
What Do World-Class Suppliers Do? OEMs Tell All!

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NRL Associates is a small machine shop on the eastern shore of Maryland serving major OEMs like Black and Decker. With its precision machining capability and a talented core of 40 employees, the company would like to grow.

Yet it took NRL five years of meeting people, positioning, and trading visits, in order to earn an initial business opportunity with Black and Decker. If suppliers like NRL knew what OEMs expect of a world-class supplier, could they accelerate their acceptance as a partner? With better knowledge of the OEM mind set, could suppliers secure OEM business faster, better, and cheaper?

But just what is the OEM's mind set on world-class manufacturing?

- What exactly do OEMs see as world-class practices?
- What "rules of thumb" are used to judge supplier progress?
- What are world-class supplier performances, and how and when are they delivered?

While suppliers need to know the answers to these questions, OEM representatives may lack a clear picture of world-class manufacturing themselves. So when a supplier asks, "What should I do to become world-class?" the answer is often "Do everything well!" This leaves the supplier to sort through a bewildering array of acronyms, improvement programs, and consultants advocating each individual tool as "the answer."

With a charter and funding from the State of Maryland Department of Business and Economic Development and its World-class Manufacturing Consortium, we interviewed nine OEM representatives

and two representatives of large first tier suppliers about their specific perceptions of world-class suppliers. We wondered:

- What would OEMs prioritize as the "vital few" world-class characteristics?
- Do OEMs have an explicit or implicit hierarchy to assess suppliers?
- What specific examples of world-class performances could they give?

How Do Suppliers Gain "World-Class" Status?

The above three questions were pursued in interviews in the fall of 1997. All of those interviewed were at manager or vice president levels, and worked in the automotive, aerospace, medical, appliance, and telecommunication industries. Each had extensive knowledge of manufacturing and of their own supply base. Prior to the interviews, 14 OEM assessments used to qualify suppliers were reviewed to complete a menu of 106 plausible world-class characteristics.

During interviews, each representative was constrained to identify only what he or she perceived as the top 20 percent among 106 world-class manufacturing characteristics. These ratings have been grouped by "degree of consensus," forming several stages, each identified with a "theme." We have used this information to identify general factors and form a "ladder" of priorities (see Figure 1).

Resting on each step of the ladder, simple "rule of thumb" questions were posed to audit each factor of a supplier's progress. OEMs appear to look for implicit benchmarks when deciding if a supplier should become a

The OEM Ladder to World-Class Status

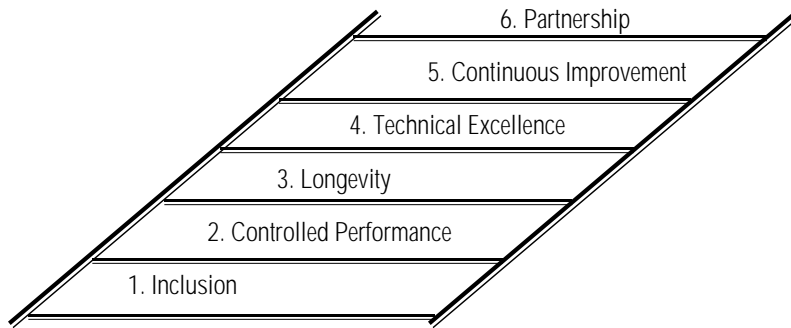


Figure 1.

Inclusion: In or Out?

“World-Class” Characteristics

Degree of Consensus by OEMS

The fundamental approaches to problem-solving are sound, established, and documented	90%
The quality system emphasizes preventative activities that are integrated into operations	90%
All levels of the organization express commitment to excellence and continuous improvement	81%
A method is in place for corrective action relative to customer feedback	72%
The quality system includes provisions for handling non-conforming material	72%
A program is in place for continuous process improvement of all production processes.	63%

Figure 2.

Controlled Performance: High or Low?

“World-Class” Characteristics

Degree of Consensus by OEMS

Customer specific information regarding form, fit, or function is properly controlled	72%
The quality system documents compliance to applicable customer requirements	63%
The quality system defines the controls of processes that affect product quality	63%
Documentation is kept of percentage on-time deliveries	63%
An internal auditing system is established that addresses, corrects, and prevents deficiencies.	54%

Figure 3.

partner. These decisions are increasingly important as OEMs steadily reduce their “portfolio” of suppliers. One of the OEMs interviewed said:

“In 1991 we had over 500 suppliers. We now have less than 50. The ones we kept are those willing to commit to a long-term partnership.”

The Wiremold Company

1. Inclusion: In or Out?

“There are many suppliers who are willing to go the extra mile for a relationship with us. Quality and delivery are a given. So, you must be willing to meet aggressive pricing targets and look to your product to provide us with an innovation — value engineering, process flexibility, and productivity improvement.” *Lockheed Martin Aerospace*

The first step in the OEM ladder to world-class status is “inclusion.” Large companies want partners to give them an advantage in the value chain. And just as a “gate keeper” does for any group, OEM representatives first ask, “Is this supplier good enough for us?” Key people stake their reputation on a prospective supplier’s future performance as a partner within the value chain.

Inclusion may mean making the list of qualified suppliers or getting an initial order. Inclusion means being recognized as having the potential to be a world-class supplier. Figure 2 shows the six characteristics rated as most “vital” by the majority of our interviewees.

Our OEMs first expected supplier-partner candidates to have the “modern” basics of manufacturing. They must work hard on quality and fundamental problem-solving. They must improve productivity, carefully handle poor material, and provide swift corrective action to customers. They must give OEMs quick responses and good feedback.

All this requires a skilled and involved workforce that is committed to excellence and continuous improvement. But workforce skills should be process related. One OEM said, “The more you can upgrade work force skills to understand and handle bona fide process control the better — to know what processes are key and why.”

2. Controlled Performance: High or Low?

“Suppliers need strong program management skills and the ability to plan from nothing to high production—including Production Part Approval Process (PPAP) and capacity studies — we want no surprises in mass production.”

Robert Bosch Corporation.

Longevity: Now and Then?

“World-Class” Characteristics

Degree of
Consensus by OEMs

A strategic planning process considers and addresses both the internal and the external factors and conditions that affect the business.

54%

Figure 4.

Once a supplier is included in the portfolio of suppliers, an OEM’s purchasing and quality people track performance data in order to know “who’s high and who’s low” on quality and delivery. They initially want to see controlled performance, and ultimately to develop “star players” who can give them a competitive advantage. OEMs keep score.

The second tier of priorities in our interviews conveys the second message: OEMs expect “controlled performance” on quality and delivery. They compare each supplier against others in their portfolio. Those organizations demonstrating low control on the characteristics below probably won’t be around for long (see Figure 3).

This second rung on the world-class ladder asks a supplier to thoroughly control information, documents, and processes. As a result, on-time delivery and quality are automatic on the customer end, allowing OEM managers to sleep better at night.

3. Longevity: Now and Then?

“Suppliers today need to plan a technology road map — recognizing their capability today and where to concentrate their resources in the future, and then seek compatible future customers.”

Douglas J. Wible, Lucent Technologies Inc.

The next rung on the ladder is represented by a single question about business strategy that was ranked as “vital” by over half of our OEM representatives (see Figure 4).

The OEM asks, “Does this supplier have a strategic plan?” Or the OEM inquires, “Do they know the trends in our business?” Or the OEM simply probes, “Do they know where they’re going?” If the supplier knows where both the trends and his business are going, he’s more likely to be around, both “now and then,” that is, in the future.

4. Technical Excellence: Go or No-Go?

“One supplier has developed a JIT delivery system for us and has recently changed over to use EDI. We have rewarded him as a partner by almost doubling our business with him.”

The Wiremold Company

Once the broad question of strategy has been addressed at step three, the OEM’s priority next returns to the specific. A supplier may have a positive “can-do” attitude, but will the facility, equipment, tools and maintenance perform at a world-class level? At step four,

technical excellence, OEMs expect suppliers to be masters of their technology. One OEM representative said, “Make sure that the design of your part is matched by the robustness of your process.” (See Figure 5.)

In acquiring new contracts, supplier management successfully sells its claims that both a robust process and sufficient discipline exist to do a job right. At this rung of the ladder, the OEM wants to assure that such capability actually does exist. If it does, the supplier is a “go,” if not, a “no-go” vote is cast.

5. Continuous Improvement: For Better or Worse?

“Everybody in a salaried position should recognize that the reason they exist is to make it better, easier, and safer for the people who add value every day.”

The Lear Corporation

Rung five on the ladder looks beyond today’s factory performance. The OEM asks if a supplier is using the “right” improvement tools and is, therefore, likely to get “better or worse.” If an OEM can see good safety practices, modern quality tools, JIT-lean manufacturing and employee “teams” in some combination, he or she assumes that cost reductions and quality improvements are likely in the future.

Technical Excellence: Go or No-Go?

“World-Class” Characteristics

Degree of
Consensus by OEMs

Procedures are documented for control of measurement, inspection, and test equipment, including periodic maintenance and calibration.

54%

A written procedure is in place that ensures that tools and tooling are properly controlled and maintained.

45%

The overall facility design adequately fits the needs of the business. Premises are orderly, clean, and well maintained.

45%

A JIT manufacturing system has been implemented

45%

Documentation is kept of customer first-time call versus resolution

45%

Figure 5.

Continuous Improvement: For Better or For Worse?

“World-Class” Characteristics

Degree of Consensus by OEMs

The procedure and policies relating to the quality system are documented in the manual.	45%
Employee teams are formed at all levels for identifying improvement areas and are empowered to take action	36%
The quality system effectively assures that supplier items or services do not adversely affect product quality.	36%
All safety occurrences are documented and analyzed for corrective action	36%
Company management creates an environment in engineering that encourages innovation and continual improvement of engineering capabilities	36%

Figure 6.

World-class companies are defined as those who can compete through manufacturing by developing multiple capabilities all at once. Multiple improvements within a value chain of suppliers add up, and should ultimately provide a cumulative competitive advantage to the OEM (see Figure 6).

The first two world-class characteristics support both standards, as in a quality manual, and teams to make improvements. OEMs expect Plan-Do-Check-Act (PDCA) by the supplier.

Of course all companies want their suppliers to improve, but OEMs differ on just what tools are on “the right track.” For instance, one OEM called a heavy focus on self-directed teams one supplier’s “hobby.” Another OEM sees such teams as essential to lean production. And different OEMs might prefer different timing to get the lower tier suppliers involved in world-class practices. So “the right track” for continuous improvement is a matter of each OEM’s management culture and each OEM representative’s perceptions.

Especially noteworthy however, is the OEM

emphasis on “innovation and continuous improvement in engineering capabilities.” One OEM representative said, “Suppliers should provide a larger capability for development and supply of an entire system.” Without real capability in engineering and production technology, suppliers fall back down on the ladder.

In becoming world-class, the goal of both customer and supplier is to form a long-term partnership, to create a new synergy within the supply chain, to form a win-win relationship. The ladder represents a generic “rule of thumb” by which suppliers can focus their progress toward world-class partnership (see Figure 7).

Can small companies accelerate their progress toward world-class? In Maryland, NRL Associates has already improved its focus through a technical assessment based on the rungs of the ladder. While you were reading this, they were climbing toward world class.

OEMs Tell Stories About World-Class Suppliers

Controlled Performance

“In 1988 we decided to outsource a rudder. The supplier’s management were two corporate entrepreneur types who were directly involved in the proposal. Their excellent program management skills were combined with a cross-functional team approach to develop the tooling concepts. Their sub-tier supplier selection was equally methodical. These world-class leaders did this by being able to translate the traditional challenges into ‘go do’s’ within a new paradigm of manufacturing. The result was an 18-month program accomplished in 12 (months), program cost goals were all met, and SPC was employed in the building of a major structure for the first time.”

An Aerospace Manufacturer

Technical Excellence

“A supplier’s product was being rejected by our telecommunications manufacturing line due to poor pattern recognition on our assembly equipment. After several lots experienced problems, we asked the supplier to help. The supplier and our manufacturing engineers developed possible improvements in patterns, conducted experiments, and then screened all products for the best matches to this new pattern. The supplier has continued to get more and more business with us.”

Lucent Technologies, Inc.

The Ladder to World-Class Partnership

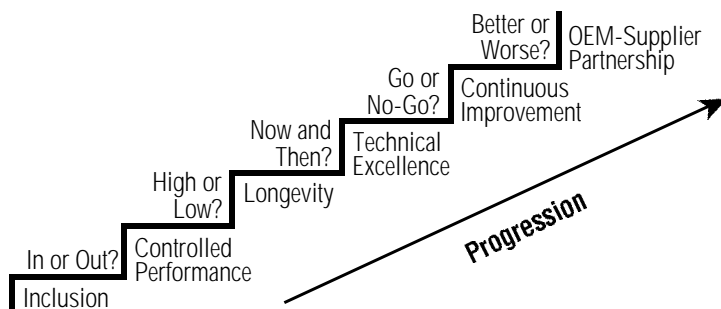


Figure 7.

Continuous Improvement

“We had a need for new parts. The supplier worked with us in design, tolerances, and material selection. The production tooling and processes were implemented such that he was able to reduce the cost and provide excellent quality. He has since provided additional cost reductions by his ability to eliminate all waste in his process and value chain.”

Robert Bosch Corporation Partnership

Partnership

“We are developing a new state-of-the-art product with a supplier. They are bringing us up to speed with the newest technology and the rest of the industry. We’re working with their people on the future.”

Mack Trucks, Inc.

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