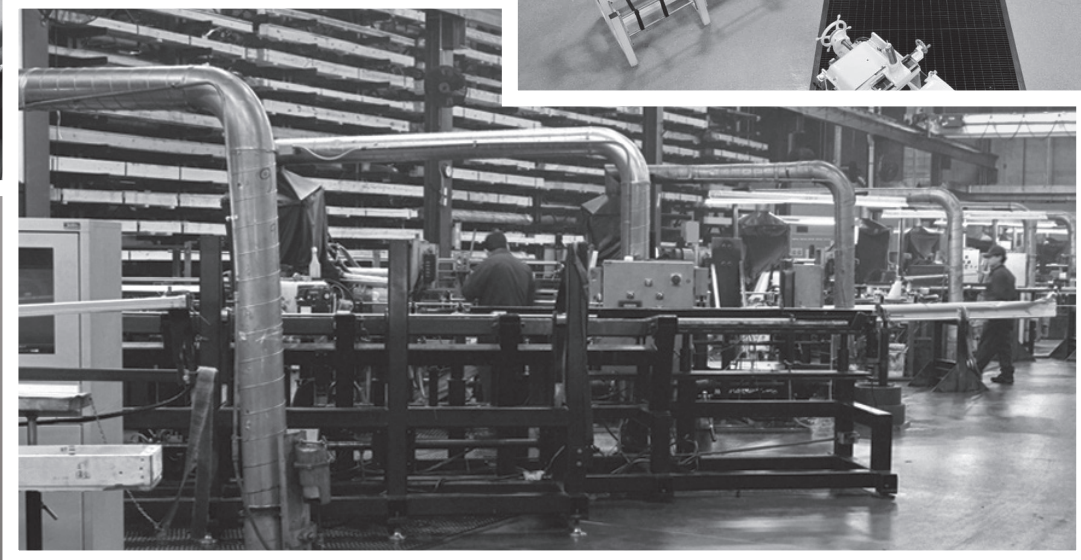
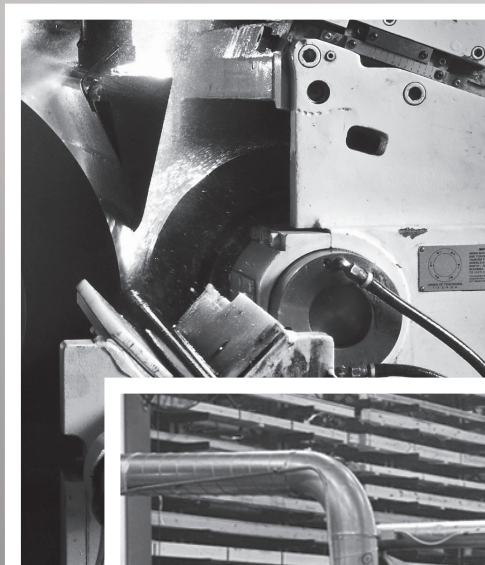


# QRM PROFILES

## Strategic Thinking, Culture Change and QRM Drive Lead Time Reduction at Banner Service Corporation



*The QRM Center is a university-industry partnership dedicated to improving manufacturing competitiveness through research and implementation of lead time reduction principles.*

# Leadership Commitment and Operational Changes Lead to QRM Successes at Banner Service Corporation

by Kathleen Watson

Sometimes the motivation for change is simply believing you can do better. Smart, forward-thinking organizations are constantly learning, exploring ways to grow, achieving higher levels of customer service, increasing profitability — in other words, raising the bar.

Headquartered in Carol Stream, Illinois, Banner Service Corporation was successful and growing year after year, but not at the pace the management team thought it could — and should.

A processor of round and shaped metal bar stock, Banner adds value for customers through straightening, grinding, polishing, heat-treating, plating, surface treating, and cutting to specified lengths.

Customers count on Banner as their single-source material supplier because of the company's ability to reduce supply chain complexity, increase risk mitigation, and deliver superior quality. Using Banner's centerless ground materials allows customers to reduce scrap rates, run "lights-out" production, and deliver the finest finished-part products to their markets.

## Two business units serve two distinct markets

Banner sources and processes a broad array of steel for the commercial and medical-device manufacturing sectors.

Its commercial business unit serves customers in automotive, agriculture, aerospace, pulp and paper, chemical processing, and a multitude of other industries that routinely use centerless ground materials for the manufacture of close-tolerance products.

Commercial material grades include carbon, carbon alloy, brass, aluminum and stainless steel.

Its medical business unit serves customers in the medical-device industry. Common applications for processed materials include implants and medical devices as well as instruments for the orthopedic and dental markets. Purity, precision, and risk mitigation are critical characteristics of materials for this sector. Medical material grades include cobalt chrome, titanium, stainless steel, and super-alloys often used in the orthopedic and aerospace industries.

## Customer feedback drives quest for improvement

In the spring of 2013, Banner conducted a stakeholder survey that confirmed market price and quality do indeed matter, but so does the ability to turn orders around quickly with consistent on-time delivery.

Survey results also revealed the importance of being able to speak directly with knowledgeable, friendly customer service representatives who proactively communicate order status, process claims, and provide information requested by the customer.

After compiling and digesting the results of the survey, Banner CEO Mark Redding gave the entire management team the opportunity to attend a three-day strategic-thinking conference. Participating staff members from sales, purchasing, operations and quality brought company experience ranging from 2–25 years.

In addition to the Banner executive management team, select members of Banner's board of directors joined the contingent. Although Banner has always had an annual strategic-planning process, "The urgency was immediate this year," Redding says. "We came away from the meeting knowing that changes needed to be made."



## Company Profile

Founded 1961

Headquarters:

Carol Stream, Illinois

Production Facilities:

Carol Stream, Illinois

Strongsville, Ohio

Charlotte, North Carolina

Warsaw, Indiana

150 Employees

ISO Certifications:

ISO 13485:2003

ISO 9001:2008

AS 9100C-2009-01

## Products and Services

Material Sourcing

Straightening

Turning, Grinding, Polishing

Heat Treating

Surface Treatments

Plating

Non-Destructive Testing

Near-Net Shape

Cut-to-Length

Supply Chain Management

## Markets Served

Industrial

Medical Device

Automotive

Agriculture

Steel Distribution

Aerospace

Fluid Power

[www.banner-commercial.com](http://www.banner-commercial.com)

[www.banner-medical.com](http://www.banner-medical.com)

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“QRM appeared to be a low-cost solution that wouldn’t require us to make significant investments.”

— Mark Redding

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### **Sales force input helps shape goals**

While the stakeholder survey played a role in the impetus to improve, Banner’s sales force provided input that helped formulate goals.

Historically, companies in the steel and metal processing industry are known for low standard margins associated with what they produce and sell. Material accounts for roughly 70% and labor accounts for 30% of total product cost.

The ability to streamline production and add value to basic materials is critical for optimal profitability. Superior customer service can be the sole differentiator from one competitor to the next in that industry.

Members of the sales force were convinced that quicker quote turn-around and faster delivery would give Banner a competitive edge. They predicted that a 10% increase in sales revenue could be realized by reducing lead time from 19 days to 7.

When analyzing insights from the strategic-thinking conference, survey results and sales force feedback, Banner management quickly identified two key objectives:

1. Reduce product lead time by 50%
2. Achieve excellent customer service

Improving internal communication, improving product quality, and maintaining competitive pricing were identified as supporting components.

The next piece of the puzzle then emerged: How do we get there from here? It was evident that success would require participation from both the office and the shop. Banner needed a roadmap.

### **Board member leads Banner to Quick Response Manufacturing**

A member of Banner’s board of directors also serves on the board of TCI LLC (formerly Trans-Coil Inc.), a Milwaukee-based manufacturer of products that improve performance of the process that converts AC electrical power to DC.

TCI has been reaping the benefits of Quick Response Manufacturing for over 20 years — even citing the use of QRM as a customer benefit on the company’s website. The board member suggested that Redding visit TCI to view its operations and witness how QRM works and how adopting it benefited the company.

In October 2013, Redding and his plant managers traveled to TCI. They came away enlightened, impressed and inspired. “I learned that we had a relatively simple business that we tried to make as complicated as possible,” Redding says. “QRM appeared to be a low-cost solution that wouldn’t require us to make significant investments such as moving into a new building or adding capital equipment.”

Redding immediately contacted QRM Center Director Prof. Ananth Krishnamurthy at the University of Wisconsin-Madison to begin developing a plan for implementing QRM at Banner.

### **QRM journey begins with homework assignment**

Education was the first step. A homework assignment began creating a fertile soil in which QRM could take root. Office and managerial staff read *It’s About Time: The Competitive Advantage of Quick Response Manufacturing*, by QRM founder and UW-Madison Emeritus Professor Rajan Suri.



*Mark Redding, CEO*

In December 2013, Krishnamurthy joined Redding in Carol Stream to help provide an overview of QRM. The objective: convey to employees what would be happening, how it would affect their jobs, what outcomes to expect, and how important it was to get everyone on board.

The message was clear. “The train is leaving the station; you’re either on board or you’re off,” says Medical Cell Leader/Procurement Mary Kinney, describing Redding’s absolute commitment to the new way of thinking and of doing things.

QRM requires a shift from many traditional manufacturing practices and beliefs, so a change in culture would be the necessary first step.

One common practice at Banner was overtime; it was an integral part of working in the office and on the shop floor.

In fact, hourly production workers had come to rely on overtime pay. Nor was it unusual for salaried and hourly office staff to spend 10 hours a day at their desk and still take work home evenings and weekends to keep up.

Krishnamurthy returned a month later to lead a second session, this one held off-site for key office and managerial staff. They broadened their QRM knowledge Friday and had dinner





*Banner adds value to a variety of shapes, sizes and composition of metal bar stock for commercial and medical use.*

together, followed by homework to take to their rooms at the hotel. They spent Saturday planning their next steps.

### **Personal training paves way to necessary cultural change**

While adopting QRM, Redding wanted training to extend beyond QRM theory and methodology; he wanted to include individual personal development. “Mark had discussed on many occasions that one of our goals is to strengthen our organization by developing each of us as employees,” Kinney says.

In December 2014, he had each office employee complete a DISC assessment — Dominance, Influence, Steadiness, Compliance — through Resource Management of Boston. A facilitator followed up by spending an hour with each employee.

Redding then hosted an off-site seminar for all office staff, where a specialist led the office group in personal-development and team-building exercises. Among topics covered in the daylong session were understanding different communication styles and motivations, improving communication across the board, and decreasing stress.

Twenty months later, Kinney reflects, “The DISC program has really brought out the best in everyone. The difference in trust and in operating as a team is like night and day. We all had a

sense that our working environment was not ideal, and we all wanted to be better, for ourselves and for Banner.

“If Mark had not been so insistent on changing our culture, QRM wouldn’t have taken off. It would not have worked with our old culture.”

General Manager Joe Ariola agrees. Then still somewhat new to Banner, Ariola had been parts manager for a year. He recognized the validity of QRM’s relentless focus on time and considered it a perfect match for Banner’s newly defined lead-time-reduction and customer-service goals.

“It fits our business to a T,” Ariola says. He also recognized that Banner’s culture would need to undergo rapid and significant change, all the while acknowledging it was going to be “painful.”

### **Leaders emerge through self-nomination process**

Following QRM training sessions and self-development activities, Redding asked for volunteers to serve as QRM champions to lead the process: Steering Committee members; QRM Director; Team Leaders for the Carol Stream office, Carol Stream shop floor, and Strongsville/Charlotte shop floor. Interested employees completed applications, explaining why they considered themselves good candidates for the positions. Redding made the selections.

Ariola volunteered to lead QRM efforts at Banner facilities in Charlotte, North Carolina, and Strongsville, Ohio.

Kinney was willing to participate in the QRM implementation, so Redding chose her to head the transition at the Carol Stream office, the order-processing hub for all three Banner facilities.

“Mark stressed, ‘This has to work,’” Ariola says. “He committed to providing any and all resources needed to achieve our goals, and he has stood by his word.”

In February 2014, Banner’s QRM leaders attended a two-day How to Implement QRM workshop in Madison, Wisconsin. Eager to begin, Ariola started introducing QRM to shop workers through monthly communication meetings soon after. He took steps toward developing cells, a basic QRM tenet, but the process did not go smoothly. “We had not done enough analysis,” Ariola admits.

### **Pilot project with narrow scope is best QRM starting point**

Experience has proven it wise to limit initial QRM implementation to a particular product or market segment. Principles can be tested and lessons can be learned in a pilot project within a Focused Target Market Segment, or FTMS, that will serve as an example of success and smooth the way for the next phase.

Banner already had some natural separations created by supplying medical and commercial markets. The medical side of the business involves different grades of material, different suppliers and customers, tighter tolerance specifications, and more steps in the receiving and shipping processes than does the commercial side.

Plus working on medical-grade bars requires a cleaner environment with its own dedicated equipment.

In March 2014, Banner engaged UW-Madison students affiliated with

the QRM Center to assist with planning two implementation projects that would align and strengthen Banner's business.

Students assigned to the shop would help with in-depth analysis of products, processes, equipment and layout for commercial products. Students in the office would work with staff on processing orders for the medical side of Banner's business, creating Q-ROCs, Quick Response Office Cells, first for medical and then for commercial products.

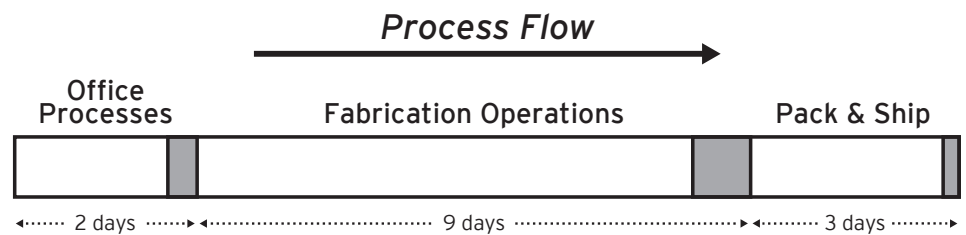
### Immersion into QRM prompts rapid changes in office

Banner's pre-QRM front office reflected a typical cubicle layout. Tall partitions separated staff, and communication occurred via email, phone or meetings. Direct communication between the office and the shop was sporadic and driven by urgency of any given order, according to Commercial Cell Leader Kara Kalinski.

"When you are accustomed to doing things a certain way every day, it can be difficult to see potential for change. A fresh perspective, especially from someone who understands your goals and has special expertise to help you reach them, can facilitate and streamline change," she says.



Kara Kalinski, Commercial Cell Leader



### Example of an MCT Map

The QRM students brought that fresh perspective and expertise.

They first developed tagging sheets to identify the path a customer order followed once it arrived: how many people "touched" it (in this case, electronically), what task they performed, and how long that task took.

"When we started tracking the path of an order," Kalinski says, "we discovered that we in the office were more responsible for holding things up than the workers in the shop. We were taking up more than half of the lead time with batching, not entering orders in a timely fashion, and so on."

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"When we started tracking the path of an order, we discovered that we in the office were more responsible for holding things up than the workers in the shop. How could the shop help reduce lead times when the orders were so slow in getting to them?"

— Kara Kalinski

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Tagging also made clear the amount of time an order sat when no one was working on it. Charted as white (idle) space vs. gray (productive) space, tagging pinpointed what was contributing to long lead times and revealed where the greatest opportunity for improvement would be.

Tagging is labor-intensive and came to be viewed as a demanding chore. "The most challenging part of the QRM process was, and still is, tracking the metrics," Kinney says.

"There is a lot of work that goes into reporting, capacity, quote tracking and MCT<sup>1</sup>," she explains, "but you have to do it consistently, because you want the results to be accurate and true."

"How could the shop hold up their end of helping reduce lead times when the orders were so slow in getting to them?"

Because it became obvious so quickly, the office group working on medical orders decided to take a huge leap. Rather than wait for additional metrics and analysis, they moved boldly, abandoning their cubicles in April 2014 and hauling their chairs and computers to a large table in a conference room, creating a makeshift, but highly functional, Q-ROC.

"With all of the training we had and staff interest being so high, we didn't want to lose the momentum, so we created a medical Q-ROC pilot cell," Kinney says.

Krishnamurthy and his on-site student had concerns about the speed of change, but positive results emerged almost immediately.

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1. Manufacturing Critical-path Time (MCT): The typical amount of calendar time from when a customer submits an order, through the critical path, until the first end-item of that order is delivered to the customer.



*Banner's first Q-ROC took shape temporarily in a conference room.*

### **Proximity facilitates communication, fast problem resolution**

"We found that when we were all sitting together, we solved problems much faster. We could get clarification without sending an email, making a phone call or calling a meeting. We simply asked, because the person was visible and within speaking range," Kinney says.

Tagging sheets that tracked all cell activities served as a basis for creating a skills matrix to use as a guide for cross-training. "We knew we needed this information," Kinney says, "but no one ever had time to do it."

The QRM tenet of cross-training creates flexibility; although each cell member has an area of responsibility, he or she can perform whatever task is needed to keep the cell functioning smoothly.

"We don't all have to be top-level experts at everything," Kinney says. "We just need to understand and be able to perform every task within the cell. Before QRM, customer orders and quotes were directed to an individual's



*The openness of the new commercial Q-ROC facilitates communication among staff. A giant wall monitor enables everyone to track order progress as well as which order and task is next in the queue. "There is not one employee who would go back to a cubicle," Mary Kinney says.*

inbox; now they go into a group inbox that the whole team shares," Kinney explains. "Whoever on the team has time — capacity — starts to work on whatever is next."

Tagging also identified activities that occurred in the cell but had no role in order processing: inventory management and ordering office and break-room supplies; invoicing; responding to customer requests for shipping details; scanning international paperwork; even ordering lunches.

Any activity adding to MCT but not essential to order processing was redirected to the appropriate department or delegated to a newly created support cell.

With the early success of the medical office cell, formation of a commercial office cell followed a month later.

By June 2014, the medical and commercial cell teams had cut purchase-order processing lead time from 19 days to 7.3 days. Cell layouts were designed to reflect the new Q-ROC practices, and remodeling

began in July to provide the cells with permanent homes. The conference room-turned-Q-ROC returned to its original function.

Looking back, Kinney says, "Prior to QRM, everyone in the office believed updated computers and a new MRP system would help reduce lead times. In hindsight, when we tracked the order process, all the white space was human activity. It turned out to be good that we held off on our purchase. Now when we start looking, we'll know exactly what type of MRP system will work best with QRM."



*Mary Kinney,  
Medical Cell Leader/Procurement*

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**"We found that when we were all sitting together, we solved problems much faster. We could get clarification without sending an email, making a phone call or calling a meeting."**

**— Mary Kinney**

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“We’re a traditional batch business. After every step, we wait. We knew before QRM that we had to reduce wait times to reduce our lead times, but month after month, nothing changed.”

— Joe Ariola, General Manager

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### **Shop floor QRM implementation follows slower path**

While the office was progressing by leaps and bounds, QRM students in the shop were helping Ariola decide where and how to begin. “They gathered lots of data and looked at things from every angle to figure the best way to establish a cell,” he says.

“We’re a traditional batch business,” Ariola notes. “After every step, we wait. We knew before QRM that we had to reduce wait times to reduce our lead times, but month after month, nothing changed.”

Just as the office separated medical and commercial orders to create an FTMS, the shop was defined by the separation of medical and commercial markets, and then further defined by bar stock material, length and diameter.

In reviewing how Banner products are manufactured, students identified key challenges:

- The majority of products were custom-processed, and both demand and the number of shipments varied daily.

- Grinders and straighteners have different processing rates; an order that needed both operations tended to have extra wait time.
- Plant layout was contributing to excessive material handling and increased time between processes.
- Batching of jobs was interfering with flow and monopolizing machines.

On the second try, Ariola and his cell leaders, with student input and guidance, chose to create cells based on bar stock diameter. Ariola found that shop employees who worked consistently on a single product or operation honed their skills, getting better and faster. The decision to create cells based on bar diameter also reduced machine setup time.

In addition, Ariola opted to collocate straighteners and grinders based on optimal flow analysis provided by the students. A straightener also was added to alleviate constraints identified, and batch sizes were reduced to the ideal quantities required to maximize efficiency of the equipment and operator of a given process.



*Joe Ariola, General Manager*

As part of the QRM transition, the shop floor created a dedicated long-run cell for large orders that prevented delays for short-run orders waiting in the queue. Cell leaders began working more closely with the materials department for picking materials, providing an updated picking list twice daily.

In November 2014, Ariola was promoted to general manager at Carol Stream. Although the front office had been his home as parts manager, he no longer felt comfortable there; he didn’t like the “other world” sense of separation between him and his production workers.

He believed he could be a stronger agent for change if he were rubbing elbows with people on the shop floor, hearing firsthand what their concerns were, monitoring their progress, and coaching and encouraging them every day. Ariola relocated to the shop floor and never looked back.

## **Results**

MCT Reductions from June 2014 QRM Implementation to year-end 2015:

- Overall MCT reduced from 19 to 6.9 days
- Office MCT reduced from 7.3 to 2.1 days
- Shop MCT reduced from 11.7 to 4.8 days

## **Results show giant steps toward goals**

Overtime hasn’t disappeared, but it is down considerably. To compensate for the income adjustment, Ariola is doing what he can to make his 110 workers’ days more pleasant: adding a wide-screen television to the lunchroom; providing lunch at monthly communication meetings;

and recognizing above-and-beyond employee effort with surprise gift certificates.

In combination with an across-the-board raise in July 2015, Ariola has implemented an annual performance review for shop personnel that links a raise to an exceptional review.

### **The more you quote, the more you sell**

Banner has always responded to every RFQ received. "We quote every job," Kalinski confirms, noting 95% of

medical quotes now are turned around in fewer than four hours. "In some cases, we receive a purchase order before other companies can provide a quote. And there are cases where we are picked as a vendor based just on relationship."

"QRM has helped bridge the communication gap between office and shop," she confirms. "There is more communication and understanding of each other's job function and work environment."

### **What's ahead for Banner?**

Implementation of QRM in Charlotte and Strongsville plants is underway, and a new plant is on target to open in the second quarter of 2016 in Warsaw, Indiana.

Known as the orthopedic capital of the world, Warsaw is home to six of the top 10 medical-device suppliers in the country. Banner will provide bar stock to this medical-device-rich area from an office and shop layout using QRM as a design guide.

The plant also will feature a special QRM engineering quality cell so Banner staff can assist medical OEMs in that area introduce their products to market faster.

Banner has evolved through massive change in a highly compressed time frame. A sense of urgency; a strong and decisive leader; willing, enthusiastic employees — and a plan that was guided and supported by QRM and its advocates — converged to make the gigantic step forward possible.

Banner has indeed raised the bar.



*Operator adjusts the grinder that is smoothing medical-grade bar stock.*

## **Center for Quick Response Manufacturing (QRM)**

Established in 1993, the Center for Quick Response Manufacturing at the University of Wisconsin-Madison is a partnership between industry, faculty and students, dedicated to the development and implementation of lead time reduction principles.

For over two decades, the QRM Center has helped more than 200 companies of varying sizes from a wide array of industries reduce lead times in all aspects of their operations to become more competitive in the global marketplace. The Center can point to a respectable track record, with several member companies realizing lead time reductions exceeding 80%, cost reductions of up to 30% and on-time delivery improvements to over 99%.

**For more information, check [www.qrmcenter.org](http://www.qrmcenter.org), join our QRM LinkedIn group or contact us directly at 608-262-4709.**



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