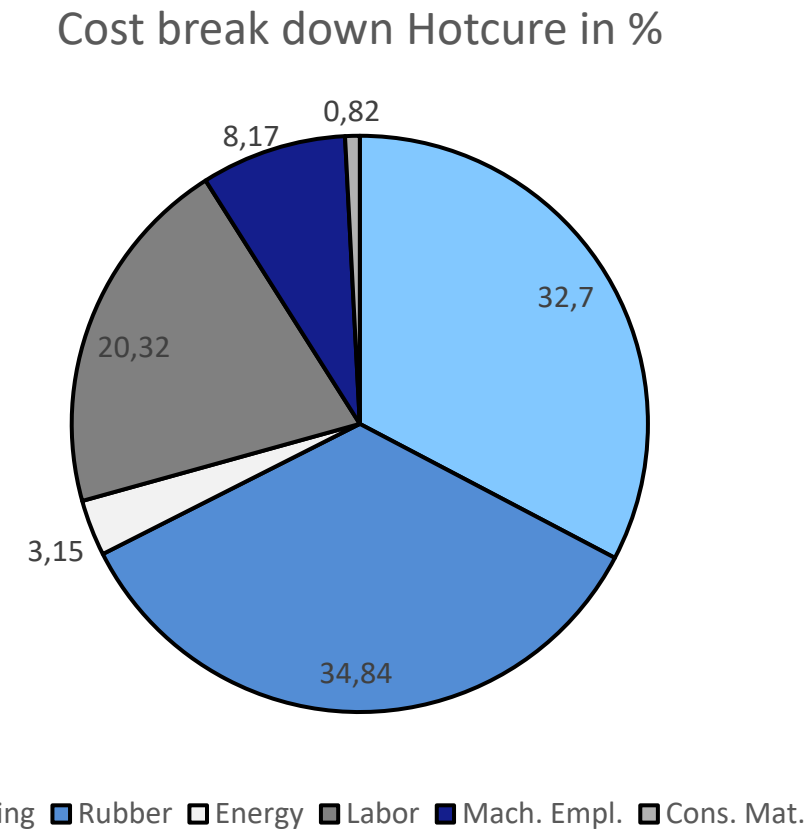


Cost develpment

Major cost factors

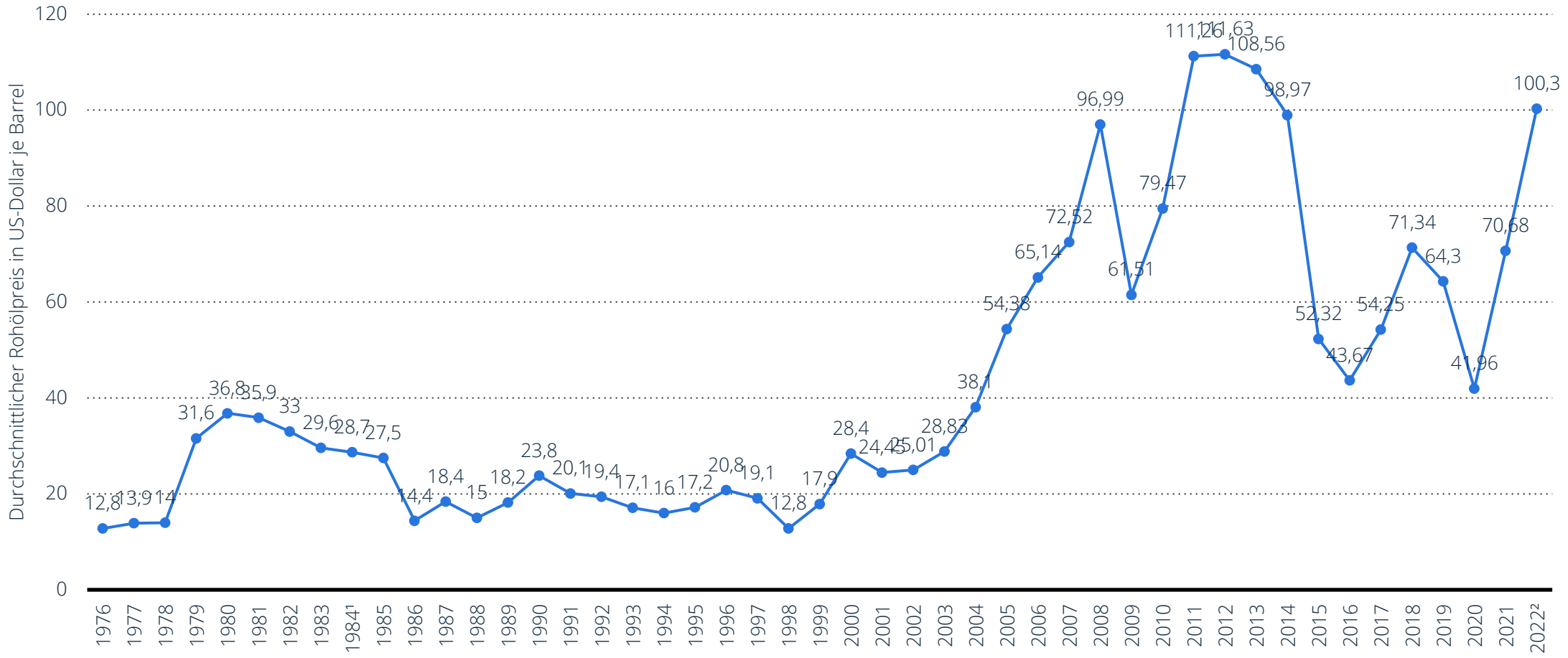
Competitive and reliable pricing is a challenge for especially for independent retreaders in a situation when all costs are increasing. Average production costs across Europe (w/o overheads):





Oil price development

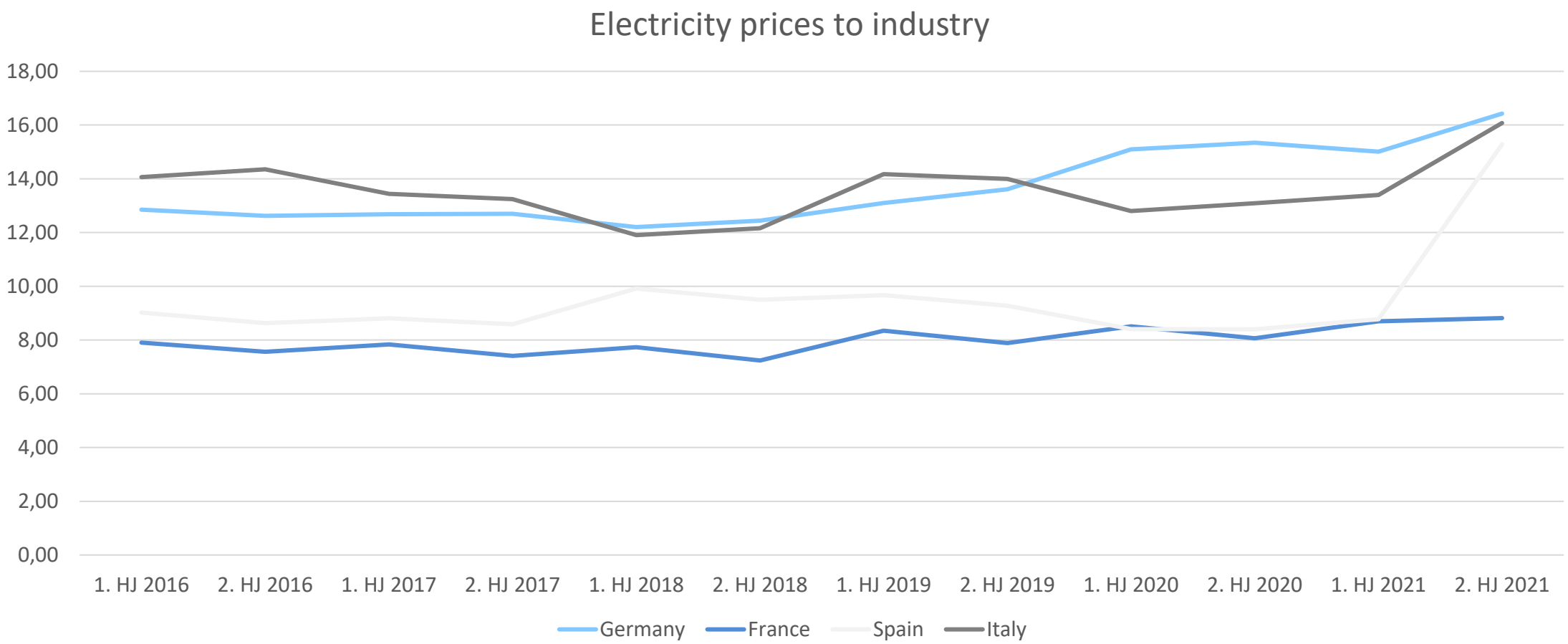
UK Brent – USD/Barrel



Source: Statista

Price development Electricity

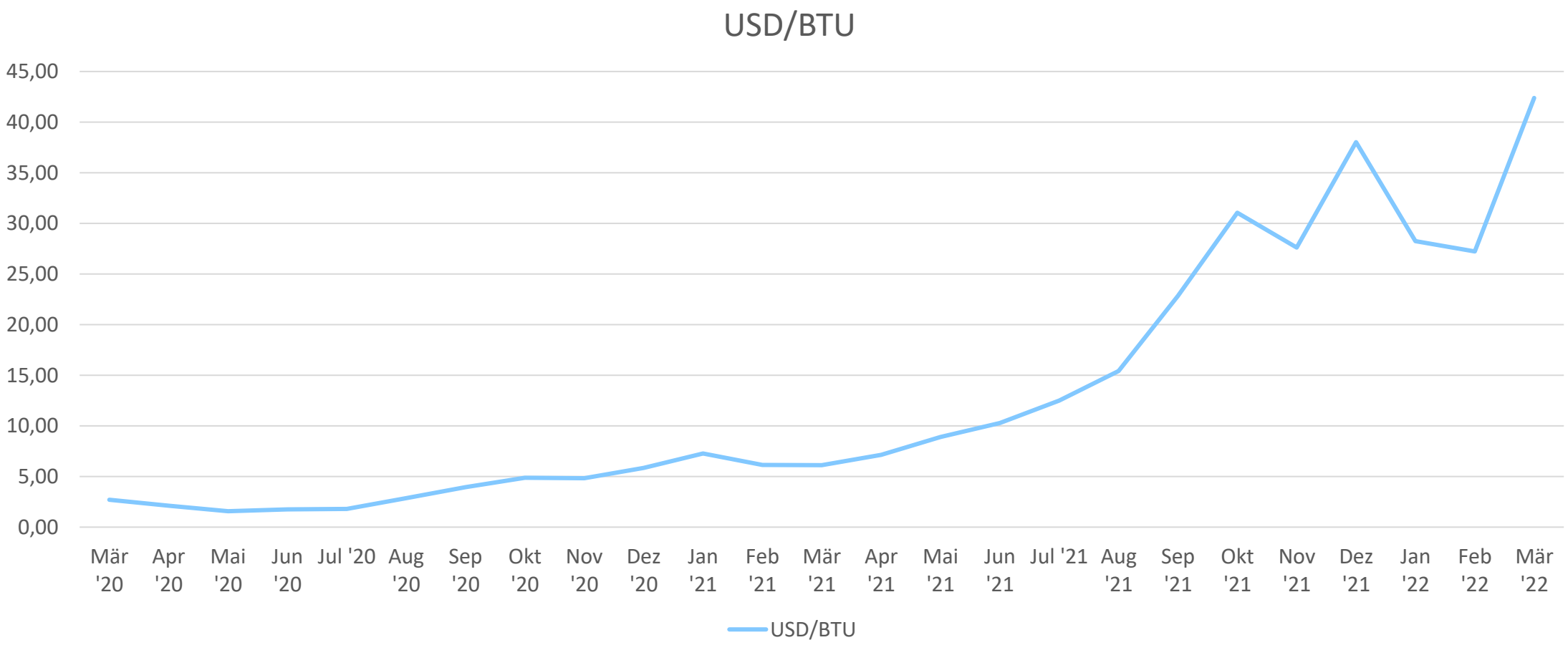
Price to industrial customers in Cent/KWh



Data: Statistisches Bundesamt / Published: March 22

Gas price development

Price per Million British Thermal Unit in USD



Source: World Bank / published: April 2022

Rubber price development

Imports to Germany in %

Data: Statistisches Bundesamt / Published: January 2022

Development salaries

Germany 2007 - 2021

Position	Salary Increase 2007 - 2021
Management	44,60%
Foreman	36,30%
Skilled laborer	32,80%
Semi-skilled laborer	30,20%
Common (unskilled) laborer	37,20%

Data: Statistisches Bundesamt

Profitability

Efficient use of resources is the key

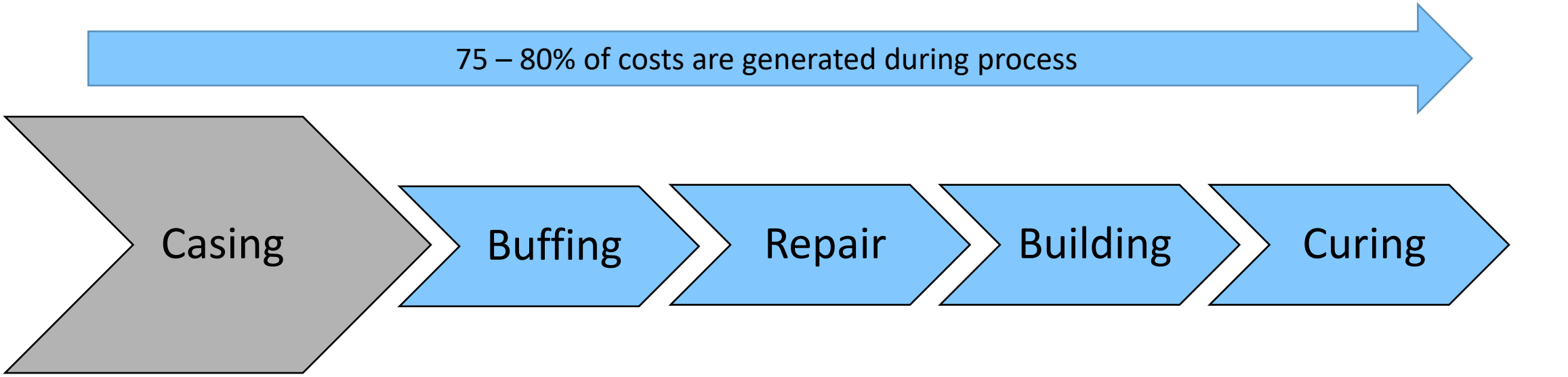
In an environment, where resources are short or increasingly expensive it is compulsory to use them intelligently and with highest efficiency.

If we assume the retreading process itself is already optimized and all other cost factors are under control we have one remaining parameter, which decides on profitability ……

the CASING

Cost accumulation

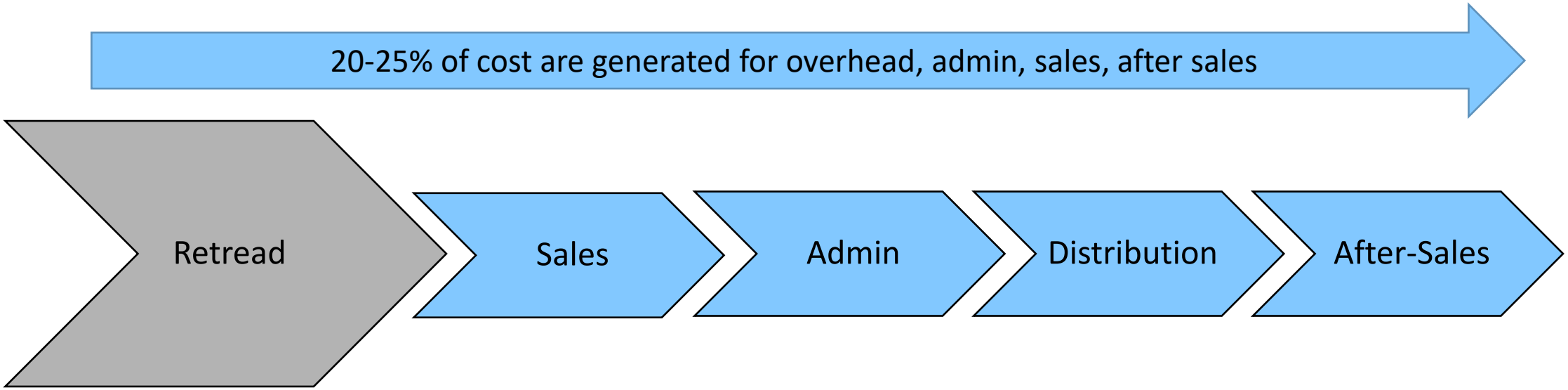
Retreading process



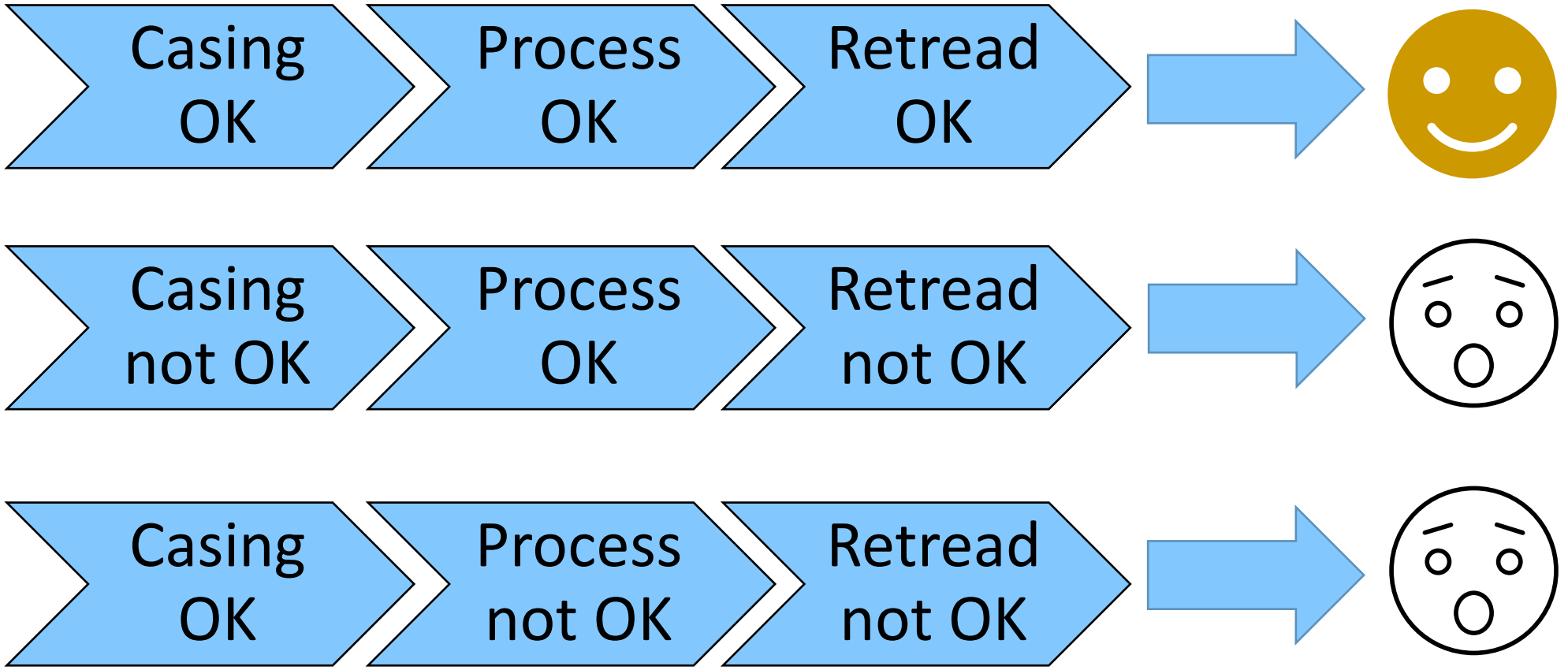
Casing	Buffing	Repair	Building	Curing
Casing Value	Electricity Consumables Labor Machine-Hours	Electricity Consumables Labor Tools	Electricity Cement/Rubber Labor Machine-Hours	Energy Autoclave/Presses/Moulds Labor

Cost accumulation

Overhead costs / Sales costs



Travel cost	Office	Vehicles	Travel cost
Labor	Labor	Energy	Labor
Office	Communication	Labor	Office
Communication		Leasing etc.	Communication



Efficiency
Profitability

Waste of Resources
Inefficiency!

Spent money for nothing (80%)
Unprofitability!

Worst case: extra costs for claims, compensation, loss of customer!

Conclusion

It is crucial to know the condition of the CASING and the RETREAD.

Visual inspection is sufficient to detect external damages.

Internal defects remain invisible to the human eye. Solutions are available:

“Non-destructive Testing

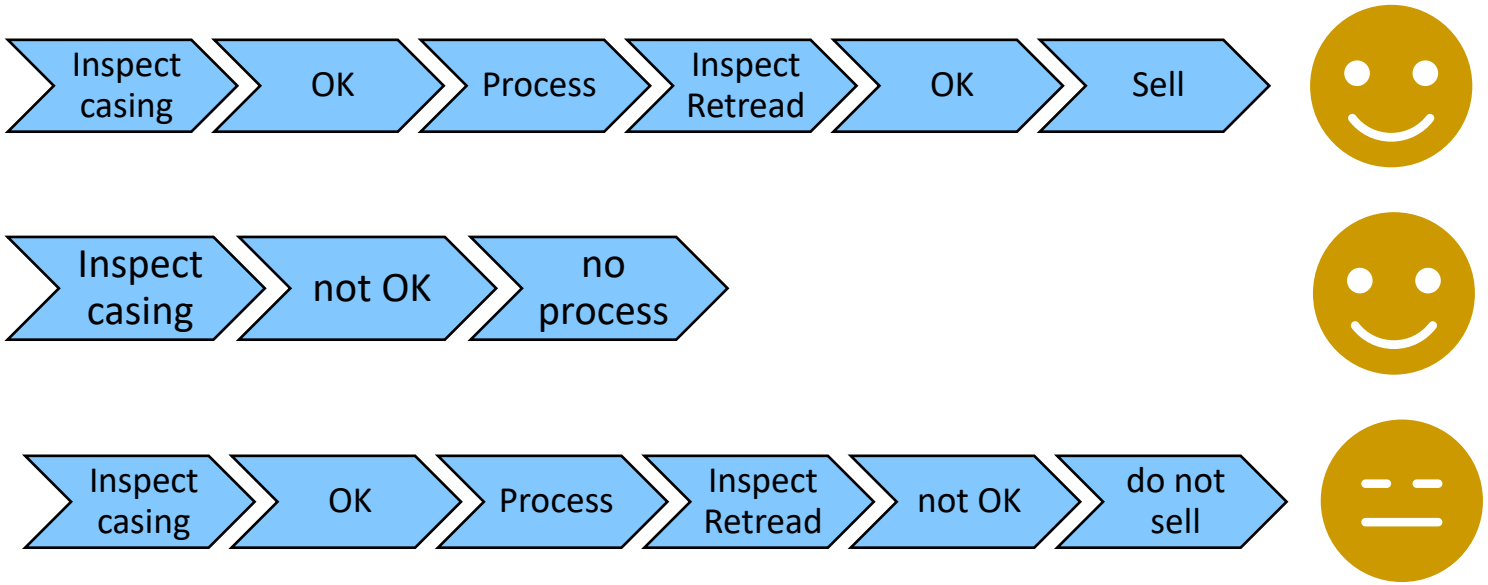
Thanks to various non-destructive testing machinery now in place at most retread plants, retreaders now have the ability to actually see inside the tire…”

(Source: TRIB website; https://www.retread.org/copy-of-how-a-tire-is-retreaded-5)

Conclusion

Shearography will help to detect internal damages (separations), caused by various reasons.

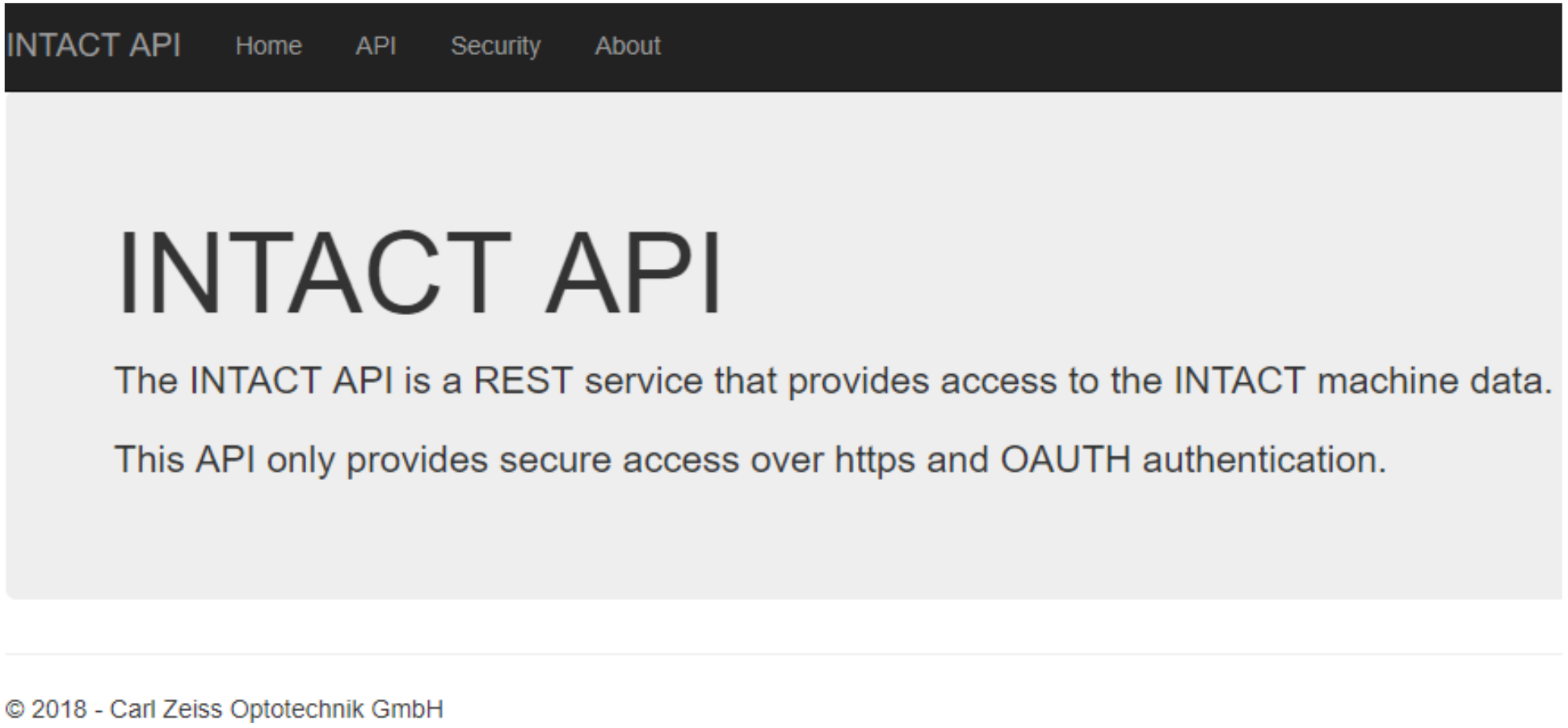
This will assure the retreader to use resources on suitable casings and to avoid bad retreads to be sold to the market.



Now the circle closes…….

- Reliable product quality: with Shearography the CASING and the RETREAD can be checked – **quality assurance**
- Competitive pricing: avoidance of waste of resources **increases profitability and resiliance**
- Product availability: avoidance of waste of resources **increases flexibility**
- Service and support: less claims provide time **to develop business** in a positive way

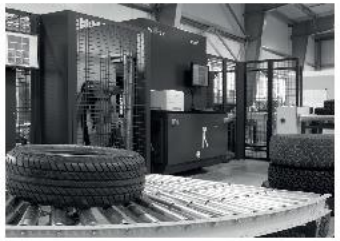
Web API for data exchange



A variety of Systems – lets talk about it!

ZEISS INTACT®1200-4

SHEAROGRAPHY TIRE INSPECTION
PASSENGER CAR / TRUCK TIRES



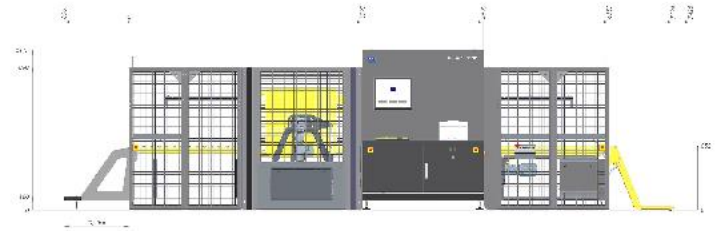
Efficient shearography tire inspection with ZEISS INTACT®1200-4 - for more safety and quality.

ZEISS INTACT 1200-4:
TOP PERFORMANCE FOR 100 % CONTROL

The shearography tire inspection system ZEISS INTACT 1200-4 is developed especially for the testing of passenger car and truck tires in new tire manufacturing plants with the highest production output. Including loading and unloading, the cycle time is 36 seconds for the complete inspection of the tire tread and shoulder area. This makes the system ideally suited for the final quality check in tire production.

COMPLETE QUALITY CONTROL

ZEISS INTACT 1200-4 is designed for continuous operation and is therefore optimized for the highest production output. Thus, the system facilitates a complete quality inspection for state-of-the-art tire production plants.



ZEISS INTACT 1200-4: inline system configuration with basic unit, loading unit with conveyortilt table, optional tire flipper, drop-off unit

ZEISS INTACT®1200-1

SHEAROGRAPHY TIRE INSPECTION
PASSENGER CAR / TRUCK TIRES

Efficient shearography tire inspection with ZEISS INTACT®1200-1 in retreading, test laboratories and development - for more safety and quality.

ZEISS INTACT 1200-1:
THE PROVEN ENTRY-LEVEL SYSTEM
FOR SHEAROGRAPHY TIRE INSPECTION

The system variant ZEISS INTACT 1200-1 offers a wide field of applications especially for the use of retreaders operating with smaller numbers of tires, in test laboratories and for tire development purposes.
The system has a modular design:
The ZEISS INTACT 1200-1 configuration can be upgraded to the system variant ZEISS INTACT 1200-2 at any time, should further throughput capacity be required. This includes extension with a second door and loading/unloading unit with protective grating. The user thus benefits from the advantages of a higher test cycle speed.

ZEISS INTACT 1200-1: Offline system configuration with basic unit, loading/unloading unit and tilt table

A variety of Systems – lets talk about it.

ZEISS INTACT®1200-2

SHEAROGRAPHY TIRE INSPECTION
PASSENGER CAR / TRUCK TIRES

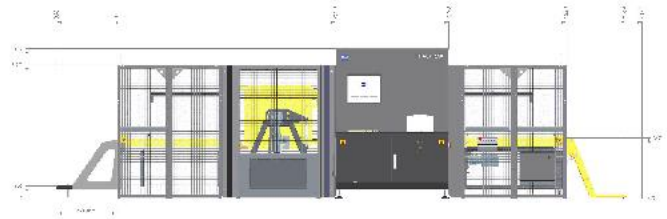
Efficient shearography tire inspection with ZEISS INTACT®1200-2 in tire retreading - for more safety and quality.

ZEISS INTACT 1200-2:
HIGH PERFORMANCE FOR 100 % CONTROL

The shearography tire test system ZEISS INTACT 1200-2 for passenger, light truck and truck tires has been especially developed for tire manufacturers and retreaders operating with a high daily capacity. Owing to its high efficiency, the ZEISS INTACT 1200-2 can be used for a 100 % control.
Due to the short cycle time of only 1 minute which includes the loading/unloading as well as the complete test of the tread and shoulder area of a tire, the system is suitable for testing both the incoming carcasses and the retreaded tires as well as new tires.

MODULAR SYSTEM DESIGN
FOR INDIVIDUAL INTEGRATION

The modular system design of the ZEISS INTACT 1200-2 unit allows the integration with customer-specific conveyor systems with buffer belts, branchings and the integration of several ZEISS INTACT units for a highly efficient, overall inspection plant.



ZEISS INTACT 1200-2: Inline system configuration with basic unit, loading unit with conveyor/tilt table, optional tire flipper, drop-off unit

ZEISS INTACT®1600

SHEAROGRAPHY TIRE INSPECTION
PASSENGER CAR / TRUCK / EARTH MOVER / OTR / AIRCRAFT TIRES

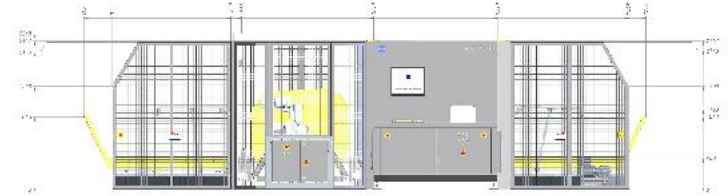
Efficient shearography tire inspection with ZEISS INTACT®1600 in retreading - for more safety and quality.

ZEISS INTACT 1600-1:
VERSATILE AND RELIABLE QUALITY CONTROL

The shearography tire system INTACT 1600-1 is the most versatile system from ZEISS. Featuring an extremely maneuverable single measuring head, it enables a wide variety of tire dimensions to be tested fully automatically.
Thus, ZEISS INTACT 1600-1 is especially suitable for the retreading of aircraft tires and has already been installed at well-known international tire companies to guarantee a high safety level in aviation.

ZEISS INTACT 1600-2:
FAST SERIAL INSPECTION

The shearography tire test system ZEISS INTACT 1600-2 is designed for the serial testing of retreaded or new passenger car, truck, EM, OTR and aircraft tires, as well as for the control of tire carcasses before retreading. With ZEISS INTACT 1600-2, tires with an outer diameter of up to 1600 mm can be inspected in the tread and shoulder areas during a short test cycle of just over one minute.



ZEISS INTACT 1600-1: System configuration with basic unit, tire flipper, loading unit with tilt table, conveyor/protective fence, drop-off unit with tilt table/rollers


ZEISS