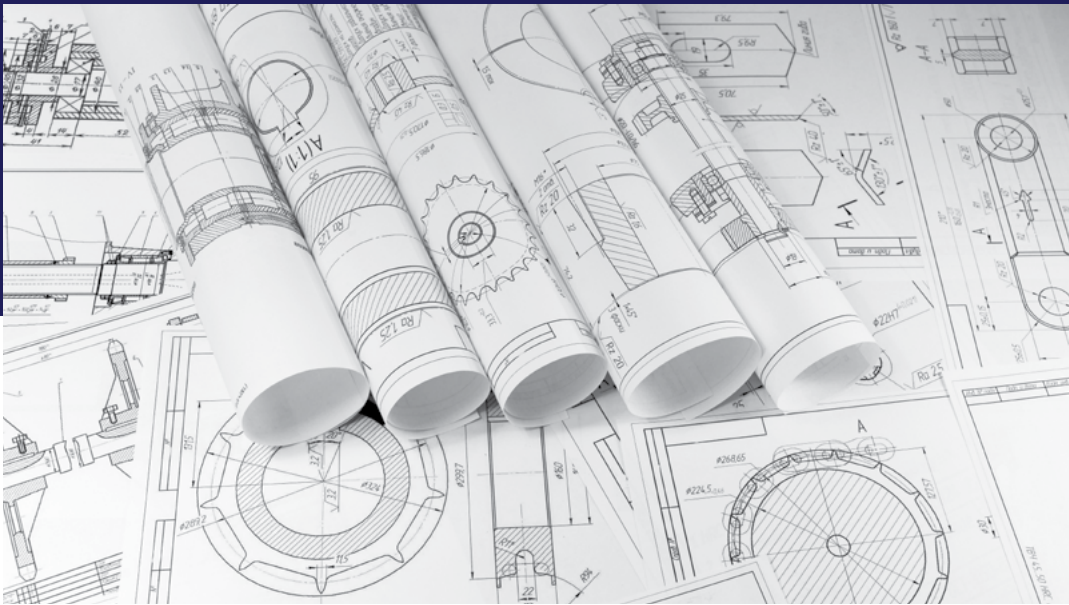




---

# Milestones and Challenges in a Successful Manufacturing Product Launch

# Introduction



Launching a new product in the manufacturing industry can propel your business forward or bring it to a crashing halt. With a failure rate of 39%, manufacturing launches involve high risks, unpredictable costs, and countless hurdles along the way. The biggest challenges are preparation and navigation. Success requires a thorough understanding of operational and process changes, which become difficult when dealing with a new or innovative product. Therefore, it is important to set milestones and anticipate key challenges for your team, implementing the necessary systems from the very beginning. This guide serves as a road map, steering you through the common failure points and providing insights into the processes that will eliminate inefficiencies and ease production flow.

## MILESTONE 01



# Product Design

Effective planning is imperative to innovation, particularly in the manufacturing industry, where product development drives growth at high stakes. The product design phase is a critical first step, which consists primarily of high-level strategizing regarding [budget, product style, and functional requirements](#). At this early stage, product design conversations are generally focused on consumer considerations such as product appeal and commercialization rather than practical realities such as the formability limitations of certain materials or possible assembly issues.

It is natural for the product design process to become more [granular throughout the product launch lifecycle instead of crystallizing straight away](#). However, many designers create a vision that misaligns with manufacturing capabilities. This misalignment will ultimately create [bottlenecks and delays](#), requiring iterative and unnecessary discussions to establish an actionable product design plan. As much as [70%](#) of the product launch cost is determined at this stage, so it is important to implement a detailed planning process that approaches the launch holistically and eliminates miscommunications.

Collaboration between functional teams across the product launch lifecycle is a [central issue](#). Designers in the early stages of product development often fall victim to tunnel vision, in which marketability and brand strategy overwhelm the planning process at the expense of technical pragmatism. This tunnel vision can easily be corrected by seeking third-party industry training and insights into the opportunities and limitations associated with new products. Although this design phase is largely high-level and may not yet include materials selection or formability considerations, early awareness of manufacturability is critical to practical expectations and time efficiency.

## MILESTONE 02



# Die Design & Materials Selection

The die design and materials selection phase is challenging because it involves a delicate balance between time efficiency and quality control. Based on the designs approved in the first stage, process and die designers must choose the processes, materials, and dies for the stamping and assembly of the product.

Designers must electronically [construct a die](#) that fulfills the functional requirements of the product whilst respecting the manufacturing restrictions of the necessary materials. Indeed, tool and die creation depends almost entirely on the [temper and characteristics of the materials](#), and a poor understanding of material particularities will lead to delays down the pipeline and possible failure in launch. Further, designers must plan to change assembly line operations to accommodate for a new production process and a new set of materials with specific handling requirements. Clearly, this phase is rich in decision-making and troubleshooting, which becomes challenging if designers have no prior experience with the product type being launched.



It is wise for process and die engineers to undergo advanced materials training in order to gain a deeper understanding of material selection based on manufacturability. Whether the team is working with a new and innovative material, or simply a material that they haven't dealt with before, it is important to seek expert advice. Die designers must be aware of the techniques required for die creation to ensure that the machinery will not run into a no-build condition further down the pipeline. Minor mistakes and training shortcuts in the design phase often lead to launch delays.

While the entire die design process is challenging, the task of creating an efficient plant layout should not be underestimated. [Space utilization and materials handling](#) are the two major factors to consider during the design process, as dies take up a substantial area of the plant floor. Dies and equipment are often arranged with little regard for efficient flow. Therefore, it is wise to seek [logistics consulting](#) as it relates to plant floor layout in order to reduce congestion, eliminate unnecessary and time-wasting movements, and increase safety.

## MILESTONE 03

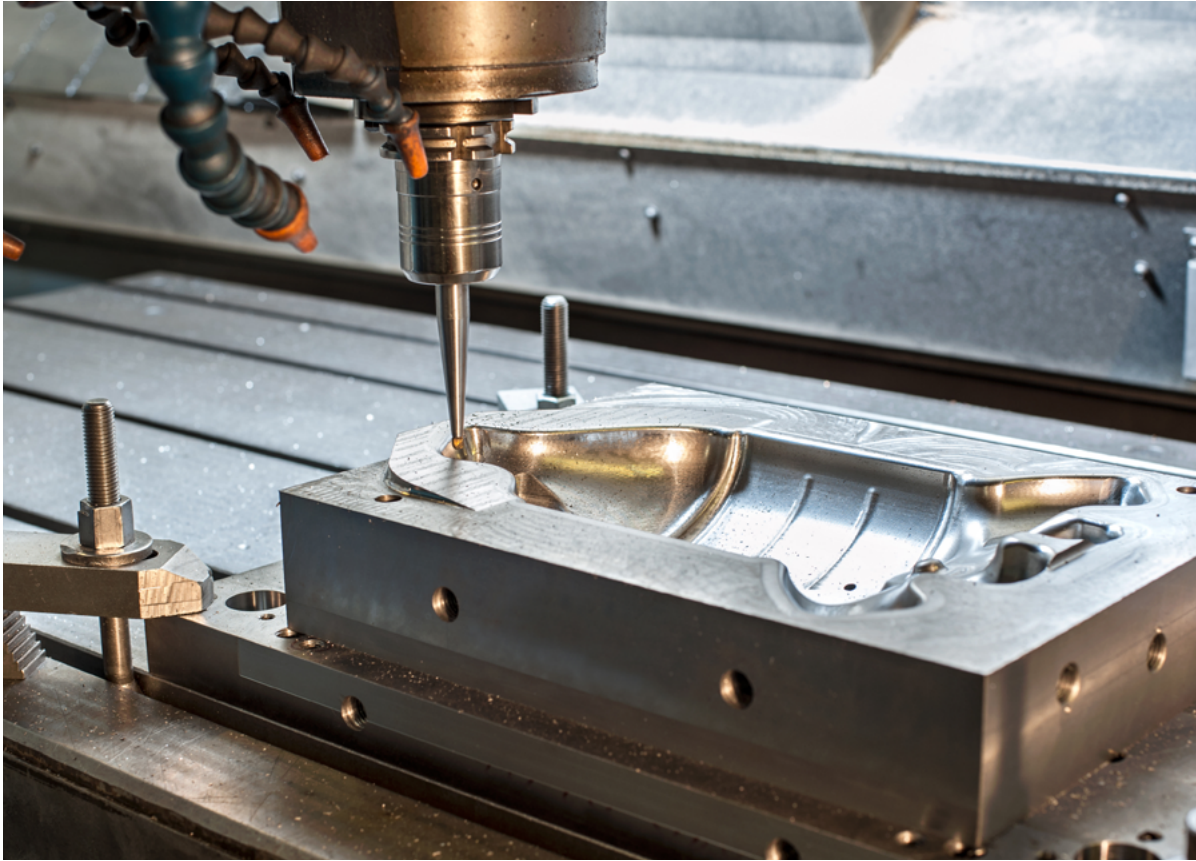


# Manufacturing Feasibility

Manufacturing feasibility analysis often occurs either as a subset of the die design and materials selection phase, or immediately succeeding it. At this stage, process engineers must evaluate whether the approved designs make sense from both an operational and budgetary standpoint. The main challenge is to balance narrowing budgets with a need for quality control and precise decision-making. Any mistake made during this phase will directly impact die construction and production operations.

Die designs and selected materials must be thoroughly reviewed to conduct a risk assessment and determine whether the plans are actionable. In order to make such high-impact decisions, the engineering team must be appropriately trained in the manufacturing processes involved in production. It is critical that all functional departments are capable of executing their roles, which will likely involve [skills training](#) before the production phase commences. Studies show that only the last [20% of skilled trades training is in current new technologies](#), meaning that most engineers are ill-equipped to deal with new processes unless they receive the proper training on-site. According to the Center for Automotive Research, companies rate [process discipline and product training](#) as top considerations to improve engineering efficiency. Successful completion of the manufacturing feasibility milestone relies heavily on competency in dealing with new materials, processes, and techniques, especially as they relate to a product type that is new to the assembly line.





As a result, it is important to seek out technical training to supplement the materials and logistics training underwent during the previous stage. [Advanced materials joining](#) and [formability training](#) are particularly valuable, as it will ensure that the team is equipped to create the product in a safe and efficient manner. Industry experts will provide process modification recommendations and simulation tools, as well as train your team in the newest manufacturing and automation processes to reduce downtime and improve product quality.

## MILESTONE 04



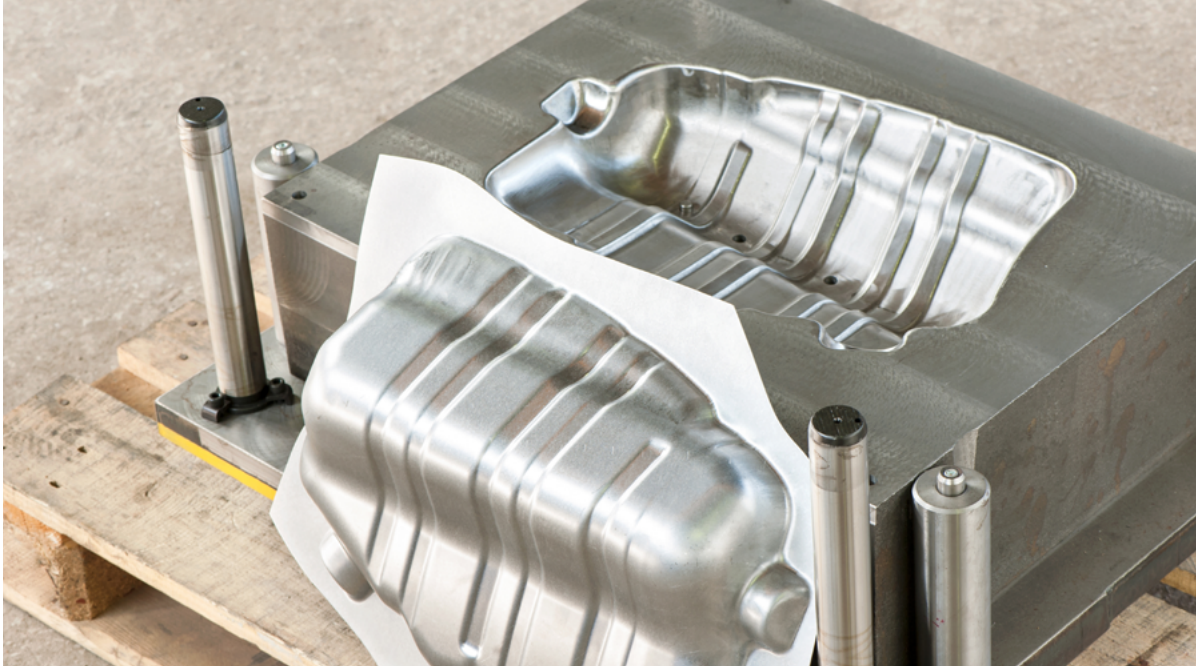
# Die Construction

The die construction phase takes the die designs from digital files to the plant floor. Tool and die makers will uncover and resolve many of the mistakes and miscalculations made during the design and planning stages, allowing for a smooth transition into production. Given the many challenges and risks associated with die construction, this phase requires adept professionals with years of experience and vast engineering and analytical knowledge.

Experienced tool and die makers are hard to come by in the United States, with the number of workers [falling significantly](#) since 2013 and positioned to sharply decrease again by 2024. New materials and processes require tool and die professionals to constantly expand their skill-set through [die skills training](#) and outsourced technical consulting. At this stage, it is absolutely necessary that tool and die workers can identify potential issues and systematically adjust designs for these variances.

One of the main challenges associated with die construction is a superficial understanding of the dynamic between press functionality and die design. During the production process, [the two halves of the die are sized and brought together in a press](#) in order to create the necessary components. When failures occur in the tryout or production phases, the die design is often blamed, when in fact the problem may lie in the functionality of the press. It is hard to attribute causality at this stage, particularly if the tool and die makers have little experience with the product type or materials involved. In order to avoid this confusion, seek [launch support engineering and formability systems services](#) to conduct an accurate analysis and gain valuable process modification recommendations.





The die construction stage is filled with internal disagreements between functional departments. As mentioned previously, it is hard to attribute causality at this stage, which often leads to blame shifting as opposed to constructive troubleshooting. Instead of allowing these tensions to mount and ultimately cause inefficiencies, it is recommended to rely on an external consultant that manages disputes impartially and avoid acrimonious relationships.

Overall, it is wise to incorporate industry experts into your construction and production team to provide reliable recommendations, introduce process control, and optimize spend. The construction phase, and the logistics management associated with it, is crucial in meeting consumer demand whilst respecting budgetary restrictions. As experienced tool and die workers become increasingly scarce, outsourced services provide a valuable opportunity to gain industry insights without hiring internally.

## MILESTONE 05



# Primary Tryout

Once the design and construction phases have been completed, it is time for the primary tryout to determine whether the dies and presses work symbiotically or require any additional functional changes. Die rework iterations are often inefficient and [lead to budget overspend](#) due to product engineering challenges involving the trial press.

The primary tryout generally occurs at the die construction shop using only the trial press, which operates differently from the home line press at the stamping plant. Die engineers often cannot depend on the outcomes from the primary tryout when anticipating production operations. Therefore, this tryout phase is often problematic as it causes unnecessary or ineffective die reworking at an inflated cost. There is significant [potential to increase both operational and financial efficiency](#) by reducing the number of iterative trials at this stage.

In order to create more predictable results at the primary tryout phase, companies can perform a tryout press to home line press study to anticipate challenges when making the transition. The product launch process as a whole will benefit from this study, which will yield a quality die for home line tryout without wasting resources on unnecessary alterations.

## MILESTONE 06

# Die Finishing



Many dies are built abroad and then shipped to the United States for production operations. During this lengthy shipping process, engineers may be designing changes to the dies that must be implemented before the dies are launched in the home line. As a result, the dies are sent to finishing shops in the United States for final modifications and polishing.

Since the dies have yet to be tested using the home line press, this stage would benefit from the tryout press to home line press study to ensure that these final modifications won't have a negative impact on functionality in the production line. This step marks the transition to the production phase of the product launch, so it is important that the design and construction work is complete and correct.



## MILESTONE 07



# Home Line Tryout

The final milestone in the launch process is the home line tryout. At this point, the finished die is fitted to the press at the plant that will be responsible for production. A key challenge during this final tryout is fine-tuning for product deviations induced by the particularities of the home line press. For example, the engineering team will be responsible for ramping up production speed to the desired level to meet launch volumes. Many of the modifications needed will have been predicted by the studies completed in the previous stages; the key is to integrate the recommendations from these studies to ensure optimal production capabilities. At this critical stage, launch managers will benefit from bottom-of-the-pipeline services, such as [launch support manufacturing](#), [formability system installation](#), and [logistics optimization](#) that implement the necessary systems to continuously improve your formability and manufacturing processes. By relying on consulting services, you are leveraging a team of experts that increase operational efficiency, introduce process discipline, and ease production flow.

It is important to have a [continuous improvement](#) approach to problem solving for manufacturing issues throughout the product launch lifecycle. Outsourced experts have the industry experience to anticipate and resolve any of these potential issues before the production process commences. This diligence and quality control will soon pay off in the form of a well-executed product launch.

# Conclusion

Efficiency and harmony throughout the product launch lifecycle are key to a successful launch that delights consumers, stays within budget, and drives business growth. Professionals across all functional teams, from the technical to the corporate level, struggle with various challenges when working with a new production process. Understanding these common failure points and their sources is the first step to success, but it is clear that all companies can benefit from technical outsourcing and process consulting to guide them through the launch process.

The Phoenix Group has been a leader in the manufacturing industry for 30 years, offering the expertise and experience necessary to develop and launch a product successfully. Our services include a full range of solutions that will complement and enhance your team from design to execution. To drive process improvement and operational excellence at your organization, and ensure your next product launch is a success, request a free consultation today.

[Request a Consultation](#)