

Overview

I attended and spoke at a 'Future of Work' conference in October 2015. Listening to other speakers, I learned a few things. Since then I've had some questions bubbling at the back of my mind. Why do some people still commute to work each day? What is the future of work in Operations Management and related business functions? How far can we take Operations Excellence? How might the next evolution of technology, applied to Lean thinking, impact our economies, our people, our supply chains and our world? I'm not going to answer all of those questions but a recent discussion with a past client provided some answers.

According to the teaching of APICS® in their Principles of Operations Management courses, we are currently living in the fourth stage of the advancement of the field of Operations Management (OM). Up to the 1970's, OM was focused on optimizing production, controlling inventory and reducing cost...Stage 1. Stage 2 took us to the early 1990 timeframe and we were using tools such as MRP-II solutions to expand our control into the distribution and services that came along with production. In the 1990's, we began our quest to optimize all business functions and ERP solutions became the new primary technology for doing so...that was Stage 3. At the beginning of this century, we evolved into Stage 4 which was to integrate and optimize all planning and supply chain opportunities.



Technologies such as e-commerce, email, VOIP, smart phones, fast and accessible internet, etc. having been seen as the enablers of this Stage 4, although some would argue that smartphones and social media have actually led to decreased productivity and have created risk factors in business operations management.

Based on what I've seen and experienced over my 44 years of employment and consulting in OM, and the technology and motivators that are beginning to shape this thinking, I can see Stage 5 already taking shape in larger organizations. My recent experience suggests that the reduction in the cost of the enabling technologies, and the increasing requirements of supply chain competition, will propel even the small to medium operations enterprise into this type of investment in the next five to ten years.

In this article, I would like to share what I see as the potential for a Stage 5 of OM.

Before you start thinking this is only about manufacturing, think again. Stage 5 of OM can apply to each of the distributors, maintenance and repair companies, banks, hospitals, home builders, doctor's offices, educational organizations, professional services firms and 3rd party logistics of all sizes that I've worked with during my career.

Contents

Overview 1
Enabling Technology and Points of Reference.....3
Operations Management Stage 5 (OM5).....3
OM Stage 5 in Practise4
A Day in the Life of Henry.....4
TS&OP with Maria.....5
A Change in Thinking.....6
Work / Life Balance7
Fatima’s Request8
Results... So Far.....9
Lean is Green and Millennial Friendly..... 10
Summary..... 10

Enabling Technology and Points of Reference

Before going further, I will clarify some of the verbiage I'll be using in this article.

Business Process Control (BPC) technology

Business Process Modeling / Management (BPM) are solutions which allow an organization to create maps of business processes documenting the way that a business wants those processes to be executed. They *do not control the process* through the business nor do they collect data on the execution status of a process or metrics regarding the speed of process execution. BPC technology enables the BPM solution's maps / models to be in control of what employees and authorized stakeholders are executing in the business process. If the process is time sensitive, then the BPC solution 'escalates' the task to a level of management that's equipped to deal with the situation immediately.

While the BPC solution is working, it is collecting various metrics (e.g. speed of task execution, elapsed process cycle time, number of escalations, etc.) for input to continuous improvement / Lean initiatives.



Enterprise Resource Planning Solutions (ERP)

I'll use ERP as an overall acronym for all types of enterprise solutions that control customer-facing, supplier-facing, accounting and operational applications used by an organization in the administration of a business (e.g. law firms don't use ERP but they do need operations management).

Lean Enterprise Management (LEM)

LEM thinking applies all that we know about reducing operational waste to all office processes, services delivered in offices or at a customer site and extends the quality and value thinking that we consider for the Voice Of the Customer (VOC) to become the quality and values for the Voice Of the Stakeholder (VOS).

Stakeholders

Stakeholders of any organization would include groups such as: employees; families of employees; various levels of government; the communities in which we conduct business and employees live; suppliers; our planet; etc.

Unified Communications & Collaboration (UC) technology

UC is the integration of communication tools that assist people (any group of stakeholders) to exchange ideas or collaborate more effectively. This includes: IP telephony; instant messaging; team chat facilities; use of webcams (singular, shared or conference room systems, etc.); document sharing facilities; tablet technology; and, others that are integrated to make the sharing of information and collaboration on ideas and issues seamless.

Operations Management Stage 5 (OM5)

In a Lean Enterprise world, OM5 would have the following traits:

- All business operations (front and back office, production of product or services and business support) would be able to be conducted with all relevant stakeholders having simultaneous input which enhances the probability of quality results faster and at a lower cost point;
- The elapsed time of any business or operational cycle throughout the supply chain is reduced to the absolute minimum enhancing the speed of delivery and reducing the cash to cash cycle time of every organization;
- The human effort and use of paper required to transform or utilize data to support stakeholder value requirements is absolutely minimal.
- There are fewer non-direct personnel working in offices...instead telecommuting (aka working-from-home) is embraced by employers reducing carbon emissions, stress created by 'the commute' and reducing overhead costs of the organization such as electricity, office space, desks, parking lot maintenance, etc.

OM Stage 5 in Practise

Maybe the best method of describing OM5 is to describe situations where an organization is conducting business in the OM5 environment.

This organization is a small-to-medium sized manufacturing business in a small town located in North America. The organization produces a component that has critical technical requirements and must comply with several quality and regulatory standards. They are ISO certified. Their CEO has invested in a series of Lean Management / Continuous Improvement initiatives resulting in significant changes in various work and stakeholder experiences. This investment includes the following:

- *Education – Lean in Everything; Operations Planning, Control and Management; Enterprise Solutions Theory; and, Project Management*
- *Application Software – ERP; CRM; Automated Business Process Management; Documentation Management; ERP links to their CAD and Quality systems*
- *Supporting Technology – Server upgrades; Communications technology (voice, teleconference and document sharing); mobile tablets; secure smartphones and automated business process management software.*

A Day in the Life of Henry

Henry has been a customer service representative for over 20 years. Henry's clients are spread out over several time zones. Due to the time zone differences, Henry's day can be very flexible in terms of the time he starts and the time he is done with the day's business. Henry works from home except for the one day per month when he is involved with the Tactical Sales & Operations Planning cycle.

When a customer on Henry's list contacts customer service via telephone, they are automatically routed to a telephone application that resides on Henry's laptop. Whether he's at home, in transit between locations or in



the office the call will find Henry. The only time that a call will go elsewhere is when Henry is on leave, at which time the call goes to his associates. The inbound call initiates a business process that is designed to promote Single Point of Contact Service (SPOCS) methodology. Once Henry answers the call, he selects the next stage of the process to activate (e.g. place, edit or cancel an order; request technical advice; register a quality issue; request accounting assistance; etc.). Once he's selected the appropriate action, the system application required to document the situation is activated bringing up the specific screen that Henry requires. If he's dealing with a sales order situation, the sales order entry screen appears. If it's a quality issue, a different screen appears. If the customer wants technical advice and he's on his computer, Henry clicks on a button on his screen and conferences in the appropriate resources into the conversation and updates his customer relationship management notes while the customer and other person are talking.

Once Henry is finished with his stage of the process, the next person or group that needs to work on the customer requirement has a task appear on their screen and may also get an SMS text message on their company owned mobile devices.

TS&OP with Maria

Maria is a master scheduler and is responsible for managing the monthly Tactical Sales & Operations Planning (TS&OP) cycle. In order to be effective as a continuous improvement and overall management tool, the TS&OP cycle needs to be completed by noon on the third business day of each month. In order to achieve the target timeline there is month-end analysis and various planning activities that need to be completed by many groups (demand management, engineering, finance, operations, planning, etc.). Although the beginning of the process has all groups working simultaneously on their month-end analysis, the planning stages of the process need to be done in a sequence in order to be validated.



In the past, a substantial amount of paper was generated with some being shuttled from group to group in order to get the task completed. If the TS&OP was signed off by the end of day five it was considered a great accomplishment. Mid-month was more of a normal timeline. Several changes took place in order to hit the goal:

1. Executive management realized the value of getting it done on time and made hitting the target timeline part of the Personal Management Objectives (PMOs) of everyone involved. An investment in education was undertaken.
2. An investment in some streamlined reports and the ability to share documents online removed the need to shuttle paper back and forth.
3. The entire process was modeled and automated using business process automation technology so that when one stage was completed, the next stage was automatically triggered as a priority for the next person or group to work on. If they don't react in a timely manner, Maria receives an alert. If the stage is not completed in time to meet the goal, the CEO gets an alert...and we all know what's likely to happen then.

4. Every member has portable technology allowing them to be engaged in the process regardless of where they are and what time zone they may be in.

Given that everyone involved understands the importance of this process to facilitate excellent results for the organization, the TS&OP team plans other activities around the first three days of each month and they consistently hit the target timeline.

A Change in Thinking

The two situations that I described were part of a Lean Enterprise initiative that studied and changed a number of business and operational processes in the organization. Since the vast majority of business processes impact groups across the organization, a significant number of people had to learn new ways of working and also provide input into how and where they wanted to work. Management also had to be confident that the net result of the initiatives would be positive...more on that later.

For anyone, or any organization, to want to embrace change there must be strong motivation to do so and motivation is normally an expectation of positive benefits being accrued. So, let's consider some of the benefits resulting from embracing a new way of conducting business.

The primary motivations for the organization:

- Reduced business cycle times – every business process in the organization was completed faster resulting in improved metrics in cash flow, conclusion of customer-facing situations, new product development (implemented concurrent engineering), inbound materials, controls on services rendered to the organization and administrative overhead.
- Higher productivity in salaried staff – people were not wondering what to do next...their task list was in front of them in prioritized sequence. People were not moving paper back and forth, instead using automated business process management and online document sharing capabilities eliminated nearly 95% of the paper being shuffled back and forth.
- The ability to better manage business risks. There were two large risks that management identified that required special attention: product regulatory compliance; and, occupational health and safety.
 - At the time that a product is authorized for production, several regulatory conditions must be met. Failure to prove the design met those conditions could result in heavy costs and regulatory restrictions on production. By automating the process, the system forces the senior manager that authorizes the product for production to follow a series of tasks to validate that the product being authorized meets the requirements. The system maintains an audit trail of the entire authorization process including the setting of all quality standards and procedures for production.
 - The health and safety of employees and visitors in the facility has always been an important cornerstone of the organization's values. With the advent of social media and increased legal requirements for dealing with



various types of harassment and stress in the workplace, the organization wanted to ensure that employees could safely report issues to Human Resources (HR) and also ensure that those issues were promptly dealt with. Using the automated process management solution and enabling employees to log in via the company website, employees can now report various types of harassment and safety situations from the privacy and safety of their homes. Depending upon the severity of the situation, HR will have a prioritized task appear for the next day's attention or the HR Manager and CFO may get an SMS text to their mobile phone and email informing them of a priority issue that can't wait until the next day.

- There was a side-benefit to this situation. When the processes were designed, they also included the ability to request leave or educational funding and an online 'employee suggestion box' which has been very well received by employees.
- Continuous improvement – the systems being put in place would provide metrics that would allow management to identify process bottlenecks and opportunities to improve.

For the employees:

- Less stress in prioritizing what they are to do next...the process management solution provided their tasks in a prioritized manner.
- Less shuffling around the office with paper and chasing people for information.
- Supervisors and managers found that they did not have to follow up with their direct reports to ensure that tasks were completed on time. This allowed them more time to plan future activities and consider options for improvement.
- As mentioned previously, the ability to log into the HR processes and request vacation time, report as ill, request educational funding or internal education and report issues privately was perceived by employees to be a situation where management was thinking about them.

There was another benefit coming that neither management or the employees were really thinking about at the beginning of the new initiatives but became an obvious opportunity if they could structure it properly.

Work / Life Balance

The organization employs a number of people that have a commute to work of more than 15 minutes each way. On a task by task basis, these people do not physically need to interact...they just need to be enabled to do their work. With the infrastructure in place for the initial project, the thinking turned to the potential for people to work from home and, potentially, to work some flex hours. Henry's situation became a focal point of discussion due to the time zone issue but also due to another fact: Henry became legally blind as a result of a disease a few years earlier. Although the office was made very accessible and some technology support added, it was still quite a long process for Henry to travel to and from work.



Management was, of course, concerned about ensuring the continuance of the throughput and metrics improvements that they had achieved to date. A study was undertaken to determine if working from home was feasible and the conditions that would need to be in place in order for it to be successful. The results of the study were:

- Internal technology was already in place and the internet capacity the company had would facilitate a number of people working from home.
- The employee working from home would require a specific speed of internet and computer in order to function properly.
- The company would be able to monitor the employee's work based on task execution metrics and, therefore, be able to ensure that there was no degradation in the improvements made to date.
- In order to ensure that the employer / employee relationship was not legally impacted, the ability to work from home was deemed a privilege and not a right and that the employer could withdraw that privilege. An agreement to that effect was signed by both parties.
- An interesting change in management thinking in terms of the prioritization they put on some administrative tasks.

Fatima's Request

Fatima works in accounts payable and analyses inbound cost of goods. She has two children in primary school and has been paying for before and after school care in order to be at work during the regular hours. During the summers, she would either have them go to camp or they would be cared for by her parents who lived about an hour away. Given her minimum commute time of 25 minutes each way and the cost of not picking her children up on time, she would leave work promptly on time. Fatima requested a review to determine whether working from home was feasible. Her reasoning was:

- Her children were at the school bus by 7:50am each morning and did not require pickup from the school bus until 3:40pm. They were in bed prior to 9:00pm each night.
- Based on the children's schedule, she could work from home from 8:00am until 3:30pm. Any work left over could be done after 9:00pm. Being at home, she would not need her full allocation of time for lunch or other breaks.
- The majority of invoices were received electronically. Therefore, she did not need to be on site to process them.
 - Those invoices that are received in the mail could be scanned into the document management system and Fatima would have a task appear on her list to review the invoice.
- One of the goals prior to the project was to have incoming invoices processed and inbound costs analyzed before the end of each business day. She reasoned that whether the work was done by 4:30pm (her normal quitting time) or by midnight had no significant effect on the business.
 - Management agreed and then started thinking about some of the other timing goals they had set.

Results...So Far

The result of Fatima's request was that she now works from home and completes her tasks by 3:30pm more than 96% of the time. She does not miss completing them before the beginning of the next business day. She will often use some of her extra time to provide additional analysis to purchasing and engineering to use in cost reduction projects.

There are both quantifiable and non-quantifiable results as result of the journey so far. Some quantifiable results include a significant reduction in all business cycles which increases the organization's agility ability and reduces the quote to cash timeline significantly. The increased awareness and integration of business processes to operational processes produced fewer issues in production and significantly better analytical tools for product costing and proactive operational management.

There are reductions in overhead costs such as those associated with the use of paper (buying, receiving, storage, printer usage, recycling, etc.) and those associated with having employees on site (lunchroom, bathroom maintenance, electricity, parking lot maintenance, etc.). There was increased productivity from those people working from home. The thinking is that when people aren't in the office together there's less



opportunity for idle chatter and they do know that their ability to work from home is tied to executing their tasks.

For Henry, he's very comfortable in his home and can work early or late depending on the customer's time zone and requirements. He also doesn't have the cost and scheduling of specialized transportation to deal with except on the one day each month that he goes to the office for the TS&OP cycle.

Maria found that master schedulers don't necessarily need to be on site every day. In fact, demand and supply analysis and other work that she needs to do can be done from home. She now goes into the office an average of three days per week.

A number of executive managers now work from home on a regular basis and have been able to spend more time on strategic thinking and planning than tactical control efforts.

As the work from home situation began to prove itself to be very workable with very low risk to the organization, other people began rethinking their jobs and where they needed to be in order to do them properly. Of the 17 people that are involved in engineering, supply chain planning and control, accounting, sales and customer service there are only two that are in the office full time. One can walk to work and the other does not have sufficient internet connectivity to be able to satisfy the infrastructure needs (yet). Given the situation, management decided to reduce the overall footprint of the office. Where there were 17 desks there is now a pod of six workstations. Two are designated and four are booked as required using the calendar function in their system. Other than those days when the TS&OP cycle is underway, it is very quiet in the office yet the jobs

are getting done in a timely manner and collaboration between employees and other stakeholders has been strengthened.

I also mentioned earlier that this organization is ISO certified. Due to the audit capture capability of their automated business process management solution, their cost of audit dropped by nearly 50%. The auditors simply needed to review the processes and logs against their documentation to verify compliance.

What did the extra space get used for? Consolidating the 17 desks into six pods opened up nearly 3,200 square feet of space which is now designated for the new work cells being implemented to increase capacity.

Lean is Green and Millennial Friendly

Other benefits of these projects include the ability to show your stakeholders that your organization has programs to reduce carbon emissions. Studies to quantify the amount of gas saved by employees working from home, the paper saved by various methods and how streamlining operational and supply management has reduced emissions and increased operational efficiency and savings is great for both marketing and internal promotions.

Then there are the Millennials who have a fairly different viewpoint to working environments. The telecommuting and structured 'what do I do next' aspects of achieving the goals of these initiatives accomplish two goals: the flexibility of working hours that newer employees are seeking; and, the control that management needs in order to ensure that the jobs are getting done.

Summary

I'm not going to tell you that these projects are not without bumps in the road. After all, we're dealing with humans accepting change and that's always a risky business. However, executive commitment and leadership which comes from being well informed and walking the talk will smooth those bumps very quickly.

There was one knowledge capital impact from the above situation where an engineer wanted to work from home but wasn't getting the job done. After a number of warnings they were told that they would need to work in the office. The engineer resigned within a month and a new engineer needed to be hired.

The success of these initiatives will depend upon management's understanding of their roles and need for investment in education, technology and change management methodology. Take the approach of ensuring that valid studies are undertaken by qualified people and that ***the initiatives are led and owned by the groups responsible for making them work.***

About the Author

Ken Cowman's career has spanned over 44 years with 11 of those in operations management followed by more than 30 years as an enterprise solutions and continuous improvement project manager, educator, seminar leader and management coach. He has had over 70 articles published in various magazines.

A founding executive of the APICS Peel Chapter, Ken was part of the OMERIC team that wrote the Fundamentals of Operations Management courses for APICS. He is also

the past Chair of the Business Operations Management Program Advisory Committee at the School of Business at Centennial College.

Ken is also the author of Emercomm's Lean Enterprise Management methodology and leads the team that develops the LeanControl RTO[®] applications.

He can be reached via email kcowman@emercomm.com and can be found on LinkedIn <http://ca.linkedin.com/pub/ken-cowman/4/602/370/>.