

EMC-Manufacturing Essentials Certification Program
Workplace Performance Project (WPP) Results Overview/Summary

TOTAL IMPACT = Millions of dollars in cost, time, efficiency savings and workplace intangible benefits

Organization Stream	Project Title	MEC Workplace Performance Project Problem & Project Approach	Outcome (actuals, projections & intangibles)	Update
Mississauga, Ontario – Cluster – Spring 2018				
MEC Supervisor Plastic manufacturer	Project Title: Decreasing Inventory Variance	<p>WPP Problem and/or Opportunity:</p> <p>WPP identified a rate of 35% inventory inaccuracy and variance leading to huge issues around effective planning and production, as well as costs incurred from unnecessary storage, space limitations, and wasted movements as inventory gets shuffled around the plant. The costs to the company can no longer be ignored.</p> <p>WPP Approach – using MEC applied learning:</p> <p>What this team discovered as a result of this inventory, is that they are in fact carrying too much inventory to effectively manage, store and use in a timely fashion. The costs were climbing and needed to be addressed. In fact, the estimated cost in storage alone is over \$250,000 annually!</p>	<p>MEC Learning and Business Impact:</p> <p>The predicted increase in yearly gross revenue is forecast at over 1.8 million dollars, (through a combination of increased sales due to improved accuracy, reduction in wasted labour, and an increase in production planning and picking efficiency).</p> <p>The owners of the company expressed great support and optimism for the team’s solution and gratitude that a long-running problem had been studied so thoughtfully and thoroughly.</p>	<p>UPDATE: Dec, 2018</p> <p>Problem still not resolved as they realized that they need more resources – time and staff. Due to an increase in “inbound” materials, the problem has actually gotten worse. There is a plan to hire someone dedicated to inventory to implement the solutions suggested in their WPP as they realize they can’t do it with their current staffing model. There is a plan to address the issue during the company’s 2-week shut down in Dec/18.</p>
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Mississauga, Ontario – Cluster – Spring 2018				
MEC Supervisors Developer, Producer and Distributor of State-of-the-Art	Project Title: Increase Capacity of Silicone Room	<p>WPP Problem and/or Opportunity:</p> <p>This team has discovered that one of the barriers to meeting increased production demand is a bottleneck at the silicone application stage. This is challenging their ability to meet demand and introduce new products. By alleviating this delay, they would increase production and improve customer</p>	<p>MEC Learning and Business Impact:</p> <p>The cost to the company due to the bottleneck in the manufacturing process can be felt in lost revenue, inefficient production, challenges meeting orders and barriers to attracting new customers.</p>	<p>Awaiting approval from the management team to purchase an additional fume hood.</p> <p>UPDATE: Dec. 3, 18</p>

Medical Products		<p>satisfaction. Currently, they are only able to coat 180 parts/day and need an increase of 33% to 240 parts/day to adequately address the issue.</p> <p>WPP Approach – using MEC applied learning:</p> <p>The team set a goal of going from 3 cycles of silicone per day to 4 cycles per day in order to meet the desired output of 240/day. Using process mapping, they were able to identify the areas at issue, and through cause and effect analysis, were also able to pinpoint the root causes. It was determined that the most impactful change would be the purchase of a new fume hood, thus speeding up the silicone process. Cost benefit analysis was also carried out as part of the project and used to make their case to management.</p>	<p>A cost benefit analysis was done to demonstrate to the management team that the capital outlay for new equipment could be off set by the increase in production. The team felt that by learning a formalized problem-solving strategy and having the opportunity to apply to an authentic workplace problem, they were well situated to tackle future problems.</p>	<p>Approval was granted for the purchase of the new hood for the silicone room. It arrived mid-November, 2018 and the problem has been solved. The bottleneck in the silicone room has been alleviated and there is no more overtime needed. Though the capital cost of the new equipment was significant, the cost savings as a result of no-more overtime and a dramatic increase in production, has made it worthwhile. The cost benefit of the solution was positive.</p>
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Mississauga, Ontario – Cluster – Spring 2018				
<p>MEC Supervisors</p> <p>Automated Controls Manufacturing</p>	<p>Project Title:</p> <p>Meeting Delivery Deadlines</p>	<p>WPP Problem and/or Opportunity:</p> <p>The company is consistently missing their shipping target of 90% anywhere in North America in two days. Averaging 80% delivery means higher shipping costs as orders are shipped in part, frustrated employees and compromised customer satisfaction. The impact on the efficiency of production was also a factor and an added cost.</p> <p>WPP Approach – using MEC applied learning:</p> <p>The team used the 7 Step Problem Solving strategy introduced in the MEC program to tackle this workplace problem. Their cause and effect analysis helped them determine multiple causes, with both long-term and short-term solutions- including improving the amount of time spent to process an order from start to finish, reorganizing various departments</p>	<p>MEC Learning and Business Impact:</p> <p>By examining the manufacturing processes within the company, the WPP has shown that it will be possible to move from the current average of 80% product shipped within 2-days to the targeted 90% shipped by implementing the team’s solutions. To reduce the number of partial shipments will have a significant benefit to the bottom line, but will also increase customer approval. The team anticipates a positive impact on job satisfaction as the employees take great pride in hitting those delivery targets and have felt frustration.</p>	<p>Solutions presented as part of the WPP have been supported by the company owners.</p> <p>Update:</p> <p>Following the MEC program, this team was able to exceed their target of 2-day shipping for at least 90% of their orders in North America. Due to an increase in sales of 30% since the program ended, the team experienced a temporary dip from this target to 64%, but this has rebounded as they recognize an even more</p>

		and re-evaluating communication flow. Long term solutions will include introducing an automated ordering process connected to inventory control.		pressing need to implement their solutions. In January, they are expecting their new inventory software to be installed. They have hired more staff dedicated to this area. After re-evaluating the problem as a team, the company has also adopted their additional solution of hiring an architect to re-design the plant space for improved flow.
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Summerside, PE – Cluster – Summer 2018				
MEC Supervisor Fabricated Metal Product Manufacturing	Project Title: Managing Project Management	WPP Problem and/or Opportunity: WPP identified developing and delivering production processes to improve overall operations. The problems include: <ul style="list-style-type: none"> • Projects not going as planned (no benefits obtained, staff pessimism about ‘projects’) • Project groups are too small • Staff feel over worked and “there is no cascade of learning” How projects are identified, tracked, and measured contribute to misallocation of resources (time & expense), incomplete projects, and unutilized learning from past project experience. There is a low project completion rate that meet all objectives and are on-time, on schedule, and to quality. WPP Approach – using MEC applied learning:	MEC Learning and Business Impact: Tangible Benefits: more benefits realized from projects and less time wasted. Intangible Benefits: higher employee engagement, better trained employees, less pessimism about problems. 75% Projects completed 25% Reduce time spent on projects 4% Increase in internal staff training The team will put structure to “soft skill” activities and engage employees in thinking about projects. In addition, they will introduce an education and training component to all departments:	The Team will review and adjust. The organization identifies that communication needs to be fluid and keep an open culture of communication. October 19, 2018 will start to measure results. New company initiatives for next year (2019): <ul style="list-style-type: none"> • Complete 6 process improvement projects • Lower costs • Increase employee training

		<p>Interdepartmental discussion to address:</p> <ul style="list-style-type: none"> • quality training to address instructions deficiencies • product development to introduce templates to the processes • process improvement to simplify the approach • introduce two Key Performance Indicators (KPI), still to be determined <p>To move forward, the team will determine the most applicable structure for less complex versus more complex projects.</p>	<p>templates, training, sponsorship, oversight (PMO), and reassess the process.</p>	<p>The organization will model Project Management of a group within the company & match other projects with it <i>via</i> communicating effective tools & follow up when employees address issues.</p> <p>Create training binders <i>via</i> Harvard Project Management by accessing the learning portal.</p> <p>Evaluate and review.</p>
Organization Stream	Project Title	MEC Workplace Performance Project Problem & Project Approach	Outcome (actuals, projections & intangibles)	Update
Charlottetown, PE – cluster – Fall 2018				
<p>MEC Production Worker</p> <p>Brewing Company</p>	<p>Project Title:</p> <p>Centralized Keg Filling Station</p>	<p>WPP Problem and/or Opportunity:</p> <p>WPP identified the Kegging Department as having trouble growing fast enough to meet production requirements.</p> <p>The problems include:</p> <ul style="list-style-type: none"> • Kegging accessories are not organized in an efficient manner • Long keg lines are a safety hazard • Bleed off valves result in excessive waste • At peak periods, delivery drivers are waiting for kegs to be filled • Setting up and tearing down lines is time consuming <p>Opportunities:</p> <ul style="list-style-type: none"> • If the team can gain 104 hours per year with efficiencies, they can fill an extra 6240 kegs, saving \$2000 in labor per year <p>WPP Approach – using MEC applied learning:</p>	<p>MEC Learning and Business Impact:</p> <p><i>Tangible Benefits:</i> Save 104 labor hours per year, increase keg output by 17%, save \$10000 over 5 years, & decrease beer waste</p> <p><i>Intangible Benefits:</i> Ease of training, fewer workplace injuries, meets the company's (5s) initiatives, improves department layout functionality, shorten set up times, & reduce errors</p>	<p>Company intends to use the information and tools from the EMC training program to continually improve the packaging area.</p> <p>Evaluate and review.</p>

		<p>Implement Centralized Keg Filling Station:</p> <ul style="list-style-type: none"> The team will stop filling kegs individually and move to a centralized keg filling station to save time This will result in fewer parts to be managed, assembled, disassembled, & cleaned This can be transported to shorten keg lines and improve safety It will also allow for more consistent fill levels to reduce waste 		
Organization Stream	Project Title	MEC Workplace Performance Project Problem & Project Approach	Outcome (actuals, projections & intangibles)	Update
Charlottetown, PE – cluster – Fall 2018				
<p>MEC Production Worker</p> <p>Aviation Manufacturer</p>	<p>Project Title:</p> <p>Streamline PW100 Nozzle Cell</p>	<p>WPP Problem and/or Opportunity:</p> <p>WPP identified outputs of PW100 nozzle shop are not meeting customer demands: 52.3% missed the due dates & OTD fell from 92.3% in June to 47.8% in October.</p> <p>Team’s objectives:</p> <ul style="list-style-type: none"> Increase outputs by decreasing touch time & errors through standardization & effective positioning of technicians. Decrease costs, increase customer satisfaction, accept increased inputs, & provide time for cross training Goals include improve TAT to 90% by January 2019 & to process all PW100 nozzle sets within 7 days by October 2019 <p>Problems/Challenges:</p> <ul style="list-style-type: none"> Interviews with key personnel & observations of work habits/time trials found inefficient work habits, complacency, & lack of awareness Inspection reject rates & test stand studies showed lengthy final test time, test stands not fully utilized, & high receipts of TAR (test as received nozzles) 	<p>MEC Learning and Business Impact:</p> <p>Targets:</p> <ul style="list-style-type: none"> Improve TAT to 90% by January 2019 Process all PW100 nozzle sets within 7 days by October 2019 <p><i>Tangible Benefits:</i> cost savings, improved quality/fewer reworks, greater outputs, & faster turn time.</p> <p><i>Intangible Benefits:</i> Increased morale; job satisfaction, employee motivation, & time for cross training.</p>	<p>Company will:</p> <ul style="list-style-type: none"> Do weekly reviews of standard processes Confirm training is current/updated/reinforced Review standard vs actual times Get feedback from shop members Check percentage of delivery dates missed Review/adjust Kanban level Roll out “lean cell” model to be implemented throughout the shop during 2019 <p>There will be a weekly jam session (leading to monthly).</p>

		<ul style="list-style-type: none"> The shop layout showed backlogs/bottlenecks The performance report showed a completion of unnecessary tasks <p>WPP Approach – using MEC applied learning:</p> <ul style="list-style-type: none"> Implement standard process via training, self-directed work flow, & create visual awareness through electronic scheduling Implement Kanban system with a min/max to provide visual indicators During the shift, part time employees will complete TAR's when test stands are not always fully utilized Eliminate over processing during the disassembly phase <p>Hold weekly jam sessions for training, info sharing, feedback, & evaluation</p>		Key performance indicators (KPI) including Turn Around Time (TAT), Missed On Time Delivery (OTD), & Inputs vs outputs will be assessed and reviewed.
Organization Stream	Project Title	MEC Workplace Performance Project Problem & Project Approach	Outcome (actuals, projections & intangibles)	Update
Lethbridge, AB – cluster – Fall 2018				
MEC Production Worker Food manufacturer	Project Title: Operation Cover-Up	Problem Statement: The company requires their production workers to wear several different PPE including gloves, eyewear, etc. and the PP&E vending machine is in an inconvenient area. Project Approach: The team investigated the issue by counting the steps from the work areas and calculating the cost of the numerous trips to the PPE vending machine. The team used the data related to glove use as an example to provide cost savings. Overall they calculated that for gloves alone, production workers must walk 0.5km each time they require PPE. Solutions:	Outcome: The team will be able to move the PPE vending machine to a better location soon and will move it to the ideal location after the current construction in the plant is complete. The move will save time, money and PPE which will lead to better compliance of PPE requirements. Tangible Benefits: <ul style="list-style-type: none"> The organization is expected to save a minimum of \$18,905.70 per year. This was calculated based on time wasted going to the PPE vending machine for gloves alone. Therefore savings will potentially be 	

		<p>The group offered several different locations for the PPE vending machines.</p>	<p>higher once accounting for the other PPE items that people must travel to the vending machine for each day.</p> <ul style="list-style-type: none"> • The organization expects a 20% reduction in safety related incidents as well as a 33% reduction in recordable injuries. 	
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Program Testimonials

“Putting structure to soft skills and coaching approach made my work better. We are glad that we took the time to receive training. What we learned through the EMC course will have a long-lasting benefit.” Jason lee, Manager-Programs, MDS Coating Technologies Corporation

“Through the production worker stream I was truly able to see some of my talented team members become more aware of the impact of their work, the losses the company takes, and understand the organization from more than just their viewpoint. Since the completion the individuals who had taken the production worker stream have become some of the best and essential cogs in the company moving forwards. They truly understand the impact that their job has and they feel value from learning. Some individuals may never have had the opportunity for formal education, and I believe that this course can really change a person’s view by helping them see the macro level of the business. Sometimes all you need is support and the support given through the facilitator and this course has really helped give our team members new confidence.

After going through the EMC Supervisor training program I see how this can benefit anyone who works in a manufacturing/production facility. The principles taught apply to all aspects of business, but really focus on People, Problem Solving, and Productivity. These three aspects are what can make or break a company. Through the program we were able to see different viewpoints and how to organize and present them effectively to management and better understand how to positively affect the bottom line of the company.” – Aris Saha, Human Resources and Marketing Coordinator, Kal-Polymers

“Excellent leadership manufacturing- focused program filling an unmet need” – Dina Iezzi, Director, Marketing and Special Projects, Therapure Biopharma Inc.

“Working with EMC has allowed our production staff to have an opportunity to discuss concerns and feel more invested in our company’s success. The format allows for similar sized companies to share ideas and philosophies. The professional and confidential platform allows for open and honest discussions. The participants presentation at the end of the sessions highlight the results and insights generated by participating in this forum”. – Heidi Goldberg, President and Cofounder, Camden Door Controls

“This program has given me the tools to take my ideas to the next level and inspired me to step out of my comfort zone, support my ideas with facts, and measure and look at things from a company perspective.” -Joey Ross, Packaging Supervisor, PEI Brewing Company

“I feel that this was a great program. This program provided a platform for all in attendance to grow and develop skills they themselves either didn’t know they had or where unsure of how to improve. Be it public speaking, team skills, conflict management, project management skills, root cause analysis, I could go on and on. During the eight weeks I witnessed great dedication to the projects that each team had chosen, teams overcoming challenges and all teams having a sense of pride in the finished product. Our plant is actively pursuing some of the ideas presented further highlighting the impact that each project had and further cementing in the ideology that working together as a team delivers the necessary results.” – Kurtis Bachman, Maintenance Department, McCain Foods