Planning in PDO

Code of Practice

Keywords:
Planning cycle, ARPR, Asset Reference Plan, Programme Build, Programme Book, Integrated Activity Plan, Team Targets, Reference Forecast, IPFE.

Within this document, reference is made to other formal control documents, which are available through EDMS. Some other documents are indicated like so, which can be viewed as a hypertext document via the PDO web. These links should be 'live' and should directly link to the relevant document. Within this documents the process maps are linked – by clicking on a process the hyperlink jumps to the relevant sub-process

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Authorised For Issue September 99

Signed: ........................................
CD
Corporate Affairs Director

Revision History

<table>
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<tr>
<th>Version No.</th>
<th>Date</th>
<th>Author</th>
<th>Scope / Remarks</th>
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<tr>
<td>Version 1</td>
<td>Sept. 99</td>
<td>V.R. Holtam (CLM)</td>
<td>Original issue</td>
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DESCRIPTION AND OVERVIEW

The planning process is the process by which corporate objectives are agreed then converted into plans and ultimately into budgeted activities.

The schematic below shows how these corporate objectives and strategies are cascaded to individual asset teams. In the asset teams, these strategies are converted into plans and activities, which are later rolled up into corporate plans, activities, production and budgets.
Purpose of this manual

This manual sets out the roles and responsibilities in executing the planning process and describes and defines how planning ensures compliance to:

- some 11 current PDO policies,
- the aspirations stated in the Corporate Management Framework,
- additional objectives, as appropriate to maintain the License to Operate and to identified risks related to planning.

A planning method must be flexible enough to adapt to changing circumstances and to improved understanding, whilst at the same time ensuring the best outcome for PDO through the application of shared criteria across the Asset Teams. This CoP and its related Standards aim to provide this balance.

Target audience

This Code of Practice and its related Standards define responsibilities for all staff involved in planning. These staff are located in the corporate function, in the asset teams and in service and support teams. It also identifies staff responsible for the planning methods and gives an overview of how the various aspects of planning fit into the overall process. Most users will, through the nature of their work, work with specific referenced Standards (guidelines, procedures, specifications) and use this CoP primarily as an overview of the Planning Process.

Scope

This Planning CoP applies to all Planning activities PDO undertakes in the pursuit of its mandated business. Where relevant subsidiary standards exist, they are referred to.

POLICY AND OBJECTIVES

Policy direction for this CoP is provided by a number of policies in PDO, as listed below. An indication of their relevance in the planning context in PDO is given from higher [3] to lower [1].

- New business opportunities 3
- Relationship with stakeholders 3
- Reserves 3
- Business improvement 2
- Performance monitoring 2
- Corporate management framework 2
- Product flow asset development 2
- Technology 2
- Correspondence with government 1
- Public relations 1
- Remuneration & benefits 1

These policies are PDO Business Control Documents and are available on EDMS.
ORGANISATION AND RESPONSIBILITIES

Organisation Structure

There is a planning body in Corporate, in each of the Asset Teams and in most of the Service Provider Teams. The body of Planners is organised as a process team and get together as and when required. Their mandate is the application of an effective planning method in PDO. The lead is by the CFDH Planning & Economics CLM.

Roles & Responsibilities

Although the planning activities are carried out in the different asset teams across PDO, the overall responsibility for fit-for-purpose methods lies with the CFDH Planning & Economics. This responsibility includes:

- Provision and maintenance of the overall planning framework (this CoP) and overseeing its application
- Identifying and agreeing with involved parties what related standards should exist and be maintained
- Ensuring that the interface between planning activities works effectively
- Offering advice on appropriate tools for planning

Staff executing planning activities are expected to follow this CoP and its subsidiary standards and to advise possible improvements to the document owners.

Functional Focal Points have been assigned for each of the key activities that make up the planning process, as follows:

<table>
<thead>
<tr>
<th>CDFP</th>
<th>Asset Team Focal Point</th>
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<tbody>
<tr>
<td>Asset Reference Planning</td>
<td>CLM/1</td>
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<tr>
<td>Business Planning Cycle</td>
<td>CLM/2</td>
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<tr>
<td>Integrated Activity Planning</td>
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<td>OIL/1</td>
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<td>Team Reward</td>
<td>CBM</td>
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RELATED STANDARDS

Mirroring the key activities shown above, below are the relevant Standards applicable to these activities.

<table>
<thead>
<tr>
<th>Title</th>
<th>Owner</th>
<th>Type of Standard</th>
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<tr>
<td>Asset Reference Planning</td>
<td>CLM/1</td>
<td>Guideline</td>
</tr>
<tr>
<td>Petroleum Resource Management System</td>
<td>UPR</td>
<td>Guideline (in prep)</td>
</tr>
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<td>CLM</td>
<td>Guideline</td>
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<td>Procedure</td>
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<td>Guideline</td>
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<td>Post Investment Review</td>
<td>CLM/1</td>
<td>Guideline</td>
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<td>UOI/1</td>
<td>Guideline (future)</td>
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<td>OIL/1</td>
<td>Guideline</td>
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</table>
PLANNING, IMPLEMENTATION AND CONTROL

The planning process is the process by which corporate objectives are converted into plans and ultimately into budgeted activities.

The overall planning process runs on a yearly cycle, and hinges around key events designed to meet the needs of the PDO’s shareholders. It is these key events and deliverables that drive all planning activity. A full planning cycle last approximately 15 months.

KEY ANNUAL EVENTS:
- Shareholders’ Technical Meeting in Muscat (before March Board)
- March Board Meeting
- Shareholders’ Technical Meeting in The Hague (before October Board)
- October Board Meeting

PRIMARY ANNUAL DELIVERABLES:
- Annual Review of Petroleum Resources
- Annual Appraisal Report
- Statement of Corporate Targets and Objectives
- Programme and Budget Documentation

OTHER PRIMARY DELIVERABLES:
- 2 Yearly Plan.
- 90 day Plan
- Monthly Integrated Production Forecast.

SUPPORTING ANNUAL EVENTS:
Strategy Review, Company Conference.

SUBORDINATE DELIVERABLES:
Business Improvement Report, Team Reward Matrix.

Overall Planning Process

The overall PDO planning process, spanning from Asset Reference Planning to the delivery of hydrocarbons according to set targets, is schematically described in Appendix 2 - Integrated Planning Process Map.

For the purpose of this CoP, the overall planning process can be split into four distinct activities, namely: Asset Reference Planning, Business Planning, Integrated Activity Planning and Integrated Production Forecasting. Each of these activities can be seen as somewhat sequential, with the deliverables from one activity being the starting point for the next, with feedback loops to optimise the overall process.

Overview Asset Reference Planning

Asset Reference Planning is a process of defining how best to develop the sub-surface asset (reserves) of an asset team. The Asset Reference Plan (ARP) sets out the long-term strategy to recover the reserves and captures all major activities which occur during an asset’s lifecycle which impact upon its costs, revenue and overall economics. From this, business improvement can be driven to both increase revenues and reduce costs. The ARP for an asset is therefore the basis of that asset team’s contribution to the annual corporate programme build.

On a annual basis, the ARP should be updated to reflect changes in the internal and external environment and new initiatives (such as the CMFi). Beyond this, the ARP should provide a
summary of initiatives within the Asset which are geared to maximising its value in the short, medium and long term.

The ARP:
- Is an integral part of the Corporate Planning Process and Programme Build
- Contains signposts to key data held within the asset team.
- Details asset strategies.
- Summarises the economic modelling of the asset.
- Captures assumptions and uncertainties.
- Summarises development and growth plans for asset.
- Captures all key business activities within assets and the resources allocated to them.

The ARP is prepared and maintained by the asset team and should be consistent with the current corporate plans. There is a minimal corporate content requirement for an ARP, which is set out in the guideline Asset Reference Planning, which can be found on the CLM website.

The process map for Asset Reference Planning is shown in Appendix 3.

Overview Business Planning & Programme Build

The Asset Reference Plans from the individual asset teams are rolled up into a single PDO Business Plan during the Programme Build. This is managed through PDO's Corporate Planning Cycle. The Planning Cycle provides a framework for:
- Reviewing its hydrocarbon reserves base - the primary asset of the company.
- Reviewing past performance - thus providing a basis for confidence in future plans.
- Planning and submitting future strategies and investment opportunities to the company's shareholders.
- Setting targets for individual asset team.

The Annual Planning Cycle (Appendix 1) is discussed in some detail in “The PDO Corporate Economics and Planning Handbook 1999 - Part II; The Corporate Planning Cycle Guideline.”

The key elements of the Annual planning cycle are discussed below. The process map for Business Planning can be found in Appendix 4.

The Annual Review of Petroleum Resources

The purpose of Annual Review of Petroleum Resources (ARPR) is to:
- Establish for every hydrocarbon discovery a reliable assessment of the ultimate recovery and scope for recovery, based on full resource life planning and taking the full range of uncertainties into account.
- To plan appraisal activities aimed at early reduction in uncertainties in ultimate recovery, optimising of development, and managing the maturation of scope for recovery to UR.

The Annual Review of Petroleum Resources is carried out by the asset teams in quarter 4 of each year and is coordinated by CLM/3, under the supervision of the CFDH Reservoir Engineering.

The process is formalised in the Guideline For Resource Volumes Estimation & Management which can be found in the Guideline : Petroleum Resource Management System.

Annual Appraisal Review

The Appraisal Review aims to measure PDO's performance in the previous year against the targets and objectives agreed between the company and the shareholders in March Board Meeting of the year before that. If we take 1998 as an example, the appraisal review was carried out in January 1999, to measures the performance of 1998 against the Strategy and Objectives set in the March 1997 Board meeting and the subsequent programme approved in the October 1997 Board meeting. The appraisal is carried out on an asset basis and rolled up to a corporate level by CLM (see process map). It measures performance against targets on oil production, Capex spend, Opex spend, Reserves Bookings, plus other HSE and LTO targets. It is issued to shareholders in time for discussion at the February Shareholders Technical Meeting.

The Appraisal Review provides a detailed justification of team and corporate score against scorecard (See Team Reward).
Strategy Review
The Strategy review takes place in early February of each year and is coordinated by CLM. This forum is primarily to allow Asset Managers and MDC to re-assess PDO's existing strategy against any changes in the business environment which have taken place in the past year. It results in revised Objectives and Guidelines that are proposed to the March Board.

Shareholders’ Technical Meeting
Two weeks before each Board Meeting (September and February), the Shareholders Technical Meeting is held. Representatives from Private and Government Shareholders attend these meetings and are presented with detailed technical information before it is presented in somewhat less detail to the Board. This meeting is coordinated by CLM (March STM) or CD (September STM) and is chaired by MD.

March Board
The March Board is held in the middle of March with the purpose of:
- Reviewing performance of the previous year against plan.
- Agreeing the Corporate Objectives and Guidelines for the following year.
- Confirming the budgets for the current year.
The March Board is coordinated by FC.

Business Planning and Programme Build
The objective of the programme build is to convert the individual Asset Reference Plans into a single PDO Business Plan, which satisfies the Corporate Objectives and Guidelines agreed at the March Board. It is therefore necessary for CLM to cascade the corporate objectives in an actionable format to asset teams, who modify their asset plans to meet these targets. Project Builder is the tool used to build the annual programme. The main criteria governing the programme build are:
- To reconcile investment levels to meet a baseline oil and condensate production level for the programme period.
- To ensure that any such programme can offer a plateau oil production level for 10 years at a corporate depletion rate of 6.5%.
- To rank the development programme on UTC’s and select strategic developments which will allow the corporate vision to be met. When executing annual programme build, the time value of money is an important part of the evaluation process. Correct and consistent economic evaluations are critical and are governed by the Guideline Economics & Business Evaluation, which is available on the CLM website.
- To identify key strategic and growth opportunities which need to be pursued for the long-term health of the company.
- To validate any proposed production and investment profiles against the capacity constraints of PDO's infrastructure, particularly the main oil line and power demand.
- To introduce adequate health, safety, environmental and integrity safeguards into the future investments, to ensure PDO maintains a license to operate within the legislation of the country and the aspirations of the shareholders.

Once the individual asset plans have been rolled up into a corporate programme, the production levels and activity proposals for the programme period are presented to and agreed by the MDC in June. At that time the expenditure levels are only estimates. Over the next few weeks Opex and Capex budgets are prepared and agreed and the programme documentation finalised for submission to shareholders.

Budget Preparation
Once the activity and production levels have been agreed by the MDC in June, Capital Budget Proposals (BI’s) are prepared. These set out the purpose of the project, its background, description of work, justification, phasing, as well as risks and HSE issues related to that budget item. These are prepared and submitted to Shareholders for approval, end August, as part of the annual programme approval cycle. Guidelines for preparation of BI’s have been prepared by FCB/1 – Capex in PDO.

Opex budgets are prepared by the individual asset teams and captured in the Operating Budget Book, which is coordinated by FCB and issued end August.
October Board

The October Board is held in the middle of October with the purpose of:

- Reviewing year-to-date performance
- Final confirmation of budgets in the current year.
- Agreeing the corporate targets in the following year and the associated programme of planned activities.
- Agreeing the budgets for the following year.

The October Board is coordinated by FC.

Target Setting, Team Reward & Performance Review

Once corporate targets have been set at the October Board, these are cascaded to each asset in order to create a working environment that stimulates continuous improvement in company performance. The Guideline Team Reward & Target Setting explains how Team Reward is applied and currently working within PDO. This is a Business Control Document and is available on EDMS.

The Post Investment Review Guideline establishes PIRs as a standardised vehicle for business appraisal, cross learning and best practice sharing in PDO. The guideline defines a PIR as an analysis of actual performance and benefits realised against expectations, highlighting factors, which have caused variances. It covers strategic, economic, competitive and technical factors, project management, profitability analysis, and the management of risk and uncertainty. PIRs provide the driving force for corrective action and a mechanism whereby experience gained can be fed back into the strategic management process, leading to improvement in business performance. The proposed standard layout and list of contents are outlined in a PIR Template.

Other Planning Documents

Technology Plans, IT Plans, HSE Plans and His Majesties Report are additional parts of the corporate cycle, which are managed by CTM, TCM, CSM and CAM respectively. The contents of these reports is explained by their title.

Overview Integrated Activity Planning

Once the 5 year programme is approved, this must be converted into actionable activities. The integrated activity plan is the mechanism by which this is achieved. This is then updated regularly to ensure that it reflects changes that inevitably occur.

The purpose of Integrated Activity Planning is to:

- Provide an overview of the activities in the medium term, so that asset owners, activity owners and senior management all have a common reference.
- Minimise deferment (oil, gas, water injection) through optimum activity integration.
- Predict and optimise critical resources consumption, take account of resources constraints and timely identification of the requirement for additional resource utilisation.
- Plan activities which impact both several assets (shared resources, equipment, corporate targets).
- Realise oil gains as early as possible.
- Contribute to minimising and setting yearly oil deferment target and highlight impending deviation.

The Integrated activity Plan (IAP) consists of a:

- **21 Months Plan**, which has a 21 month rolling planning window and is updated quarterly.
- **90 Day Plan**, which has a 90 day rolling planning window and is updated monthly. The 90DP also covers engineering activities and it is reconciled with the Regional Engineering Plan.
- **14 Day Schedule**, which has a 14 day rolling window and is updated weekly, in liaison with the Engineering Planner (EP).

The process map for the Integrated Activity Planning Process will be added in future versions of this CoP.

Overview Integrated Production Forecasting

The activities identified in the Integrated Activity plan are merged with well performance models using the IPFE (Integrated Production Forecasting Environment) tool, to produce PDO’s production forecast. The process map for Integrated Production Forecasting is shown in Appendix
6. Integrated Production Forecasting is controlled by a formal Business Control Document and is available on EDMS.

Although production forecasts are made for each asset in the asset team, overall control of the IPFE is by the CFFP – OIL/1, while optimisation of the overall forecast is by OIL/3.

AUDIT

Planning in PDO is subject to periodic review by SIEP (Technical review). This Code of Practice, together with the referred standards will form the reference for assessment.

As part of the Planning Process, performance is reviewed against plans. This can be a review of expenditure or production against targets, or a review of plans against actual. One tool for this review process in Post Investment Reviews, for which a Guideline is available.

MANAGEMENT REVIEW AND IMPROVEMENT

Bottom Up:
Planning is a widely distributed activity, with many parties involved. From the key deliverables of the Planning Process (see above) numerous subordinate deliverables cascade, which themselves may be formally described in standards, owned and maintained by other appointed parties. The appointed parties will review fitness-for-purpose of their guidelines and procedures on an annual basis. Where proposed changes affect Planning in PDO, these must be agreed by the owner of this CoP.

Top Down:
The planning method as defined in this COP will be reviewed as and when required at the discretion of the Corporate Affairs Director. The purpose of a review is to ensure that the COP addresses the policies adequately and indeed, to ensure that the policies themselves are still appropriate.

APPENDICES

Risk issues addressed
This Code of Practice addresses the following planning-related issues identified in the PDO risk assessment process (see report Risk Assessment 1998, on EDMS):

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<td>Asset management fragmentation</td>
<td>Medium</td>
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<td>Non-optimal tanker scheduling</td>
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Appendix 1 : Planning Cycle in PDO

**CORPORATE ANNUAL PLANNING CYCLE**

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**Legend:**
- REVIEW
- PLAN
- EXECUTE
Appendix 2: Integrated Planning - Process Map

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E = EXECUTE
C = CONTRIBUTE
A = APPROVE
P = APPROVE

- Weak implementation
- Process Flow
- Feedback loop
- Auto Link
- Manual Link

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## Appendix 3: Asset Reference Planning - Process Map

### ASSET REFERENCE PLANNING PROCESS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>SERV. PROV.</th>
<th>OIL</th>
<th>OXP, E,O</th>
<th>OXL</th>
<th>CLM</th>
<th>CFDH</th>
<th>OTHER</th>
<th>IN/OUT</th>
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<td>Improve existing Assets &amp; identify new Opportunities (Base case ARP)</td>
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E, C, A, P = Execute, Contribute, Advise, Approve

Process Flow
Inputs/Outputs
Weak Implementation
Appendix 4: Business Planning - Process Map

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<th>Shareholder</th>
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E = EXECUTE
C = CONTRIBUTE
A = ADVISE
P = APPROVE

Yellow = Weak Implementation
Appendix 4A: Business Planning – Sub-process Map

Review Year n-1 and Agree Strategy Year n+1
- ARPR
- Annual Appraisal
- Appraisal meeting (1/2 day MDC)
- Strategy review
- Develop PB-n+1 Objectives and Guidelines
- Shareholders Technical Meeting (Review year n-1 performance and strategy)
- Board meeting (Approve year n-1, year n budgets, approve strategy)

Build PB Year n+1 Activity and CAPEX/OPEX

CAPEX and Production Build
- Kick Off Year n Planning Cycle: C+H+I+H+S+H+C+I
- Objectives and Guidelines
- Asset NFA preparation
- Corporate NFA Review
- Create and Update Reserves and Scope Development projects
- Develop Asset Production and Drill Ex Forecasts
- Develop Corporate production and activity forecasts (flanking)
- Generate Non drill/ex and non hookup Estimates Input into SCAR
- Sensitivity Analysis (Growth etc)
- Well Cost catalogue Updates
- Provisional well Sequence for 2000 - Well cost catalog costs
- Asset Power Gas Water Oil MOL Forecast to OIM
- Finalise SCAR and proposed asset cost estimates (O+X)

OPEX Build
- 5 Year OPEX Model Build by Assets
- Supply Initial activity level estimate to Service providers
- Develop Service provider tariffs
- OPEX activity Build by assets for Year n+1
- Load Budgets
- Assets Review 2000 OPEX as entered into Budgets/EPC/RLS
- DD OPEX review
- Service Provider Build OPEX

Input

Service Providers

Reservoir

Third Party

Reservoir Engineering

Reservoir Operations

Construction

Engineering

Procurement

Construction and Operations

Operational Costs

Budgets

EPC

RLS

Power Gas Water Oil

MOL

Reserves

Planning

Development

Development

Construction

Construction

Operation

Operation
Appendix 4B : Business Planning – Sub-process Map

**Review AND Adjust Business plan**
- MDC Challenge Sessions on asset & Service provider
- MDC E&P Programme and Estimated Cost Review
- Modifications/Changes as a result of review
- Finalise BCAR and BP preparation etc

**Finalise Budgets and Documentation**
- 1999 Mid year Budget Update Year n
- Corporate Budget year n+1 Review meeting Final Budget,
- Programme Documentation
- Business Improvement report
- 2000 Scorecard Preparation Corporate
- Finalise Asset AND Service provider Scorecard
- Update ARP’s with any corporate changes

**Approve**
- Shareholders Technical meeting (The Hague)
- Board meeting (Oman) (October Board)
- Shell Business Plan Discussion (The Hague)

**Inform Stakeholders:**
- Presentation To HM
- Company Conference

**Shell Requirements**
- Prepare Initial IBV Submission for Capital rationing
- Capital Rationing Workshop
- Finalise IBV / IBR Submission
- Asset IBV/IBR
- Prepare Volume 1
- Prepare Volume 2

**Service Providers**

**Input**

**Decision Point**

**Execute**
Appendix 5 : Integrated Activity Planning - Process Map
Appendix 6: Integrated Production Forecasting - Process Map

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<th>Activity</th>
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<td>Update Scheduled Deferment</td>
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<td>Incorporate New Wells - models</td>
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<tr>
<td>Review &amp; Update NFA Forecast</td>
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<tr>
<td>Run Asset Production Forecast</td>
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<td>Compare against Targets</td>
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<td>Corporate Forecast Integration</td>
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<td>Compare against Targets</td>
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<td>Monitor</td>
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Legend:
- E = EXECUTE
- D = CONTRIBUTE
- A = ADVISE
- P = APPROVE
- = Weak Implementation
- = Process Flow
- = Feedback Loop
- = Auto Link
- = Manual Link

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