



**CONSIDERATIONS FOR EXAM
DEVELOPMENT IN AN AGILE
PRODUCT DEVELOPMENT
ENVIRONMENT**

**AN IT CERTIFICATION WHITE PAPER
FOR MEMBERS ONLY**

Contents

Considerations for Exam Development in an Agile Product Development Environment.....	3
Timing.....	3
Communication	4
Exam Development and Maintenance	4
Training	5
Localization	5
Business Considerations	6
Next Steps.....	7
Case Studies.....	7

Considerations for Exam Development in an Agile Product Development Environment

Agile product development can cause unique challenges for those creating certifications used to validate skills and knowledge on technologies that are constantly changing. One goal of agile product development is for a product team to be able to quickly change product development to respond to customer or stakeholder needs, market demand, or technology changes in order to achieve a product that is consistently delivering value to the market. Incremental and frequent changes to products accelerates the need to ensure current and relevant skills are held within the labor force. Traditional methods for building exams and supporting training can be strained in an agile development environment because of the cycles it takes to develop reliable and valid exams and learning content. New exam development methods may be required to keep pace. The challenge is developing psychometrically sound exams for IT products developed at an increasingly rapid pace.

Many IT companies discover that as the speed of new product releases increases, the content of the certification exams can become obsolete quickly. Modifications to exam development models can help certifications remain valid and reliable, and drive product adoption.

This document is an attempt to communicate the considerations of moving to an exam development and sustainment process that is aligned to rapid updates in the underlying technology. The questions are intended to help kickstart the thinking through of the nuances of successfully navigating exam, certification, and training development in a world where change is constant and to do so in a way that ensures valid, reliable, and fair assessment of candidates.

Timing

Time is at the heart of agility and aligning product and certification release schedules is the biggest challenge to many certification programs. Time can be split out into three key areas: the first is product timing - how fast the product or service being offered changes; the second is exam timing - how fast the exam can be updated to align with the product; and third is education timing - how fast classes, articles, or other related materials used for training can be updated.

Answering the questions below can help align these three key areas for continuous delivery:

- How often is the technology being updated/changing?
- What is changing in the technology?
- How do those changes generally affect the certification content?
- What changes in the technology drive changes in the certification?
 - What's considered a minor change that can be incorporated in an update?
 - What's considered a major change that would require more substantial effort to incorporate into the certification?
 - Who decides which of these changes need to be included and when? What are the criteria used to make this decision (e.g., percent of net new skills covered; significant changes in job role, feature/function name changes, changes in features and functionality already covered by the exam or certification, etc.)?

Communication

In an Agile world, communication is key! If changes are occurring in a solution, how will those changes affect the certification exam? Who tells the exam developer that changes are occurring, so that the exam can be updated? A best practice would be to have a communication plan in place outlining the steps that need to happen from when a change occurs within the solution until the solution is generally available.

This section highlights the importance of communication internally within an organization as well as externally with candidates and vendors:

- Who is communicated with and when (and in what order)?
 - Exam owner
 - Exam development team, including SMEs
 - Internal operations teams, including support
 - Learning owner/development teams (internal and external)
 - Candidates
 - Certification holders
 - Internal business partners
 - External business partners
 - Hiring managers
 - Enterprises
 - Legal/Government entities
- How are changes being communicated externally?
- How are candidates notified of significant changes (e.g., exam versioning, new exam numbers, proactive communication)?
- Which web pages are affected by changes? Who's managing the updates to those pages? How are those who maintain the web presence communicated with about changes?
- Is the change significant enough that it requires a formal communication strategy and execution?
 - Who designs the communication plan? Who executes it?
 - Are FAQs needed to explain the change? Who creates the FAQs? Who approves?

Exam Development and Maintenance

Exam development activities rely on using processes that build in rigor and validity. Once the exam is in the marketplace, it should be monitored and maintained for performance and quality. Development and maintenance take time and can impact the ability for a product or service to be continuously released on demand using agile methods. The key is to strike a balance between quality and time and include considerations such as:

- Who is involved in exam development and maintenance? How are those who know what's changing involved as early in the process as possible?
- Who's regularly reviewing the job role?
- Who's regularly reviewing the content domain?

- Who has the final sign-off on changes that should be incorporated into an existing exam?
- How are upcoming changes being communicated to the exam team? Who's responsible for notifying the training team?
- Who's reviewing the exam content? How often is this done?
- Will SMEs be available when needed? How is this ensured?
- Who has the final sign-off to get the exam into the market as soon as possible?

Training

A certification exam is not a stand-alone entity. Typically there is training aligned with an exam. This training could be official courseware or it could be exam documentation such as a study guide. When changes are made to the exam, the training materials also need to be updated.

Below are some considerations for ensuring that exam and training are in sync:

- How are exam updates coordinated with training updates? Are they aligned? Do they need to be?
- Are updates to exams and training being released at the same time? How are these releases being coordinated?
- Who creates the training (internal and external)? How are they being informed of updates?
- How quickly can new content be developed for the exam? How quickly can new content be developed for training?
- How are upcoming changes being communicated to the training team? Who's responsible for notifying the exam team?
- Who's reviewing the training content? How often is this done?
- Will SMEs be available when needed? How is this ensured?
- How long after a new release would a candidate be expected to have learned the new content?

Localization

Localization is making sure a product or content fits within a local context, and it usually includes language translation. When it comes to exams, localization usually means translating the exam and all other supporting documents (study guides, web pages, practice tests, etc.) into another language. Ideally training materials are also translated but this is not always the case. The challenges with localization in an agile environment include timing, versioning, and maintenance.

Before localizing any exam, some key questions to consider include:

- How is it ensured that localized exams are updated when the English version is updated?
- Are the local versions released at the same time as the English version? Is there a delay? If so, how is this communicated to candidates?

- How are the changes made to the English version tracked? How are those changes communicated to those who are localizing the content (both exams and training, if applicable)?
- If training is localized:
 - How are exam localized updates with training localized updates coordinated? Are they aligned? Do they need to be?
 - Are updates to localized exams and localized training released at the same time? How are these releases coordinated?
 - How are updates to localized versions of training aligned with the English version updates?
- Is there actual demand or business value to localization? Or is the request being made from a small group of very vocal people?

Business Considerations

There are many business considerations when an organization is trying to determine how they will manage agility within their program. These decisions will affect their internal and external stakeholders. The following areas should be considered and related questions should be discussed with the various stakeholders from all areas of the business (product group, training, certification, channels as well as vendor partners):

- How will these updates/changes be incorporated into recertification?
- How do certification holders demonstrate that they are keeping up to date with the changes? How often?
- Financial Implications:
 - How much does it cost to update the exam and training on a cadence that keeps pace with changes in the technology?
 - Is this an acceptable cost? If not, what other options are available?
- Badges:
 - How is the metadata associated with badges updated when the exam/certification changes?
 - How is it ensured that the badge accurately reflects the skills measured?
- Exam Expiration:
 - How long will the exam be available (so people can earn the certification)?
 - How is an exam expiration handled when a technology changes? Will there be a grace period?
 - Are exams going to be retired as a forcing function to move people to the next exam?
 - What criteria needs to be considered to expire an exam?
 - If there are multiple exams required for a certification, how is it ensured that someone who is in the middle of the path can complete the retiring certification and/or earn the new one?
 - How much notice do candidates need to be given to either complete the existing exam or upgrade to the next exam?
- Certification Retirement:
 - How long will a retired certification remain valid in the marketplace?
 - What criteria needs to be considered to retire a certification?
 - When certifications/exams are replaced, is there an overlap between the old and the new to support transitioning candidates?
 - Who needs to be notified that the certification requirements are changing?

- How are retired certifications reflected on transcripts?

Next Steps

There are many considerations for exam development in an agile product development environment. This document begins the conversation of how agile methods are evolving how work gets done and the impact on certification programs. ITCC plans to continue conversations around agile development.

Case Studies

Several ITCC member organizations have provided case studies on how they are currently performing exam development in an agile environment.

ITCC Members

Microsoft
SAP
Scaled Agile, Inc.

ITCC Vendor Members

PSI Services
Questionmark



The IT Certification Council (ITCC) is a nonprofit organization committed to growing and promoting professional IT certifications. Its core purpose is to support the industry and their member companies by marketing the value of certification, promoting exam security, furthering innovation, and establishing and sharing industry best practices.

Founded in 2007, ITCC is a community of 40 of the most respected companies in the IT certification industry. Members have access to exclusive resources, collaborate with industry leaders, and engage in task forces working on initiatives to benefit the certification industry. Learn more at itcertcouncil.org.