Egypt–SPIN Newsletter

Issue 2, Apr – June 2003

Sponsored by SECC

From the Editor

Welcome to the second issue of Egypt-SPIN newsletter. The feedback to the first issue was high but we still need to keep it higher. Fujitsu Egypt was sponsoring SPIN event on (April 7th,2003), in this issue Eng. Walid Gad the CEO of Fujitsu Egypt is presenting their experience to implement CMM® in their organization under the title **"Fujitsu Total Quality Roadmap".**

Dr. Adel Ghanam, the CIT chamber member in our steering committee is sharing in this issue with an article under the title of **"An Opportunity that shouldn't be lost".** Dr. Adel has 37 years of IT experience in local and international organizations. He is a member of ACM & IEEE since 1967 and the American Production and Inventory Control Systems (APICS) since 1996. Dr. Adel is the chairman of the software and manufacturing chapters of the CIT , FEI And the vice president of IT export council you can contact him at adel.ghanam@isg-egypt.com.eg.

Marian Tadros is also contributing in this issue with an article **"Software Measurement (Why, What and How)"** Marian is a Certified Software Quality Engineer (CSQE) from ASQ /USA. She is also a Certified Quality Expert (CQE) and a Certified Quality Management Representative (CQMR) from TUV/Germany. She has over 10 years experience in building quality teams and applying quality practices within local software houses. You can contact her at marian_tadros@yahoo.com

Mohamed Shawky is contributing in this issue with an article **" Defect-Free Software through Inspection".** Mohamed has a Masters degree in Computer science from the University of Victoria Canada. He worked for over two years at Motorola Canada as a Senior Software Engineer developing software for wireless systems. You can reach him at moabd@yahoo.com

Enjoy these articles and give us your feedback. Again I want to remind you that your contribution is greatly appreciated, it can be an article , point of discussion, comment, suggestion or others. Our newsletter is always in need of interesting articles dealing with the related subjects. Please send general correspondence or articles that you would have considered for publication to me (Madiha A. Hassan – Smart Village- Egypt) Also you can reach me at mad_abdalla@mcit.gov.eg The dead time for expressing your interest to share in the next issue is 15 – July – 2003.

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Steering Committee Meetings Summary

The Steering Committee had continued its discussions on how to apply an appropriate mechanism for the organizations which started its program for implementing CMM®, And a realistic local model for implementing Software Process Improvement in small companies.

The committee referred companies, which has started implementation since 2002, and had conducted gap analysis or in its way to do it through the MCIT/SECC program as **Phase I Companies**. Other companies which are categorized under small companies and cannot afford applying CMM® in the near future but still there is a need to distinguish them by applying a realistic local model as **Phase II Companies**.

Phase I Companies

Status

Implementation cost is very high, adding to that the down economy attributes (low sales, deficit in revenue,….) are great constraints for our local companies to afford the formal assessment cost.

Recommendations:

- MCIT/SECC should continue its support for these companies by developing funding mechanism for formal appraisals as a kind of incentives or awards for these pilot companies. This will speed up the implementation of the model in Egypt.
- Criteria of this financial support should be clear and applicable.
- Any company, which receives this support, should work as a guide for Phase II companies (the kind of guidance will be discussed with the community in large).
- A detailed program plan will be developed and presented in the near future.

Phase II Companies

Status

SMEs in the local software community have difficulties in implementing any international quality management system. CMM® as the recommended model should be interpreted / tailored for small organizations as it is cost prohibitive to incorporate all processes and procedures that would normally implemented in large organizations. Administrative work required to apply CMM® for SMEs is beyond their limited resources. But we need to distinguish these companies and have a solid foundation to build capability for Egypt software industry. This kind of quality mark or certification as the community will agree upon will create a competitive edge in the local market.

Recommendations:

- Accept a local certification model based on CMM® which will serve as an intermediate step towards the international certification.
- This local certification should be given in its initial startup by an international consultant (strategic partner for developing the local industry).
- This local certification should be a must for any local business.
- Comprehensive training program should be developed for this purpose.

Egypt-SPIN Upcoming Events

July, 2003	**EDS SPI Case Study**
October, 2003	**Raya Software Case Study**

FUJITSU TOTAL QUALITY ROADMAP

Eng. Walid Gad

Introduction

The objective is to demonstrate Fujitsu's Way to achieve TQM, concentrating on S/W Development.

We applied different quality standards and models. All these models have common attributes:

- NON PERSPECTIVE - they all specify requirements but do not tell or impose how to achieve,
- LEADERSHIP - all focus on the importance of full backing and sustained commitment of leadership.
- SELF ASSESSMENT - ISO 9001 (audit), EFQM (self assessment), CMM (appraisal)
- PEOPLE & PROCESS BASED MANAGEMENT SYSTEM - that satisfies both the standard and the company specific requirements,
- COMPETENCE - of both management and staff
- MEASUREMENT - as a tool for continual improvement.

1987: APPLYING IEEE STANDARDS

Applying IEEE standards to S/W development was a UK decision.

A local S/W Development Methodology was tailored from the company's methodology, and supported by " Structured Analysis & Design".

1991: TQM AWARENESS

TQM principles have been presented to all management and staff. It referred to Crosby's and Deming's steps for achieving total quality, to Crosby's 4 absolutes of Quality.

The following was introduced through "Process Management" awareness:

" **BUSINESS SUCCESS** depends on achieving **CONFORMANCE** to **CUSTOMER REQUIREMENTS** through correct operation and control of **CAPABLE PROCESSES** and **PLANNED RESOURCES** used effectively and efficiently".

OR simply " **PROFITS** through **PROCESS** through **PEOPLE**"

"5 steps of success" supported the message, both seems to be very modern:

1. REQUIREMENTS - clear, understood and agreed
2. PROCESS - adds value, understood and defined
3. PROCESS CONTROL - main area to control is the interfaces between processes
4. PROCESS CAPABILITY - ability to satisfy requirements every time, measured by:
   a. Product Conformance,
   b. Process Performance
5. PROCESS RESULTS - reviewed for improvement

PROCESS MODEL:

- Objectives, goals, policies, constraints,
- Procedures & work instructions,
- Customer, output & its specification,
- Suppliers, input & its specification,
- Skills and, tools

Many concepts were introduced concerning ***"Process Management":***

All work is a process, We all have an output/product, We all have customers Internal and External, We all have suppliers, All products have requirements, All processes have requirements, Processes are chained by requirements that add value, All work needs a process capable of doing the job, Prevention designed into processes leads to success, Feedback provides the basis of control and improvement,

Requirements change with time process owner, and Continuous improvement is key.

1993: ISO 9001:1987 REGISTRATION

It was a UK initiative as response to the need to integrate with the European Market.

As the Process Concept was already established, it has been used to document the Quality Management System.

This was the real start of commitment to Quality company-wide. It also enhanced the already used S/W Development Methodology and its deployment.

Being the first company registered in Egypt, we started giving training and consultation that helped many companies achieve the certification.

1994: EFQM EUROPEAN EXCELLENCE MODEL:

The HQ in UK saw ISO 9001 to be insufficient to evaluate or benchmark the company's performance. The model was selected to achieve the objective.

Applying the model was mandatory only in the European branches, but we decided to go through the pain and to go through the process to its end that is delivering a Submission for External Assessment.

In brief the model is based on 5 "result" criteria and 4 "enabler" criteria, each has detailed requirements, measures and score.

Applying the model you will feel its dynamic nature, studying results leads to enablers' improvement that leads to better results.

1998: PROJECT MANAGEMENT STANDARDISATION:

The UK Government mandated PRINCE-2, and Fujitsu committed to apply world wide.

1999: TickIT CERTIFICATION:

This was a local decision in order to meet the market trend " Specialized certification in S/W Development".

TickIT was selected for being the application of ISO 9001 in the IT industry.

The Gap Analysis lead to crucial enhancement in the methodology, mostly commitment to its deployment , e.g.:

- Verification of Test Plans against Requirement Specifications
- Clear identification and mutual agreement of the acceptance criteria,
- Documenting Maintenance procedure, including problem handling
- Tighter Subcontractors evaluation and control,
- Formal design reviews,
- Keeping records of testing planning and results,

Tick-IT was re-issued in Jan 2001, to conform with ISO 9001:2000 which introduced new requirements for process definition, process monitoring and continual improvement:

Part E, Software Quality Management System requirements, Standards Perspective - contains guidance to help interpret the new ISO 9001 requirements and to be used as a substitute for ISO 9000-3 (there is uncertainty about it and is being revised).

Part E, Software Quality Management System requirements, Process Perspective - contains a much expanded and improved version. There are many examples of good practices

2001: ISO 9001 2000 REGISTRATION:

It has two main objectives, which are embedded in all the requirements:

- Customer Satisfaction
- Continual Improvement
- Beside the new requirements of process modeling and Measurement of Process Performance and Product Conformance,

ISO 9004 Quality Management Systems - Guidelines for Performance Improvement; has been developed to form a consistent pair with ISO 9001, by having similar structures. As 9001 focuses on the EFFECTIVENESS of the Quality Management System in meeting customer requirements, 9004 gives guidance on a

wider range of QMS objectives than does 9001 particularly the organization's overall performance and effectiveness. However it is NOT intended for certification.

2002: CMM PLAN, THROUGH APPRECIATED SUPPORT " SECC"

1. AWARENESS PLAN; courses run by SECC, and internal training to SW Engineering Management and Staff
2. MAPPING TICKIT TO LEVEL 2 CMM KPAs, (Crucial GOALS are common):
   - RM: Same concept of Allocated Requirements, its review & change management, its use as baseline for all the project activities, and the importance of keeping requirements, plans and technical products consistent as the requirements change.
   - ***SPP:*** Identification of s/w product & all its components and volume estimation are the base for the planning activities,

     The use of repositories for information and data to be used for estimation,

     Selection and tailoring of appropriate Software Life Cycle

     Clear Assignments of responsibilities, and interface between different groups
   - ***SPTO***: Tracking actual performance against the plan,

     Taking corrective actions in case of deviation,

     All parties agree changes to commitments
   - ***SSM:*** Having criteria for evaluation and selection,

     Having procedure for agreeing commitments

     Having means for cooperation and monitoring subcontractor's actual performance against commitments
   - ***SQA:*** By Qualified Independent Personnel,

     Having formal schedule for process, products, and activities review and audit,

     A Mechanism for regular reporting of SQA activities status and results,

     A Mechanism for escalating problems
   - ***SCM:*** Planning SCM activities

     A Mechanism for Configuration Items unique identification, and Traceability,

     Establishing Baselines and a procedure for change identification, documentation, review, authorization and implementation, and traceability between authorized Change Requests and the modified Configuration Items

     Control of CIs; back-ups, access to superseded items,

     Auditing configuration management effectiveness,

     Version Release Management; Build Statements and records of delivered products for Re-build

     Configuration Status Accounting and Reporting
3. PRE-ASSESSMENT;
   - *Findings are based upon:*
   - Five interviews with personnel at various levels (7 staff members): Projects Director (meeting of team not scheduled interview), Project Managers, Designers, Bid Manager, configuration controllers, software quality assurance personnel
   - Review of some documentation
   - Knowledge of team members
   - Discussion among the team
   - Software development activities of two projects. Insight into the E-Business Channel
   - Key Process Areas (KPAs): Level 2 KPAs and Level 3 KPA Organization Process Focus
   - *COMMON Weaknesses:*
   - Little evidence of consistent reviews by SQA of activities of the KPAs (Ve3)
   - The measurement of the status of the activities
   - Signed organizational policies for the KPAs for Fujitsu Cairo
   - It is not clear for most KPAs that there is formal periodic review of the

activities by the Projects Director(Ve1)

- In a number of KPAs, there appear to be no periodic and/or event driven review by project managers (Ve2)

4. ACTION PLAN to overcome weaknesses

Featured Article by Dr. Adel Ghanam

An Opportunity that Shouldn't be lost

Background

The second half of the 80's witness the rise of the private sector in the Egyptian Software Industry. As any life activity, the evolution of this industry needed a sponsor ,to look after its development and creating the required mass ,so that it can become an effective power in the society. The IDSC was the ideal candidate to take the role of sponsorship, at that time. In the early 90's the number of private software companies has been almost doubled, with respect to the late 80's, and this growth continued at a rate of about 30%-to-40% annually.

Companies started to cluster around common visions. This led to the formation of a set of associations. However , all were united around pushing forward the industry.

They succeeded to position the IT on the National agenda, and the MCIT was formed in 1999.

The Cost of Fragmentation

Unfortunately ,starting from 2001, it became clear that ,with the absence of effective coordination, these organizations have created some ambiguity at the Political level to identify which one should take the lead ,to drive the interests of the private sector. Especially ,with the beginning of the recession state, and the start of serious problems to be faced . Limited resources, was a reason enough for those organizations to consolidate and focus their efforts on a small number of effective objectives. The cost of not doing was high. Loosing time, the most precious asset in our industry.

The Opportunity

We need a coordinating entity, that is free from politics and has the power to influence the decision making process.

I believe the SPIN group meets these qualification . It is positioned within the National SECC , i.e., it has accessibility to the State decision makers. All private sectors organizations and the academia are presented. However, it should not be another organization on the list. Its power will be inherited from its capability to work on few and realistic projects that have good return for the whole industry.

The way Forward

The Software industry is facing a long list of problems, on the top of this list is the development of high quality products , to improve their competitiveness in the local and international markets. The problem is "You Can't Control What You Can't Measure".

I propose the SPIN group, to adopt setting a package that software companies can use to measure a set of simple quality metrics. The data instrumentation should be simple enough to reduce data collection costs, and yet precise enough to lead to the desired quality.

The following is a set of simple metrics.

- ***Bugs Count:*** Av. No. of bugs/program
- ***Reusability:*** The OO software based on classes, inheritance, and components , is by default a reusable software. It is measured on the average number of uses of a given component ,referred to the total number of programs developed over a specific period of time
- ***Maintainability:*** It is the average number of days it takes to repair the code after a problem has been discovered ,or modifying an existing function, and produces necessary documentation (Bowen, 1985)
- ***Testability:*** Testability is measured relative to simplicity, modularity, instrumentation, and self descriptiveness criteria.
- ***Instrumentation:*** It is the average number of probing points per module (w.r.t. the total number of LOC)
- ***Functional Scalability:*** The average number of days it takes to add new functions to the software and produces a full new set of document for the new release.
- ***Reliability:*** It is the mean time between failure MTBF
- ***Configurability:*** The number of user configurable function items relative to the total number of function items

Software Measurements (Why, What and How)

By: Marian Tadros

If You Can Not Measure It You Can Not Manage It. (Anonymous)

In the current business environment and market status every organization is engaged with a certain question, trying to find the answer: "Are we achieving the results we desire?. This is posed in many ways, such as: "Are we meeting our business objectives? Are we earning a fair return on our investment? Can we reduce the cost of producing the products or services? How can we improve the response to our customers' needs or increase the functionality of our products? Are we taking the right steps towards the process improvements? How can we assess our efforts in order to attain a CMM level?

The demand for increased efficiency and effectiveness of our software processes places the measurement demands of the software engineering community beyond those traditionally practiced. In fact, statistical and process thinking principles lead the way to using statistical process control methods, a means of determining the consistency and capability of the many processes used in software development.

The Measurements concept (theory, methodology) is meant to be utilized by businesses in identifying where they stand, where they are heading to, and whether they are taking the right path to achieve their specified targets.

Measurements as a Function of Check Step in the Plan, Do, Check (PDCA) Model

In order to check any activity it should be planed and already executed.

Such a software activity must be planed and applied, so as to form a fertile environment for checking, hence, for measurements.

Yet, measurements data should be reliable and valid. In this context reliability refers to the consistence of the number of measurements taken of a metric using the same measurement method on the same subject. While validity refers to whether the metric really measures what it is intended to, and whether it adequately reflects the real and inherent meaning of the concept under consideration (inspection).

What could be Measured in Software?

There are several classes of entities whose attributes should be taken into consideration when designing the software measure. These are the Process, the Product and the measure of the Recourses . For example: Size is a product attribute that could be measured by KLOC, no. of modules, Function points…. Etc.

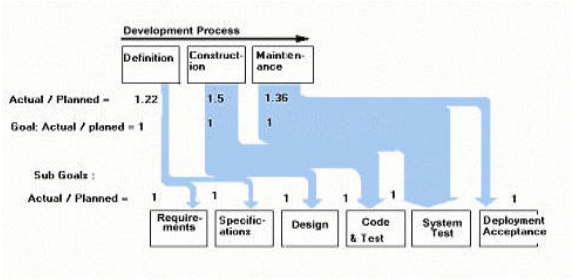
Actually, the problem lies not in selecting activity to be measured, it lies in determining the intended goal upon which we come to know what should be measured.

How To Start?

1. Measures Should Be Driven by Goals

- State the major goals, subjective and quantitative.
- Set goals priorities.
- Set the sub goals.

For example: The company project management goal is to control the variation percentage between the actual performance of the activities and the project schedule



Project Mangment Goa

2- Derive Metrics from Goals

Various frameworks have been proposed to select metrics for software project use. One such paradigm for establishing a metrics program is the Goal-Question-Metric Paradigm.

Goals

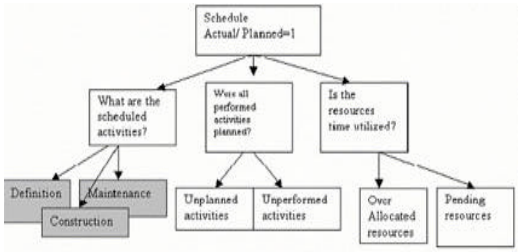
What is the organization trying to achieve? The objective of process improvement is to satisfy these goals.

Questions

Questions about areas of uncertainty related to the goals. Process knowledge is essential to derive these questions.

Metrics

Measurements to be collected to answer the questions.



Goal-Question-Metric Paradigm

3- Plan for Quality Data Collection

A measurement process is based on collecting and analyzing well-defined data. All too often those who shoulder the task of collecting measurement data or analyzing reported data, are actually not given sufficiently complete specifications or descriptions of the data. Consequently, there arise assumptions that lead to incorrect collection or analyses.

There are three criteria that serve as guidance in understanding the meaning of well-defined data [Park 92]:

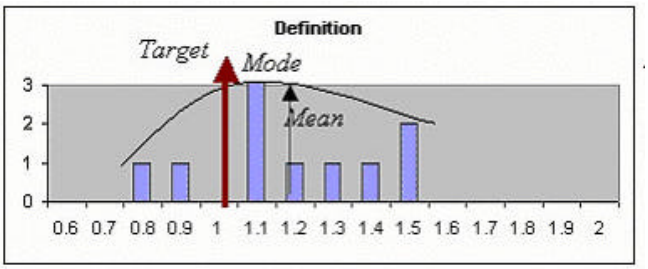
- ***Communication:*** Will the methods used to define measures or describe values allow others to know precisely what has been measured and what has been included in and excluded from aggregated results? Moreover, will every data user gets to know how the data have been collected, so that he/she can interpret the results correctly?
- ***Repeatability:*** Would someone else be able to repeat the measurements and get the same results?
- ***Tractability:*** Are the origins of the data identified in terms of time, sequence, activity, product, status, environment, measurement tools used, and collecting agent?

4- Collect Data for Metrics According to the Measurements Plan

Suppose that the following is the phases' measure for a number of 10 projects

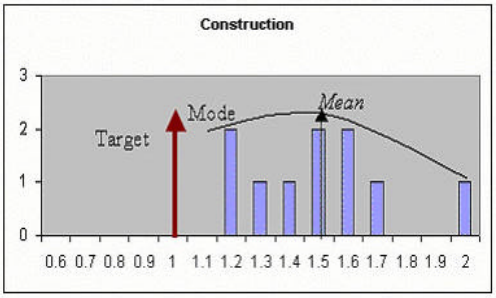
Project / Phase	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Mean	S
Definition	1.1	0.9	1.1	1.2	1.1	1.3	1.5	1.4	1.5	1.1	1.22	0.198886
Construction	1.6	2	1.5	1.6	1.5	1.4	1.2	1.3	1.2	1.7	1.5	0.244949
Maintenance	1.5	1.5	1.5	1.3	1.3	1.3	1.2	1.2	1.3	1.5	1.36	0.126491

5- Analyze the Collected Data



Normal distribution of definition phase for 10 projects

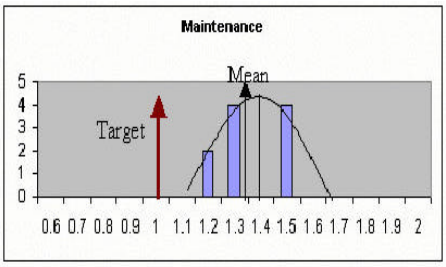
Looking at the bell shape we will find that the mode and the mean are not on the target. Also, there are variations in the projects' readings. Although the mode which indicates the most frequently occurring number is not far from the target, it does not reflect the control of the definition phase process . It may be poorly planned and badly executed, and the influence does not appear in this phase but appears in the following phases.



Normal distribution for Construction phase for 10 projects

The construction phase is very far from the target; the reading distribution is not healthy at all. There is an obvious problem

in the planning and execution of the construction phase activities.



Normal distribution for Maintenance phase for 10 projects

Although the maintenance mean in the above figure is not near from the target, which signifies that almost all project maintenance planned schedules are not achieved, the variation is relatively small. This indicates that the root causes of the projects problems may be similar, and this makes the target achievement much more easier.

6- Define the Root Cause Analysis

Stability of a process with respect to any given attribute is determined by measuring the attribute and tracking the results over time. If one or more measurements fall outside the range of chance variation, or if systematic patterns are apparent, the process may not be stable. We must then look for the causes of deviation, and remove any if found so as to achieve a stable and predictable state of operation.

Root cause analysis is a technique used for establishing the most affecting causes of problems

Let's take the construction phase as an example:

Root Cause Analysis for the Variation problem of the construction phase.

From the Fish Bone diagram (Root Cause Analysis) shown above, it is clear that there are many opportunities of improvements related to the project planning and definition phase.

The most affecting of them are related to planning activities and the others are related to the inputs from the definition phase. As for the other minor causes, these are related to the project tracking and resources.

You can use Parato diagram to set priorities and select the problems you should start to solve. Then you should plan for the improvement procedures and steps.

7- Using of Management and Planning Tools to Propose Solutions

A stable and predictable process is really achieved only when all assignable causes have been removed and prevented from reoccurring in the future so that only a single, constant system of chance causes remains.

8- Establish an Improvement Plan

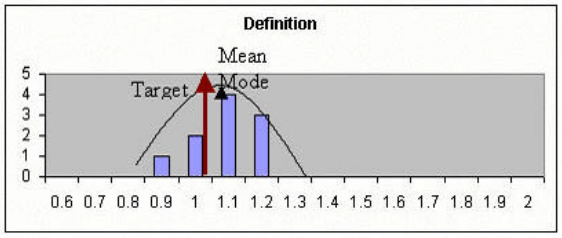
9- Apply New Changes to Projects

10- Measure and Collect Data

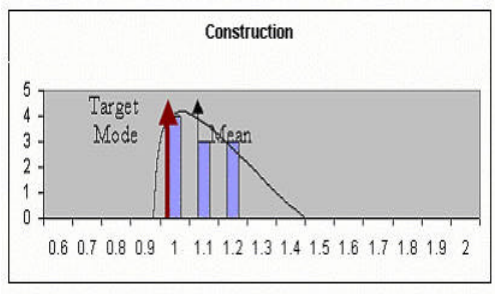
11- Analyze Data and Evaluate the Progress

When reaching a stabilized process with accepted reading, such as the following example, just then we can use the control chart for statistical control of our projects.

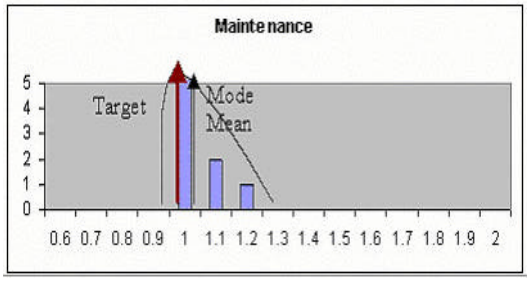
Project / Phases	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Mean	S
Definition	1	0.9	1	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.09	0.099443
Construction	1	1.1	1.2	1.2	1.1	1.1	1	1	1	1.2	1.09	0.08756
Maintenance	1.1	1.1	1.2	1	1	1	1	1	1	1.2	1.06	3.465128



Normal distribution for Definition after improvement



Normal distribution for Constructions after improvement



Normal distribution for Maintenance after improvement

In the above diagrams we can see an obvious improvement in the project scheduling activities, and the reduced variation between the planned and actual activities. The bell shape becomes more concave and the curve mode and mean are closer to the target.

When a process is stable, 99+% of process performance variation will fall within 3 sigma of the mean or average of the variation. When the process variation falls outside of the 3 sigma limits, the variation is very likely caused by an anomaly in the process.

When a process is stable or almost, the 3 sigma limits determine the amount of variation that is normal or natural to the process. This is the "voice of the process" or the process telling us what it is capable of doing. In this stage you may take a decision of using control chart .

Finally, Measurements can serve as a thermometer of our organization capability and maturity. Just remember that if you do not know where you're going, then any road will do (Chinese Proverb), and if you don't know where you are, a map won't help (Watts S. Humphrey)

Defect-Free Software through Inspections

By: Mohamed Shawky

Software inspection was invented by Michael Fagan in 1970 while he was working at IBM. Inspection is a process that is widely used in hardware design, and now becoming an established procedure in all large software organizations. The inspection procedure has one main goal, and that is to find faults in the work product being inspected.

Fagan argues that practicing the Fagan inspection results in finding more than 90% of all operational defects before testing, which in turn would result to better quality, shorter time to delivery, lower costs, and better system availability.

Though the most obvious work product in the software lifecycle to be inspected is code, all work products in the development lifecycle need to be inspected. How many times did you start writing code for a design that did not completely fulfill the requirements and specifications of the system? Hence, all deliverables need to be inspected, from requirements, design documents, code, and test documents.

Inspectors typically are looking for all kind of faults in the work product, in a requirements document they are ensuring that the requirements are complete, accurate, and clear, in a piece of code, they are ensuring that the implementation is complete (satisfies all the low level design), correctness of functionality and logic, conformance to coding standards, among other things.

Inspection teams are formed of a moderator, the author, a reader, a tester and inspectors. The moderator leads the inspection team through the inspection process, while being an active inspector. The moderator needs to keep the inspections objective, keep the inspections focused, be sensitive to the effectiveness of the inspection team, and exercise good judgement where re-inspections maybe required. The author is the creator of the work product that is being inspected, and is an active inspector. The author should have a vested interest in ensuring that the inspection finds all the defects that are present so as to avoid finding these defects later, and is therefore, not defensive as faults are being discussed in his/her work product. The reader will paraphrase each statement in the his/her own words, expressing the meaning of each statement with a level of understanding sufficient to demonstrate that she of he understands the work product being inspected well enough to carry out the next stage of development, or to fully use the work product. The tester will consider how the work product will be tested and ask questions during the inspection meeting that resembles test cases.

There are three kind of items that can be reported in an inspection, an operational (major) defect, a minor defect, or an investigate item. An operational (major) defect is a condition that could cause operational failure or produce an unexpected result within a range of a specified operation. This includes anything that may be identified by a customer as needing correction. A minor defect is a condition of bad workmanship in the product, including any case that could cause difficulty during maintenance, but would not cause operational failure. An investigate item is a questionable condition that can not be proven to be or not to be a defect with the information available in the inspection meeting. It will be investigated and resolved during the rework.

A typical inspection process has seven steps. Inspection planning, kick-off meeting, preparation, inspection meeting, inspection analysis, rework, and follow-up. During the inspection planning, the inspection team members are chosen, and the materials for the inspection are checked to ensure they meet the entry criteria for the inspection process. The remaining six steps are planned for. The kick-off meeting is held with the inspection team members for the author to provide an overview of the material to be inspected to allow the inspectors to have

sufficient background to proceed with the preparation. During the preparation, each individual inspector learns the inspection material to fulfill their assigned role through writing questions concerning apparently problematic or unclear areas that they would raise during the inspection meeting. During the inspection meeting, the inspector team members meet and systematically go through the work product to discuss and find defects. Inspectors should refrain from trying to find solutions to problems. After the meeting is over, the inspection team analyzes the first five inspection steps. This involves isolating fault causes and identifying improvements to the inspection process. During the rework phase, all defects identified are fixed by the author, and all investigate items are resolved to determine if a defect exists or not. The moderator then follows up to verify all fault fixes and ensure that all investigate items are resolved. The moderator may call for a re-inspection meeting if the rework resulted in a major changes to the originally inspected work product.

Typical guidelines for inspection rates suggest to have inspection meetings not exceed two hours and the following rates for the preparation and inspection meeting:

	Code	Text
Preparation	125-300 LOC/Hr	10-20 Pages/Hr
Inspection	100-200 LOC/Hr	10-20 Pages/Hr

Following this process of inspection in software development have proven to be an effective method for improving the quality of the software produced, reducing the cycle time, and increasing productivity. Motorola Global Software Group have reported in the SEPG national conference that after two years of following this process, their shipped defect density have been reduced 20 times, with 50% reduction in cycle time, two times increase in productivity, 55% increase in customer satisfaction and $45 million estimated cost avoidance for coding defects alone.