

Lean Enterprise Academy



Jim Womack e-letter – 8 February 2008

The Missing Link

Dear Lean Community Member

I have a great stove, not that I cook that much. It's shiny, sophisticated, and full of capabilities, most of which I never use. I've been very happy with this brilliant object and its manufacturer for more than five years until the last few weeks when it needed its first repair.

I called the service organization of the manufacturer and arranged a technician visit after a number of calls and call backs. When the technician arrived it was easy to identify the problem. Indeed, I had very accurately described the problem over the phone. But the technician hadn't gotten the information and didn't have the right replacement parts. So a second visit was arranged.

On the second visit the technician thought that the parts were right but the installation instructions were somehow incomplete. After a lengthy phone discussion with the technical support organization at the manufacturer -- which I was paying for because the technician was charging by the hour -- the parts were installed. And they promptly failed. They weren't the right parts after all. So a third visit was arranged.

"Three times perfect" is a common expression in English, although as mysterious in its precise number as the Five Whys, Six Sigma, and the Seven Wastes. And this seemed to be the case this time. The new parts were installed, the stove worked properly, and the job was finished. Except that the technician -- who finished up the job while I foolishly stepped away to do some work -- forgot to align the heavy, hard-to-move stove properly with the kitchen counters, leaving it sticking out with a large gap at the rear. So a fourth visit was arranged. (So much for the magic of three.)

Now everything is fine. But look at the unnecessary time and cost, both for me as the customer and for the service organization. And I see this sort of drama all the time: Faltering technical support for computers and IT links at the office. The inability to keep those moving jetways, walkways, and escalators at the airport actually moving. The brilliant "lean" machine I examined on a recent value-stream walk in a very lean factory that was unavailable due to a mysterious series of breakdowns.

My conclusion: There is a missing link between the world's brilliant objects -- now cheaper and better in many cases because of lean thinking applied to their design and manufacture -- and support for these objects through their lives. And Lean Thinkers now need to bridge this gap.



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This is not a trivial issue. If one thinks of healthcare -- as I do -- as largely about maintenance of our bodies and thinks of the service industry as largely about the sale, installation, inspection, repair, and upgrading of the objects we need to conduct our lives, then service and maintenance accounts for a substantial fraction of economic activity in every country.

Lean Thinkers have made enormous progress in recent years in analyzing these maintenance and support problems inside the factory. The Total Productive Maintenance movement is now maturing, even if many organizations -- like the one I recently visited -- still lack a robust "plan for every machine." And factories that mostly do maintenance, like aircraft and engine overhaul shops, have made great strides as well. But we've hardly gotten anywhere in the world of external maintenance. The typical service interaction between customers like you and me and the world's service organizations is surely no more satisfying and effective than in Henry Ford's time..

Fortunately, this is about to change. Dave Brunt and John Kiff at the Lean Enterprise Academy in the UK, in collaboration with Dan Jones, have recently formalized a process for highly effective service and maintenance. As a proof of concept, they have taken the lean logic we have all learned from Toyota and applied it to car dealing. (Oddly, Toyota is only now showing an interest in these ideas for its dealers outside of Japan.)

What they have learned deserves a brief summary because it is so extraordinarily powerful and useful to anyone in any service environment.

They focus on car repairs and start by identifying the value-creating process in this service activity. This consists of all of the value-creating (and wasteful) steps currently required to go from start to finish. In car repairs this means every step from the time the customer calls for an appointment until the vehicle is given back to the customer at the end of the repair cycle.

Once they have drawn a map of the existing process, they ask how well it is performing in delivering value for the customer and good business performance for the provider. Doing this requires going far beyond typical customer satisfaction measures ("rate your satisfaction with your dealer's service on a scale of 1 to 10") to discover how frequently a service job is performed right the first time on time (RFTOT.)

RFTOT is rarely measured by dealers or car companies but is the underlying basis of "satisfaction". And be prepared for the worst: Surveys across the world by the International Car Distribution Program consistently show that car repairs are only performed RFTOT in six cases out of ten. That's 1.75 sigma!



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No process can be improved if the work needing to be done is a continuous surprise with no opportunity to plan ahead. Fortunately, by careful "pre-diagnosis" of vehicles coming in for repairs it is possible to predict which vehicle will need what type of service and to pre-order parts. Pre-diagnosis involves a careful telephone or e-mail discussion with the customer about the nature of the problem using a check-list administered by a staff member with sound technical knowledge. A second customer contact just prior to the service confirms there are no new problems (and also increases the likelihood the vehicle will be brought in on time.) And an inspection of the vehicle the moment it arrives at the dealer confirms the diagnosis and provides the customer with the precise cost of the repairs.

In any service activity a few types of jobs account for a large fraction of the total. For example, routine, mileage-based tune ups in the case of cars. By creating different value streams -- one for high-volume jobs which can be done quickly, another for more complex jobs that can be accurately pre-diagnosed, and a third for jobs where the problem is not known prior to detailed investigation in the service bay -- it is possible to smooth and speed the flow of work for most jobs with tremendous benefits for customer response time and process productivity.

Even with the best pre-diagnosis and assignment of jobs to the correct value stream, flow can still be disrupted if the right parts, tools, technical information, and technicians aren't available at the moment the work needs to be done. (Note my frustration with my stove repair. Even when I tried hard to help the provider pre-diagnose my problem, the right parts and information still weren't available. This brought the job to a halt and necessitated a time-consuming re-start.) So the provider must have a robust system for pulling all the needed items to the point of use at just the right time.

And finally, every step in the process must be capable, in the sense of perfect quality at the source, in order to increase velocity while avoiding rework at the end of the process or once problems are discovered by the customer.

Achieving all of these objectives requires that someone be responsible for the performance of the entire service process and that visual measures be put in place, such as schedule and progress boards, so that the status of the process is instantly visible and any problems are traced to their root causes.

The consequence of introducing a lean service stream is that repairs can be done RFTOT in a vastly higher fraction of cases at dramatically lower cost. David and John have recently verified this through experiments with a number of car dealers in Europe, raising RFTOT on vehicles that could be

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pre-diagnosed from 60 to 94% and cutting the cost of the typical repair by 30%. A win-win for the customer and the service providers.

So instead of being fatalistic about the potential for lean service in the organization where you work, I hope you will help take the lead in applying lean service techniques. You will be building a stronger enterprise. And as other service organizations follow your company's example there will be an extra benefit. You will have helped build a more satisfying life for yourself as a consumer.

Best regards

Jim Womack

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