PERCEPTION®

Measuring Work Order Performance

A Training Tutorial
While *PERCEPTION* measures performance at all defined WBS levels of a project, it is equally important to monitor performance at the work order level of detail.

This tutorial describes an analysis of user-selected work orders to measure work order performance in terms of both cost (labor hours) and schedule.

This analysis can highlight the more significant problem areas, so that management can better focus their resources on resolving them early and with greater effectiveness.
PERCEPTION collects detailed information of work orders, their costs and schedules.

This tutorial describes work order cost and schedule performance reports that compliment reports available from within the PERCEPTION system.

These reports are generated using a Microsoft Excel workbook named “WorkOrderAnalysis.xls” that has been specifically linked directly to the PERCEPTION “Work Order Table.”
This tutorial is structured into three basic sections:

1. Descriptions of each of the additional graphical tracking reports

2. Instructions for setting up the Excel workbook so that it links directly to the PERCEPTION Database.

3. Instructions for the user to select any particular project and generate the reports automatically.

The following slide provides options for the user to proceed to any one of these sections.
Training Sections

Descriptions Of Work Order Analysis Reports

Initial Set Up of PERCEPTION Work Order Database Query.

Initiating A Work Order Performance Analysis
What Additional Information Can *PERCEPTION* Work Order Data Provide?
Overall Work Order Performance

*PERCEPTION* summarizes overall work order planning status & performance as illustrated by the following set of graphics.
Overall Work Order Planning Status

- Total Number of Work Orders: 253
- Total Authorized For Work: 235
- Total Not Authorized For Work: 18
- Total Without Budgets: 3
- Total Without Start Schedules: -
- Total Without Finish Schedules: -
Overall Work Order Performance Status

- Total Number of Work Orders: 253
- Number of Completed Work Orders: 151
- Number of In-Process Work Orders: 51
- Number of Un-Started Work Orders: 51
Completed Work Order Performance

As a special subset of work orders, the following graphics summarize performance of completed (closed) work orders.
Completed Work Order Performance Status

- Completed Budget Hours: 28,755
- Completed Actual Hours: 41,536
- Completed Rework Hours: 411
- Completed Hours Overrun: 15,551
- Completed Hours Underrun: 2,359
Completed Work Order Performance Status

- Number of Completed Work Orders: 151
- Completed No Budget: 3
- Completed No Schedule: 
- Number Completed & Underrun: 49
- Number Completed & Overrun: 98
- Number Completed & Late To Start: 129
- Number Completed & Late To Finish: 87

Number of Work Orders
In-Process Work Order Performance

As a special subset of work orders, the following graphics summarize performance of in-process (started, not completed) work orders.
In-Process Work Order Performance Status

Number of In-Process Work Orders: 51
Number In-Process & Overrun: 16
Number In-Process & Late To Start: 16
Number In-Process & Late To Finish: 2

Number of Work Orders: 17
# In-Process Work Order Performance Status

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Rework Included in Actual Hours
ETC based on Manual Assessed Progress
In-Process Work Orders Performance Status

- In-Process Budget Hours: 100.0%
- In-Process Actual Hours: 86.4%
- In-Process Rework Hours: 0.7%
- In-Process ETC Hours: 91.2%
- In-Process Actual + ETC hours: 177.6%
- In-Process Hours Overrun: 30.6%

Rework included in actual Hours
ETC based on manual assessed progress
Un-Started Work Order Performance

As a special subset of work orders, the following graphics summarize the status of work orders not yet started.
Work Order Schedule Performance

An important part of the analysis is the schedule performance of the work orders.
Work Order Late Schedule Status

- Completed Average Days Late To Start: 37
- Completed Average Days Late To Finish: 28
- In-Process Average Days Late To Start: 12
- In-Process Average Days Late To Finish: 10
- Un-Started Average Days Late To Start: 68
- Un-Started Average Days Late To Finish: 71
Work Order Early Schedule Status

Days Early

- Completed Average Days Early To Start: 44
- Completed Average Days Early To Finish: 31
- In-Process Average Days Early To Start: 49
- In-Process Average Days Early To Finish: 21
Work Orders Early Schedule Status

- Number Completed & Early To Start: 22
- Number Completed & Early To Finish: 55
- Number In-Process & Early To Start: 32
- Number In-Process & Early To Finish: 47
Training Sections

- Descriptions Of Work Order Analysis Reports
- Initial Set Up of *PERCEPTION* Work Order Database Query.
- Initiating A Work Order Performance Analysis
Setting Up A *PERCEPTION* Database Query For Work Order Data

Open the Excel Work Order Performance Analysis workbook named “WorkOrderAnalysis.xls”.

Open the “WO Data” worksheet (next figure).
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In the main menu of the “WO Data” worksheet, click on “New Database Query.”
Choose the desired *PERCEPTION* database. Then, click on the “OK” button.
1. Select the “workpkg” table from the drop down list.
2. Then, click on the transfer “>” button that will copy all columns of this table for the query.
3. Click on the “Next” button to continue.
1. Select the column named “proj” to filter.

2. To the right, “only include rows where…” enter “equals”, then the desired project number for analysis.

3. If work orders from more than one project are to be selected, utilize the various filtering specifications available.
If additional filtering is required, such as focusing on a selected work center, click on the next appropriate column to filter.

When the filtering specifications are complete, click on the “Next” button.
1. Select the sort order. Many options are available. However, the sort order is not important to these particular work order performance reports.

2. Then, click on the “Next” button.
Click on the “Save Query” button to save this setup for future use
1. Enter a name ("Work Order Query.dqy") for this query.

2. Then click on the “Save” button.
Turn on the option to “Return Data to Microsoft Excel.”
Click on the “Properties” button to set required data transfer options.
1. Turn on the option to “Overwrite existing cells with new data, clear unused cells.”

2. Click on the OK button.
1. Turn on the option to put the data in the “Existing worksheet (“History Table” worksheet)

2. Ensure that the queried data will be inserted into the worksheet, starting at $A$1.

3. Click on the OK button to complete the query setup.
End Of Query Set Up
Training Sections

- Descriptions Of Work Order Analysis Reports
- Initial Set Up of PERCEPTION Work Order Database Query.
- Initiating A Work Order Performance Analysis
Execute A Work Order
Performance Analysis

Once the query setup has been completed, the following procedure can be followed for selecting and reporting on any set of work orders managed in the *PERCEPTION* Database.
1. Open the Excel workbook named “WorkOrderAnalysis.xls”.

2. Open the “WO Data” worksheet.

Note: The query set up requires that you have the “WO Data” worksheet opened.
Click on main menu of the worksheet selection to “Edit Query.”
Ignore error message.

Click OK.
If a new query is required to access another database and/or to re-structure the range of work order selection, click on the new Query button on the toolbar.

Then, follow the same procedures as described for the initial query set up.

However, if the user only requires to change the specification values of the existing query set up, then proceed as follows:
System will display the previously-loaded project history table with “Criteria Field” and “Value” displayed.
1. Change the “Value” of the project number and any other selection specifications, to the one required for the desired work order analysis.

2. Then, click the “Query Now” button.
1. The system will then retrieve the new selection of work orders.

2. Click the “Return Data” button
The resulting reports are found in the “Graphs” worksheet:

1. Overall Work Order Planning Status - Number of Work Orders
2. Overall Work Order Performance Status - Number of Work Orders
3. Overall Work Order Performance Status – Labor Hours
4. Overall Work Order Performance Status - Percentages
5. Completed Work Order Performance Status - Number of Work Orders
6. Completed Work Order Performance Status - Labor Hours
7. Completed Work Order Performance Status - Percentages
8. In-Process Work Order Performance Status - Number of Work Orders
9. In-Process Work Order Performance Status - Labor Hours
10. In-Process Work Order Performance Status - Percentages
11. Un-Started Work Orders - Number of Work Orders
12. Work Order Schedule Status – Average Weeks Duration
13. Work Order Late & Early Schedule Status
To email these reports, output them to Acrobat PDF Writer:

Open a report worksheet and click on *File/Create Adobe PDF*
Identify a PDF file name and directory to store it. Then click on *Save*.

This file then can be emailed and/or printed directly.
End Of Tutorial