	INTEGRA MICRO SYSTEMS (P) LTD. & INTEGRA MICRO SOFTWARE SERVICES (P) LTD.	

METRIC PLAN

(QMS 11)

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METRIC PLAN

PURPOSE

The Metrics Plan identifies the measurement activities, and the responsibilities of the groups and individuals responsible, the resources required data collection, analysis and reporting procedures to ensure quantitative process management for the projects and support functions in the organization. This forms the basis for setting the goals for each group and function, measuring the achievement and identifying areas for correction and improvement, thus paving the way for continual improvement.

SCOPE

The scope of this plan is documenting the approach for collecting various project and process metrics, producing reports and analyzing them.

COMPANYWIDE QUALITY OBJECTIVE

- The objective of all activities carried out by all employees is to
- Attain maximum customer satisfaction in everything we do
- Continually improve the quality of service and deliverables
- Strive for business excellence

BUSINESS GOALS

- Increase business with existing customers
- Create new business opportunities
- Improve resource utilization
- Improve productivity

METRICS IDENTIFICATION AND COLLECTION APPROACH

- Metrics shall be identified using the Goal-Question-Metrics method.
- Questions will be asked iteratively as "what is to be measured" to achieve the various business goals
- A traceability matrix between business goals and metrics shall be created

MEASUREMENTS COVERED UNDER THE METRIC PLAN

The parameters measured in various projects and functions shall be divided into two categories. The first category of measurements is simple and need to be measured continuously. These may be referred to as basic metric. The second category of parameters are derived, more complex. These two categories are presented in separate sections below.

In process measurements and product characteristic measurements shall be carried out in the following areas:

- All software projects executed (either internal or for customers),
- Resource Augmentation
- All Functions
    - Sales and Marketing
    - Talent Management
    - HRD
    - System Administration
    - Purchase
    - SQA (Quality Management & Internal Audits)

METRICS IMPLEMENTATION APPROACH

Collection of data and computation of metric shall be the responsibility of the Project Managers and Function Heads. All metric data shall be submitted to SQA for collation and submission to top management. It is the responsibility of the SQA to publish the metric data in the prescribed format each quarter to the top management as part of the management review meeting. Necessary corrective and preventive actions may be identified and carried out based on the metric obtained.

TRAINING

Metrics training shall be conducted to cover all the projects and functions. This training shall cover topics like Basic Statistics, Statistical Process Control, and use of Analytical Tools. This shall be carried out as part of the Quality Awareness Programs.

Metrics training shall also be carried out as part of the Internal Quality Auditors training to ensure effective auditing of Quantitative Process Management requirements.

TOOLS

Data collection shall be done using appropriate check sheets, forms and WORK SHEET. Projects and Functions are encouraged to prepare control charts and graphs to make timely inferences from the collected data.

Other analysis tools like Brain Storming, Cause and Effect Diagram, Pareto Chart and Scatter Diagram may also be used for the analysis of non-conformances, and identifying the root causes.

REPORTS

Metrics collected shall be communicated to SQA and Top Management and the relevant reporting heads through the various reports as identified in QMS. The reports shall indicate the current values against the target values. The reports are as follows.

- Status Reports: The projects shall use WORK SHEET for generating status reports. Support functions shall prepare weekly/monthly status reports as defined in QMS. It is the responsibility of the project managers and function heads to prepare and share the status reports on a regular basis

- Baseline Report. This will give the organizational status at a specific point of time. Preparation of the baseline report is the responsibility of the SQA

1. ORGANIZATIONAL METRICS

The purpose of this metric is to get the organizational process implementation status. This shall be part of the baseline report and shall form the highest level of aggregated metric indicating the health of implementation of process in Integra.

Collection Responsibility – SQA

Submission to – Top Management

Source – Metrics submitted by projects and functions

No	Metric	Computation	Goal	Monitoring Frequency
Or1	Schedule Variance SV_O	Average of the Schedule variation for all projects and functions involving delivery of goods or services to end customers, during the period stated. This is an indication of the timeliness of delivery of services (or goods) to customers of Integra. (Internal project and support activities are not included in this computation)	<10%	Quarterly
Or2	Effort Variance EV_O	Average of the Effort variation for all projects and functions involving delivery of goods or services to end customers and internal customers during the period stated. This is a measure of how well Integra is able to plan and execute an activity within the budgeted cost (effort). All activities, internal and external projects and support functions are to be included in this computation. This is also a measure indicating wastage, competence of resources and proper planning and prioritizing of the activities, to ensure the activities are carried out within budgeted effort (cost).	<15%	Quarterly

No	Metric	Computation	Goal	Monitoring Frequency
Or3	Escaped Defects Index Ed_O	Average of the defects slipped to customer in all delivered products and services. This metric is a measure of the defects in Integra's services and products and addresses the concerns of prevention of nonconforming products to the customer. (Internal projects and support activities are not included in this computation. All activities involving external customers are to be included in this metric)	<5%	Quarterly
Or4	Customer Satisfaction Index CS_O	Average of the Customer Satisfaction ratings for all projects and functions obtained during the given period. This is a direct measure of the satisfaction of customers on the services provided by Integra.	>80%	Half Yearly
Or5	On time Index OTI_O	Average of the On time completion of all activities involving internal customers. The functions include HR, Training, Purchase, and System Admin. Resource Augmentation function will be aggregated into the Schedule Variance metric. Sales and Marketing functions are not included in the On time index calculation.	>90%	Quarterly

2. CUSTOMER PROJECT METRICS

The purpose of this metric is to get the project process implementation status, and whether the project was planned, scheduled, managed and monitored effectively. The metric collected for each project is aggregated into the organizational metrics. This shall be part of the baseline report and shall form the highest level of aggregated metric indicating the health of implementation of process in Integra. Projects of R&D nature, carried out internally with no customer sponsorship may have to collect fewer metric parameters, as described in a subsequent section.

Collection Responsibility – Project Managers

Submission to – SQA, Group Head

Source – WORK SHEET data

No	Metric	Computation	Goal	Monitoring Frequency
Pr1	Schedule Variation SV	100 * (Actual End Date – Original End Date) / (Original End Date – Original Start Date). Notes: 1. All dates to be collected from WORK SHEET. 2. Normal delivery of software – Actual end date shall be taken as the day when the software has been accepted by the customer. In case the customer has neither provided a written acceptance nor provided a defect list, the acceptance criteria as per contract has to be used for calculating the deemed end date. In case the contract has no mention of acceptance period, a ball park figure of 2 weeks acceptance from date of delivery may be considered. 3. Suspended projects – The date on which the project is deemed suspended (not the date on which the decision has been taken) has to be considered as the end date for the purpose of calculating the schedule variation.	Better than equal to Organisational Goal	At the end of the project / phase

No	Metric	Computation	Goal	Monitoring Frequency
Pr2	Effort Variation EV	100 * (Actual effort – Original Effort) / (Original Effort) Notes: 1. All effort in person days to be collected from WORK SHEET. 2. Normal delivery of software – Actual effort in person days shall be taken as the cumulative effort spent in person days by all team members assigned, and additional effort by others accounted through time sheets. The effort expended has to be calculated till the day when the software has been accepted by the customer. In case the customer has neither provided a written acceptance nor provided a defect list, the acceptance criteria as per contract has to be used for calculating the deemed end date. In case the contract has no mention of acceptance period, a ball park figure of 2 weeks acceptance from date of delivery may be considered. Team members moved out of the project have to be removed from the project entry in WORK SHEET for proper calculation of effort. **3.** Suspended projects – The date on which the project is deemed suspended (not the date on which the decision has been taken) has to be considered as the end date for the purpose of calculating the effort variation.	Better than equal to Organisational Goal	At the end of the project / phase

No	Metric	Computation	Goal	Monitoring Frequency
Pr3	Escaped Defects Index/Ratio ED	**Escaped Defect Ratio:** **((ED) / (ED+ID))*100** **Note:** Escape defects are defined as the qualified defects reported by customers or end-users. This count does not include duplicate and non-reproducible defects. ED is no of escaped defects reported from the field and ID is the number of internal defects reported during system testing. The number includes minor and major defects. Major Escaped Defects: are those defects which are blockers and of high criticality. Minor Escaped Defects: are defects which can be circumvented by alternate means or of low criticality	Better than equal to Organisational Goal	Post project acceptance
Pr4	Defect Slippage to Test Team (From Dev team to Test Team)	No. of bugs reported by testing team after a delivery / Lines of source code (in KLOC) or function points or use cases The method of calculating the bugs and KLOC is similar to that adopted in Ed – Escaped Defect Index	< 5%	End of project / phase
Pr5	Sprint Efficiency	No. of features planned/No. of delivered features	>90%	End of Sprint/Release
Pr6	Defect Detection Rate	No. Defects found / Total time spent on reviews	>=3 defects/hr	End of Sprint / Release
Pr6	Customer Satisfaction Index CS	Customer Satisfaction rating for the project.	>80%	Half Yearly or at the end of the project

3. INTERNAL R&D PROJECT METRICS

For internal R&D projects, it is expected that the projects are exploratory in nature, or the tasks and sub tasks in the project may be reprioritized based on the requirements from customer projects. Only two metrics need to be collected for R&D projects, namely effort variance, and process compliance.

Collection Responsibility – Project Managers

Submission to – SQA, CTO

Source –work sheet

No	Metric	Computation	Goal	Monitoring Frequency
IPr1	Schedule Variation SV	100 * (Actual End Date – Original End Date) / (Original End Date – Original Start Date). Notes: 1. All dates to be collected from WORK SHEET. 2. Normal delivery of software – Actual end date shall be taken as the day when the software has been accepted by the customer. In case the customer has neither provided a written acceptance nor provided a defect list, the acceptance criteria as per contract has to be used for calculating the deemed end date. In case the contract has no mention of acceptance period, a ball park figure of 2 weeks acceptance from date of delivery may be considered. 3. Suspended projects – The date on which the project is deemed suspended (not the date on which the decision has been taken) has to be considered as the end date for the purpose of calculating the schedule variation.	Project to define	At the end of the project / phase

No	Metric	Computation	Goal	Monitoring Frequency
IPr2	Defect Slippage to Test Team Id	No. of bugs reported by testing team after a delivery / Lines of source code (in KLOC) or function points or use cases The method of calculating the bugs and KLOC is similar to that adopted in Ed – Escaped Defect Index	<5%	End of project / phase
IPr2	Feature Delivery Efficiency	No. of feature delivered / No. of feature planned	>90%	End of phase / project

FUNCTION METRICS

The purpose of this metric is to get the function process implementation status, and whether the functions are being carried out (planned, scheduled, managed and monitored) effectively.

All functions except Resource Augmentation cater to internal customers. Resource Augmentation business caters to external customers, and for treated as a project for measuring customer satisfaction, and on time index of service delivery.

The effort metric collected for each function is aggregated into the organizational metrics. This shall be part of the baseline report and shall form the highest level of aggregated metric indicating the health of implementation of process in Integra.

1. RESOURCE AUGMENTATION METRICS

The purpose of this metric is to get the process implementation status in the Resource Augmentation Business. Since Resource Augmentation Business also interacts directly with end customers, the metric collected and analysed deal with customer satisfaction, on time index and effectiveness of delivery of service. This metric shall be part of the baseline report and shall form the highest level of aggregated metric indicating the health of implementation of process in Integra.

Collection Responsibility – RAB Head

Submission to – SQA, Group Head

Source – WORK SHEET data

No	Metric	Computation	Goal	Monitoring Frequency	
RAB1	Opportunity Conversion Ratio ((for selected)(Enquiry to Business Conversion (EBC))	100*((No. of Enquiries Serviced) / ((Total No. of Serviceable Enquiries Received) – (Enquiries dropped by the customer)		Quarterly	
RAB-01	Percentage of qualified enquiries received	100*((No. of Enquiries received) / ((Total No. of Serviceable Enquiries Received)	>=80%	Quarterly	Sales metrics for BU function
RAB3	Customer Acquisition Index	Total customers acquired / Total new customer acquisition proposals submitted		Half yearly	
RAB 4	Process Compliance Index	Internal Quality Audit rating.		Audit cycle	
RAB 8	Average Order Value	Total value of orders received/ No. of orders received		Quarterly	

No	Metric	Computation	Goal	Monitoring Frequency	
RAB 9	Day Sales Outstanding	Average no. of days taken to get the payments from the date of invoice		Yearly	
RAB 10	Order Target Index	100*(Order Target Achieved/Order Target set)		Quarterly	

2. METRICS FOR INFRASTRUCTURE MANAGEMENT

Collection Responsibility – System Admin Head

Submission to – SQA, CTO

Source – WORK SHEET data /

No	Metric	Computation	Goal	Monitoring Frequency
SA1	Downtime	Total downtime of various basic facilities	<2%	Quarterly
SA2	On time Index	(Request closed on time this month) / (Total pending requests and request received this month, which are to be closed by this month)	>90%	Quarterly
SA3	Closure Index	Request closed this month / (Pending requests opening balance +request received this month)	>90%	Quarterly
SA4	Internal Customer Satisfaction Index	Average satisfaction rating from all employees serviced during the year.	>90%	Yearly

3. INTERNAL CUSTOMER SATISFACTION INDEX

No	Metric	Computation	Monitoring Frequency
SysAdm1	Adequate hardware/software to perform job.	As per the rating given in the ESS form	Yearly
SysAdm2	The infrastructure team is responsive	As per the rating given in the ESS form	Yearly
SysAdm3	Work place is comfortable and conducive to efficient work.	As per the rating given in the appraisal form	Yearly
SysAdm4	The admin department provides prompt service	As per the rating given in the ESS form	Yearly

4. METRICS FOR PURCHASE FUNCTION

Collection Responsibility –Admin Head (In charge of Purchase)

Submission to – SQA, Top Management

Source – WORK SHEET data / Records maintained

No	Metric	Computation	Goal	Monitoring Frequency
PU1	Average lead time	Time between placing the Purchase Order and delivery	>95%	Quarterly
PU2	On time Index	(Request closed on time this quarter) / (Total pending requests and request received this quarter, which are to be closed by this quarter)	>95%	Quarterly
PU3	Closure Index	Request closed this quarter/ (Pending requests opening balance +request received this quarter)	>95%	Quarterly

5. METRICS FOR HRD FUNCTION

Collection Responsibility –HR Head

Submission to – SQA, Top Management

Source – WORK SHEET data / Records maintained

No	Metric	Computation	Goal	Monitoring Frequency
HR1	i. Recruitment Efficiency ii. Recruitment Effectiveness	(Number of offers made during the period)/ (Planned recruitment target for the period) (Number of candidates joined)/ (Number of offers made)	i. 70% ii 65 %	Quarterly
HR2	Attrition Rate	(Number of employees resigned / (No. of employees at the beginning + New employees joined) [in the quarter]	< 7 %	Quarterly
HR3	Employee Performance Index	As per the rating given in the appraisal form	70%	Quarterly
HR4	On time Appraisal Index	Number of Appraisals completed within the stipulated time / No of employees eligible for appraisal during the quarter	90%	Quarterly
HR5	Employee Satisfaction Index	Averaged satisfaction rating from all employees obtained through an Employee Satisfaction Survey once every year.	70%	Yearly

6. METRICS FOR TALENT MANAGEMENT FUNCTION

Collection Responsibility –Training Manager

Target -65% (overall)

Submission to – SQA

Source – Records maintained

No	Metric	Computation	Goal	Monitoring Frequency
TR1	Improvement Effectiveness Index	(Sum of performance effectiveness rating by manager / Number of trainees*10) * 100	>65%	Quarterly
TR2	Contribution Effectiveness Index	(Sum of Contribution to Organization effectiveness rating by manager / Number of trainees*10) * 100	>65%	Quarterly
TR3	Plan Adherence Index	Plan Adherence Index= (Number of planned trainings conducted / Number of planned trainings) * 100	>65%	Quarterly
TR4	Closure Index	(Total number of requested trainings conducted / Total number of requests received) * 100	>65%	Quarterly

7. METRICS FOR SALES FUNCTION

Sales function may be carried out by many business managers, either specific to a geography or technology or service / product offering. Each Business Manager must submit this metric separately to management and SQA

Collection Responsibility – Sales head for the service / product / geography / offering

Submission to – SQA, Top Management

Source – WORK SHEET data / Records maintained

No	Metric	Computation	Goal	Monitoring Frequency	Remarks
SAL1	New Customer Acquisition Index	100*(Total customers acquired /Total proposals submitted to new customers)	60%	Quarterly	
SAL2	Order Target Index	100*(Order Target Achieved/Order Target set)	85%	Quarterly	Target to be defined by Sales head at the beginning of the quarter
SAL3	Day Sales Outstanding	Average no. of days taken to receive the payments	30 days	Quarterly	
SAL4	No. of Customers Serviced	The count of the no. of customers serviced across the year	30	Quarterly	

No	Metric	Computation	Goal	Monitoring Frequency	Remarks
SAL1	Enquiry to Proposal Conversion Rate	Total no. of proposals submitted/Total no. of leads generated	40 %	Quarterly	
SAL2	Project Proposal Hit Rate	100*(No. of orders won / Total No. of proposals submitted)	45%	Quarterly	Target to be defined by Sales head at the beginning of the quarter
SAL3	Average Order Value	Average value of project orders won	20 lakhs	Quarterly	
Projects-01	Percentage of qualified enquiries received	100*((No. of Enquiries received) / ((Total No. of Serviceable Enquiries Received)	>=50%	Quarterly	Sales metrics for BU function

8. METRICS FOR MARKETING FUNCTION

Marketing function may be carried out by many business managers, either specific to a geography or technology or service / product offering. Each Business Manager must submit this metric separately to management and SQA

Collection Responsibility – Sales head for the service / product / geography / offering

Submission to – SQA, Top Management

Source – WORK SHEET data / Records maintained

No	Metric	Computation	Goal	Monitoring Frequency	Remarks

SM1	Customer Acquisition Index	100*(Total customers acquired /Total new leads generated)	5%	Quarterly	
SM2	Funnel Index	Total Leads Generated in the quarter/Target for the quarter	100%	Quarterly	Target to be defined by Sales head at the beginning of the quarter
SM3	Project Proposal Hit Rate	100*(No of contracts signed / Total No. of proposals submitted)	67%	Quarterly	
SM4	Enquiry to Business Conversion Ratio	Total no. of enquiries generated/Total no. of contracts signed.	7:1	Quarterly	

9. METRICS FOR SOFTWARE QUALITY ASSURANCE (SQA)

Collection Responsibility – SQA Manager

Submission to – Top Management, Management Review

Source – WORK SHEET data / Records maintained

No	Metric	Computation	Goal	Monitoring Frequency
SQ1	Process Improvements	No of Process Improvements	>10%	Half yearly
SQ2	On time Index	(Internal Audits + External Audit + Q Trainings closed on time this quarter) / (Total Internal Audits + External Audits + Q Trainings taken up during the quarter.	>80%	Half yearly
SQ3	Closure Index	CRs resolved closed this quarter/CRs received during the quarter + Pending CRs from previous quarters	>90%	Half yearly
SQ4	Audit Efficiency	100*(Number of residual NCs) / (Number of residual NCs + Number of NCs reported in Internal Audit)	>90%	Half yearly

NOTE: This plan shall be revised and approved once in a year or as per changes in business plans.

10. METRICS OF BUSINESS UNIT FUNCTION

Collection Responsibility – SQA Manager

Submission to – Top Management, Management Review

Source – WORK SHEET data / Records maintained

No.	Metric	Computation	Goal	Monitoring Frequency	Metric Owner
RAB-02	Opportunity Conversion Ratio ((for selected) (Enquiry to Business Conversion (EBC))	100*((No. of Enquiries Serviced) / ((Total No. of Serviceable Enquiries Received) – (Enquiries dropped by the customer)	>=10%	Quarterly	BUs
Projects-02	Opportunity Conversion Ratio ((for selected) (Enquiry to Business Conversion (EBC))	100*((No. of Enquiries Serviced) / ((Total No. of Serviceable Enquiries Received) – (Enquiries dropped by the customer)	>=10%	Quarterly	BUs
RAB03	No. of customers with more than 25 lakhs billing per Quarter	Total number of customers crossing 25 lakhs billing in a quarter	5	Quarterly	BUs

NOTE: RAB03 is BU specific goal.

This plan shall be revised and approved once in a year or as per changes in business plans.