Johannes Messer – Consulting GmbH

Estimates for aluminum castings requirements 2020-2025 (Germany)

Expert Opinion

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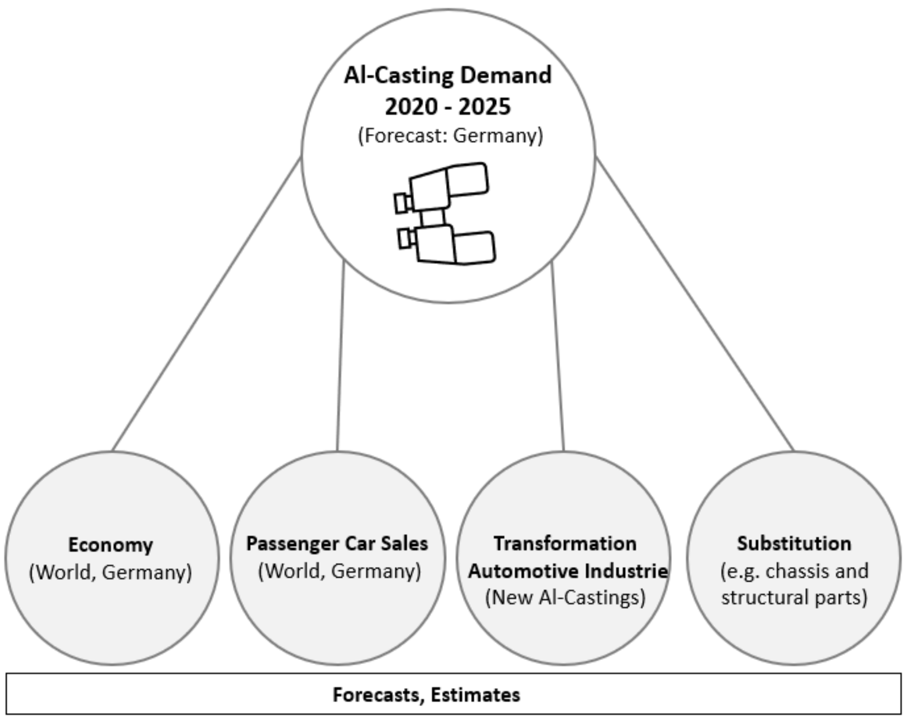
Expert Opinion: Introduction, Procedure

A lot has been written about the current development of the global economy and especially the automotive industry in the past weeks and months. All major consulting firms, institutes and associations concerned have made forecasts about the development of the markets. Partly with large fluctuations in the statements. The one, correct forecast cannot yet be recognized.
There are currently **no forecasts for the development of the demand for cast aluminium parts**. The difficulty is that many of today's cast aluminium parts (drive train) will be eliminated in the future and new cast aluminium parts will be created by new drives or by substitution of other parts.
To provide the Al foundries with an answer to the upcoming strategic questions (technology, investments, partnerships, cost adjustments, ...), an Al castings demand forecast for 2020-2025 was created for Germany.



Procedure:

Based on available general forecasts, the market and technology knowledge of foundry and market experts was used to obtain an assessment of the development of aluminium castings in Germany 2020-2025.

20 experts from the following areas were surveyed: foundry, tool making, machine manufacturer, university, foundry advice, customers (OEM, Tier 1).

As a result, best, worst and realistic case scenarios for the aluminum cast parts need for Germany for the years 2020-2025 emerged.

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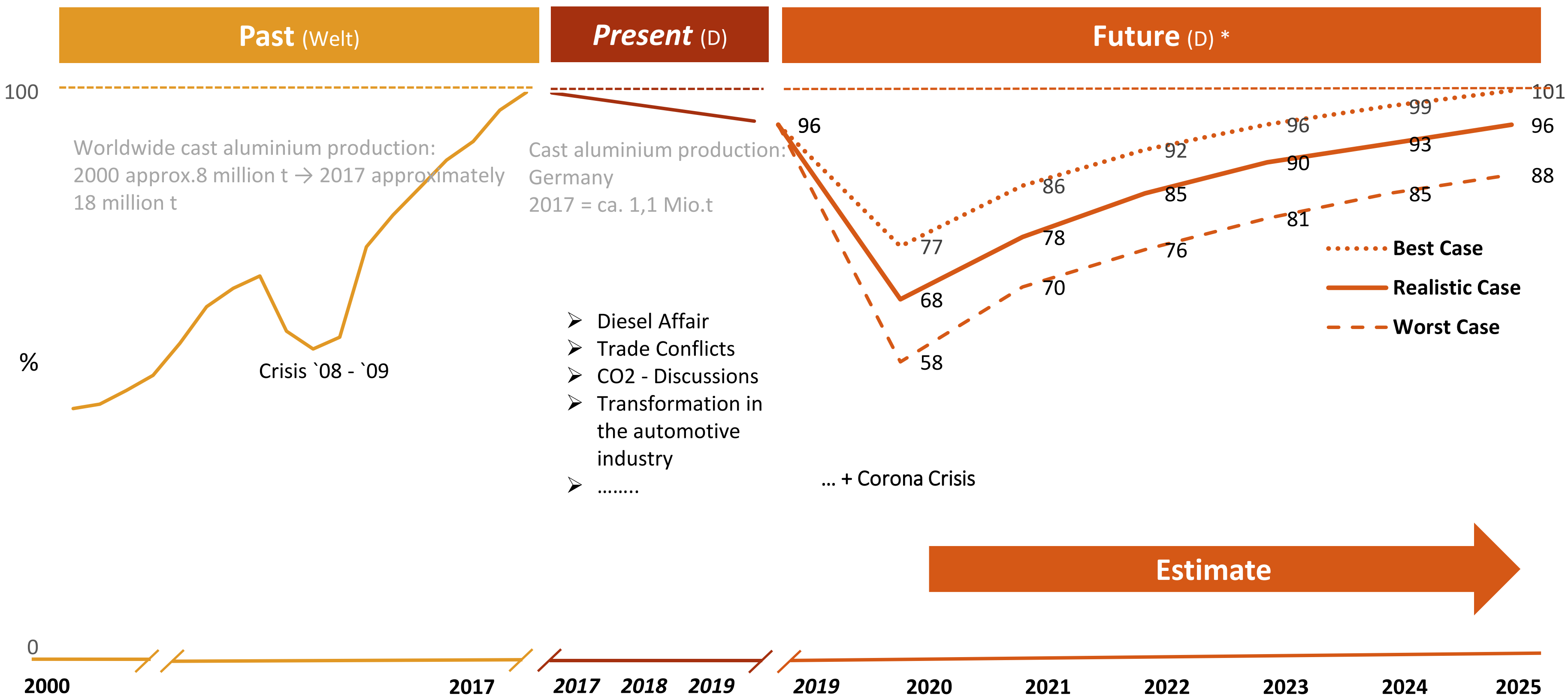
Expert Opinion: Results

As the **most important** and in principle **consistent statement / assessment**, all experts assume that the aluminium cast production figures 2017 (base year = 100%) will be reached again in Germany in 2025 at the earliest. The increase is generally expected to be flat.



* Average estimate of 20 industry experts

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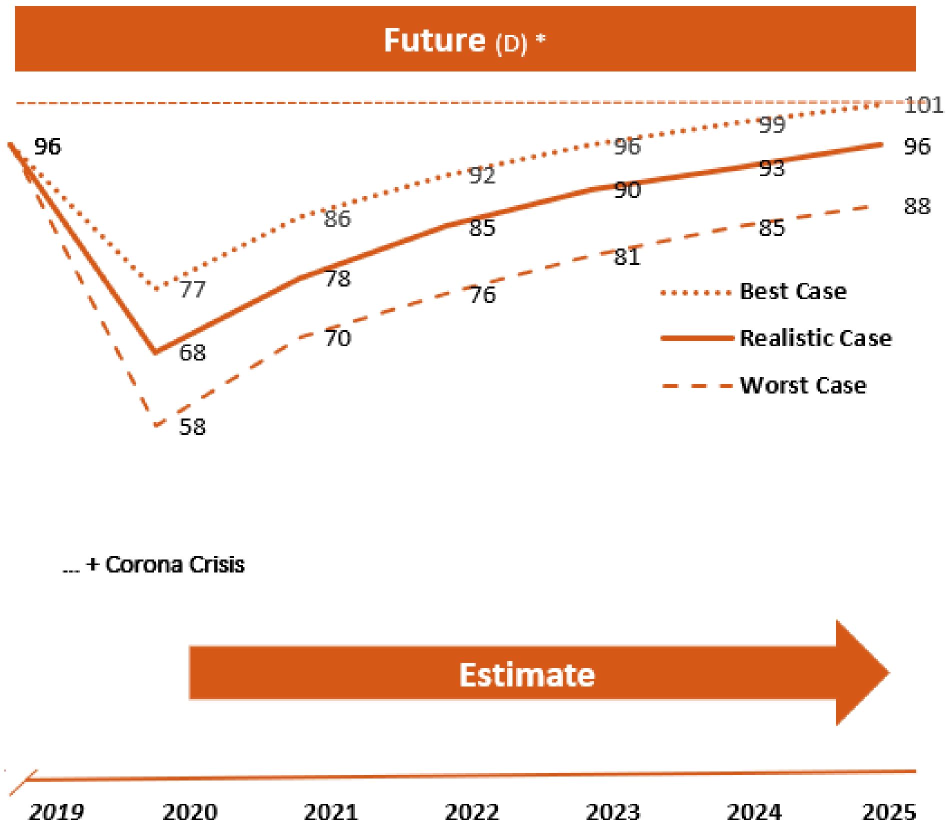
Expert Opinion: Results, Findings

In addition to the forecast values, there are other **findings**. Here too there is a high degree of agreement among the experts. Above all, there is agreement that **classic crisis levers** from the past will **not be enough** this time to face the challenges ahead.



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(Further) - **Findings**

- In the area of chassis and structural parts, in addition to the already known applications (medium and upper-class vehicles), opportunities are also seen in smaller vehicle classes. However, strong competition from other production processes is expected here.
- In the growth markets of chassis and structural parts, as well as battery boxes, growth is expected primarily in the upper clamping force ranges (HPDC).
- A trend towards shifting casting production to the growth markets is still expected / seen.
- It is expected that technology issues will be more important than in the recent past.
- Economic and technological competition will also gain in importance due to overcapacity.
- Liquidity remains an important issue.

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The most important To Do's

Some of the challenges listed were existent even before the Corona crisis. Corona has exacerbated the tension.
The foundries are currently at an epochal milestone with enormous risks and considerable opportunities.

- Capacities in all areas need to be adjusted to the expected development over the next few years.
- Fixed costs must be converted into variable costs. Flexibility takes on a new and significantly higher importance.
- The corporate strategy must be developed or revised individually and in the context of risks and opportunities.
- The technology roadmap must now be adapted to current requirements. Technology issues can only be successfully implemented along the entire value chain with all parties involved (partners).
- The tasks facing companies and management are complex. Technological, economic and strategic knowledge are required. Cooperation, partnerships and exchange / advice are valuable and should be striven for.
- In addition to the companies, the key stakeholders (politics, associations, banks, unions) must assume their role and task on their own responsibility. Accompanying support is a must and necessary.
- The upcoming measures must not be postponed. Necessary changes should be implemented as soon as possible.

To Do`s

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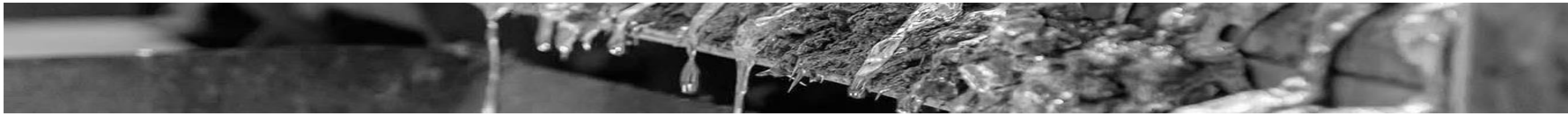

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“ It's not said that it gets better when things get different.
But if it should get better, it must be different ”.

Georg Christoph Lichtenberg

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