Data and the Environment: Impacts on Cost and Success

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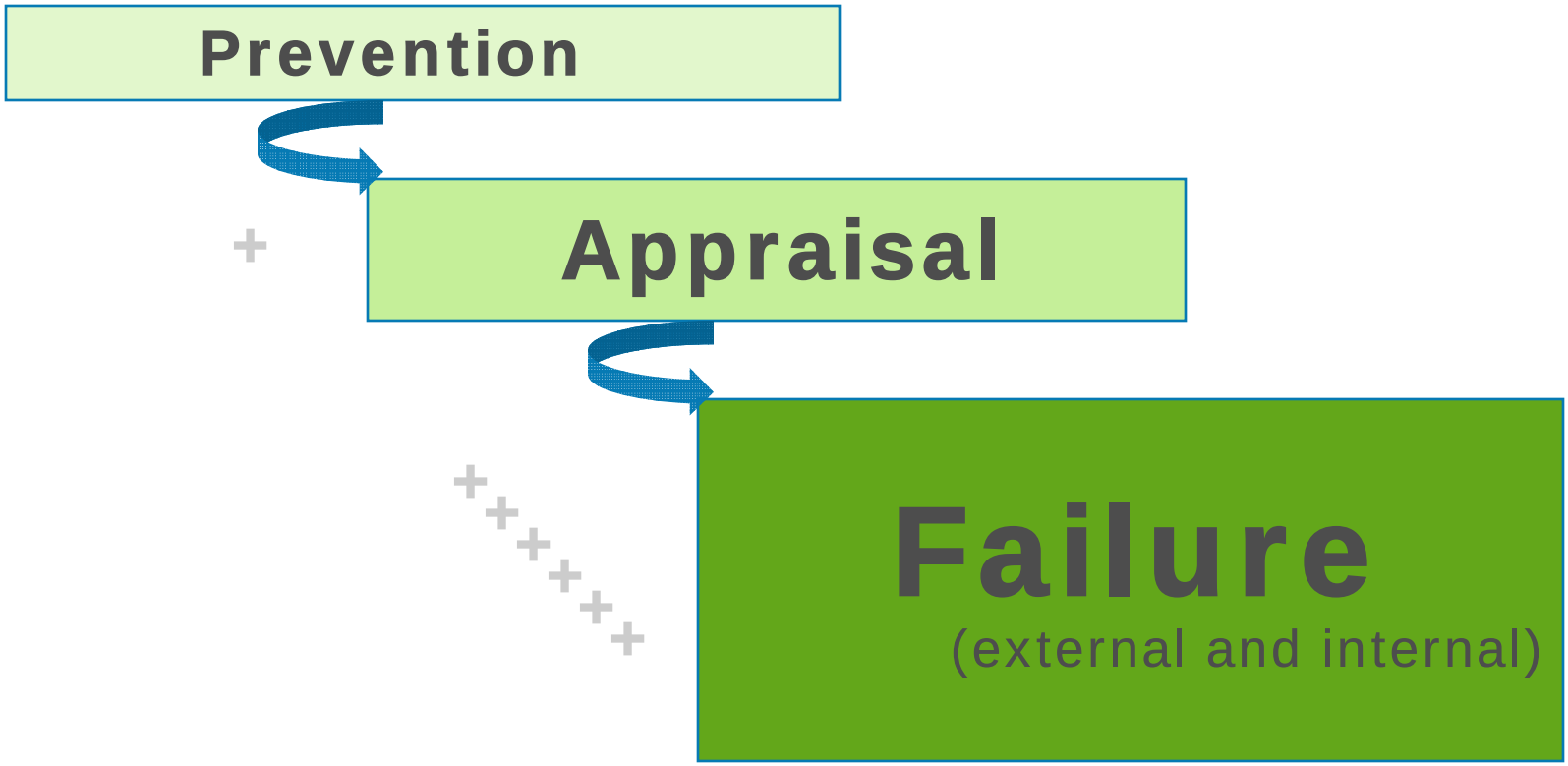
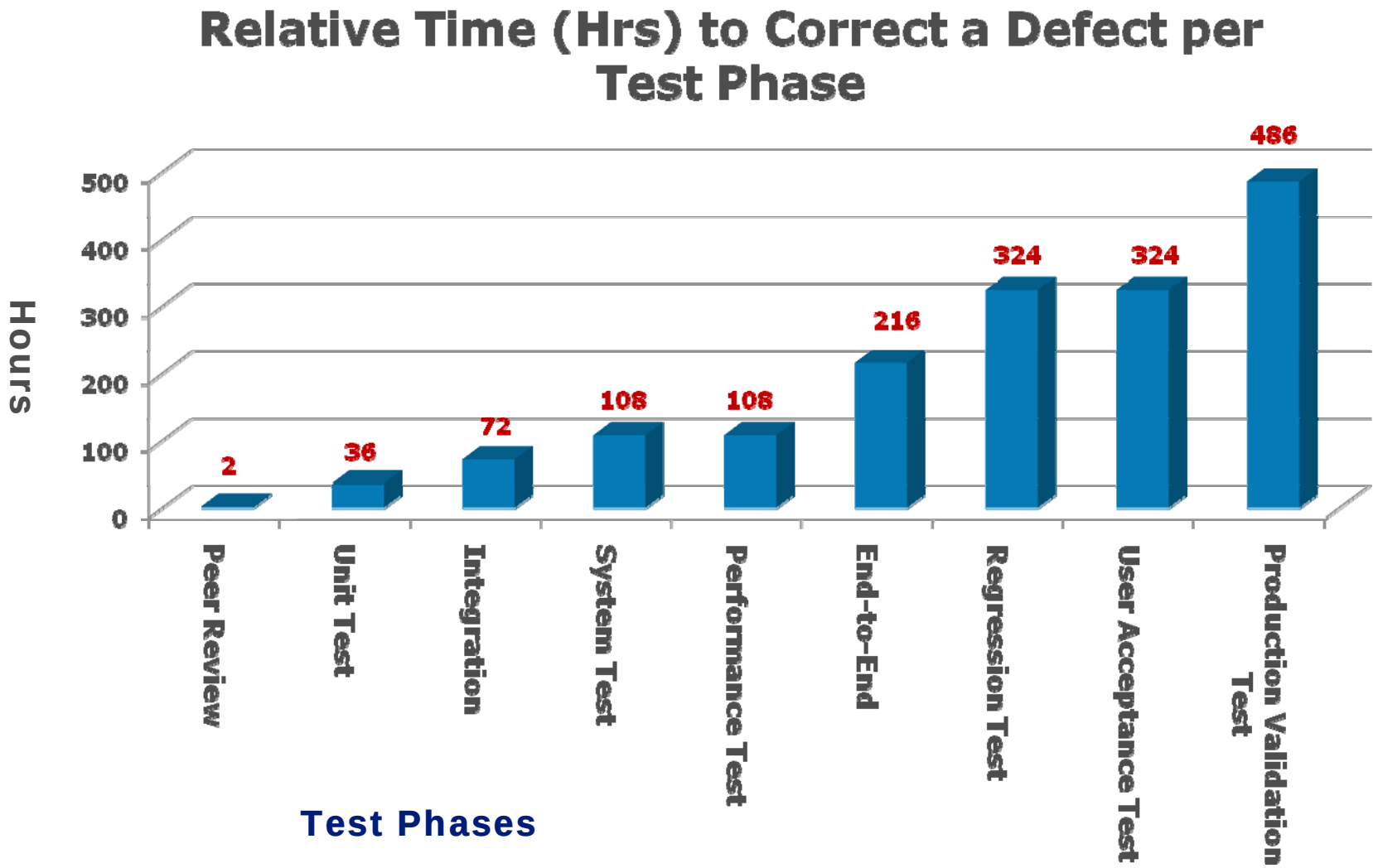
Agenda

- Cost of Quality
- Test Objectives
- Data consideration fundamentals
- Environment consideration fundamentals
- Improvement suggestions pertaining to Data
- Improvement suggestions pertaining to the Environment
- Metrics suggestions
- Planning and Results
- Future – Green Technology
- Other possibilities

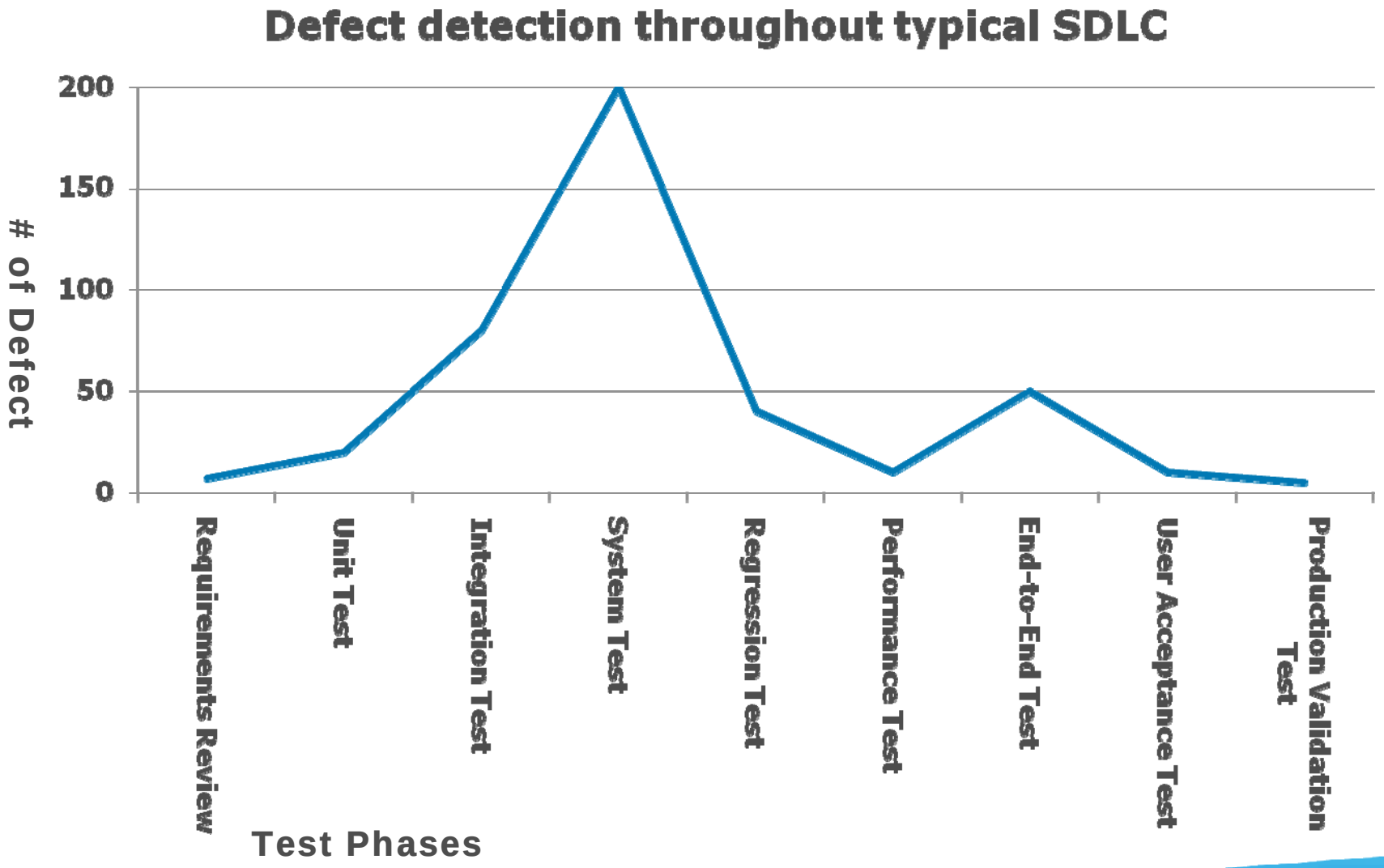
Cost of Quality



Defect Cost Increase



Defect Detection Trend



Testing Objectives

- What needs to be tested?
- How should it be tested?
- What are the primary verification points?
- Which applications are touched to produce verification results?
- Which types of data are required to trigger the verification points?
- Which environments exist for all applications being touched?
- How do the various environments integrate?

Quality in Action

- Requirements (verification of this is job 1)
- Application Usability
- Test Planning
- Data integrity and applicability
- Environment availability and stability
- Required resources to be scheduled
- Assumptions to be understood

Data consideration fundamentals

- Representative sample
- Relationships understood :- Input vs. Expected Output
- Reusability – Static data; Major consideration for Regression Test and Test Automation in particular
- Dependencies regarding which data element will trigger another specified data entry request
- Verification points understood :- Databases, Reports, Page displays, etc.
- Jobs / Methods to be executed to process transactions – Batch and Real time
- Test Data Store - Database, Flat file, etc
- Methods for handling dynamic data

Environment consideration fundamentals

- Applications in play
- End point for verification responsibility
- Standardized Software Configuration Management – **Controlled** code movements
- Environment scheduling for execution
- Project timeline for different test types
- Number of expected test passes
- Number of releases in progress
- Environment documentation
- Environment support

Data Improvement suggestions

- Standardize test data request procedures
- Establish test data repositories
  - Mine production databases to capture real data samples
  - Populate test databases with test data
- Create test data map. Include :-
  - Application entry point detail
  - Application expected results
  - Location of expected results
- Create test accounts
- Communicate standards successfully
- Establish support service level agreements
- Apply Checklists and Capture expert knowledge

Environment Improvement suggestions

- Standardize test environment request procedures
- Determine acceptable scale to production
- Establish performance expectations
- Map the Environment map. Include :-
  - Application dependency – Reverse Engineering possibility
  - Transaction types and flows – Automate
  - Outputs produced
- Comparative environments
- Clear and timely communication with Configuration Management
- Identify priority applications and transactions
- Establish support service level agreements
- Apply Checklists

Expected Quality Impacts … 1

- Two Constants in testing :-
  - Environment
  - Data
- Consistent behavior
- Repeatable results
- Accelerated test execution
- Increased off hour test execution through automation tools
- Improved focus on code defects and phased containment efforts
- Higher confidence in test results

Expected Quality Impacts … 2

- Reduced number of application maintenance projects
- Reduced planning overhead
- Higher test execution frequency
- More advanced testing earlier in the SDLC
- Advanced Metrics focused on Input and Output type Test Data
- More controlled offshore test execution
- Improved error handling and resolution
- Improved protection of customer sensitive data
- Reduced resource learning curve through documented methods and test data handling

Data Checklist sample items

Data Verification Checklist	Response		
	Yes	No	NA
Have all test data requirements been identified			
Has the sources of all test data been defined?			
Is the data preparation procedure detailed?			
Does the data set contain representative data sample of business data samples?			
Does each test case include specific expected results?			
Can data be used more than once?			
Has your input data been proven in all test environments?			

Environment Checklist sample items

Environment Verification Checklist	Response		
	Yes	No	NA
Have all test environment requirements been identified			
Has the sources of all test environment needs been defined?			
Have change control procedures been developed?			
Are all applicable application environments aligned?			
Has test execution timeline been communicated effectively?			
Has proper access levels been obtained?			
Are the environments configured similar to production?			

Metrics

- Number of input pages vs. Number of pages containing data verification
- Number of data input fields vs. number of data verification points
- Number of input verification points vs. Number of data related defects
- Number of output verification points vs. Number of data related Defects
- Number of Defects identified with Root cause related to data
- Output Data Analysis, especially for Performance Testing – Trending, etc

Metrics … 2

- Number of defects with environmental failure as root cause
- Number of environments per application available for testing
- Number of defects with data as root cause
- Number of result data verification points

Your Maturity

Current View

- Review current procedures
- Document, Document, Document

Inventory Start Date

Plan the Work

- Conduct Gap Analysis
- Assign resources clear independent responsibilities
- Set Personal performance goals
- Set goals and target dates

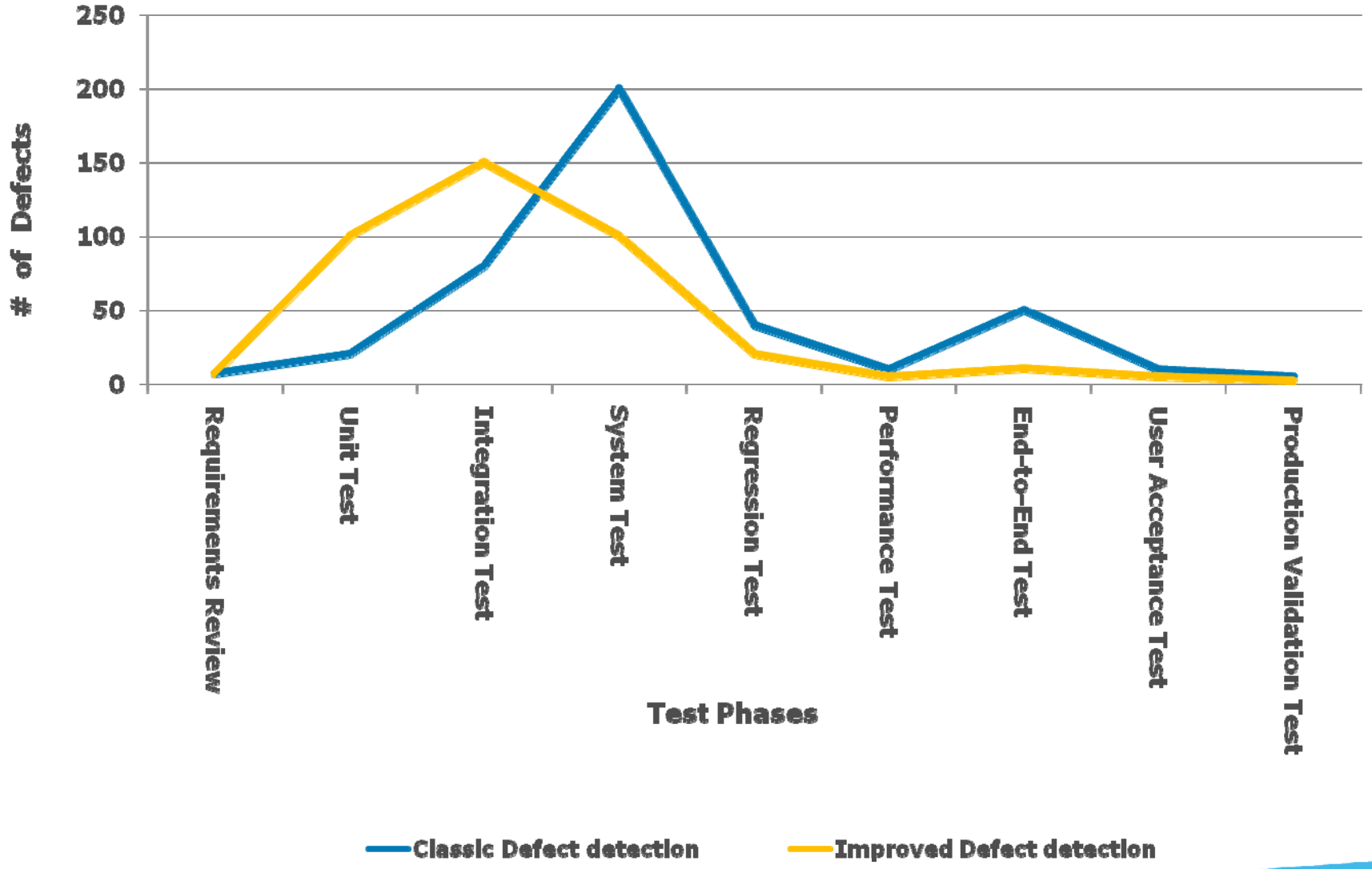
Work Plan Start Date

Work the Plan

- Set Status Meeting
- Conduct personal performance appraisals
- Report Metrics
- Review plan and adjust according to Metrics indicators

Work Plan End Date

Defect Detection Trend



Green IT

If every home office product purchased in the U.S. this year were ENERGY STAR qualified, Americans would save $200 million in annual energy costs while preventing almost 3 billion pounds of greenhouse gases – equivalent to the emissions of 250,000 cars.

- Energy usage is becoming the largest single data center operating cost — at 30-40% … IBM
- Servers consume up to 25% less energy than previous generations .. Dell
- Technology recycling – Environment, and your bottom line
- Reduce carbon footprint , efficient computing, employee be green… we use about a 0.0003 kWh of energy to answer the average query Google

Investing in Data and Environment improves efficiency and reduce rework, within existing and future projects. Lower energy usage!!!

Possibilities

Disaster Recovery

Can a stable production similar environment serve as a Recovery presence as well?

Production Implementations

Can a stable production similar environment serve as a redirect during production implementations?

Questions

Data

Environment