

Faurecia Clean Mobility: Lean Six Sigma from the Middle Out

An Application for the Best Automotive and Transportation Industry Deployment in 2018

This application documents a remarkable deployment of Lean Six Sigma (LSS) in 2017-2018 at Faurecia Clean Mobility (FCM), a French company with global operations. Defying all conventional wisdom regarding “the best way” to deploy cultural change with a “top down” approach, LSS at FCM is redefining the operating culture from the middle out. It is a deployment that began at the grass roots level in a product validation testing facility in North America and has, as of 2018, captured the attention of C-level executives in Nanterre, France to become a global strategic initiative across multiple divisions. The spark and vision for this culture change began in 2012 with the energy and charisma of one mid-level manager of a \$20M-per-year testing facility, Shawn Kleinpeter. With LSS experience from a previous employer, Shawn immediately saw its potential to light the way to a more capable and productive future at FCM. This story will show how Shawn assembled a small cross-functional “steering committee” of passionate practitioners to build a global deployment in a tier-1 automotive supplier of emission control systems. As of late 2018, there has never been a formal LSS deployment organizational chart or Executive Champion (though that is now changing). Yet the steering committee has still been directly responsible for the delivery of over \$32M in project savings in 2 years and they have changed the way the organization solves problems. Their passion has inspired hundreds of colleagues to learn and apply analytical methods for problem solving, and as a result, they have gained the attention of Faurecia executives and customers alike. The entire steering committee at FCM deserves your highest commendation and recognition for their success in 2017-18 as everything they have achieved came through efforts in parallel with their own functional roles. This exemplary deployment demonstrates how vision and persistence can accomplish what many believe to be impossible: deploying culture change without top-down directives. We will demonstrate that it should be broadcast as an inspiration for others.

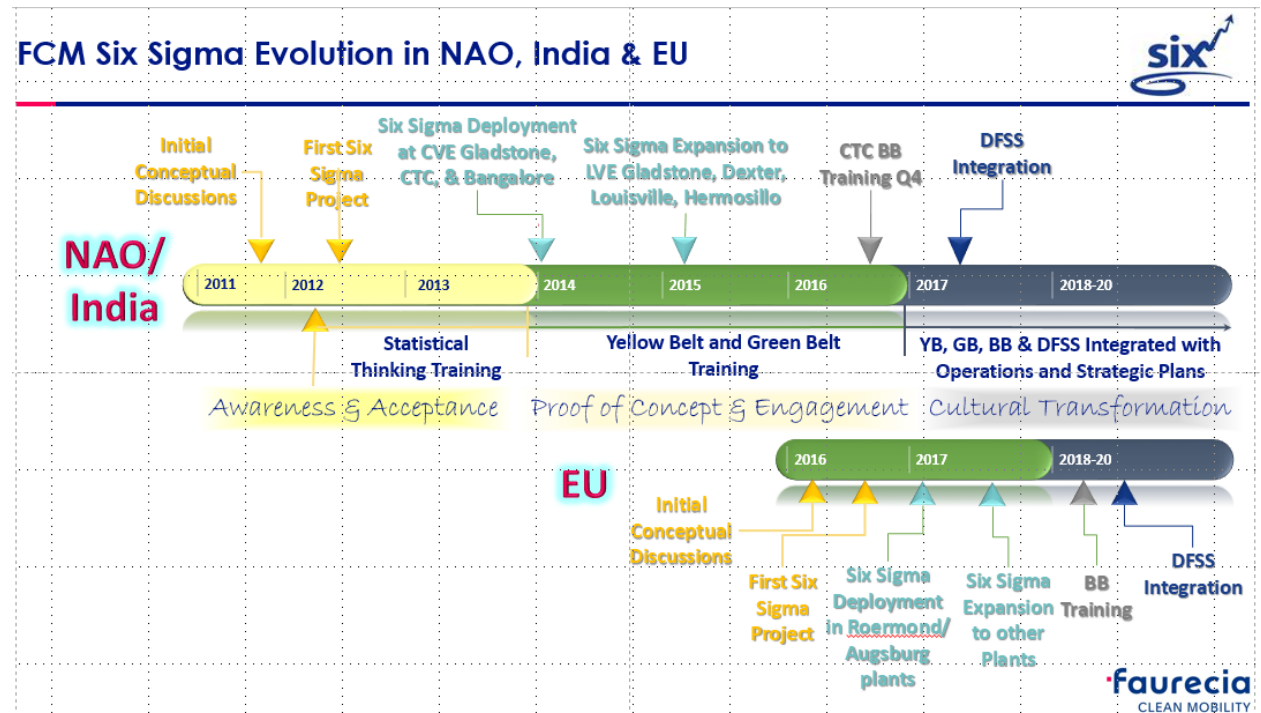
Lean Six Sigma Provenance at Faurecia Clean Mobility

In the period between 2009 and 2012, the Faurecia Corporation doubled in size through the acquisition of several new operating units to become one of the world’s largest tier-1 automotive suppliers. As of today there are three core product segments within Faurecia: Seating, Interiors, and Clean Mobility (FCM). Multiple restructurings and leadership changes during this period created significant management system challenges, particularly at FCM, the business unit most significantly impacted by the acquisitions. Today, FCM is a \$4.1B operating unit with 23,000 employees and 84 locations in 27 countries around the world. This includes 2100 engineers in 9 R&D centers.

At FCM, the dramatic growth through acquisition impacted both operational performance and customer satisfaction. In true automotive industry fashion, FCM doubled down on its core operating system philosophy - the Faurecia Excellence System (FES) - which applies standardized Toyota Production System (“Lean”) principles throughout the organization. FES played a critical role in ensuring that customers were impacted as little as possible and that the business remained marginally profitable during this difficult period. While the operating culture was aware of LSS, these analytical methods were considered a distraction to the FES standards and discipline that formed the framework of Faurecia’s operational systems. By 2012, as the management and operational cultures began to stabilize, it quickly became apparent that there was a general lack of analytical problem solving application throughout the organization. This was evidenced by strong negative feedback from their largest customer, Ford, who noted “a distinct lack of a structured, data-driven, problem solving approach” according to one Ford supplier quality engineer.

Early in 2012 Shawn Kleinpeter, manager of the product development testing facility in North America, recognized an opportunity to teach and apply LSS tools, calling it Analysis Led Design and Test and Statistical Thinking, in order to avoid any unwarranted perception of competition with FES. By the end of 2013 Shawn was joined by other North American LSS comrades, Charles Shappell, Brian Rose, and Roy Pace. Together, this small team was able to generate LSS interest through the entire NVH (Noise, Vibration & Harshness – i.e. acoustic) Development, Program Management, and Materials R&D laboratory groups. This coverage was particularly significant due to the management structure at Faurecia, which tends to centralize product and process expertise at a common technical center rather than at the operations. As a result, many of the LSS projects at the technical center focused directly on operational issues, with significant operational impact. By 2014, the Steering Committee included Gautham Nagendra, from Bangalore, India; FCM leadership in North America (NAO) and India were warming up to the idea of

LSS enough to support a few waves of Green Belt classes. A few marquee projects generated interest in the methods early on; in 2015, an internal survey of all FCM management & professional (M&P) employees (with a 53% response rate) revealed that over 40% had previous LSS training and that 70% believed LSS would be applicable in their own jobs. Additionally, several employees vocalized their support for the application of Six Sigma tools in their own functional areas, and by 2017 the deployment had gained enough acceptance by senior leadership at FCM to be incorporated into formal strategic plans. Concurrently, operations in Europe observed the NAO success, adopting the same deployment approach in 2017-2018. Recognition became “viral” throughout the entire Faurecia organization across all business units to the extent that in October of 2018, the Senior VP of Customer Satisfaction, who reports directly to the CEO of all of Faurecia, announced that deployment of LSS will be a key strategic initiative in 2019. A summary of this evolution is shown in the timeline below:



Six Sigma Today at Faurecia Clean Mobility

While the provenance of LSS describes the context of the current deployment, the intent of this application is to concentrate on 2017-2018 at FCM, and the future of LSS across all of Faurecia.

As documented in the charter for the Steering Committee,

“Lean Six Sigma, as a method and a toolset for continuous improvement, is an ongoing approach to learning. It uses opportunities to deliver value to the organization as the primary mechanism to solidify understanding of the tools, the method and the business through hands-on application. Value is measured in two ways: Financial Results and Employee Development. Financial results are tracked by the Steering Committee and projects are prioritized for execution to ensure that minimally, the program pays for itself. Employee Development is focused on enhancing problem solving skills that are consistent with the Faurecia corporate culture. Consequently, the Steering Committee ensures that a consistent approach between FES QRCI and Six Sigma is integrated into the training and it is responsible for the strategic evolution of the program over time. To this end, the development, growth, and integration of training into the deployment, strategic alignment within FCM globally and across FAS/FIS/FAS

Divisions, and integration into supply base are all responsibilities of the Steering Committee. Membership is voluntary and new members are invited to join the committee based on their capacity to champion the deployment and drive value within the Division."

LSS at FCM has seen remarkable engagement and growth due to the value it delivers: to the customer, to the employees through skill development, and to the business. This value creation is in direct alignment with Faurecia's corporate strategies; the deployment of LSS at FCM has substantially contributed to a 10% improvement in Operating Income from 2017 to 2018. Table 1 summarizes some of the critical deployment results:

TABLE 1:

		Students Trained				Projects				Ratios (\$000)		
		Yellow Belts (no project)	Green Belts	Black Belts	Total	Started	Completed	Completion Rate	Savings (\$000)	Savings/ Project	Savings/ GB&BB	Savings/ Student
	2015	76	40		116	40	35	88%	7,860	224.6	196.5	67.8
	2016	83	48		131	63	45	71%	6,516	144.8	135.8	49.7
	2017	133	57	8	198	73	54	74%	4,902	90.8	75.4	24.8
	2018	48	38	4	90	57	68	119%	13,240	194.7	315.2	147.1
	Total 2017-18	181	95	12	288	130	122	94%	18,142	148.7	169.5	63.0
Total All		340	183	12	535	233	202	87%	32,518	161.0	166.8	60.8
Total % M&P		19%	10%	1%	M&P = Management and Professionals							
Regional Totals	NAO	259	137	12	408	169	145	86%	24,286	167.5	163.0	59.5
	EU	81	29		110	42	37	88%	5,568	150.5	192.0	50.6
	India	0	17		17	22	20	91%	2,664	133.2	156.7	156.7

In the fourth quarter of each year, the Steering Committee creates a very clear and simple strategy based on a longer term vision of where the deployment needs to go. In 2017, the strategy was to flood the organization with awareness, concentrating on Yellow Belt and Green Belt Training, and to target customer-critical projects to gain awareness from customer feedback at all levels of the organization. In 2018, the strategy has been to focus on delivering tangible benefits through project closure and to strengthen awareness of the deployment within Faurecia, outside of FCM. As a result of this strategy, the number of individuals trained has reduced in 2018 while projects completed and total savings tallied have increased dramatically. This specific strategy generally flows from a simple philosophy: develop the people, focus on the customer, and let the business results be a natural consequence of disciplined execution. It should be noted that in this deployment there are no LSS job titles. Yellow Belt, Green Belt, and Black Belt are levels of certification which represent skill sets, not functional roles. This means that all participation in the training is voluntary, although some roles in engineering, operations, and administrative functions stand to benefit more from the training than others. People want to learn the tools because they see the benefit it brings to them and they work the projects to deliver tangible value to the organization in order to promote their own careers. Green Belts and Black Belts are developed to become entrepreneurs within the organization who develop their own portfolio of accomplishments through LSS projects. To this end, all project benefits are validated by a controller for hard savings and by an n+1 manager for soft savings. Participants are motivated to join the Yellow Belt training as an introduction to the LSS process and tools at FCM, including requirements for the supporting roles of Champions and functional leaders. Even though Six Sigma has not been mandated, over 40% of all North American M&P have attended Yellow Belt Training (2 days), and just over 20% have completed Green Belt Training (10 days) as of October, 2018. LSS training and project completion is seen as a clear benefit to those seeking upward mobility in their careers or deeper understanding of products and operational processes.

In regard to the customer focus, numerous examples of specific projects with key customers like Ford, Volkswagen, GM, and Hyundai have brought numerous accolades from customers, reduced warranty claims on new programs, and in one specific case with Volkswagen, created an opportunity to acquire a new program worth hundreds of millions (USD – soft savings) through a DOE that validates strategic use of alternative materials. Additionally, the LSS program has been instrumental in building strong customer relationships in new markets like commercial vehicles. Though not revealed in the table above, over 40 development engineers in 2017-18 have been through 6 days of DFSS training in order to augment their DMAIC GB skills and develop improved relationships with their

customers, including OEMs and FCM plant operations. In speaking to multiple OEMs, the LSS Steering Committee determined that an IDDOV architecture is the best fit for FCM due to its technical bias and robust design focus. FCM subsequently created their own DFSS training, tailored to the Faurecia program management system (concept-to-serial production cycle). The integration of DFSS has improved multiple product designs and helped FCM reduce the lead time to design processes and launch new programs by 50%, from 6 months to 3 months, in accordance with OEMs' continually increasing demands for shorter development cycles. Additionally, the DFSS initiative has reduced validation test requirements and reduced the time to develop designs that meet functional requirements, in spite of late changes initiated by the customer and less information on system inputs at the concept stages. Results of several DFSS projects have yielded significant hard savings and are included in Table 1 above.

Setting the Stage for 2019 and Beyond

Over \$32M in validated benefits with nearly 200 trained practitioners in 4 years. Nearly 20% of all M&P attending LSS Training globally, 40% in NAO. 87% of projects completed across 3 continents. All of this started from a small, dedicated Steering Committee with no formal budget for training. The program has acquired capital from its own results and the training has been funded by those seeking skill development through internal departmental cross-charges. There is no formal LSS management structure or functional bureaucracy; all the work invested in the deployment has come from people with other functional roles who intuitively understand and believe in the power of LSS. This culture change is robust and self-sustaining, as it has been demanded by the organization where opportunities for value creation are discovered. It has not been dictated by CXX level directives...so far.

The exemplary theme of value creation through employee development and cultural hunger for process improvement at FCM has been noticed by other divisions as well as senior executives in Nanterre, France. Just last month, the CEO of Faurecia announced a new focus on improving the company's technical problem-solving and variation reduction capabilities à la LSS. And after direct conversations with the FCM Steering Committee, the Senior VP of Customer Satisfaction, who reports directly to the CEO, is currently preparing his plan to launch LSS across all divisions of Faurecia, merged with the existing FES operating culture, to all levels, regions, and functions of the organization. This is exactly the goal that the FCM Steering Committee built its strategy to achieve in 2017-18. While the pending corporate directive for LSS is not completely clear at this point, FCM will continue to drive its deployment through engagement and pull initiated by the organization. Employees at the manufacturing sites are expressing their interest in LSS. FCM China remains untapped. Globally, 80% of M&P have not yet attended training, many from administrative functions and plant operations. As a result, the FCM strategy for 2019 is to focus on awareness and execution in the plant operations (particularly in Mexico), recruit participants from administrative functions, collaborate with China to deploy LSS, and continue to drive tangible value through critical DMAIC and DFSS projects. Beyond 2019 and well into the next decade, FCM seeks to train all M&P employees with projects averaging at least \$100K per project and delivering over \$50M in benefits. Whatever happens at the CXX level, the FCM deployment is broad enough and deeply rooted enough to respond to and fully support any corporate strategy that creates a LSS way of working across all of Faurecia.

This deployment is truly exceptional on multiple levels. Outstanding results, a self-sustaining cultural foundation, and broad recognition across the entire corporation for work within one division are rare achievements. Most notably, this deployment is truly unique in its unorthodox evolution that radiates from the middle of the organizational chart to all levels of the company. This serves as a uniquely outstanding example of how opportunities for value creation and personal growth can move an entire organization when the spirit for that culture change is initiated from within the organization.