

Drive & Control profile

Viewpoint

The formula for innovation: Customer collaboration with applications engineering

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The global mobile equipment market is always evolving and adapting to meet our customers' needs, driven by new government regulations, as well as market demands for more flexibility, functionality, energy efficiency and lower costs. These demands place a premium on innovation, one which requires a comprehensive approach utilizing applications expertise, component development and system solutions.

One key input in driving innovation is to combine effective customer collaboration with the unique expertise of applications engineers utilizing a full systems and project approach. When machine OEMs and key technology suppliers work together as a fully integrated team, goals are clearly identified, ideas and designs become transparent, and the mobile machines created deliver completely on the targeted goals.

More than just supplying components

The most effective and innovative suppliers in the industry are not



Suppliers who offer the most value are those taking proactive roles in their customer relationships, bringing a high level of applications expertise to each customer challenge.

solely made up of sales teams selling components. Instead, these suppliers take proactive roles in their customer relationships, bringing the highest level of applications expertise and experience to address each challenge. It's only with this high level of expertise that the engineering teams can optimize and improve upon existing systems—and that is what drives innovation and leads to next-generation technology.

Every part of a solution should be engineered to accomplish exactly what the machine builder or end user wants it to do. That's why it's so important to collaborate with applications engineers who understand not only the technology, but also the work to be done and the operating environment. Having just one aspect out of balance can compromise the entire solution.

At Bosch Rexroth, our applications engineers are key team members central to the way we help achieve a complete solutions approach. Recently, one of our key customers identified critical issues they were facing on one of their machine concepts. They were experiencing poor joystick responsiveness on a pivot arm as well as other integrated functions. These conditions were impacting the machine's commercial viability, and they needed help to work through the issues with a broader team.

Rexroth was supplying this customer with latest-generation hydraulic components; however, they chose to utilize third-party electronic hardware and software. From our customer's perspective, choosing this hardware and software made sense for their application, but the results fell short of expectations.

In response, we assembled a complete team, including our customer and distributor, plus Rexroth applications engineers, software engineers and project management. The team established specific goals and formulated a process for solving the issue. New technology providing an intuitive user-friendly interface was established, control functionality and authority was fully implemented, and the machine's finesse—power combined with precise control—was improved.

Collaboration to move forward

The expertise of applications engineers is a vital factor to the success of any project, but it isn't the only important piece. To succeed, there needs to be an open line of communication and a willingness on the part of OEMs to collaborate. They need to fully accept the manufacturers' participation and

help, and they need to be ready to work alongside their suppliers, communicating their expectations and needs.

Technology suppliers offer the most value when they apply their product portfolios, in both proven and innovative ways. The suppliers' role should be to bring options and alternatives to seek the best solution. That's really our responsibility—for example, offering multiple variations of control performance based on pump and motor coordination; valve control circuitry; and gearbox options, displays and electronic controls with software.

Partnering with our customers, we—the technology and product suppliers—must evaluate design criteria for options, comparing customers' current systems to what could be created. We must also



Companies must invest in their engineers and nurture their talent by exposing them to real-world challenges in an effort to foster the next generation of innovation for the mobile machine industry.

assess commercial costs and machine efficiency costs, and narrow down the options in a natural selection process.

This partnering dynamic must happen regardless of the customer size or influence. Larger customers expect this level of support, but typically view their suppliers as a component supplier because they may have their own applications engineering resources. Smaller customers may not have these resources, or the time to effectively manage a project or fully validate a design; in these cases we have found that it becomes even more important to have the support of our applications engineering and project management capabilities. Partnering, collaboration, applications engineering and project management must be a common practice.

And in reality, design is just the beginning for success. As much as possible, technology suppliers can play an active and productive role throughout an OEM's supply chain as a machine is brought to completion: product development, product manufacturing, customer interface, applications engineering, customer sourcing and purchasing.

In another example, a new customer was building a specialty truck designed to harvest nuts. Critical issues were identified, and our solution was to surround the customer with a complete applications team. Everyone within that team had a responsibility to listen to the customer, hear the problem and then provide their most effective and innovative contribution to the solution. The applications team also went to the field, assessed the new solution in actual operating conditions and validated that the results of our design



For a project to succeed, OEMs and suppliers need to have an open line of communication and a willingness to collaborate in order to optimize or improve upon existing systems.

fully met the expectations. That total involvement is the best way to ensure that the innovative concepts you've engineered actually do the desired work.

Fostering necessary expertise

Innovation is never static: There are always lessons to be learned. One lesson we've learned is that, to drive

innovation and keep it alive in your organization, you must develop the necessary expertise. Companies must invest in their engineers to nurture their talent and experience. At Bosch Rexroth, it is essential to build engineering experience and excellence through real-world applications with hands-on experience. We expect our team members to learn and grow



The most effective and innovative suppliers in the industry aren't made up of sales teams simply selling components, but instead are leading collaborating teams with their customers, developing the best results for success.

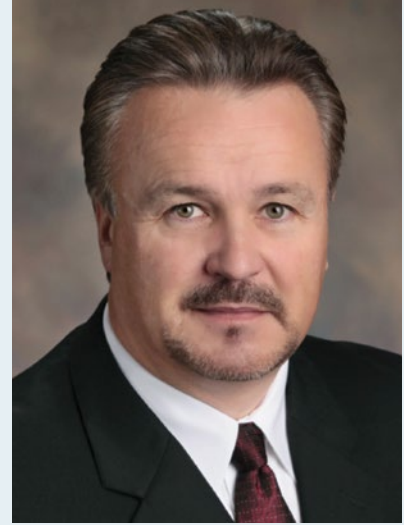
by getting their hands wet—literally with hydraulic oil—working in the field alongside our customers, our seasoned experts and an excellent service team.

Most of our applications engineers have at least ten years—some with over 40 years—of experience. For our newest engineering hires, a good portion of their first few years is spent listening, learning and working with their experienced colleagues, especially about how to encourage open communication.

It doesn't matter if an engineer is fresh out of college or has decades of experience. We expect everyone to fully immerse themselves in change, in challenges and in listening to

the OEMs and operators to identify what must be done to push the next generation of innovation for mobile machines.

For the off-highway industry, applications engineers are the essential “engine” to drive innovation and change. We need to look beyond a customer's simple request to buy components, and apply our products to optimize the operation of their machinery. By creating and sustaining these relationships, technology suppliers will see the full strength of their engineering teams' expertise applied directly to real-world challenges, which in turn is the most effective way to sustain input and feedback for innovation for our industry as a whole.



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Responsible for the application and sale of Rexroth products and solutions for the Mobile Hydraulics Market in North America. The primary markets include Construction, Material Handling, Ag & Forestry and On-Highway Vehicles.

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