



## Sembcorp UK, Survives and Thrives

Sembcorp UK is a major supplier of utilities to all the major manufacturing industry on the Wilton International site in Teesside, UK. It supplies steam, power and other utilities and was originally built by ICI in the 1940's. Because of a change in strategy by ICI in the 1990's and a gradual sell off of some of the ICI business units on site, the future of the ageing Wilton Power Station became questionable and with it, the prospect of the ultimate closure. When Enron purchased the power station and other utilities and operations at the site in 1999 and began a growth strategy, it seemed that another corner had been turned. That ended, however, when Enron collapsed in 2001. The power station operated as a stand alone business for 18 months before being bought by a Singapore company, Sembcorp in 2003. It now operates as Sembcorp Utilities (UK) Ltd.

Over the years Sembcorp has invested £150 million in the facility to make it a dependable supplier of high quality utilities and services. A multi year contract was also negotiated to import steam from a third party utility whenever Sembcorp's own assets could not deliver the required steam demand to its customers. Because of the commercial nature of the contract it was often more profitable for Sembcorp to use third party steam rather than running its own assets.

By 2005 management at the Sembcorp facility began to realize that the contract for third party steam was about to end, and it would be necessary for the site to become more

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## The Empowerment Paradox

*by Winston P. Ledet*

**The empowerment of employees to make improvements in their facilities requires that workers are given more freedom in their work ironically by giving them clear restrictions on what they cannot do.**

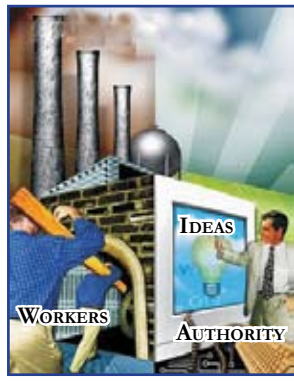
Normally we think that giving freedom means removing restrictions, but experience has shown just the opposite. If workers get clear restrictions, that are well thought out, they are free to do anything they desire within those restrictions without concern that they will be criticized or overruled.

John Bennett in his exploration of management strategies contends that there are only six types of strategy. These are **expansion, concentration, interaction, identity, order, and freedom.**

Expansion is what you would expect; it is increasing something that you already have or creating something new. Concentration is adding strength to something you already have. Interaction is making something you have more efficient. Identity is establishing or changing who you are. Order is planning. Finally, freedom is making room for something new and creative to happen. Without going into the details of each of these

types of strategies, let's focus on concentration and freedom.

Bennett's view of each of these strategies is that they are dynamic and are created from three forces that exist in an organization. These forces are **authority, ideas, and workers.** His point is that authority is the means for allocation of resources necessary for undertaking any action. Ideas determine how valuable an endeavor will be in the current situation and workers are the instrument of applying the



resources to realize the value of the idea in the current situation. If you remove any of the three forces, the strategy will fail.

Bennett points out that a decision on strategy occurs when these three forces coalesce and agree on taking an

action. In each of the six strategies, there is a different role played by each of the forces. One force initiates the action, another is the means to achieve the end, and the third is the commitment of resources to the action. Improving reliability falls into the strategy of concentration where we are adding strength to something we are already doing. In the case of concentration, the worker initiates the strategy. This is where it gets

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a little tricky. Authority is always the affirming force and is always the force that allocates resources for the decision to achieve an objective. We normally think about authority as the initiating force, but this is only true in two of the strategies (expansion and interaction). Any of the three forces can initiate a decision, a worker can request a decision be made or a brilliant idea can call for a decision to be made. Also each of the forces can be the means of getting the decision made and each force can be the commitment. So a decision has three phases: initiation, means, and commitment, and each force can occupy any phase. If we use A to represent authority, W for worker, and I for idea, Bennett represents the strategies as follows:

**Expansion** is A-I-W which means a decision initiated by authority which commits to the worker with the means of an idea. Ideally this is inspired leadership committed to the realization of a great idea.

**Concentration** is W-A-I which ideally is that of service to a cause. In this strategy, the worker initiates the decision to pursue a cause which is endorsed by the authority.

This explains why we should not pursue defect elimination (the idea) as a project. Projects usually are expansion type of strategies.

Also, the concentration strategy is initiated by the worker, who is always the **receptive** force as compared to the affirming force of authority and reconciling force of an idea. This explains the experience at the Lima refinery, where all we did was to make the workers more receptive to change. Most of the ideas that were implemented at Lima were already on one of three lists that existed the day we first showed up there. So the workers didn't initiate

a lot of new ideas but initiated the change by becoming receptive to the ideas of existing initiatives.

Bennett had some other advice about pursuing a concentration strategy that I think we should consider. He says:

*The role of authority in this strategy is to recognize the sincerity of the worker and ensure that the cause to be served is realistic and acceptable and only then fully commit resources to the operation.*

*Authority is the unifying factor that enables the worker to be effective. The unity of the organization is lost if the worker group takes decisions into its own hands.*

*The cause is the embodiment of an idea that commands the loyalty and devotion of both authority and operator. Unless these have the same attitude to the cause, the strategy will not work. In our case, the cause is "Don't just fix it, Improve it."*

*Concentration requires loyalty to authority as well as devotion to the cause.*

*One must believe in the cause and be confident that it is worth serving. A subordinate may approach his superior with suggestions that in other circumstances might seem impertinent, providing he is confident that his superior has the same objective. (This is why we give everyone a no-bug poker chip at the end of the game. It is a reminder that everyone has the right to question anyone else on defect elimination.)*

So the point of all this is that our approach is to make everyone more receptive to the existing initiatives instead of starting new initiatives. When you apply that to managers, according to Bennett concepts:

- » **Management** is decision-making within and on behalf of an organization.
- » **Decision-making** is the commitment of resources to the achievement of an objective. Bennett states that decision-making involves judgment as to the adequacy of the state

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of affairs. A decision is worth nothing if the state of affairs does not permit the realization of the objective.

### » Management Decisions

appear to be a choice between yes and no but this overlooks the subtlety of the commitment, which involves both the intention to achieve an objective and the judicious utilization of resources. Therefore, defects from management come from defective decisions, which mean the wrong allocation of resources in a particular situation where there is not a state of compatibility of worker, authority, and idea.

» **Decisions** are the coalescence of authority, worker and idea, which can occur only if a state of affairs exists where authority, worker, and idea are compatible with the objectives to be achieved.

Finally, there is still a question of how does a worker, who is by nature a receptive force, actually initiate a decision? This is where the freedom strategy comes into play.

**Freedom** is I-W-A and starts with a good idea that comes through a worker to get to the authority. Therefore, the idea occurs to the worker who takes it to the authority. If it is acceptable to the authority, the idea is implemented. This is where the restrictions come into play. When the authority articulates clearly what is not acceptable to him/her that creates the freedom for all workers to approach the authority with any idea that fits in the restrictions.

So to be clear, the authority should articulate all of the boundaries that the workers should not cross in coming up with defect elimination improvements. For

example, authorities usually say that the improvement must not violate any laws or regulations from any government agency. Some give a specific amount of money that can be spent on the improvement project or specify that everyone has to work within their normal level of authorization of funds.

This is why we recommend that the highest authority specify a set of policies in order to create the freedom that the workers need to make improvements. In this act, the authority accepts the risk that these might not all be the best policies and thus relieves his subordinates of this risk so they can concentrate on implementing the policies.



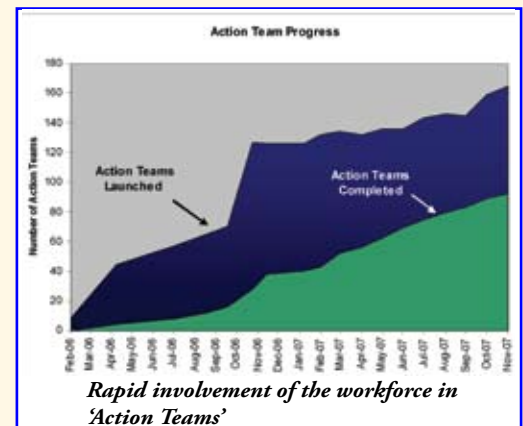
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self sufficient in its ability to supply steam to the Wilton site if it wanted to maintain its business position. Jane Atkinson, Vice President of Utilities Operations, later stated, "I joined Semcorp in late 2004 and quickly became aware of the massive challenge I had inherited. Morale was at an all time low, a 'make do and mend' culture had set in, and plant and equipment that was the best available at the time of construction, was ageing and unreliable. Our whole culture was one of 'run it and fix it'. Departments were working in 'silos' with little obvious co-operation. Maintenance and Operations were content with blaming each other and were not engaging with other supporting functions such as stores, purchasing, HR and IT. In addition, I personally had to deal with comments like "What does a manager from outside the power industry know about running a power station!"

Later in 2005 Reliable Manufacturing Ltd. was engaged along with Ron Moore to conduct

a class on manufacturing excellence for Jane, her direct reports, first line supervisors and union representatives. This class highlighted the task ahead and the need for urgent action. In 2006 Andrew Fraser, principle of Reliable Manufacturing Ltd., and a licensee of The Manufacturing Game® began running a series of workshop engagements to get all of the employees involved in the change process on which Semcorp was embarking. According to Fraser, there were two main elements to the change process that he was engaged to develop. "The first element was a 'bottom up' cultural change process at the shop floor level aimed at engaging people and developing cross functional working throughout the organization. This was followed by a 'top down' process focused on aligning the management team and analyzing critical plant equipment and work practices." The Manufacturing Game® was used as part of the 'bottom up' approach. As in all Manufacturing Game workshops,

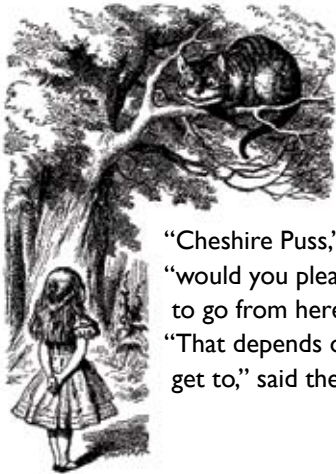
Action Teams were launched to identify and eliminate specific defects by cross functional teams. Over 200 Action Teams were launched during this time period.



Because of their involvement in the improvements being made by these Action Teams, employees of the power plant began showing a new sense of pride and ownership in their facility. The three components of responsibility, ownership and pride were critical to achieving cultural change at Semcorp as they would be in any organization.



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“Cheshire Puss,” she (Alice) began...  
“would you please tell me which way  
to go from here?”  
“That depends on where you want to  
get to,” said the cat. —Lewis Carroll

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# Spring

## TMG News

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Many teams tackled repetitive problems and their success led to improved availability, cost reductions and improved HSE performance. That in turn released manpower from repairing equipment to focusing on improvements. An example of this is an Action Team, led by mechanical fitter Dave Scope, set about improving boiler availability by targeting coal mill feeder issues. One of the major causes of feeder failures was the unreliability of the chain tensioning unit. Dave came up with an innovative re-design of the tensioning unit that addressed the problem and as a result reduced boiler downtime by 13 days per annum. Another Action Team, led by E/I supervisor John Haveron, was frustrated that their daily plans were being disrupted by requests to provide temporary 110 volt supplies for portable tools used by contractors. Only fixed 50 volt supplies were available in the plant. The team

purchased 110 volt transformers and positioned these at strategic positions throughout the plant. The result was a saving of over 400 man hours, as well as a reduction in hire costs.

Successes like these from the Action Teams did not require a lot of up front analysis, and Semcorp was able to immediately get some traction from them. These Action Teams also made the Semcorp employees realize that the company was seeking their input and creativity in solving some of the long standing problems. A series of Reliability Forums were initiated on a bi-monthly basis. Everyone including frontline maintenance and operations people were represented in these forums. They provided a venue for people to be recognized and encouraged for the successes being delivered by the Action Teams. They also provided an opportunity to identify and take action on barriers that needed to be removed. According to a report from one of the early forums, a barrier

that was discovered was the lack of communication of Action Team success to those not yet engaged in the change effort. A team set up for this purpose concluded that the best way to publicize successes would be by creating a reliability website. The website was established on the company intranet and was positioned adjacent to the safety website to emphasize the importance of reliability and defect elimination. People can update progress on their Action Team directly in addition to reading success stories.

We congratulate the Semcorp management and employees for making the change that was necessary for them to once again become a viable facility. A white paper has been written about the successful change effort undergone by Semcorp and an article will be published in the June/July 2010 issue of Reliabilityweb.com's Uptime magazine. For more information visit the Reliable Manufacturing website: [www.reliable-manufacturing.com](http://www.reliable-manufacturing.com)