

Motivation and Organisational Change

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Executive Summary

At a large manufacturing company in the United Kingdom, there are three nickel electroplating production plants. For this report, they will be referred to as N2, A1 and A2. N2 is resourced using one operator, both A1 and A2 operate using a two-person model. Recently, the levels of resource required to operate A1 and A2 in comparison to N2 was raised by higher management. This is as a result of all three electroplating plants having comparable outputs when producing the same products.

The research and data correlation carried out in this report regarding the change by the organisation was completed by the author, he is an employee at the company and witnessed the change first hand.

Before any changes were made, process activity observation (mapping) was carried out, this compared N2 operator work interactions with those of an A1 operator. This was completed to find out the current state and to look for improvements on the plant to ensure a smooth transition to the future model. A study was also carried out over five days in which a single person across different shifts operated A1 carrying out all the duties required whilst an impartial staff member was present and measured the time taken to complete each task (this was not a time and motion study). Once this was complete, options were drafted to the operators and directors about the feasibility of reducing A1 and A2 to a model in which the plants operated with three people between them. A trial period of six months was agreed on between unions and directors to ensure the best possible results for the organisation.

The process that was followed at first seemed successful, with operators engaging in the process mapping, propositioning innovative ideas to ensure adaptation to a new model was accomplished. Once the trial encountered an unexpected change, the following process was not very successful. It

was found that the operators apposed strongly to the change, even though each shift was at first involved, briefed on why change was necessary and the benefits to the organisation if successful.

The leadership team were presented with the data of pre and post change, it was agreed to make the change permanent.

By the end of this report we will understand if the company has implemented a change to recognised change management techniques.

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Introduction

The authors employer is a top tier COMAH (control of major accidents and hazards) chemical plant within the manufacturing sector. The company has three nickel electroplating plants. Electroplating is an electrolytic process for depositing a layer of metal upon a substrate, to enhance the appearance or properties of a component (Rose, 2014). Electrodeposition occurs when the article to be electroplated is immersed in a solution usually referred to as electrolyte and connected to a negative lead of low current D.C supply, thus becoming a cathode. To complete the electrical circuit, anodes are immersed in the electrolyte and connected to a positive lead. The potential applied between anode and cathode is the driving force for the transfer of charge across the metal solution interface (Canning , 1978)

The company's electroplating facilities are resourced according to plant. The speed of process and differing designs, determine the total number of operators required to achieve maximum output safely.

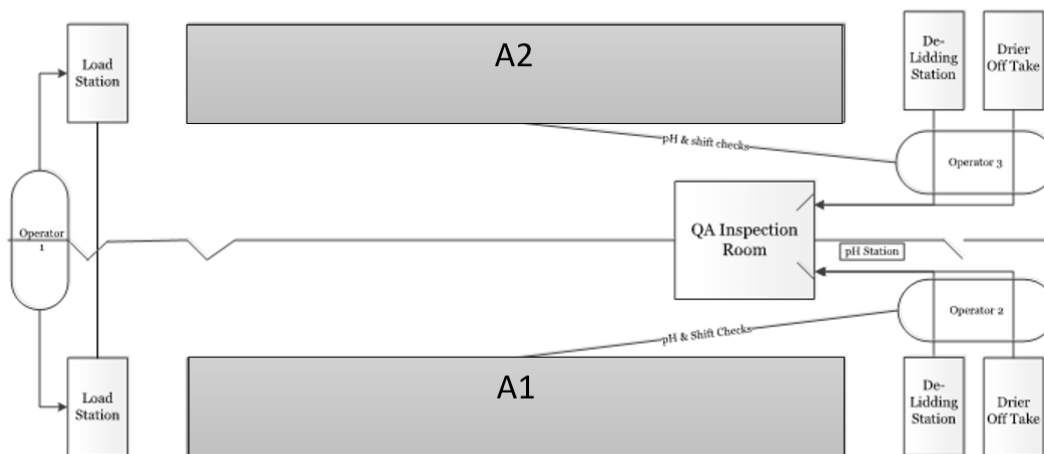
A challenge came from a leadership team member, querying operator levels on A1 and A2 attributable to production levels compared to N2. It was decided that a study should be undertaken to distinguish whether reducing operator levels in A1 and A2 was feasible.

This report will look at how the company implemented the change and compare the change to Lewin's force field analysis, Lewin's three step model, Herzberg's two factor theory and Maslow's hierarchy of needs.

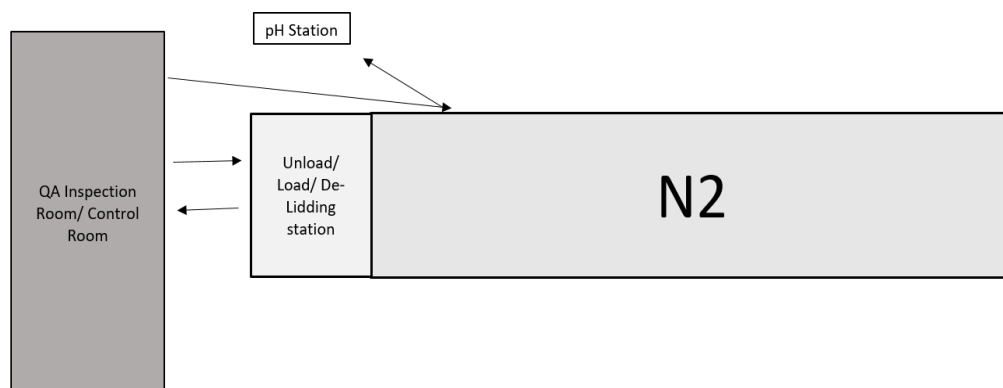
Motivational and organisational change

Below are two diagrams depicting the layout of A1 and A2 in comparison with N2. It can be seen that the distances travelled by operators in A1 and A2 are much greater than on N2.

A1 and A2 proposed Manning Model



N2 manning model

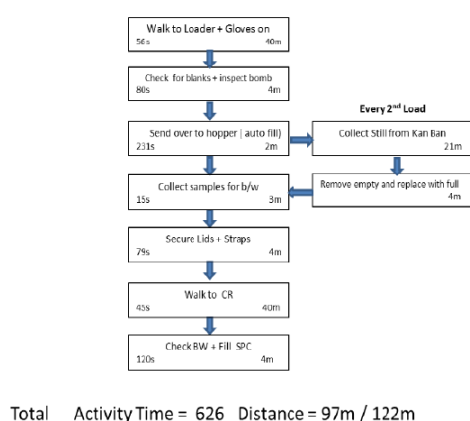


Change Introduced

Before the challenge about operator levels was raised, A1 and A2 were controlled by four employees, two operatives per plant. This allowed the plant to run 24/7 with operators covering breaks locally. Local management perceived that this system was being abused, with plant employees spending ever increasing time in the control room and some daily tasks being missed. As N2 was operated with one employee and the outputs comparable whilst producing the same product, it was decided that a trial be carried out to reduce A1 and A2 staff numbers.

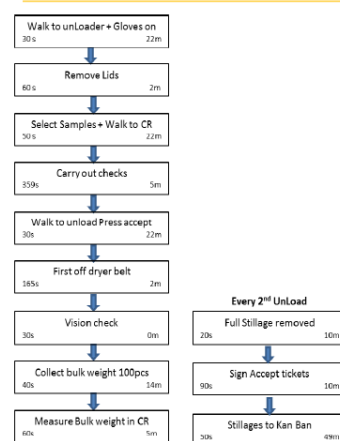
Before the trial was carried out, using operators from each of the four shifts, plant mapping was completed on A1 with the team. It was considered crucial at the time to involve the operator group, as these are the people potential change will impact upon. In order to compare the electroplating plants, the same process was the carried out on N2 using all four of the operators. This initial mapping exercise indicates a far higher level of activity per operator on N2 compared with A1 and A2, as expected.

Process Mapping A1 - Load End



Note: The activity time varies every other load due to the load sequence

Process Mapping A1 - Unload End



Note: The activity time varies every other unload due to the transferring of stillages every other sequence

(Example of process activity observation exercise)

A1 – Process activity Load + Unload (two operators) = 626s + 984s = 1610s (26mins 49secs)

N2 – Process activity Load + Unload (one operator) = 1020s (17mins)

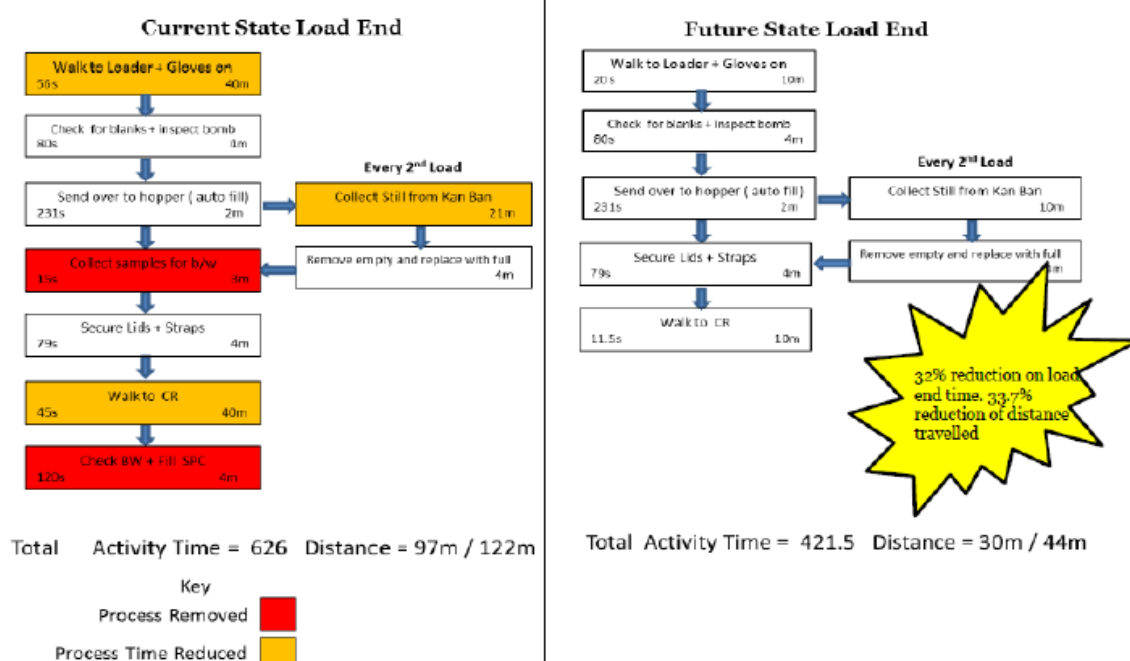
A waste identification exercise was then undertaken to remove any waste steps from the process.

This was done with full co-operation from the operator team. With a reduction of 32% on load time activities, it was now considered that operating under reduced manning was now manageable. A

further study would be required to establish whether manning in A1 and A2 could be reduced to match N2.

A single operator over the four different shifts then voluntarily took part in the further study, in which all activities carried out were logged and timed by an impartial staff member. This trial was cancelled after five days as some vital safety checks were being missed on a few shifts. Overall, production levels were consistent compared to A2 with standard manning.

Process Mapping A1 - Future state Load end

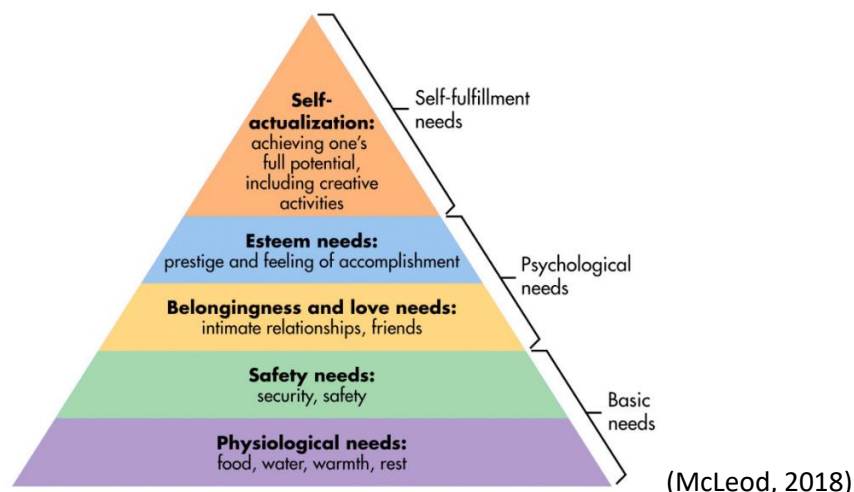


(Waste identification exercise for A1 load end)

Consequently, it was agreed with higher management that a three-man model shared between A1 and A2 would enable maximum production, whilst maintaining safe working practices. The trial was scheduled for 6 months before review and a final decision.

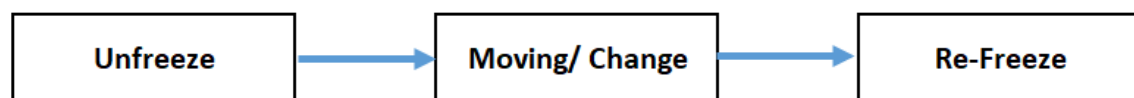
Maslow

The organisation uses a model of human motivation developed by Abraham Maslow represented as a pyramid of levels, with the most basic needs at the bottom and the most distinctively human needs at the top. Maslow developed the model as a reaction against behaviourism, which focuses on rewards (Chandler, 2011). Maslow (1943) claims that when a need is fairly well satisfied, the next prepotent need emerges. Maslow's pyramid of needs has received criticism from Yang (2003) for its unidimensional linearity and cross cultural validity. Although, a study carried out by Taormina (2013) appears to confirm Maslow's expectations because his theoretical concepts, although developed in western culture, held in a culture as diverse as China. Lester (2013) says that further research is required to develop reliable and valid measures of the concepts related to Maslow's hierarchy of needs.



Organisation change compared to Lewin's three step model

According to Cummings, Bridgeman and Brown (2015), Kurt Lewin is widely considered the founding father of change management. This three step model of unfreeze – change – refreeze, is regarded as the classic approach to change. Although Lewin's theories are more than seventy years old, a study conducted by Endrejat, Baumgarten and Kauffeld (2017) demonstrates how Lewin's model can still be used to tackle current issues.



Burns and Begal (2017), claim Lewin referred to social habits as inner resistance to change, this plays a major role in preventing a change taking place. In order to overcome inner resistance to change, Lewin thought it was necessary to apply additional force, sufficient to break the habit or 'unfreeze' the custom. This is also agreed by Bakari, Hunjra and Niazi (2017) who say, the basic motive behind this concept was to 'create readiness as opposed to traditional view of 'reducing resistance' as a cognitive precursor to successful implementation of change.

As unfreezing is the first phase, it questions the organisations current state, and if a different state is required, then equilibrium needs to be destabilized before old behaviour is discarded (Ford, 2006). This is also where employees first find out about a change taking place. The employer ensured that a full picture of why change was required and how they hoped to achieve this. By receiving this information and reviewing the plan, the operators became aware of how this would be of benefit to the company and themselves.

The operator group were enthusiastic about the process mapping and could see justification for it being carried out. They came up with ideas and suggestions to shorten movements and reduce time taken to carry out tasks, removing waste from the process. Mullins (2013) reads, moderate task difficulty and goals as an achievement incentive. This provides the best opportunity of proving they

can do better. If the task is too difficult or too risky, it would reduce the chances of success and of gaining need satisfaction. This viewpoint seems to be accurate according to the behaviour within the operator group.

The second phase is 'moving' where the change actually takes place. Lewin's model involves perusing the plan that was proposed in phase one (Burns, 2017). During this phase, it was decided that the model could not match N2 and an extra operator was included into the model. This brought about a change in which the operators were not expecting. Although it was thought by management that increasing the planned resource would motivate operators, it appeared that because they were not involved in this process, they became more resistant to the change. This reaction, according to Herzberg (1959) is to be expected. Herzberg defined two sets of factors known as two factor theory, in deciding employees working attitudes and level of performance, named Motivation & Hygiene Factors (Robbins, 2013). Dartey – Baah (2011) claims that when employees are faced with challenging but enjoyable work, where one can achieve and demonstrate responsibility, and when the employees' efforts are recognized, this brings about job satisfaction. Two-Factor Theory is closely related to Maslow's hierarchy of needs but it introduced more factors to measure how individuals are motivated in the workplace (Wan et al, 2013). This theory argued that meeting the lower-level needs of individuals would not motivate them to exert effort, but would only prevent them from being dissatisfied. In order to motivate employees, higher-level needs must be supplied. The implication for organizations to use this theory is that meeting employees' extrinsic or hygiene factors will only prevent employees from becoming actively dissatisfied but will not motivate them to contribute additional effort toward better performance (Robbins, 2013).

The third, and final step of Lewin's process is refreezing. Burnes (2007) says refreezing does not imply that the changed behaviour is permanently set in stone. However it does suggest that the group would have to become dissatisfied before revisiting the change. This was not made clear to operators of A1 and A2 at the time. Motivation within A1 and A2 was now at a major low, job

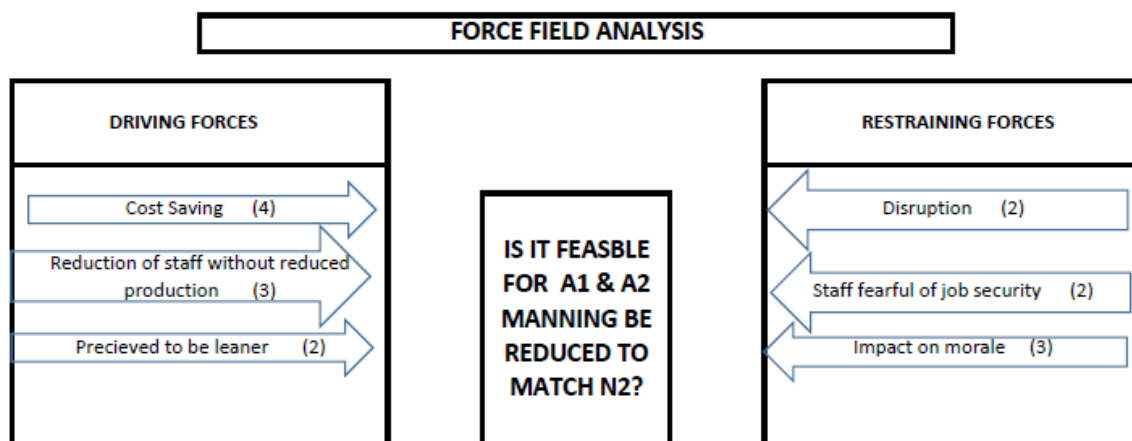
dissatisfaction was at a high. Operators felt that only their basic needs were now being met. There was a feeling amongst the group that management had made the change too quickly, and that their involvement in decisions related to the change had diminished. This behaviour seems to support Maslow (1959) hierarchy of needs along with Herzberg (1959) two factor theory.

Organisation change compared with Lewin's force field analysis

It is not believed by the author that Lewin's force field analysis was carried out by the organisation. According to Lewin (1943), an organisation is held in the balance by an interaction of two opposing sets of forces. Those seeking to promote change, known as driving forces and those attempting to maintain the status quo, known as restraining forces. Lewin believed that an organisation needs to have clear understanding of what it is they would like to change, understanding how all patterns and behaviours interact with one another. Amory (2012) gives a guide to using Lewin's force field analysis tool. In summarisation it states there are seven steps which should be followed:

- First you would understand the change
- Then you would discuss the driving forces for the change
- Discuss the forces that will restrain the change
- Evaluate both the driving and restraining forces
- Decide which of these can be either influenced or have flexibility
- Create a plan to enforce the driving forces or undermine the restraining forces
- Prioritise the actions that will give the best chance of achieving your goal

When driving forces and restraining forces are equivalent, a state of equilibrium is reached. Payne (2013) explains driving forces must be more powerful than restraining forces to break this state of equilibrium and enable change to transpire. If force field analysis was carried out at the time of the change, the illustration below is thought to be a reflection of how it would have looked.

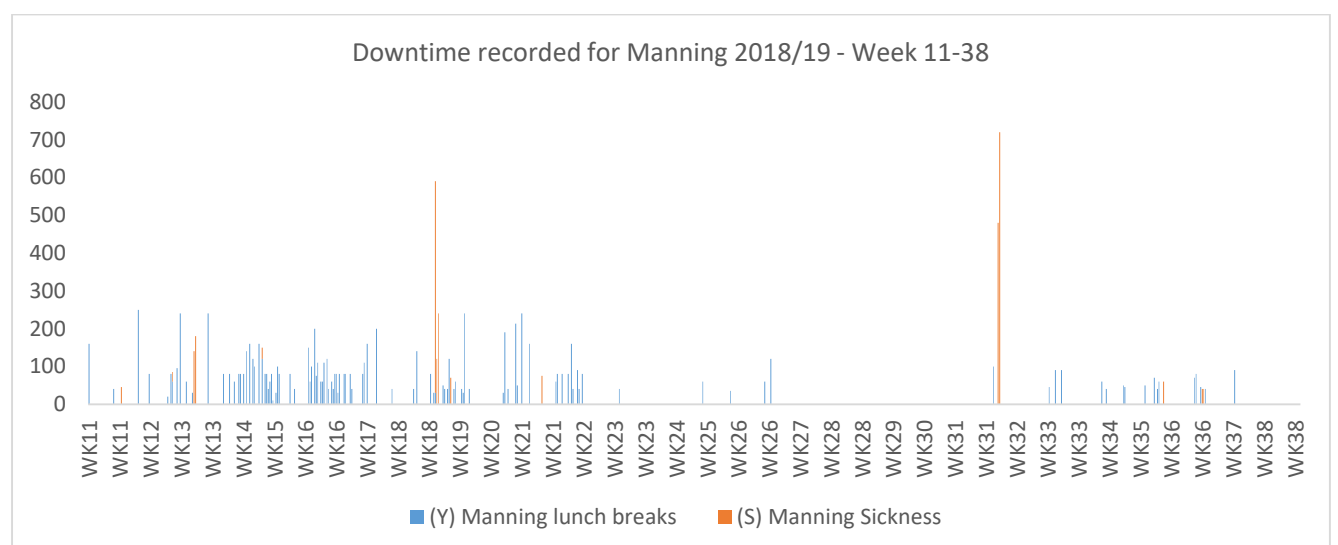
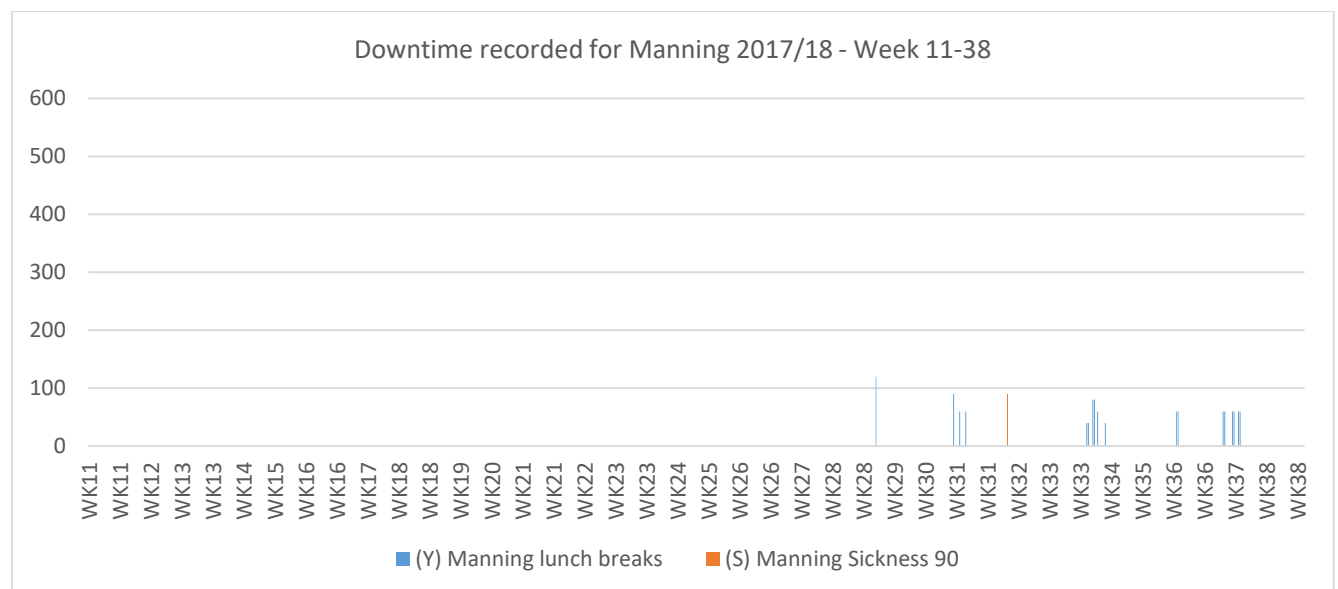


It can be seen from the speculative force field analysis that the main driving force of the change was cost saving. In Mullins (2005) it declares, planned organisational change is said to be triggered by the need to respond to new challenges or opportunities presented by external environments, or in anticipation of the need to cope with potential future problems. Cost reduction in the manufacturing sector enables your organisation to be more competitive in the market, change represents an intentional attempt to improve (Mullins, 2005).

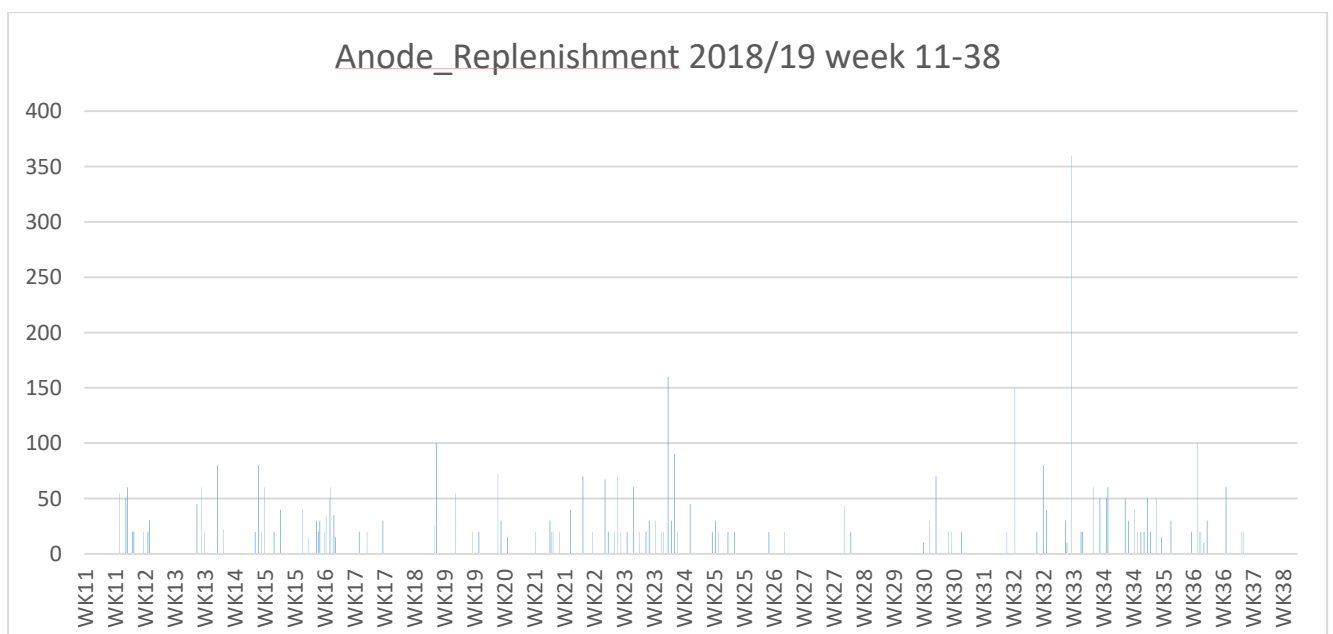
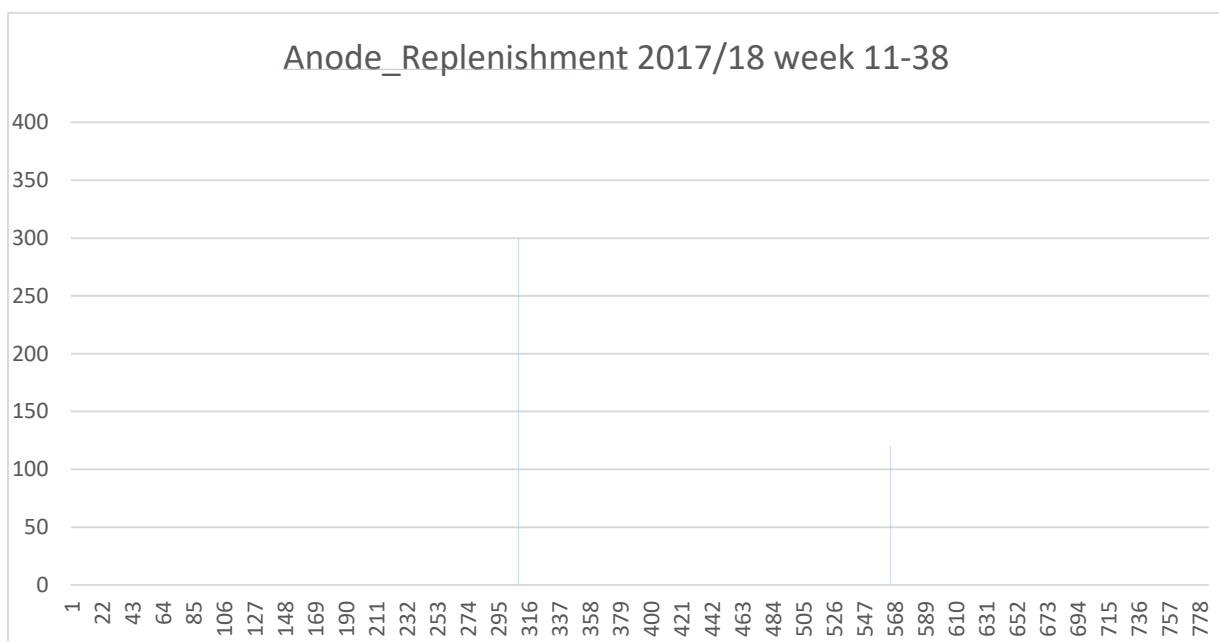
Impact on morale was considered the largest restraining force against the change. Van de Hoorn (2015) posited that if analysis was undertaken prior to change, causality can be implied in identifying both driving and restraining forces. Initially engagement from those who would be effected was high. There was a realisation amongst them that the change would be managed analytically, reducing process waste and removing of non-value adding activities. Up until the point where management decided to include a third person between A1 and A2, morale was below what would have been predicted on the assumption Lewin's force field analysis was used. From the point in which there was a further change, a withdrawal of enthusiasm was noticed among the group. The restraining forces from this moment in time increased to a point where, according to data collected by the author overcame the driving force of cost saving.

Data gathered from change

It may be seen from the data collected below, when comparing years 2017/2018 (pre change) with the same period in 2018/2019 (post change), there was a huge increase in sickness and manning lunch breaks. It is thought that the reason for increase was due to job dissatisfaction. Dash (2008) states that, the concept of motivation assumes significance, since employee performance is often described as a joint function of ability and attitude.



In nickel plating solutions, anodes are used to provide the necessary anode surface, to secure a uniform distribution of electro-deposit on the work and to maintain the nickel content of the electrolyte (Canning , 1978). For this reason, frequent replenishment of the anode is required. Data gathered from pre and post change show a huge increase in lost time for anode replenishment. Operators argued that they were now running at critical manning, so any task not part of production would require A1 or A2 to be put on hold whilst the task was carried out.



	(D) Clean	(E) Inc_Proc	(F) Anode_Replen	(G) Change over	(J) Alarm	(K) Manning unable to cover hols	(N) Transp orter	(R) Chemica l Addition s	(S) Mann ing Sickn ess	(T) Mannin g Operato r moved	(U) Servic e arms remo ved	(W) Servic e arms adde d	(X) Manning: training/meet ing	(Y) Manning lunch breaks
2017/2018	120	1110	420	240	300	0	2560	670	90	0	30	60	303	1150
2018/2019	160	3820	4500	1690	375	430	5457	3135	2825	1570	50	0	990	9653
Difference	-1480	-2710	-4080	-1450	-75	-430	-2897	-2465	-2735	-1570	-20	60	-687	-8503
Total increase in Down time =				484.033	hours									
Average Increase in downtime/ week =				28.4725	Hours									

To conclude, the data collected comparing pre and post change shows that on average, there was an increase in downtime after the change had taken place of 28.47 hours per week.

At this manufacturing organisation, one hour of down time is costed at approximately four thousand pounds.

$$28.472549(hours) \times £4000 = £113,890.196 \text{ per week}$$

Conclusion

In the case for this manufacturing organisation, the first part of the change was managed fairly well. There was initially co-operation between the team implementing the change and those that were going to be effected. This gave operators a feeling of accomplishment, along with a sense of creating a better working atmosphere for themselves. This led to the operator team participating in activities and coming up with suggestions to make the change process progress fluently.

When a change that the operator group were not expecting arose, the morale within the team decreased. There was a feeling that the decision was made too quickly and without consultation of the group, this follows both Maslow (1943) and Herzberg (1943) theories of motivational change.

Ultimately, despite the evidence of data, this change was made permanent after the trial period. Leadership members theorized that in time, motivation would return to the operators in the A1 and A2 electroplating plants, thus, the positive driving forces would then have increased power over negative restraining forces.

Ford (2006) carried out a study and found, profiles that reflected higher systematic use of change process factors were also found related to implementation success. If more of the change management tools mentioned in this report, especially Lewin's force field analysis were applied, the transition of the change, as well as result of the change would possibly be different.

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