

Johannes Messer – Consulting GmbH



Aluminium Casting: Success Story Part 2

Transformation in the multidimensional field of tension

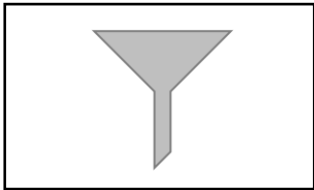
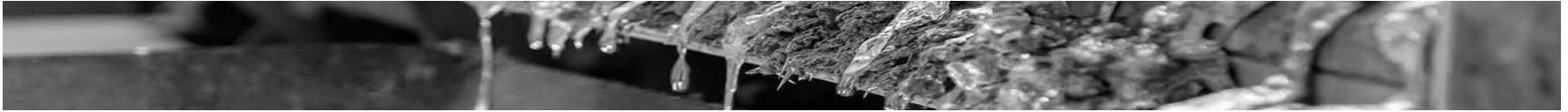
Know the past - Accept the present - Shape the future

Objective of the document

Transformation in the multidimensional field of tension

Objective of the document

- Assessment of the complex overall situation of the foundries in Germany in the context of the Corona crisis and the global transformation in the automotive industry.
 - Know the past (what were the guarantors of success?)
 - Accept the present (understand the crisis as an opportunity)
 - Shaping the future (minimizing risks, seizing opportunities)
- Develop a roadmap for a successful future (**Success Story Part 2**).



A

Management
Summary

B

Know the Past

- Success Story Part 1

C

“Accept” the Present

D

Shape the Future

- Risks
- Opportunities
- To do`s

E

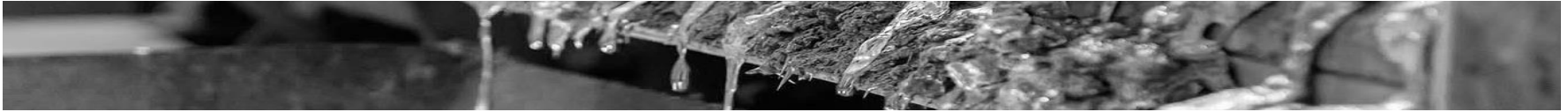
“Where the journey should be going?”

- Success Story Part 2

Management Summary

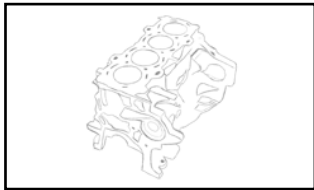
- The global aluminium casting industry has been supported by permanent growth since the 1980s. The substitution of many parts of the powertrain with aluminium castings played a major role in this **success story (Part 1)**. The successes have shaped the industry over the years sustained and changed. For several years, however, growth has often not been sufficient to match the economic success of previous years
- At the end of 2018, the growth of the automotive industry and thus also the growth of the foundry industry suddenly stalled. Then with the spread of Corona pandemic in the first quarter 2020, the crisis in the crisis arose for the industry.
- In the context of the multidimensional challenges and the corona pandemic, the foundry industry is currently in a situation of historic significance. Experts believe that the aftermath of this situation are long-term.
- In addition to the first known economic effects (e.g. increase in insolvencies in the automotive industry in Germany) and the expected lower sales (compared to 2017) in the next few years, further risks are foreseeable and must be assessed individually.
- Regardless of all dangers and risks, the trend towards lightweight construction in the automotive industry continues unabated. Even in competition with other applications / processes (aluminum sheets, aluminum profiles) and materials (steel, fiber-reinforced plastics, ...), this opens up enormous opportunities for aluminum foundries.
- The foundries must now:
 - **Individually** - implement the necessary internal changes in order to sustainably confirm their market authorization.
 - **Together** - making lightweight construction "everywhere" technologically and economically possible through aluminum casting

If everyone wants success together, the extraordinary foundry network in Germany / Europe can make **part 2 of the success story** at least as successful as **part 1**.



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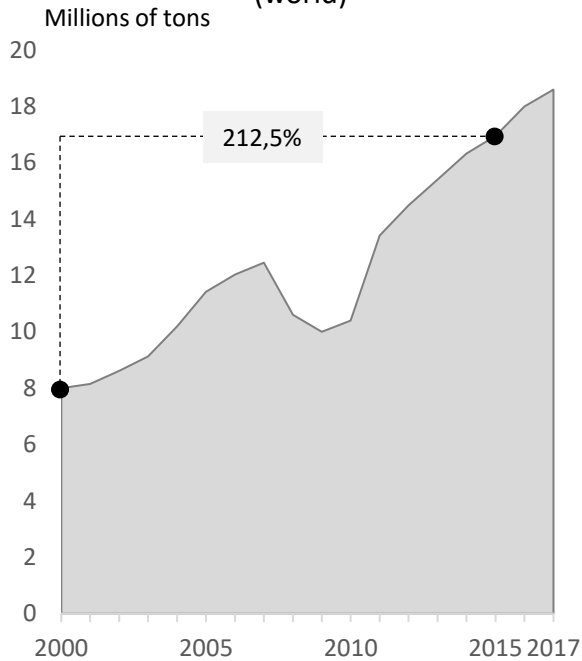
“Where the
journey should be
going?”

- Success Story
Part 2

Know the Past → Success Story Part 1

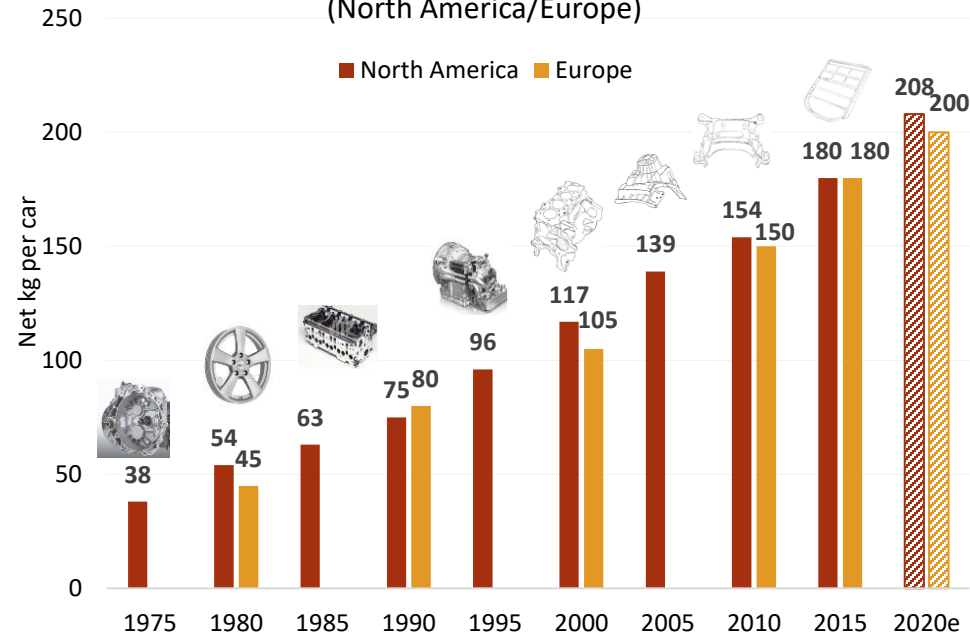
The **success story** of aluminum casting began in the mid-1970s with the substitution of essential automotive parts in the powertrain with **cast aluminum**.

Aluminium-Cast Production 2000 – 2017
(world)



Source: IKB

Aluminium content – cars
(North America/Europe)



Source: North America data: Ducker Analysis July 2020; Data Europe: Gießerei

➤ Between **2000 and 2015**, the global production volume has **more than doubled**.

➤ With the **excellent know-how** of the entire value-added network, outstanding casting developments have emerged mainly in Europe.

Know the Past → Success Story Part 1

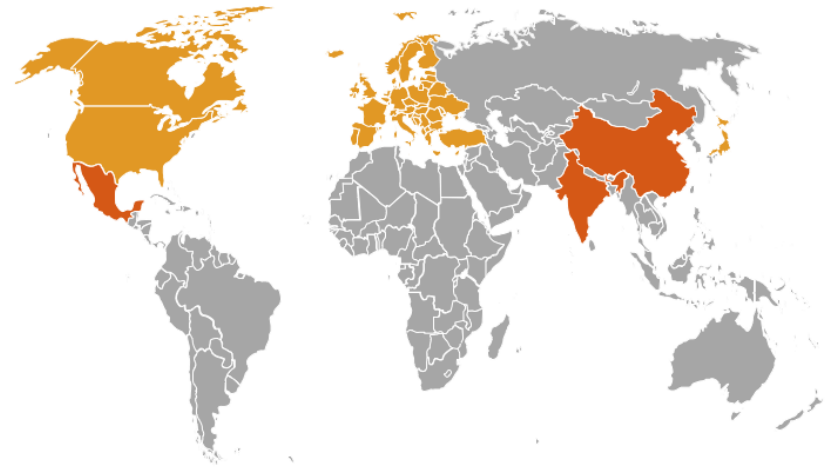
The enormous growth and increased importance of the foundries has led to **far-reaching changes** in the global foundry industry.

HPDC 1980

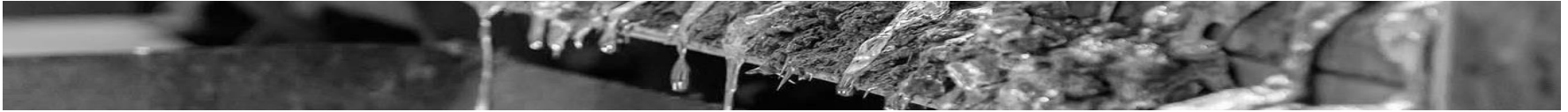


- In the 1980s, **Europe (Germany)** followed by Japan and the USA was the **development and innovation center** for aluminum casting. The market participants are predominantly medium-sized and locally based traditional companies.
- As a **perceived supplier** and important development partner to the automotive industry, the foundries are becoming the focus of strategic and financial investor.
-

HPDC 2020



- With the ongoing internationalization of the OEMs and the entry of investors, the **foundries** are also **becoming more international**. The first large corporations emerge.
- Regions like **Mexico, China** and meanwhile **India** are growing in importance and are becoming the center of new investments. Some undefined new foundry capacities are created (China)
-



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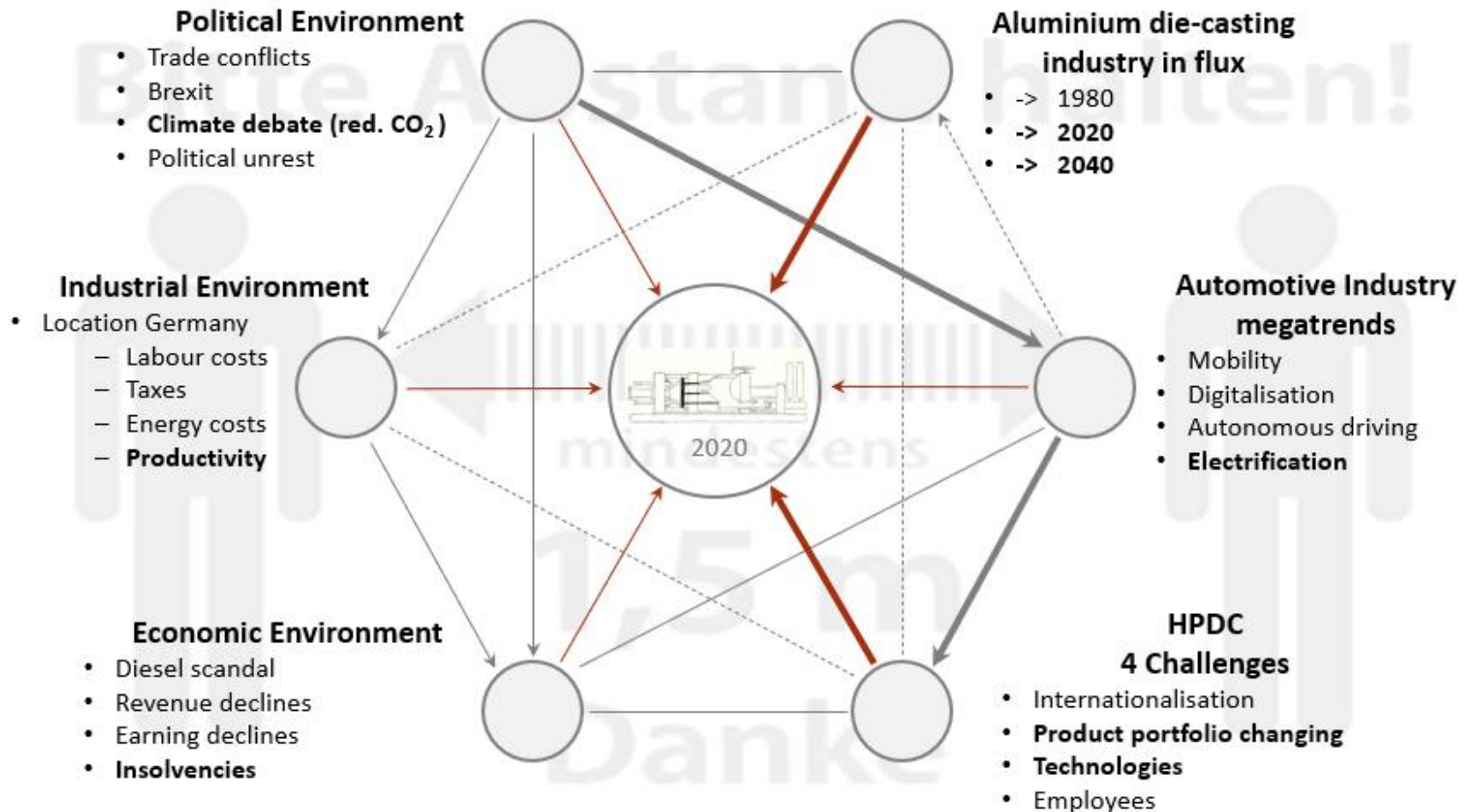
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“Where the
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- Success Story
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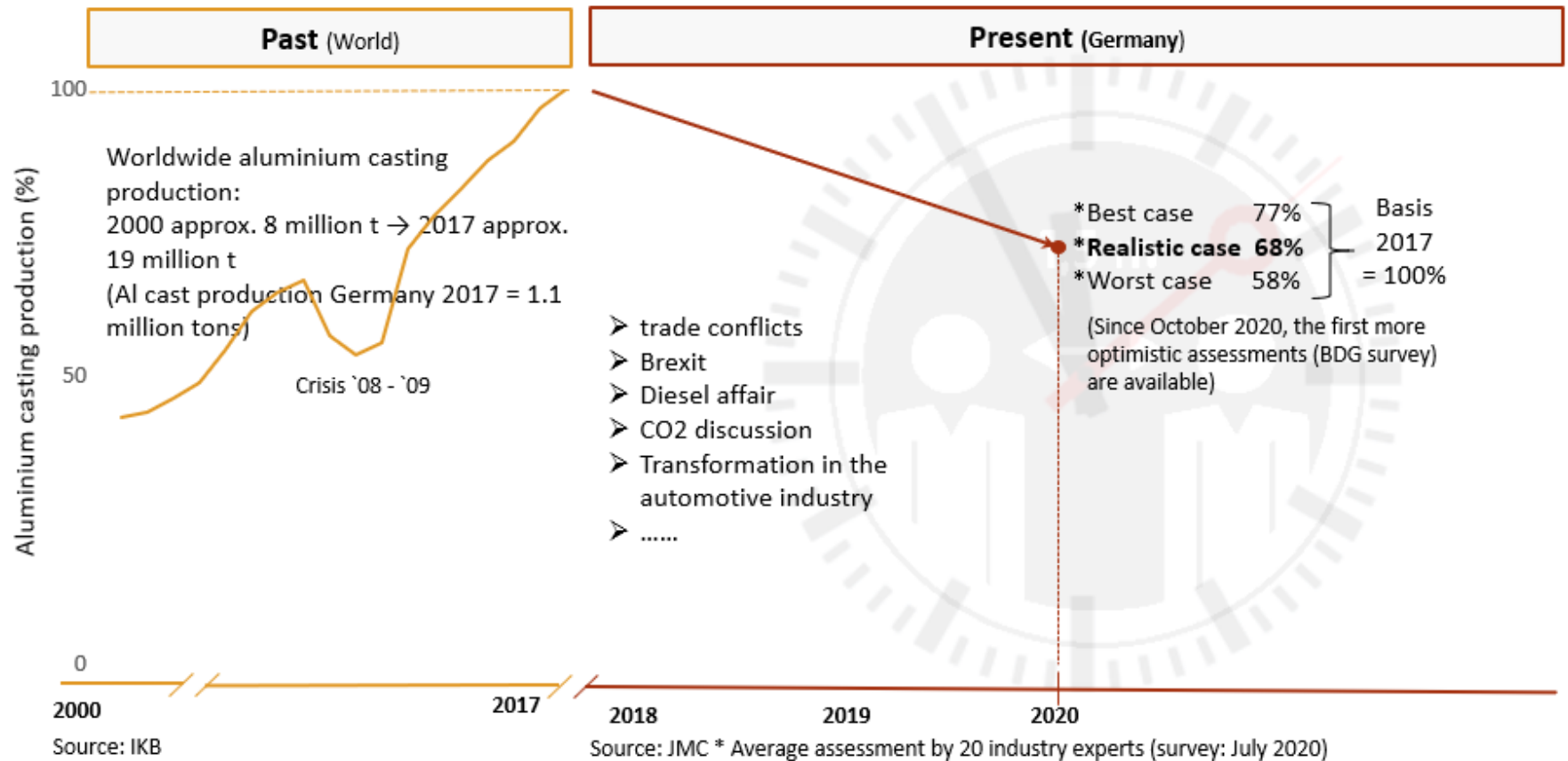
“Accept” the present

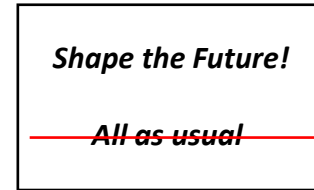
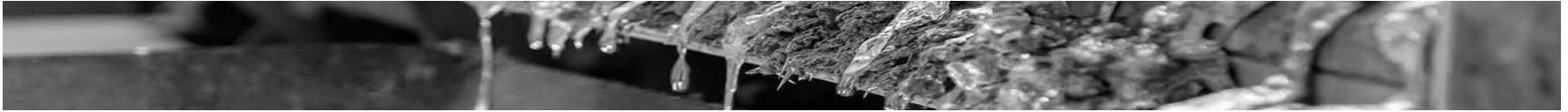
In the fourth quarter of 2018, the **success story** came to a standstill, in principle without warning or fault of the foundries. In addition, the corona pandemic hit the foundries at the worst possible time in early 2020. As a result, the aluminum foundry industry in Germany is **currently** in a complex, **multi-dimensional field of tension**



“Accept” the present

The challenges are great, the risks exist. The aftermath of the crisis is rated by experts as long-term. Regardless, the opportunities are enormous and real. The time to seize the opportunities is now at the latest.





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Shape the Future: Risks

The first serious effects of the crisis can be seen in the automotive industry. The foundry industry is hardest hit. In the foundries concerned, **lawyers** and **business attorneys** have now taken on the design of the future.

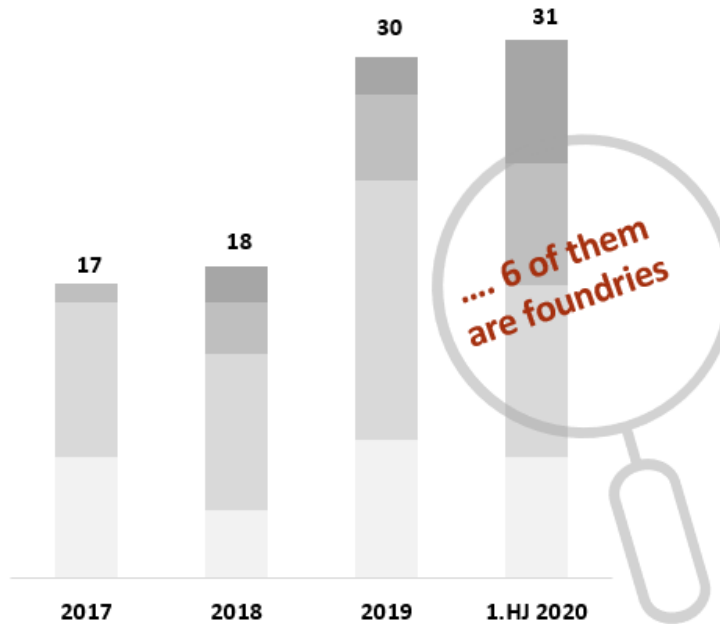
FINANCE WIRTSCHAFT
 20.08.20
Großinsolvenzen bei Automotive verdoppeln sich



Wirtschaft
KSM Castings Group beantragt Insolvenz
 03.07.2020 | Autor: Jens Scheiner

Number of bankruptcies (automotive industry)

■ 10 - 20 Mio. ■ 20 - 50 Mio. ■ 50 - 100 Mio. ■ > 100 Mio.



Source: Automobilindustrie 21.08.2020

In der Pandemie ausgebremst
Auto-Zulieferer stecken bis zum Hals in Schulden - nun droht eine Pleitewelle



Source: Focus online, 16.08.20

Autoindustrie: Zulieferer bauen massenweise Stellen ab

Source: Finanzmarktwelt 17.09.20

DGH-Pleite: Amtsgericht Dresden eröffnet Insolvenzverfahren

Der Automobilzulieferer DGH-Group ist zum zweiten Mal pleite. Der Strukturwandel in der Autoindustrie und die Coronakrise haben den Hersteller von Struktur-, Motor- und Getriebeteilen aus Leichtmetall schwer getroffen. Nun wurde in Dresden das Insolvenzverfahren eröffnet.

Source: DNN 04.09.2020



Are lawyers and business attorneys able to shape a successful future for the foundry industry in Germany?

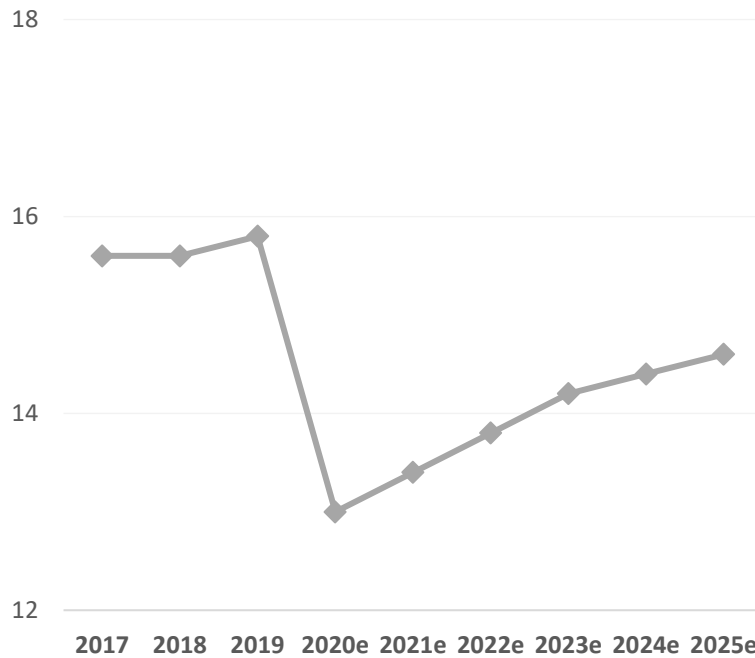
Shape the Future: Risks

The consequences of the crisis are assessed differently by experts, but the core statement is assessed as **serious** and **long-term**.

Automotive Industry

Development of car sales in Europe by 2025

Million vehicles

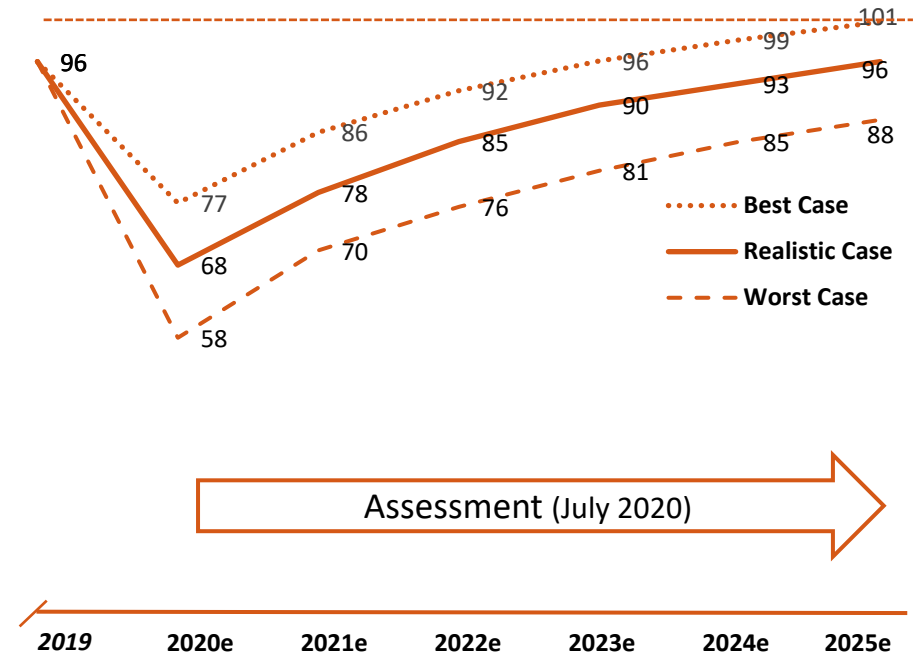


Source: ICI Universität St. Gallen

Foundry Industry

Future (D) *

Aluminium casting production in% (2017 = 100%)



Assessment (July 2020) →

Source: JMC * Ø assessment by 20 German industry experts (July 2020)



Since October there have been the first signs that indicate a somewhat more positive course (short and long term). According to the current BDG survey, 54% of the foundries surveyed assume that figures like 2018 will be achieved again in 2022

Shape the Future: Risks

In addition to the first known economic effects (e.g. insolvencies) and the expected lack of sales in the next few years, **other major risks** are foreseeable and must be assessed individually.

Highest Risks

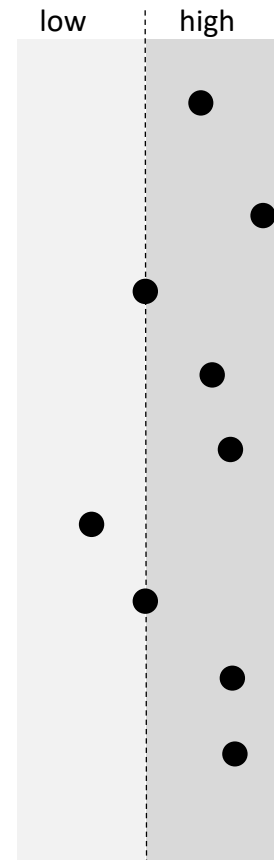


"The best way to predict the future is to create it."

Abraham Lincoln

- Earnings contributions from previous cash cow products (drive train) are missing
- Cost reduction programs from customer
- Demands for the CO2 neutral foundry
- Competition through other processes, materials
- Loss of trust among "investors" (foundry rating) ↓
- Industrial environment at the location in Germany
- Relocation to the OEM's own foundries
- Distortion of competition as a result of bankruptcies
- Increase in competition (global overcapacities)
-

Risk assessment 1)



1) General risk assessment (JMC) compared to the current situation

Shape the Future: Opportunities

HZD GmbH feiert Neustart nach der Insolvenz

Am Freitag hat Dana Minor, die neue Chefin der HZD GmbH, mit zwei Veranstaltungen den Neustart des Unternehmens nach der Insolvenz gefeiert. Die Firma habe sie von Anfang an fasziniert, gab sie zu.

Source: MAZ 29.08.2020

'FAZ': Neuer Fonds will sich bei Autozulieferern einkaufen - IG-Metall-Idee

Ein neuer Beteiligungsfonds mit dem ehemaligen Arbeitsagentur-Chef Frank-Jürgen Weise als Geschäftsführer will notleidende Automobilzulieferer kaufen. Der Fonds mit dem Namen Best Owner Group (BOG) habe es auf Unternehmen abgesehen, die vor allem in der Teileproduktion für Verbrennungsmotoren aktiv seien und deshalb am Kapitalmarkt kaum noch an frisches Geld

Source: Handelsblatt 16.10.20

BMW-Aktie: BMW mit überraschend guter Entwicklung der Finanzen im Quartal

Quelle: Finanz Nachrichten 19.10.20

Karosserie aus einem Guss: Teslas gigantische Druckgussmaschine „bald“ betriebsbereit

Source: Automobilindustrie 17.08.2020

WIRTSCHAFT, HANDEL & FINANZEN

ROUNDUP: Aktionäre und Analysten begeistert von Daimler-Quartalszahlen

Mit derart starken Zahlen hat kaum einer gerechnet: Ein deutliches Plus des Autobauers Daimler im dritten Quartal

Source: Handelsblatt 16.10.20

"Unvorstellbare Geschwindigkeit"

Noch schneller als in Shanghai: Tesla-Gigafabrik soll in Rekordzeit stehen

Quelle: Focus 03.08.2020

Insolvenzverfahren offiziell eröffnet

Mehrere Großfirmen wollen KSM Castings in Hildesheim kaufen

Hildesheim - Mindestens sieben potenzielle Investoren hinterlegen ihr Interesse. Die Eigentümer wollen den Betrieb aber behalten und sanieren – halten sie diese Linie durch?

Source: Hildesheimer Allgemeine Zeitung 05.10.2020

China Market Insider

„Neue Ära“ für Plug-in-Hybride in China

15.10.2020 | Autor / Redakteur: Henrik Bork* / [Sven Prawitz](#)

In China werden nun auch Neuwagen mit Plug-in-Hybrid-Technik gefördert. Davon könnte unter anderem Volkswagen stark profitieren.

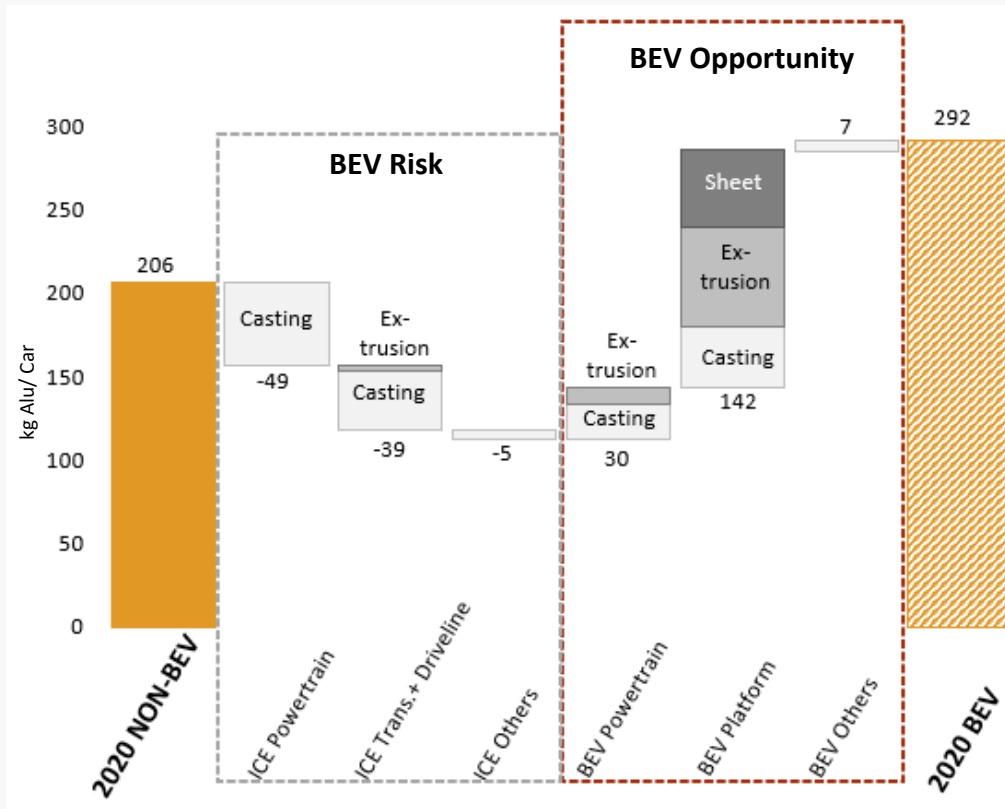
Source: Automobil-Industrie (Literatur)

Shape the Future: Opportunities

The transformation (ICE → example BEV) in the automotive industry offers besides the obvious risks ("loss" of the powertrain) **enormous opportunities** for **lightweight** construction thus for the material **aluminium** and ultimately the **AI foundries**.

Aluminium Content (cars)

Transformation ICE → BEV



Scenario

Transformation ICE → BEV

With a transformation from the classic internal combustion engine (ICE) to the electric motor (BEV), many foundries would lose their current bread and butter parts of the powertrain.

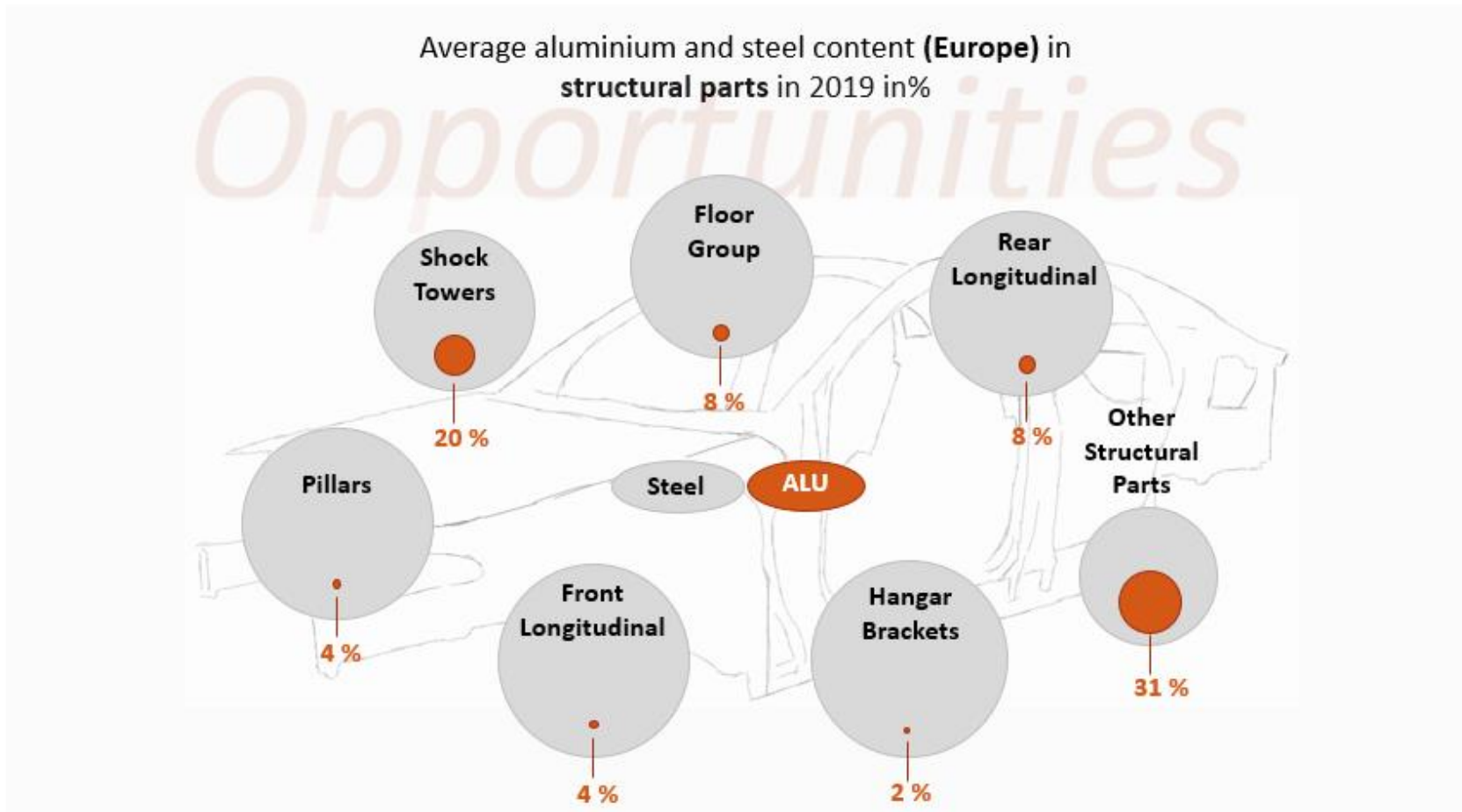
In addition to new parts for the electric motor (housing, battery box, ...), the proportion of chassis and structural parts would continue to increase. The main reason is the increasing need to lose weight.

The growth opportunities for aluminium foundries also lie around the expected aluminium sheets and profiles. As a development leader, the foundry network must work out attractive solutions and present them to the OEMs

Data source: Ducker study July 2020 (North American market)

Shape the Future: Opportunities

In addition to the opportunities in the classic predatory competition (aluminium sheets and profiles, steel applications), the cast applications already implemented in the upper vehicle classes must be won for the mass vehicle classes of micro and small cars.



Data source: Ducker study July

Shape the Future: Opportunities

In addition to the opportunities and risks shown in the market, it is important to know your own strengths and weaknesses.

SWOT analysis: "How does JMC assess the German aluminium foundry industry in the current turbulent environment?"

Strengths

- Competent, outstanding foundry technology network (foundries, tool makers, machine manufacturers, universities, ...)
- Functioning customer relationship and proximity to major OEMs
- Excellent process know-how (employees)
-

Opportunities

- Make greater use of cooperation along the existing and exceptionally competent value-added network
- Politicians, associations, trade unions, banks, universities, OEMs must assume their special responsibility and introduce improved framework conditions
- Make better use of know-how (advantage)
- Enable technologically and economically substitution of other car parts with cast aluminum
-

Weaknesses

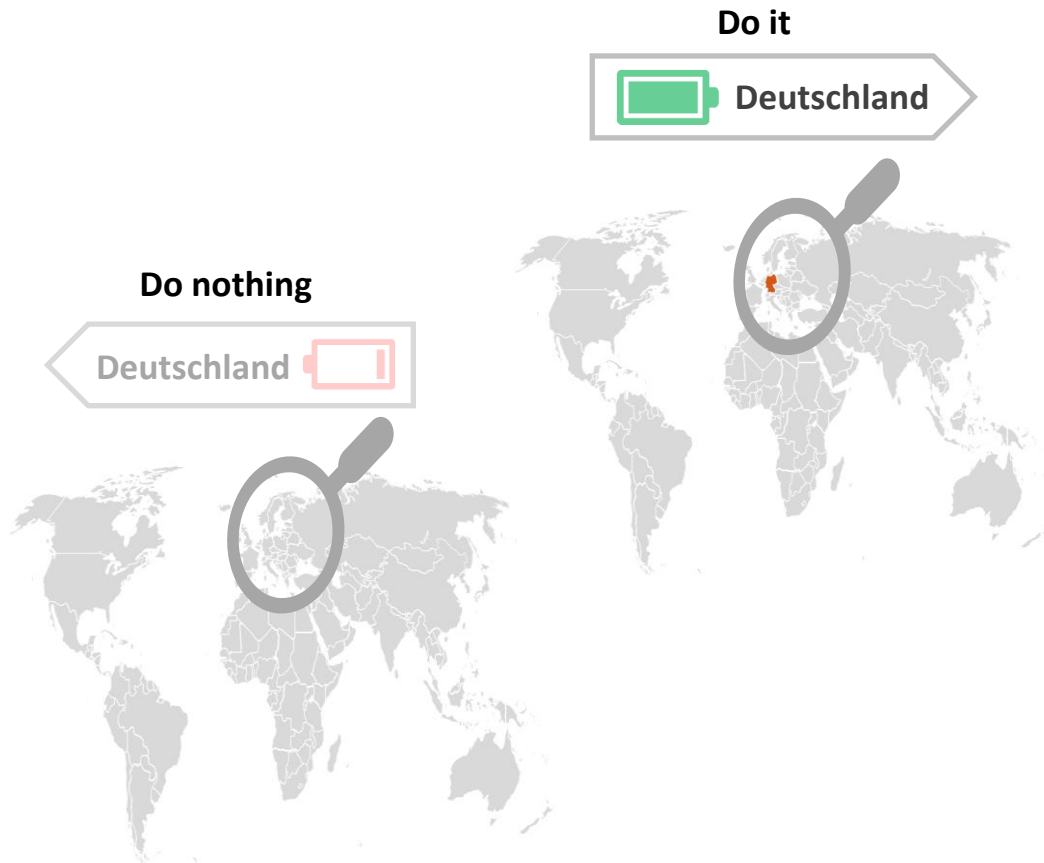
- Partly outdated machinery and site layout in the foundries
- Industrial environment in Germany (taxes, wage costs, energy costs)
- Earnings- and financial situation (liquidity)
- Declining investments in recent years
- Slow willingness to change, even in the current crisis
-

Risks

- The complexity of the current challenges overstains the predominantly medium-sized companies
- Everyone in the value chain tries to solve the overriding challenges on their own.
- The financial aftermath of the crisis is longer and larger than expected
-

Shape the Future: To do`s

Deriving from the **past and the present**, as well as the knowledge of one's own **strengths and weaknesses**, it is now important to shape the future of the foundry companies and the foundry location Germany.



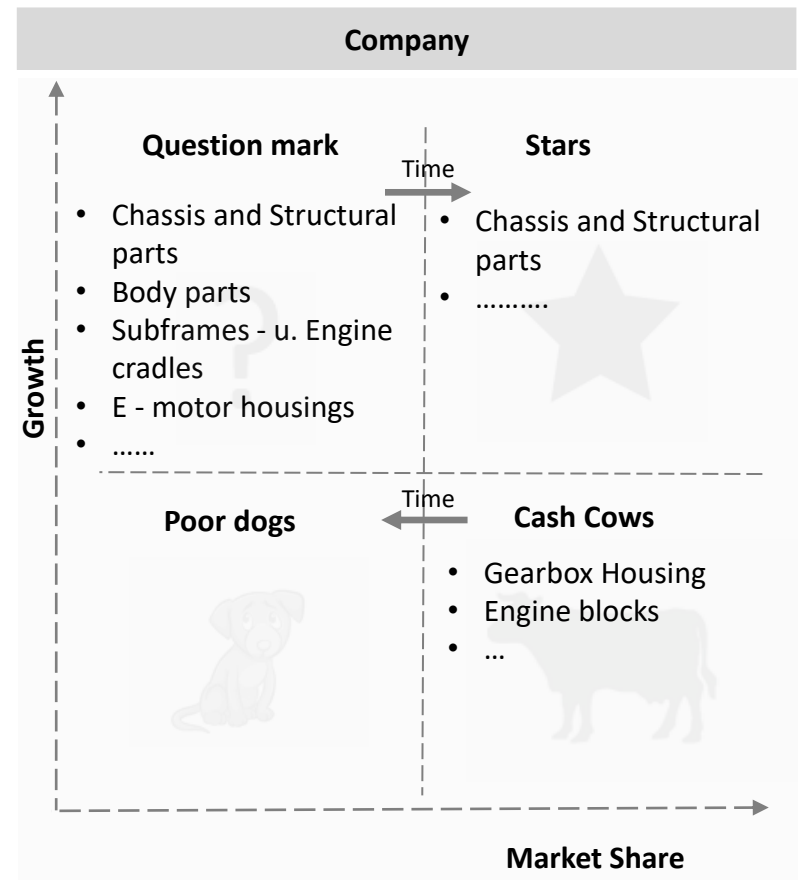
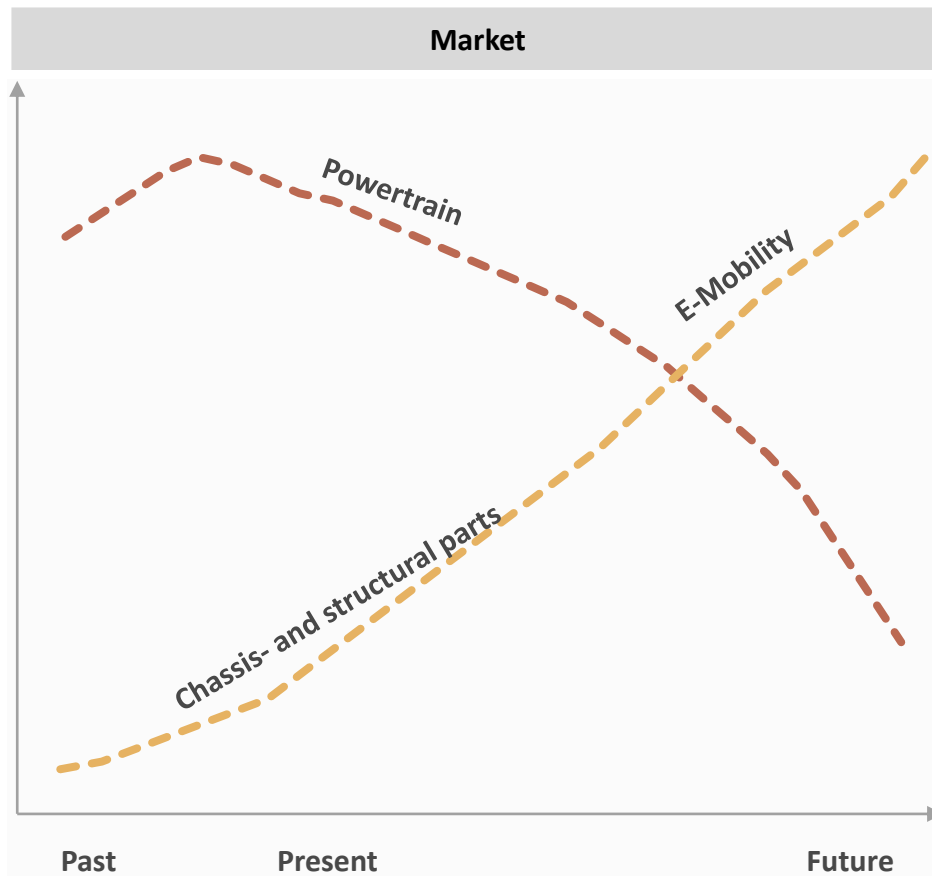
To do`s

- Alignment of the product portfolio
- Economically focused technology orientation
- Managing investments
- Merging the value chain
- "Preserving and shaping" liquidity
- Find partners
- Understand CIP as a lever for success
- Accept and implement the new normality
- Changes in line with the key success criteria's
- Look beyond the box

Shape the Future: To do`s → Alignment of the product portfolio

The transformation is in progress. The foundries must use the cash flow of the **cash cows** to develop **stars** from the **question marks**. The direction should be subject to permanent readjustment to have the right ratio of cash cows, question marks and stars.

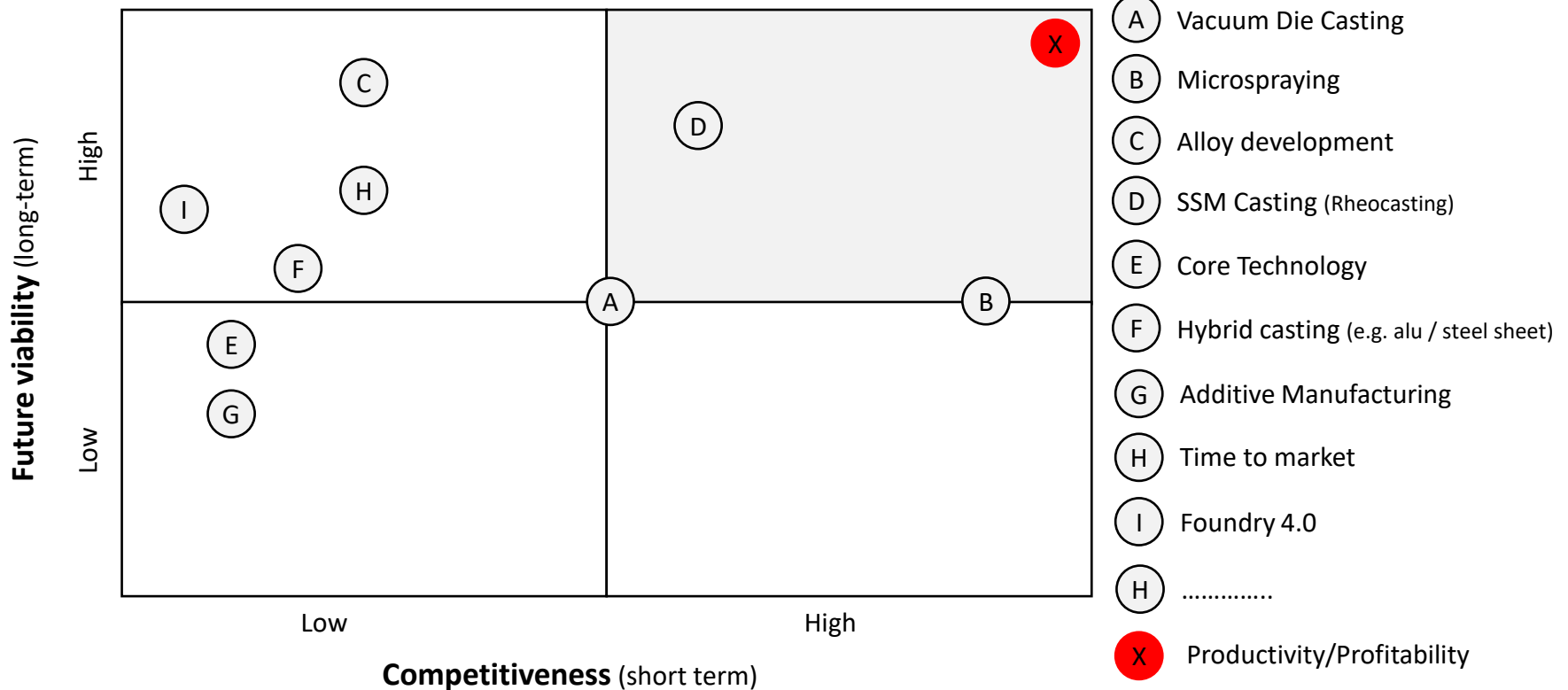
Alignment product portfolio



Shape the Future: To do`s → Economically focused technology orientation

A technology roadmap has to be created individually for each foundry according to technological and economic aspects. The technology roadmap is the basis for the short and long-term success of the company and, in part, the entire industry.

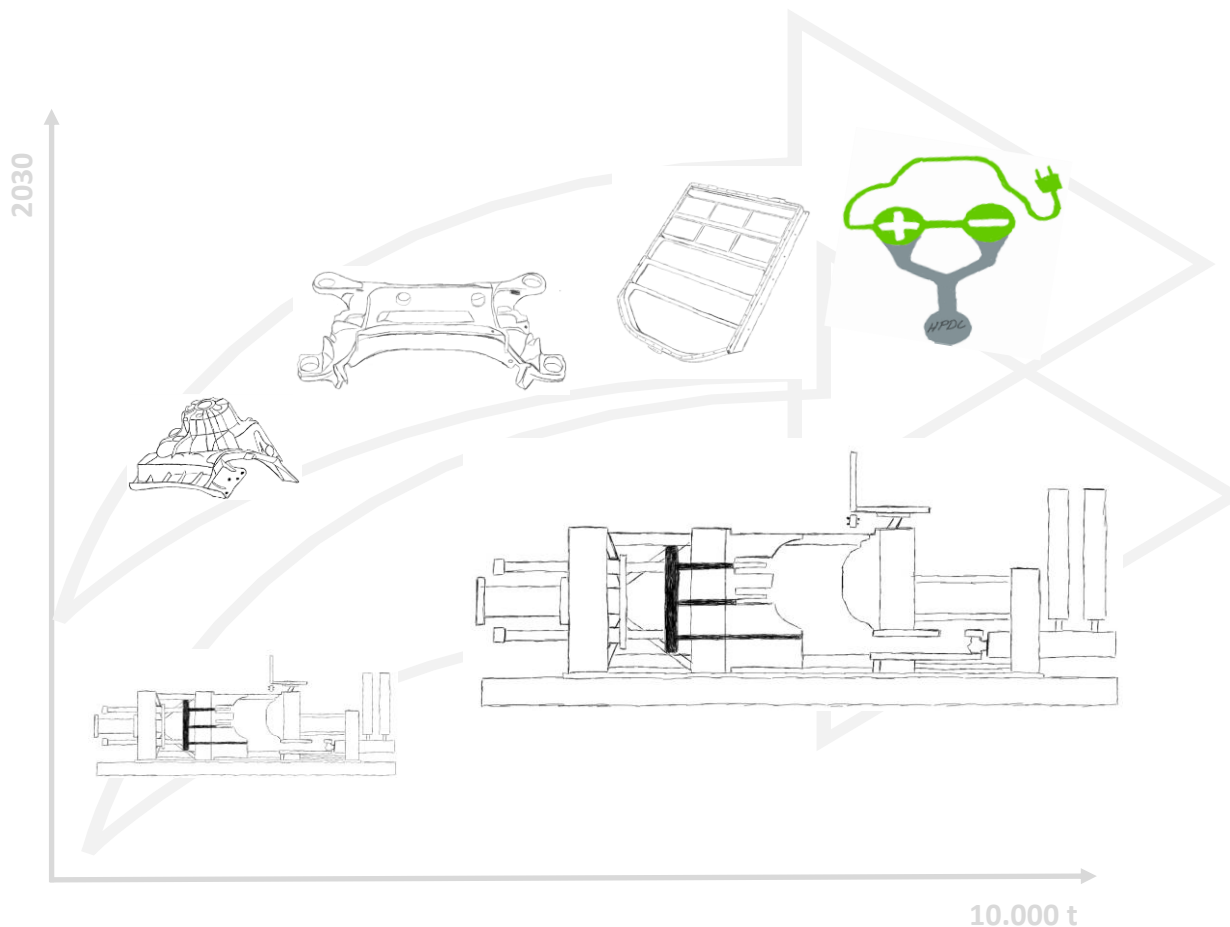
Technology-Roadmap Foundry Example 1)



1) The evaluation is individual and depends on the company and its product portfolio. The assessment carried out here is based on a Ø die casting foundry in Germany with a classic product portfolio as an automotive supplier (JMC assessment).

Shape the Future: To do`s → Managing investments

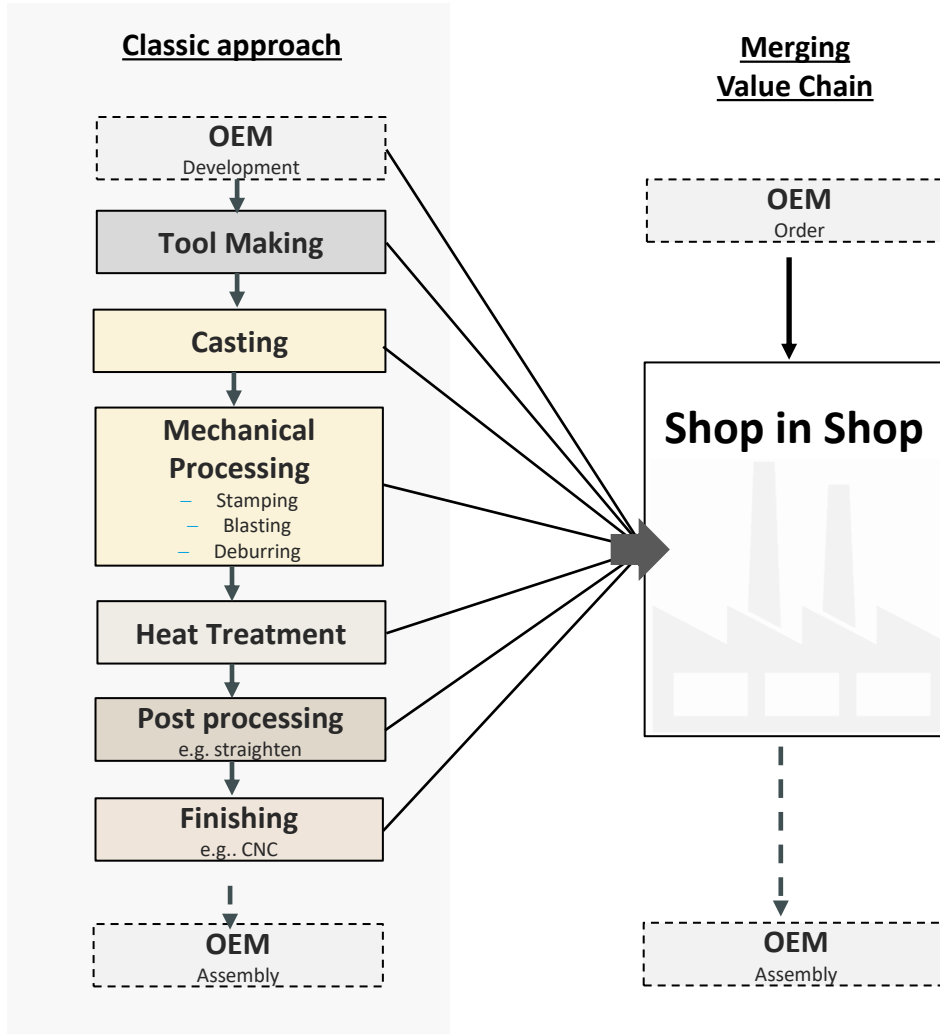
Liquidity will remain a determining issue for the next few years. Investments should therefore be made in **core competencies** and be based on market growth. Economically and technologically, the trend in the growth markets of chassis and structural parts as well as e-mobility in classic die casting is towards greater locking forces.



- Italpresse Gauss (ITA): bis 5700 t
- Idra (ITA): bis 6200 t
- LK (CHN): bis 6000 t
- Bühler (CHE): bis 5600 t -> **8400 t**
- Frech (DEU): bis 4400 t
- Maicopresse (ITA): bis 4200 t
- Haitian (CHN): bis 4500 t
- Yizumi (CHN): bis 4500 t
- Toshiba (JPN): bis 4000 t
- OMS (ITA): bis 3500 t
- UBE (JPN): bis 3500 t
- Colosio (ITA): bis 3200 t
- Zitai (TWN): bis 3000 t

Shape the Future: To do`s → Merging the value chain

The merging of the entire value chain brings enormous economic and technological advantages.



In the last few years **two trends** have been identified.

1. Mostly large foundries have invested in the entire value chain. This has the advantage that an optimal value stream can be mapped. On the other hand, there are high investments for the individual (risk, liquidity) and the not always optimal know-how in individual production steps

2. Smaller foundries have mainly concentrated on a few operations (casting, mechanical processing, ...). Operations with high investment requirements (CNC machining, heat treatment, ...) were partly bought externally. Investments were distributed in this way. However, the value stream and the technology used in some cases were not always optimal

In the future, individual solutions are to be sought that:

- latest technologies enable
- ideal manufacturing know-how ensure
- preserve liquidity (... of the individual)
- optimal value stream guarantee
- reduce time to market

→ **competitive castings offer**

Shape the Future: To do`s → "Preserving and shaping" liquidity

To successfully shape the future, foundries absolutely need financial leeway. The current environment will offer short-term opportunities to improve one's own strategic position. **Liquidity** offers the opportunity to use this.

"Preserving and shaping" liquidity

- Find partners
 - Reduce investments (new markets, additional added value, ...)
 - Reduce development costs
- Use broad range of leasing
- Turn fixed costs into variable ones
- Factoring (products and forms)
- Refinancing
- Check funding programs/ grants
- Use working capital existing potential
-



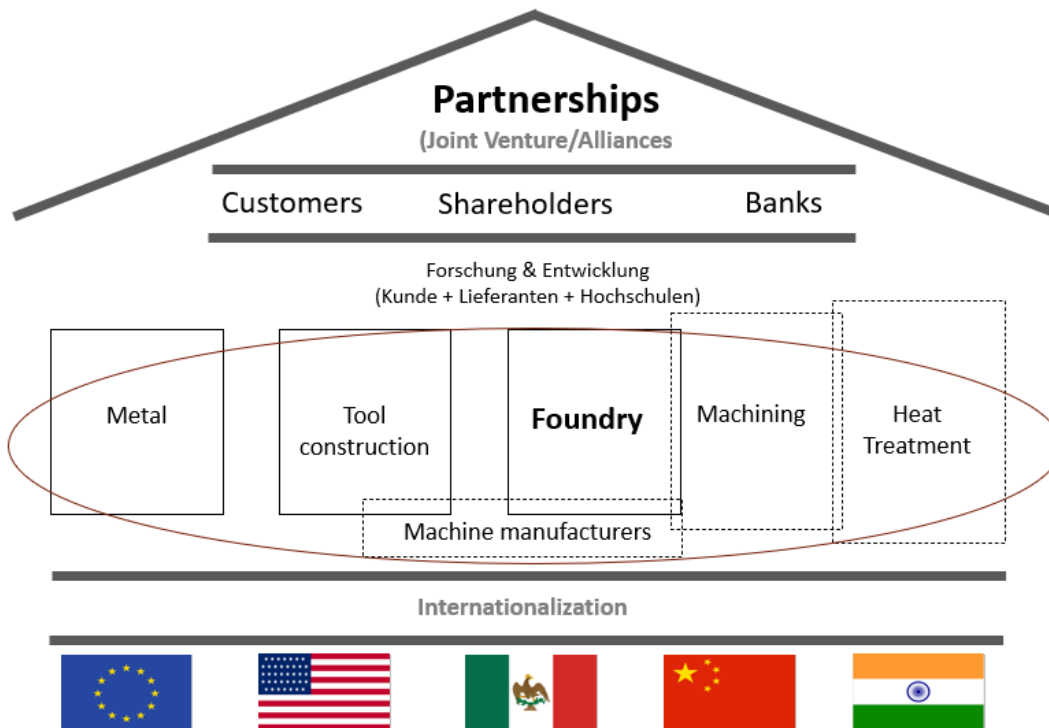
Example: Working Capital

- Raw metal inventories
 - Just in time deliveries
 - Liquid metal insert
 - Introduce consignment stock
- Finished parts stock
 - Making production more flexible (e.g. through short set-up times)
 - Reduction of Cycle Times
 - Eliminate capacity bottlenecks
 - Negotiating consignment stock with customers
- Roll stocks (tools)
 - Optimized form releases
 - Negotiate payment terms with customers
 - Reduction of procurement times
- Receivables Management
 - Proactive receivables management
 - Consider customer pay runs
 - Extend payment terms



Shape the Future: To do`s → Find partners

Partnerships, joint ventures, and alliances are one of the most important strategic levers of the future. The complexity of the challenges and the high costs currently associated with them (investments, development costs, advance payments) can no longer be borne by individual foundries alone. Rethinking and acting is imperative here in the short term.



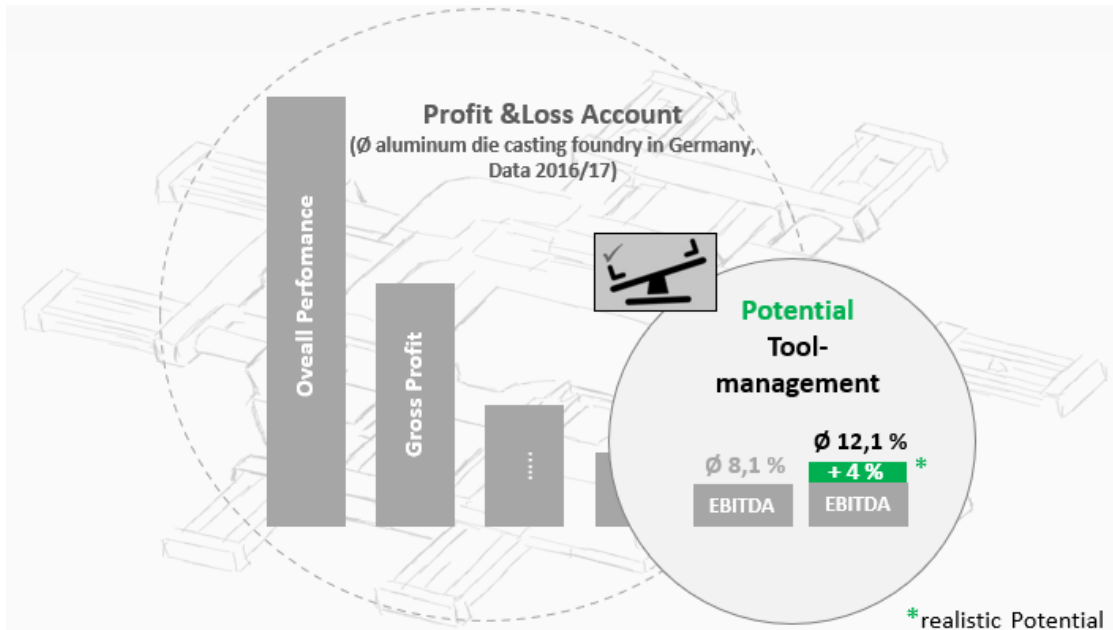
Leverage for success Find partners

- Cooperation with metal suppliers (reworking, raw metal consignment warehouse, purchasing metal in liquid form, ...)
- Cooperation with tool makers (development, construction, spare parts management, sampling, ...)
- Machining outsourced (shop in shop)
- Internationalization (acquisition, JV, partnerships ...)
- Purchasing partnerships (along the value chain)
- Development partnerships (... with competitors, suppliers, customers, ...)
-

Shape the Future: To do`s → Understand CIP as a lever for success

CIP is still one of the most important **success levers** in foundries. The potentials are often not exhausted. In most cases, short-term earnings (EBITDA) can be generated with reasonable effort.

Leverage for success: tool management (example) Tool costs, tool repair costs, OEE



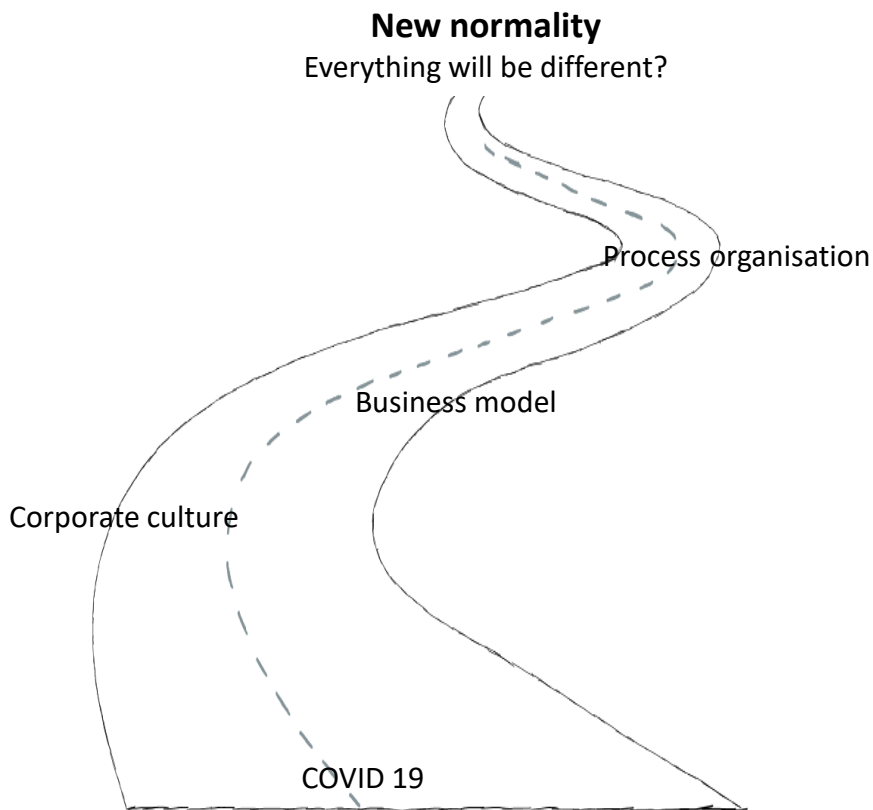
.... further levers for success

- **Optimize set-up times** (foundry and machining)
 - **Reduce Cycle times**
 - **Reduce Shot weight**
 - **Time to Market**
 - **Just in Time** (Reduction of stocks, reduction of special trips)
 - **Value stream/Material flow**
 - **Optimize Standardization**
 - **Introduce Improvement management**
 - ...
- Effort** **Benefit**

Shape the Future: To do`s → Accept and implement the new normality

The corona pandemic hit companies overnight. The transfer of the process organization to the new normal had second priority for many companies and has mostly not yet been implemented.

"The successful implementation of the new normality of corporate processes is not (only) home office with video conferences"



Companies became ...

... more digital

... more flexible

... virtual

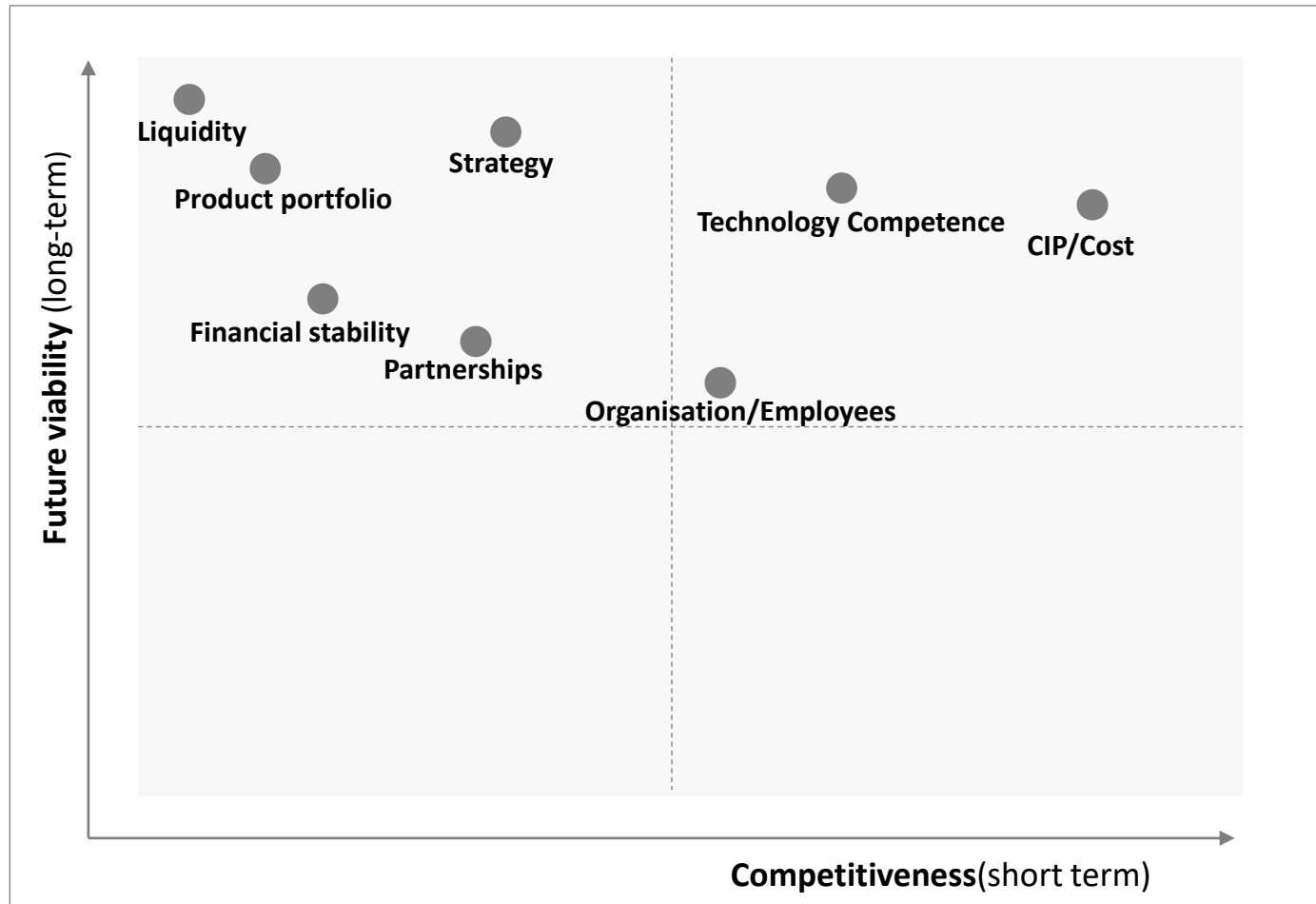
... anonymous

Challenges

- Be an example for new values, norms, and attitudes
- Replacement of social communication
- Assess individual productivity based on results and not by presence
- Leadership through personal responsibility and freedom
- Understand Information as obligation
- Virtual replacement of coffee, lunch and smoking breaks
-

Shape the Future: To do`s → Changes in line with the key success criteria's

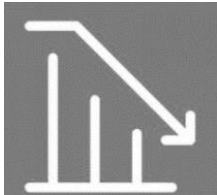
To achieve sustainable market authorization as a company, it is important that **all** key success criteria are optimized in accordance with **competitiveness (short-term)** and **future viability (long-term)**. A selective optimum of individual criteria is not sufficient.



Shape the Future: To do`s → Look beyond the box

In addition to the presented to do's, further new approaches must be found in the long term. The entire value-added network must look outside the box together.

Redimensioned Organizations/Processes/ Procedures



- Foundry buy for each other (Central Purchasing Organizations for e.g. tools, metal, ...)
- 24/7 (twenty-four/seven) the entire company (also administrative)

Benchmark Industrial environment?



- Adjust labour costs/hour depending on productivity (reference size Ø Germany to the Ø rest of Europe)
- Government promotion for investments in the future with long-term, success-based repayment (higher taxes on new sales)

Forward-looking business models

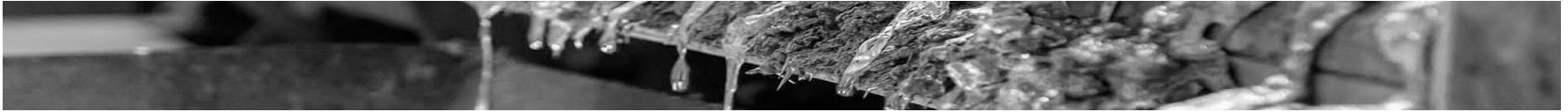


- Foundries receive "shares" (profit participation) from the OEM as payment
- Procurement without request (determination of costs only in the case of an industrialized process)

Ground breaking technologies/products



- First 10,000 to casting machine (foundry + tool maker + machine manufacturers invest together)
- All AI-Potentials in the car of AI-Casting
- Cost sharing in joint development projects, including the know-how carriers involved (staff costs)



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journey should be
going?”

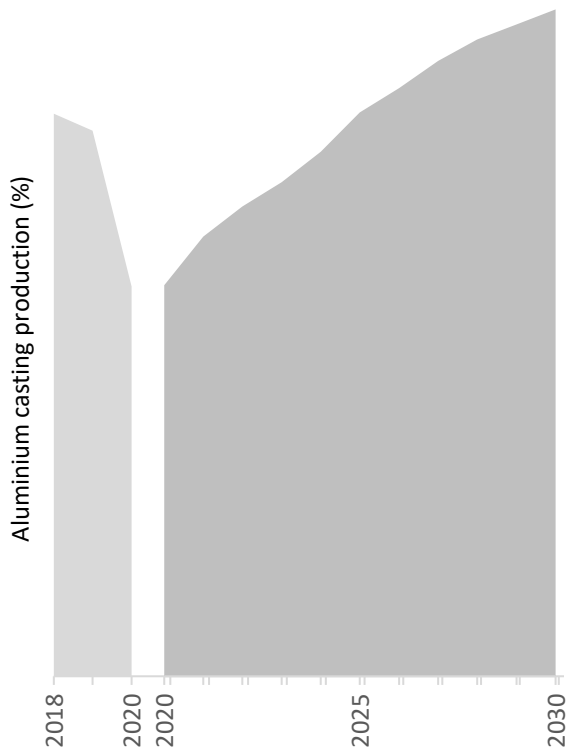
- Success Story Part 2

“Where the journey should be going?”

In order to write part 2 of the success story "Aluminium-Casting", the foundries have to create the necessary conditions individually but also together.

Aluminium-Casting Production

Success Story Part 2



Quelle: JMC

Individually

- The foundries must implement the necessary changes (to do's) internally in order to sustainably confirm their market authorization

Together

To make lightweight construction by aluminium casting technologically and economically possible, the foundry networks must ...

- .. work together along the entire value chain
 - Customers
 - Tool makers
 - Metal suppliers
 - Founder
 - Machining Companies
 - Machine Manufacturers
 -
- .. technologically targeted and coordinated
- .. develop a common target definition (strategy)

“Where the journey should be going?”

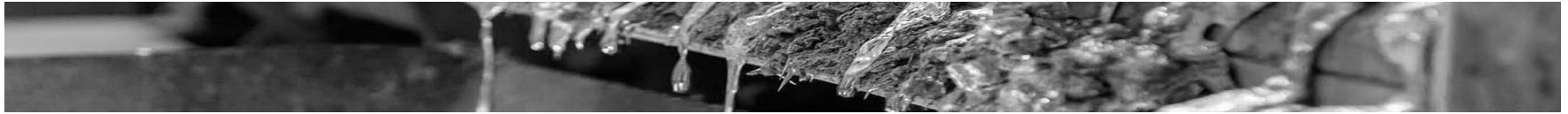
The opportunities for lightweight construction, thus for the material aluminium and ultimately for the Al-Foundries, are exceptional. If it is possible to bring together the know-how of the foundry network and to win over all stakeholders for joint success, the basis for part 2 of the success story is laid.



„100% Lightweight = 100% Aluminium Casting“

Impulse Initiative
of the foundry value network

Metal suppliers, tool makers, foundries, machine manufacturers, machining companies ..
... accompanied by politics, trade unions and associations
win for joint success and enable lightweight construction through aluminium casting



We would be happy to discuss with you
... our assessments, experiences, and recommendations



“ It's not said that it gets better when things get different.
But if it should get better, it must be different ”.

Georg Christoph Lichtenberg



STRATEGY DEVELOPMENT



MANAGEMENT CONSULTING
INTERIM MANAGEMENT



NETWORKING



COMPANY ANALYSIS