



LEAN CASE STUDY:

LEAN OFFICE IMPLEMENTATION AT MDS NORDION

3 months after starting Value Stream Mapping, our change notice paper flow is 7 days instead of 28, a remarkable 75% improvement!

Introduction MDS Nordion is a world leader in the supply of isotopes for medical purposes. It is a highly regulated business, and this is reflected in many internal processes. Several factors contributed to the recognition for a need to change these processes and find opportunities to streamline the work. We saw that the principles of Lean could be applied to the office.

A team of people worked with Lean Advisors Inc. (LEAD) to change these processes through Value Stream Mapping. We will describe our path from recognition and barriers, through the training, the Current State, developing the Future State and its implementation plan.

Our company operates as part of the life sciences industry and that creates an important context for our procedures. As a result there are extremely strict quality controls and highly detailed regulatory constraints. These conditions face any company making treatment devices for medical applications and patient care.

Every procedure we have in making our products has checks and balances as well as a well-documented paperwork trail. Each change in procedure or specification is part of a change process which is much more onerous than one you would find in non-medical industry.

Current State - We had many design changes but mission-critical customer, product quality, or safety issues did not drive most of them. Instead, a large part of our work processing changes was driven internally by the need to improve small design and manufacturing options or to integrate minor parts changes. These types of changes were still important to our own efficiency and competitiveness even if they did not directly affect the quality, safety or customer acceptance of our products. We applied the same arduous paperwork process to these changes as to those that were mission-critical. Most importantly, these processes were identical in effort and time elapsed, regardless of the nature of the change.

Another driver in our look at changing the paperwork process was the pending installation of a new ERP (Enterprise Resource Planning) system. It's vital to look at and rationalize your processes before installing an ERP otherwise you are, as they say, just "paving the cow paths"!

There are some very strict regulatory (FDA) restrictions on electronic document management including approval signature processes. These restrictions are unique to organizations in the highly regulated life sciences and medical devices field.

The issue before us was how to continue to fully comply with regulations while improving our turnaround time and efficiency. Start Of Lean Journey As a result, we began our Lean journey in the office with Engineering Change Notices. We needed to eliminate the 'waste' and redundancies in the approval process. However, we were unsure how best to make it 'flow' - "get it, work it, move it". Our research showed us

that Value Stream Mapping was the right tool to do this.

Typically our Change Notice process took 28 days. Our Current State Map showed a complex, long and involved sequential process with a large number of people handling the paper work. There was often re-routing to answer questions. It was complicated, going through four, sometimes five, departments, two buildings, and internal mail. There was significant wait time at each stage. Compounding this was a duplication of activities with different people looking at a change approval for the same reasons. There were communication difficulties as well, primarily around misunderstandings about due dates.

It was a 'push' rather than a 'pull' process. There was no indication of when manufacturing could implement a change and this was critical because their timing was often dependent on the availability of parts.

Future State - Our Future State Map had a number of attributes we needed to implement. The most important was that the Change Notice process needed to be a 'pull' from manufacturing rather than a 'push' to it from Engineering.

From a timing standpoint it was manufacturing that would know which of these changes could be implemented sooner and which later. Originally we thought this would mean a co-location of the Engineering and Manufacturing Planning groups. We wanted it to be a 'share' rather than 'send' process. In the end co-location wasn't the final solution but the 'share' thinking was very much part of the new process.

What emerged was a way to involve manufacturing in helping to drive the Change Notice process and to own the small design improvements that were involved in these types of changes. Similarly, Engineering owned the design improvements that needed to be solidly based on manufacturing's inputs.

Office Value Stream Mapping An earlier mapping attempt had not yielded the required results in addressing waste and making value flow. We needed a more formal process. I talked to staff, management and production planning about getting third party training. It really helped to have the support of our Continuous Improvement Coordinator as we negotiated the idea through various levels. We selected Lean Advisors Inc. (LEAD) and set a training and implementation date, saying "Be there or waste the investment" People came.

The hands-on training in Value Stream Mapping with Chuck Doyle from Lean Advisors galvanized our team. They saw the benefits and need for Lean immediately. It also helped that there were some folks looking for opportunities for new roles. One of these, a senior designer, really took hold of the process and began to spearhead the changes. You need active change agents and you need people willing to get involved in the process.

As one of the managers put it, "This was the first course I've been on where the training actually had an output!" We talked about a real problem. The solution to this problem was part and parcel of the training.

During the training, normally quiet individuals stepped up to the table and started to make things happen. This was a welcome surprise for the managers. It was clear to us that many issues (other than critical safety concerns) could be delegated to the teams, but our question was whether or not they would take ownership. Directors or managers who had formerly seen each and every Change Notice began to empower their staff more. We realized that we could let go, delegate and encourage those front line individuals to own the issues. A key result of the training was that people stepped up, shouldered more responsibilities and made the changes work. Shop supervisors and planners were sitting together and solving the problems, dealing with the issues.

That training also really helped solidify a more positive relationship between Engineering and Manufacturing Planning. The door was opened to work together in new and 'sharing' ways. For example, a pivotal change we selected from our Future State Plan was a new weekly meeting between all the parties involved in the Change Notice process. Every pending notice is reviewed; decisions are made right at this meeting and the appropriate people sign off on it. Before the meeting, manufacturing gathers all the inputs from the shop floor regarding deviations, improvements and prioritizing. This input from manufacturing becomes the agenda for the meeting. Engineering provides the technical response as well as implementation of the decisions taken at the meeting with revised drawings and technical documents.

For Engineering it meant that we could concentrate more on technical innovation and less on paperwork. We weren't spending time chasing things, those seemingly endless hours coordinating and controlling the paper that continually crossed our desks. Every hour spent on technical support or paperwork is an hour not spent on product

development. These improvements free our resources to spend more time on product development, which in turn, will contribute directly to our competitive status and the growth of our business.

Results Today (3 months after beginning the Value Stream Mapping exercise) our change notice paper flow is typically 7 days instead of the original 28, a remarkable 75% improvement! Occasionally this process might take up to 14 days if an item comes in after our Tuesday meeting and is held for the next meeting. There are, of course, means to handle more urgent issues if they arise. Remember, this process is already prioritized - that is, the mission-critical safety issues are handled in a separate process. Here we were concentrating on our day-to-day change process. This was the area our maps showed needed the most work on waste elimination.

Lean is a continuing commitment and we still have work to do. We have to complete revising and documenting the changes in our Change Notice procedures. There's also an opportunity to look at the online review of drawings during the meeting. This would allow us to dynamically compare how a part is designed for use with the actual shop floor process while all the players are in the room. It's an excellent opportunity to save waste in communication and improve the understanding of each other's work. Our future ERP system will provide the technical base to help make this online component happen.

So far we have worked on the functional loops for initiate and review, data entry, design review and design change sign-off. There is another whole loop related to revised drawings that involves the print shop and the physical release and distribution

process. The print room is where copies and microfiche are made of the revised drawings. Bringing Lean to this process will be breaking new ground.

Once again this will involve multiple departments. Manufacturing needs to decide how many prints are needed and where they go. This will introduce 'pull' to the process. But there are complications. As changes happen, new drawings are released. For someone on the shop floor, the latest revision may not apply to work-in-process yet we cannot have various versions floating around at the same time. So this print loop is unfinished business. We will want to update the process to reflect a more streamlined flow.

There is also the design area where we can improve the takt time - time spent on a drawing, investigating changes, instead of looking for information and so on. That can all benefit from the Lean approach.

The fact that we have made such significant improvements to the Change Notice process here at MDS Nordion has proven to us that Lean works in the office. As with any other area, you have to remember that Lean really never ends. There are always more opportunities for measurement and more for improvement.

Key Success Factors The key factors in our success to date have included:

» Essential new knowledge gained by the team in the Value Stream Mapping training course. This hands-on learning is critical. The fact that you actually get results right on the spot is a huge motivator.

» The quality and clarity of our Future State Implementation Plan that we worked on during the training and afterwards with the Lean Advisor is critical as the road map. It tells you where you are going and it's part of your measurement to check to see that you have got there.

» Break down those silos. We were able to get Manufacturing Planning, Engineering and the shop floor all working together - co-owning the changes and co-implementing them.

» Employees must see that the Future State includes them. They are not threatened by job loss although their old jobs may change or transform.

» You need a number of internal change agents who are committed to, and knowledgeable about, Lean.

» Your approach to Lean has to be about system rather than point improvements.

» That Future State Map and the whole mapping process really helps overcome resistance to change. You can actually see the waste, the inventory sitting here and the wait times. It's pretty hard to say no to it - it's visible, right there in front of you. You can see from this article how committed we are to Lean in the Office. It really brings you sustainable return for your efforts. I hope more organizations see the benefit of sharing Lean practice on more than the shop floor!