SNS COLLEGE OF TECHNOLOGY

COIMBATORE

AN AUTONOMOUS INSTITUTION

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE New Delhi & affiliated to the Anna University, Chennai

DEPARTMENT OF MCA

Course Name : 19CAE709 - SOFTWARE TESTING AND QUALITY ASSURANCE

Class : II Year / III Semester

Unit II - Introduction

Topic VI – Acceptance and Operational Testing

Data: The reliability, timeliness, consistency, and usefulness of the data included in the automated application
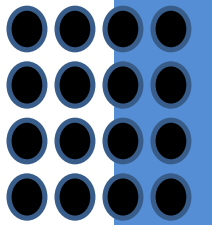
People: The skills, training, aptitude, and desire to properly use and interact with the automated application

Structure: The proper development of application systems to optimize technol-ogy and satisfy requirements
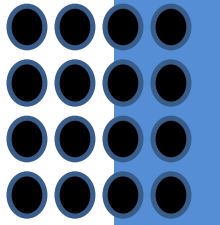
Rules: The procedures to follow in processing the data

- Develop tests to detect problems prior to placing the change into production.
- Correct problems prior to placing the change in production.
- Test the completeness of training material.
- Involve users in the testing of software changes.

- Acceptance testing must be integrated into the overall development process.
- Cost and time for acceptance testing will not be available.
- The implementers of the project plan will be unaware of the acceptance criteria.
- The users will not have the skill sets needed to perform acceptance testing.
- **Will the testing process be planned?**
- **Will the training process be planned?**
- **Will system problems be detected during testing?**
- **Will training problems be detected during testing?**

Will already-detected testing and training problems be corrected prior to the implementation of the change?
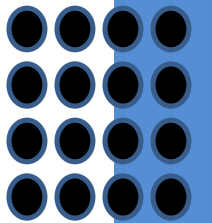
Overview
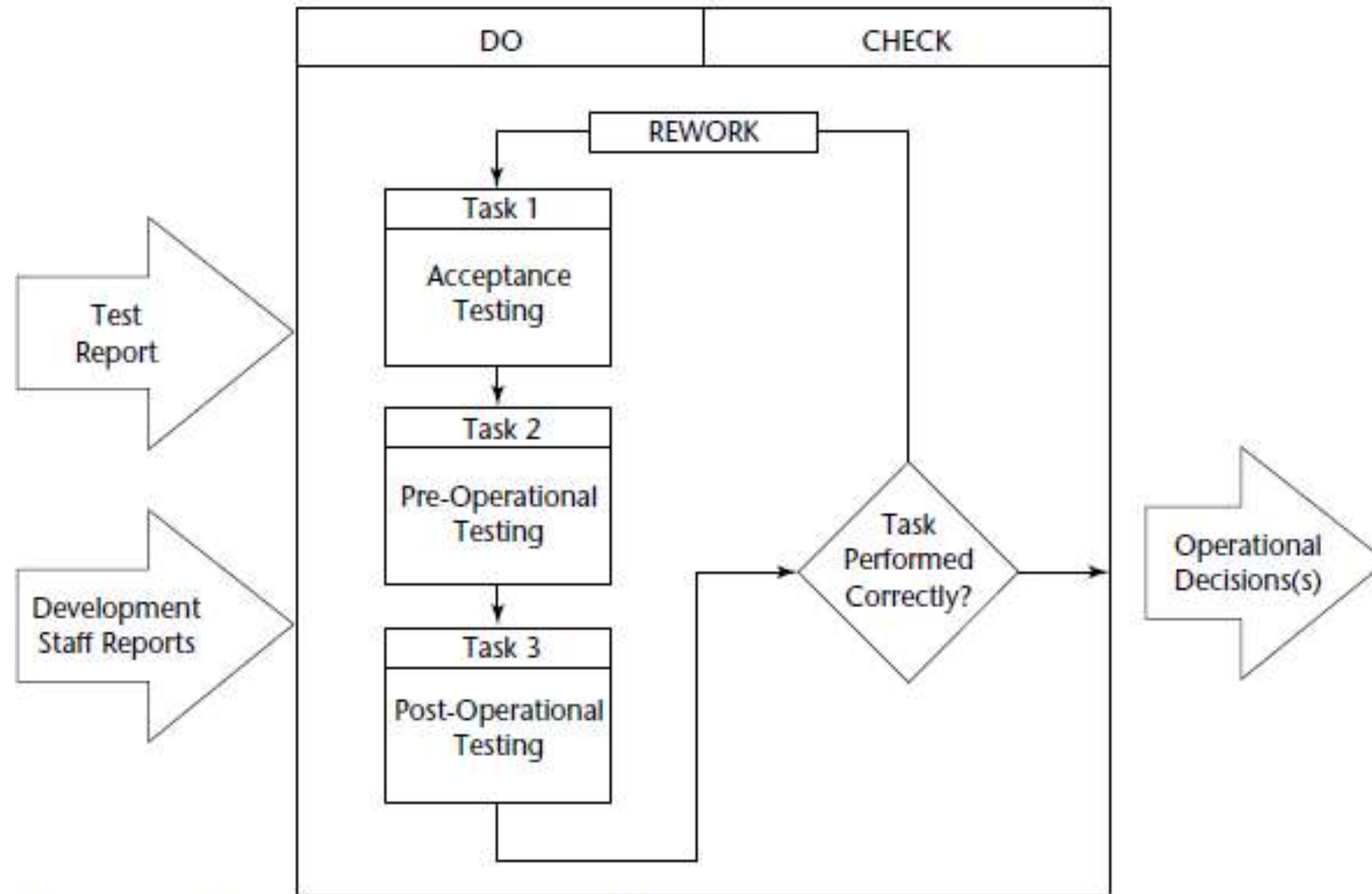
Figure 12-1   Acceptance testing workbench.

The three inputs to Task 1 are as follows
- Interim work products
- Tested software
- Unresolved defect list

Task 2, the installation phase, is the process of getting a new system operational. The process may involve any or all of the following areas:
- Changing old data to a new format
- Creating new data
- Installing new and/or change programs
- Updating computer instructions
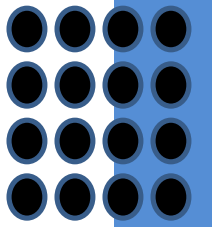- Installing new user instructions
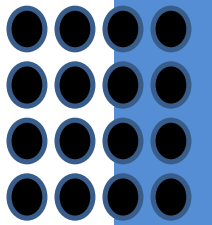
Defining the Acceptance Criteria
- Functionality
- Performance
- Interface quality
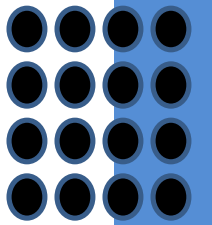- Overall software quality

Table 12-1   Acceptance Plan Contents

Project Description	Type of system; life cycle methodology; user community of delivered system; major tasks system must satisfy; major external interfaces of the system; expected normal usage; potential misuse; risks; constraints; standards and practices.
User Responsibilities	Organization and responsibilities for acceptance activities; resource and schedule requirements; facility requirements; requirements for automated support, special data, training; standards, practices, and conventions; updates and reviews of acceptance plans and related products.
Administrative Procedures	Anomaly reports; change control; recordkeeping; communication between developer and manager organizations.
Acceptance Description	Objectives for entire project; summary of acceptance criteria; major acceptance activities and reviews; information requirements; types of acceptance decisions; responsibility for acceptance decisions.

Developing an Acceptance Plan
Executing the Acceptance Plan

Table 12-1 Acceptance Plan Contents

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Developing Test Cases (Use Cases) Based on How Software Will Be Used

Building a System Boundary Diagram

Defining Use Cases

Preconditions that set the stage for the series of events that should occur for the use case

Post-conditions that state the expected outcomes of the preceding process

Sequential narrative of the execution of the use case

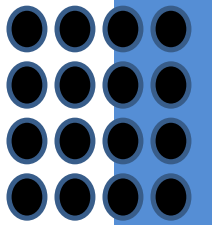Use cases are used to do the following:

Manage (and trace) requirements

Identify classes and objects (OO)

Design and code (non-OO)

Develop application documentation

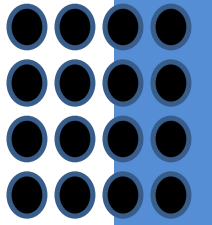Develop training

Develop test cases
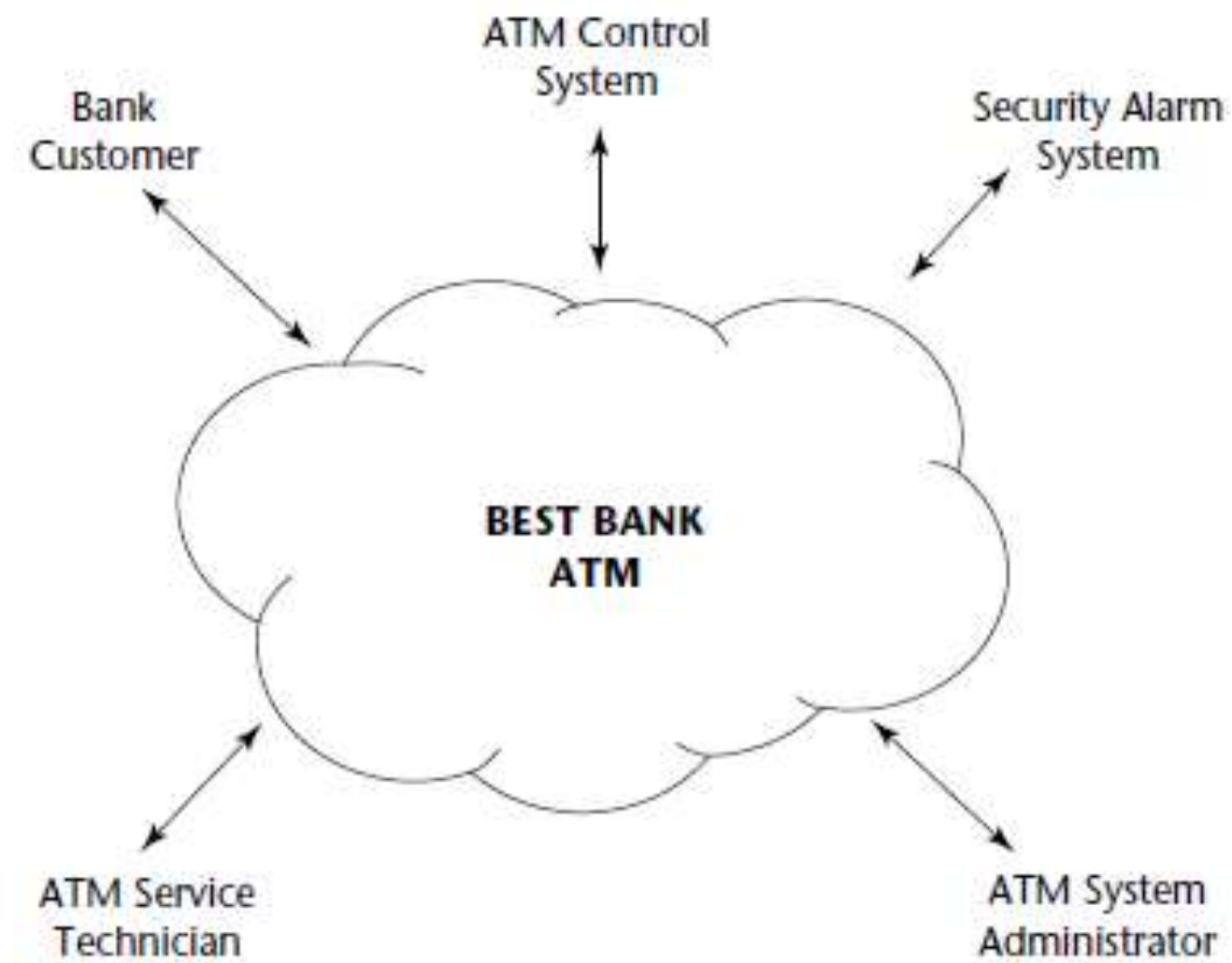
Reaching an Acceptance Decision

Figure 12-2 System boundary diagram for an automated teller machine (ATM) example.

Reaching an Acceptance Decision
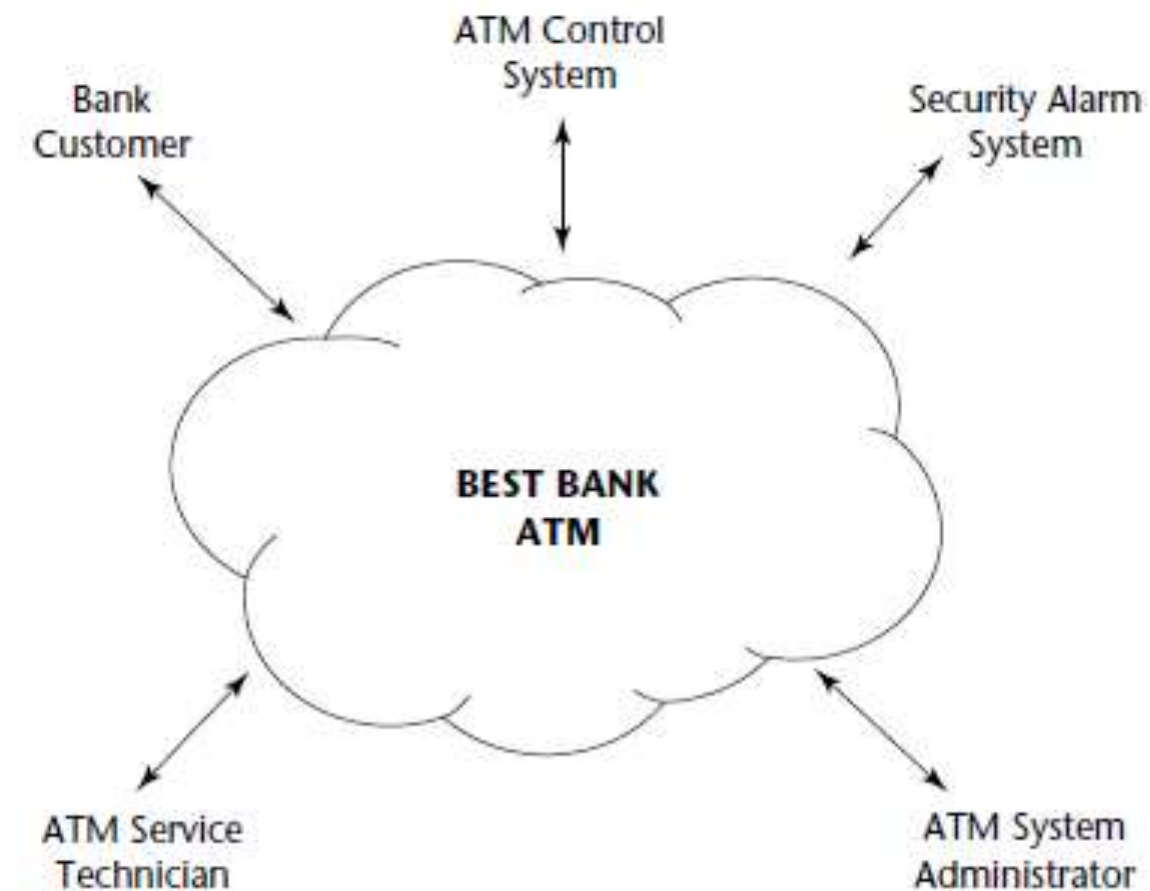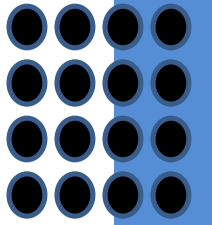
Testing New Software Installation

Testing the Changed Software Version

Put changed application systems into production
Assess the efficiency of changes
Monitor the correctness of the change
Keep systems library up to date

Figure 12-2   System boundary diagram for an automated teller machine (ATM) example.

Testing the Adequacy of the Restart/Recovery Plan

Addition of a new function

Change of job control

Additional use of utility programs

Change in retention periods

Change in computer programs
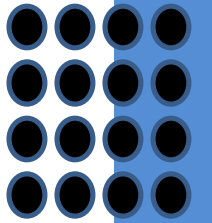
Change in operating documentations

Introduction of a new or revised form

Verifying the Correct Change Has Been Entered into Production

Is a change history available?

Is there a formal notification of production changes?

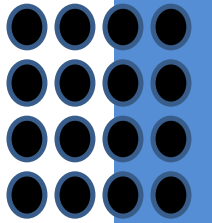**Verifying Unneeded Versions Have Been Deleted**

Monitoring Production

- Application system control group
- User personnel
- Software maintenance personnel
- Computer operations personnel

The types of clues that could be provided to monitoring personnel include the following:

- Transactions to investigate
- Customers
- Reports
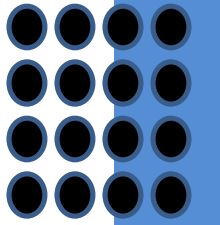- Tape files
- Performance
- *Documenting Problems*

Developing and Updating the Test Plan

- Elements to be tested (types of testing) are as follows:
- Changed transactions
- Changed programs
- Operating procedures
- Control group procedures
- User procedures
- Intersystem connections
- Job control language
- Interface to systems software
- Execution of interface to software systems
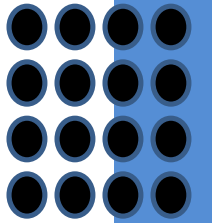- Security
- Backup/recovery procedures

Developing and Updating the Test Data
- Update existing test data
- Create new test data
- Use production data for testing
- Missing test transactions
- Multiple tests of the same transaction
- Unknown test results
- Lack of ownership

Testing the Control Change Process
Identifying and Controlling Change

Documenting Change Needed on Each Data Element

Changes can affect data in any of the following ways:

Length: The data element may be lengthened or shortened.

Value. The value or codes used in data elements may be expanded, modified, or reduced.

Consistency: The value contained in data elements may not be the same in various applications or databases; thus, it is necessary to improve consistency.

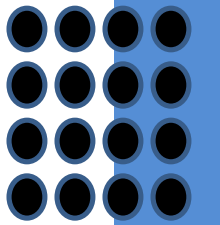**Reliability:** The accuracy of the data may be changed.
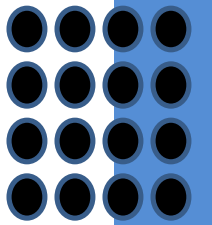
Documenting Changes Needed in Each Program

- Conducting Testing
- Developing and Updating Training Material

Training Material Inventory Form

- Orientation to the project narrative
- User manuals
- Illustrations of completed forms and instructions for completing them
- Explanation and action to take on error listings
- Explanation of reports and how to use them
- Explanation of input data and how to enter it

Training Plan Work Paper

Why conduct training?
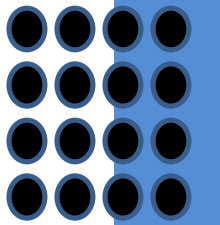
Who should be trained?

What training is required?

Where should training be given?

When should training be given?

How should the training material be designed?

What are the expected training results?

Training Plan Work Paper

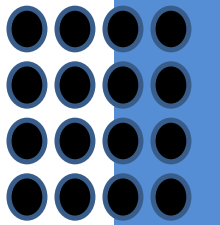Why conduct training?

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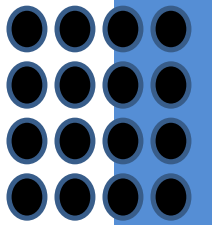
What are the expected training results?

Preparing Training Material

Conducting Training

1. Schedule training dates.
2. Notify the people who should attend.
3. Obtain training facilities.
4. Obtain instructors.
5. Reproduce the material in sufficient quantity for all those requiring the material.
6. Train instructors.
7. Set up the classroom or meeting room.

Preparing Training Material

Conducting Training

1. **Interim product acceptance opinion:** An opinion as to whether an interim product is designed to meet the acceptance criteria.

2. **Final acceptance decision:** Relates to a specific hardware or software component regarding whether it is acceptable for use in production.
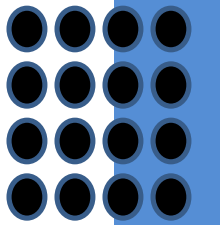
Is the Automated Application Acceptable?

Automated Application Segment Failure Notification

Is the Manual Segment Acceptable?

Observation

Application examination

Verification

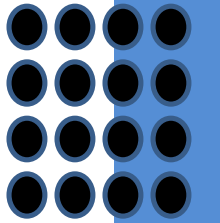The methods that users can incorporate to overcome minor training deficiencies include the following:

Restrict personnel

Supervisory review

Information technology assistance

Overtime
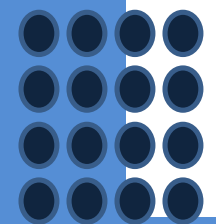
Training Failure Notification Form

Reference

1. https://centricconsulting.com/client-stories/world-class-software-testing-organization/
2. https://www.edureka.co/blog/software-testing-models/

THANK YOU