SaskPower Benefit Realization Process

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Executive summary

In 1998, SaskPower made a major investment in a new integrated information system (System). It implemented this System in 1999. SaskPower is seeking to achieve the benefits from the System. SaskPower estimates the value of these benefits at $130 million over five years.

In this chapter, we report on the adequacy of SaskPower's processes to realize, measure, and report on these benefits. Achieving benefits is hard. Many organizations fail to seek the benefits that these systems are supposed to bring.

SaskPower is developing processes to achieve the System's benefits. These processes will help employees change how they do their work and thereby achieve the System's benefits. For example, SaskPower is changing how its employees plan and schedule maintenance at its coal-fired power plants. These changes will produce benefits by increasing the generating capacity at the coal-fired power plants. This increased capacity will replace more expensive electricity from natural gas fired plants or from other producers.

We congratulate SaskPower on its efforts to achieve the benefits from the System. We think other government organizations can learn from the work done by SaskPower.

SaskPower still has much work to do. In addition to sustaining management's commitment to realizing the System's benefits, SaskPower must continue to help and encourage employees to change how they do their work. We make three recommendations to help SaskPower achieve the System's benefits. SaskPower should:

- set out the benefit targets and measures for the System in its business plan and report the results achieved in its annual report;
- establish policies to support a long-term continuous process improvement program that includes training and System support plans for its employees; and
- provide its Board of Directors with independent advice on benefit targets and measures, the effectiveness of the new work processes and on the reliability of key reports.

Introduction

In 1998, SaskPower made a major investment in information technology. It purchased an integrated computer system and implemented it throughout the Corporation. This system was much more than just a computer system; it provided new work processes that changed how employees did their work. In this chapter, we refer to this integrated computer system and its work processes as "the System."

The purpose of this chapter is to report to the Legislative Assembly and the public on the adequacy of SaskPower's processes to realize, measure, and report on the benefits from the System. SaskPower estimates the value of the benefits to be $130 million over five years.

Successfully adopting the System's work processes is the key to realizing its benefits. This is not easy; change is hard. We expect the results of our audit will help SaskPower and other government agencies to realize the benefits of information technology. We set out our detailed audit criteria in Exhibit 2.

Background

SaskPower's Board approved the purchase of the System in May 1998. Its decision was supported by a business case that showed the benefits of the System would exceed its cost by $81 million over a five-year period. The estimated cost to buy, install, and operate the System for five years was $86 million and the estimated benefits were $167 million over this period. SaskPower now projects the benefits from the system will be $130 million over five years. The reduction in benefits is in areas where benefits are difficult to measure. These areas include: improving capital planning with better information; reduced data entry costs; and savings from improved maintenance practices.

In March 1999, we reviewed SaskPower's project management practices to implement the System (referred to as the Delta Project). We concluded that SaskPower had good practices to implement the System.

In our 1999 Spring Report, we highlighted the importance of monitoring and measuring the benefits. We recommended that SaskPower should set measurable targets for the annual planned benefits over the System's

five-year business plan and report its progress against these targets to its Board and in its annual reports.

At that time, SaskPower faced four challenges that continue today. These challenges are:

1. ensuring SaskPower realizes the expected benefits from the System;
2. ensuring staff are properly trained in the new business processes and motivated to realize the benefits;
3. ensuring specialized knowledge and skills gained by SaskPower's implementation team are retained for running and managing the System; and
4. securing the System to ensure the confidentiality, completeness, accuracy, and availability of information.

SaskPower implemented the System in August 1999. In late 2000, SaskPower's management informed the Board that progress in achieving the benefits was not going as planned. The 1998 business case had projected SaskPower would realize $86 million of the $167 million in benefits by the end of 2001. As of this date, SaskPower says it has realized $32 million. Most of the realized benefits ($25 million) are avoided System costs from not replacing its old systems with newer non-integrated systems.

The Board directed management to conduct a post-implementation assessment and report on how to realize the benefits. The Board received the Post-Implementation Assessment report in March 2001. The report highlights the strengths of the System and the areas that need improvement. The report recommended the establishment of a Corporate Business Process Improvement Program (Program) that initially included eight projects. These eight projects are in areas that require processes to ensure SaskPower achieves the benefits from the System. The Board approved the Program and set up subcommittees of the Board and management to oversee the work. The initial projects are scheduled for completion during 2002 and the Program is to be completed by the end of 2002.

One of the Program's projects is called the Power Production Maintain Facilities Project (MF Project). The objective of the MF Project is to

improve power plant maintenance practices. Its estimated benefits are $74 million over a five-year period starting January 1, 2002. We describe how SaskPower plans to realize these benefits in the section entitled, *Why are maintenance processes important*.

Audit objective, conclusion, and findings

The objective of this audit was to assess the adequacy of SaskPower's processes to realize, measure, and report the benefits from the System. Our audit, as at March 8, 2002, focused on the corporate processes around benefit realization and on the processes to achieve the $74 million in benefits from improved power production maintenance practices. Our audit does not provide assurance on the amount of the benefits that SaskPower has achieved to date or on the quality of the maintenance practices at its power plants.

We found that SaskPower has adequate processes to realize, measure, and report the benefits from the System, except for the matters described below.

We make three recommendations to help SaskPower realize, measure, and report the System's benefits.

- SaskPower should set out the benefit targets and measures for the System in its business plan and report the results achieved in its annual report.

- SaskPower should establish policies to support a long-term continuous process improvement program that includes training and System support plans for its employees.

- SaskPower should provide its Board of Directors with independent advice on benefit targets and measures, the effectiveness of the new work processes and on the reliability of key reports.

We followed the Standards for Assurance Engagements established by The Canadian Institute of Chartered Accountants. To carry out the audit, we used a risk-based approach. Sources of audit evidence included: minutes; decision documents; project management plans; procedures

and reports; and communication documents. We also interviewed over 30 SaskPower employees, including most of the senior executive team.

The criteria that we used to evaluate SaskPower's benefit realization processes were derived from several sources. The primary sources were the Project Management Institute's standard, *A Guide to Project Management Body of Knowledge 2000*, and J.P. Kotter's book, *Leading Change*. The selected resources at the end of this chapter lists our other sources.

To realize, measure, and report the benefits from the System, SaskPower needs:

- strong senior management commitment;
- proactive change management; and
- project management practices to manage process improvement projects.

Exhibit 2 at the end of our chapter, contains our detailed audit criteria.

Detailed findings

Why are maintenance processes important?

To better appreciate the importance of SaskPower realizing the benefits from the System, it is helpful to understand how this System will increase electrical production. SaskPower values this increased electrical production at $74 million over five years.

SaskPower predicts that it will improve the capacity of its coal-fired plants through improved maintenance practices. Plant maintenance is more than simply the repair and maintenance of equipment. As Doc Palmer writes in his book, *Maintenance Planning and Scheduling Handbook*, "…maintenance produces a product which is capacity; maintenance does not just provide a repair service." In power-generating plants, the product of plant maintenance is electricity.

The machinery used to generate electricity is in a constant state of being worn out. For example, the combustion of coal and its waste products cause tremendous erosion to the plant's machinery and equipment. To maximize power production, SaskPower needs to achieve a balance between the rate of wear and the rate of repairs. Plant maintenance plays a key role in maintaining this balance.

A coal-fired power plant has thousands of pieces of equipment and SaskPower must do thousands of maintenance activities in a year to keep the power plants running at optimum capacity. When equipment breaks down, capacity is lost. SaskPower must replace the lost electricity with more expensive electricity from natural gas generation plants or from other producers. To manage and carry out the many thousands of the maintenance activities, SaskPower requires a good plant maintenance system.

A good plant maintenance system helps to prevent plant breakdowns and helps to ensure work is done efficiently. It does this by enabling the planning, scheduling, and reporting of maintenance activities. Planning helps to ensure that the right work is planned; and the people, tools, parts, and safety permits are available and recorded on maintenance work orders. Scheduling helps to ensure that the work is done at the right time. Reporting helps the monitoring of work and helps to ensure the work scheduled is done on time and on budget.

In summary, SaskPower predicts that its System will enable it to produce $74 million worth of additional electricity over five years from its coal-fired power plants through better plant maintenance practices.

Does SaskPower have processes to maintain management commitment?

Senior management commitment is very important to the success of projects. It becomes more crucial when projects are complex, span many years, and/or involve significant change. Good governance, accountability, and proactive leadership processes are required to obtain and maintain strong commitment to projects.

We expected SaskPower to have good processes to obtain and maintain strong senior management commitment. Senior management

commitment is important because realizing the System's benefits is complex, will take years, and will change how employees do their work.

Governance

Senior management commitment requires good governance processes. We defined governance as a set of relationships and processes to direct and control the organization in achieving its objectives. We looked at SaskPower's governance processes for realizing the System's benefits.

SaskPower has established several key committees to oversee the Corporate Business Process Improvement Program (Program) and respond to issues as they arise. These committees include a subcommittee of the Board, an executive steering committee, and a system change council that ensures technical changes do not adversely affect the integration of the System's many components. Also, most of the Program's projects are overseen by a steering committee of experts.

In summary, we found that these committees meet frequently and receive appropriate information to carry out their responsibilities.

Accountability

Senior management commitment requires good accountability processes. We defined accountability as:

- setting expectations for performance;
- reporting on performance; and
- reviewing performance and taking action.

We looked at SaskPower's accountability processes for realizing the System's benefits. SaskPower has established targets for the benefits that it plans to achieve from the System. It has also established performance targets for the Program's eight projects. In addition, reports are regularly prepared on the progress of these projects. However, the Corporation's 2002 Business Plan does not include sufficient benefit targets and measures to tie the System's benefit realization objectives to the corporate business objectives. Benefit targets and measures show

how the corporation plans to achieve the benefits of the System in the business plan. This deficiency weakens senior management's commitment to achieving the System's benefits.

The corporate business plan is the primary tool for setting corporate direction, priorities, and holding senior management accountable for results. The omission of benefit targets and measures from the business plan increases the risk that SaskPower will not realize the benefits. It also weakens management's accountability for achieving these benefits.

Also, SaskPower's annual report does not report its progress in achieving the System's benefits. Having to answer publicly for achieving benefits builds management commitment and public confidence.

1. We recommend that SaskPower should set out the benefit targets and measures for the System in its business plan and report the results achieved in its annual report.

SaskPower's response:

> It is the intent of SaskPower to include benefit targets and measures related to SAP process improvement initiatives in its annual business plan and report progress in its annual report.

Proactive leadership

Senior management commitment requires proactive leadership. We defined proactive leadership to include the building of: a strong sense of urgency, strong teams, and a clear vision of what is planned. Because proactive leadership is also a feature of proactive change management, we include it in the next section.

Does SaskPower have processes to manage change?

To achieve the benefits of the System, SaskPower must change its processes and be ready for additional changes in the future. We assessed SaskPower's change process against the eight stages of change developed by J.P. Kotter in his book, *Leading Change*. For this chapter, we group his stages into four parts: sense of urgency, strong teams, clear vision, and culture to sustain change.

Sense of urgency

We expected there would be a strong sense of urgency for realizing the System's benefits. A sense of urgency is often compared to a burning bridge. There is no turning back; going forward is the only option. A strong sense of urgency is created through sound business reasons for the change, strong leadership, and shear persistence at getting the change understood and accepted throughout the organization.

In the System's 1998 business case, SaskPower identified improved customer service, increased competitiveness, and enhanced shareholder value as being the business reasons behind acquiring the System. The strategy was to motivate and give employees the tools to change, thereby creating a more customer-oriented workforce. Better business processes, an improved ability to deploy employees and resources, and better information were the tools to enable the change.

The sense of urgency to realize the System's benefits seemed to have been lost after the System was implemented. The System proved to be far more difficult to use than anticipated and few benefits were initially seen by employees. As a result, employees were frustrated and few benefits were realized.

The Board's leadership in directing executive management to conduct a post-implementation review in the Fall of 2000 rekindled the sense of urgency for realizing the System's benefits. Also, the early successes of the Program's eight projects have helped to motivate staff to make greater use of the System. For example, the employees at power plants are asking for improvements to the System's material management processes so that they can obtain additional benefits from plant maintenance processes.

In addition, SaskPower's 2002 Business Plan offers additional compelling reasons for making the System work better. These reasons are aging power plants and transmission systems that need more maintenance and the need to have processes that capture and transfer knowledge from its aging workforce.

In summary, SaskPower established a sense of urgency to realize the benefits.

Strong teams

We expected SaskPower would establish strong teams to realize the System's benefits. A strong team is one that has the authority, expertise, creditability, and leadership to bring about the change. In addition, leaders must drive the change, while managers control the change process. (Kotter, page 57).

SaskPower established strong teams to realize the System's benefits in March 2001. The teams' mandates, authorities, skills, composition, and resources were set out in the Post-Implementation Assessment report described earlier. The teams include the Program team and the individual project teams.

Changing how people do their work is difficult. It is more difficult than the technical part of getting computer programs up and running. The teams, with their direct accountability to the Board and the executive for their results, were not in place in 1999 when the System was first implemented.

In summary, since the start of the Corporate Process Improvement Program, SaskPower has had appropriate teams in place to change work processes.

Clear vision

A clear vision is critical to the change process. To be effective, the vision must be communicated to the employees, understood by them, and they must be empowered to act on the vision. We expected SaskPower to have a clear and effective vision of the System's processes and benefits.

The System's business case sets out a clear and effective vision and the Post-Implementation Assessment report reaffirms it. The Program established communication plans for its work and its eight projects. These plans include an assessment of the information needs of employees and management. Also, the plans include a variety of communication methods such as corporate newsletters, surveys, electronic bulletin boards, and committee presentations.

SaskPower is encouraging change by recognizing Program successes. It is removing obstacles to change by creating cross-functional project teams, providing system support, and training to help employees use the System effectively. However, more needs to be done to help employees when they encounter problems in using the System. System support processes are discussed further in the next section.

In summary, SaskPower established a clear vision to realize the benefits.

Culture to sustain change

A culture that sustains change is one that rewards short-term wins; uses the wins to drive more change, and provides structural support to manage change.

We expected SaskPower to plan for short-term wins and communicate the results throughout the Corporation. We also expected SaskPower would measure and report the progress achieved with the short-term wins to help motivate employees to change how they do their work.

SaskPower's Program team structured its work to facilitate short-term wins. For example, the Power Production Maintain Facilities Project team focused on improving maintenance practices one power plant at a time. The team then used its successes to help employees implement and adopt changes at the next plant. The consensus of the power plant employees that we interviewed was that the new processes were better but they wanted more improvements.

Putting in the System and making all the process changes needed is a huge change for SaskPower. The business transformation enabled by the System has significant impacts on SaskPower's employees. Employees use of the System impacts others. For example, an error in entering maintenance time will cause errors in payroll, in the plant maintenance system and in finance. Employees are developing new and transferable skills that SaskPower must retain and recognize. The System requires strong and continuous technical and user support. Business transformations of this magnitude need to be driven by a continuous process improvement program supported by strong information technology support programs and human resource policies.

We expected SaskPower to provide structural support to manage change. SaskPower has a continuous process improvement program that is due to expire in 2002. However, it will take several more years to complete the process changes needed to realize the established benefits. Therefore, SaskPower needs the program to facilitate change. Also, the program needs corporate support to ensure changes are long-term. Without the program, SaskPower risks a loss in momentum, a reversion to old practices, and a loss of benefits.

SaskPower needs to examine how it delivers its System support so that it can respond to user needs more efficiently and effectively. The current delivery system strains System support resources and it is not meeting the current needs of users. SaskPower recognizes the importance of this System support group and is currently improving its information technology work management processes to better serve its employees.

SaskPower also needs a corporate training strategy for its employees. The System is corporate wide so training policies must be coordinated across the corporation. Currently, the System training strategy is not supported by a corporate training strategy. This causes confusion and creates the expectation that System training should also provide other job skills training such as planning and scheduling.

2. We recommend that SaskPower should establish policies to support a long-term continuous process improvement plan that includes training and support plans for its employees.

SaskPower's response:

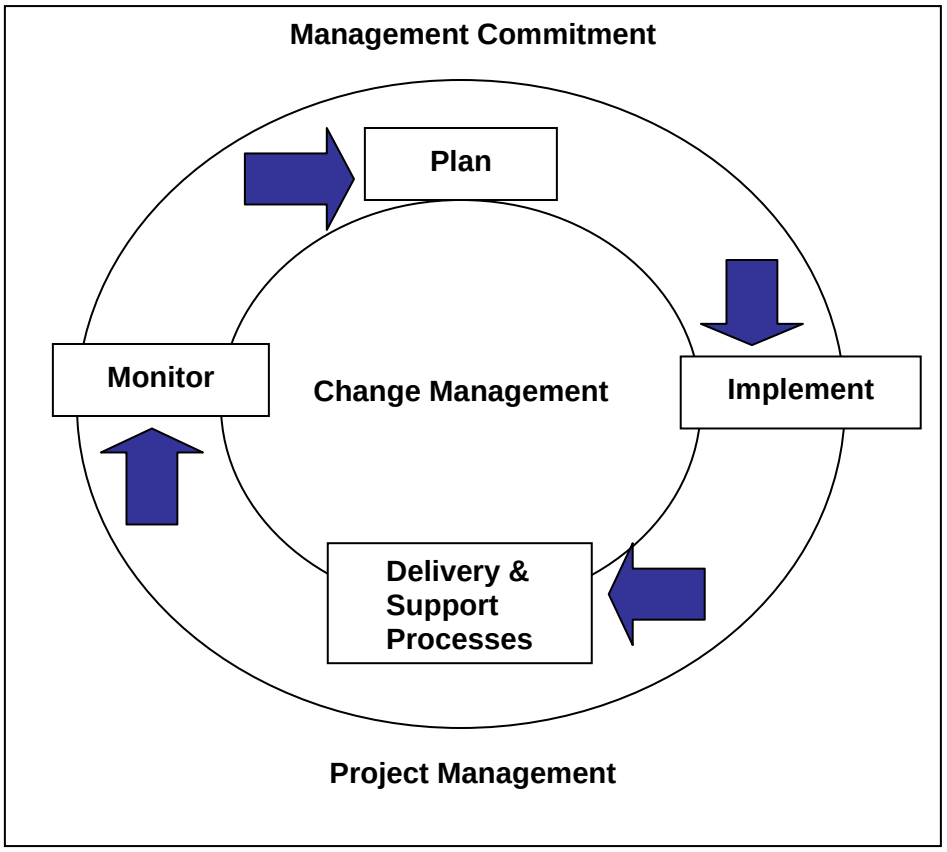
> SaskPower will provide assistance to its employees through the sustainment of the Corporate Process Improvement Program. The focus will be on increased training and development of staff to improve system support.

Does SaskPower have project management practices to manage process improvement projects?

Our audit of project management practices focused on the Power Production Maintain Facilities Projects (MF Project). SaskPower estimates that it will realize $74 million in benefits from improved power plant maintenance processes. To realize these benefits, SaskPower

needs strong project management practices including a clear continuous change-cycle methodology. Exhibit 1 shows such a methodology. The cycle starts with planning, followed by implementation, delivery and support, monitoring, and then back to planning.

Exhibit 1: Continuous process change cycle



The Corporate Process Improvement Program (Program) has adopted a similar continuous process improvement methodology. We assessed its change cycle methodology against the one in Exhibit 1 and found no significant differences.

Planning

We wanted to know if the MF Project had processes to ensure that the right work was planned. We expected the team to work closely with power production staff, assess the existing maintenance processes, identify barriers to improvement, and draw up a plan to fix the processes so the benefits could be realized.

The team's planning processes met our expectations. The team started by gathering employee needs through a series of interviews. It worked closely with the power plant steering committee and employees. The scope of the planned work was documented. It also included an assessment of how materials management, purchasing, logistics, and time capture could better support and tie into the System's plant maintenance processes.

In summary, we concluded the MF Project had processes to ensure that the right work was planned.

Implementation

We wanted to know if the MF Project's implementation processes ensured that the work would be done the right way. We expected that SaskPower would have documented project management practices and a team with the skills to apply them. Also, we expected the team to establish power plant maintenance standards and measurement, reporting, and monitoring standards for controlling process improvement. Finally, we expected that SaskPower would have processes for establishing an approved project charter to support the MF Project. A project charter should include such things as project objectives, work strategy, key risks, estimated costs, an estimated completion schedule, and the expected products.

The MF project's implementation processes met our expectations. Some of the key strengths included team members with skills in project management, power plant maintenance, and process measurement and reporting. In addition, the team used Doc Palmer's book entitled *Maintenance Planning and Scheduling Handbook* to establish best practices for plant maintenance.

In summary, we concluded that the MF Project's work was being done the right way.

Delivery and support

We wanted to know if the MF Project's delivery and support processes ensured that the work would be done well. We expected that the delivery and support processes would ensure that the work was clearly defined

and agreed to by power plant managers. Also, we expected processes to train employees on how to use the System's plant maintenance processes, track problems that arose, and track progress. Finally, we expected that the System's plant maintenance processes would be documented.

The team's delivery and support processes met our expectations, except for the matters describe in the next paragraph. Some of the key strengths of the team's delivery and support processes included a work site agreement and training courses specifically designed for power plant employees. The work site agreements were signed before work was started and again at its completion. This documentation helped to ensure that the nature and extent of the work was understood, the MF Project team had access to the right people, and all the work was satisfactorily done.

Power plant employees need reliable historical maintenance information to support the maintenance processes. This information was not available. SaskPower expects that it will develop this information over time through the proper use of the System's plant maintenance processes. We also found that the System's plant maintenance processes were not documented. Lack of documentation increases the risk that processes are not consistently followed or understood, thereby hindering the realization of the System's benefits. Therefore, we urge SaskPower to document the System's plant maintenance processes.

In summary, we concluded that the MF Project's delivery and support processes ensure that the work is done well.

Monitoring processes and benefits

We wanted to know if there were adequate monitoring processes to measure and report on realized benefits and determine if further changes to plant maintenance processes were needed. We expected that the monitoring processes would be based on clearly-defined performance measures and these measures would include appropriate indicators for process improvement and benefit realization. Also, we expected that the monitoring processes would include an independent assessment of measures and conclusions reached.

The team's monitoring processes met our expectations, except for the matter describe in the next paragraph. A key strength of the monitoring processes was the performance measures that the team chose to use. For example, the team chose to measure the amount of scheduled work that was planned. According to Doc Palmer in his book, *Maintenance Planning and Scheduling Handbook*, the scheduling of planned work is the single best way to improve maintenance effectiveness. Also, the team chose to use an industry standard for measuring the availability of the power plants to produce electricity. Comparing planned availability to actual availability is a good way to determine the benefits realized.

SaskPower's Board needs assurance that is independent of operations on the benefits realized from the System. Receiving independent assurance will help SaskPower to continually improve its work processes and realize the System's full potential.

3. We recommend that SaskPower should provide its Board of Directors with independent advice on benefit targets and measures, the effectiveness of the new work processes, and on the reliability of key reports.

SaskPower's response:

> SaskPower agrees to seek an independent review of its benefit targets and measures to ensure that they are realistic; will audit new work processes to measure their effectiveness; and, examine key reports to ensure their accuracy.

In summary, except for the above recommendation, we concluded that the monitoring processes for the MF Project adequately ensure that System's maintenance processes are effective and the benefits are realized.

Exhibit 2 – Detailed criteria

1. Senior management commitment to realize the benefits
- **1.1 Governance processes**
  - 1.1.2 The team has the authority to carry out the Program
  - 1.1.3 A strong team is put in place to carry out the Program
- **1.2 Accountability processes**
  - 1.2.1 Clear measurable performance targets
  - 1.2.2 Performance measurement
  - 1.2.3 Assessing results
  - 1.2.4 Alignment of objectives with the Business Plan and Annual Report
- **1.3 Proactive leadership**

2. Proactive change management processes needed to realize benefits
- **2.1 There is a sense of urgency for the change**
  - 2.1.1 There are strong business reasons for making the changes
  - 2.1.2 The business reasons are understood and accepted by management and the Board
- **2.2 Senior management lead and believe in the project**
  - 2.2.1 The process owners are committed to realizing the benefits
  - 2.2.2 Key individuals are assembled to lead the change
  - 2.2.3 Good team work practices are encouraged
- **2.3 The program is guided by a clear vision**
  - 2.3.1 A clear vision of the process improvement program is developed
  - 2.3.2 A clear vision of the new work processes is developed
  - 2.3.3 Strategies are developed for achieving the vision
- **2.4 The vision is effectively communicated**
  - 2.4.1 A communication plan is established and carried out
  - 2.4.2 The actions of teams and other key managers set an example of the needed changes
- **2.5 Employees are empowered to act on the vision**
  - 2.5.1 Key policies support the changes
  - 2.5.2 Obstacles to change are removed
  - 2.5.3 Risk-taking and new ideas are encouraged
- **2.6 Short-term wins are planned**
  - 2.6.1 Short-term wins are planned
  - 2.6.2 The successes are communicated
  - 2.6.3 Individual and team efforts are recognized
- **2.7 Progress is consolidated and used to drive more change**
  - 2.7.1 Progress is assessed and communicated
  - 2.7.2 Lessons learned are incorporated into new projects
  - 2.7.3 Teams are in place to ensure the Program continues until the benefits are realized
- **2.8 The change is institutionalized within the corporation**
  - 2.8.1 Organizational polices, structures, and union agreements are amended to support the changes
  - 2.8.2 Training programs are established and delivered to support the changes

3. Adequate project management practices to manage process improvement projects
- **3.1 Processes to plan for the realization of benefits**
  - 3.1.1 Benefits are known
  - 3.1.2 Barriers are identified
  - 3.1.3 Plans are developed
- **3.2 Processes to implement the plan for realizing benefits**
  - 3.2.1 A strong team is put in place to carry out the plan
  - 3.2.2 There are good project management practices
  - 3.2.3 Measuring and reporting standards are developed
- **3.3 Processes to deliver and support the plan for realizing benefits**
  - 3.3.1 Agreement or contract signed on planned work
  - 3.3.2 Existing procedures are assessed and new procedures are agreed to
  - 3.3.3 New procedures are documented
  - 3.3.4 Employees are properly trained
  - 3.3.5 Problem and support management is implemented
  - 3.3.6 Performance measures are established
  - 3.3.7 Sign-off on work completed
- **3.4 Processes to monitor the results achieved**
  - 3.4.1 Prompt reporting of results – outcomes
  - 3.4.2 Prompt reporting of results – outputs
  - 3.4.3 Independent assurance
  - 3.4.4 Assessment of results

Selected resources

Bancroft, N.H., Seip, H., Sprengel, A., (1997). *Implementing SAP R/3*. Greenwich, CT., Manning Publications Co.

Davidson, A. F.F., Gellman, H.S., and Chung, M., (1997) *Riding the tiger*. Toronto, Canada: HarperCollins Publishers Ltd.

Hammer, M., (1996). Beyond reengineering – *How the process centered organization is changing our work and our lives*. New York, New York: HarperCollins Publishers Inc.

Kotter, J.P., (March - April 1995) *Leading change: Why transformation efforts fail*. Harvard Business Review, p.59 – 67.

Kotter, J. P., (1996). *Leading change*. Boston. Mass.: Harvard Business School Press.

Palmer, D., (1999). *Maintenance planning and scheduling handbook*. New York, New York: McGraw-Hill.

Project Management Institute. PMI Standards Committee. (1996). *A guide to the project management body of knowledge*. Pmbok Guide. Upper Darby, Pennsylvania: Project Management Institute.

Strassmann, P.A., (1997) *The squandered computer - Evaluating the business alignment of information technologies*. New Canaan, Connecticut: The Information Economics Press.

Thorp, J. and DMR's Centre for Strategic Leadership, (1998). *The information paradox*. Toronto, Canada: McGraw-Hill Ryerson Limited.

Wireman, T., (1998). *Developing performance indicators for managing maintenance*. New York, New York: Industrial Press, Inc.

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