

# 4 *Inco Limited Divisional Shops*

Fred Stanford

## How We Got to Where We Were ...

When mining first started in Sudbury, it was frontier country. The transcontinental railroad had been pushed through, but there was little else in the way of supporting infrastructure. When the company needed electric power, it built the hydroelectric dams to produce it. When ore and supplies needed to be moved over land, the company built and operated the railroads to do so. When a part was required to keep the production flowing, the part was made on site, as it could not be purchased in a timely manner.

This is the environment that framed the divisional shops' culture of 'we can fix anything'. Over time, through shifting management priorities and industrial relations strife, the culture shifted to 'we can fix anything and we're there for you when the chips are down, but don't push us too hard the rest of the time.' This was a fairly normal North American industrial perspective at the time. There were no external service competitors, and the costs from the resulting inefficiencies were pushed through to the steel mills. The steel mills experienced similar inefficiencies, and in the end, all costs were pushed through to the final consumer.

Global competition changed all that. Inflationary increases in costs were no longer acceptable. Costs and efficiency, though always important, took on a whole new sense of urgency. Paradigm shifts were required and the downsizing started. In the beginning, there were efficiencies available that did not require a change in culture. Personnel numbers were reduced and the work still got done. Over time this option ran its course and the next level of improvement required a much higher output contribution per hour of employee effort. By this time, external suppliers were established and knocking at the door. They promised a higher level of contribution, with no need for additional management effort to achieve it. The process of outsourcing began in earnest.

By the beginning of 2003, divisional shops had been reduced from a one-time high of 400 trades personnel to a mere 85. The weight of the overhead spread across the work of so few tradespeople was becoming untenable. To further complicate issues, a baby boom demographic meant that many of the experienced trades personnel were in a position to retire. A decision to remedy or eradicate the divisional shops had to be made imminently.

There were a number of good reasons to consider fixing it.

- The external suppliers often did not deliver what they promised.
- Without effective internal competition, we often paid external competitors excessive fees, especially when 'the chips were down'.
- Many of the repairs performed by the shops were complex in nature and the business could be materially affected by an inability to have those repairs completed expediently. Keeping the expertise at hand was attractive.

- The trades personnel were sick of being considered second class to external contractors and wanted the opportunity to compete.
- The facilities were excellent, as was the equipment, though they were somewhat dated.
- We could attract good trades personnel as we offered the best work environment in the region.

Given the above considerations, the decision was made to make the divisional shops a viable component of Inco's internal service operations within a year or else it would be shut down.

## Where to Start? How to Build a Plan to Fix it?

Time on the shop floor and talking to customers indicated opportunities in all of:

- social processes,
- technical processes, and
- commercial processes.

From a social perspective, the mythologies were not pleasant. As management, we were not well perceived when measured against the values of loving, respect, fairness, honesty, trustworthiness, and to a lesser extent, courage. The grievance load was high and alternative leadership abounded. A 'we versus they' culture was well established with both sides focused on 'controlling' the other. We had lost sight of our purpose to build a team that could meet business objectives.

On the technical process front, a question posed to a tradesman repairing pumps went as follows:

'If you had all of the pumps and parts that you could handle, how many could you repair compared to what you are doing now?'

The answer was:

'I couldn't fix two for every one, but I could easily fix three for every two!'

There were numerous technical issues to be solved in order to get the repairable item, the required parts, and the trades person, in the same place at the same time.

On the commercial process front, it was evident that our legacy cost structure included a number of costs that should not be considered if we were competitively bidding with external suppliers. More specifically, if the work left the company, the legacy costs that were included in our bid did not leave with the work. Our customer focus needed sharpening and a host of other issues, such as the lack of a warranty programme, needed addressing.

There was no lack of areas in which to get to work ...

To put together a plan, the manager, superintendent, and general foreman booked three weeks away from the office, in our training facility. We organised our thoughts around preparing for management behaviour changes, system changes and symbol changes, which were to be felt across the social, technical and commercial processes.

A significant amount of effort went into determining what data would be needed to support the case for change. Some people thought the challenge was hopeless. To combat that, we needed to understand the competitive advantages and disadvantages we had relative to the external suppliers. We needed good data about what the customers wanted so that we could ground our plans and provide an external requirement for change, rather than it just being another initiative by local management. We needed to understand the size of the market. If we

were going to ask people to increase their productivity by 50% then we needed to make sure that there would be a steady flow of work ahead of them. This would eradicate their fear that their improved productivity would subsequently lead to a loss of future work.

On the technical front, we elected to employ a lean manufacturing approach to evaluate the repair processes. This would be very involving of the workforce and would be an early symbol that we were looking to fix the systems and not blame the tradesmen. We also decided to increase investment in the maintenance of the shops' infrastructure, which was another symbol that management was interested in creating a future for them and not just giving the work to external contractors.

From an organisational perspective, a change needed to be made at the front line. The traditional supervisor had been previously replaced with a unionised team leader. Despite a yeoman effort on the part of these team leaders, they could not be given the authority that was required to be effective. A decision was made to replace those positions with level II leadership roles that were accountable for certain product lines on a 24/7 basis.

Management behaviours were to be guided by the values continua and team leadership/team membership models. In the future, role descriptions and enhanced performance reviews were to be implemented to the tradesperson level. Some Working Together training had already taken place and on-going coaching was to be provided to get the behaviours consistently adopted.

With the planning work completed and a project plan developed, a team was then formed to fulfil their implementation. The team was led by the shops superintendent and the team members were primarily former employees who had retired from level III superintendent roles as well as a couple of retired union activists who had been constructive contributors. Both of the union activists were actively involved in producing the final results, and as such, they provided another symbol of change. Normally only retired 'staff' employees were recruited as consultants.

The data collection effort yielded some interesting results.

## COMMERCIAL

- We had lost our understanding of 'Right Now!'
- We provided no warranty.
- We did not have personal connections with our customers.
- Our costs were perceived to be high.
- Our quality was questioned.
- The gaps between where we were and where we needed to be, which was to be number 1 or 2 in a given product line, were established.

## TECHNICAL

- We could fix three for every two if you could get us the gear!
- Competitors had no significant advantages through tooling or skills.
- There were many planning, scheduling, and execution inefficiencies.
- We needed the right parts on a timely basis.

## SOCIAL

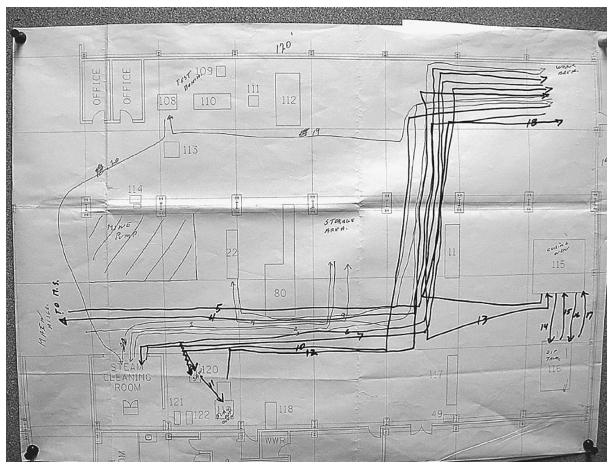
- There were challenging mythologies about honesty, trustworthiness and loving.
- Crews wanted the shops to succeed.
- The organisational structure was inappropriate.

## 4 Businesses

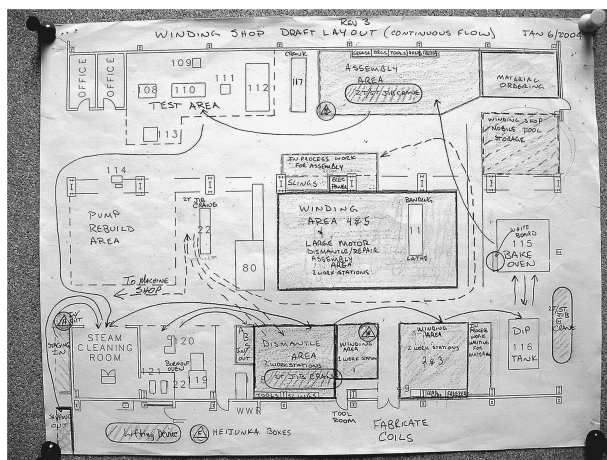
- Management was not focused on building a team that could meet business goals.
- The management team's leadership skills needed to be improved.

The team then broke into sub-committees and began developing solutions. At the onset, the lean manufacturing process was given a lot of attention. The intention was to work with the trades personnel to map the 'current state' process and then to work with them to map a 'desired state' process. The proposed changes would then be rapidly implemented as a further symbol of change. We also invested in some new tooling through this process, which alleviated major annoyances and inefficiencies for the trades personnel. An example of a current state map is as Figure 1. It exemplifies an electric motor being repaired in the shop and which travelled 2200 feet during this process.

The future state map looked like the one in Figure 2. A motor now travelled only 500 feet through the repair process.



**Figure CS4.1** Current State Map



**Figure CS4.2** Future State Map

The lean process also identified a host of other issues other than just the physical layout of the plant. Among these were the flow of information and the flow of supplies and materials. Changes were made to software systems and a number of simple and readily visible scheduling systems were implemented.

Another significant change that came out of this process was a major focus on housekeeping. The effort on housekeeping served several purposes. It advanced safety, facilitated material flow, allowed pride in the workplace, and finally was another symbol. We did not clean up before visitors or management showed up. We kept it clean all the time for the people who worked there daily.

Parts inventory was another significant change. Parts were moved from the warehouse to visible inventory sites on the floor close to where they were required. The process of requisitioning the parts was also made more expedient.

On the commercial front, a number of changes were made. A few are listed below:

- The shops provided a warranty.
- There was a 24/7 commitment to get products to or from the customer within one hour.
- The costing system was adjusted to allow the comparison of 'apples to apples' when we were competitively bidding for work.
- An engineer was hired so we could react to customer requests for products they did not have prints for.
- We stopped loaning out our people.
- The scheduling system was changed and was refocused on the customer's required delivery date. There was a shift from managing a backlog of low priority repairs to managing all priority repairs and delivering them by the date requested.
- We attended trade shows and started marketing our services outside the company.
- We have toured the management from many of Inco's plants through the divisional shops so that they could meet the people who were repairing their equipment.

All of the above changes would not have achieved the goal of employees willingly giving their very best efforts without the changes to social processes. Some of the mythologies were very strongly rooted and the efforts to create the dissonance to shift beliefs about the current management team were taking too long. A number of personnel changes elsewhere in the organisation provided the opportunity for in-coming employees with progressive styles to build on the work that had been done in the divisional shops.

The new superintendent put the entire leadership team through a Working Together course over an extended weekend. This led to a strong focus on TL/TM skills and to always being conscious of how a given action would be perceived relative to the values continua. Promotions have been awarded to a mix of candidates from within the shops as well as from other areas of the company. In all cases, the candidates were screened carefully for their leadership skills and for their ability to operate on the left side of the values continua. If necessary, technical skills would be taught.

The results have been extraordinary.

- Safety has always been quite good, with injuries tending to happen on the way to or from the plant rather than at the machine tools. In 2004, the disabling injury frequency was 3.4. YTD October 2005, it is 1.3.

- Productivity is up dramatically. With the same number of trades personnel, the winding shop repaired more motors in the first nine months of 2004 than they did in all of 2002 and 2003 combined. In 2005 they have matched the 2004 performance with a 15% smaller crew.
- The number of work orders completed on time has increased by 15%, with a 75% reduction in the number of work orders that were very late.
- The winding shop has won the right of first refusal for all Inco work. If they cannot meet the required by date, they will contract it out. This has not been done to date.
- An external company has recently sent three due diligence teams to review our capability in electric motor repair. Commercial terms are now being negotiated for divisional shops to be a primary repair shop for their motors. Two other potentially large customers are coming to review the operations in November 2005.
- The shops have attracted investment in three major equipment purchases, the first such investment in more than a decade.
- Internal customers are returning in droves. We bid competitively for the work and have been winning the bids.
- We have been able to attract excellent trades personnel to replace our retirees.
- 42% of trades personnel have indicated that they would like to join the management team. They are now being offered management opportunities in other parts of Inco as our immediate needs have been met.
- Grievance activity has dropped by 48% from 2004 to 2005.
- All unionised and staff employees within the shops are proud of their organisation and their contribution to it.
- Divisional shops have become the example for what can be achieved in our labour relations environment.

## In Conclusion

In the relatively short time frame of 18 months, Divisional Shops have gone from being a closure candidate to being a leading example of what can be accomplished. The process was hard work, but the systems leadership models provide the planning framework and remove much of the complexity around integrating the changes required in the social, technical and commercial processes.

At the end of the day, the hard work was worth it. The results have been extraordinary and those results have given the entire team the confidence that they have the tools and skills to keep improving. Their intention is to continue to remove social, commercial and technical barriers, and through that effort take the business to the next level. I have absolute confidence that they will succeed.