



# 5 design process elements for successful robot production

**There are a lot of moving parts** to keep track of when designing a robot, and sometimes manufacturing is not at the top of the list. But successfully transitioning a robot from design to production requires some design time and attention.

For example, early selection and engagement with a trusted manufacturing partner can provide additional resources and perspectives that ensure the design is as manufacturable as it is functional. Long experience has shown there are at least five partner-selection elements that contribute to a collaborative design process, blending functional design with manufacturing considerations to achieve ultimate program success.

### **1 Capability assessment**

Start by internally assessing the capabilities and strengths of the design team, and look for a trusted partner to complement those skill sets. As the design moves to the next phase, the team moves to address the resource constraint, resulting in a shift of focus.

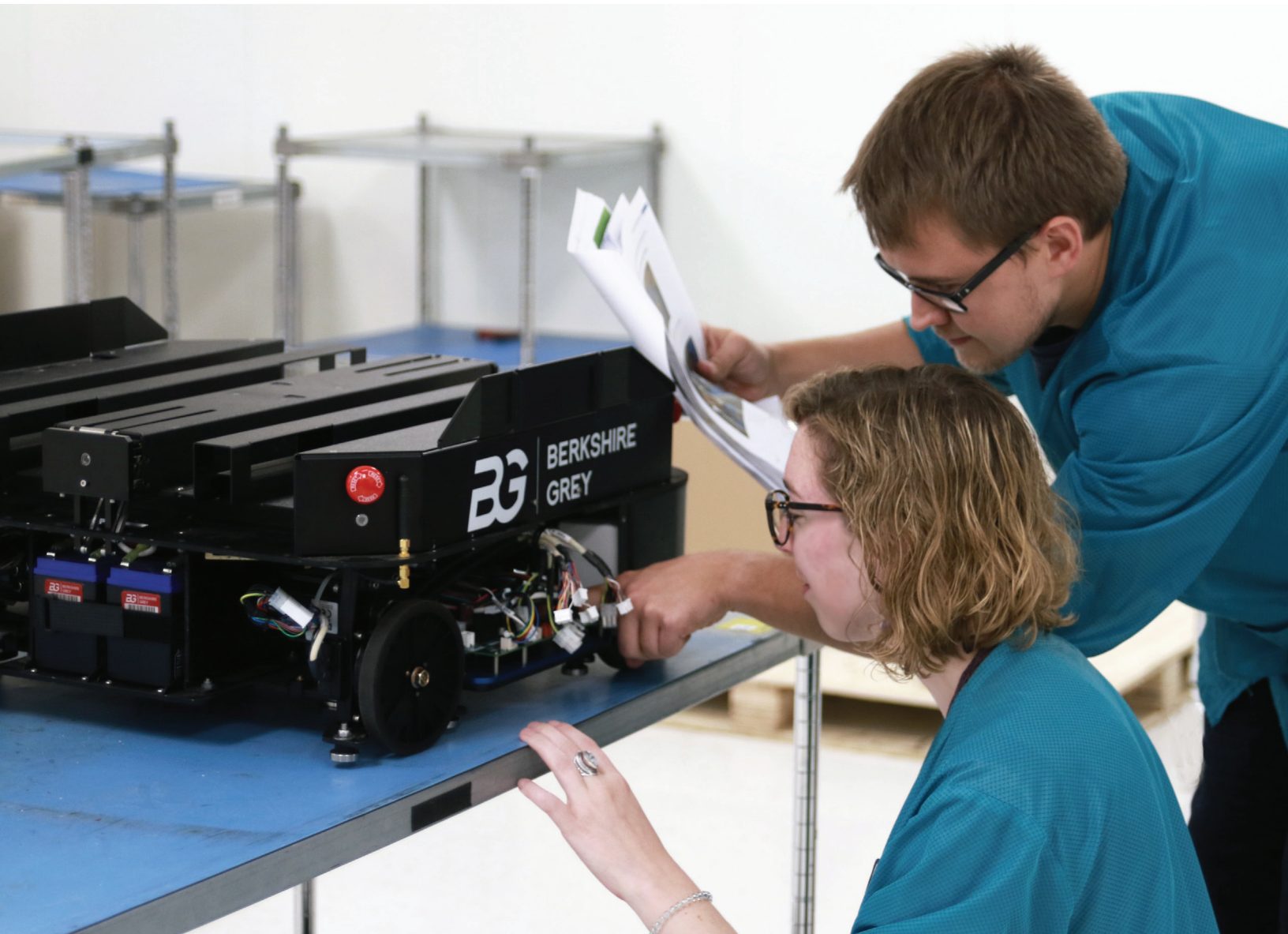
One way to optimize use of resources is to seek support early in the product-design phase. This allows the team to remain attentive to the areas that bring strength and success to the robot launch. Those areas may include developing a robust design and strong customer interaction.

Identify internal strengths, and then it is time to seek a trusted partner to bring the product to the next stage.

### **2 Competence**

Next, look for a manufacturing partner with competence and expertise in robotics manufacturing and a proven record of success. An experienced partner works side by side with the engineers as an extension of the business. Ideally, the partner will actively engage in learning from the engineers to understand the robot build and the application requirements, known as a co-build procedure.

By Cirtronics



↑ **Evaluate** capabilities and robotics experience in potential partners.

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Look for a partner that can demonstrate expertise in pre-production design reviews that can ease the transition to manufacturing. The ability to demonstrate a quality mind-set, continuous improvement processes, and documentation is significant.

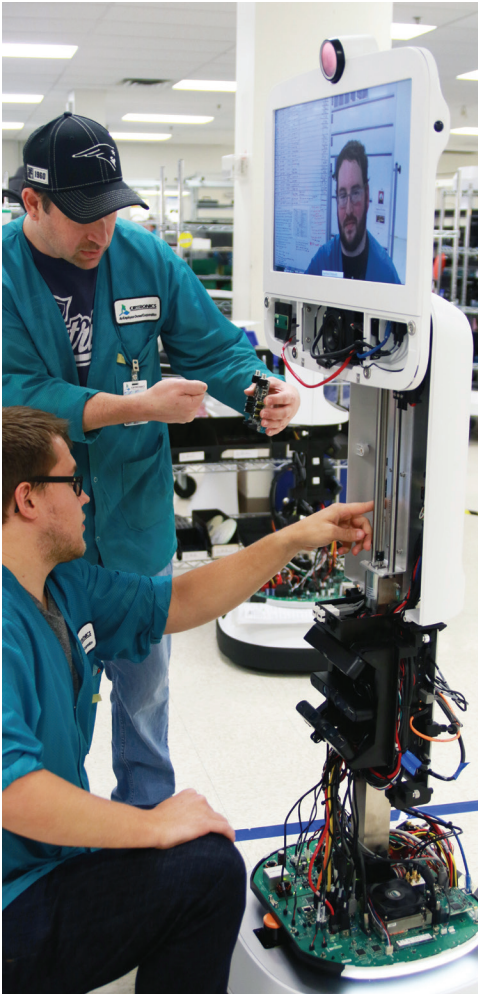
Choose a manufacturing partner that can support all build stages and an integrated data platform to allow ease of information sharing. Early engagement with a qualified partner encompassing the above skillsets results in a product manufactured on time and at the right cost.

### 3 Cooperation and collaboration

A competent partner is flexible and will expect many iterations early in the design process. Even a robot prototype that is successfully built and tested will require further review before being production-ready.

A cooperative partner helps ease the transition to production by tailoring “DFx” (design for...) services to achieve seamless shift to manufacturing. An example of this transition is when both engineer teams collaborate to create, optimize, validate, document, and build a manufacturable process and product.

# Design & Development



↑ **Cirtronics** is the contract manufacturer for *Ava Robotics*, a spinoff of *iRobot*.

📍 | Source: Cirtronics

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This co-build model requires transparency, resulting in a cohesive mindshare. Finding a partner that cooperates and collaborates to identify challenges and offers suggestions will help both businesses be prosperous.

#### 4 Communication

A flexible partner has great listening skills. Communication is key throughout all stages of the process. This becomes especially important when the robot is moving from design to production.

The right partner will provide a direct contact that proactively manages all communication between the teams. This resource is responsible for the relationship focusing on overall customer satisfaction. This dedicated communication resource is responsible for budget and adherence to timeline.

A partner that provides this level of service will be more accessible and proactively streamline a consistent flow of information between teams.

#### 5 Culture

Earning a reputation for excellence and integrity truly matters in long-term relationships. Sharing in the same values as the manufacturing partner contributes to the success of the product. Effective cultures that serve the customer with a quality-minded approach can positively influence the result.

The team that will co-build, review documentation, manage suppliers and build the robot is made up of unique individuals. Each individual contributes to a team vested in the success of the partnership.

Cultures that empower accountability practices will share in the responsibility of a successful robot build. That is what

is important about culture. It is not just a mind-set. It is a way of being in the world that comes from a place of service, ownership and cooperation.

Incorporating these five design process elements in a program will contribute to a successful transition of a robot into production. Pay attention to these elements earlier in the design phase with a trusted manufacturing partner, and you will save time and money when the robot is in full production. **RR**

*To get started and learn more with a manufacturing partner early in the process, contact Cirtronics at 603-249-9190 or visit [cirtronics.com](http://cirtronics.com).*



↑ **A successful robotics relationship requires clear communications.**

📍 | Source: Cirtronics