ISO 29119: Current Status & Future Plans

Stuart Reid PhD, FBCS

(stureid.test@gmail.com / www.stureid.info)

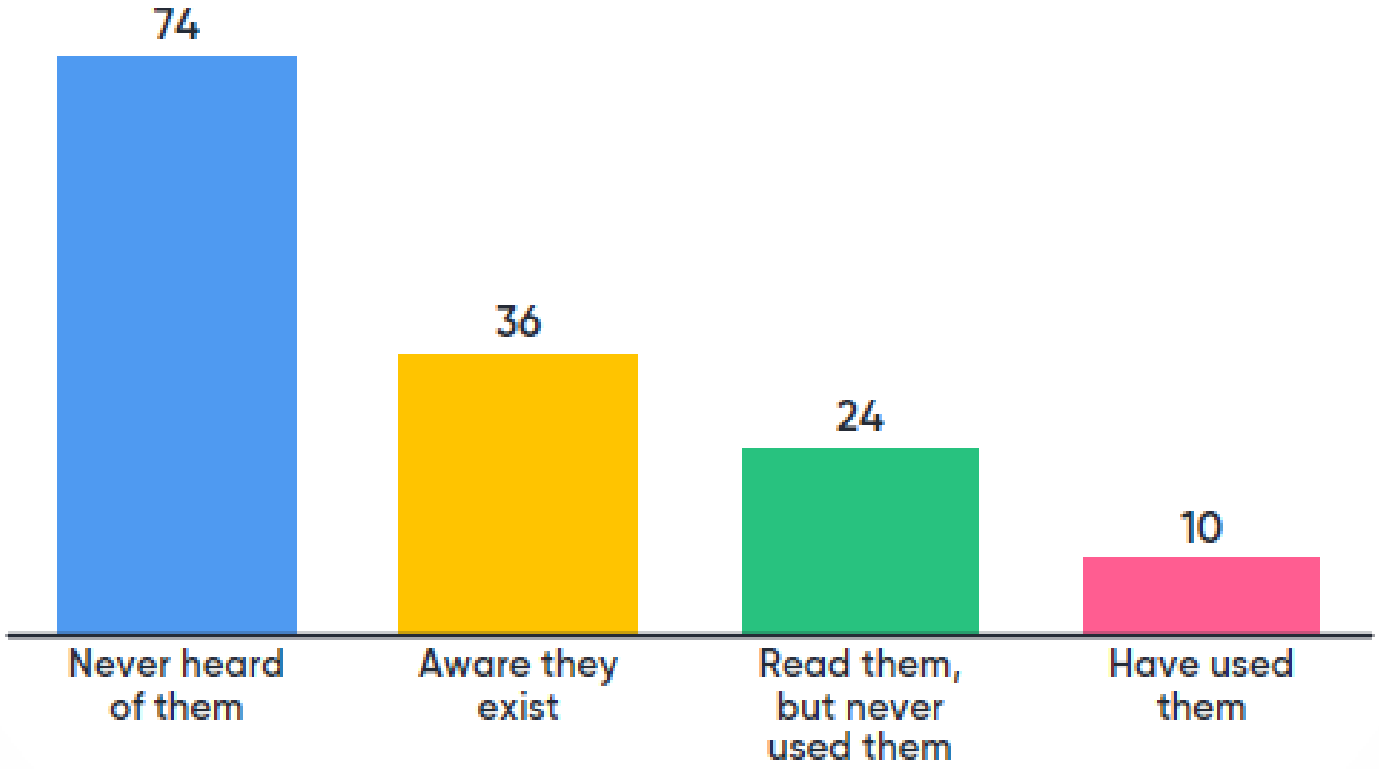
Scope

- Purpose and motivation for software testing standards
- Overview of ISO 29119 standards & ISO 20246
- Development of standards
- Current and planned testing standards work
- 5-Year Review
- Certifications and Standards in Hangul

Go to **www.menti.com** and use the code **58 40 5**

What do you know about the ISO 29119 Software Testing Standards?

Mentimeter



144

Mentimeter

Select or create a presentation

+ Create presentation

Select an existing presentation from your account

Select your presentation

Are you stuck or missing updates? Refresh

Log out

Purpose & Motivation

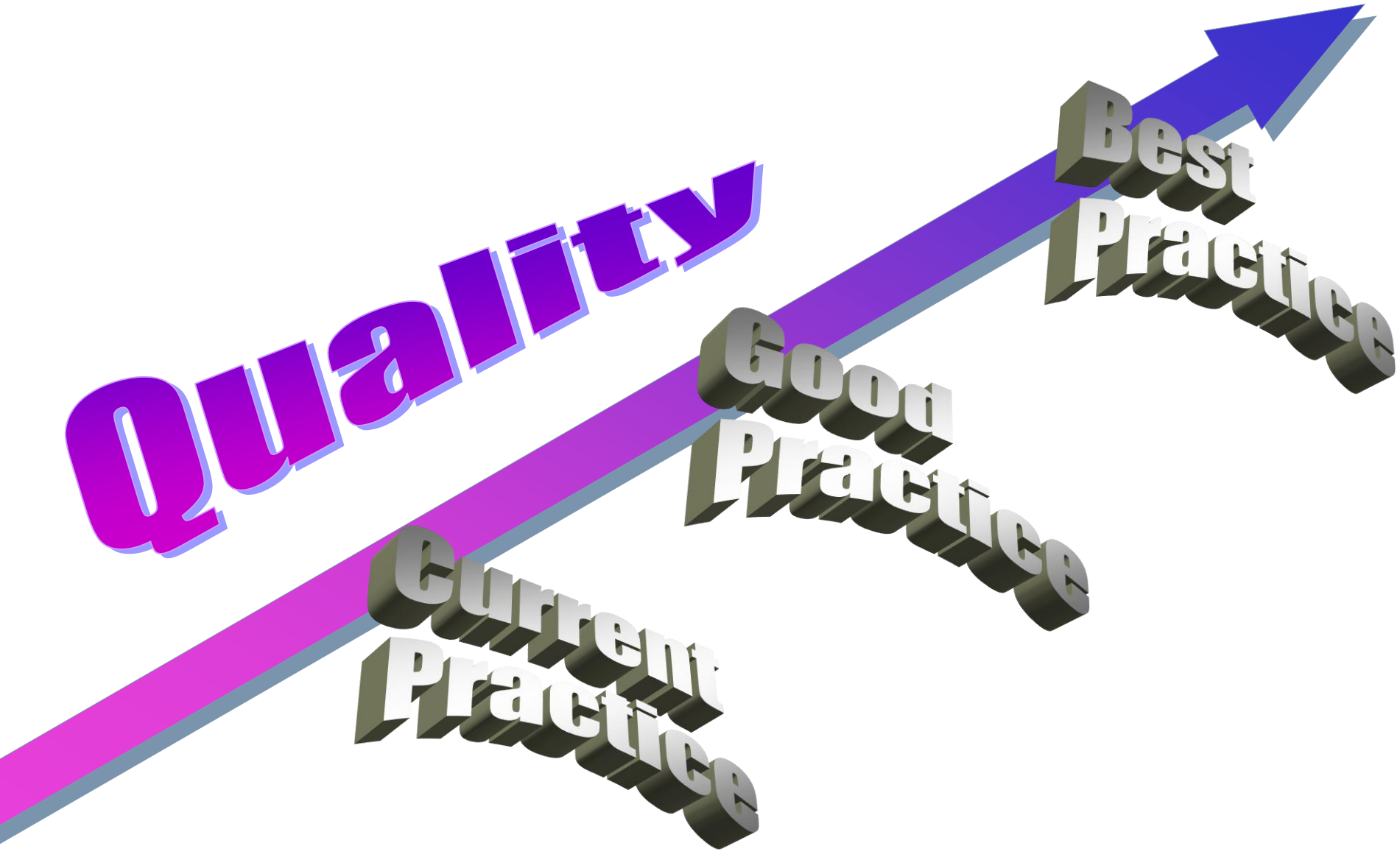
What are Standards?

"Guideline documentation that reflects agreements on products, practices, or operations by nationally or internationally recognized industrial, professional, trade associations or governmental bodies"

- ISO

- **Guidelines documents** as they are not compulsory unless mandated by an individual or an organization
- **Agreements** because they should reflect a certain level of consensus

Quality and Standards



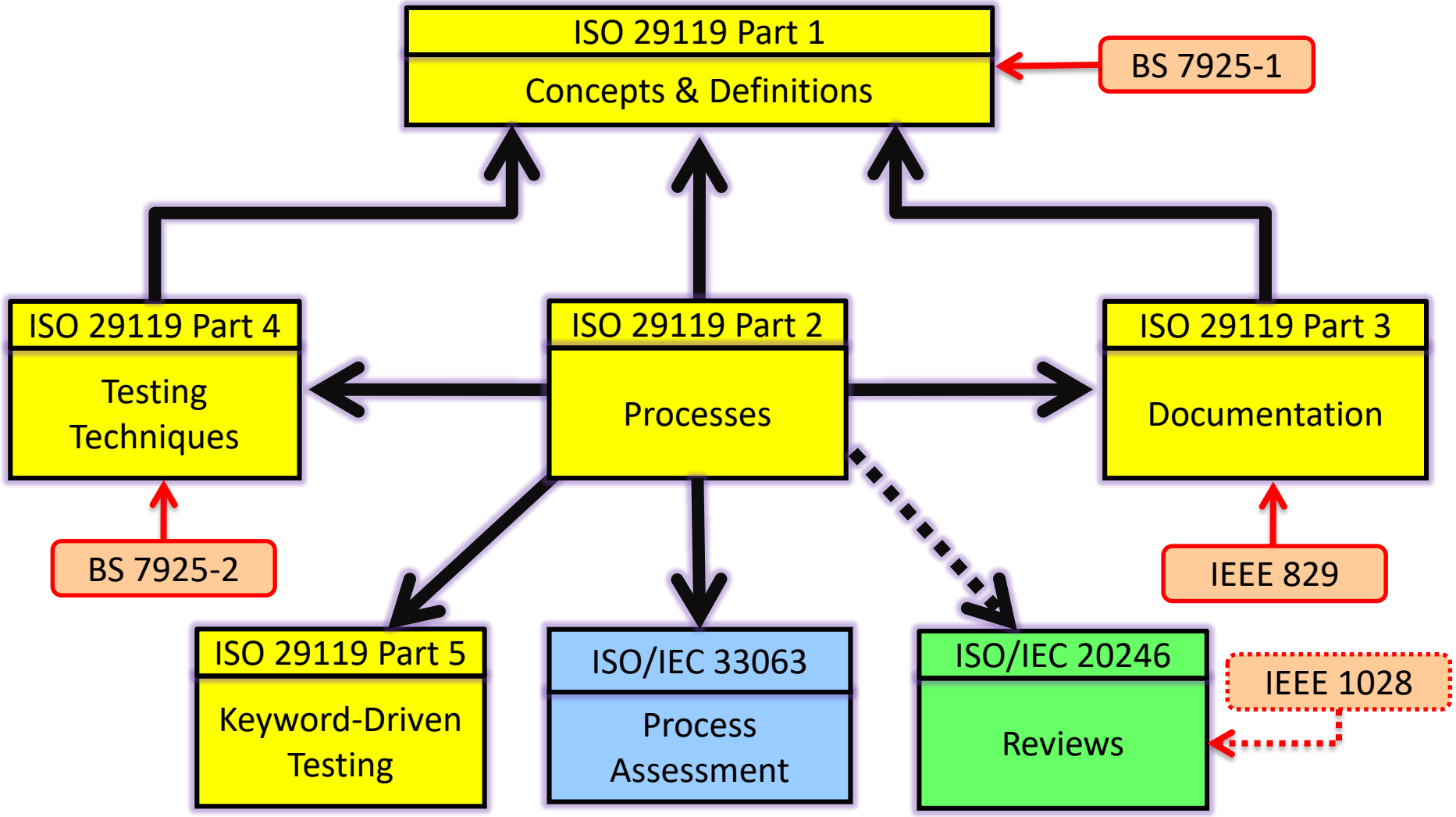
What use are Standards?

Standards describe a current ‘body of knowledge’ that provides the basis for a professional discipline

- **Basis for:**
  - Communication – common terminology
  - Professional qualifications for individuals
  - Certification/compliance schemes for organizations
  - Benchmark of ‘good industry practice’
  - Contracts

Structure & Content of ISO/IEC/IEEE 29119 & ISO/IEC 20246 Reviews

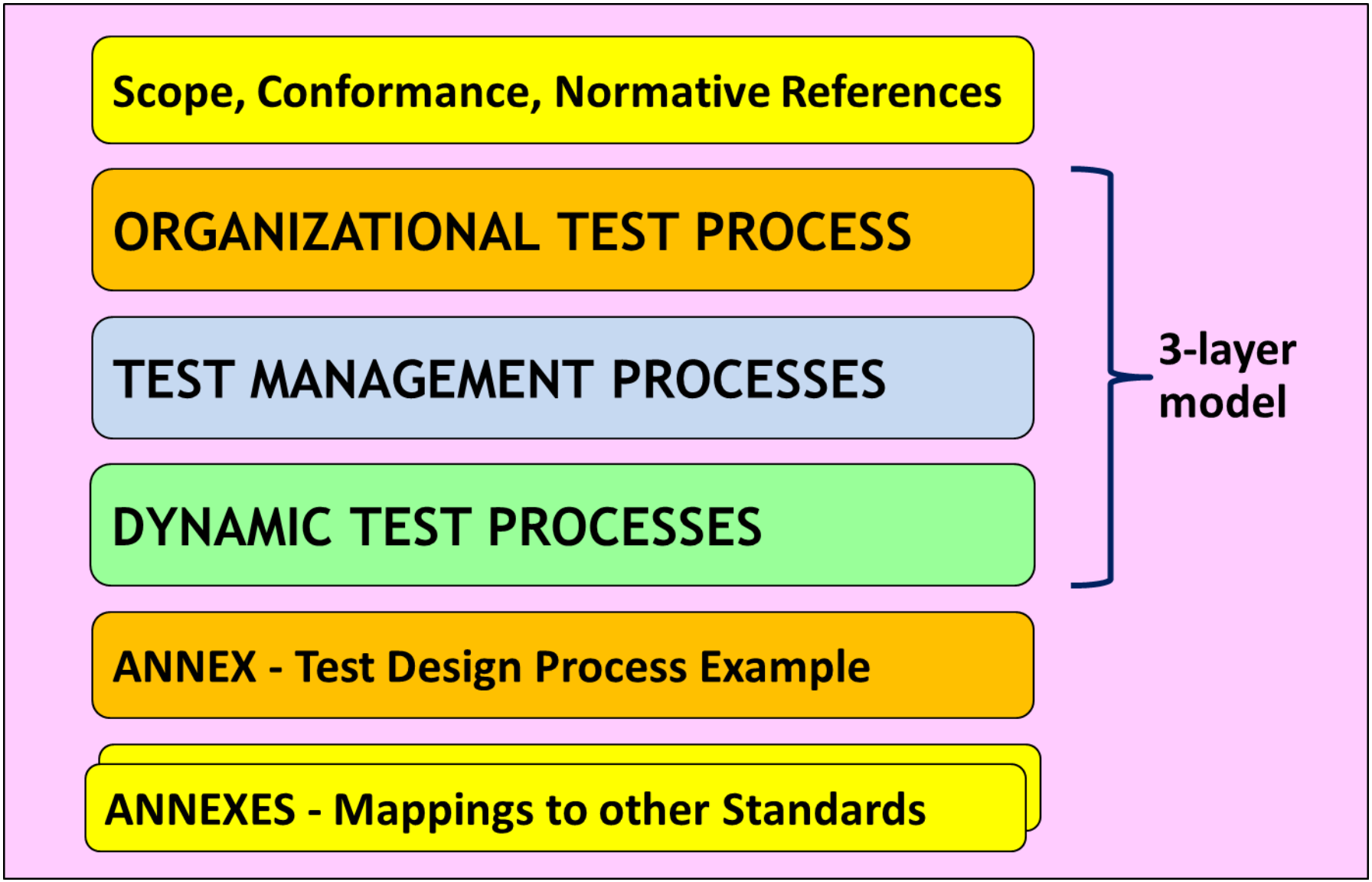
WG26 Testing Standards – Structure



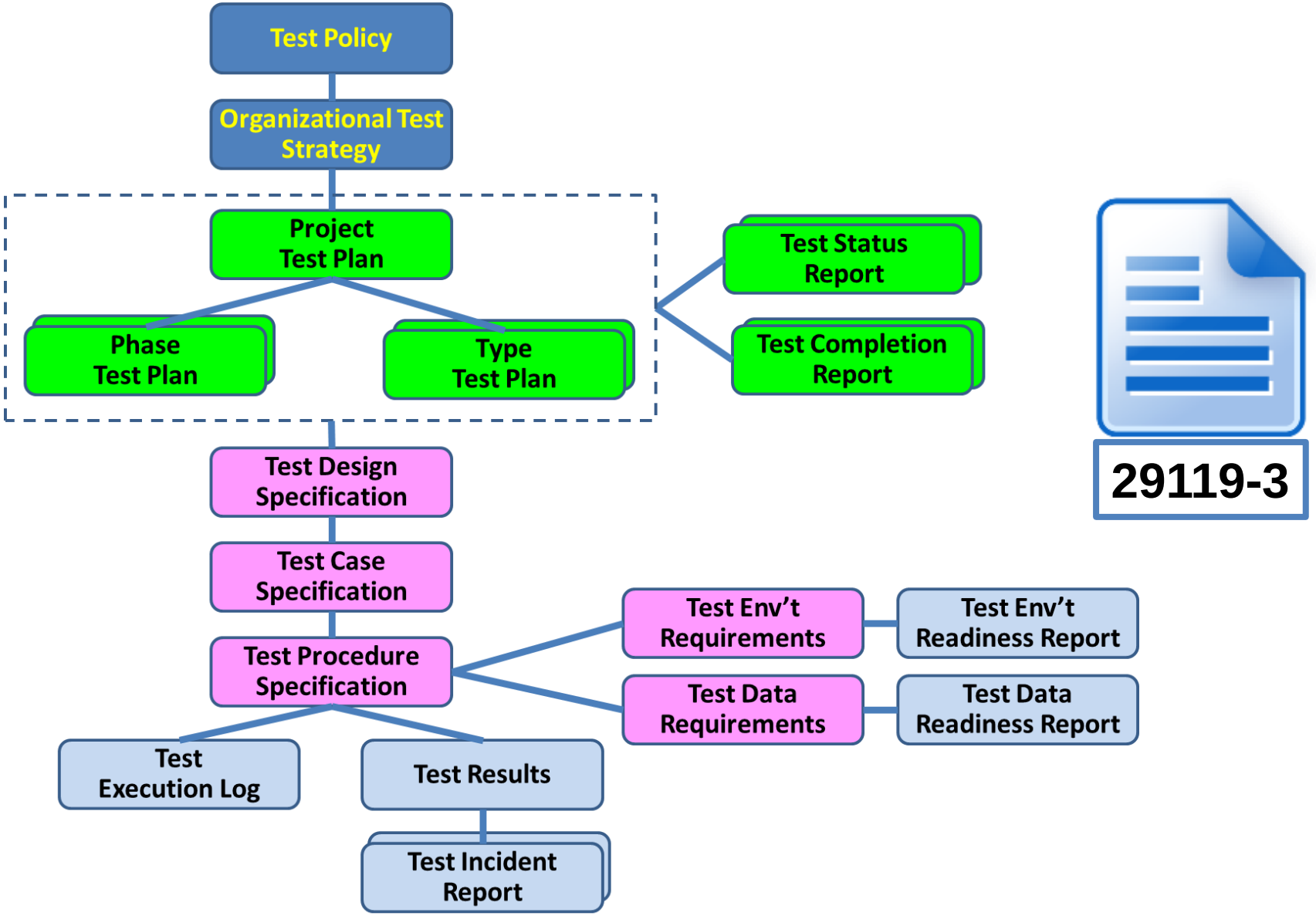
ISO 29119 Part 1: Contents

- Scope, Conformance, Normative References
- **DEFINITIONS**
- SOFTWARE TESTING CONCEPTS
- ANNEX - Testing in V & V
- ANNEX – Test Metrics and Measures
- ANNEX - Testing in Different Life Cycles
- ANNEX - Roles and Responsibilities
- Bibliography

ISO 29119 Part 2: Contents



ISO 29119 Part 3 – Test Documentation



ISO 29119 Part 4 - Test Design Techniques

specification-based testing techniques

- boundary value analysis
- cause-effect graphing
- classification tree method
- combinatorial test techniques
- decision table testing
- equivalence partitioning
- random testing
- scenario testing
- state transition testing
- syntax testing

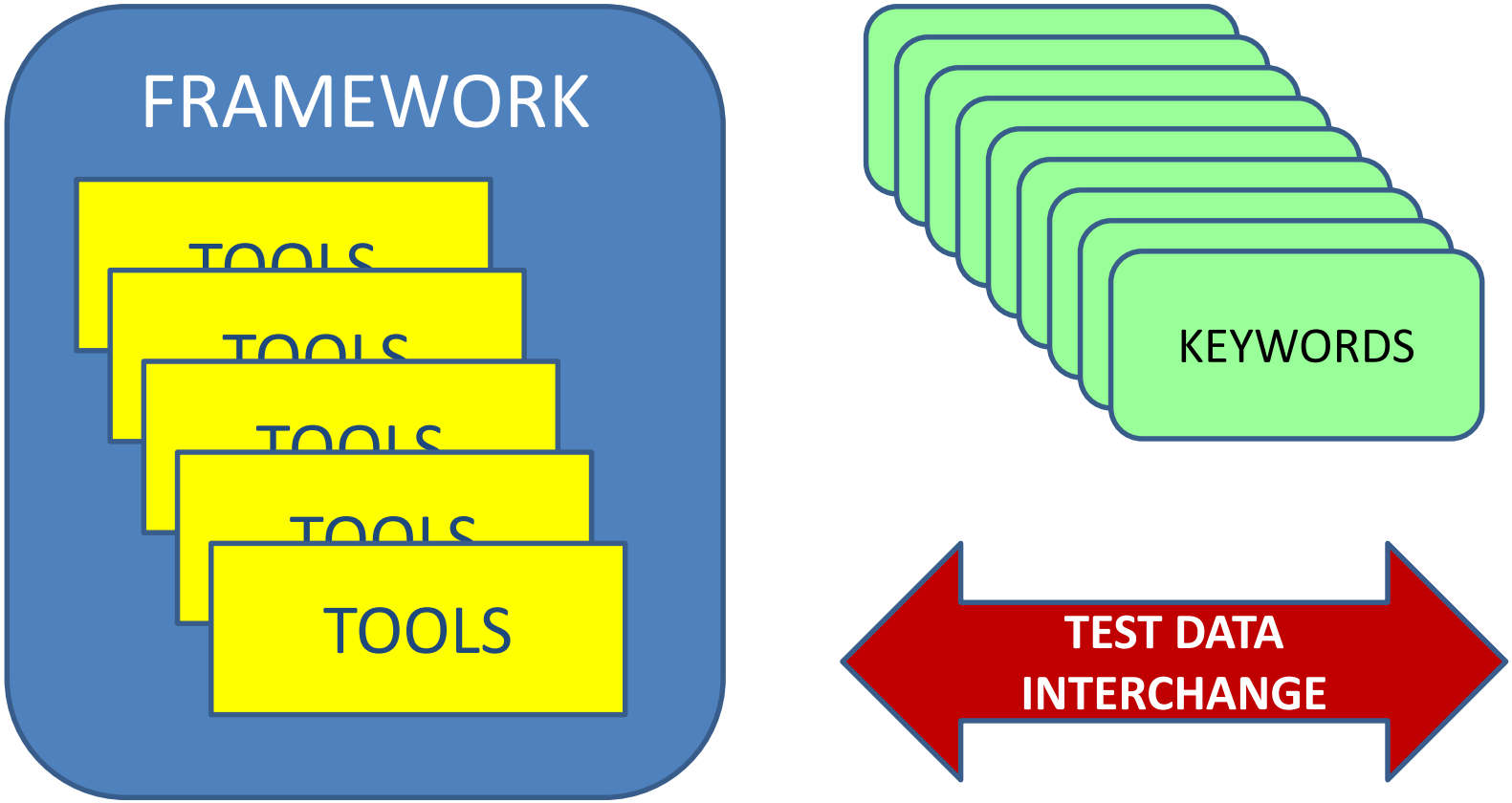
structure-based testing techniques

- branch / decision testing
- branch condition testing
- branch condition combination testing
- data flow testing
- modified condition decision coverage (MCDC) testing
- statement testing

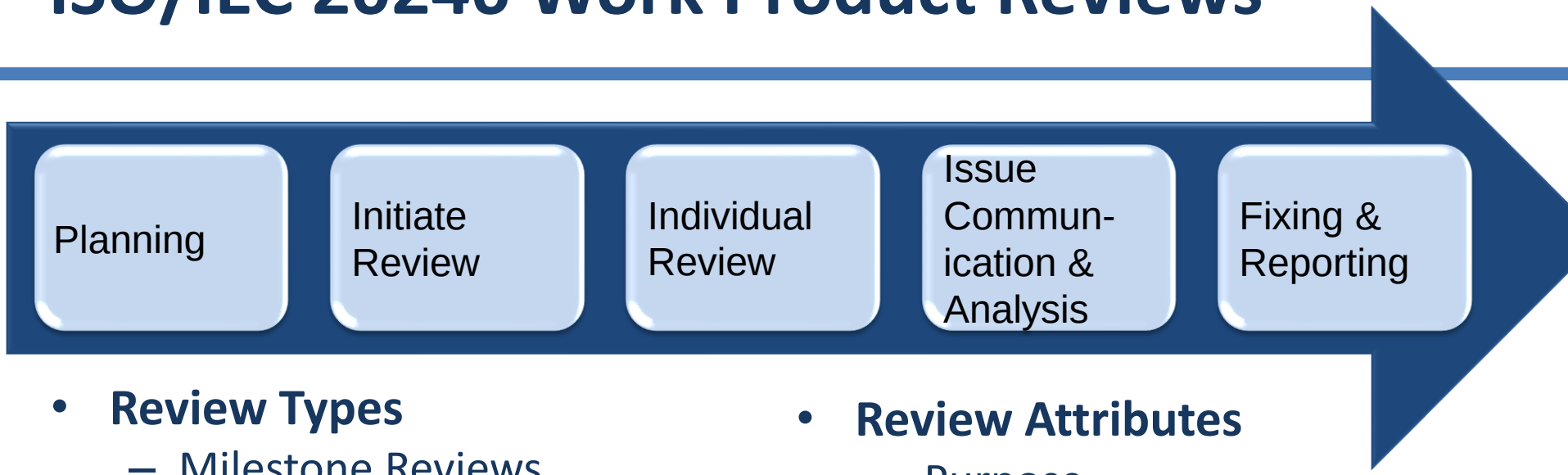
experience-based testing technique

- error guessing

ISO 29119 Part 5 – Keyword-Driven Testing



ISO/IEC 20246 Work Product Reviews

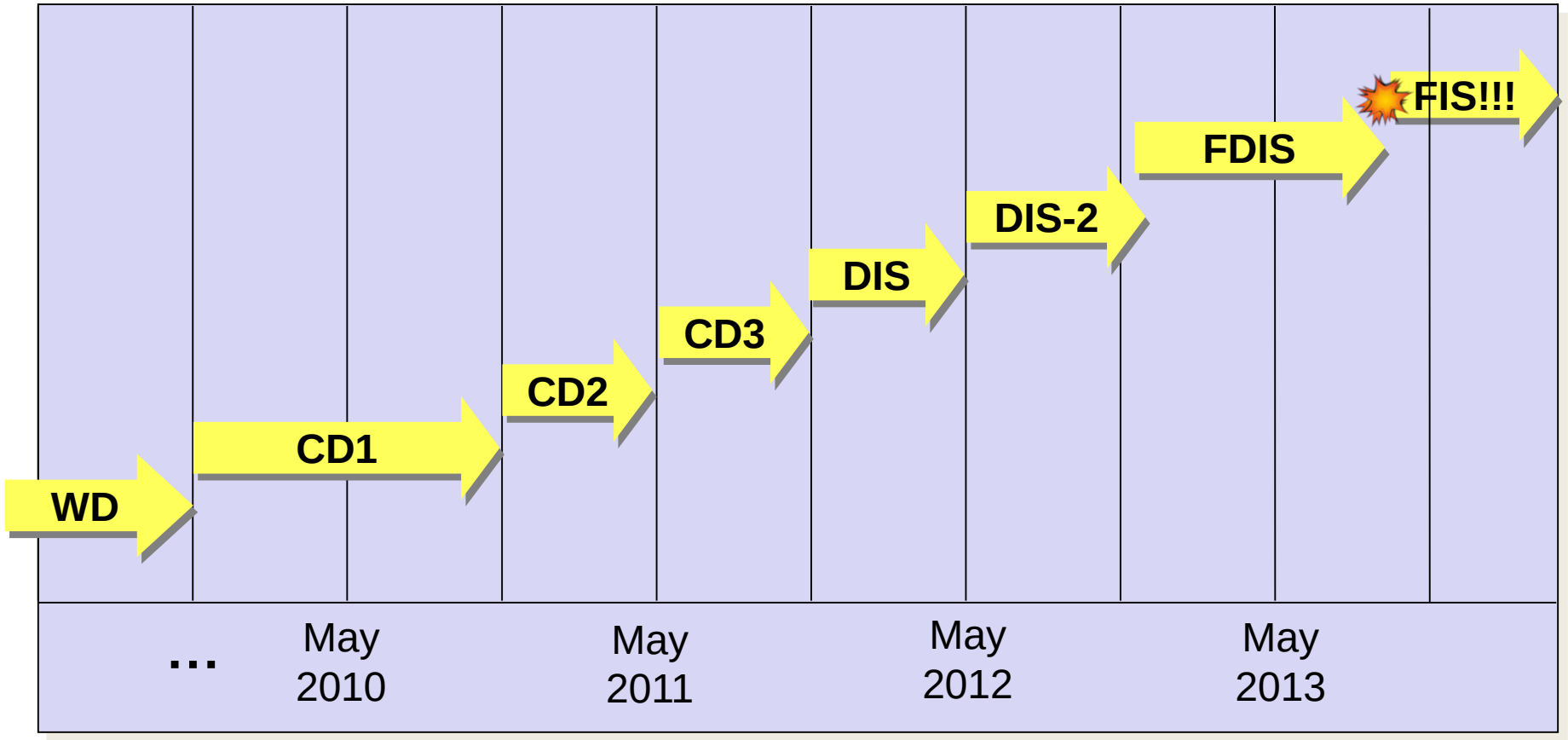


- **Review Types**
  - Milestone Reviews
  - Inspections
  - Technical Review
  - Walkthroughs
  - Informal Group Review
  - Pair Review
  - Buddy Check
  - Peer Desk Check
  - Author Check

- **Review Attributes**
  - Purpose
  - Roles
  - Individual review techniques
  - Optional activities
  - Number of reviewers
  - Planned number of reviews
  - Formal reporting
  - Training required
  - Review improvement
  - Entry and exit criteria

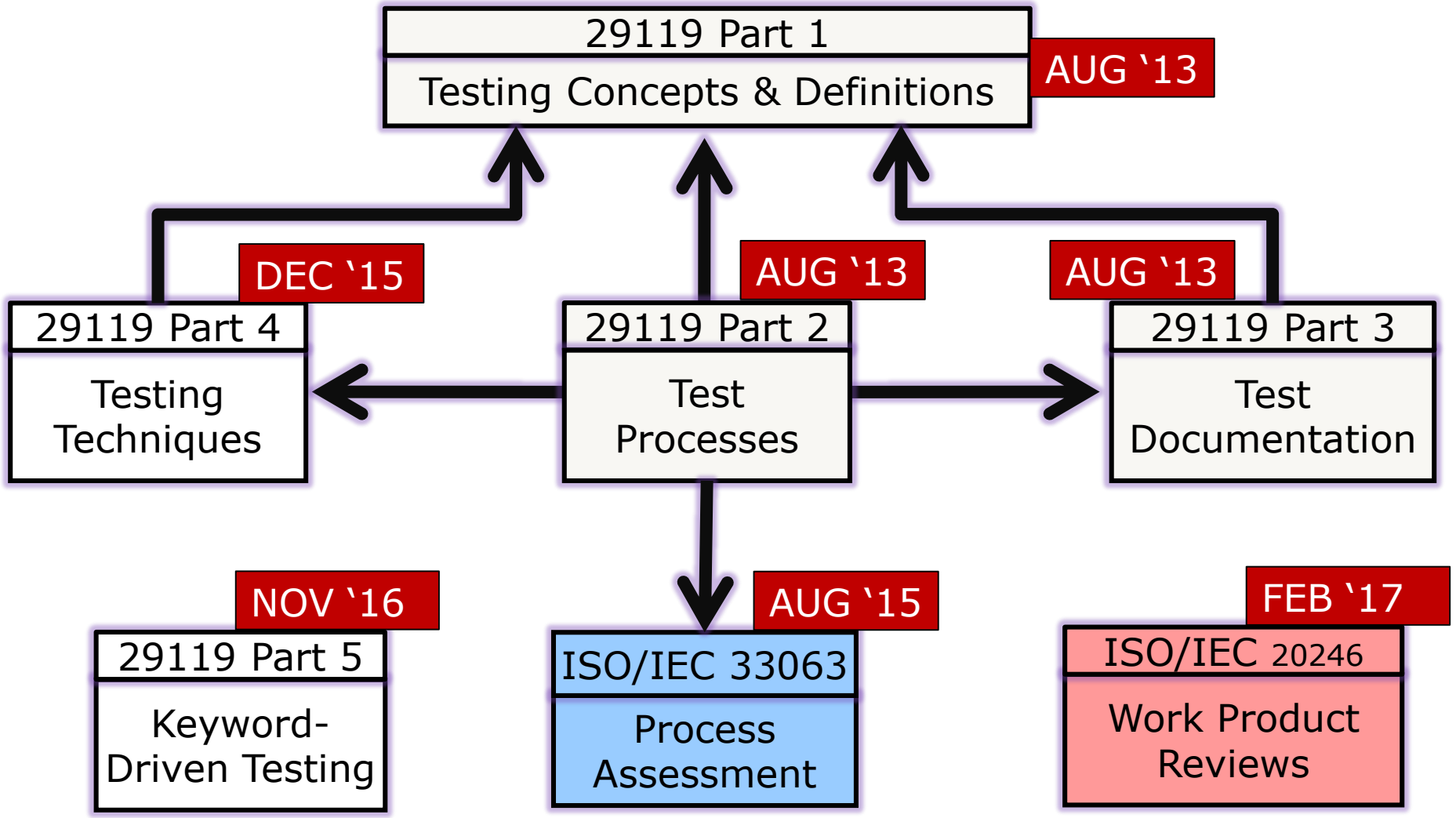
Standards Development, Current Status & Future Plans

Example Development – Parts 1, 2 & 3



Working Draft (WD)
Committee Draft (CD)
Draft International Standard (DIS)
Final Draft International Standard (FDIS)
Final International Standard (FIS)

WG26 – Published Standards



Status - ISO/IEC/IEEE 29119

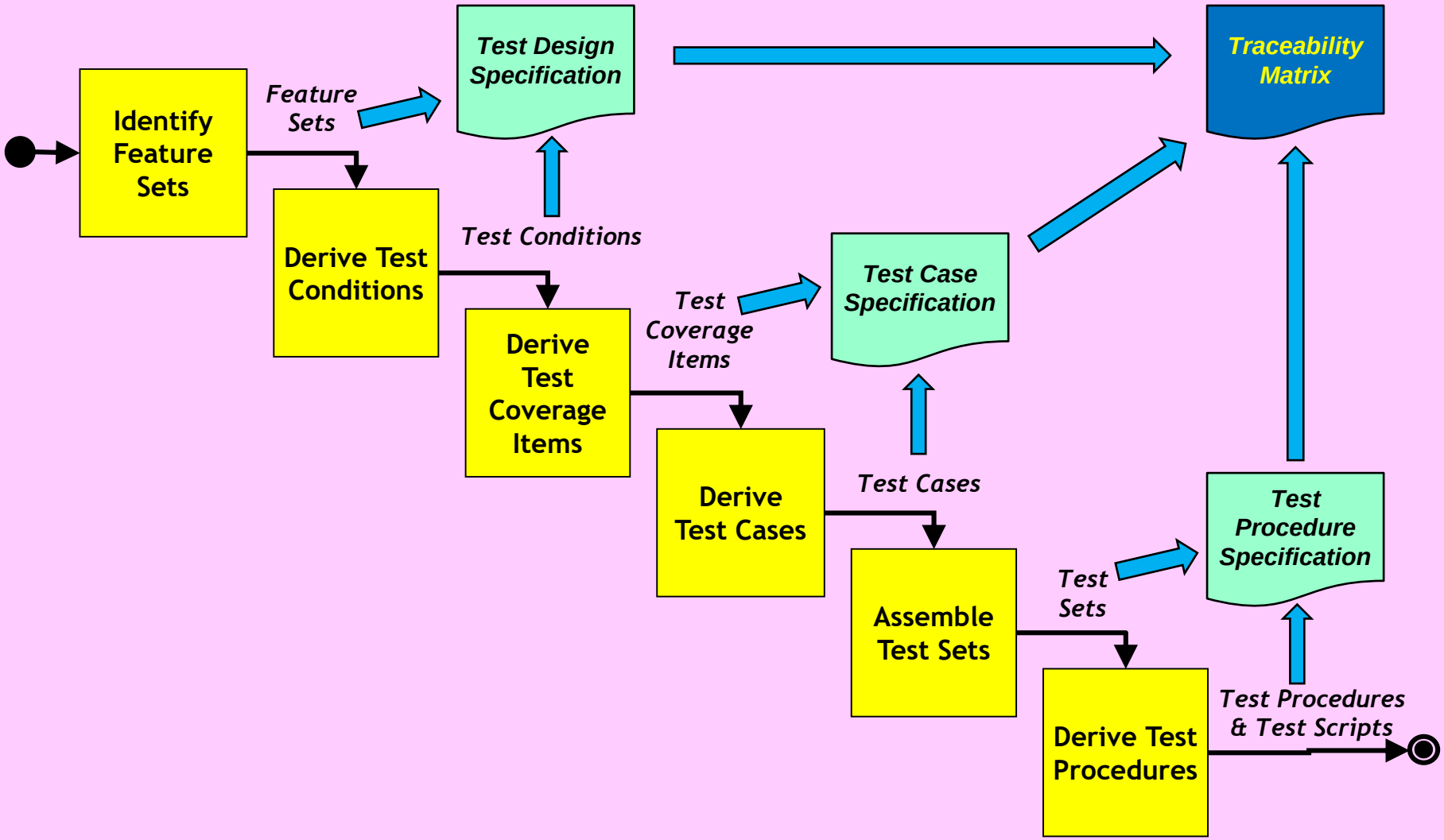
- **Due in next year - Guideline Technical Reports**
  - Part 6 Agile projects
  - Part 7 Testing of automotive software
  - Part 8 Model-based testing
  - Part 9 Games testing
- **In Progress – International Standard**
  - Part 10 Performance-based testing

Future Plans - Other WG26 Standards

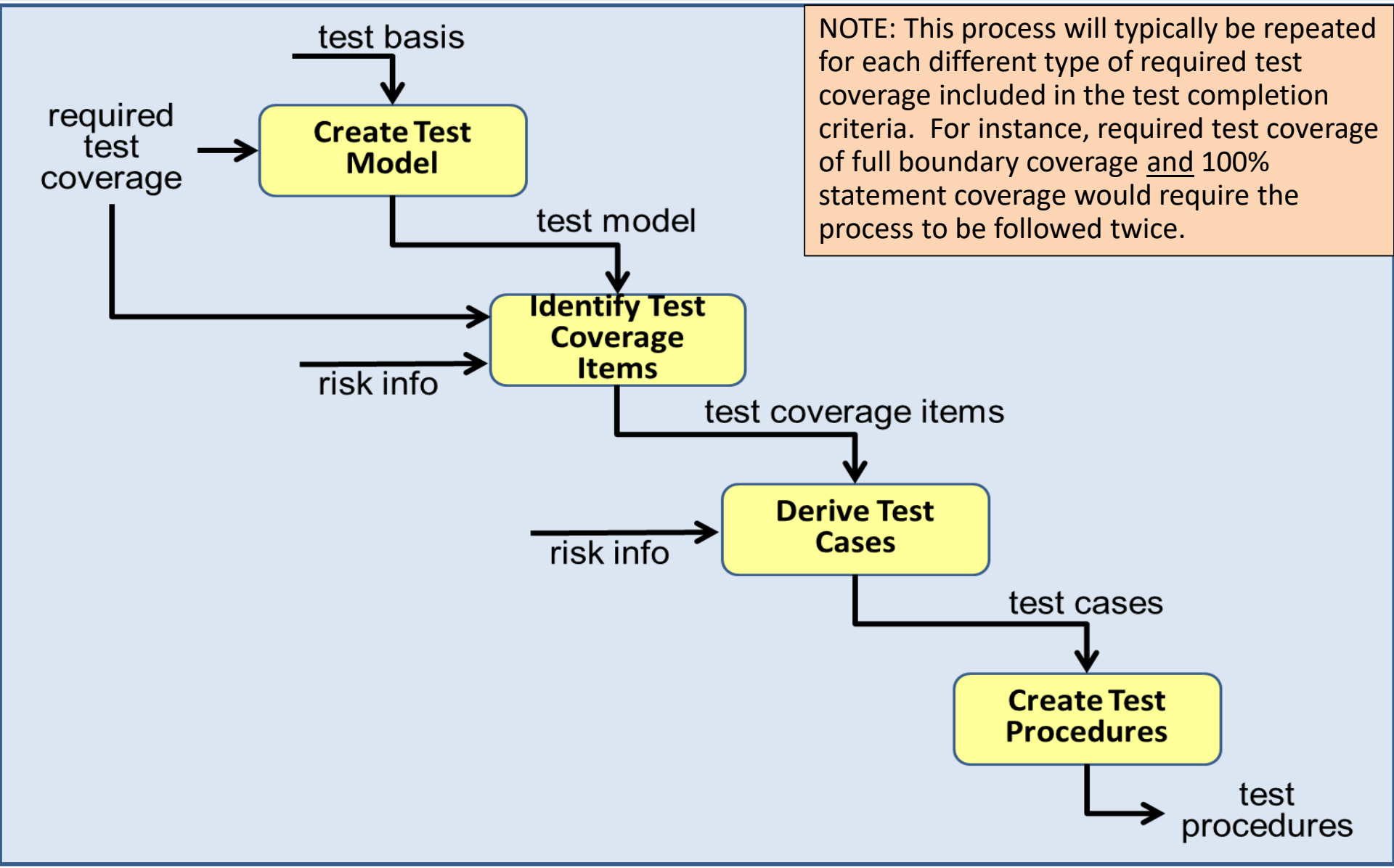
- **Just Starting:**
  - Static Analysis
  - Incident Reporting
- **Feasibility Studies:**
  - Test Environments
  - Test Scenarios
- **Five-Year Review…**

ISO/IEC/IEEE 29119
5-Year Review (Test Design)

Test Design & Implementation Process



Simplified Version 2 for Test Design



NOTE: This process will typically be repeated for each different type of required test coverage included in the test completion criteria. For instance, required test coverage of full boundary coverage and 100% statement coverage would require the process to be followed twice.

Example – Decision Table Testing

- **Test Model (decision table)**

		Rules			
		1	2	3	4
Condition(s)	Tired?	Yes	Yes	No	No
	At work?	Yes	No	Yes	No
Action(s)	Rest?	No	Yes	No	No

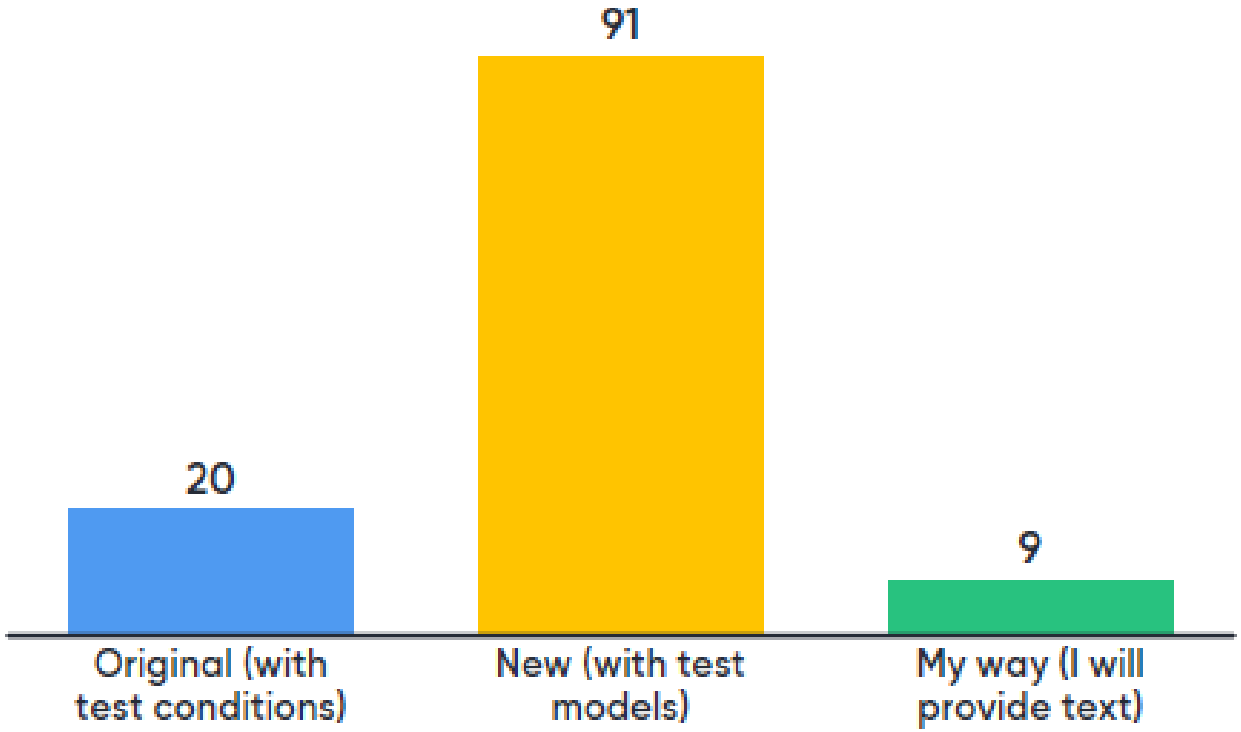
- **Test Coverage Items (rules)**
  - See the four rules in the decision table
- **Test Cases**
  1. Inputs: Sim tired = yes; Location = office / Expected Result = Not resting
  2. Inputs: Sim tired = yes; Location = home / Expected Result = Resting
  3. Inputs: Sim tired = no; Location = factory / Expected Result = Not resting
  4. Inputs: Sim tired = no; Location = home / Expected Result = Not resting

If resting at work when tired was considered more risky, we could duplicate coverage of rule 1 with an additional test case that covered the factory location

Go to **www.menti.com** and use the code **48 74 68**

Which test design approach should be included in the next version?

Mentimeter



Slide is not active Activate

120

Adding Value to ISO/IEC/IEEE 29119 and Testing Standards

ISO 29119 – Hangul Version - 2018

- KS X ISO/IEC/IEEE 29119 소프트웨어 테스팅

STA 테스팅컨설팅 nipa 정보통신산업진흥원 WISEWIRES KSTQB

프로그램

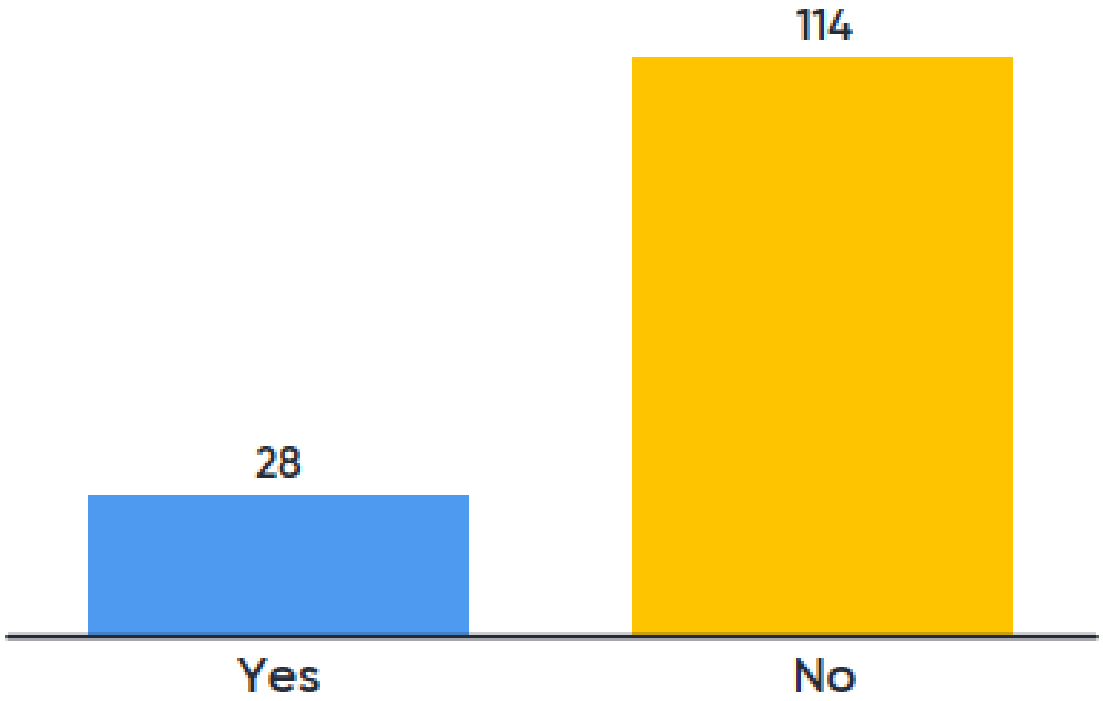
※스튜어트 박사의 세션은 순차통역 지원됩니다.

일정	발표주제	발표자
13:10 ~ 13:30	등록 및 접수	
13:30 ~ 13:40	여는말	권원일 대표 STA테스팅컨설팅
Session 1 13:40 ~ 14:50	ISO 29119 _ Current Status and Future Plans' I	Dr. Stuart Reid ISO SW테스팅워킹그룹 의장
14:50 ~ 15:00	break ①	
Session 2 15:00 ~ 16:10	ISO 29119 _ Current Status and Future Plans' II	Dr. Stuart Reid ISO SW테스팅워킹그룹 의장
16:10 ~ 16:20	break ②	
Session 3 16:20 ~ 16:50	29119 기반 Automotive 개발 검증 적용 사례	김지선 책임 LG전자
Session 4 16:50 ~ 17:10	29119 기반 ISO 26262 기능안전 적용사례	김민영 책임 LG전자
17:10 ~ 17:20	break ③	
Session 5 17:20 ~ 18:00	29119 기반 테스트 설계 방안 및 기법 적용 사례	김관호 수석 STA테스팅컨설팅
	마무리	

Go to **www.menti.com** and use the code **48 74 68**

Do you use IEEE 829 for your test documentation?

Mentimeter



Slide is not active Activate

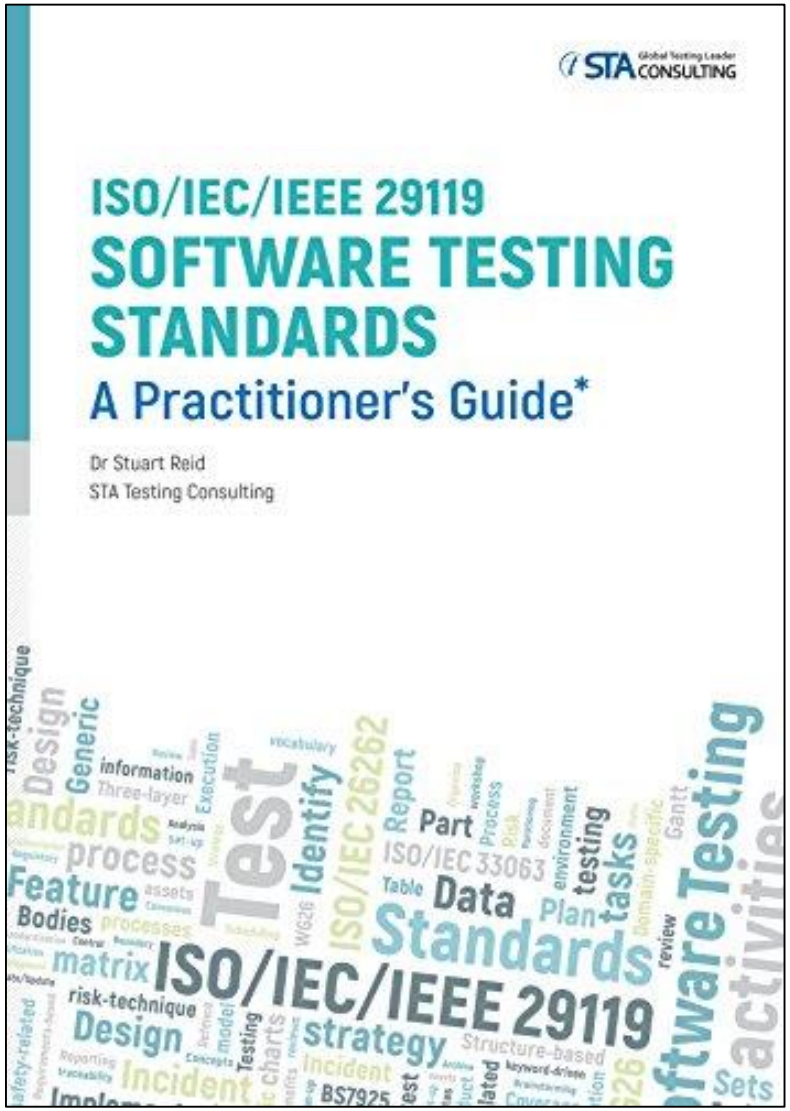
142

Commercial Certifications (available in Korean)

- **ISO 29119 Certified Tester 2 day course**
  - 1 hour exam - 40 multiple choice questions
- **ISO 29119 Product Certification**
  - based on ISO/IEC/IEEE 29119 standards
- **ISO 29119 Process Certification**
  - based on
    - ISO 33063 Test Process Assessment (Process Assessment Model)
    - ISO 29119-2 Test Processes (Process Reference Model)
    - follows the SPICE approach

A Book Explaining How to Use the Standards

- Amazon - Kindle Edition
- ISO/IEC/IEEE 29119 SOFTWARE TESTING STANDARDS - A Practitioner's Guide
- by Stuart Reid
- ₩11,000 (approx.)
- 244 pages



Do you want to be involved?

- **Join ISO Working Group 26 (via KATS)**
  - representing your national standards body
  - 6 day meetings, every 6 months
  - contribute between meetings
- **Join a WG26 mirror group**
  - for your national standards body
- **Contribute materials**
- **Review drafts**
- **Trial the standards on real projects**
- **Translate to Hangul ☺**

Thank you for listening