

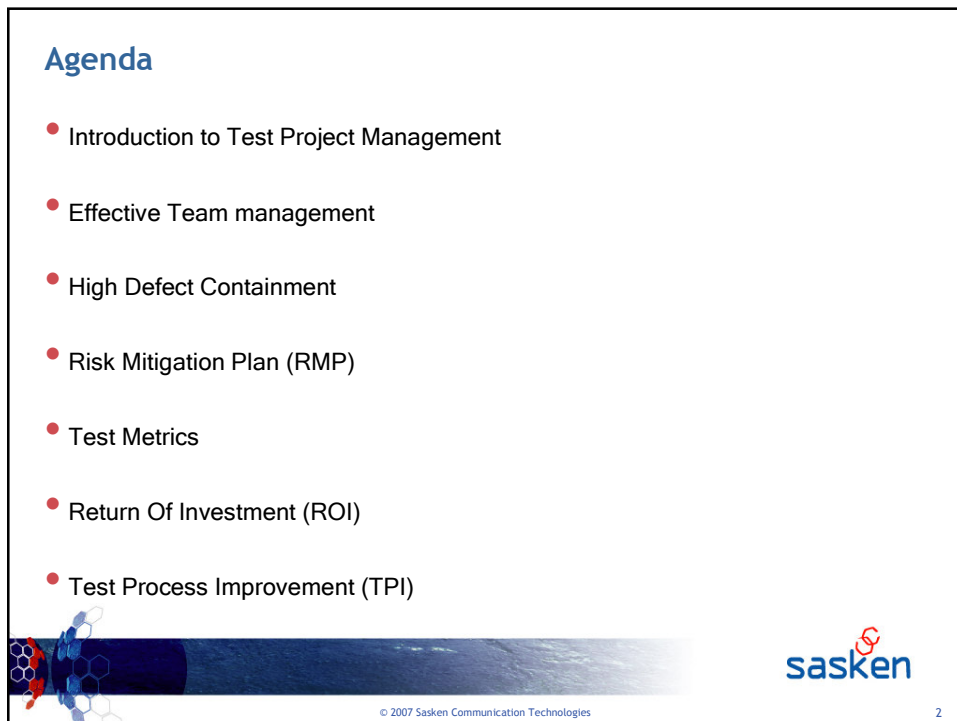
The slide features a decorative header with a blue and white hexagonal pattern on the left, transitioning into a dark blue background with white dots and a red dot on the right. The title 'Test Project Management' is centered in white text. Below the title, the presenter's name and date are listed, followed by the Sasken logo and a copyright notice.

Test Project Management

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16/08/2007

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The slide contains an agenda list with seven items, each preceded by a red dot. The Sasken logo and copyright notice are located at the bottom right of the slide.

Agenda

- Introduction to Test Project Management
- Effective Team management
- High Defect Containment
- Risk Mitigation Plan (RMP)
- Test Metrics
- Return Of Investment (ROI)
- Test Process Improvement (TPI)

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Introduction to Test Project Management

According to Project Management Book of Knowledge

“Project Management is the application of knowledge, skills, tools and techniques to the project activities in order to meet or exceed stakeholder needs and expectations from the project.”

This objective can be achieved by creating highly efficient Test Team, High Defect Containment, tracking Test metrics, strategically correct planning and by focusing on Return of investment.



Effective Team management

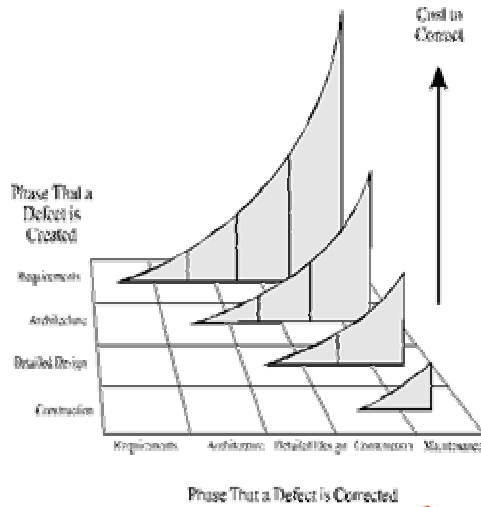
The most important part of Effective Team Management is to provide the team with a good roadmap of

- Learning
- Earning
- Growth Opportunity



High Defect Containment

- Cost of the defect increases exponentially
- Increase in defect cost as time between defect creation and defect correction increases



Defect Containment Efficiency

$$DCE = \frac{\text{Defect}_{\text{phase}}}{\text{Defect}_{\text{phase}} + \text{Defect}_{\text{found in later phases}}}$$

- As a Test Manager one's aim should be to keep DCE as close to 1 as possible.




Risk Mitigation Plan (RMP)

The project plan should contain a risk plan which comprises of the following:

- Risk identification
- Risk analysis
- Risk mitigation
- Risk monitoring

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graph TD; A[Risk Identification] --> B[Risk Analysis]; B --> C[Risk Mitigation]; C --> D[Risk Monitoring]; D --> A;
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RMP

- Risk Management Planning- Plan should include risk management tasks, responsibilities, activities and budget.
- Assigning a risk officer - a team member other than a project manager who is responsible for foreseeing potential project problems.
- Each risk should have the following attributes:
 - opening date,
 - Title/short description,
 - probability and importance.
 - Optionally a risk may have an assigned person responsible for its resolution and a date by which the risk must be resolved.
- Maintaining a risk register- Each team member should have possibility to report risk that he/she foresees in the project.
- Preparing mitigation plans- The purpose of the mitigation plan is to describe how this particular risk will be handled - what, when, by who and how will it be done to avoid it or minimize consequences if it becomes a liability.
- Risk Mitigation Report- Summarizing planned and faced risks, effectiveness of mitigation activities and effort spend for the risk management

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Test Metrics

Benefits of having good Test Metrics:

- Provides an measure of the effectiveness and efficiency of testing
- Identifies areas of improvements
- Provides a means for control/status reporting
- Identifies areas that require more testing
- Helps in making future predictions based on historical data

There can be various types of Metrics categorization:

- Test Project Related Metrics
- Process and Quality Related Metrics
- Standard Reference Metrics
- Customer related Metrics.



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Test Metrics


Test Metrics	Description
Number of defects	Software and Documentation defects
Noise CR Ratio	Ratio of Noise (Duplicate+Terminated) CRs to Total number of CRs
Defect severity	Categorization of defects as Critical/Major/Minor etc
Defect Containment Effectiveness	Total detected Defects / (Total detected defects + Total Escape Defects)
Defects/KLOC	Defects found per 1000 LOC
Defect Productivity	No. of defects/Effort Spent in Testing
Test case effectiveness	No of defects/No of Test cases
Test Productivity	No. of test cases executed/Effort spent in Testing
Cost per Test Case Development	(TC Dev effort*Billing)/Total TCs Developed
Cost per Test Case Execution	(TC Execution effort*Billing)/Total TCs Executed




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Test Metrics

Test Metrics	Description
Breakage CRs Ratio	Ratio of the total number of bad fixes to the total number of resolved defects.
Backlog development	The number of remarks that are yet to be resolved by the development team.
Backlog testing	The number of resolved remarks that are yet to be retested by the development team.
Scope changes	Ratio of the number of changed items in the test scope to the total number of items.
Test planning performance	The ratio of the actual effort spent to the planned effort.



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- ### Return of Investment (ROI)
- Testing is an expensive and time-consuming activity so planning has to be strategically correct for high ROI.
 - Right kind of testing at right time (Exploratory, Agile, Risk Based)
 - Automation
 - **Investment** - Hardware, Software, Manual effort (Creating and maintaining scripts), Cost of tool
 - **Return** - Manual Effort reduction, Less time, Hardware cost reduction using simulators
 - **ROI**= (Cost of Automation testing - Cost of Manual Testing) / (Cost of Automation)
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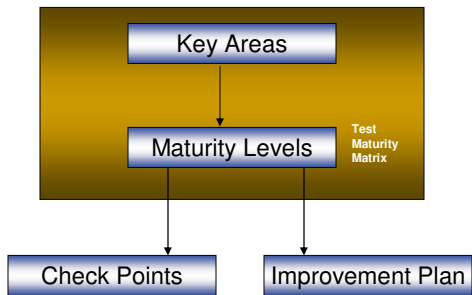
Test Process Improvement (TPI) Model

- As part of TPI, one needs to identify the different aspects for process improvement.
- By evaluating these aspects, the strengths and weaknesses of the test process becomes clear.
- To optimize quality and cost
- The aim of an improved test process should be
 - To detect defects as close as possible to their origin to minimize correction costs
 - To give information about the system quality as early as possible



TPI Model

- Identify **Key areas** for TPI. For example:
 - Test case design
 - Execution
 - Test tools
- Identify the process **Maturity levels**
- Identify the **Checkpoint** for the maturity levels
- Map the Key areas with maturity level with respect to corresponding checkpoints
- **Improvement Plan** is made of each of the process for each level



Conclusion

- Test project management is a systematic control of Planning, Action and Projection of the Test Attributes.
- Methodology discussed in the paper should be able to help the Test Managers to plan and track the project in more efficient way.
- Thus Effective Test Project Management helps to create, plan, manage and track the effective Test Cycle which in turn helps to deliver a highly stable, bug free Product to the end customer.

