

## **What is Operational Excellence and What does it Mean for ABB New Berlin**

*(Dramatic changes in the way ABB employees produce products, work, and think)*

**NEW BERLIN, WI, August, 2005.** . .Most ABB employees may have heard of Operational Excellence, but do they really know what it is? After receiving inputs from Catherine Dimmitt, Operational Excellence change, communication, and technical training manager, here's a profile of what the objectives and targets of Operational Excellence include, and the changes that will be felt and seen within the New Berlin facility.

The Operational Excellence initiative is being developed in partnership with Rockford Consulting Group out of Rockford, Illinois. Rockford Consulting Group specializes in manufacturing and distribution operations. Having the vision of being a world-class manufacturing facility in mind, the approach is to design the optimal factory floor layout to increase factory capacity by 400%, while at the same time, improve the quality, reduce cost and still deliver on time. Simulation models will be used to test floor layout design before implementing in production.

Operational Excellence; What is It?

Operational Excellence is built around Low Voltage Drives' general manager and senior vice president Rick Hepperla's Strategic Framework (Business Strategy), a succinct summary and articulation of how LVD is committed to create innovation and continual improvements in ABB's products and services. Why? – It's simple *and* essential: to increase sales growth and profitability.

Operational Excellence is one of four strategic focus areas, interlocked with other essential strategic commitments, including People Excellence, Commercial Excellence, and Product Excellence. "In combination with Operational Excellence and the other strategic focuses, ABB aims to achieve a leading market position by the year 2008," points out Dimmitt. "This is a strategic objective management is absolutely committed to reach."

Luc Claisse, vice president of Operational Excellence, joined ABB New Berlin in February 2005. Luc brings his enthusiasm for change, his positive outlook for our ability to achieve our vision to be world-class, and his personal drive to keep the momentum going. Luc is in charge of the entire Operational Excellence Team that is split into two main parts: one is tactical; the other strategic. The tactical team deals with the day-to-day operations meeting the customer's demand. The strategic team is working to identify, isolate and create long-term strategies and solutions for existing and potential issues. "Both teams work in complement, and are absolutely essential," noted Claisse. "We need to simultaneously run the business and implement a vision that delivers the future output, capacity and *way* of producing drives that we know is possible!"

### **The Vision: World-class Manufacturing Facility; Cells Are Critical**

ABB Customers will be affected very directly via the Operational Excellence Program. There will be improved lead times so that customers will receive their products with higher quality and much faster. "ABB's goal, simply stated, is to allow customers to receive products within 24 hours of placing their order," said Dimmitt. "Currently, the average build time is more than 10 hours, and the target is to reduce that down to a maximum of 4 hours."



Before such dramatic changes to improve ABB product delivery times to customers can occur, there will be dramatic changes in the way ABB employees think, produce products, and work, in order to meet business objectives, according to Claisse.

ABB New Berlin plans to use a Lean enterprise concept known as **Manufacturing/Office Cells** to achieve the world-class vision. “The assembly process will be based on a one-piece flow,” says Ahmad Ashour, strategic operations manager. “Once-piece flow is producing products one at a time, by linking together a sequence of office, equipment, or assembly processes in a smooth production flow.”

### Operational Excellence Begins When?

The Operational Excellence changes began when 2005 got underway, and the strategic plan and vision is to become a model manufacturing facility, with completion fully implemented in 2008. “This project is a multi-generational plan, and consists of several phases,” according to Dimmitt. “Currently, we are in the second phase, which focuses on how to increase factory capacity and reduce production- and-material cost by \$1 million this year.”

In parallel, the next phase, begins now and continues into 2006, which is to optimize the factory layout and double capacity by the end of 2006, Dimmitt said. “And, in 2008, we will achieve world-class status with four times current capacity, and marry that with supply chain optimization.” Supply chain optimization includes precise and optimal material sourcing, both for production and finished goods brought into New Berlin, she said.

### Everyone Has a Voice; Pillar to Community and Communication

Operational Excellence not only includes physical changes, but also major changes to improve communication throughout the company. “ABB is committed to building a community by collaboratively working together based on the belief that everyone has a voice and deserves to be heard,” states Dimmitt.

Dimmitt developed a communication plan with a simple vision: use honest, human conversation to foster a community where we each have a chance to speak, we each feel heard, and we each listen well. “We are creating a Community atmosphere to achieve our communication objectives,” said Dimmitt. Visually, we’ve created a Community Wheel where people’s individual pictures (faces and names) will be posted. The wheel represents several things: collaboratively working together to deliver expected results to our customers, continually improving our performance, understanding our interconnectedness to each other and others, taking action with our overall vision to become world-class in mind. “We must embrace the corporate set of values – respect, determination, and responsibility – to achieve a new level of how we communicate; talk with each other versus talk at each other,” Dimmitt noted. “It’s the pillar on and around which all of the Operational Excellence work takes root, thrives and grows.”

The communication plan consists of promoting an effective two-way communication between all community members, in order to reach a common understanding of the projects vision, objectives, and progress. The goal, clearly stated, is to generate involvement and enthusiasm for the implementation of the Operation Excellence changes, by fostering a different way of looking at our environment and a different way of thinking.

“Any change naturally evokes fear in people based on unknowns. The idea behind the communication plan is to reduce the fear by providing timely, consistent, open, and honest messages by talking with people,” says Dimmitt.

### “Lean” is the Bedrock of Operation Excellence!

Operational Excellence is driven by Lean Enterprise Concepts. “Lean” is described as: the elimination of waste (anything that does not add value to product); taking products to world-class levels; and processes that continually challenge and improve performance. What is “adding value”? It is any operation or process the customer is willing



to pay for. Adding value generally means changing the shape or form of the product. Anything else is considered to be waste.

The objective of bringing these concepts into daily reality is to improve customer satisfaction, which grows ABB's business, and, ultimately, what Low Voltage Drives will be able to return to bottom-line profits. "In order to successfully achieve Lean, we need collaborative teamwork, dedication to perfect quality, and a razor-sharp focus on identifying and eliminating waste," said Claisse. "It's a discipline and a habit of mind; and it works as every person within the Team, and around it, participate as completely as possible. From this different way of thinking, great, positive change occurs. And it creates inspiration and momentum."

Ahmad Ashour joined the Operational Excellence initiative in June of 2005 to lead the 'Driving Towards Excellence' project. Ahmad brings a plethora of Lean tools, which includes a black belt in six-sigma. "Listening to the people from the bottom up is important and provides us with numerous ideas for making improvements," says Ahmad. "We are empowering the people to actively participate in the decision-making and to make the physical improvements to their work environment, and we recognize them for doing so," he said. "It is truly a collaborative effort."

There are several Lean Enterprise Concepts, some of which are profiled here:

5S (Five Steps):

- **Sort** – remove anything unneeded in a process;
- **Straighten** – make parts orderly by arranging them to be easier to use;
- **Sweep** – cleanliness, such as wiping down counters;
- **Schedule** – schedule time to clean up; and
- **Sustain** – discipline, follow a productive daily routine.

**Manufacturing/Office Cells:** one-piece flow and the key to employee empowerment and ownership.

**Total Productive Maintenance:** continually improving the effectiveness of equipment through involvement of the people in an organization.

**Kanban** – replenishing process that is placed very close to the point of use.

**Kaizen** – means "change for the good" in Japanese; a constant improvement, event-focused on eliminating waste and improving customer satisfaction.

**Problem solving** – solving complex problems, using standard methodology to get to the root of the problem and, then, permanently fix it.

### **A Whole New Factory Landscape!**

"Operational Excellence is going to create a whole new factory look for the ABB New Berlin Facility. "Yes, customers should see first-tier Excellence from their first entrance in the lobby all the way through to drives being loaded into trucks for shipping," said Dimmitt. The entire front lobby has been changed, the parking lot has been repaved, and the landscape around the exterior of the facility now is in the process of being reworked. Soon there will be changes made to the multi-purpose room, and eventually the entire factory/production area physical



appearance will be revamped and changed completely.

“We have the space,” said Claisse. “The work is to configure that space logically and strategically, in order to produce as many drives as the strategic team has mapped out and knows is possible. It is very satisfying to watch as the entire Team embrace our future.”

The office building on the south side of the New Berlin facility is being put to use. It is known as the “Driving Towards Excellence Project Building.” The building consists of four main rooms, which include the Project Room, Simulation Room, Learning Center, and Away Room.

The project room is where all the activity of the project takes place and is where the planners and architects of the project are at work. The simulation room is where the layout of manufacturing cells will be simulated, tested, and proved to be effective, before being put on the production floor. The learning center is where the training and education in Lean concepts takes place.

“Eventually, all employees will receive some background on Lean,” said Dimmitt. A small library exists of books about Teams, Leadership, Change, Lean, Operational Excellence, and Six-sigma that are available to check out in the learning center. The Away Room is a place for people who are asked to participate in the ‘Driving Towards Excellence’ project can go to completely focus on their work and to avoid distractions.

Operational Excellence and Lean does *not* mean a reduction in people; it means utilizing resources efficiently to achieve business objectives. ABB will actually be adding people to achieve production goals in an efficient and timely manner. “Operational Excellence will create tremendous growth for our company,” concludes Claisse. “These changes relate to production, but they also impact the entire chain of Commercial, Product and People Excellence. That chain is interlocked *and* interdependent.”

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## **Sidebar: Now That’s A Kaizen Event!**

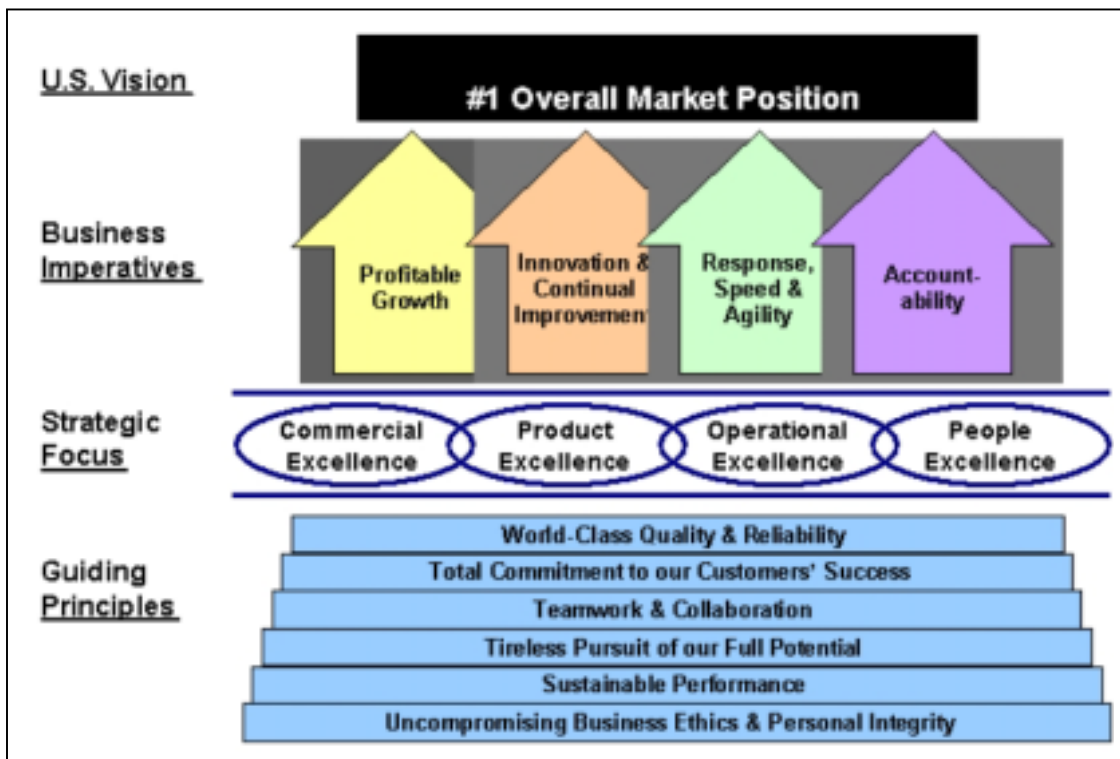
### **1. Assembly Change – Base Drives:**

The goal of the assembly change was to improve assembly efficiency by 20 percent. How? – **Kaizen!** By consolidating inventory, reducing waiting time, reducing the number of steps to move product, basically removing non-value add or waste, improved the efficiency actually improved 53 percent following implementation - 33 percent higher than the original goal.

“To put this into perspective, we used to make 75 units a day, and we re-set the goal to 90 units; we now are making 115 units,” notes Amad Ashour, strategic operations manager. “We eliminated waste to improve the process flow, and also shrunk the workspace.”

### **2. Elimination of the Bottleneck:**

The bottleneck is a robot-soldering machine used to build thousands of base drives. At the “bottleneck” point, it used to take eight minutes to solder one unit, and then two minutes for an employee to assemble the unit: 10 minutes total. “We eliminated the machine and replaced it with a new station staffed by an employee, and now it takes six minutes to complete a unit,” said Ashour. “We also got rid of a machine called the big white elephant because it didn’t work properly and consistently got stuck and needed repairs. We replaced the machine with a shelving unit, which carries parts on a wheeled cart, rather than being transferred through the big white elephant.” **Kaizen, Kaizen!** Dramatic increases in productivity through changes that are there, just waiting to be identified.



Operational Excellence is one of four key components of the ABB Low Voltage Drives business strategy; the strategy is focused on doubling unit sales by 2008.



Ideas and Planning for Operational Excellence are recorded in the Project Room.



Lean learning participants in the Learning Center.



Manufacturing Cells are first being built, refined and tested in the Simulation Room.



Kaizen Event “Buffer Busters” Team - (Standing Left to Right): Andrew Newman, Jim Decker, Jerry Anderson, Ahmad Ashour; Sitting Left to Right: Dave Banks, Christine Donigain, Chris Hilmoe



Before and after Kaizen event includes removal of bottlenecks, such as a conveyor that took too long to transport pallets on which drives are assembled.



Operational Excellence Community Wheel where everyone's picture will be posted.

**For more information please contact:**

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