

Transferring Knowledge as Our Skilled Workforce Retires

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It is said that in business, people are the greatest asset. It's not just the people, but the knowledge they possess. If this is true, why aren't businesses acting accordingly? Operations are automating and expectations are that the business can produce more with fewer and fewer people. Acquisitions and mergers persist in our competitive, global economy. With this consolidation, people are often the first to be cut in the interest of cost reductions and improving the bottom line for shareholders. Training and other investments in people are viewed as discretionary expenses, often rationalized away. This reality is complicated by a developing demographic trend – the work force is aging and retiring.

The average age of the plant maintenance professional is approximately 55 years old according to industry sources. Retirement of this aging workforce is putting pressure on organizations in a way they have never experienced before. Many of these maintenance professionals have 20 to 30 years of experience with plant assets and little has been done to document what they do, how they do it, and what they know about these assets. Retirees in many cases are not being replaced as businesses "lean out" their operations. Even if the desire is there to replace them, it is becoming more and more difficult to find qualified replacements. The challenges of meeting demand, managing plant assets, and driving bottom line results will always be part of business. Innovative recruiting tactics, personnel training, and expanded automation all offer possible and viable solutions to finding qualified people. Operating "lean", however, is not a business strategy that is going away. Rather it is a strategy that needs to be embraced by those organizations that intend to grow in the future.

The reason people are considered to be great assets to the business is because of what they know. As these people retire the knowledge that usually resides in their head retires with them. When they walk out the door for the last time, so goes their knowledge. This is a truth that has to be faced and dealt with. It cannot be ignored. Plant maintenance and asset care has to address these issues along with every other aspect of the operation. A fundamental part of lean is to eliminate waste and deploy resources in the most value added manner possible in the interest of serving the customer. In maintenance, that means insuring asset reliability so that the operation can meet the demands of the customer. If the plant assets are not operating at peak capacity, the business cannot meet the demands of the customer and loses its competitive edge. How do we run lean with fewer people, expanding plant assets, growing customer demands, in an increasingly competitive global economy?

The answer to this complex question is actually very fundamental. In the face of complex issues, the fundamentals are often overlooked. Documenting work processes and capturing the knowledge possessed by maintenance professionals is a fundamental necessity. Whether the business refers to these as PMs, Standard Operating Procedures, or Work Processes, they need to be properly documented. Most maintenance operations are using computerized maintenance management systems (CMMS) today to drive their maintenance tasks. The reality, however, is that the information in these systems has not been kept accurate over the years and there are more tasks generated than people to perform them. The work tasks generated from these systems are poorly documented and offer little instruction. As maintenance professionals retire, their replacements do not have the same resident knowledge to perform the tasks adequately (assuming these people are replaced). Documenting work tasks in the appropriate manner allows the business to retain knowledge, transfer knowledge, improve/update poor historical practices, and it allows for greater flexibility. In the long run, the business needs to manage the knowledge in order for it to be viable long-term.

A growing trend in industry is operator driven maintenance, allowing operators to perform maintenance tasks on equipment. Care in this area should be exercised as operations cannot fully replace a skilled craftsman, but some maintenance tasks that do not require a high skill level

can be transferred. Utilizing operators in this manner is consistent with lean principles and an excellent way to deploy resources. Operators need to know how to perform these tasks, however. It is the responsibility of the business to insure their people have the information they need to perform these tasks. Another growing trend is outsourcing these work tasks. Although outsourcing is a good option, contractors do not have the same knowledge of the plant's assets as those who have been working on the equipment in the facility for many years. In either case, both operators and contractors need to work from well structured documents (work instructions, standard operating procedures, or PMs) in order to do the job consistently and according to established standards every time. These documents ensure expectations are clearly communicated and assign accountability on task completion.

Running the plant lean and expecting more with fewer people is not an unreasonable expectation. Doing this without the appropriate strategies and having the correct fundamentals in place is, however. Plant managers, reliability managers, operations managers, and maintenance managers all should work to insure that the appropriate documentation is in place in the interest of improved asset reliability. Taking these steps will also allow their skilled people to be deployed performing work that adds the most value fully utilizing their training, skills, and expertise.

Two specific steps to take are development of an equipment criticality list and documenting the necessary work tasks required to insure the reliability of this critical equipment. When structuring the critical equipment list, be sure to audit the equipment. Utilize some form of RCM/FEMCA taking into consideration safety, licensing, environmental, downtime effect, costs, parts availability, etc. Over time, components get changed out, lubricants are changed, and operating conditions evolve. Work task development reflects what is actually in the field and utilizes modern technologies. The example provided illustrates what the documentation should include and how it could be structured ([Download Reference 1 PDF](#)). A combination of accurate information, complete records, and photos will help managers transfer knowledge on the equipment and the related maintenance tasks. This knowledge transfer can occur to other personnel in the plant (such as operators or new employees) and/or outside contractors through effective job specific training and competent job specific documentation. The key is to manage the knowledge transfer properly. This is one way to insure the work is being performed consistently and in a quality manner each time. Each work document can be tied to the CMMS system so that when a PM is generated, a copy of the documented work tasks can go with it.

The world of plant maintenance and reliability is not an easy one. Addressing some of these fundamentals can go a long way to addressing the reality that is staring us right in the face. Maintenance must be in continuous evolution to meet growing demands with ever changing roles and equipment.