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## Designing Teams for Safety, Productivity, and Job Satisfaction: Recent Research and Operator Experience

P. Everest, BP Amoco Exploration and Production, R. Lardner, The Keil Centre, and M. Turek, Cambridge Management Consulting

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### Abstract

One of the most cost-effective methods of work organisation for manufacturing industry is self-managing teams (SMTs). SMTs have an established track record of improving productivity, job satisfaction and employee involvement. There has been a recent trend for onshore and offshore petrochemicals and process industry operators to implement SMTs. A fundamental aspect of SMTs is devolving day-to-day responsibility and decision-making to employees, and reducing or eliminating the role of the first-line supervisor. However, the suitability of SMTs for safety-critical operations has been questioned, and anecdotal evidence exists of flawed implementation and lapses in safety.

This paper summarises the results of (a) a joint industry project, funded by the UK Health and Safety Executive (Offshore Safety Division) and BP Oil, which examined the safety implications of self-managed teams and (b) operator experience of SMT implementation on BP's Miller Field from 1995 to date.

Planning for the post-plateau years of the Miller platform in the North Sea truly commenced whilst the installation was still in the blocks in Newcastle. However, detailed research for the shape of an offshore organisation that would see the facilities into anticipated post-plateau and other, then unknown, challenges, commenced in 1995. Implementation of a project to install SMTs commenced in 1996 and since that time considerable progress has been made in developing the

practical application of self-managing teams in an offshore environment. The platform management team may claim only modest success with SMTs, but in reality the project has delivered considerable revenue savings to the Miller business and above all has made a significant contribution to the HSE programme for the business. Our belief is that through SMTs Miller will be enabled to deliver exemplary business, and especially, exemplary HSE performance.

### Introduction to Research Project: Background to the study

The UK Health and Safety Executive's (HSE) publication "Successful Health and Safety Management"<sup>1</sup> states that the establishment and maintenance of management control within an organisation is one of the key elements of successful health and safety management. Furthermore, this publication observes that commercially successful companies often excel at health and safety management, as many of the features of successful health and safety management are indistinguishable from other sound management practices advocated by proponents of quality and business excellence.

A recent international review of employee involvement methods which foster organisational success through improved quality, productivity and employee attitudes concluded that self-directed or self-managed work teams (SMTs) were one of the most effective techniques<sup>2</sup>. A fundamental aspect of SMTs is redesigning work to devolve day-to-day control, responsibility and decision-making to employees, and reducing or eliminating the role of first-line supervisor. The review concluded that "SMTs appear to be the primary employee involvement approach of the 1990s".

The potential benefits of motivational job or work redesign approaches such as SMTs are summarised as higher job performance, motivation and job satisfaction; greater job involvement and lower absenteeism. Potential costs are greater likelihood of error, mental overload and stress and increased training time<sup>3</sup>.

HSE policy encourages employee involvement in improving health and safety<sup>4</sup>. Their position on SMTs is less clear. HSE guidance states "such initiatives can have positive benefits if group performance criteria covers health and safety. However, the health and safety implications need to be carefully considered, with specific steps being taken to deal with them." Furthermore, HSE-sponsored research has identified that poor planning or implementation of major organisational change can have adverse implications for health and safety<sup>5</sup>.

**Paradox.** There appears to be a paradox. SMTs are a proven method of improving organisational performance. At first glance, the SMT literature is largely silent on the topic of safety<sup>6</sup>. Much of the recent SMT literature has focused on the effect of SMTs on productivity and job satisfaction. However increased errors and stress have been mentioned as possible consequences of implementation.

Many onshore process industries have implemented SMTs. Known examples exist in the petrochemicals and pharmaceutical sectors. Some problems with safety implications have been encountered during implementation of SMTs in these sectors. For example, a recent paper highlighted the problems encountered when SMTs were implemented by consultants with little health and safety knowledge<sup>7</sup>, and the present author has personal knowledge of problems being experienced matching existing staff to higher job demands, increased reports of stress-related illness and difficulties with shift handover communication.

**Scope of Study.** This study<sup>8</sup>, joint-funded by HSE and BP Oil, first examined the scientific literature on self-managed teams and their relationship to safety. The study then conducted three in-depth case studies in UK onshore and offshore process industries which have implemented SMTs, to establish (a) reasons for their introduction, (b) benefits gained, (c) safety implications, and (d) lessons learned.

## Definition of Terms

**Self-Management.** One of the strategic choices open to organisations seeking improved organisational performance through greater commitment and involvement from their employees is job or work design<sup>9</sup>. This entails designing or redesigning how work is organised to provide jobs which are broader in scope, involve operative-level employees in managerial tasks such as planning and problem-solving, and where duties are flexibly defined. In short, the emphasis moves from people being told what to do, to self-managing what they do and how they do it, within carefully-defined objectives and boundaries.

In practice, the degree of self-management can vary from (a) making decisions associated with regulating immediate production or work processes, through (b) also determining the order of production to (c) in addition governing how collective decisions are reached<sup>9</sup>.

**Self-Managing Teams.** A recent trend in work group design has been the widespread application of self-managing teams (SMTs), primarily in manufacturing industries. SMTs typically include all the elements of individual job redesign, coupled with providing the whole team with increased autonomy and responsibility over how they work together to achieve pre-determined outcomes.

Self-managing teams are groups of employees, typically 5 to 15, with the skills and authority to direct and manage themselves. SMTs can vary in the degree of autonomy and scope for self-management afforded to them. A number of different terms have been used to describe SMT variants, including semi-autonomous work groups, autonomous work groups, empowered teams and objective-oriented groups. In this document, the term self-managed team (SMT) will be used throughout, whilst recognising that within this term considerable variety exists.

It is apparent that such teams make decisions which would previously have been made by a supervisor or manager. Such teams often include a former manager or team member who acts as a team co-ordinator or coach. This is a particularly important role during the early stages of SMT implementation, as the team endeavours to come to terms with self-management, and the former manager's tasks and skills are reallocated to competent team members.

Finally, one acknowledged expert<sup>10</sup> has commented that the term "self-managing team" is to some extent a misnomer, as they require active and very careful management, admittedly of a different tenor and quality.

We now turn to the reasons why organisations choose to implement greater self-management.

**Reasons for Introduction of Self-Management.** An understanding of the reasons why organisations choose SMTs can be gained from a US review<sup>11</sup>, which identified eleven benefits which may be expected from their introduction. All of these benefits are not necessarily expected by any one organisation, nor may they in fact be realised:

- increased productivity
- improved quality
- more innovation
- faster and better decision-making
- better customer service
- reduced costs
- less managerial bureaucracy
- reduced workforce
- shorter time to market for products and services
- increased employee motivation and commitment
- increased recognition of individual employee's contributions.

Improved health and safety is not explicitly mentioned. Improved mental health of employees is implied by greater job satisfaction, and improved safety may be a consequence of better decision-making and a more committed workforce. Indeed, high levels of stress have been related to work

accidents in oil rig workers<sup>12</sup> and low levels of job satisfaction have been related to unsafe driving practices<sup>13</sup>.

Another analysis<sup>10</sup> of the reasons underlying the popularity of SMTs points to expectation that one of the first responsibilities often delegated to SMTs is to generate process improvements and improve product or service quality. As decision-making is located near to the source of operational problems and variances, a rapid and effective response to uncertain conditions is possible. It follows that SMTs can be an appropriate choice of work organisation where minimisation of variance under technically complex conditions is important.

None of the reviews cited above explicitly mentions health and safety as a reason why an organisation may choose to implement SMTs. However this does not necessarily mean that SMTs are in any way incompatible with successful management of health and safety. Rather, by promoting more skilled, committed, independent, informed and flexible employees it might reasonably be expected that health and safety would be maintained or enhanced. Alternatively, some industry commentators argue that self-managed team members may take more risks, by taking initiatives without appreciating the full implications of their actions.

**HSE's Approach to Management of Safety.** The Robens report established the relevance of a self-regulating or self-managing system to health and safety at work. Two of the guiding principles of this approach were that regulators should set safety goals, rather than determine how those goals should be achieved, and those who create risks are deemed responsible for managing them. These principles informed the regulation of health and safety in onshore organisations from 1974, but were not applied to UK offshore safety until after the publication of Lord Cullen's report into the Piper Alpha disaster in 1992<sup>14</sup>. It seems there is no philosophical inconsistency between this regulatory approach and the principles of self-management at the team level.

There is nothing in HSE's guidance on the management of safety<sup>1</sup> which appears incompatible with the notion of self-managed team working. The main area which requires careful planning is how to allocate responsibility for specific health and safety responsibilities and activities to team members, whilst retaining ultimate management responsibility for policy, supervision, control, audit and review.

**SMTs and Safety.** We now focus on published literature on the relationship between self-managing teams and safety across a range of industries. It is commonly-accepted wisdom that responsibility for safety should be held by operational staff, rather than a specialist safety function. One reason for this is that many workplace hazards are best uncovered by workers themselves. Effective management of safety requires active employee involvement, and communication and co-ordination between operational staff and technical specialists across organisational and shift boundaries.

One of the earliest published accounts of SMTs concerned safety<sup>15</sup>. In the early 1950's, UK coal-mining methods were

undergoing technological change. Traditional methods involved cohesive teams of multi-skilled, self-managing, interdependent miners working towards common production goals. New mechanised long-wall production technology was introduced, somewhat akin to an underground assembly line. Miner's jobs were redesigned simplified and de-skilled, thereby reducing variety. Management assumed responsibility for organising production, with a consequent loss of autonomy for miners. A payment system based on common group output was replaced with five different systems.

The result was lowered productivity, reduced co-operation, high absence and increased employee turnover. The changes in work design upset the existing social system, and went against the long-standing tradition of the self-supervising miner who worked within a team responsible for allocation, co-ordination and supervision their own work.

A modified version of the earlier self-managing work group was reintroduced, and a common production-monitoring and payment system was reinstated. A careful comparison revealed that the new work design led to improvements in output, turnover, absence, accident rates and a reduction in stress-related illnesses.

Improving safety, job satisfaction and productivity was also the focus of a work design intervention at a US mine in 1973<sup>16</sup>. Self-managing autonomous work groups were introduced on a pilot basis into a traditionally-organised small mine. Amongst the reasons for the experiment was a joint concern by management and unions that improvements in safety could not be achieved without increased involvement and training of supervisors and workers. Following the year-long experiment, and evaluation found the experimental autonomous work groups had fewer safety violations, lower overall incidence of reported accidents and showed positive trends towards reduced costs and increased productivity. Employee attitudes showed positive improvements, with considerable enthusiasm for the autonomous work groups.

Similarly, the introduction of SMTs in an Australian heavy engineering workshop<sup>17</sup> led to improvements in job satisfaction and productivity. SMTs used their regular team meetings to address unsafe working practices, rather than rely on a safety representative. During the study period, the SMTs maintained a steady accident rate, whereas traditionally organised teams' accident rates increased.

## Summary

These three thoroughly-researched examples help to understand the relationship between self-managing teams and safety.

First, the UK coal-mining study demonstrates that removing self-management unnecessarily (in this case as a result of changing technology) can have unforeseen and adverse effects on safety, and that its reintroduction can restore the damage done. Second, when improving safety is amongst the goals of implementing self-managing teams, safety can be maintained or measurably improved alongside other important organisational outcomes.

**Published Examples of Self-Managing Teams in the Petrochemicals Industry.** We now examine the implementation of SMTs in the onshore and offshore petrochemicals industry, which includes exploration through refining to manufacture of petrochemicals products. A total of four published accounts of the implementation of SMTs in the petrochemicals industry were identified. These were: (1) a scientific study which sought to measure the effect of SMTs on various aspects of organisational performance, including health and safety and (2) descriptive reports which do not purport to offer the same rigour as the scientific study.

**Scientific Study.** This recent study at the UK site of an American-owned chemical-processing company examined the effects of planned strategic downsizing on the well-being of employees who remained in the organisation after a reduction in headcount<sup>20</sup>. Over a four-year period the total number of employees on-site reduced from 455 to 283, a reduction of 40%. In tandem with the reduction in headcount, more efficient technologies and working practices were introduced. An “empowerment” initiative was introduced, which consisted of an increased emphasis on multiskilling, removal of management layers, restructuring of the organisation to create business and support teams and closer integration of production and engineering functions. Greater attention was paid to the development of individual process operators, coupled with the introduction of an annual appraisal process with goal setting and performance review. Training in technical and non-technical skills (e.g. quality improvement techniques) was stepped up. The study authors reported a marked increase in productivity, a substantial decrease in absenteeism and a decrease in lost-time accidents from seven per year to one. Although work demands placed on employees remaining in the organisation increased, this did not lead to an increase in job-related strain, an indicator of mental health. Job satisfaction increased for process operators, and was explained by the introduction of greater participation and clarity to their role.

The study authors certainly do not advocate reducing headcount as a human resource strategy. Rather, they assert that “paying attention to the design of work and the wider context can enhance an organisation’s ability to achieve downsizing without incurring severe, negative long-term consequences for employees” (p.299). Furthermore, in this case downsizing was achieved at the same time as improvements were made to productivity and safety performance.

**Descriptive Reports.** Three reports of SMT implementation in petrochemicals were identified, which are summarised below.

ICI Australia’s Botany chemical’s plant<sup>18</sup> reported the following improvements:

- improved “ambience” and “climate” at work
- employees working smarter, more flexibly and more co-operatively
- absenteeism dropped by 80%, with resultant cost savings

on overtime payments.

Effect on safety: No safety performance data reported.

Shell Canada chemical plant<sup>21</sup> reported the following improvements:

- a high level of competency amongst shift team members
- efficient plant operations
- obvious benefits of multiskilling
- widespread participation and learning
- efficient problem-solving
- excellent industrial relations.

Effect on safety: Health and safety outcomes were not explicitly described.

Alcoa of Australia’s Wagerup refinery<sup>19</sup> reported the following improvements:

- low levels of blue-collar turnover
- low levels of industrial disputes
- reduced labour costs and relatively small numbers of managerial, technical and ancillary staff required to run the plant
- employees in self-managing teams reported higher levels of satisfaction with their jobs and higher organisational commitment than their counterparts in a sister refinery where jobs were traditionally organised.

The scientific study cited was not solely concerned with the introduction of SMTs. SMTs was an important elements in organisational redesign, and was coupled with other changes to organisational structure, reward and training. This strategy proved very successful when productivity, safety, employee mental health and satisfaction criteria were evaluated.

The descriptive reports also paint a positive picture of improvements in productivity and employee satisfaction. Safety performance data is not reported. To obtain a more comprehensive assessment of the effects of SMTs on safety was obtained by conducting three in-depth case studies in UK onshore and offshore process industries, which are reported below.

**Case Studies.** Three UK process industry companies were identified who had implemented self-managed teams, and were willing to describe their experience. Within each company, in-depth interviews were conducted with a senior manager, an operational manager and a self-managed team member to establish a) reasons for their introduction, (b) benefits gained, (c) safety implications, and (d) lessons learned. Relevant documentation was also made available. The three case studies are summarised below:

**UK Chemical Continuous Process Plant.** This company introduced self-managing teams in 1992, to improve productivity and reduce maintenance costs. Each team has ten manufacturing technicians, plus a team leader who is a working team member and has additional responsibility for

emergency response. During implementation maintenance and process staff were combined on shift, and now most team members possess a combination of process and craft skills.

**UK Offshore Oil Production Platform.** This platform did not change its organisational structure to implement self-managing teams. Rather, it radically changed its management style from direction to empowerment. Each team now has a supervisor who assumes a “hands-off” coaching style of management, but is available to help with non-routine problems. An empowerment training package about the attitudinal and behavioural components of effective teamwork was delivered to all platform personnel.

**UK Chemical Batch Process Plant.** To achieve greater measurement and control of quality and performance, this plant redesigned their organisational structure to focus their manufacturing teams on single products. The nature of process operators’ jobs were also changed, adding more responsibilities and demanding a higher levels of skill. Self-managing teams now operate supported by a day-based manager. An on-call facility exists, and a permanent on-site incident response team is available.

**Outcomes of Self-Managed Teamworking.** All three companies reported significant commercial benefits from implementing self-managed teamworking. Some also measured employee morale, motivation and sickness rates and found significant improvements.

Two companies reported that their existing positive safety performance remained unchanged. The third company had detected an improvement in site safety performance, but was unable determine whether this was due to self-managed teamworking or other ongoing initiatives.

By examining output measures of safety (e.g. lost-time accidents) it was not possible to isolate a positive contribution via self-managed teamworking. However, all managers and team members were convinced that self-managed teams were inherently safer, and were able to identify the following mechanisms which they believed led to safer working practices.

***Improved Production and Maintenance Operations.***

- plant uptime significantly improved, resulting in less strain on platform systems due to regular unplanned shutdowns. Smoother operations due to increased uptime allow all staff more time to think ahead, rather than reacting to unplanned events
- completion of safety-critical maintenance on schedule improved from 85% to 100%.

***Increased Knowledge.***

- greater knowledge of plant and process - people are able to behave in a safer manner due to better understanding of the plant gained by cross-discipline training

***Changed Patterns of Communication.***

- increased involvement and enhanced skill in conducting shift handovers - previously reliant on supervisor
- less scope for communication errors when maintenance work is handed over. Now the people who operate the plant also fix it, significantly reducing the need for cross-disciplinary and inter-departmental communication; a known cause of maintenance-related accidents
- willingness to work on to complete a maintenance job, eliminating the need for handover.

***Greater Involvement in Management Tasks, and Enhanced Management Skills.***

- responsibility for planning of work, and its safety implications
- team members each take greater responsibility for all aspects of their work, including safe working practices
- having and using the discretion to spot and fix problems as they occur.

***Greater Involvement in Safety Management and Risk Assessment.***

- the openness to involvement fostered by teamworking allowed a switch from a management-driven system of safety auditing to one which involved employees
- greater involvement of team members in risk assessment
- direct team responsibility for housekeeping in a specified area
- individual responsibility for safety tasks
- involvement in monitoring and improvement of safety indicators
- contributing to HAZOPS and design studies
- raising and resolving safety issues at team and safety meetings
- proactive observation and reporting of unsafe acts and conditions.

**Learning Points.** Whilst each company believed implementation of self-managed teams had been a positive and worthwhile step, this had not been a straightforward task. With the benefit of hindsight they each offered their key learning points, which include unexpected outcomes which can take the unwary by surprise.

From a senior management view perspective, key learning points were:

- this type of change only works with top management support, which must be enlisted, maintained and visible to the workforce
- considerable resolve and determination is necessary to see the process through - the workforce will quickly identify if this is not present
- managers and supervisors have to be trained and supported through the changes
- senior managers need to be trained and coached how to maximise the benefits of self-managing teams

- do not underestimate the training required for day-based team managers, who have to make a very significant change in their role and management style from that of shift manager
- a significant management resource is also required to monitor and coach others during implementation
- deselection of existing employees for redundancy required careful and sensitive management. Some first-line managers who were not selected as team leaders found it difficult to revert to being team members, and most left the organisation within two or three years
- the importance of building-in time for training to manpower planning, and providing sufficient skilled trainers and appropriate training facilities. Manpower plans must also leave sufficient experienced staff on-site to run core operations during training
- the need for a team reward system to recognise team performance
- development of user-friendly team performance indicators and support systems.

Operationally, key learning points were:

- ensure a suitable organisational structure is in place to support greater self-management
- seek professional advice and guidance
- make a comprehensive, yet flexible plan for implementation
- expect some resistance from people who do not want to change or feel exposed
- make use of benchmarking visits for managers and team members
- prepare the ground by involving all those directly involved several months before implementation
- thoroughly analyse and understand the new role of first-line managers, how this differs from existing first-line managers, and use this information to help them make the transition
- understand the less-visible aspects of the supervisor's former role, e.g. planning, prioritisation and risk assessment, and ensure that these skills are developed in team members prior to implementation
- ensuring sufficient people are available to cover the changing workload, particularly during the early stages of implementation
- provide coaching skills to allow managers to delegate decisions and authority to teams
- carefully specify the function of support staff during transition.

Team members had learned:

- the need for thorough consultation prior to implementation
- take time and effort required to ensure workforce "buy-in"
- don't rush in, prepare!
- think through implementation thoroughly
- consider designing your own training package to meet

local needs, rather than buying in an "off-the-shelf" package

- consider how personalities interact in teams.

### Conclusion

This study sought evidence of the effects of self-managed teamworking on health and safety, with particular reference to the petrochemical industries. The scientific studies available from petrochemicals and other industries indicate a positive effect or neutral on health and safety outcomes, dependent on whether improving health and safety was an explicit goal of implementation.

The three UK offshore and onshore petrochemical case studies also identified a neutral or positive trend in health and safety performance, however it was difficult to isolate the contribution of self-managed teamworking from other parallel organisational changes.

Senior and operational managers and team members believed that self-managed teamworking had led to inherently safer working practices, and were able to describe the mechanisms involved.

The study results should prove useful to safety-critical organisations who are considering the introduction of self-managed teamworking, and to those who wish to enhance their existing teams.

The next section of this paper describes implementation of SMTs in BP Amoco's Miller field, which was conducted independently to the research project previously described.

### Putting Self-Managing Teams into Action at BP Miller

**Envisioning a Self-Managing Future.** Late, post-plateau life is often considered to be the most difficult phase to manage on an oil platform. As platforms age, costs may rise. And as oil and gas production diminishes, revenues can decline dramatically. Such was the case for BP Amoco's Miller field. Not only did Miller management need to maximise the remaining business performance of their asset, they also needed to sustain and, ideally, improve the health, safety and environmental performance on the platform. They also wanted to do it the right way: involving employees' talents, skills, and enthusiasm - engaging the 'big brain'.

Miller's story had been one of success: the platform achieved higher than design levels of output coupled with lowest in class lifting costs. That level of performance, however, was known to be short-lived, since the reservoir performance was predicted to be of an almost classic square profile: rapid rise to plateau production and rapid decline towards cessation of production. The need for action during the early plateau phase was compelling.

Following a comprehensive survey of a range of diverse organisations that had faced up to threats to their continued success, Miller envisaged an organisation where work would be carried out by self-managed teams (SMTs) of highly skilled technicians empowered to embrace continuous improvement

and manage their own - and their team's - activities, whilst being accountable for boosting safety and environmental performance. This new organisation would allow the platform to operate with optimum numbers of technicians and managers, and would result in lower costs, thereby helping Miller achieve its overall business goals.

Among the benefits Miller hoped to gain from the switch to SMTs were:

- a flatter management structure
- visible linkage of individual, team, and business goals and measures
- trained, motivated professionals
- a more committed workforce resulting in improved safety
- local systems owned and used by teams to manage their own productivity
- radical changes in people's expectations of themselves and their colleagues.

**Catalysing Change.** Miller's managers realised that they were about to reinvent their entire organisation and ask employees at all levels to change the way they approached their work. They also knew that they didn't have the experience or staff to support and facilitate an evolving environment. The research by the Miller team had shown that some form of external professional help was important to maintain pace and momentum. This research resulted in a project team being formed, comprising of Miller personnel supported by external consultants.

**Opening the Lines of Communication.** Opening the lines of communication is especially critical when employees are asked to rethink completely the ways they approach their colleagues and their work. Management realised that communicating its vision for the organisation and the changes that would accompany the move to SMTs was critical to success. Guided by the project team, Miller management explained the business case for the proposed changes and explained the benefits Miller and its people would reap as a result of the move to SMTs. Among these benefits were: greater employee autonomy, opportunities to learn and practise new skills, and the opportunity for managers to "high-grade their activities" and move away from the routine day-to-day tasks that are better managed closer to the work-faces.

In essence, this proposition was presented to all employees: "change with us, and we'll help you grow new skills that will serve you well at Miller and beyond." It was a powerful message, one that convinced employees to abandon long-held ways of doing things, and convinced supervisors and managers to move away from their day-to-day role as directors of process, to become facilitators of process first, and then, eventually, strategists.

Since change initiatives only take hold when a significant proportion of everyone involved feels a sense of ownership for the programme, the project team met with employees at all levels to capture their ideas on how to make the business more productive, and to discuss the roles they could play in making it happen. After all, the best answers, commitment, and

opportunities for lasting change lie with the people doing the work.

As a first step, the Miller team worked closely with the external consultants to ensure everyone across the organisation, regardless of their level or function, recognised the business imperative for change.

**Starting with Managers.** Traditionally managers are often preoccupied with forcing change in others; the Miller project team, however, understood that for any change initiative to be successful, senior managers must be fully behind the proposed changes and be willing to visibly change their own styles and activities. At the start of this project, senior platform managers on Miller defined a series of personal behaviours they felt were fundamental to achieving the project's objectives:

- coaching: the manager consistently works with employees to build self-reliance and confidence in their ability to make effective decisions, encouraging and supporting change implementation
- commitment: the manager fully supports the process and creates opportunities to reinforce its value to others
- HR strategy: the manager commits to protecting people's careers and helping them build their skill bases
- role modelling: the manager is regarded as a role model by peers and subordinates. Sets tangible targets for self-improvement
- training: the manager recognises the value of workforce training and is actively involved in developing and delivering the content. He or she then ensures that training takes place in accordance with the needs of the business and its people.

Using CAMS, (a behavioural change tool that focuses on assessing real, visible, day-to-day workplace behaviours, not attitudes, feelings or theoretical concepts), the project team brought some objectivity into assessing where individual managers stood against those behavioural goals. A scale ranging from "ideal" to "least desirable" was applied to activities characterising each desired behaviour. (For instance, carrying out at least two training sessions each week characterises ideal training behaviour: conducting one training session each quarter characterises poor training behaviour.) Managers were then required to carry out periodic self-assessments to gauge their progress and to ask colleagues to evaluate them against the same criteria.

**Towards SMTs: The Activity Transfer Process.** Before beginning to redesign the organisation and redistribute tasks that once belonged to the supervisors, the project team conducted a detailed analysis of existing activities, roles, and responsibilities. This analysis included prioritising activities, determining which ones were critical and which were adding little or no value to the organisation, and clarifying where responsibility for carrying out a particular duty lies at any given time.

**Starring Roles.** To ensure the highest levels of safety and performance, it was critical that the transfer of activities took place in a controlled manner. The design of the new organisation became an iterative process with those activities that could feasibly be carried out by the SMTs being mapped out, step-by-step. Once activities were mapped, the next step was to group them into logical, activity-related, “star points.” The star points which became the SMT focus areas were:

- safety
- platform issues and communications
- costs and procedures
- permits and area authority
- planning
- training and rotas.

Throughout the transfer process, the project coaches worked alongside employees to train, encourage, guide, and support them. As a first step, they helped employees to gain confidence by explaining the new processes and systems, and allowing them ample time to practise and “get up to speed.” We then guided employees to focus on the present rather than the past, and to begin to internalise task ownership. The next step was to begin “picturing the future” for individuals, teams, and the organisation as a whole. Then, finally, employees were encouraged to demand more of themselves and to feel that they were responsible for the business, not just individual tasks.

Clearly, the behavioural change process is an iterative one. Here are some examples of the behavioural transitions that the process effected as supervisors began delegating some of their day-to-day tasks and the team culture began to emerge:

**Business communications:**

- initial status: supervisor understands how the business is performing and communicates that information to employees infrequently
- improved behaviour: supervisor begins to share performance information with the team on a regular basis. Team members begin relating their performance to business performance. Team seeks to influence business performance positively and feels a sense of failure if business performance declines. Team comes to “own” the business.

**Interpersonal skills:**

- initial status: team relies on supervisor to resolve interpersonal conflicts
- improved behaviour: team members begin attempting to resolve conflicts themselves. Team members listen to, explore, and are tolerant of the views others express. Team members consciously focus on building relationships both within and across teams and begin to coach one another and carry out peer assessments.

**Problem solving skills:**

- initial status: supervisor solves problems
- improved behaviour: supervisor begins involving team in

problem resolution. Teams actively reflect on their performance to identify and quantify problems encountered, root causes, and lessons learned. Team members become innovative problem-solvers who share learning, are willing to try new solutions, and put actions in place to prevent problem recurrence.

**Training: Early and Often.** It is critical that individuals feel supported whilst adjusting to new tasks and understand the limits of what is being asked of them. From experience, the project team members knew that simply delegating tasks without providing training, coaching, and support would lead to teams rejecting new responsibilities. With the right support, teams can begin taking on increasing levels of responsibility as their comfort and competence levels rise. To that end, “star point leaders” were created and given the responsibility for ensuring that adequate training and support were available to their star point areas.

Additionally, “Organisational Development Engineers” (ODEs) were put in place to advise and support individuals and teams. Their role was to ensure that SMTs developed and maintained core technical, organisational, and interpersonal skills as well as the flexibility to improve continuously and change in the future. ODEs were also tasked with ensuring that individual career aspirations were recognised and managed; clear steps for improving performance were identified; and measurements were created to give teams clear and practical systems of accountability. On Miller, accountability has four distinct parts:

- performance: this is the tangible outcome the team is to deliver, including reduction in non-productive time and backlog hours, and improved safety
- process: typical process accountabilities include goal setting, problem solving, and participation during meetings. These illustrate how well team members manage their relationships and work together
- peer support: Team members support and rely on each other and perform assigned tasks
- personal accountability: this develops as individual team members see what is needed, accept personal responsibility for results, and ask themselves to act above and beyond their normal call of duty.

**Changing Behaviour.** Self-management is the highest form of empowerment. It allows employees to achieve recognition, involvement, and a sense of meaning in their jobs, thereby improving job satisfaction and morale. A feeling of trust builds across the organisation as employees see that managers believe in the ability of SMTs to deliver higher performance. Meanwhile, employees begin to trust themselves and their colleagues too, as they see that by sharing information and working together, their achievements multiply.

Moving to a self-managing environment requires radical changes in management structure and style and organisational behaviours: from hierarchies to networks; from direction to facilitation; and from individual contributors to teams of individuals sharing information and knowledge. Everyone -

from senior managers to supervisors to employees - in the Miller organisation had to recognise the need for change and had to be willing to embrace it. To that end, the process involved working with employees at all levels - from senior managers to managers and supervisors to employees - to demonstrate first-hand the benefits of working in new ways, as well as how to adapt to the new processes.

**Senior Managers.** The vision and motivation for change must originate here. After all, if the people at the highest levels of the organisation are not committed to the change process, why should anyone else commit to it? As SMTs took shape, we helped management at the senior level to develop roles as leaders and coaches, not as commanders and controllers.

**Managers and Supervisors.** Managers and supervisors had to let go of their power base rapidly, and somewhat radically, moving away from the traditional "command and control" culture. In fact, as SMTs take root, the first-line supervisory role disappears. Essentially, we were asking supervisors to make themselves obsolete and thus needed to motivate them properly and ensure that they saw where they could come to fit in the new organisation (or, alternatively help them to seek roles outside of the new organisation). Supervisors were gradually brought out of the daily activities and coached to delegate tasks, to draw up training programmes, and to become good coaches themselves, helping teams to explore problems whilst encouraging them to trust themselves and devise their own solutions. As team members' confidence grew, the role of the supervisor/coach changed even more: from that of tutor to that of role model and then to facilitator, removing external barriers to change.

**Employees.** Rather than focusing merely on their individual tasks, employees were asked to focus on the collective good and take ownership of team and business performance. For employees making the move to SMTs, it is all about being willing to accept the freedom and the accountability that come with empowerment. In addition to showing employees the new processes and systems, the project coaches helped employees develop new skills in negotiation, interpersonal communication, listening, problem solving, and team-building. We role-modelled the processes of committing to common goals, taking risks, and demonstrating initiative and creativity. We also helped to create an environment of trust, where people could feel free to voice their suggestions without fear of reprisal, and with the knowledge that the merits of their ideas would be weighed objectively.

**Unprecedented Results.** Today, self-managed teams are shaping the future of the Miller field. The new culture is playing a major role, adding value to the asset by streamlining operations, increasing efficiency, and increasing safety.

Today people are more excited about what they - and the business - can achieve. Individual, team, and business goals are visibly linked. Employees are more willing to learn new

skills, take on new roles and share information with their colleagues. Managers are able to focus on strategy and higher level activities, now that day-to-day performance management is the province of the SMTs. Now that the hierarchical structures and barriers are gone, ideas are percolating up, down, and around the organisation more frequently than ever. And well intervention productivity is at an impressive 95 percent.

In the words of Miller employees:

"Another success, although probably not recognised by the members of the department, is that they are becoming more self-reliant, making decisions for themselves."

"The planning process has been vastly improved. Communication among all parties is now second nature. Downtime is vastly reduced. We now have a system that will recoup enormous revenues, which may have otherwise been lost."

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