Project Delivery

Guide to Margin Metrics

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Contents

A Guide to Margin Metrics

The purpose of this document is to build a common basis of understanding of client project financial data. More specifically, this document:

- Defines the commonly-used financial terms associated with margin metrics
- Explains where project-related financial data can be found
- Provides suggestions to Project Delivery Managers and their delegates for monitoring revenue

Stated as simply as possible, margin metrics is a measure of the contribution a project or business unit makes to the firm's financial condition. The basic calculations are:

Plan
Revenue Budget
- Direct Cost Budget
= Gross Margin Budget
- Standard Indirect Burden*
= Net Margin Budget **

Actual
Revenue PJTD
- Direct Cost PJTD
= Gross Margin PJTD
- Standard Indirect Burden PJTD*
= Net Margin PJTD **

* Not actual cost. See the definitions below.
** Not actual profit. See the definitions below.

Definitions

Revenue: Gross earnings from client projects, including revenue on labor and expenses, fixed fee, award fee, and markups. During the life of a single project, revenue is the amount of the fee the firm has earned based on our progress on the project, whether or not invoiced or collected at the time. At project close-out, revenue equals the amount we invoiced the client and were paid.

Direct Costs: Raw labor, salary fringe on raw labor, and expenses (including the Net Asset Charge) charged to client projects. Direct costs include both billable and non-billable costs.

Gross Margin: Gross margin is the client project revenue remaining after accounting for direct costs incurred to do the project work. Actual Gross Margin compared to plan is the primary metric for which Project Managers are held financially accountable since direct costs are most controllable by the PM.

Standard Indirect Burden: Standard indirect burden represents the firm's cost of doing business other than those costs incurred specifically to do the client project work. These indirect or overhead costs include such things as office rent and regional and corporate administration, business development, and management.

Net Margin: Net margin is the amount left after direct costs and standard indirect burdens are subtracted from a client project's revenue. Net Margin is not profit. At the project level, Net Margin is an approximation of the project's contribution to the firm's Available Funds, assuming the firm's actual indirect burden rates at year-end equal the Standard Indirect Burden rates. At the simplest level, the firm maximizes Available Funds by maximizing the sum of project gross margins while controlling indirect costs.

Net Asset Charge (NAC)

The Net Asset Charge is a weekly assessment made to client projects for use of the firm's capital. It is a non-billable, non-transferable Direct Cost.

The assets on which the NAC is based are the project's Work in Progress (WIP or unbilled revenue) and Accounts Receivable (AR or uncollected billings). Subtracted from these assets to arrive at a "net asset base" are the project's liabilities, Accounts Payable (AP or unpaid vendor invoices).

The NAC calculation is as follows:

$$NAC = (WIP + AR - AP) \times Weekly\ Interest\ Rate$$

The rate used in the NAC assessment is the firm's cost of borrowing our next increment of capital. The rate is set annually and does not change during the year. For 2014, the rate is 9 percent; the weekly rate is 1/52 times 9 percent or roughly 0.173 percent.

Project Managers can control the NAC by billing and collecting promptly, by processing vendor invoices quickly but not paying them until obligated to do so, and by charging the client interest for overdue payments. Any interest collected will be credited to the project's NAC task.

The Role of the Cost Budget

The cost budget is the Project Manager's baseline plan for controlling the project and the firm's baseline for evaluating project performance at completion.

Important! *An accurate cost budget is one that utilizes the correct labor categories (Consulting, Flex, DCR, DCR-Site, Site) from the correct companies and the correct mix of labor and expense (particularly subcontracted services).*

An accurate cost budget and regular review and updates of project status on every client project is essential to accurate revenue recognition and, ultimately, to stock valuation.   HILL is legally bound to recognize revenue according to Generally Accepted Accounting Practices (GAAP) and the rules of the Securities and Exchange Commission (SEC). To that end, maintaining accurate budgets and actively updating project status is an ethical imperative for Project Managers.

Project Managers are accountable for the variance between planned and actual Gross Margins on their projects. It is important that Project Managers understand it is in their best interest to ensure that their planned Gross and Net Margins are accurate at the beginning of the project as well as updated as a result of changes throughout the project's life.

It is also the Project Manager's responsibility to ensure that the initial cost budget is correct based on the initial project scope. A change to the scope during the life of the project requires that the Project Manager revise the cost budget, review it with the Project Delivery Manager or his delegate, and see that it is updated in Oracle Projects. A scope change also normally requires a revision of the EAC.

The revenue budget needs to be revised whenever our agreement with the client is changed to adjust the amount of ultimate payment. Project Accounting will help assess the appropriate time to change the revenue budget based upon the facts and circumstances. Every time the revenue budget is increased or decreased, the cost budget and EAC should be reviewed and updated in Oracle as well. The cost budget or EAC may change, however, without a corresponding change to the revenue budget.

The Role of the EAC (Forecast Cost Budget)

Oracle uses the direct cost EAC or forecast cost budget in its revenue calculations and to report on a project's expected cost outcome. Project Managers are asked to use the web-based EAC tool to provide direct cost EACs to their Project Accountants who upload the EACs into Oracle. From the VO, go to Policies & Resources, Project Delivery Tools, EAC Tool (Services Format) to access the web-based EAC tool. When the screen comes up, input your project number and hit the "tab" key (not the "enter" key) to query the information.

Project Managers are responsible for making sure the direct cost EAC in Oracle Projects is updated on or before the second Friday of each accounting month **and** confirming that EAC is correct. An EAC change or confirmation is best done by utilizing the EAC tool that can be found at the path in the above paragraph. To report on the project's expected cost outcome and to calculate revenue, Oracle calculates a direct cost percent complete.

Direct Cost % Complete = PJTD Direct Costs / Total Direct Cost EAC

Oracle also calculates a percent complete based on total burdened costs and the total burdened EAC. This percent complete is not used in additional calculations but is displayed in various reports and in the Web and Data Warehouse data.

Burdened Cost % Complete = PTJD Burdened Costs / Total Burdened Cost EAC

Revenue is calculated at the top task level by billing method for all projects and at the project level by percentage of work completed for many projects. The revenue calculations are discussed in detail below. Accurate revenue reporting on every project is critical to each business unit and the firm as a whole to signal how well we are meeting our financial goals. Project Managers, as they report direct cost EACs and maintain revenue budgets, are the foundation of the firm's revenue recognition process. The Project Manager is ethically responsible to provide accurate and timely budget data and updates to facilitate the firm's legal revenue recognition requirements.

Available Funds, the firm's net operating profits, are derived from the sum of all project margins less actual indirect costs. Available Funds are the indicator of   HILL's financial health and are directly linked to such issues as compensation, training, tools, and job security, business decisions that affect us all. In addition, the price of   HILL stock is determined based on the revenue status of all client projects.

Billing Methods

Billing methods, dictated by agreements with clients, tell Oracle Projects what rules to use to generate appropriate amounts on invoices and as expenditure item revenue. Since invoices are generated at the top task level in Oracle, each top task on a project must have a billing method. Valid billing methods are shown in the table below:

Billing Method	Description
F	Fixed Fee, Award Fee, Base Fee
LS	Lump Sum
PD, PDM	Per Diem. Labor is billed at specific amounts by labor classification. PD without an "M" means the contract does not specify a limit to the amount we can bill; the "M" indicates the contract does specify a "maximum."
RL, RLM	Raw Labor Multiplier. Labor is billed at raw cost times a labor multiplier specified in the contract. RL without an "M" means there is no limit to the amount we can bill; the "M" indicates a "maximum" Contractual limitation.
SC, SCM	Salary Cost Multiplier. Labor is billed at salary cost (raw + fringe) times a multiplier specified in the contract. SC without an "M" means there is no limit to the amount we can bill; the "M" indicates a "maximum" Contractual limitation.
PDF, RLF, SCF	Cost Plus Fixed Fee. These billing methods indicate that a Fixed Fee is set up on the same top task as a Per Diem, Raw Labor, or Salary Cost Multiplier billing method. There is no limit to the cost for which we can bill.
PDMF, RLMF, SCMF	Cost Plus Fixed Fee with a maximum to the amount of cost for which we can bill.
UNITS	Billing is done by predefined unit (such as mile of cable).

Each of these billing methods is used to calculate expenditure item revenue displayed at the top task level. This top task revenue is also referred to as Total at Billing (total billable cost at contracted billing terms).

Most calculations use a percent complete based on project-to-date direct cost and the direct cost EAC.

$$\% \text{ Complete} = \text{Actual Direct Costs} / \text{Direct Cost EAC}$$

At the top task level, if the billing method includes an "M" (maximum potential revenue) declared revenue is the lesser of: 1) PJTD billable labor and expenses at billing terms or 2) % complete times the top task revenue budget.

Project Level Revenue

Except for the very rare exception, the total revenue recognized on a project is not the sum of the revenue earned on the top tasks but is a separate calculation made at the project level. This calculation "overrides" top task revenue. Simply stated, project-level revenue is:

(Project-Level % Complete) x (Sum of the Top Task Revenue Budgets)

Project-Level % Complete = Project Total Direct Costs */Project Total Direct Cost EAC *

* The project-level sums of actual direct costs and direct cost EACs do not include Net Asset Charge or Provision for Loss values.

The actual steps in the revenue calculation process are (the following tables illustrate):

1. Revenue is calculated on each top task and the values are summed.

2. Project-level % complete revenue is calculated.

3. The results from steps 1 and 2 are compared and, if necessary, an adjustment is made on a special $P top task to ensure that the revenue recognized is the project-level revenue.

Step 1

Top Task	Billing Method	Revenue Budget	PJTD Direct Cost	Direct Cost EAC	% Complete	PJTD Revenue
##	RL	$0	$9,000	$18,000	50.0%	$0
AA	LS	$100,000	$30,000	$60,000	50.0%	$50,000
BB	LS	$85,000	$45,000	$51,000	88.2%	$75,000
CC	LS	$105,000	$15,000	$80,000	18.8%	$19,688
NB	LS	$0	$5,000	$5,000	100.0%	$0
Top Task Totals		**$290,000**	**$104,000**	**$214,000**		**$144,688**

Step 2

Project Level $290,000 $95,000 $196,000
Project $ Complete   = $95,000/$196,000 = 48.5%
Project Level Revenue   =$290,000 x 48.5% =   **$140,561**

Step 3

Project Level Revenue $140,561
Top Task Revenue   -$144,688
Project Level Revenue Adjustment ($P)   **($4,126)**

If you have questions about the revenue calculations at either the top task or project level, please see your Project Accountant.

Reader's note: *The next section of the document contains references to financial data attributes in both English language and Data Warehouse (DW) formats. The DW formats are those with the "under bar" (_) character and are presented as you will find them in queries and other electronic media. The letter "p," which stands for "period" refers to current month (CMO), last month (LMO), year-to-date (YTD), and project-to-date (PJTD).*

Performance Metrics

HILL project performance metrics provide an overview of a project's financial health and serve as an indicator of the extent to which the Project Manager is managing the project as planned.

An important caveat: *All these metrics depend on good current revenue, cost, and direct forecast cost budgets (EACs). If the budgets are not accurate representations of what we expect to earn and what the Project Manager really expects the project to cost, the metrics can present an inaccurate picture of the project's financial status.*

Gross Margin (GM)

What to look for! *During the life of a project, gross margins and gross margin ratios may vary from week to week and month to month. And since gross margin goals vary from project to project, there are no absolute threshold values for good or bad gross margins and ratios. A good indicator of a project's financial performance is a comparison of the estimated GM at completion with the target GM.*

Gross margin is the primary financial metric by which project and Project Manager financial performance is evaluated. Maximizing gross margin maximizes financial performance for the firm. Throughout the life of the project the Project Manager is held accountable for developing and maintaining good estimates at complete and for understanding whether the estimated final Gross Margin meets the gross margin goal for the project.

Gross Margin Project Currency: The value a project earns after accounting for the direct costs to do the project work.

$$\text{Gross Margin} = \text{Total Revenue} - \text{Total Direct Cost}$$

$$GM\_p\_PROJECT\_CURRENCY = TOT\_REVENUE\_p\_PROJECT\_CURRENCY - TOT\_DIRECT\_COST\_p\_PROJECT\_CURRENCY$$

In general, gross margin indicates whether the Project Manager is controlling direct costs or whether revenue is being restrained.

Gross Margin as a % of Total Revenue: The ratio of project earnings before standard indirect burden to the total revenue earned on the project.

$$\text{Gross Margin as a \% of Total Revenue} = \text{Gross Margin} / \text{Total Revenue}$$

$$GM\_PCT\_TOT\_REVENUE\_p = GM\_p\_PROJECT\_CURRENCY / TOT\_REVENUE\_p\_PROJECT\_CURRENCY$$

Gross Margin as a % of Labor Revenue: The ratio of project earnings before standard indirect burden to the total revenue earned less direct expenses.

Gross Margin as a % of Labor Revenue = Gross Margin / (Total Revenue – Total Direct Expenses)

GM_PCT_TOT_REV_LESS_EXP_p = GM_p_PROJECT_CURRENCY / (TOT_REVENUE_p_PROJECT_CURRENCY – TOT_EXP_p_PROJECT_CURRENCY)

Gross Margin as a % of Net Revenue: The ratio of project earnings before standard indirect burden to the total revenue earned less direct and standard indirect expenses. This metric is not displayed in the Virtual Office project financials data or in Project Insight.

Gross Margin as a % of Net Revenue = Gross Margin / (Total Revenue – Total Direct Expenses – Total Standard Indirect Burden)

Gross Margin Variance Project Currency: The currency difference between the gross margin anticipated at project completion and the gross margin originally planned, prorated to current project status by the percent complete direct.

Gross Margin Variance =
(EAC Gross Margin – Gross Margin Budget) x % Complete Direct

GM_VARIANCE_p_PROJECT CURRENCY = (GM_EAC_PROJECT_CURRENCY – GM_BUDGET_PROJECT_CURRENCY) * PERCENT_COMPLETE_DIRECT)

This metric is intended to show how much in currency "off plan" the gross margin is in relation to the direct cost spent.

What to look for! *If the gross margin variance CMO is negative by a significant amount, check the gross margin variance PJTD. If both are negative this could indicate that the project is not being executed the way the costs were budgeted. This variance may be caused by an expected shift in delivery methodology (for example, a large subcontractor cost is expected to be incurred later in the project) or it may require further investigation by the PM.*

As an illustration of the way the Gross Margin can vary from month to month, consider 3 months of a project with monthly total direct cost of 100,000, a 2.75 labor multiplier, and a 5 percent markup on billable expenses (the budget includes 5,000 of non-billable expenses, including NAC). Assume the EAC Direct Cost is 405,000 rather than the originally planned 415,000 (there will be less labor cost than originally budgeted). The revenue budget is revised to reflect the change, so the EAC GM is 271,630. The ratio of labor to expense cost changes each month but total direct cost remains constant.

Gross Margin Example (month-by-month calculations)

	Original Plan	EAC*	Month 1 50% Labor	Month 2 75% Labor	Month 3 25% Labor
Labor Revenue	$550,000	$529,630	$101,852	$152,778	$50,926
Expense Revenue	$147,000	$147,000	$51,450	$25,725	$78,225
Total Revenue	$697,000	$676,630	$153,302	$178,503	$129,151
Labor Direct Cost	$270,000	$260,000	$50,000	$75,000	$25,000
Expense Direct Cost	$145,000	$145,000	$50,000	$25,000	$75,000
-Total Direct Cost	$415,000	$405,000	$100,000	$100,000	$100,000
= Gross Margin	$282,000	$271,630	$53,302	$78,503	$29,151
GM as % of Tot Rev	40.5%	40.1%	34.8%	44.0%	22.6%
GM Variance			($2,561)	($2,561)	($2,561)

* **Note**: We do not enter and track "EAC" revenue budgets in Oracle Projects but, within the limits of the executed contract with the client, the baselined revenue budget should be adjusted whenever the Project Manager anticipates a change in the total revenue we will earn. The Total Revenue value 676,630 represents the baselined revenue budget for the example project and is used in the revenue calculations.

The direct cost budget (original plan) is 65% direct labor, but in the first month, labor is just 50% of the direct cost. Because labor typically earns more revenue (and hence GM) than expense, a month 1 comparison with the EAC GM makes it appear that the project will not earn "enough" revenue compared to the direct cost spent. The GM as % of Total Revenue ratio compared to the budgeted ratio suggests a shortfall.

In the second month labor comprises 75% of the direct cost. Since that is 10% higher than the labor ratio in the direct cost budget, the month 2 data alone makes it appear that the GM may exceed the EAC GM. The incremental GM variance does not change from month to month because the total direct cost is 100,000 in each month and the difference between the originally-planned GM and the EAC GM remains constant at 10,000.

Project-to-date data show a less volatile GM as a % of Total Revenue as illustrated in the table below.

Gross Margin Example (project-to-date calculations)

	Original Plan	EAC*	Month 1 50% Labor	Month 2 75% Labor	Month 3 25% Labor
Labor Revenue	$550,000	$529,630	$101,852	$254,630	$305,556
Expense Revenue	$147,000	$147,000	$51,450	$77,175	$155,400
Total Revenue	$697,000	$676,630	$153,302	$331,805	$460,956
Labor Direct Cost	$270,000	$260,000	$50,000	$125,000	$150,000
Expense Direct Cost	$145,000	$145,000	$50,000	$75,000	$150,000
-Total Direct Cost	$415,000	$405,000	$100,000	$200,000	$300,000
= Gross Margin	$282,000	$271,630	$53,302	$131,805	$160,956
GM as % of Tot Rev	40.5%	40.1%	34.8%	39.7%	34.9%
GM Variance			($2,561)	($5,122)	($7,683)

The project-level calculation eliminates the revenue and gross margin fluctuations resulting from labor and expense mix or from projects with multiple top tasks that are all part of the same deliverable but may not be completed at the same rate. Project-level revenue causes margin to be earned in direct proportion to the costs spent. Note: the project-level calculation is always a project-to-date calculation.

In our example project, because the monthly direct cost is constant at $100,000 and because the Direct Cost EAC does not change, the incremental percent complete remains constant.

Gross Margin Example (month-by-month calculations; project level revenue)

	Original Plan	EAC*	Month 1 50% Labor	Month 2 75% Labor	Month 3 25% Labor
Labor Revenue	$550,000	$529,630	$101,852	$152,778	$50,926
Expense Revenue	$147,000	$147,000	$51,450	$25,725	$78,225
Project Level Rev Adj*	$0	$0	$13,767	$2,333	$40,252
Total Revenue	$697,000	$676,630	$167,069	$180,836	$169,403
Labor Direct Cost	$270,000	$260,000	$50,000	$75,000	$25,000
Expense Direct Cost	$145,000	$145,000	$50,000	$25,000	$75,000
-Total Direct Cost	$415,000	$405,000	$100,000	$100,000	$100,000
= Gross Margin	$282,000	$271,630	$67,069	$80,836	$69,403
GM as % of Tot Rev	40.5%	40.1%	40.1%	44.7%	41.0%
GM Variance			($2,561)	($5,121)	($7,682)

*Month 1 Project Level Revenue Calculation example:

Direct Cost	$100,000	
Direct Cost EAC	$405,000	
% Complete	24.7%	Direct Cost / Direct Cost EAC
Total Revenue Budget	$697,000	
Project Level Revenue	$172,099	% Complete x Total Revenue Budget
Project Level Rev Adj	$13,767	= Proj Level Rev - Labor & Exp Revenue
		= $167,069 - $101,852 - $51,450

This example is, of course, unrealistic. A real project would virtually never have constant direct cost from one month to the next and it is most likely that the Project Manager's review of project progress would result in EAC and possibly revenue budget changes. Nonetheless, the example illustrates the GM metrics calculations and the effect of project-level revenue calculation overall.

Net Margin (NM)

What to look for! *Similar to gross margin, net margin can be volatile on a week-to-week or month-to-month basis and the planned net margin can vary considerably from project to project. PMs should focus on their margin targets and how their projects are going and are expected to be completed compared to those targets. It's a clear danger signal if a project is not trending toward its target.*

Net Margin Project Currency: The value remaining after accounting for the direct costs to do the project work and the project's share of standard indirect burdens (overhead).

Net Margin = Total Revenue – Total Direct Costs – Standard Indirect Burden Costs

NM_p_PROJECT CURRENCY = TOT_REVENUE_p_PROJECT_CURRENCY - TOT_COST_p_PROJECT_CURRENCY

The table below continues the earlier gross margin example to illustrate net margin metrics. It assumes the labor is all provided by staff with a 125 percent standard indirect burden rate).

Net Margin

	Original Plan	EAC*	Month 1 50% Labor	Month 2 75% Labor	Month 3 25% Labor	PJTD
Labor Revenue	$550,000	$529,630	$101,852	$152,778	$50,926	$305,556
Expense Revenue	$147,000	$147,000	$51,450	$25,725	$78,225	$155,400
Total Revenue	$697,000	$676,630	$153,302	$178,503	$129,151	$460,956
Labor Direct Cost	$270,000	$260,000	$50,000	$75,000	$25,000	$150,000
Expense Direct Cost	$145,000	$145,000	$50,000	$25,000	$75,000	$150,000
-Total Direct Cost	$415,000	$405,000	$100,000	$100,000	$100,000	$300,000
= Gross Margin	$282,000	$271,630	$53,302	$78,503	$29,151	$160,956
- Std Indirect Burden	$250,000	$240,741	$46,296	$69,444	$23,148	$138,888
= Net Margin	$32,000	$30,889	$7,006	$9,059	$6,003	$22,068

Net Margin (project-to-date with project-level revenue)

	Original Plan	EAC*	Month 1 50% Labor	Month 2 75% Labor	Month 3 25% Labor
Labor Revenue	$550,000	$529,630	$101,852	$254,630	$305,556
Expense Revenue	$147,000	$147,000	$51,450	$77,175	$155,400
Project Level Rev Adj*	$0	$0	$13,767	$2,333	$40,252
Total Revenue	$697,000	$676,630	$167,069	$334,138	$501,208
Labor Direct Cost	$270,000	$260,000	$50,000	$125,000	$150,000
Expense Direct Cost	$145,000	$145,000	$50,000	$75,000	$150,000
-Total Direct Cost	$415,000	$405,000	$100,000	$200,000	$300,000
= Gross Margin	$282,000	$271,630	$67,069	$134,138	$201,208
- Std Indirect Burden	$250,000	$240,741	$46,296	$115,740	$138,888
= Gross Margin	$32,000	$30,889	$20,773	$18,398	$62,320

Restrained Revenue

Restrained revenue appears in the top task revenue calculations if the billing method contains a maximum amount of revenue that can be earned. The restrained revenue "bucket" provides an indication of possible revenue problems. Restrained revenue is generally derived from one or more of the following:

Positive Restrained Revenue *	Negative Restrained Revenue
• Revenue write-up events	• Potential or actual project overrun as predicted by the total direct cost EAC
• Revenue budget increase as a result of additional authorization from the client (the new budget can allow recognition of revenue restrained in the past)	• Revenue write-off events
	• Inaccurate top task revenue budget
	• Changes in labor/expense mix under certain contract types (projects not using the project-level revenue calculation)

* Something of a misnomer, "restrained" revenue can be positive under the conditions described.

Any negative restrained revenue should be viewed as an amount of cost at billing terms against which Oracle will not earn revenue. Project team members using restrained revenue as a primary focal point can usually identify potential problems early. In many cases, negative restrained revenue does not imply a problem but is Oracle's method of spreading the margin to be earned over the life of the task (see the discussion under Gross Margin, above).

During the revenue calculations, Oracle uses the direct cost EAC a Project Manager predicts to calculate the top task's direct percent complete. The calculation is performed at top task level for tasks with maximum fee billing methods.

$$\text{Direct Percent Complete} = \text{PJTD Total Direct Cost} / \text{Direct Cost EAC}$$

$$\text{PERCENT\_COMPLETE\_DIRECT} = \text{TOT\_DIRECT\_COST\_PJTD\_PROJECT\_CURRENCY} / \text{TOT\_DIRECT\_COST\_EAC\_PROJECT\_CURRENCY}$$

The direct percent complete is then used to "spread" the margin to be earned over the life of the project or top task to earn revenue that is "in synch" with direct costs incurred. That is, if the PM predicts an overrun, we slow down the revenue accrual so revenue is earned at the about same rate direct costs are incurred. Oracle Projects performs that slow-down at the top task level by limiting the revenue earned to the lesser of 1) direct percent complete times the revenue budget or 2) project-to-date billable costs at billing terms. Project Accountants can help explain specific causes for "restrained revenue."

Tip for power Data Warehouse users: There is a table in the DW (available through MS Access or Excel Query but not via the Web) called Events_History that provides the detail behind the amounts shown as restrained revenue. This information can be helpful to determine the restrained revenue's root cause.

Lump Sum Adjustment Revenue

Project-to-date earned revenue on LS tasks is always direct percent complete (based on direct cost EAC) times the revenue budget. Because we want to see labor and expense revenue related to labor and expense cost, however, Oracle makes three separate revenue calculations on LS tasks. The third virtually always results in a revenue adjustment.

The calculations are:

1. Project-to-date cost at bill rates to earn labor and expense revenue on labor and expense cost. The concept of "bill rates" for LS jobs can be confusing. In this context, Oracle uses a labor multiplier to generate an estimate of labor revenue. The labor multiplier is not used for billing purposes, only for labor revenue declaration on LS tasks.

2. Direct percent complete (based on direct cost EAC) times the revenue budget.

3. Any necessary adjustment for the difference between the two calculations. If cost at bill rate revenue is larger than percent complete revenue, the Lump Sum adjustment is negative; if cost at bill rate revenue is smaller, the adjustment is positive.

Percent Complete and Spent

If a project's direct cost and direct forecast cost budgets (EACs) are accurate, a comparison of the direct percent complete and spent is perhaps the best indicator of whether the project is on plan, ahead of plan, or behind plan. The direct percent variance, showing the difference between direct percent spent and complete, provides a way to see this status at a glance.

Percent Complete (Direct): The portion of the direct cost EAC (forecast cost budget) spent.

Percent Complete Direct = PJTD Total Direct Cost / Direct Cost EAC
PERCENT_COMPLETE_DIRECT = TOT_DIRECT_COST_PJTD_PROJECT_CURRENCY / TOT_DIRECT_COST_EAC_PROJECT_CURRENCY

Percent Spent (Direct): The portion of the direct cost budget spent.

Percent Spent Direct = PJTD Total Direct Cost / Direct Cost Budget
PERCENT_SPENT_DIRECT = TOT_DIRECT_COST_PJTD_PROJECT_CURRENCY / TOT_DIRECT_COST_BUDGET_PROJECT_CURRENCY

Percent Variance (Direct):

Percent Variance Direct = Percent Complete Direct – Percent Spent Direct
PERCENT_VARIANCE_DIRECT = PCT_COMPLETE_DIRECT - PCT_SPENT_DIRECT

Percent Complete (Burdened): The portion of the total burdened EAC (forecast cost budget) spent.

Percent Complete Burdened = PJTD Total Burdened Cost / Total Burdened EAC
PERCENT_COMPLETE_BURDENED = TOT_COST_PJTD_PROJECT_CURRENCY / TOT_COST_EAC_PROJECT_CURRENCY

Percent Spent (Burdened): The portion of the total burdened cost budget spent.

Percent Spent Burdened = PJTD Total Burdened Cost / Total Burdened Cost Budget
PERCENT_SPENT_BURDENED = TOT_COST_PJTD_PROJECT_CURRENCY / TOT_COST_BUDGET_PROJECT_CURRENCY

Percent Variance (Burdened):

Percent Variance Burdened = Percent Complete Burdened – Percent Spent Burdened
PERCENT_VARIANCE_BURDENED = PCT_COMPLETE_BURDENED - PCT_SPENT_BURDENED

Total at Billing Terms

What to look for! *A difference between the total at billing terms and the project-to-date revenue can suggest revenue is not being earned at the same pace that costs are being incurred.*

The Oracle system calculates revenue on billable project costs every week but typically creates invoices just once a month. The difference between total at billing terms and the project-to-date billed total serves as an indicator to the Project Manager of *approximately* how much is accumulating for the next invoice.

Important! *"Total at Billing Terms" is an approximation of labor and expense items that should be billed. True bill amounts are determined only after the Project Manager approves the draft invoice (and Billing Transaction Register report). "Total at Billing Terms" data MUST NOT be used to support client invoicing.*

Critical! *Project Managers may want to focus attention on managing only "Total at Billing Terms" and not total direct cost or gross margin. This practice is dangerous since "Total at Billing Terms" does not include non-billable costs and a project could be completed under budget "at Billing Terms" but not meet its gross margin goal. This is a critical issue for PDMs and their delegates to understand and watch for. PDMs need to coach PMs to focus attention on managing cost at billing terms **and** total direct cost in order to optimize project gross margin.*

Project totals at billing terms include labor and expenses at the rates we bill them plus markups and fees. These values are reported so Project Managers can see costs in the same terms that the client sees them. If a project is set up in Oracle to reflect the contract terms, with complete and accurate cost and revenue budgets, and if we bill costs as they accrue on the project, the total at billing terms and PJTD revenue earned should be similar throughout the project. Billing costs as soon as they are known (billing ahead) may cause timing differences between the total billed and the revenue earned on the pre-billed costs.

Caution: *If a project is in an overrun situation, we may still want to bill as close to the fee limit as allowed by the client but we should not earn revenue at the same rate as we bill. Therefore, it is not a good idea to use billed amount as comparison for earned revenue.*

Total At Billing Labor and Expense: Labor items at billing terms are raw labor times a billing multiplier or labor hours at specific negotiated per diem rates. Expense items at billing terms are non-labor costs plus certain types of mark-up. This total includes all billable costs whether or not they appear on an invoice. The data attribute in the Data Warehouse (or in Project Search in the Virtual Office) is TOT_AT_BILLING_LABOR_EXPENSE.

Total at Billing Events: Billing events are amounts generated by Oracle to bill a client for fees not necessarily directly related to specific project costs. Examples are award fees, fixed fees, base fees, and certain types of expense mark-up. All appropriate events are included in this total, even if they have not yet appeared on an invoice. The data attribute in the Data Warehouse (or in Project Search) is TOT_AT_BILLING_EVENTS.

An accounting definition of the events included in Total at Billing Events is:

Top Task Billing Method	Event Types Included
• Lump Sum (LS)	• None
• Maximums (RLM, SCM, and PDM), non-maximums (RL, SC, PD), and fee (F)	• Write-Up Revenue and/or Billing (event revenue amount)
	• Markup Non-Labor Expenses (event revenue amount)

Total at Billing: The sum of labor and expense items at billing terms and billing events; this total is approximately the amount we should bill the client at any point in time assuming we can bill everything (all labor and expenses except those specifically marked non-billable).

Total at Billing Terms = Billable Labor and Expense Items at Billing Rates + Revenue Events such as Markups or Award Fee
TOT_AT_BILLING_PROJECT_CURRENCY = TOT_AT_BILLING_LABOR_ EXPENSE_PROJECT_CURRENCY + TOT_AT_BILLING_EVENTS_PROJECT_CURRENCY

Non-Billable Costs

What to look for! *A large non-billable total may suggest a project problem requiring work we did not expect and for which we feel we cannot bill. In this case, a cost overrun is possible or even likely.*

Non-billable costs are project costs that cannot be billed, either because they are unallowable (i.e., the client negotiated with us not to bill them) or because the Project Manager has determined they cannot be billed. Both cases normally require the approval of Project Delivery staff. Non-billable costs do not earn revenue and therefore erode gross margin performance.

Non-billable costs are reported, as a note item, at their fully-burdened totals. The purpose is to allow us to see the full impact of making costs non-billable. Only the direct cost portion is included in the Gross Margin calculations. Non-billable cost data attributes in the Data Warehouse (or in Web tools) are:

NB_COST_p_PROJECT CURRENCY, NB_DIRECT_COST_p_PROJECT_CURRENCY, NB_DIRECT_EXPENSE_PROJECT CURRENCY, NB_DIRECT_LABOR_PROJECT_CURRNCY, etc.

Work in Progress (WIP) and Accounts Receivable (AR)

What to look for! *Work in progress or accounts receivable totals by themselves are not indicative of a billing or collection problem. Days since last invoice (or last receipt) is a better flag for projects needing billing and collection attention. Our goal is to bill every 30 days and to collect within 45 days.*

To keep the Net Asset Charge (NAC) to a minimum, a Project Manager must bill regularly and as soon as possible, collect payment from the client quickly, and process vendor invoices promptly (but avoid paying them until our terms with the vendor say we will). The following metrics help the PM monitor these activities.

Days since Last Invoice: The number of days since we last invoiced the client or, if we have not invoiced yet, the number of days since the project was created. Since our goal is to bill at least every month, normally this number should not be greater than 30. Note: Days since last invoice will not be reported if work in progress is below 100.00.

$$Days\ since\ Last\ Invoice = Today - Last\ Invoice\ Bill\ Through\ Date$$
$$DAYS\_SINCE\_LAST\_INVOICE = TODAY - LAST\_INVOICE\_BILL\_THRU\_DATE$$

Days since Last Receipt: The number of days since we last received payment from the client or, if we have not received payment yet, the number of days since the project was created. Our goal is to collect payment within 45 days. Days since last receipt will not be reported if work in progress or work in progress plus AR balance due is below 100.00.

$$Days\ since\ Last\ Receipt = Today - Last\ Receipt\ Date$$
$$DAYS\_SINCE\_LAST\_RECEIPT = TODAY - LAST\_RECEIPT\_DATE$$

AR Balance Due Project Currency: The total the client owes us. This total is used in the assessment of the Net Asset Charge and, used in conjunction with days since last receipt, can indicate whether we need to take collection action.

Billed Project to Date Project Currency: The total billed to the client, excluding current draft invoices.

Work in Progress Project Currency (WIP): Revenue earned but not yet billed, including any project-level revenue adjustments. WIP is used in the Net Asset Charge calculation.

$$Work\ in\ Progress = Revenue\ PJTD - Billed\ PJTD$$
$$WORK\_IN\_PROGRESS\_PROJECT\_CURRENCY = REVENUE\_PJTD\_PROJECT\_CURRENCY - BILLED\_PJTD\_PROJECT\_CURRENCY$$

Monitoring Tools

Several methods can be used to monitor the metrics described in this document. Most are available via the HILL Virtual Office.

Web Reports

The Virtual Office provides access to summary project and top task data and the opportunity to drill into single project financial information. The two navigation paths to project financial data are:

- To see standard summary reports or to build custom (personal) reports for groups of projects, use | VO | Policies & Resources | Accounting Tools | Projects (Snapshot) | Select Fields.
- To view the set of projects for which you are the project manager, use | VO | Employee Resources | Project | Project Manager | My Projects.

Project Search: This tool provides a number of "Standard Views" showing project data by category such as Gross Margin after Exchange Balance, Revenue Breakout, or Investment PJTD. These queries require only one or more additional selection criteria such as project number or Project Manager name. The tool also allows a user to customize queries using a wide range of selection criteria.

Once the information is retrieved, the user can drill into the data for any project that appears to need further investigation. A PDM can, for example, query all active client projects for Project Manager Julie Brown with current month costs greater than 1,000. Depending on the data fields requested (there are a good many to choose from), it is possible to scan the retrieved data for apparent anomalies and, if one is found, to look in more detail by drilling into Project Insight. The data visible in Project Search can also be downloaded as an Excel file for further analysis.

Project Insight: To access this tool, click on the project number retrieved through Project Search. Project Insight not only allows on-line investigation of project- and task-level financial data, it also provides an opportunity to download reports in Word or Excel format. These reports can be forwarded to the PM or Project Accountant with questions or can be printed if a hard copy is needed.

Reports to Download

Several summary reports showing margin data are available for each project and may help to answer questions a review of Project Search data may raise. To access them, on the Project Insight tab labeled "Performance," select Downloads then the report you wish to download.

Report Viewer (Word)

PM-AP: Vendor Invoices on Hold: This report lists the invoice amounts, dates and holds for any subconsultant invoices unpaid on the project.

Reports in Excel

Project Margin Report: This report has a pivot table format allowing the user to drill into margin data for various periods at the project level.

Project Summary Report: This report, designed primarily for construction projects, contains a lot of summary data including Project Investment, AR Aging, Gross Margin, and Estimate To and At Completion.

Project Job Cost Report: This report has a pivot table format allowing the user to drill into margin data for various periods at the lowest level task.

ODBC Data Warehouse

Most needs for financial data can be met by the capabilities of the Web's Project Search and Project Insight. Still, there are occasions when a user may need to query data at a lower level of detail than top task or in a different combination of data fields. The method for doing so is to tap into the Data Warehouse using MS Access or MS Excel. Because of the size of the database, the number of tables into which the data are sorted, and the number of users across the firm, however, complex Access or Excel queries may fail due to "time outs." Users should stick with the Web tools whenever possible.

MS Access: Users must have at least basic familiarity with MS Access before attempting queries in the Data Warehouse. To set up the appropriate links, contact the Oracle Financials Help Desk Support/DEN.

MS Excel: Excel can be used to query the Data Warehouse. Excel requires the MS Query Add-in to activate the Excel menu choice | Data | Get External Data. To set up the appropriate links, contact the Oracle Financials Help Desk Support/DEN, ext. 2160.

Suggested Monitoring Scenarios

Project Managers should normally monitor their projects' direct costs, direct cost budgets and EACs, revenue, and gross margins using the on-line views and downloadable reports available through the HILL Virtual Office.

While the Data Warehouse can provide the same information, it is more appropriately used to retrieve data for many projects at once and may be more useful to PDMs and PDCs than to Project Managers. The text and tables below suggest ways to monitor project performance and identify where to find the data for doing so.

For Project Direct Costs and Gross Margin

Planning, monitoring, and controlling project direct costs and gross margin are a Project Manager's primary project financial responsibility.

Metric	Summary of What To Look For and Where To Look

Direct Costs	Summarized direct costs can be compared to plan (baseline direct cost budget and direct cost EAC) in the following forms and reports:
	• VO Projects Search (standard and custom views)
	• Downloadable Reports (Margin & Billing Summary, Project and Top Task; Project Cost Report)
	Detailed direct costs can be compared to plan in these forms and reports:
	• VO Project Home Page (drilldown views)
	• Downloadable Reports
	  - Project Detail Cost
	  - Project Nonlabor Detail
	  - Project Detail Cost

Gross Margin	GM is affected both by direct costs and revenue earned. Negative values could imply that direct costs are being spent faster than planned or that revenue is being restrained. Large negative or positive values suggest a need for verification of the project budgets. GM can be found in: • VO Projects Search (PM Performance Summary and Gross Margin after Exchange Balance standard views) • Downloadable Reports (Margin Performance Report; Margin & Billing Summary, Project and Top Task) • VO Project Home Page (Margin Performance drilldown view) See also the revenue discussion below.

For Revenue

A project's revenue is influenced primarily by revenue budget and total direct cost EAC. If either of these factors is missing or inaccurate, the validity of revenue is compromised.

No single metric can identify all revenue problems, but the following ones can suggest projects that may need further investigation. The Web Projects Search page can display a list of projects with any or all of these metrics as well as with additional data that can help explain a project's financial condition.

Metric	Summary of What To Look For and Where To Look
Restrained Revenue	Negative restrained revenue suggests that the current direct cost EAC is predicting an overrun (real or false) and, for projects not using the project-level revenue calculation, can be the result of a difference in the ratio of direct labor to total direct costs from that planned.
	Positive restrained revenue is likely the result of an addition to the revenue budget, revenue write-ups, or an EAC revised downward.
	Restrained Revenue can be found in:
	• VO Projects Search (several standard views)
	• Downloadable Reports (Margin & Billing Summary, Project and Top Task)
	• Data Warehouse (Projects Basic, Tasks Basic, Top Tasks Basic, & Events History views)
Percent Variance (Direct & Burdened)	A negative percent variance means the project has a larger percent spent than percent complete and may suggest a potential overrun. A positive percent variance could suggest budget anomalies or that the project is doing very well.
	Percent Variance can be found in:
	• VO Projects Search (Financial Warning Flags standard view)
	• Downloadable Reports
	• Data Warehouse (Projects Basic, Tasks Basic, & Top Tasks Basic views)
GM Variance	GM Variance values are affected both by direct costs and revenue earned. Negative values could imply that direct costs are being spent faster than planned or that revenue is being restrained or that the direct cost budget is outdated. Large positive or negative values suggest a need for verification of the project budgets.
	GM Variance can be found in:
	• VO Projects Search
	• Data Warehouse (Projects Basic & Top Tasks Basic views)
Total at Billing	The total at billing value represents the approximate revenue we can earn if we can bill all billable items. Comparison of total at billing with PJTD revenue can help pinpoint projects that may need re-evaluation of budgets.
	Total at Billing can be found in:
	• VO Project Financials (Financial Warning Flags standard view; custom views)
	• Downloadable Reports
	• Data Warehouse (Projects Basic, Tasks Basic, & Top Tasks Basic views)

For Billing

To evaluate the true billing status of a project, it is necessary to look at both work in progress and the days since the last invoice.

Metric	Summary of What To Look For and Where To Look
Work in Progress	The total not yet billed to the client. Revenue has been earned on this amount and, in most cases, costs have been incurred. Work in Progress can be found in: • VO Projects Search (Work in Progress PJTD and Investment PJTD standard views) • Downloadable Reports • Data Warehouse (Projects Basic, Tasks Basic, & Top Tasks Basic views)
Days Since Last Invoice	Since our goal is to bill our clients at least every 30 days, any number in excess of 30 can identify a project that may need to be billed. Days since Last Invoice can be found in: • VO Projects Search (Work in Progress PJTD standard view) • Data Warehouse (Projects Basic view)

For Collection

As for billing, to identify and track projects that may need extra collection activity, two pieces of data must be reviewed.

Metric	Summary of What To Look For and Where To Look
AR Balance Due	The amount we have billed the client but have not yet been paid. AR Balance Due can be found in: • VO Projects Search (Investment PJTD standard view) • Downloadable Reports (Project Summary Report) • Data Warehouse (Projects Basic & Receivables views)
Days Since Last Receipt	Our goal is to collect payment within 45 days of sending an invoice to the client. Any value larger than 45, therefore, may signal a need for collection follow-up. Work in Progress can be found in: • VO Projects Search (Investment PJTD standard view) • Data Warehouse (Projects Basic view)

Table of Project Manager Reports/Data

The following table provides a list of Project Manager reports and on-line data currently available, virtually all of it in Project Insight available in the Virtual Office.

To get to a project's home page, use VO | Searches | Projects (Snapshot). Enter selection criteria then double click on a project number. A Project Manager can also get to the home pages for his or her own projects by using VO | Employee Resources | Project | Project Manager | My Projects.