
# Closing The Gaps in Regression Testing

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# We believe…

*“In God We Trust,*

*We Test Someone Else’s Code”*

# Role of IT Supporting Businesses

# Regression Testing

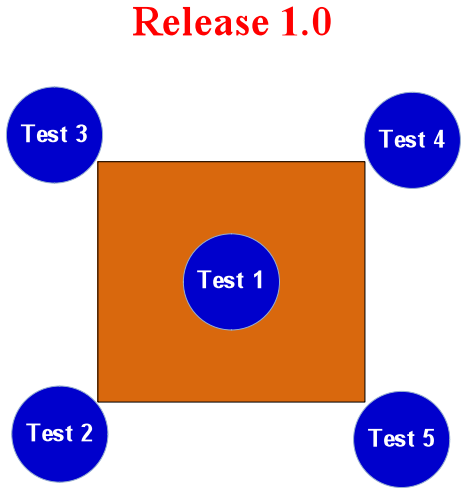
- Regression Testing is testing something that has already been tested

- It is a process of comparing two different versions of same software entity to ensure that only indented changes are made to the later version of that entity

*Regression Testing usually refers to the testing in the Maintenance phase.*

# Why do we need to do regression Testing?

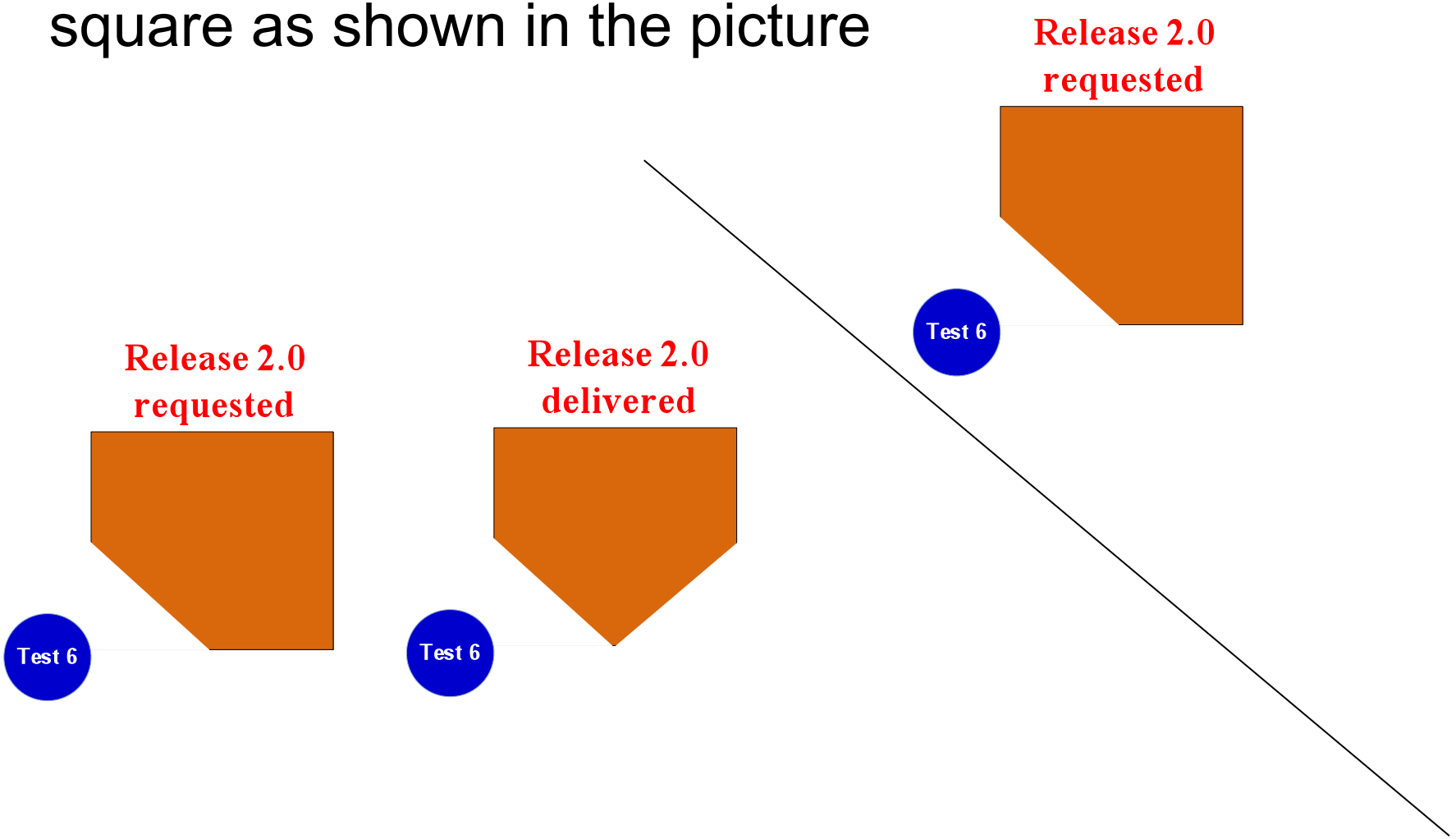
- To ensure that only intended changes are made to the system
- Catch Un-intended changes and address those side effects




successfully executed and passed all the 5 tests for release 1.

# Why do we need to do regression Testing?

- Now we are in release 2.0.
- Requirement was to cut lower left corner of the square as shown in the picture

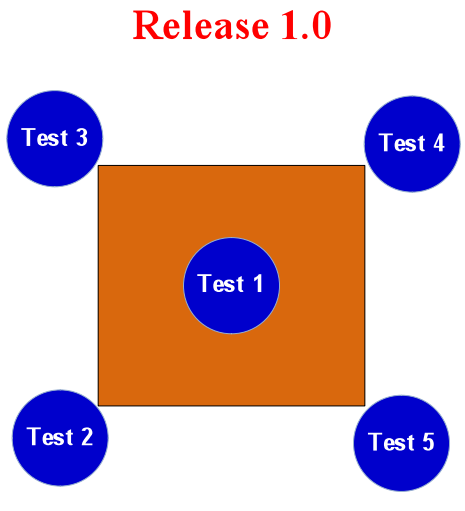


# Common Challenges

- Technology
- More agile and rapid software development
- Global delivery or Shared service model
- Lack of visibility in to entire program
- Unplanned changes making their way to prod
- Lack of team communication and handshake
- Speed to market delivery

# Retire the Invalid Tests

- Not all tests from previous releases are valid for the current release




Release 1.0 has
5 Tests

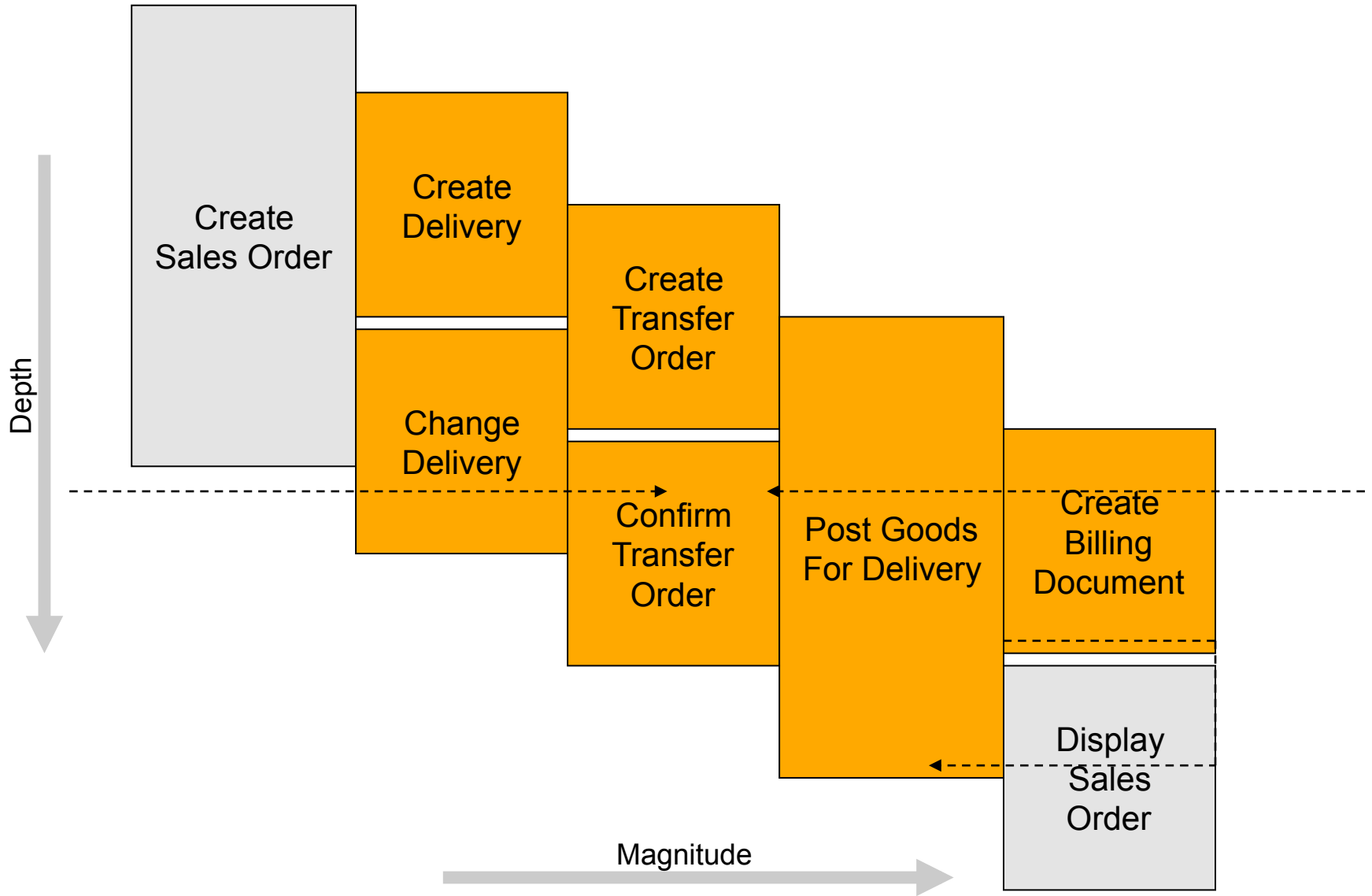

Release 2.0 has
1 new Test

**When to do it?**

# Conduct Risk Based Regression Testing

- What should be the basis of risk analysis – Requirements or Tests?
- Factors for risk analysis
  - Probability of failure
  - Business Criticality
  - Span of Impact
  - Visibility
  - Financial Impact
  - Fatality
  - Functional Inter-dependency
- Relative importance of risk factors would differ from business to business

# Proper Coverage with Magnitude and Depth



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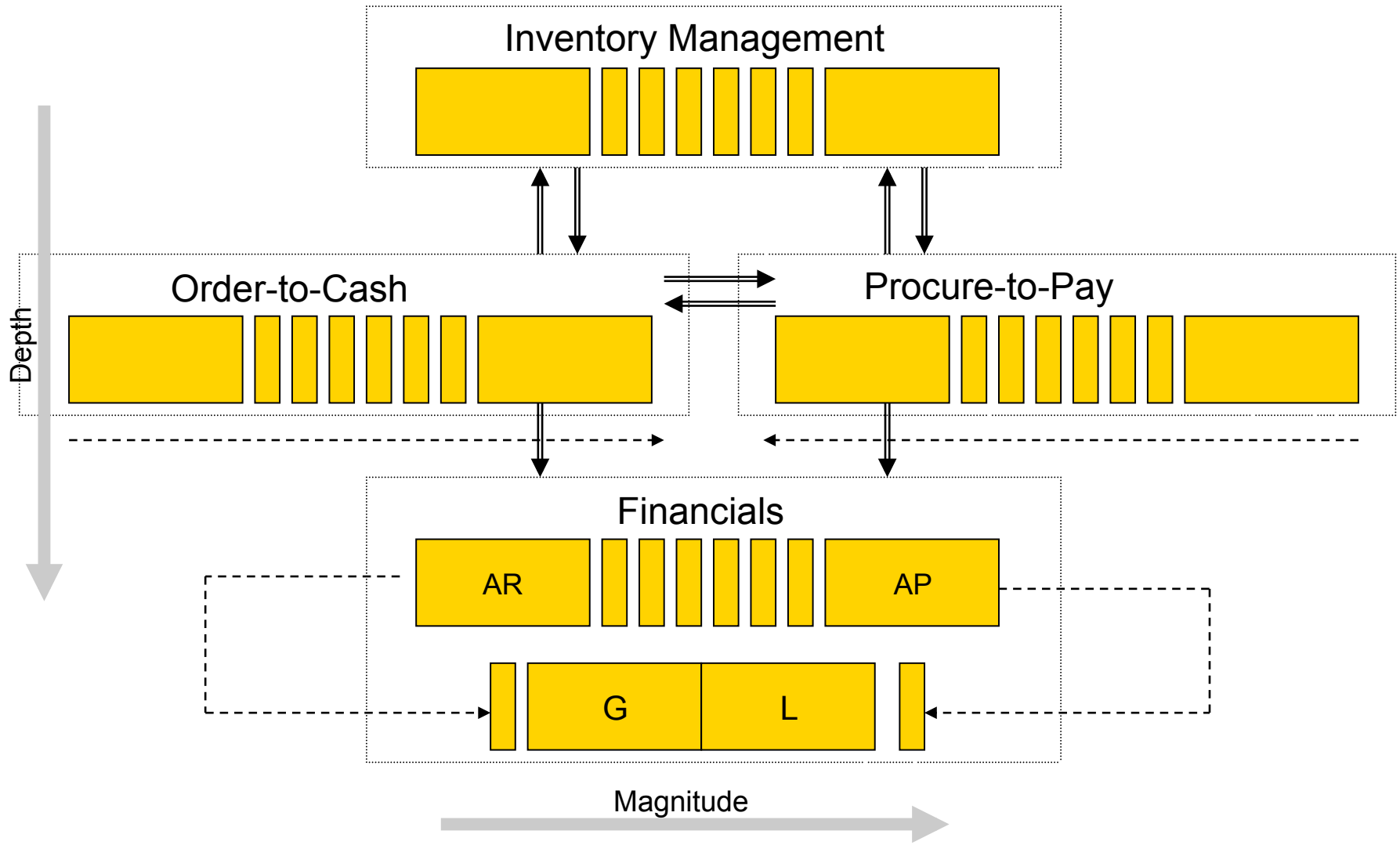


# Conduct Focused Regression Testing

Don’t have enough time and resources?

# Look outside of regression test bed

Some tests are not important but in context of changes made they may become important

# Involve Testers Early

- From last two slides,
  - Conduct focused regression testing
  - Look outside of regression testing
- Reprioritize your regression Test Bed

# Enhance Your Regression Test Bed

# Optimize Your Regression Tests

- Avoid duplicate coverage of same requirement in multiple tests
- Minimize the testing efforts by testing related requirements together

# Consider the Possibility of Test Automation

- What is test automation?
- The biggest challenge
  - Increase speed to market without compromising quality
    - Test new changes to the application
    - Re-test what was already tested
    - And yet meet the deadline with quality

# What Automation can bring to the table

- Planned Benefits
  - Mitigate the risk
  - Accommodate increase in test coverage without impacting timelines
  - Create bandwidth for QC resources to focus on more important things
  - Increase speed to market
- Unplanned Benefits
  - Use of test automation for non-testing purposes
- In the prospective of measurements benefits can be categorized in to tangible and intangible benefits

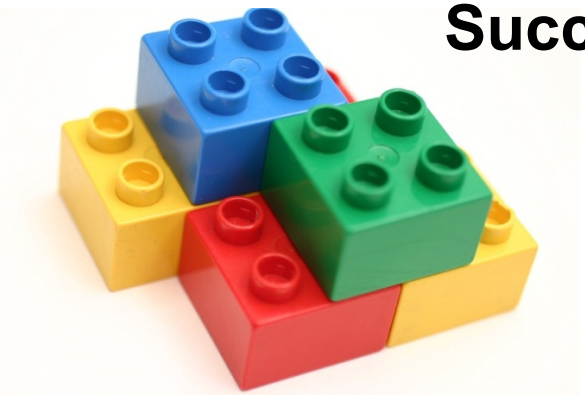
# Case for Test Automation

- Criteria,
  - Large number of regression tests to execute with limited resources and time
  - Frequent application releases
  - Changes accommodate in each release are disproportionally large compared to allotted time and resources
  - Increase in test coverage with no corresponding increase in time allotted
- Conduct a feasibility study
  - Financial feasibility
  - Risk appetite
  - Technical feasibility
  - Environment feasibility

# Fundamental Characteristics of Automation

- Reusable
- Scalable
- Robust
- Flexible
- Maintainable and
- Cost effective

# Approach for Test Automation

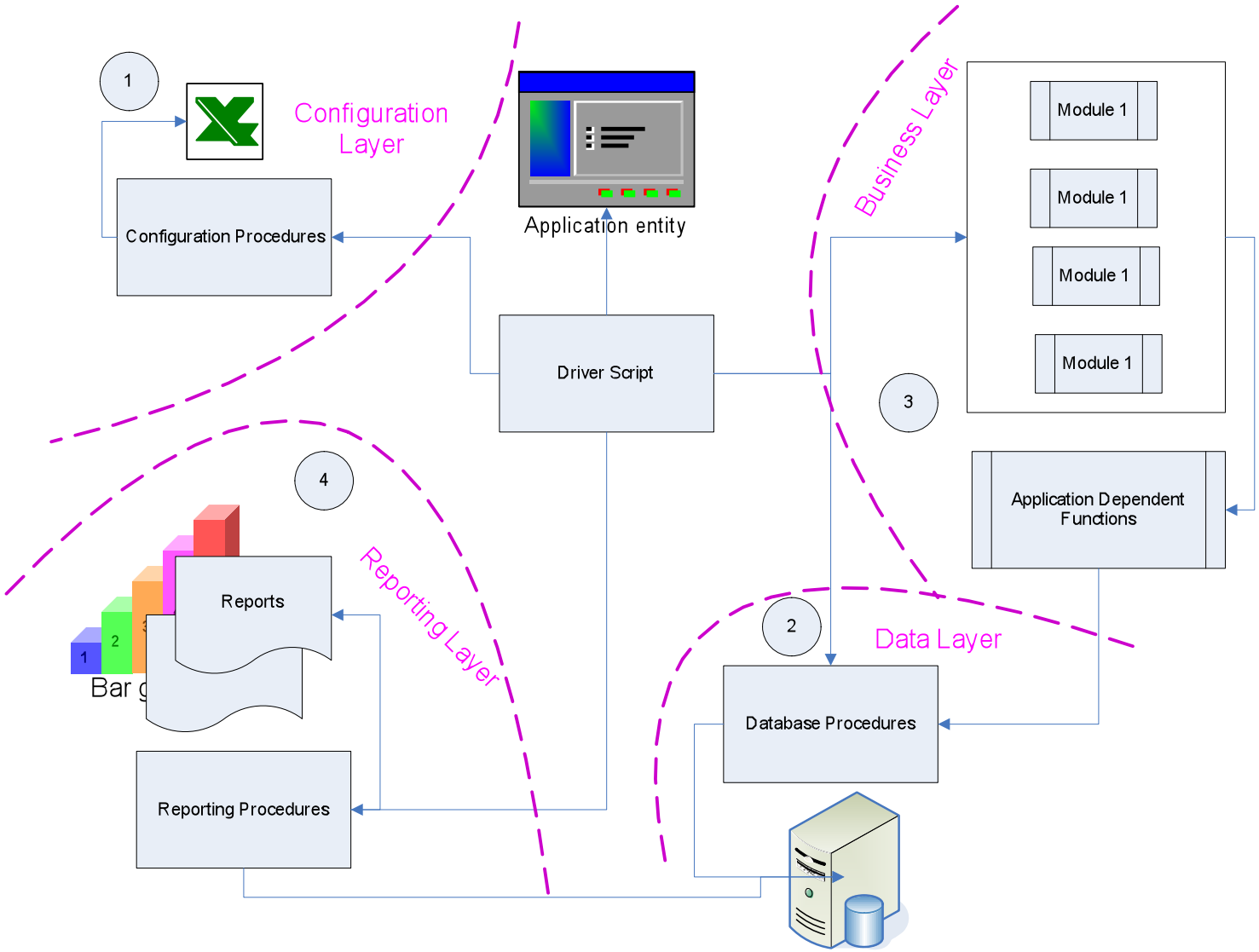


## Success Criteria

✓Tool Selection
✓Framework Selection
✓Proper Implementation

- What is a framework?
  - It is a comprehensive design and a holistic approach to,
    - Test Development
    - Test Execution
    - Test Result Analysis & Reporting and
    - Maintenance
  - Frame work is a layered structure in which each layer is designed and developed to address/support specific needs,
    - Configuration Layer
    - Data Layer
    - Technical Layer
      - Configuration Procedures
      - Architecture Procedures
      - Data Procedures
    - Reporting
    - Integration and
    - Error handling

# Framework Layered Structure



# Regression Testing - Time It Well

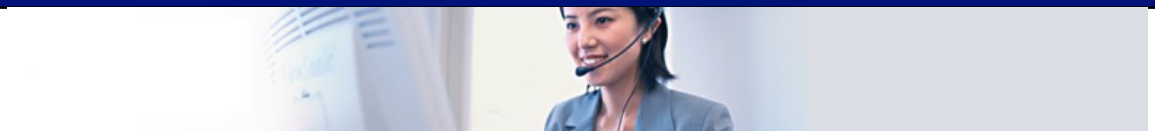
- When to add new test to your regression test bed?
- When to retire invalid tests from your regression test bed?
- When to conduct risk analysis and reprioritize the regression tests?
- When to automate my regression tests?
- When to start regression test execution?

# Conlusion/Sum-up

- Regression testing can not be sacrificed
- Always keep your regression test suite up to date
- Conduct risk analysis and prioritize tests
- Proper coverage of end-to-end tests to provide depth and magnitude
- Involve early – closely monitor change control, asses impact and reprioritize tests
- Consider the possibility  of test automation
- Right time your regression testing efforts

# Q & A

## Feedback



Thank You!