Industrial Construction Project
Best Practices and Value Improving
Practices
Handbook

GO Productivity - Caitlin Marshall
November 2016
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### Project Planning Best Practices

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Source</th>
<th>Benefit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Master Planning (need to be developed)</td>
<td>JL Thesis</td>
<td>Developing realistic plans that will result in high predictable outcomes</td>
<td>Unknown</td>
</tr>
<tr>
<td>Front End Planning</td>
<td>CII</td>
<td>Measured - High</td>
<td>Measured</td>
</tr>
<tr>
<td>Constructability</td>
<td>CII</td>
<td>4-7% impact cost and schedule</td>
<td>Unknown</td>
</tr>
<tr>
<td>Modularization</td>
<td>CII</td>
<td>Identified but not quantified -High</td>
<td>Unknown</td>
</tr>
<tr>
<td>Workface Planning and Advanced Work Packaging</td>
<td>COAA</td>
<td>Estimated High ~14%</td>
<td>Estimated 0.5-2%</td>
</tr>
<tr>
<td>Project Rework Reduction Tool</td>
<td>COAA</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Leadership Communication</td>
<td>COAA</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Construction Execution Plan</td>
<td>COAA</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Engineering Rework Checklist</td>
<td>COAA</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Stage Gate Review</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Scope Planning</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Work Breakdown Structure</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Project Scheduling</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Estimating</td>
<td>CDC</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Project Management Plan</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Implementation Planning</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Earned Value</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Status Reporting</td>
<td>CDC</td>
<td>Unmeasured, Medium Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Name: <strong>Strategic Master Planning</strong></td>
<td>Source: Jim Lozon's Thesis</td>
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<td>----------------------------------</td>
<td>---------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits:</strong> Developing realistic plans that will result in high predictable outcomes</td>
<td><strong>Costs:</strong> unknown</td>
<td></td>
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</tr>
</tbody>
</table>

**Abstract:**
The BP has not been developed as yet. An abstract for the to be developed BP can be something like: “The Collaborative Execution Planning Best Practice is designed to address the reality of project execution in a multi-projects environment. The Best Practice tackles the root-causes of each challenge found in project organizations and introduces collaboration tools that PMs can use to better engage the project team, suppliers and stakeholders.”

<table>
<thead>
<tr>
<th>Name: <strong>Front End Planning</strong></th>
<th>Source: CII <a href="https://kb.construction-institute.org/Best-Practices/Front-end-Planning/Topics/RT-113">https://kb.construction-institute.org/Best-Practices/Front-end-Planning/Topics/RT-113</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> 2006</td>
</tr>
<tr>
<td><strong>Benefits:</strong> Cost / Quality /Schedule: <strong>High Impact</strong>&lt;br&gt;Measured – inside document&lt;br&gt;Safety: <strong>High Impact</strong></td>
<td><strong>Costs:</strong> Measured – inside document</td>
</tr>
</tbody>
</table>

**Abstract:**
The central premise of the Front End Planning Research Team effort has been that “teams must be working on the right project in a collaborative manner (alignment), and performing the right work (scope definition) during pre-project planning.” (RS113-1, p. 1)

**TOOL 1:** The Project Definition Rating Index has been developed to assist project teams in developing a complete project definition package for industrial projects. A lower PDRI score indicates a more well-defined project scope, and a higher success factor indicates a more successful project. The PDRI can benefit both owner and contractor companies. (RS113-1, pp. 7)

**TOOL 2:** Project Team Alignment is the process of incorporating all of those distinct priorities and requirements into a uniform set of project objectives that meet the business needs for the proposed facility. The research identified these 5 categories that need to be addressed effectively to achieve alignment: (RS113-1, p. 11)

<table>
<thead>
<tr>
<th>Files:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IR113-2 PDRI Project Definition Rating Index – Industrial Projects $308&lt;br&gt;IR113-3 Alignment During Pre-Project Planning: A Key to Project Success $308&lt;br&gt;IR113-1 Pre-Project Planning Tools: PDRI and Alignment $40&lt;br&gt;RR113-12 Team Alignment During Pre-Project Planning of Capital Facilities $195</td>
<td></td>
</tr>
</tbody>
</table>
### Constructability Implementation

**Name:** Constructability Implementation  
**Area of Use:** Project Planning  
**Benefits:**  
- Cost / Quality / Schedule: High Impact  
- 4.3% / 7.5% schedule / better quality  
- Safety: High Impact  
- Ranked Second in Schedule impact and Third in Cost savings impact out of all best practices  

**Source:** CII  

**Abstract:**  
CII defines constructability as “the optimum use of construction knowledge and experience in planning, design, procurement, and field operations to achieve overall project objectives.”  

Companies with formal constructability programs will likely have cost effective construction on their projects due in part to greater teamwork and communications.  
To achieve maximum benefit from the constructability program, it should be introduced early in the project and continued throughout the design and construction phases.  

Commitment to constructability is the responsibility of the entire team; however, the owner is the driving force behind the success of the program. Companies should assess their current constructability program, identify the barriers, eliminate the barriers, and propose methods for overcoming barriers to constructability and evaluate preferable barrier breakers.  

Includes lessons learned BP, maturity of implementing constructability and an implementation tool.

**Files:**  
SP34-1 Constructability Implementation Guide 2006 $257  
SD-82 Project Level Model and Approaches to Implement Constructability $195  

### Modularization Consideration

**Name:** Modularization Consideration  
**Area of Use:** Project Planning  

**Source:** CII  

**Year Released:** 2002
Benefits:
Cost / Quality / Schedule: **High Impact**
Identified but not quantified
Safety: **High Impact**
Identified but not quantified

Costs: not measured

Abstract:
RT171 creates a systematic method and a decision framework to appropriately consider the implementation of prefabrication, preassembly, modularization, and off-site fabrication (PPMOF) practices during the concept and detailed scope phases. A series of questions are provided to screen for modularization options as an execution strategy. An Excel spreadsheet provides context for strategic analysis of PPMOF during scoping. At the end of this process, recommendations are made along with a top ten list of factors favoring PPMOF and a top ten list of barriers favoring stick-built. Finally, guidance is provided for tactical analysis concerning cost comparisons and risk of PPMOF strategies during scoping and detailed design.

Files:
IR171-2 Prefab, Preassembly, Modularization and Offsite Fab: decision framework and tool $205
IR171-1 Prefab, Preassembly, Modularization and Offsite Fab: decision framework $26
Education Materials: Instructor’s Guide $1000, Participant Handbook $500, Classroom Kit $3400

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Name: **Industrial Modularization**

Source: CII
https://kb.construction-institute.org/Best-Practices/Planning-for-Modularization/Topics/RT-283

Area of Use: Project Planning

Year Released: 2014

Benefits:
Cost / Quality / Schedule: **High Impact**
Identified but not quantified
Safety: **High Impact**
Identified but not quantified

Costs: not measured

Abstract:
Modularization entails the large-scale transfer of stick-build construction effort from the jobsite to one or more local or distant fabrication shops/yards in order to exploit one or more strategic advantages. However, the construction industry has been slow to achieve high levels of modularization and has reached a ceiling in terms of the percentage of stick-built work hours being exported offsite. RT283 addressed the question of what changes or adaptations in traditional project work processes are required to create an optimal environment for broader and more effective use of modularization. The research effort led to the development of five distinct solution elements: 1) business case process, 2) execution plan differences, 3) critical success factors, 4) standardization strategy, and 5) modularization maximization enablers.

Files:
IR283-2 Industrial Modularization: Five Solution Elements $171
RS283-1 How to Optimize, How to Maximize $40
| Name: **Workface Planning and Advanced Work Packaging** | Source: COAA  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Use: Project Planning</td>
<td>Year Released: 2013</td>
</tr>
</tbody>
</table>
| Benefits:  
Cost / Quality / Schedule: High Impact ~14%  
Safety: High Impact  
Productivity: High Impact | Costs:  
~0.5% - 2% project  
Contractor-heavy: must build and maintain work packages and reporting on progress  
AWP requires more: software and ppl (1-2%) |
| Abstract:  
Workface planning involves breaking down a large scope of work into 2 week packages of work that have items needed listed out, safety requirements, resources, quality specs, drawings, and all other information needed to conduct the work.  
This best practice provides the use of construction work packaging for planning purposes with regards to the workface. The overall practice of project planning and management is guided by principles and tools in this collection. Here you can find overall path of construction process flows down to individual process flows and job descriptions to implement work packaging and front end planning of a project.  
All instructional documents have been combined here for easier printing, each individual item can be found in the library as supporting documents. This best practice was released in 2013 at the request of the COAA Construction Performance Committee. |

| Files:  
100+ files of Flowcharts  
Templates and examples  
Job descriptions  
Checklists  
Instructional documents  
*Several presentations from past Best Practice Conferences |

| Name: **Project Rework Reduction Tool** | Source: COAA  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Use: Project Planning</td>
<td>Year Released: 2006</td>
</tr>
</tbody>
</table>
| Benefits:  
Cost / Quality / Schedule: Medium Impact  
Estimated at 10%  
Safety: Medium Impact | Costs: Unknown |
| Abstract:  
This tool targets reducing overall project direct cost of redoing work. Supported by research, this tool targets the highest factors causing rework on a project by conducting project assessments at key points during the project. The resulting project rating helps identify areas of weakness that need to be addressed before the problem becomes a reality on the construction site. To support improvements in key weakness... |
areas of the project this tool includes a database of best practices relevant to the specific problems on the project. Supporting documents have been merged together for easier printing, individual items may be found in the library. This best practice was developed in 2006 at the request of the Construction Performance Committee. Year: 2006 Version: v1 File size: 6 MB

<table>
<thead>
<tr>
<th>Name: Leadership Communication Checklist</th>
<th>Source: COAA [<a href="https://www.coaa.ab.ca/library/project-rework-reduction-tool/">https://www.coaa.ab.ca/library/project-rework-reduction-tool/</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Use: Project Planning</td>
<td>Year Released: 2006</td>
</tr>
<tr>
<td>Benefits:</td>
<td>Costs: Unknown</td>
</tr>
<tr>
<td>Cost / Quality /Schedule:</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>unmeasured</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>Safety:</td>
<td></td>
</tr>
<tr>
<td>unmeasured</td>
<td></td>
</tr>
</tbody>
</table>

Abstract:
This tool provides a thorough and comprehensive checklist targeting key areas of project management around roles, communication and change management in order to prevent project rework or failure. Released in 2006. Year: 2006 Version: v1 File size: < 1MB

Files:
One file, connected with Project Rework Reduction Tool

<table>
<thead>
<tr>
<th>Name: Construction Execution Plan Checklist</th>
<th>Source: COAA [<a href="https://www.coaa.ab.ca/library/project-rework-reduction-tool/">https://www.coaa.ab.ca/library/project-rework-reduction-tool/</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Use: Project Planning</td>
<td>Year Released: 2006</td>
</tr>
<tr>
<td>Benefits:</td>
<td>Costs: Unknown</td>
</tr>
<tr>
<td>Cost / Quality /Schedule:</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>unmeasured</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>Safety:</td>
<td></td>
</tr>
<tr>
<td>unmeasured</td>
<td></td>
</tr>
</tbody>
</table>

Abstract:
This tool is part of the Project Rework Reduction model, is simply an excel document with a thorough checklist of items to have in an execution plan.

Files:
Excel file
### Engineering and Rework Checklist

**Name:** Engineering and Rework Checklist  
**Source:** COAA  
https://www.coaa.ab.ca/library/project-rework-reduction-tool/  

<table>
<thead>
<tr>
<th>Area of Use: Project Planning</th>
<th>Year Released: 2006</th>
</tr>
</thead>
</table>
| Benefits:  
Cost / Quality /Schedule: | Medium Impact  
Saftey: | Medium Impact |
| Costs: Unknown |

**Abstract:**  
This tool is part of the Project Rework Reduction model and tool provides a thorough and comprehensive checklist by engineering discipline for guiding quality of engineering and prevention of rework. Released in 2006.  
Year: 2006  
Version: v1  
File size: < 1MB

**Files:** Excel file

### Stage Gate Review

**Name:** Stage Gate Review  
**Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/  

<table>
<thead>
<tr>
<th>Area of Use: Project Planning</th>
<th>Year Released: unknown</th>
</tr>
</thead>
</table>
| Benefits:  
Cost / Quality /Schedule: | Medium Impact  
Unmeasured  
Saftey: | Medium Impact |
| Costs: Unknown |

**Abstract:**  
The Stage Gate Review is the evaluation process by which a project is authorized to progress from one life cycle phase to the next, giving the project an opportunity to be checked against the original purpose and current environment viability. It is a collaborative practice in which all participants play an important role in assessment the project’s overall health and quality of execution – informing if the project is ready to move onto the next phase.

**Files:**  
Stage Gate Review template, assessment template, examples of -Concept, Plan, Initiate- and job aid

### Scope Planning

**Name:** Scope Planning  
**Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/  

<table>
<thead>
<tr>
<th>Area of Use: Project Planning</th>
<th>Year Released: 2007</th>
</tr>
</thead>
</table>
| Benefits:  
Cost / Quality /Schedule: | Medium Impact  
Unmeasured  
Saftey: | Medium Impact |
| Costs: Unknown |

**Abstract:**
### Abstract:
This best practice document outlines the standard practice of defining and scope: what is in scope, out of scope, stakeholders, project justification, project objectives. This document also includes a few recommendations around scope control. Attached to the WBS best practice.

### Files:
- Stakeholder Analysis template, and the related WBS documents

<table>
<thead>
<tr>
<th>Name</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work Breakdown Structure</strong></td>
<td>CDC <a href="http://www2.cdc.gov/cdcup/library/practices_guides/">Link</a></td>
</tr>
</tbody>
</table>

#### Area of Use: Project Planning
#### Year Released: 2006

#### Benefits:
- Cost / Quality /Schedule: **Medium Impact**
- Safety: **Medium Impact**

#### Costs: Unknown

#### Abstract:
Work Breakdown Structure (WBS) is a practice that organizes and defines the entire scope of a project in a way that relates work elements to each other and to the project’s goals. The WBS defines the ‘what’ but not the ‘who’ or the ‘when’. This activity is done to understand the full scope includes Project Management, Project Risk, HR, Performance Management, Financial Management, Budgeting/Funding, Acquisition, Development plans etc.

#### Files:
- WBS Guide, Template, Dictionary template, Checklist

<table>
<thead>
<tr>
<th>Name</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Scheduling</strong></td>
<td>CDC <a href="http://www2.cdc.gov/cdcup/library/practices_guides/">Link</a></td>
</tr>
</tbody>
</table>

#### Area of Use: Project Planning
#### Year Released: 2006

#### Benefits:
- Cost / Quality /Schedule: **Medium Impact**
- Safety: **Medium Impact**

#### Costs: Unknown

#### Abstract:
After the Scope is defined and broken down into the WBS, then a schedule is applied which answers the ‘who’ and ‘when’ for each work element. This best practice also includes some recommendations around reviewing and maintaining the schedule.

#### Files:
- Microsoft Project Practices Guide
- Project Schedule Template and Checklist
| Name: **Estimating** | Source: CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> 2006</td>
</tr>
</tbody>
</table>
| **Benefits:**  
Cost / Quality / Schedule: **High Impact**  
Safety: **High Impact** | **Costs:** Unknown |
| **Abstract:**  
This document provides a good summary of the best practice around estimating project costs with some useful recommendations. |  |
| **Files:**  
Project Estimating Practices Guide  
Project Estimating Template  
Project Estimating Checklist |  |

| Name: **Project Management Plan** | Source: CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> 2006</td>
</tr>
</tbody>
</table>
| **Benefits:**  
Not measured | **Costs:** unknown |
| **Abstract:**  
This document provides a summary of the Project Management Plan best practice including key elements of a plan, what activities and timeline needed to use this best practice and key behaviours that influence it. Nov 30 2006 |  |
| **Files:**  
Project Management Plan Template and Checklist |  |

| Name: **Implementation Planning** | Source: CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
<table>
<thead>
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</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Implementation</td>
<td><strong>Year Released:</strong> 2007</td>
</tr>
</tbody>
</table>
| **Benefits:**  
Not measured | **Costs:** unknown |
| **Abstract:**  
The purpose of this document is to provide guidance on the practice of Implementation Planning and to describe the practice overview, requirements, best practices, activities, and key terms related to these requirements. This document is developed with a more general field of application and has familiar concepts such as Project Charter and risk management etc. June 30th 2007 |  |
| **Files:**  
Main pdf file only |  |
| Name: **Earned Value** | **Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> 2006</td>
</tr>
</tbody>
</table>
| **Benefits:**  
Cost / Quality /Schedule: High Impact  
Safety: High Impact | **Costs:** Unknown |
| **Abstract:**  
This document provides a good summary of the best practice around using Earned Value as a measurement and basis for management of a project. Earned Value provides a measurement that allows the project team to readily compare how much work has actually been competed against the amount of work that was planned to be accomplished. The practice of monitoring, reviewing and reacting to fluctuation sin EV is known as Earned Value Management. |
| **Files:**  
CDC Earned Value Management Spreadsheet |

| Name: **Status Reporting** | **Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Area of Use:</strong> Project Planning</td>
<td><strong>Year Released:</strong> 2006</td>
</tr>
</tbody>
</table>
| **Benefits:**  
Cost / Quality /Schedule: Medium Impact  
Safety: Medium Impact | **Costs:** Unknown |
| **Abstract:**  
This document provides a good summary of the best practice around project management activities of status updating with some useful recommendations. |
| **Files:**  
Project Status Reporting Template, instructions and checklist |
Risk Management Best Practices

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Source</th>
<th>Benefit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Risk Assessment</td>
<td>CII</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Probabilistic Risk Assessment</td>
<td>CII</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Risk Management</td>
<td>CDC</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Name: Project Risk Assessment**

**Source:** CII  
https://kb.construction-institute.org/Best-Practices/Project-Risk-Assessment/Topics/RT-181

**Area of Use:** Risk Management  
**Year Released:** 2014

**Benefits:**  
Cost / Quality /Schedule: High Impact  
Safety: High Impact

**Costs:** Unknown

**Abstract:**  
RT181 developed a structured risk identification and assessment process known as the International Project Risk Assessment (IPRA). The IPRA has been tailored to address the specific issues typically encountered by those working in an international setting. The tool focuses on the international aspects and does not address issues considered basic to the project. As outlined in this summary, research has shown that the tools and techniques developed by the project team can assist in improving the overall success of international capital projects.

**Files:**  
SP181-3 Adding Value through a Practical and Proactive Risk Management Process $40  
IR181-2 Integrated Project Risk Assessment IPRA $257  
Risk Assessment on International Projects: a management approach $40

**Name: Probabilistic Risk Assessment**

**Source:** CII  
https://kb.construction-institute.org/Best-Practices/Project-Risk-Assessment/Topics/RT-280

**Area of Use:** Risk Management  
**Year Released:** 2013

**Benefits:**  
Cost / Quality /Schedule: High Impact  
ROI 1:10  
Safety: High Impact

**Costs:** Unknown

**Abstract:**  
This material is a summary and examination of a CII research team's findings resulting from a survey of 104 contractor and owner organizations worldwide. The topic provides an overview of when, why, and how probabilistic approaches are used, and documents the kinds of successes organizations were achieving through probabilistic risk management. In addition, the research team examines the benefits
as well as barriers of implementing probabilistic controls at three levels of risk analysis: identification, deterministic, and probabilistic.

The research pool included Owners and Contractors and varied among markets include horizontal, vertical, and process types of projects.

Additional findings allowed the team to holistically categorize "risk triggers" into four groups: Project Cost, Delivery Method, Novelty, and Project Location(s).

Files:
IR280-2 Applying Probabilistic Risk Management in Design and Construction Projects $308
RS280-1 Probabilistic Risk Management in Design and Construction Projects $40

<table>
<thead>
<tr>
<th>Name: Risk Management</th>
<th>Source: CDC <a href="http://www2.cdc.gov/cdcup/library/practices_guides/">http://www2.cdc.gov/cdcup/library/practices_guides/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Use: Risk Management</td>
<td>Year Released: 2006</td>
</tr>
<tr>
<td>Benefits:</td>
<td>Costs: Unknown</td>
</tr>
<tr>
<td>Cost / Quality /Schedule: <strong>High Impact</strong></td>
<td></td>
</tr>
<tr>
<td>Safety: <strong>High Impact</strong></td>
<td></td>
</tr>
<tr>
<td>Abstract:</td>
<td></td>
</tr>
<tr>
<td>This document provides a good summary of the best practice around risk management including definition, process elements, templates and parts of a Risk Management Plan.</td>
<td></td>
</tr>
</tbody>
</table>

Files:
Risk Management Plan Template
Risk Log Template
Risk Management Checklist
## Collaboration Best Practices

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Source</th>
<th>Benefit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnering</td>
<td>CII</td>
<td>10% Cost, 50% Quality, 20% Schedule</td>
<td>Unknown</td>
</tr>
<tr>
<td>Alignment</td>
<td>CII</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Team Communication</td>
<td>CII</td>
<td>Proven Better Communication has impact</td>
<td>Unknown</td>
</tr>
<tr>
<td>Team Building</td>
<td>CII</td>
<td>Measured, inside report</td>
<td>Measured, inside report</td>
</tr>
<tr>
<td>Dispute Resolution</td>
<td>CII</td>
<td>Avoiding costly claims</td>
<td>unknown, setting up boards</td>
</tr>
<tr>
<td>Contractor Prequal.</td>
<td>COAA</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Communication Management</td>
<td>CDC</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
<tr>
<td>Issue Management</td>
<td>CDC</td>
<td>Unmeasured, High Impact?</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

### Name: Partnering

| Source: CII | https://kb.construction-institute.org/Best-Practices/Partnering/Topics/RT-102 |

### Area of Use: Collaboration

### Year Released: 1996

#### Benefits:
- **High Impact**
  - **Cost / Quality /Schedule:**
    - **Cost:** 10% reduction
    - **Quality:** 50% rework, 80% less reorders
    - **Schedule:** 20% reduction
  - **Safety:**
    - **High Impact**
    - 48k hours -> 3million without lost time accident
    - Other: 30% job satisfaction improvement

### Costs: Unknown

#### Abstract:
Partnering’s bottom line: a construction industry process that strengthens both projects and partners, tightens schedules, safeguards quality, and enhances each partner’s competitive edge. This publication presents five implementation phases for partnering, each having objectives and key success factors. The team also identified benchmarks that verify the benefits achievable through partnering in the areas of cost, schedule, safety, and quality.

#### Files:
- RS102-1 Model for Partnering Excellence $40
- IR102-2 Partnering Toolkit $308
- RR102-11 The Partnering Process – It’s Benefits, Implementation and Measurement – N/A
### Name: Alignment

**Source:** CII  
https://kb.construction-institute.org/Best-Practices/Partnering/Topics/RT-310

<table>
<thead>
<tr>
<th>Area of Use: Collaboration</th>
<th>Year Released: 2015</th>
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</thead>
<tbody>
<tr>
<td>Benefits:</td>
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</tr>
<tr>
<td>Cost / Quality /Schedule:</td>
<td>High Impact</td>
</tr>
<tr>
<td>Safety:</td>
<td>High Impact</td>
</tr>
</tbody>
</table>

**Abstract:**  
Given that projects are now more complex than ever, project teams must understand that “alignment doesn’t just happen,” it takes discipline to achieve and maintain. For construction success, the industry must revisit and reinvest in its provisions for alignment. Overall the research recommends that organizations review their internal provisions and procedures for alignment.

Effective alignment, starting in front end planning and continuing through the project, is key to successful execution during construction and startup. RT310 found that effective alignment practices can support more predictable project outcomes and that they complement successful execution of project disciplines such as Advanced Work Packaging and modularization.

Key findings around Project Execution Plan, Supplier Engagement, Alignment Procedures, Automation and Implementation Tool.

**Files:**
- RS310-1 Effective Project Alignment for Construction Success $40
- RS310-2 Effective Project Alignment for Construction Success (including implementation tool) $257

---

### Name: Team Communication

**Source:** CII  
https://kb.construction-institute.org/Best-Practices/Partnering/Topics/RT-105

<table>
<thead>
<tr>
<th>Area of Use: Collaboration</th>
<th>Year Released: 1996, reviewed in 2011</th>
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<tbody>
<tr>
<td>Benefits:</td>
<td>Costs: Unknown</td>
</tr>
<tr>
<td>Cost / Quality /Schedule:</td>
<td>High Impact</td>
</tr>
<tr>
<td>“Project Success” Directly Correlated to Communications Effectiveness</td>
<td></td>
</tr>
<tr>
<td>Safety:</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>unmeasured</td>
<td></td>
</tr>
</tbody>
</table>

**Abstract:**  
In 1996, the research team for RT105 Project Team Communications, investigated ways of measuring the effectiveness of project communications and evaluated the relationship between communication effectiveness and project success. The team, on the basis of its findings, developed Implementation Resource 105-2, Compass: Communications Project Assessment Tool. The tool was designed to enable project
managers to assess project team communications during the execution phases of an EPC project. The tool targets three project groups: project management, engineering, and construction.

Files:
RS105-1 Compass: An Assessment Tool for Improving Project Team Communications $40
RR105-11 As Assessment tool for Improving Team Communications $195 (research)
IR105-2 Compass: Communications Project Assessment Tool $308 (tool)

| Name: Team Building | Source: CII
https://kb.construction-institute.org/Best-Practices/Team-Building/Topics/RT-037 |
<table>
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<th></th>
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<tr>
<td>Benefits:</td>
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<td>Cost / Quality /Schedule: High Impact</td>
<td>Details inside research report</td>
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<td>Safety: Low Impact</td>
<td>Safety: Low Impact</td>
</tr>
<tr>
<td>unmeasured</td>
<td>unmeasured</td>
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</tbody>
</table>

Abstract:
An effective team building process can bring significant, not simply marginal, improvements in project execution and results. Use of team building represents a “step change” in the way projects are managed and in the ultimate project performance.

Key Point – The research team did not focus on teams in general, but instead on the team building process. What is the team building process? It is a process that brings together a diverse group of individuals and seeks to resolve differences, remove roadblocks, and proactively build and develop the group into an aligned, focused, and motivated work team that strives for a common mission and for shared goals, objectives, and priorities.

Files:
RS37-1 Team Building: Improving Project Performance $40
SD-87 Team Building: Implications for Design/Construction Process $195
VC-605 Maya Project: Success through Team Building $258 DVD cost-benefit analysis
## Name: Dispute Resolution

**Source:** CII  
https://kb.construction-institute.org/Best-Practices/Disputes-Prevention-Resolution/Topics/RT-023

<table>
<thead>
<tr>
<th>Area of Use:</th>
<th>Collaboration</th>
<th>Year Released:</th>
<th>1996, reviewed 2006</th>
</tr>
</thead>
</table>

**Benefits:**  
- Cost / Quality /Schedule: Medium Impact  
- Safety: Medium Impact  
- Productivity: Medium Impact

**Costs:** unknown, setting up boards, lawyers

### Abstract:
In the construction industry, disputes are not uncommon. The CII Dispute Prevention and Resolution Research team was formed to review the causes and administrative costs of such claims, recommend procedures for avoiding claims, and investigate alternatives for early, equitable settlement of claims. They further set out to understand the nature of such disputes as well as the steps required to prevent and resolve disputes in the contract administration process. Additional focus was applied to investigating alternative dispute resolution and techniques that prevent disputes from occurring or aid in timely on-site resolution.

Through research, surveys, and a pilot Dispute Review Board (DRB), RT 23 found that there are five main conclusions:

1. The industry must change.  
2. The change requires three steps.  
3. DRBs work.  
4. Project personnel must remain directly involved.  
5. Owners hold the key to implementing the system.

### Files:
- RS23-1 Disputes Prevention and Resolution Techniques in Construction Industry $40  
- IR23-2 Prevention and Resolution of Disputes using dispute review boards $257  
- SP23-3 Disputes Potential Index, tool (obsolete)  
- SD101 DPI – Dispute Potential Index: a study (obsolete)  
- SD95: Dispute Prevention and Resolution reference $195
### Name: Contractor Pre-qualification

**Source:** COAA  
https://www.coaa.ab.ca/library/contractor-prequalification/

<table>
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<th>Area of Use: Collaboration</th>
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<tr>
<td>Cost / Quality /Schedule:</td>
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<tr>
<td>unmeasured</td>
<td></td>
</tr>
<tr>
<td>Safety:</td>
<td>High Impact</td>
</tr>
<tr>
<td>unmeasured</td>
<td></td>
</tr>
</tbody>
</table>

**Abstract:**
COAA Contractor Prequalification Guideline has been prepared in 2013 as a guide for owners and contractors to facilitate prequalification of contractors and subcontractors for industrial construction in Alberta. Its purpose is to ensure that owners have access to contractors with the capabilities, capacity and expertise to perform required services. Implementing the best practices provided in this document will improve the contractor selection process, reduce the duration and effort to complete prequalification, and reduce costs for owners and contractors. This best practice was developed at the request of the COAA Contracting Committee.  
Year: 2013  
Version: v1  
File size: < 1MB

**Files:**
- One file PDF best practice
- Some presentations when it was presented 2011, 2013

### Name: Communication Management

**Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/

<table>
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<th>Area of Use: Collaboration</th>
<th>Year Released: 2006</th>
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<tbody>
<tr>
<td>Benefits:</td>
<td>Costs: minimal</td>
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<tr>
<td>Cost / Quality /Schedule:</td>
<td>Medium Impact</td>
</tr>
<tr>
<td>Low Impact?</td>
<td>Potentially added meetings, but likely much better quality meetings than without the BP</td>
</tr>
<tr>
<td>Safety:</td>
<td>Low Impact?</td>
</tr>
<tr>
<td>Productivity:</td>
<td>Medium Impact</td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

**Abstract:**
This best practice provides key elements and recommendations to ensure effective communication throughout project management and delivery. This best practice references PMI body of knowledge around a Communication Management Plan with the key elements of stakeholder identification and analysis, communication matrix, and project meetings/reporting. Nov 30 2006

**Files:**
- 1 summary file, links to other resources
- Communication Management plan Template
- Communication Management Plan Checklist
- Stakeholder Analysis Log Template
## Issue Management

**Name:** Issue Management  
**Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/

<table>
<thead>
<tr>
<th>Area of Use: Collaboration</th>
<th>Year Released: 2006</th>
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</table>

**Benefits:**  
- Cost / Quality /Schedule: Medium Impact  
- Safety: Medium Impact  
- Productivity: Medium Impact

**Costs:** minimal  
Potentially added meetings, but likely much better quality meetings than without the BP

**Abstract:**  
This best practice is a sister practice to Risk Management and involves identifying and controlling issues as they are raised on a project. Nov 30 2006

**Files:**  
1 summary file, links to other resources  
Issue Log  
checklist
Skills and Competencies Best Practices

<table>
<thead>
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<th>Best Practice</th>
<th>Source</th>
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<td>Unknown</td>
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<td>Apprenticeship</td>
<td>COAA</td>
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<td>Apprentice Mentoring</td>
<td>COAA</td>
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<td>She Works</td>
<td>COAA</td>
<td>Unknown</td>
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<td>Foreman Skills Development Tool</td>
<td>COAA</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Absenteeism Tracking Tool</td>
<td>COAA</td>
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</table>

**Name:** Competency Verification  
**Source:** COAA  
https://www.coaa.ab.ca/library/worker-competency-verification/

**Area of Use:** Skills and Competencies  
**Year Released:** 2011

**Benefits:** Unknown -below  
**Costs:** unknown

**Abstract:**
This best practice provides methods to help employers verify that workers employed on a work site meet legislated requirements and construction industry expectations around competency. Includes three levels: Certifications, Training, and Experience. Includes tools for surveying the employee’s experience, supervisor skills, electrical worker examples.

**Files:**
PDF report includes the following templates:  
• CV00A Worker Limitation Experience  
• CV00B Work History / Experience  
• CV00C Supervisor Skills Assessment  
• CV00D Electrical Worker Tool History Page | 4  
• CV00E Electrical Worker Experience History  
• CV001 Aerial Work Platform - Competency Verification  
• CV002 Harness and Lanyard - Competency Verification  
• CV003 Respiratory Protective Equipment - Competency Verification  
• CV004 Hand Signals - Competency Verification  
• CV005 Powder Actuated Tool - Competency Verification  
• CV006 Chop Saw - Competency Verification  
• CV007 Chain/Lever Hoists - Competency Verification  
• CV008 Grinder, Zip Cut - Competency Verification  
• CV009 Ladder Use - Competency Verification  
• CV010 Boomtruck - Competency Verification
<table>
<thead>
<tr>
<th>Name: Apprenticeship</th>
<th>Source: COAA <a href="https://www.coaa.ab.ca/library/apprenticeship/">https://www.coaa.ab.ca/library/apprenticeship/</a></th>
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<td>Year Released: 2005</td>
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<td>Benefits: Unknown</td>
<td>Costs: unknown</td>
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</table>

**Abstract:**
The best practices outlined in this booklet are based on key learning experiences from two mentoring programs and a study on the effectiveness of apprentices on large industrial projects in Alberta. This booklet aims to enhance the on-the-job portion of apprenticeship learning so that both apprentices and journeymen can have positive learning experiences. In 2005 this best practice was developed at the request of the COAA Workforce Development Committee.

**Files:**
- PDF report
- Presentation from 2014 workshop

<table>
<thead>
<tr>
<th>Name: Apprentice Mentoring</th>
<th>Source: COAA <a href="https://www.coaa.ab.ca/library/apprentice-mentoring/">https://www.coaa.ab.ca/library/apprentice-mentoring/</a></th>
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<td>Area of Use: Skills and Competencies</td>
<td>Year Released: 2007</td>
</tr>
<tr>
<td>Benefits: Unknown -below</td>
<td>Costs: unknown</td>
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</table>

**Abstract:**
The Apprentice Mentoring Program (AMP) was developed by a group of industry stakeholders as a best practice of the Construction Owners Association of Alberta (COAA). It is provided to companies free of charge, and is intended to help improve the skills and knowledge of apprentices on a work site so they are more able to effectively contribute to a project’s success. The key benefits and potential cost savings associated with this program will arise from improvements in areas such as safety, teamwork, quantity and quality of work, attendance and turnover, scheduling, reduced rework, and usage of tools, equipment and materials. This best practice was developed in 2007 at the request of the COAA Workforce Development Committee.

**Files:**
- PDF report

<table>
<thead>
<tr>
<th>Name: Essential Skills</th>
<th>Source: COAA <a href="https://www.coaa.ab.ca/library/essential-skills-training/">https://www.coaa.ab.ca/library/essential-skills-training/</a></th>
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<td>Area of Use: Skills and Competencies</td>
<td>Year Released: Unknown</td>
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<tr>
<td>Benefits:</td>
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</table>
### Abstract:
This summary document describes essential skills and a network of training providers called CINESTRA to implement an essential skills program within a company. The essential skills are reading, writing, math, document use, oral communication and ESL. Year: NOYR
Version: v1 File size: < 1MB

**Files:**
- PDF report

### Name: She Works
**Source:** COAA  
https://www.coaa.ab.ca/library/she-works/

**Area of Use:** Skills and Competencies  
**Year Released:** 2012

**Benefits:**  
Unknown -below

**Costs:** unknown

**Abstract:**  
This collection of best practices provides guides to recruitment and retention of tradeswomen in response to the general increase in shortage of skilled trades people. These best practices include pre-trades training programs, interviewing, workplace respect, communication styles and She Works training for supervisors or HR staff. The She Works training is provided by Women Building Futures and there are other references and resources available in this document. This best practice was prepared by the Women in Construction sub-committee requested by the Workforce Development committee in 2012. Year: 2012  
Version: v1  
File size: 3 MB

**Files:**
- PDF report

### Name: Foreman Skills Development Tool
**Source:** COAA UoA  
https://www.coaa.ab.ca/library/foremen-skills-development-tool/

**Area of Use:** Skills and Competencies  
**Year Released:** 2008

**Benefits:**  
Unknown -below

**Costs:** unknown

**Abstract:**  
This best practice provides methods to measure a foreman's skill level in six key areas of responsibility. The Foreman Skills Development Tool consists of three questionnaires for self-assessment, peer review and supervisor review and also incorporates project performance data in order to provide baselines and support to a foreman training program. This tool was developed by University of Alberta Hole School of Construction Engineering at the request of COAA's Workforce Development Committee in 2008. Year: NOYR  
Version: v1  
File size: 0

**Files:**
- PDF report
- Workshop presentations
### Absenteeism Tracking Tool

| **Name:** Absenteeism Tracking Tool | **Source:** COAA / UoA  
https://www.coaa.ab.ca/library/absenteeism-tracking-tool-summary/ |
<table>
<thead>
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<tbody>
<tr>
<td><strong>Area of Use:</strong> Skills and Competencies</td>
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</tr>
<tr>
<td><strong>Benefits:</strong> Unknown -below</td>
<td><strong>Costs:</strong> unknown</td>
</tr>
</tbody>
</table>

**Abstract:**
This best practice provides methods to track absenteeism, a tool developed by Aminah at the University of Alberta.

**Files:**
- PDF report
- Workshop presentations
# Value Improvement Practices

<table>
<thead>
<tr>
<th>Value Improvement Practice</th>
<th>Source</th>
<th>Benefit</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Optimizing Engineering Value</td>
<td>CII</td>
<td>Targeting 80% cost growths due to design deviations</td>
<td>Varies depending on strategy</td>
</tr>
<tr>
<td>Constructability Reviews</td>
<td>CII</td>
<td>4.3% project cost, 7.3% schedule</td>
<td>10% of savings</td>
</tr>
<tr>
<td>Design for Maintainability</td>
<td>CII</td>
<td>Wide-ranging benefits</td>
<td>Unknown</td>
</tr>
<tr>
<td>VIPS</td>
<td>IPA</td>
<td>Unmeasured, high impact</td>
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**Name: Optimizing Engineering Value**

**Source:** CII RT-245  
https://kb.construction-institute.org/Knowledge-Areas/Design-Planning-Optimization/Topics/RT-245

**Area of Use:** Front End Loading 2 (Design basis memorandum)  
**Year Released:** 2015

**Benefits:** Cost reduction 80% of cost growth targeted  
**Costs:** Highly varying depending on strategies implemented

**Abstract:**

Sixty-four engineering strategies were identified and defined by Research Team 245, in collaboration with the strategies previously identified by Research Team 233. Sixteen are considered fundamental and should be implemented on most, if not all, projects.

It is important that the engineering strategies selected be properly aligned with the Owner’s relative prioritization of project objectives. A complete tabular presentation of objectives supported by each strategy is presented in Appendix B of the Research Report.

This best practice also comes with a selection tool to help projects identify which strategies are best suited to their situations.

**Files:**

IR245-2 Maximizing engineering value and design effectiveness tool $205  
IR245-3 Evaluation tool $205  
RS245-1 research summary $26.30

**Name: Constructability Reviews – Implementation Support**

**Source:** CII RT-034  
https://kb.construction-institute.org/Knowledge-Areas/Design-Planning-Optimization/Topics/RT-034

**Area of Use:** Front End Loading 2 (Design basis memorandum)  
**Year Released:** 2014

**Benefits:** Cost reduction 4.3%  
Schedule 7.5%  
**Costs:** 10 to 1 return (10% of savings)
### Abstract:
This roadmap presents the recommended comprehensive approach to implementing constructability by identifying 20 steps within these six milestones:

- Commit to implementing constructability – 4 steps
- Establish corporate constructability program – 3 steps
- Obtain constructability capabilities – 4 steps
- Plan constructability implementation – 4 steps
- Implement constructability – 3 steps
- Update corporate program – 2 steps

### Files:
- SP31-1 Implementation guide $257
- WS34-01: 2 DVD set overview concepts, tools, roadmap $300
- SD-82 project level implementation plan $195
- EM-11 Instructors guide $729, Participant handbook $350

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Area of Use: Front End Loading 2 (Design basis memorandum)</td>
<td>Year Released: 2002</td>
</tr>
<tr>
<td>Benefits: Cost reduction 4.3% Schedule 7.5% Improved quality and safety, minimizes rework</td>
<td>Costs: 10 to 1 return (10% of savings)</td>
</tr>
</tbody>
</table>

### Abstract:
Design for Maintainability is the first step of an effective maintenance program, linking maintenance goals to the design process. If adequate measures for cost-effective maintainability are not integrated into the design and construction phases of a project, the risk increases that 1) reliability will be adversely impacted and 2) total life cycle costs will increase significantly. Appropriate levels of maintainability seldom occur by chance. Front end planning, setting objectives, disciplined design implementation, and feedback from prior projects are all required. It is vital to identify critical maintainability and reliability issues and integrate them into facility project designs to achieve long-term facility owning and operating benefits.

### Files:
- RS142-1 Research summary $26.30
- RS142-2 Guidebook $171.27
- EM-11 Instructors guide $800, Participant handbook $350, classroom kit $2,289
### Name: Value Improving Practices

<table>
<thead>
<tr>
<th>Source:</th>
<th>IPA / Team Focus Group website <a href="http://www.teamfocus.org/VIP.html">http://www.teamfocus.org/VIP.html</a></th>
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<tbody>
<tr>
<td><strong>Area of Use:</strong></td>
<td>Front End Loading 2 (Design basis memorandum)</td>
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<tr>
<td><strong>Year Released:</strong></td>
<td>Unknown, prior to 2008</td>
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<tr>
<td><strong>Benefits:</strong></td>
<td>unmeasured, high impact</td>
</tr>
<tr>
<td><strong>Costs:</strong></td>
<td>unknown</td>
</tr>
</tbody>
</table>

**Abstract:** These VIPs can be implemented separately, and do not come as a complete package. The project team should select the most appropriate ones for the specific project and implement them on the project.

A. **Class of Facility Quality:** Definition of the best value facility classifications to meet the Business Plan requirements in terms of specific aspects.

B. **Technology Selection:** Identification and evaluation of the technology most appropriate to meet the defined business need.

C. **Process Simplification:** Reduction of unnecessary investment and operating processing costs.

D. **Design to Capacity:** Avoidance of over-sizing components and systems to meet the defined business need.

E. **Design to Cost:** Controls Cost throughout the design process by defining not-to-exceed cost targets for each system or sub-system of the project or product.

F. **Waste Minimization:** Reduction of waste at source and re-use of waste for cost-effectiveness.

G. Customized Standards / Specifications / Practices: Customizing of standards, specifications and practices that are appropriate to the application and not excessive to the defined needs of the specific facility.

H. **Energy Optimization:** Maximization of total return on investment by judicious selection and use of plant utilities and equipment.

I. **Facility Optimization:** Reduction in overall return in investment and operating costs by combining or making unnecessary one or more chemical or physical processing steps.

J. **Constructability:** Analysis of a design by experienced construction personnel to reduce costs and save time during construction.

K. **Value Engineering:** Identification of alternatives for meeting functionality and quality requirements at the least life-cycle cost.

L. **Strategic Master Planning:** Needs identification and alignment of organization and long range infrastructure development.

M. **Life Cycle Value Impact Assessment:** In conjunction with external stakeholders, a triple bottom line (social, environmental and financial) approach to determining most appropriate solution for the total life cycle.

N. **Systems Optimization:** reviews to optimize an in-service process or facility.

O. **Reliability Improvement:** Provide an effective way to cost justify maintenance activities, decrease equipment downtime and identify solutions with a high return.

P. **Risk Assessment & Management:** Risk-based decision making and management of risks.

Q. **Supply Chain Optimization:** Integration of the entire supply chain (e.g. suppliers and installers) for full potential in terms of optimizing cost, schedule and quality.

R. **Partnering:** Trust-based process that focuses owner and service provider(s) on creative cooperation and avoidance of confrontation for mutual financial benefit.
5. **Performance Criteria & Measures**: Performance Criteria and Measures allow stakeholders to explicitly model required performance (e.g. functionality, schedule, various impacts, etc.) for a specific situation and use the model to evaluate alternate solutions, independent of cost.

**Files**: None – must contact consultant

### Change Management Best Practices

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Source</th>
<th>Benefit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Change Management</td>
<td>CII</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Benchmarking Best Practices</td>
<td>CII</td>
<td>Measures all BP’s</td>
<td>Measures all BP’s</td>
</tr>
<tr>
<td>Project Change Management</td>
<td>CDC</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Implementation Planning</td>
<td>CDC</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Lessons Learned</td>
<td>CDC</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

### Project Change Management

**Name**: Project Change Management  
**Source**: CII  
https://kb.construction-institute.org/Knowledge-Areas/Project-Program-Management/Topics/RT-043  
**Area of Use**: Implementation  
**Year Released**: 1995 / 2000  
**Benefits**: The Research Team decided that significant savings in total installed costs of construction projects are achievable by improving management of changes. Owners and contractors can profit from increased efficiency. Schedules can be made more reliable, and end-user satisfaction can be enhanced.  
**Costs**: unknown  
**Abstract**: From an analysis of the data, the team concluded that projects cannot endure numerous changes that amount to a significant proportion of the original scope without suffering a significant decline in overall cost performance. This conclusion is especially evident in labor productivity, both in engineering and construction. By analyzing and predicting the productivity impacts of a change, especially when considering the specific crafts affected over short periods of time (e.g., months), the project team can make better decisions about how to implement a change most efficiently. Also, it is clear that the later a change is implemented, especially near project completion, the less ability the project team has to efficiently implement the change and to recover schedule losses.  
**Files**:  
RS43-2 Quantitative Effects of Project Change $40  
SP43-2 Project Change Management $257  
*training materials on Scope Control and Change Management $549 + $379 + $2,399
### Benchmarking on use of Best Practices

**Name:** Benchmarking on use of Best Practices  
**Source:** CII  

<table>
<thead>
<tr>
<th>Area of Use: Implementation</th>
<th>Year Released: 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits: Measured!</td>
<td>Costs: Measured!</td>
</tr>
</tbody>
</table>

**Abstract:**
This report shows cost/benefit analysis for all the best practices from CII, in-depth proof of impact on project performance from implementing best practices and includes some measurements on culture.

![Diagram](image)

**Files:**  
BM2010-4 CII Value of best Practices Report $123  
BM2003-4 Benchmarking and Metrics Value of Best Practices Report (unavailable)  
PAC2016-4 CII Value of Best Practices Report (unavailable)

### Project Change Management

**Name:** Project Change Management  
**Source:** CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/

<table>
<thead>
<tr>
<th>Area of Use: Implementation</th>
<th>Year Released: 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits:</td>
<td>Costs: unknown</td>
</tr>
<tr>
<td>Abstract:</td>
<td>This best practice references PMI change management system as a collection of formal procedures that define how project deliverables and documentation will be controlled, changes and approved. This is more along the lines of Document Control, or Dispute Resolution, or Request for Information or Change Request management. November 30th 2006</td>
</tr>
</tbody>
</table>
| Files: | Change Management Plan Template  
Change Management Log to record and manage change  
Checklist for effective Change Management  
Change Request Form example |

| Name: Lessons Learned | Source: CDC  
http://www2.cdc.gov/cdcup/library/practices_guides/ |
| Area of Use: Implementation | Year Released: 2006 |
| Benefits: | Costs: unknown |
| Not measured | |

| Abstract: | This document provides guidance around the best practice of collection Lessons Learned and references the PMI best practice in this area. The focus of this best practice is to document the cause of issues and reasoning behind corrective actions and then to promote improvements on the next project. November 30 2006 |
| Files: | Lessons Learned Log template  
Survey  
checklist |