



Performance Metric Calculations

Changepoint PSA Reference Guide

Release 2014

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CHAPTER 1

Performance Metric Calculations

About metric calculations

WARNING: The information about performance metric calculations is provided for reference purposes only. Metric calculations are not supported within the terms of your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or sales representative to arrange for consulting services.

Changepoint metric templates contain predefined formulas to calculate individual and team performance (IPM) and project performance (portfolio). For more information, see:

- “Adoption metric type calculations” on page 5
- “Results metric type calculations” on page 14
- “Customer satisfaction calculations” on page 20
- “Peer Feedback calculations” on page 21
- “Project calculations” on page 22

WARNING: Metric calculations widely impact Changepoint reports and tools. Access to these calculations should be limited to knowledgeable resources within your organization.

Adoption metric type calculations

- “Approval Lag – Expenses” on page 6
- “Approval Lag – Invoices” on page 6
- “Approval Lag – Time” on page 7
- “Approval Lag – Requests” on page 8
- “Task Status Compliance” on page 8
- “Time Submission Conformance” on page 10
- “User-Entered Calculation (Actual)” on page 12
- “User-Entered Calculation (Average)” on page 12
- “User-Entered Calculation (Sum)” on page 13

Approval Lag – Expenses

Description	Calculates the expense approval lag (manager's approval lag and the finance resource's approval lag) for individual and team metrics. The calculation is based on the current IPM period.
Code	EAL
Raw Data	<ul style="list-style-type: none"> EAL = EMAD – ESD or EAL = EFAD – EMAD EMAD: Expense report manager approval date EFAD: Expense report finance approval date ESD: Expense report submission date
Rule	<ul style="list-style-type: none"> The expense must be submitted and approved by the manager and/or the finance resource. The manager approval date or finance resource approval date must be within the IPM period. The approval date must be between the last run calculation date and time and the current date and time.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> Result = Sum(EAL) / Count EAL: Expense approval lag value from raw data Count: Count value from raw data
Team	Calculates the sum, average and weighted average value for each team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(EAL) EAL: Expense approval lag value from data
Average formula	<ul style="list-style-type: none"> Result = Sum(EAL) / Count EAL: Expense approval lag value from data Count: Count value of input individual who has data
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(EAL) / Count EAL: Expense approval lag value from raw data Count: Count value from raw data

Approval Lag – Invoices

Description	Calculates the invoice approval lag (first level approval and second-level approval) for individual and team metrics. The calculation is based on the current IPM period.
Code	IAL
Raw Data	<ul style="list-style-type: none"> IAL = AD – PAD (Total time elapsed from pending approval to approval) IAL = AD – P2AD (Time elapsed from pending second-level approval to second-level approval) IAL = P2AD – PAD (Time elapsed from pending approval to pending second-level approval) AD: Invoice approval date P2AD: Invoice pending second-level approval status date PAD: Invoice pending approval status date

Rule	<ul style="list-style-type: none"> The invoice status must be A or P2A The invoice status change to A or P2A must have occurred within the IPM period. The approval date must be between the last run calculation date and time and the current date and time.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> Result = Sum(IAL) / Count IAL: Invoice approval lag value from raw data Count: Count value from raw data
Team	Calculates the sum, average and weighted average value for each team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(IAL) IAL: Invoice approval lag value from data
Average formula	<ul style="list-style-type: none"> Result = Sum(IAL) / Count IAL: Invoice approval lag average value from data Count: Count value of input individual who has data
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(IAL) / Count IAL: Invoice approval lag value from raw data Count: Count value from raw data

Approval Lag – Time

Description	Calculates the time approval lag for individual and team metrics. The calculation is based on the current IPM period.
Code	TAL
Raw Data	<ul style="list-style-type: none"> TAL = TAD – TSD TAD: Time record approval date TSD: Time record submission date
Rule	<ul style="list-style-type: none"> Time must be approved. The approval date must be within the IPM period. The approval date must be between the last run calculation date and time and the current date and time.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> Result = Sum(TAL) / Count TAL: Time approval lag value from raw data Count: Count value from raw data
Team	Calculate the sum, average and weight average value for each team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(TAL) TAL: Time approval lag value from raw data
Average formula	<ul style="list-style-type: none"> Result = Sum(TAL) / Count TAL: Time approval lag value from data Count: Count value of input individual who has data
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(TAL) / Count TAL: Time approval lag value from raw data Count: Count value from raw data

Approval Lag – Requests

Description	Calculates the request approval lag for individual and team metrics. The approval date must be within the IPM period.
Code	RAL
Raw Data	<ul style="list-style-type: none"> • $RAL = RAD - RSD$ • RAL: Approval step was approved or rejected • RSD: Approval step was assigned
Rule	<ul style="list-style-type: none"> • The request must be approved or rejected. • The approval or rejection date must be within the IPM period. • The approval or rejection date must be between the last run calculation date and time and the current date and time.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> • $Result = Sum(RAL) / Count$ • RAL: Request approval lag value from raw data • Count: Count value from raw data
Team	Calculate the sum, average and weight average value for each team.
Sum formula	<ul style="list-style-type: none"> • $Result = Sum(RAL)$ • RAL: Request approval lag value from raw data
Average formula	<ul style="list-style-type: none"> • $Result = Sum(RAL) / Count$ • RAL: Request approval lag value from data • Count: Count value of input individual who has data
Weighted average formula	<ul style="list-style-type: none"> • $Result = Sum(RAL) / Count$ • RAL: Request approval lag value from raw data • Count: Count value from raw data

Task Status Compliance

Description	<p>Evaluates if resources update the status of their tasks at the required frequency. The calculation can be set up for both individual and team metrics.</p> <p>Example: See the “Task status compliance example” section on page 9.</p>
Code	<p>The results are tabulated for each task assignment. The actual number of status updates is compared to the required number of status updates and the overall compliance result is presented as a percentage.</p> <p>The status update is considered to be in conformance when the status update is done on or before the status due date, and within the status frequency.</p> <p>Example: If a status update is due on Friday for a weekly status frequency, a resource can update the status any time during the week ending on the Friday (from the previous Saturday to the current Friday).</p>

Raw Data	<ul style="list-style-type: none"> TSK = IPIRaw_TaskStatusMetric TSK = NTS/NTR * 100 NTS = Number of times missed statusing NTR = Number of times required statusing <p>IPI detects all the tasks for which the status update is required as of the day it runs.</p> <p>Calculates the sum of the number of statuses missed for each task assignment using the task assignment created on date to determine the status frequencies.</p> <p>For each task assignment, the sum of the number of status updates is divided by the number of status periods and then the results are added. The result is a number between 0 and 1, where 0 records that everything is statused on time and 1 records that no tasks have been statused. This is stored as today's result.</p>
Rule	The task and the task assignment are active and the status is required for the task assignment.
Individual	Calculates the average value for each individual.
Formula	Result = Sum (TSK) / Count <ul style="list-style-type: none"> TSK = IPICalc_TaskStatusMetric
Team	Based on calculation type It can calculate the average and weighted average value for team
Average formula	Result = Sum (TSK) / Count <ul style="list-style-type: none"> TSK: Time submission conformance average value from data Count: Count value from data
Weighted average formula	Result = Sum (TSK) / Count <ul style="list-style-type: none"> TSK: Time submission conformance average value from data Count: Count value from data

Task status compliance example

John Smith is asked to update his task status weekly and his tasks cover an 8-week period. John's manager wants to know if he has updated his status at least once within that 7-day period for those 8 weeks. If John has updated his status 3 times within the 7 days, it will be treated no differently than if he had done it once within the required 7 days. All his manager wants to know if that the minimum was met and whether he is in compliance or not. In the following example, John was in compliance for 6 weeks out of 8. $(6/8) = 75\%$.

	M	T	W	Th	F	Sa	Su	Compliance
Week 1		✓		✓	✓			Yes
Week 2			✓					Yes
Week 3		✓						Yes
Week 4								No
Week 5	✓							Yes
Week 6								No
Week 7	✓				✓			Yes
Week 8	✓							Yes

The calculation takes into account the following tasks:

- Tasks assigned to resources and for which a status update is required as of the day the job is run.

- Tasks for active projects
- Tasks for completed or inactive projects if the project was updated during the IPM period. Tasks for completed projects are only included during the IPM period for which the project was updated and will not be included in the next IPM period

Projects that were active during the IPM period but were edited and the status changed to other than **Active**.

- Task assignments with remaining hours greater than zero
- Tasks that have remaining hours of zero but where the last status date was within the IPM period (this will take into account tasks that were active for part of the IPM period and were completed during the IPM period).

The calculation determines how often the status of a task should have been updated based on the later of the project's first status date, the task's planned start or the task's creation date versus the date the scheduled job was run.

For example: If the planned start date of a task was 8 weeks ago and the project requires weekly status updates, the task must be updated eight times.

However, if the task's planned start date was two months ago but the task was created last week, then the task should have been updated only once, because the resource should not be penalized for not doing status updates when the task did not exist.

Time Submission Conformance

Description	<p>The formula calculates time submission conformance for individual and team metrics. Time includes project time, request time and non-project time.</p> <p>The calculation is based on the current IPM period or previous period.</p> <p>This metric only considers time that is approved, but uses the time submission date to determine the submission lag time. Each submission due date is calculated from the first payroll end date and the pay schedule (specified in the User Setup dialog box of the resource). The submissions are then compared to those due dates to see what the difference is between the submission date and the due date. This difference is called the submission time lag.</p> <p>Example: See the "Time submission conformance example" section on page 11.</p> <p>Note: The submission due date does not use the submission cycle specified in the User Setup dialog box, but uses the pay schedule. This means that if you have a bi-weekly pay schedule and a weekly submission cycle, your calculation is based on bi-weekly. If you are using this metric, make your pay schedule the same as your submission cycle.</p>
Code	TSC

Raw Data	<ul style="list-style-type: none"> • $TSCR = TSD - EPD$ • $TSC = \text{Sum}(TSCR) / \text{Count}$ • TSD: Time record submission date • EPD: End of the payroll date of the time record • TSCR: Time submission conformance on each time record • Count: Time records' count on one day • TSC: Time submission conformance on each day
Rule	<ul style="list-style-type: none"> • Time must be submitted and approved. • The approval date must be between the last run calculation date and time and the current date and time. • If raw data for a day already exists, then all of the new approved time records that are entered on that day will not be calculated. This avoids problems with resubmission of rejected time, which penalizes the resource who submitted time. • If the time is entered in a previous period, it recalculates the end date value of the previous period for all of the time submission conformance metrics for the resource that entered the time. It also recalculates all of the end date values of the previous period for the team metric assignments that used the resource as an input.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum}(TSC) / \text{Count}$ • TSC: Time submission conformance value from raw data • Count: Count value from raw data
Team	Based on calculation type It can calculate the average and weighted average value for team.
Average formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum}(TSC) / \text{Count}$ • TSC: Time submission conformance average value from data • Count: Count value from data
Weighted average formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum}(TSC) / \text{Count}$ • TSC: Time submission conformance value from raw data • Count: Count value from raw data

Time submission conformance example

The first payroll end date is Saturday, February 14. The pay schedule is weekly. The submission due dates are as follows:

- February 21
- February 28
- March 7
- March 14
- March 21

Time between February 14 and February 21 will be compared to the February 21 submission due date. Time between February 21 and February 28 will be compared to the February 28 due date.

If a resource enters time in the week ending February 21 and submits this time on February 25, the submission lag time is 3 days.

If the resource does not submit this time until March 5, the submission lag time is 9 days.

If the resource submits the time on February 20, the submission time lag is 0 days because the time is submitted ahead of when it is supposed to be submitted.

User-Entered Calculation (Actual)

Description	Calculates user-entered metric results for individuals and teams. The calculation is based on current IPM period.
Code	0
Metric	User-entered data is identified by the MetricId
Raw Data	The raw data is user-entered.
Rule	<ul style="list-style-type: none"> • Data (refDate) must be in the current or last period. Data entered in the future (next period) will be calculated in the next period. • If the data's refDate is in the previous period, then the individual and input MetricData end date value of the previous period is recalculated for the specific resource and metric. • The team end data value of the previous period, for the specific metric, is also recalculated.
Individual	Retrieves the latest value (only one value) from raw data into the metric data. Information that was previously entered is superseded by the latest entry.
Formula	<ul style="list-style-type: none"> • Result = UValue • UValue: Latest user-entered value (by refdate) from raw data in the period
Team	Calculates the sum, average and weighted average value for the team
Sum formula	<ul style="list-style-type: none"> • Result = Sum(UValue) • UValue: Value from data
Average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from data • Count: Count value from data
Weighted average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from data • Count: Count value from data

User-Entered Calculation (Average)

Description	Calculates individual and team metric results that are entered by the user. The calculation is based on the current IPM period.
Code	0
Metric	User-entered data is identified by the MetricId
Raw Data	Data is user-entered.

Rule	<ul style="list-style-type: none"> • Data (refDate) must be in the current or last period. Data entered in the future (next period) will be calculated in the next period. • If the data's refDate is in the previous period, then the individual and input MetricData end date value of the previous period is recalculated for the specific resource and metric. • The end date value of the previous period for the team metrics that uses the resource as an input is also recalculated.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: User-entered value from raw data • Count: Count value from raw data by the MetricId
Team	Calculates the sum, average and weighted average value for the team.
Sum formula	<ul style="list-style-type: none"> • Result = Sum(UValue) • UValue: Value from data
Average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from data • Count: Count value from data
Weighted average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from raw data • Count: Count value from raw data

User-Entered Calculation (Sum)

Description	Calculates individual and team metric results that were entered by the user. The calculation is based on the current IPM period.
Code	0
Metric	User-entered data is identified by the MetricId
Raw Data	Data is user-entered.
Rule	<ul style="list-style-type: none"> • Data (refDate) must be in the current or last period. Data entered in the future (next period) will be calculated in the next period. • If the data's refDate is in the previous period, then the individual and input MetricData end date value of the previous period is recalculated for the specific resource and metric. • The end date value of the previous period for the team metrics that uses the resource as an input is also recalculated.
Individual	Calculates the sum value for each individual.
Formula	<ul style="list-style-type: none"> • Result = Sum(UValue) UValue: user-entered value from raw data
Team	Calculates the sum, average and weighted average value for the team.
Sum formula	<ul style="list-style-type: none"> • Result = Sum(UValue) • UValue: Value from data

Average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from data • Count: Count value from data
Weighted average formula	<ul style="list-style-type: none"> • Result = Sum(UValue) / Count • UValue: Value from raw data • Count: Count value from raw data

Results metric type calculations

- “Opportunity Won Result” on page 14
- “Opportunity Won Result (Floating Target)” on page 15
- “Utilization Percent (Billable, by Hour/Day)” on page 16
- “Utilization Percent (Billable, by Period Hours)” on page 17
- “Utilization Percent (by Hour/Day)” on page 18
- “Utilization Percent (by Period Hours)” on page 19

To use these calculations, the following information must be configured in Changepoint:

- The daily capacity for a resource (specified in the **User Setup** dialog box of the resource)
- The number of annual target hours (specified in the **User Setup** dialog box of the resource)
- The approval lag that determines how late time can be entered (related to resource utilization calculations.)

Opportunity Won Result

Description	Calculates the monetary value of won opportunities for both individual and team metrics. The calculation is based on the current IPM period.
Code	OWV
Raw Data	OWV = Revenue forecast of the opportunity. Note: Make sure to first update the forecast amounts of the opportunity so that they reflect the most current product and service revenue forecasts.

Rules	<ul style="list-style-type: none"> • Opportunity must be won. • The actual close date of the opportunity must be within the previous or the current period. • The opportunity must have been created or updated between the last run time of the calculation engine to the current time. • If data already exists for the opportunity in IPIMetricRawData table, delete the old data in this table. • If the actual close date of the opportunity is in the previous period, the system recalculates the individual and input MetricData end date value of the previous period for Opportunity Won Result and Opportunity Won Result (Floating Target) for the resource. The team end date values of the previous period for Opportunity Won Result and Opportunity Won Result (Floating Target) which uses the resource as an input is also recalculated.
Individual	Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum(OWV)} / \text{Count}$ • OWV: Opportunity won value from raw data • Count: Count value of opportunity won from raw data
Team	Calculate the sum, average and weighted average value for the team.
Sum formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum(OWV)}$ • OWV: Opportunity won value from data
Average formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum(OWV)} / \text{Count}$ • OWV: Opportunity won value from data • Count: Count value of the input individual who has an opportunity won
Weighted average formula	<ul style="list-style-type: none"> • $\text{Result} = \text{Sum(OWV)} / \text{Count}$ • OWV: Opportunity won value from raw data • Count: Count value from raw data

Opportunity Won Result (Floating Target)

Description	<p>The calculation is similar to the Opportunity Won Result calculation, except that the target value is based on a pro-rated value over the metric reporting period.</p> <p>Example: A sales manager has a quota of \$500,000 for the quarter. As of today, it is now 20 days into the reporting period and the target displays \$111,000 (20% of the total). For the opportunity won method, the results display red for most of the beginning of the reporting period, since it takes some time to accumulate the required sales. Therefore, this method of calculation takes into account the fact that the whole target will not be achieved at the beginning of the period.</p>
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Raw Data	Same as for the Opportunity Won Result calculation.
Current Target Value	<p>The current target value is variable day-to-day. It is based on how many days passed from the beginning of the period.</p> <ul style="list-style-type: none"> CTV = PTV * CD / PD PTV: Period target value CTV: Current target value CD: Days between the beginning of the period to the current date. PD: Days in the period

Utilization Percent (Billable, by Hour/Day)

Description	<p>Calculates the percentage of billable utilization of resources for individual and team metrics.</p> <p>The calculation is based on the current IPM period.</p> <p>The formula calculates the number of billable hours and compares it to a resource's daily capacity.</p> <p>Example: The resource's daily capacity is 8 hours. The IPM period runs from March 1 to March 31. On March 16, the resource has submitted time for the weeks of March 3 and 10, for a total of 30 approved hours which are both billable and utilized. The resource's utilization is 30/ (10 working days * 8 hours).</p>
Code	UTP
Raw Data	<ol style="list-style-type: none"> ElapsedDays = Number of working days for period to date (excludes weekends and system-defined holidays) PeriodTotalHrsToDate = ElapsedDays * ResourceHoursPerDay (daily capacity specified in the User Setup dialog box of the resource) Zero will be used if the daily capacity is not populated, therefore no results are calculated. UTP = $\text{sum}((\text{TaskTime} + \text{RequestTime} + \text{NonProjectTime}) - (\text{WriteoffTime} + \text{WriteOffRequestTime})) / (\text{PeriodTotalHrsToDate}) * 100, 0$ TaskTime, RequestTime, NonProjectTime: <ul style="list-style-type: none"> Billable = YES Utilization eligible = YES Approved = YES – A user could change the time after it is entered. So approved records are checked between the period start date and today. If users do not enter time during the current week, the utilization decreases.
Individual	It calculates the current value for each individual.
Formula	<ul style="list-style-type: none"> Result = UTP UTP: Resource utilization percent value from raw data
Team	Calculates the sum, average or weighted average for the team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(UTP) UTP: Value of resource utilization percent from data

Average formula	<ul style="list-style-type: none"> Result = Sum(UTP) / Count for the period. UTP: Value of resource utilization percent from data Count: Count value from data which utilization percent value is not null (based on metric data)
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(UTP) / Count for a range of dates. UTP: Value of resource utilization percent from data Count: Count value from data which utilization percent value is not null (based on metric raw data)

Utilization Percent (Billable, by Period Hours)

Description	<p>Calculates the percentage of billable utilization of resources for both individual and team metrics. This calculation is based on the current IPM period.</p> <p>This calculation compares actual billable utilized hours for a resource with the prorated target for the IPM period.</p> <p>Example: The resource's annual target hours is 1,400. The IPM reporting period is February 1 to February 28 and the working days for the year are 248. The calculation runs on February 15, the prorated target number of hours is 10 (elapsed days) / 248 total working days * 1,400 (annual target hours) = 56.45</p> <p>The number of utilized billable, approved hours for the period of February 1 to February 15, is divided by the pro-rated target to reach the utilization percent. If the resource enters 45 billable utilized hours, the result is 79.72% for the period of February 1 to February 15.</p>
Code	UT3
Raw Data	<ol style="list-style-type: none"> ElapsedDays = Number of working days for period to date (excludes weekends and system required holidays) TotalWorkingdays: Resource total calculated working days in the current year. AnnualTargetHours: Resource total target working hours per year (as specified in the User Setup dialog box of the resource). PeriodTotalHrsToDate = ElapsedDays / TotalWorkingdays * AnnualTargetHours UT3 = sum((TaskTime+ RequestTime+ NonProjectTime) – (WriteoffTime+WriteOffRequestTime))/ (PeriodTotalHrsToDate) * 100 TaskTime, RequestTime, NonProjectTime: <ul style="list-style-type: none"> Billable = YES Utilization eligible = YES Approved = YES – A user could change the time after it is entered. So approved records are checked between the period start date and today. If resources do not enter time during the current week, the utilization decreases.
Individual	Calculates the current value for each individual.
Formula	<ul style="list-style-type: none"> Result = UT3 UT3: Resource utilization percent value from raw data.

Team	Calculates the sum, average and weighted average value for team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(UT3) UT3: Value of resource utilization percent from data.
Average formula	<ul style="list-style-type: none"> Result = Sum(UT3) / Count for the period. UT3: value of resource utilization percent from data. Count: Count value of resources for which utilization percent value is not null (i.e. one value per resource range).
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(UT3) / Count for the range of dates. UT3: Value of resource utilization percent from data. Count: Count value of each record for which utilization percent value is not null (i.e. multiple values per resource).

Utilization Percent (by Hour/Day)

Description	<p>Calculates the percentage of resource utilization for both individual and team metrics. This calculation is based on the current IPM period.</p> <p>This calculation is the same as Utilization Percent (Billable, by Hour/Day) except that actual hours includes all utilized hours, including billable and unbillable.</p>
Code	UT2
Raw Data	<ol style="list-style-type: none"> ElapsedDays = Number of working days for period to date (excludes weekends and system-defined holidays) PeriodTotalHrsToDate = ElapsedDays * ResourceHoursPerDay (daily capacity specified in the User Setup dialog box of the resource). UT2 = $\frac{\text{sum}((\text{TaskTime} + \text{RequestTime} + \text{NonProjectTime}) - (\text{WriteoffTime} + \text{WriteOffRequestTime}))}{(\text{PeriodTotalHrsToDate}) * 100}$ TaskTime, RequestTime, NonProjectTime: <ul style="list-style-type: none"> Billable or Unbillable Utilization eligible = YES Approved = YES – A user could change the time after it is entered. So approved records are checked between the period start date and today. If resources do not enter time during the current week, the utilization decreases.
Individual	Calculates the current value for each individual.
Formula	<ul style="list-style-type: none"> Result = UT2 UT2: Resource utilization percent value from raw data.
Team	Calculates the sum, average and weighted average value for the team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(UT2) UT2: Value of resource utilization percent from data

Average formula	<ul style="list-style-type: none"> Result = Sum(UT2) / Count for the period. UT2: Value of resource utilization percent from resource data Count: Count value from data which utilization percent value is not NULL
Weighted average formula	<ul style="list-style-type: none"> Result = Sum(UT2) / Count for a range of dates. UT2: Value of resource utilization percent from row data Count: Count value from data which utilization percent value is not NULL

Utilization Percent (by Period Hours)

Description	<p>Calculates the percentage of resource utilization for both individual and team metrics. This calculation is based on the current IPM period.</p> <p>This calculation is the same as Utilization Percent (Billable, by Period Hours) except that actual hours includes all utilized hours, including billable and unbillable.</p>
Code	UT4
Raw Data	<ol style="list-style-type: none"> ElapsedDays = Number of working days for period to date (excludes weekends and system defined holidays) TotalWorkingdays: Resource total calculated working days in the current year AnnualTargetHours: Resource total target working hours per year PeriodTotalHrsToDate = ElapsedDays / TotalWorkingdays * AnnualTargetHours UT3 = sum((TaskTime+ RequestTime+ NonProjectTime) – (WriteoffTime+WriteOffRequestTime))/ (PeriodTotalHrsToDate) * 100) TaskTime, RequestTime, NonProjectTime: <ul style="list-style-type: none"> Billable or Unbillable Utilization eligible = YES Approved = YES – A user could change the time after it is entered. So approved records are checked between the period start date and today. If resources do not enter time during the current week, the utilization decreases.
Individual	Calculates the current value for each individual.
Formula	<ul style="list-style-type: none"> Result = UT4 UT4: Resource utilization percent value from raw data
Team	Calculates the sum, average and weighted average value for team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(UT4) UT4: Value of resource utilization percent from data

Average formula	<ul style="list-style-type: none"> Result = $\text{Sum(UT4)} / \text{Count}$ for the period UT4: Value of resource utilization percent from resource data Count: Count value from data which utilization percent value is not NULL
Weighted average formula	<ul style="list-style-type: none"> Result = $\text{Sum(UT4)} / \text{Count}$ for a range of dates. UT4: Value of resource utilization percent from row data Count: Count value from data which utilization percent value is not NULL

Customer satisfaction calculations

Note: All satisfaction ratings are based on a scale of 1 to 5.

- “Project Satisfaction by Customer” on page 20 – used for project portfolio performance
- “Resource Satisfaction by Customer” on page 20 – used for individual and team performance

These calculations use a metric that is inserted from surveys with rating questions that contain a custom tag or prompt tag.

Project Satisfaction by Customer

Description	<p>Calculates the customer satisfaction with the work done on a project.</p> <p>The calculation includes responses from contacts or respondents that were manually specified in the survey’s list of recipients, and whose email address is not associated with a resource.</p>
Target	Identify the target rating on the project or portfolio level.
Actual	Average project satisfaction rating from the surveys selected on the metric template, where the responses were provided in the specified time interval (Results from last days field). All rating questions tagged against a project are included in the calculation.
Formula	$\text{Variance} = \text{Actual} - \text{Target}$
Scenario	<ul style="list-style-type: none"> Actual project satisfaction rating: 3 Target satisfaction rating: 4 <p>Calculation $\text{Variance: } 3 - 4 = -1$</p> <p>In this calculation, a negative number is a poor result if 1 is considered bad and 5 is considered good.</p>

Resource Satisfaction by Customer

Description	<p>The formula calculates the customer satisfaction rating value for both individual and team metrics. This calculation is based on the current IPM period.</p> <p>The calculation includes responses from contacts or respondents that were manually specified in the survey’s list of recipients.</p>
Code	CFS

Raw Data	<ul style="list-style-type: none"> CFS = Rating value from survey responses by customers
Individual	Customer feedback Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> Result = $\text{Sum}(\text{CFS}) / \text{Count}$ CFS: Ratings from customer who responded to a survey Count: Number of responses against that individual
Team	Calculates the sum, average and weighted average value for each team.
Sum formula	<ul style="list-style-type: none"> Result = $\text{Sum}(\text{CFS})$ CFS: Rating value from data.
Average formula	<ul style="list-style-type: none"> Result = $\text{Sum}(\text{CFS}) / \text{Count}$ CFS: Customer satisfaction rating value from metric data Count: Number of individuals who are inputs to the metric and who have an average rating
Weighted average formula	<ul style="list-style-type: none"> Result = $\text{Sum}(\text{CFS}) / \text{Count}$ CFS: Rate value from raw data Count: Number of rating records from the raw data

Peer Feedback calculations

- “Project Satisfaction by Resource” on page 21 – used for project portfolio performance
- “Resource Satisfaction by Peer” on page 21 – used for IPM

These calculations use a metric that is inserted from surveys that have rating questions containing a custom tag. For more information, see “prompt tags”.

Project Satisfaction by Resource

Description	The formula calculates the resource satisfaction with the quality of work done on the project. The calculation includes responses from internal resources.
Target	Identify the target projects on the project or portfolio level.
Actual	Project satisfaction rating
Formula	Variance = Actual – Target
Scenario	<ul style="list-style-type: none"> Actual project satisfaction rating: 3 Target satisfaction rating: 4 Calculation Variance: $3 - 4 = -1$ In this calculation, a negative number is a poor result if 1 is considered bad and 5 is considered good.

Resource Satisfaction by Peer

Description	Calculates the peer satisfaction rating value for both individual and team metrics. This calculation is based on the current IPM period and includes responses from internal resources.
Code	PFS

Raw Data	<ul style="list-style-type: none"> PFS= Rating value from surveys responded by other resources
Individual	Peer feedback Calculates the average value for each individual.
Formula	<ul style="list-style-type: none"> Result = $\text{Sum(PFS)} / \text{Count}$ PFS: Ratings from resources who responded to a survey Count: Number of responses
Team	Calculates the sum, average and weighted average value for each team.
Sum formula	<ul style="list-style-type: none"> Result = Sum(PFS) PFS: Rate value from data
Average formula	<ul style="list-style-type: none"> Result = $\text{Sum(PFS)} / \text{Count}$ PFS: Peer feedback rating value from data Count: Count value of input by the individual who has the average rate value from a survey responded to by a peer
Weighted average formula	<ul style="list-style-type: none"> Result = $\text{Sum(PFS)} / \text{Count}$ PFS: Rating value from raw data Count: Count value from raw data

Project calculations

- “Project Portfolio Metric - Budgeted Billing” on page 23
- “Project Portfolio Metric - Budgeted Billing vs. Estimate-to-Completion Billing” on page 24
- “Project Portfolio Metric - Budgeted Billing vs. Estimate-to-Completion Billing (with Request Billing)” on page 26
- “Project Portfolio Metric - Budgeted Billing Amount vs. Recognized Revenue” on page 27
- “Project Portfolio Metric - Budgeted Cost” on page 29
- “Project Portfolio Metric - Budgeted Cost (with Request Cost)” on page 29
- “Project Portfolio Metric - Budgeted Capital Cost” on page 30
- “Project Portfolio Metric - Budgeted Non-Capital Cost” on page 31
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- “Project Portfolio Metric - Budgeted Schedule” on page 32
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- “Project Portfolio Metric - Planned Billing vs. Recognized Revenue” on page 37

- “Project Portfolio Metric - Planned Cost” on page 39
- “Project Portfolio Metric - Planned Cost (with Request Cost)” on page 39
- “Project Portfolio Metric - Planned Effort” on page 40
- “Project Portfolio Metric - Planned Effort (with Request Effort)” on page 40
- “Project Portfolio Metric - Planned Schedule” on page 40
- “Project Portfolio Metric - Planned vs. Estimate-to-Completion Cost” on page 41
- “Project Portfolio Metric - Planned vs. Estimate-to-Completion Effort” on page 41
- “Project User-Entered (Actual, Average and Sum)” on page 42

Project Portfolio Metric - Budgeted Billing

Description	Calculates how closely the actual project billing amount compares to the budgeted project billing amount. This calculation uses monetary amounts in the portfolio currency.
Code	BBA
Target	<p>Budgeted Billing Amount</p> <ol style="list-style-type: none"> 1. Finds the total budgeted billing amount for the project, including services, fixed fees, expenses and products. 2. If there are budget revisions, the latest budget revision for each budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>For target amounts, data from the budget is used as follows:</p> <ul style="list-style-type: none"> • Budget services: Budgeted hours * Budgeted net billing rate • Budget fixed fees: Budgeted fixed fee amount • Budget expenses: Budgeted expense quantity * Budgeted gross expense * Budgeted expense percentage * Budgeted expense discount * Budgeted billing expense (set to either 1 or 0). • Budget products: Budgeted product quantity * Budgeted net product price.

Actual	<p>Actual billing amounts</p> <p>The calculation totals the actual billing amounts for the project. Only invoiced amounts are included as follows:</p> <ul style="list-style-type: none"> • Invoiced time: Invoiced amount for all time records of the project. • Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. Example: if project A has a task associated to the fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it receives 10% of the invoiced fixed fee amount. • Invoiced expenses: Invoiced amount for all expenses of the project. • Invoiced products: Invoiced amount for engagement products associated with the project. <p>The fiscal period amounts are based on the invoice date of the time records, expenses, fixed fees or products.</p>
Formula	<p>Variance = Actual – Target</p> <p>The PF_BudgetvsActual stored procedure provides all budgeted billing amounts and actual billing information for the project.</p>
Scenario	<ul style="list-style-type: none"> • Actual billing amount (Actual) is 10 • Budgeted billing amount (Target) is 12 <p>Calculation $10 - 12 = -2$</p>

Project Portfolio Metric - Budgeted Billing vs. Estimate-to-Completion Billing

Description	Determines if the project billing amount is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	BBE
Target	<p>Budgeted Billing Amount</p> <ol style="list-style-type: none"> 1. Find the total budgeted billing amount on the project, including services, expenses and products. 2. If there are budget revisions, the latest budget revision for each budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>For target amounts, data from the budget will be used as follows:</p> <ul style="list-style-type: none"> • Budget services: Budgeted hours * Budgeted net billing rate. • Budget fixed fees: Budgeted fixed fee amount. • Budget expenses: Budgeted expense quantity * Budgeted gross expense * Budgeted expense percentage * Budgeted expense discount * Budgeted billing expense (set to either 1 or 0). • Budget products: Budgeted product quantity * Budgeted net product price.

Actual	<p>Actual billing amount + Unbilled billing total</p> <p>The calculation sums up the actual billing amounts for the project. The remaining total of the unbilled billing amount is added.</p> <p>Actual Billing Amounts</p> <ul style="list-style-type: none"> • Invoiced time: Invoiced amount for all time records of the project. • Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. Example: if project A has a task associated to the fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it receives 10% of the invoiced fixed fee amount. • Invoiced expenses: Invoiced amount for all expenses of the project. • Invoiced products: Invoiced amount for engagement products associated with the project. <p>The fiscal period amounts are based on the invoice date of the time records, expenses, fixed fees or products.</p>
	<p>Unbilled billing and forecast amounts</p> <ul style="list-style-type: none"> • Services: Invoiced amounts + Unbilled hours * Billing rate + Resource forecast remaining hours * Billing rate (as calculated based on the effective-dated billing rate). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (such as the date the job runs) for unbilled amounts. <p>The forecast remaining hours are spread between the start and end dates and the billing rates are assigned based on the effective rate corresponding to the fiscal period's date.</p> <ul style="list-style-type: none"> • Fixed fees: Invoiced fixed fee amount + Unbilled fixed fee amount (only includes fixed fee amounts not marked as do not invoice), pro-rated based on the project's hours that are associated with the fixed fee versus the total hours associated with the fixed fee. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the fixed fee invoice date for those that are unbilled. • Expenses: Invoiced expense amount + unbilled expense amount (expense cost * expense quantity * expense multiplier * Billable flag (1 or 0)). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (such as the date the job runs) for unbilled amounts. • Product: Invoiced product amount + Unbilled product amount (quantity * price for engagement products for which the Do not invoice check box is cleared) for engagement products associated with the project. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the billing date for those that are unbilled.
Formula	<p>Variance = Actual – Target</p> <ul style="list-style-type: none"> • The PF_BudgetvsActual stored procedure will provide all budget billing amount and actual billing amount information for the project. • The PFUnInvoicedAmount stored procedure calculates the unbilled billing amount.

Project Portfolio Metric - Budgeted Billing vs. Estimate-to-Completion Billing (with Request Billing)

Description	Determines if the project billing amount is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	BBR
Target	<p>Budgeted billing amount</p> <ol style="list-style-type: none"> Find the total budgeted billing amount on the project, including services, expenses and products. If there are budget revisions, the latest budget revision for each budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>For target amounts, data from the budget will be used as follows:</p> <ul style="list-style-type: none"> Budget services: Budgeted hours * Budgeted net billing rate. Budget fixed fees: Budgeted fixed fee amount. Budget expenses: Budgeted expense quantity * Budgeted gross expense * Budgeted expense percentage * Budgeted expense discount * Budgeted billing expense costs (set to either 1 or 0). Budget products: Budgeted product quantity * Budgeted net product price.
Actual	<p>Actual billing amount + Unbilled billing amount + Request time billing amount</p> <p>The calculation sums up the actual billing amounts for the project. The remaining total of the unbilled billing amount is added. The billing amounts of request time entered against requests for the selected project is also added.</p> <p>Actual Billing Amounts</p> <ul style="list-style-type: none"> Invoiced time: Invoiced amount for all time records of the project. Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. For example: if project A has a task associated with a fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it receives 10% of the invoiced fixed fee amount). Invoiced expenses: Invoiced amount for all expenses of the project. Invoiced products: Invoiced amount for engagement products associated with the project. <p>The fiscal period amounts are based on the invoice date of the time records, expenses, fixed fees or products.</p>

	<p>Unbilled billing and forecast amounts</p> <ul style="list-style-type: none"> • Services: Invoiced amounts + Unbilled hours * the billing rate + the resource forecast remaining hours * the billing rate (as calculated based on the effective-dated billing rate). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (such as the date the job runs) for unbilled amounts. The forecast remaining hours are spread between the start and end dates and the billing rates are assigned based on the effective rate corresponding to the fiscal period's date. • Fixed fees: Invoiced fixed fee amount + Unbilled fixed fee amount (only includes fixed fee amounts not marked as do not invoice), pro-rated based on the project's hours that are associated with the fixed fee versus the total hours associated with the fixed fee. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the fixed fee billing date for those that are unbilled. • Expenses: Invoiced expense amount + Unbilled expense amount (expense cost * expense quantity * expense multiplier * Billable flag (1 or 0)). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (such as the date the job runs) for unbilled amounts. • Product: Invoiced product amount + Unbilled product amount (quantity * product price of engagements for which the Do not invoice check box is cleared) for engagement products associated with the project. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the invoice date for those that are unbilled.
	<p>Request time billing amount</p> <p>Requests: Billing amount of requests logged against the project (Request time * Billing rate as stored in the RequestTime table, for both billed and unbilled request time). The engagement request actuals total on the portfolio summary page will show the billing amount for all request time for requests not associated to projects (same as the cost metrics do currently).</p>
Formula	<p>Variance = Actual – Target</p> <ul style="list-style-type: none"> • The BU_BudgetvsActual stored procedure provides all budget billing amount and actual billing amount information for the project. • The PFUnInvoicedAmount calculates the unbilled billing amount. • The PFRequestBillingAmt stored procedure provides the request time billing amount

Project Portfolio Metric - Budgeted Billing Amount vs. Recognized Revenue

Description	Compares recognized revenue with the budgeted billing amount of projects. This calculation uses monetary amounts in the portfolio currency.
Code	BRV

Target	<p>Budgeted billing amount</p> <ol style="list-style-type: none"> 1. Finds the total budgeted billing amount on the project, including services, fixed fees, expenses and products. The PF_BudgetvsActual stored procedure will provide all budgeted billing amounts and actual billing information for the project. 2. If there are budget revisions, the latest budget revision for each budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>For target amounts, data from the budget will be used as follows:</p> <ul style="list-style-type: none"> • Budget services: Budgeted hours * Budgeted net billing rate. • Budget fixed fees: Budgeted fixed fee amount. • Budget expenses: Budgeted expense quantity * Gross expense * Expense percentage * Expense discount * Billed expense (set to either 1 or 0). • Budget product: Product quantity * Product price net.
Actual	<p>Actual Recognized Revenue Amount</p> <p>The calculation totals recognized revenue actuals for the project, including all time entered (billable, unbillable and fixed fee), expenses, and products including materials.</p> <p>The calculation takes all rows from the RevenueDetails table for the given project, where the fixed fee ID and the engagement product ID have a NULL value and rows that contain an engagement product ID, where the engagement ID is the same as the project.</p> <p>The revenue amount (which is converted to the portfolio currency) will be included in the appropriate fiscal period based on the posting date associated with the revenue amount. This includes revenue adjustments for engagement products.</p> <p>For rows in the RevenueDetails table, where there is a fixed fee ID, the engagement ID is the same as the project, and the revenue method on the fixed fee is effort expended; the calculation takes the sum of the recognized amounts from the Time table for the project ID and fixed fee ID (using the RevFixedFeeld field in the Time table).</p> <p>If the revenue method on the fixed fee is Physical percent complete, \$X recognized or X% recognized, the calculation takes the sum of the planned hours for tasks associated with the fixed fee for that project, divided by the sum of planned hours for all tasks associated with the fixed fee, multiplied by the revenue recognized amount from the RevenueDetails table.</p> <p>For revenue adjustments, the calculation takes the sum of planned hours for tasks associated with the fixed fee for that project, divided by the sum of planned hours for all tasks associated with the fixed fee, multiplied by the revenue adjustment amount from the RevenueDetails table.</p>

Formula	Variance = Actual – Target <ul style="list-style-type: none"> The PFRevRecAmount stored procedure will determine recognized revenue actual amount The PF_BudgetVsActual stored procedure determines the budgeted billing amount
Scenario	<ul style="list-style-type: none"> Recognized revenue (Actual) is 10 Budgeted billing amount (Target) is 12 Calculation $10 - 12 = -2$

Project Portfolio Metric - Budgeted Cost

Description	The formula evaluates if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	PCT
Target	If budgeting is used: <ol style="list-style-type: none"> The calculation determines the total budgeted cost for the project, including services, expenses and products. The PF_BudgetVsActual stored procedure provides all budgeted cost and actual cost information for the project. If the budget was revised, the latest revision of a budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. If budgeting is not used: The calculation uses the sum of the amounts in the project budget fields and converts the amount from the engagement currency in the portfolio currency. Note: For budgeted services, the portfolio cost calculation uses either resource-based or billing role-based cost rates, as defined for the billing office.
Actual	The calculation totals the actual costs for project time (including billable, unbillable and fixed fee), expenses, and products (including material costs). Existing stored procedure: PF_BudgetVsActual rolled up subproject
Formula	Variance = Actual – Target
Scenario	<ul style="list-style-type: none"> Actual Cost is 10 Target is 12 Calculation $10 - 12 = -2$

Project Portfolio Metric - Budgeted Cost (with Request Cost)

Description	Determines if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	CBR

Target	<p>If budgeting is used:</p> <ol style="list-style-type: none"> 1. The calculation determines the total budgeted cost for the project, including services, expenses and products. The PF_BudgetvsActual stored procedure provides all budgeted cost and actual cost information for the project. 2. If the budget was revised, the latest budget revision for the budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>If budgeting is not used:</p> <p>The calculation uses the sum of the amounts in the project budget fields and converts the amount from the engagement currency in the portfolio currency.</p> <p>Note: For budgeted services, the portfolio cost calculation uses either resource-based or billing role-based cost rates, as defined for the billing office.</p>
Actual	<p>The calculation totals the actual cost for the project time (including billable, unbillable and fixed fee), expenses, and products (including material costs). The cost of the time entered for requests is added.</p> <p>Existing stored procedure: PF_BudgetvsActual rolled up subproject</p>
Formula	Variance = Actual – Target

Project Portfolio Metric - Budgeted Capital Cost

Description	<p>This calculation determines if the project cost is what the team expected.</p> <p>This calculation uses monetary amounts in the portfolio currency.</p>
Code	CBC
Target	<p>The calculation includes budgeted items that are marked as a capital cost.</p> <p>If budgeting is used, the cost target is set to 0.</p> <p>If no budgeting is used, and there is no cost target specified, the cost target is set to 0.</p> <p>Note: For budgeted services, cost rates are either resource-based or billing role-based, as defined for the billing office.</p>
Actual	<p>The calculation totals the actual cost for the project time (including billable, unbillable and fixed fee), expenses, and products (including material costs).</p> <p>The calculation only includes amounts that are marked as a capital cost.</p> <p>If the Consider request time as a capital cost check box is selected in the engagement, the cost of the time entered for the request is included in the calculation.</p> <p>Existing stored procedure: PF_BudgetvsActual rolled up subproject.</p>
Formula	Variance = Actual – Target

Project Portfolio Metric - Budgeted Non-Capital Cost

Description	Determines if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	CBN
Target	The calculation includes budgeted items that are <i>not</i> marked as a capital cost. If no budgeting is used, the cost target is set to 0. If budgeting is used, but no value for the cost target, the cost target is set to 0. Note: For budgeted services, cost rates are either resource-based or billing role-based, as defined for the billing office.
Actual	The calculation totals the actual costs for the project time (including billable, unbillable and fixed fee), expenses, and products (including material costs). The calculation only includes amounts that are <i>not</i> marked as a capital cost. If the Consider request time as a capital cost check box is deselected in the engagement, the cost of the time entered for the request is included in the calculation. Existing stored procedure: PF_BudgetvsActual rolled up subproject.
Formula	Variance = Actual – Target

Project Portfolio Metric - Budgeted Effort

Description	Determines if the project is taking more effort than originally planned.
Code	PEB
Target	The calculation uses the number of budgeted hours from the latest budgeted revision. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used.
Actual	Actual number of hours in the project. The portfolio project rollup scheduled job calculates this value.
Formula	Variance = Actual – Target
Scenario	<ul style="list-style-type: none"> Actual = 10 Actual Hours Target = Planned Hours = 40 Calculation Variance = 10 – 40 = -30

Project Portfolio Metric - Budgeted Effort (with Request Effort)

Description	The calculation determines if the project is taking more effort than originally planned. This calculation uses hours (or days, if planning in days is used)
Code	EBR

Target	The calculation uses the number of budgeted hours from the latest budgeted revision. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. The cost of request time to actuals is added.
Actual	Set ActualHours to the Task.RollupActualHours plus Request Time.
Formula	Variance = Actual – Target

Project Portfolio Metric - Budgeted Schedule

Description	Determines if the project is on schedule.
Code	PSB
Target	This calculation uses the end date (or the end date of the latest budget revision) of the project budget.
Actual	This calculation uses the latest forecast end date (uses actual if entered) from all task assignments. The portfolio project rollup job calculates this value.
Formula	Variance = Number of working days between Actual and Target Total days does not exclude weekends and any nonworking days as set up in non-project time, i.e. non-project time flagged against a specific date.
Scenario	<ul style="list-style-type: none"> Actual: Forecast End: January 15 Target: Planned End: January 10 Calculation Actual – Target = 5 days over

Project Portfolio Metric - Budgeted vs. Estimate-to-Completion Cost

Description	Determines if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	CBE
Target	<p>If budgeting is used:</p> <ol style="list-style-type: none"> The calculation determines the total budgeted cost for the project, including services, expenses and products. The PF_BudgetvsActual stored procedure provides all budgeted cost and actual cost information for the project. If the budget was revised, the latest revision for a budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>If budgeting is not used: The calculation converts the sum of the amounts in the project budget fields from the engagement currency to the portfolio currency.</p> <p>Note: For budgeted services, cost rates are either resource-based or billing role-based, as defined for the billing office.</p>

Actual	The calculation totals the actual costs for the project time (including billable, unbillable and fixed fee), expenses, and products (including material costs). The cost of the forecast remaining hours is added. Existing stored procedure: PF_BudgetvsActual rolled up subproject.
Formula	Variance = Actual – Target

Project Portfolio Metric - Budgeted vs. Estimate-to-Completion Effort

Description	Compares the project effort with the budgeted effort.
Code	EBE
Target	The calculation uses the number of budgeted hours from the latest budget revision. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used.
Actual	Actual number of hours in the project. The portfolio project rollup job calculates this value. Remaining hours are added.
Formula	Variance = Actual – Target

Project Portfolio Metric - Planned Billing

Description	Compares the planned project billing amounts with the actual billing amounts. This calculation uses monetary amounts in the portfolio currency.
Code	PBA
Target	Planned billing amount Calculation: Total planned hours for each task assignment * Resource's current billing rate (based on the date the process is run), converted to the portfolio currency. The total planned billing amount is the sum of all task assignments.

Actual	<p>Actual billing amount</p> <p>The calculation totals the actual billing amount for the project. Only invoiced amounts are included as follows:</p> <ul style="list-style-type: none"> • Invoiced time: Invoiced billing amount for all time records of the project. • Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. Example: if project A has a task associated to the fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it will receive 10% of the invoiced fixed fee amount). • Invoiced expenses: Invoiced amount for all expenses of the project. • Invoiced products: Invoiced amount for engagement products associated with the project. <p>The fiscal period amounts are based on the invoice date of the time records, expenses, fixed fees or products.</p>
Formula	<p>Variance = Actual – Target</p> <ul style="list-style-type: none"> • The actual billing amount (actual) is calculated using the PF_BudgetvsActual stored procedure. • The planned billing amount (target) is calculated using the PFPlanningBillingAmt stored procedure.

Project Portfolio Metric - Planned Billing vs. Estimate-to-Completion Billing

Description	<p>Compares the planned project billing amounts with the actual billing amounts, plus the remaining billing amounts.</p> <p>This calculation uses monetary amounts in the portfolio currency.</p>
Code	PBE
Target	<p>Planned Billing Amount</p> <p>Calculation: total planned hours for each task assignment * Resource's current billing rate (based on the date the process is run), converted to the portfolio currency.</p> <p>The total planned billing amount is the sum of all task assignments.</p>

Actual	<p>Actual billing amount + Unbilled billing amount</p> <p>The calculation totals the actual billing amounts for the project, as follows:</p> <ul style="list-style-type: none"> • Invoiced hours: Invoiced billing amount for all time records of the project. • Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. Example: if project A has a task associated to the fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it will receive 10% of the invoiced fixed fee amount. • Invoiced expenses: Invoiced amount for all expenses of the project. • Invoiced products: Invoiced amount for engagement products associated with the project. <p>The fiscal period amounts are based on the invoice date of time records, expenses, fixed fees or products.</p>
Actual	<p>Unbilled billing and forecast amounts</p> <ul style="list-style-type: none"> • Services: Invoiced amounts + Unbilled hours * Billing rate + Resource forecast remaining hours * Billing rate (as calculated based on the effective-dated billing rate). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (i.e. the date the job runs) for unbilled amounts. The forecast remaining hours are spread between the start and end dates and the billing rates are assigned based on the effective rate corresponding to the fiscal period's date. • Fixed fees: Invoiced fixed fee amount + Unbilled fixed fee amount (only includes fixed fee amounts not marked as Do not invoice), pro-rated based on the project's hours that are associated with the fixed fee versus the total hours associated with the fixed fee. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the fixed fee invoice date for those that are unbilled. • Expenses: Invoiced expense amount + Unbilled expense amount (expense cost * expense quantity * expense multiplier * Billable flag (1 or 0)). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (i.e. the date the job runs) for unbilled amounts. • Product: Invoiced product amount + Unbilled product amount (quantity * price for engagement products not marked as "do not invoice") for engagement products associated with the project. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the billing date for those that are unbilled.
Formula	<p>Variance = Actual – Target</p> <ul style="list-style-type: none"> • The PF_BudgetvsActual stored procedure calculates the actual billing amount. • The PFUnInvoicedAmount stored procedure calculates the unbilled billing amount. • The PFPlanningBillingAmt stored procedure calculates the planned billing amount.

Project Portfolio Metric - Planned Billing vs. Estimate-to-Completion Billing (with Request Billing)

Description	Compares the planned project billing amount with the actual billing amount, plus the remaining billing amount, plus request time billing amount. This calculation uses monetary amounts in the portfolio currency.
Code	PBR
Target	Planned billing amount Calculation: Total planned hours of each task assignment * Resource's current billing rate (based on the date the process is run), converted to the portfolio currency. The total planned billing amount is the sum of all task assignments.
Actual	Actual billing amount + Unbilled billing amount + Request time billing amount The calculation sums up the actual billing amounts for the project, as follows: <ul style="list-style-type: none"> • Invoiced time: Invoiced amount for all time records associated with the project. • Invoiced fixed fees: Invoiced fixed fee amount, pro-rated to each project based on the tasks associated with the project and the tasks' ratio of actual hours versus the total actual hours. For example: if project A has a task associated to the fixed fee and has 40 hours out of the total 400 hours from all tasks associated with the fixed fee, it will receive 10% of the invoiced fixed fee amount). • Invoiced expenses: Invoiced amount for all expenses of the project. • Invoiced products: Invoiced amount for engagement products of the project. The fiscal period amounts are based on the invoice date of the time records, expenses, fixed fees or products.

Actual	Unbilled billing and forecast amounts <ul style="list-style-type: none"> • Services: Invoiced amounts + Unbilled hours * Billing rate + Resource forecast remaining hours * Billing rate (as calculated based on the effective-dated billing rate). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (i.e. the date the job runs) for unbilled amounts. The forecast remaining hours are spread between the start and end dates and the billing rates are assigned based on the effective rate corresponding to the fiscal period's date. • Fixed fees: Invoiced fixed fee amount + Unbilled fixed fee amount (only includes fixed fee amounts not marked as "do not invoice"), pro-rated based on the project's hours that are associated with the fixed fee versus the total hours associated with the fixed fee. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the fixed fee billing date for those that are unbilled. • Expenses: Invoiced expense amount + Unbilled expense amount (expense cost * expense quantity * Expense multiplier * Billable flag (1 or 0)). Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts and the current date (i.e. the date the job runs) for unbilled amounts. • Products: Invoiced product amount + Unbilled product amount (Quantity * Price for engagement products not marked as "do not invoice") for engagement products associated with the project. Invoiced and unbilled amounts are put into fiscal periods based on the invoice date for invoiced amounts or on the billing date for those that are unbilled.
Actual	Request time billing amount Requests: Billing amount of requests logged against the project (Request time * Billing rate as stored in the RequestTime table, for both invoiced and non-unbilled request time). The engagement request actuals total on the portfolio summary page will show the billing amount for all request time for requests not associated to projects (same as the cost metrics do currently).
Formula	Variance = Actual – Target <ul style="list-style-type: none"> • The PF_BudgetvsActual stored procedure calculates the actual billing amount. • The PFUnInvoicedAmount stored procedure calculates the unbilled billing amount. • The PFRequestBillingAmt stored procedure calculates the request time billing amount. • The PFPlanninghoursBillingAmt stored procedure calculates the planned billing amount.

Project Portfolio Metric - Planned Billing vs. Recognized Revenue

Description	Compares the recognized revenue actuals with the planned project billing amount. This calculation uses monetary amounts in the portfolio currency.
Code	PRV

Target	<p>Planned billing amount</p> <p>If budgeting is used:</p> <ol style="list-style-type: none"> 1. Finds the total planned billing amount on the project, including services, expenses and products. The PFPlanninghoursBillingAmt stored procedure will provide all planned billing amounts and actual billing information for the project. 2. If there are budget revisions, the latest budget revision for each budget is used. If a revision type is selected on the metric template, then the latest budget revision for that revision type is used. <p>If budgeting is not used:</p> <p>Take the sum of the amounts populated into the project budget fields (labor, expense, other expense) and convert the amounts to the portfolio currency from the engagement currency.</p>
Actual	<p>Actual Recognized Revenue Amount</p> <p>The calculation totals recognized revenue actuals for the project, including all time entered (billable, unbillable and fixed fee), expenses, and products including materials.</p> <p>The calculation takes all rows from the RevenueDetails table for the given project, where the fixed fee ID and the engagement product ID have a NULL value and rows that contain an engagement product ID, where the engagement ID is the same as the project.</p> <p>The revenue amount (which is converted to the portfolio currency) will be included in the appropriate fiscal period based on the posting date associated with the revenue amount. This includes revenue adjustments for engagement products.</p> <p>For rows in the RevenueDetails table, where there is a fixed fee ID, the engagement ID is the same as the project, and the revenue method on the fixed fee is effort expended; the calculation takes the sum of the recognized amounts from the Time table for the project ID and fixed fee ID (using the RevFixedFeeID field in the Time table).</p> <p>If the revenue method on the fixed fee is PPC, \$X recognized or X% recognized, the calculation takes the sum of the planned hours for tasks associated with the fixed fee for that project, divided by the sum of planned hours for all tasks associated with the fixed fee, multiplied by the revenue recognized amount from the RevenueDetails table.</p> <p>For revenue adjustments, the calculation takes the sum of planned hours for tasks associated with the fixed fee for that project, divided by the sum of planned hours for all tasks associated with the fixed fee, multiplied by the revenue adjustment amount from the RevenueDetails table.</p>

Formula	variance = Actual – Target <ul style="list-style-type: none"> The PFRevRecAmount stored procedure determines the actual recognized revenue amount. The PFPlanninghoursBillingAmt stored procedure determines the planned billing amount
Scenario	<ul style="list-style-type: none"> Recognized revenue (Actual) is 10 Planned billing amount (Target) is 12 Calculation $10 - 12 = -2$

Project Portfolio Metric - Planned Cost

Description	This calculation determines if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Target	Planned cost calculation: Total planned hours of each task assignment * Resource's current cost rate (based on the date the process is run), converted to the portfolio currency. The total planned cost is the sum of all task assignments. For planned services, cost rates are either resource-based or billing role-based, as defined for the billing office.
Actual	The calculation will total the actual costs for the project, including all time entered (billable, unbillable and fixed fee), expenses, and products including material costs. Existing stored procedure: PF_BudgetvsActual rolled up subproject.
Formula	Variance = Actual – Target

Project Portfolio Metric - Planned Cost (with Request Cost)

Description	This calculation determines if the project cost is what the team expected. This calculation uses monetary amounts in the portfolio currency.
Code	CPR
Target	Planned cost calculation: Total planned hours of each task assignment * Resource's current cost rate (based on the date the process is run), converted to the portfolio currency. The total planned cost is the sum of all task assignments. For planned services, cost rates are either resource-based or billing role-based, as defined for the billing office.
Actual	The calculation totals the actual costs for the project, including all time entered (billable, unbillable and fixed fee), expenses, and products including material costs. Request time cost is added. Existing stored procedure: PF_BudgetvsActual rolled up subproject.
Formula	Variance = Actual – Target

Project Portfolio Metric - Planned Effort

Description	Determines if the project is taking more effort than originally planned. This calculation is in hours (or days, if planning in days is used).
Code	PEF
Target	This calculation uses the planned hours for the sum of all tasks. For planned services, cost rates are either resource-based or billing role-based, as defined for the billing office.
Actual	Actual number of hours in the project. The portfolio project rollup job calculates this value.
Formula	Variance = Actual – Target
Scenario	<ul style="list-style-type: none"> Actual = 10 Actual hours + 20 Remaining = 30 Target = Planned hours = 40 Calculation = 30 – 40 = -10

Project Portfolio Metric - Planned Effort (with Request Effort)

Description	This calculation determines if the project is taking more effort than originally budgeted. This calculation is in hours (or days, if planning in days is used).
Code	EPR
Target	This calculation uses the planned hours for the sum of all tasks.
Actual	Actual number of hours in the project. The portfolio project rollup job calculates this value. Request time hours are added.
Formula	Variance = Actual – Target

Project Portfolio Metric - Planned Schedule

Description	Determines if the project is on schedule. This calculation uses date and duration values.
Code	PCH
Target	This calculation uses the planned end date for the project.
Actual	This calculation uses the latest forecast end date (use actual if entered) from all task assignments. The portfolio project rollup job calculates this value.

Formula	<p>Variance Percentage = The total number of days between actual and target divided by the total number of days between the target start and target finish dates.</p> <p>Total days does not exclude weekends and any nonworking days as set up in non-project time, for example, non-project time flagged against a specific date.</p>
Scenario	<ul style="list-style-type: none"> Actual: Finish: June 15 Target Finish: Planned End: June 10 <p>Target Start: Planned Start: May 1</p> <p>Calculation</p> <p>Actual – Target = 5 days over (June 15 - June 10), divided by total duration of 40 days (June 10 - May 1), or 12.5%</p> <p>In this calculation, a negative number is a good result since the actual is earlier than the target.</p>

Project Portfolio Metric - Planned vs. Estimate-to-Completion Cost

Description	<p>Determines if the project cost is what the team expected.</p> <p>This calculation uses monetary amounts in the portfolio currency.</p>
Code	CPE
Target	<p>To calculate planned cost, each task assignment's total planned hours is multiplied by the resource's current cost rate (based on the date the process is run) and converted to the portfolio currency. The total planned cost is the sum of all task assignments.</p> <p>For planned services, cost rates are either resource-based or billing role-based, as defined for the billing office</p>
Actual	<p>PlannedCostActual + Remaining Hours Cost</p> <p>Retrieves PlannedCostActual using BU_BudgetvsActual</p> <p>CostActual applied time control setting.</p> <p>The values are converted to the portfolio currency.</p> <p>Although the stored procedure also returns Budgeted Cost, it is not used.</p>
Formula	Variance = Actual – Target

Project Portfolio Metric - Planned vs. Estimate-to-Completion Effort

Description	<p>Determines if the project is taking more effort than originally budgeted.</p>
Code	EPE
Target	This calculation uses the planned hours for the sum of all tasks.
Actual	Actual number of hours = Task.RollupActual Hours + Remaining Hours
Formula	Variance = Actual – Target

Project User-Entered (Actual, Average and Sum)

This calculation uses data entered directly by the user on the **Results Tracking** dialog box of the project and used against specific project portfolios. See the following calculations for details:

- “User-Entered Calculation (Actual)” on page 12
- “User-Entered Calculation (Average)” on page 12
- “User-Entered Calculation (Sum)” on page 13