

FROST & SULLIVAN

BERKSHIRE GREY

2022
ENABLING
TECHNOLOGY
LEADER

NORTH AMERICAN
INTELLIGENT ROBOTIC
AUTOMATION INDUSTRY

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Berkshire Grey excels in many of the criteria in the intelligent robotic automation space.

AWARD CRITERIA	
<i>Technology Leverage</i>	<i>Customer Impact</i>
Commitment to Innovation	Price/Performance Value
Commitment to Creativity	Customer Purchase Experience
Stage Gate Efficiency	Customer Ownership Experience
Commercialization Success	Customer Service Experience
Application Diversity	Brand Equity

Commitment to Innovation, Creativity, and Application Diversity

Ecommerce, retail, third-party logistics, and grocery companies seek to automate online order fulfillment, store replenishment, and other operations to improve throughput and speed, to meet skyrocketing consumer demand and expectations for faster deliveries. However, most processes are still

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**– Sankara Narayanan,
Senior Industry Analyst**

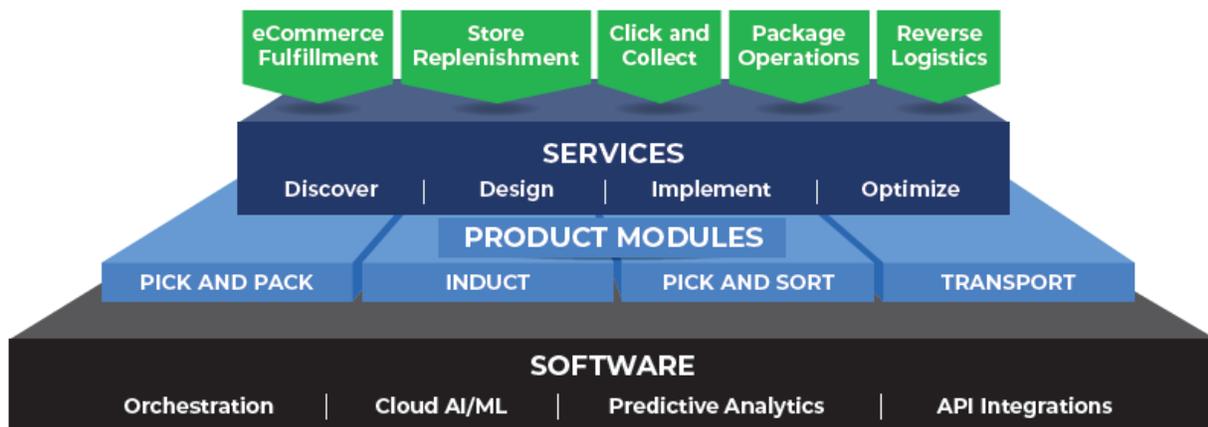
manual, and labor scarcity is prevalent. The COVID-19 pandemic has made labor availability and management more complex, and companies are under pressure to deliver goods rapidly and profitably.

Amid this scenario, Berkshire Grey, headquartered in Bedford, Massachusetts, offers artificial intelligence (AI) and machine learning (ML)-enabled intelligent robotic automation solutions that continuously improve the performance of customers’ warehouse and fulfillment operations. Berkshire Grey’s

technology and intellectual property are homegrown. The company has a strong track record of building disruptive technologies and generating solid revenue streams. The company has received 120 patents, with 300 more pending. Berkshire Grey effectively matches its robotic expertise and capabilities to meet industry needs through a unique combination of solutions, including a robotic put wall (introduced at the end of Q3 2021), robotic product sortation (either robotically or manually inducted depending on

customer needs), robotic product sortation with identification, robotic pick cell, robotic pick and pack cell, robotic induction system, and mobile robotic sortation and sequencing. Berkshire Grey's products automate the most manual tasks: picking, sorting, packing, and moving goods.

At the heart of Berkshire Grey's intelligent enterprise robotics are common software and orchestration layers where leading-edge technologies such as perception, grasping, motion planning, sensing, intelligence, and cloud AI/ML and analytics are present. The common orchestration layer and the solution's self-learning capabilities enable deployed intelligent systems to meet assigned key performance indicators (KPI) and self-optimize over time. The company divides its solution portfolio into four categories: pick and pack; induct; pick and sort; and transport, buffer, and sequence. The robust portfolio serves customers seeking to automate picking, packing, sorting, and transporting goods at various scales. Customers can use Berkshire Grey's solutions exclusively or integrate them with third-party systems.



Berkshire Grey's Tech Stack and Solutions Focus

[Source: Berkshire Grey](#)

Frost & Sullivan finds that many competing vendors talk about AI and ML, but few actually showcase these technologies at scale. On the other hand, Berkshire Grey has scaled its robotic solutions with extremely large customers. However, customers of Berkshire Grey need not be a multibillion-dollar company to deploy robotic automation at scale. Berkshire Grey can meet various customer needs of large-scale distribution centers, microfulfillment centers, and back-of-the-store warehouses because its solutions are flexible, modular, and scalable. From a single put wall to integrated robotic pick, pack, and sort system clusters and mobile robotic sortation fields, customers can begin with initial small deployments before scaling accordingly with the business.

Berkshire Grey has proven the performance of its solutions in improving capacity and sortation throughput by two to four times (depending on the type of application) in complex, real-world settings. Its intelligent solutions also self-learn and enhance customer operations over time. What further differentiates Berkshire Grey is its deep expertise in both the supply chain and the advanced robotic end of business. Many system integrators that retailers work with have expertise in old-school automation

but not modern robotic systems. To this end, Berkshire Grey has exceptional supply chain experts in addition to world-class robotic experts.

Frost & Sullivan applauds Berkshire Grey for its intelligent robotic automation that enables companies to boost operational efficiency and productivity in warehouses and distribution centers and thrive when consumer expectations and labor scarcity are at their peak.

Customer Ownership, Purchase, and Service Experience

Berkshire Grey has Fortune 100 customers across retail and packaging logistics, with eCommerce fulfillment and store replenishment being its most significant use cases. Its product aspects deliver outstanding customer values in the intelligent robotic automation of eCommerce fulfillment, microfulfillment, store replenishment, reverse logistics, and package handling and logistics.



Berkshire Grey's Automated Put Wall for eCommerce Fulfillment

Source: Berkshire Grey

Ecommerce fulfillment: Berkshire Grey's intelligent robotic solutions, comprising robotic shuttle put walls for order sortation, robotic pick and pack cells for automated packing, and robotic product sortation with identification for sorting packages shipping to customers via carrier networks, automate the entire order fulfillment process and reduce shipping costs to meet increasing volume. Customers have reported up to 33% improvement in batch picking throughput and up to 300% improvement in order sortation throughput with Berkshire Grey's solutions.

"In addition to a comprehensive suite of products and solutions, Berkshire Grey offers value-driven, solution design, delivery, support and optimization services."

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Microfulfillment: In 2021, Berkshire Grey received a multimillion-dollar order from a large Fortune 10 retailer

for its robotic grocery picking and packing solution to autonomously pick and pack grocery items from ASRS systems directly to consumer grocery order bags. Berkshire Grey's intelligent robotic automation solutions also automate the back-of-the-store order fulfillment process. Robotic pick and pack cells with integrated sensors and machine vision pick different items from totes or belts and orient them to fit in grocery bags without damaging the bags or products. The microfulfillment solution converts goods-to-person into goods-to-robot operations.

Store replenishment: Brick-and-mortar stores want to keep their shelves stocked, but not carry excess inventory and the dollars associated with it. Additionally, many now use their stores as fulfillment centers for eCommerce orders. To this end, Berkshire Grey's robotic product sortation solution and mobile sortation and sequencing solution automate the store replenishment process by picking, sorting, and sequencing items, containers, and cases.

The robotic product sortation solution autonomously picks and packs break pack store replenishment orders from totes of inventory into reusable containers. This automation maximizes labor efficiency and order processing to increase productivity, extend facility capacity, and improve order throughput. A process that typically takes four workers in a traditional pick module can now be done with one. With Berkshire Grey's robotic solutions, customers have experienced 30% increase in throughput per shift, 70% reduction in direct labor, and up to four times improved piece pick order processing. Berkshire Grey systems can handle nearly 100% of stockkeeping units (SKU).

The mobile robotic sortation and sequencing solution organizes inventory rapidly for store replenishment into pallets suitable for aisle-ready putaway at stores and/or organizes customer orders for loading into delivery vans based on agile delivery routes. Berkshire Grey's mobile solution can sort and sequence the inventory so that it can be loaded into trucks to enable the pallets to be moved directly from trucks to specific aisles at any store in the retailer's chain. The mobile sortation solution can handle non-conveyable items (unable to be placed on a conveyor belt), such as packages of water bottles and oversized bags of pet food. Automated store replenishment was helpful during the COVID-19 pandemic when workers could not be physically present.

Reverse logistics: Returned products are becoming a big problem for retailers, and reverse logistics is challenging with high associated costs. Two Berkshire Grey products help automate the return processes (receive, inspect, and sort). The first is the robotic package sortation and identification that receives and organizes returned packages by brand and category, prepares them for inspection, and automatically receives them to the customer's WMS without staff needing to physically touch them. The second is the robotic shuttle put wall that sorts returned products post-inspection on shelves or into the stock for resale. Berkshire Grey helps place returned products back on the shelf as fast as possible to maintain their resale value. Customers have witnessed up to 25% faster sortation than manual processing and up to 35% reduced labor by automating their returns process.

Package handling and logistics: Berkshire Grey's robotic product sortation with identification combines autonomous robotic singulation, scanning/identification, and sortation of packages at any node in a parcel carrier's network to enable zone skipping while delivering better accuracy, labor utilization, and handling efficiency at parcel hubs and regional operations.

Frost & Sullivan is impressed with Berkshire Grey's intelligent robotic automation that improves efficiency, quality, profitability, and turnaround times while lowering labor costs to provide transformational impact for customers.

In addition to a comprehensive suite of products and solutions, Berkshire Grey offers value-driven customer services including solution design, delivery, support and optimization. It works closely with customers during pre-deployment in the discovery, analysis, and design phase to build a business case that delivers the ROI customers seek. Post-deployment, the company provides customers with technical support and optimization services.

Berkshire Grey's customer-centric approach involves value assessment and value realization. During value assessment, the company comes up with its evaluation (discover, analyze, and design) of the ideal robotic solution (across picking, packing, sorting, and inducting and transporting) to optimize customers' scalability, practicality, and business value. Unlike system integrators that bring together different product vendors to try to match a customer's automation requirements, Berkshire Grey has built a robust ecosystem of solutions from the ground up that work seamlessly together. Value realization involves Berkshire Grey's implementation, support, and optimization for customers, which usually do not receive end-to-end services when working with individual vendors or system integrators. Berkshire Grey's dedicated consultants conduct seamless installation and ensure the systems perform according to the KPIs assigned by the customer. To this end, a primary factor contributing to the company's success is its highly efficient resource pool with unmatched industry expertise in understanding every aspect of the customer's business and requirements, leading to its rapid and efficient deployment of products and solutions.

In terms of expanding into more target accounts, Berkshire Grey works in concert with its partners. The company's business development and partnership strategy capitalizes on close working relationships, especially with software application providers, consulting partners, solution integrators, and technology partners. The company has built an extensive ecosystem of partners worldwide, forging strong partnerships with prominent names, such as ABB, Advanced Handling Systems, Atos, NPSG Global, Open Sky Group, Mountain Leverage, North Highland, and Swisslog.

Conclusion

Companies across eCommerce, retail, third party logistics, and parcel carriers need robotic solutions to meet labor scarcity and consumer expectations for faster goods delivery. Berkshire Grey's intelligent robotic automation powered by AI and ML successfully addresses this need. Its solutions, which enable automated eCommerce fulfillment, microfulfillment, package handling and logistics, store replenishment, and reverse logistics, continuously self-learn to improve customer warehouse and fulfillment operations. What distinguishes Berkshire Grey is its expertise in both robotics and supply chains. The company's intelligent robotic enterprise solutions automate the most manual tasks of picking, packing, sorting, and moving goods to meet demanding consumer expectations, deliver goods rapidly, boost profitability, and reduce labor costs. The solutions are flexible, modular, and scalable and have demonstrated results in complex real-world environments. Berkshire Grey's value-driven solution design and delivery model further enhances its customer value proposition. The company's solutions can meet the needs of large-scale distribution centers, microfulfillment centers, and back-of-the-store warehouses. For its strong overall performance, Berkshire Grey is recognized with Frost & Sullivan's 2022 North American Enabling Technology Leadership Award in the intelligent robotic automation market.

What You Need to Know about the Enabling Technology Leadership Recognition

Frost & Sullivan's Enabling Technology Leadership Award recognizes the company that applies its technology in new ways to improve existing products and services and elevate the customer experience.

Best Practices Award Analysis

For the Enabling Technology Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

