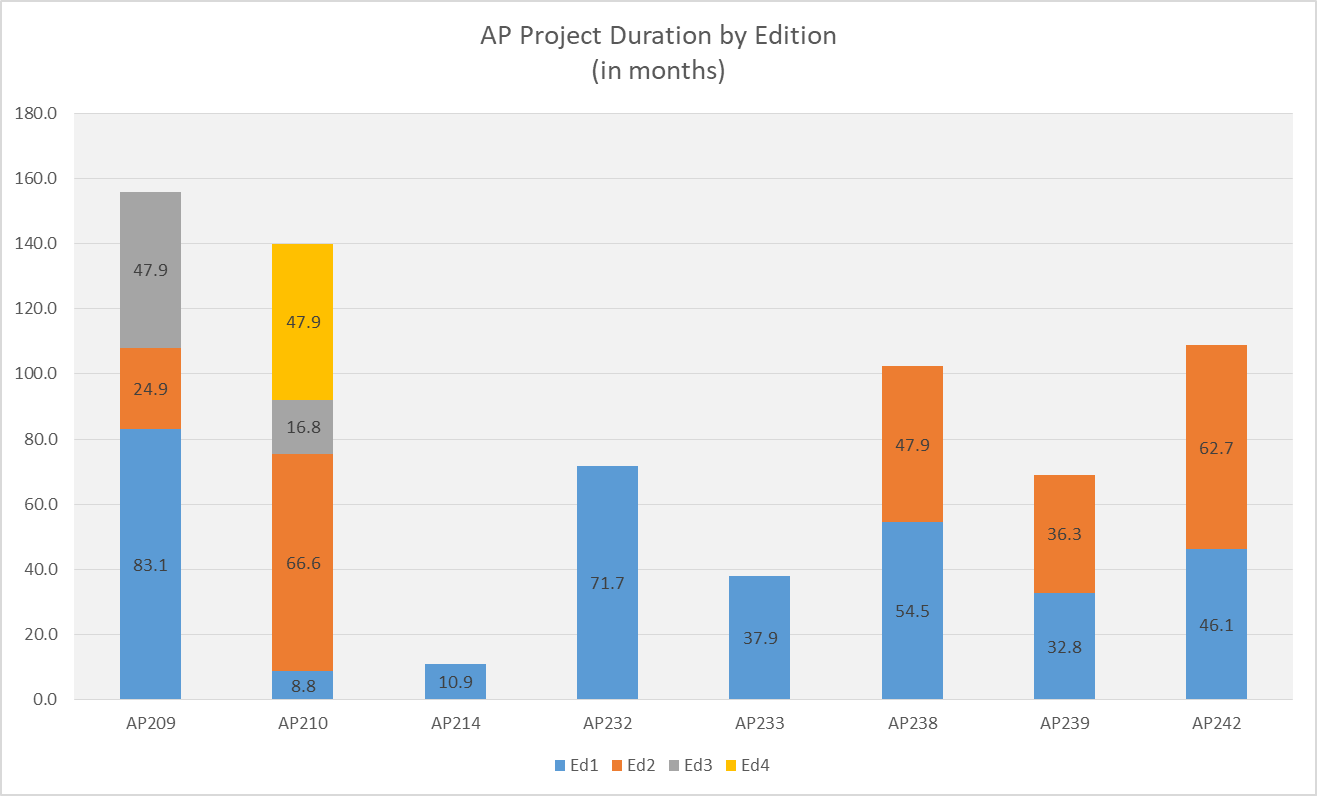
**Current State**

According to survey results of a study by the Institute of Electrical and Electronic Engineers “a majority of respondents' organizational units are using agile and/or lean methods (58%). Furthermore, lean appears as a new player, being used by 24% of respondents, mainly in combination with agile (21%).” These statistics reinforce the increased development rate of industry towards a trend of rapid incremental development as they strive towards enabling the digital threads for their enterprises.



*Figure 1: Average project duration by edition (data based on ISO.org project metrics). Note these metrics are based on a status range from stage 10.99 (new project approval) to 60.60 (international standard published). Note this is a truncated view and does not include the white paper authoring process which can add as much as an additional year to project duration.*

An analysis of ISO project metrics on a sample across 8 standards and 16 edition publish cycles revealed the current average project duration is 43.5 months for the release of an edition of a standard. This calculates the time from stage 10.99 of New Project Approval to stage 60.60 International Standard Published. Additional analysis reveals this is an average project length growth of 4.5 months from edition 1 lifecycle length to that of edition 2 lifecycles. This trend of project length growth for standards is at odds with the industry’s need for faster releases of incremental functionality. ISO’s 2016-2020 strategic directions include six tenants two of which are (1) “Develop high-quality standards through ISO's global membership”, by ensuring we effectively (2)“ Engage stakeholders and partners ”. In order to support industry demand and maximize the benefit of standards the quality and length of development of standards must be addressed.

***Development Lifecycle Management***

There are two primary contributing factors causing an extended development cycle: (1) Failure to gain consensus [International Agreements] and (2) Resource commitment/management.

In the course of STEP development, most teams use a system such as Bugzilla to store all the issues. ADD SOMETHING HERE. Teams will assign, at bulk, issues to the next milestone and perform a quick reassessment few times during the length of the project. Disciplined approach

***Quality Management***

Another issue facing the current development lifecycle is that of quality/completeness concerns of the published standards.

CAx-IF has continually reported issues of implement-ability of the standards due to overt complexities of the data models. While a transition from monolithic to modular architecture has been a measure to combat this the problem still persists.

Solutions are truncated due to time/funding/resource constraints and implementations are incomplete. Example electrical wire harness.

There are two primary contributing factors concerning the quality/completeness of standards:

1. Lack of knowledge
2. Lack of adequate toolchain
3. Issues with current development lifecycle [in terms of business impact]
   1. Issue 1: Development Time Length
      1. Failure to gain consensus [International Agreements]
         1. Poor requirements management
         2. Poor documentation on agreement and priorities
         3. Poor process instruction and compliance:
      2. ~~Volunteer staff~~ Resource commitment/management
         1. Volunteer staff
         2. Lack of resources (and shared by multiple projects)
         3. Unreliable SOW/time estimates
         4. Virtual distributed team
   2. Issue 2: Quality/Completeness of Standard
      1. Lack of knowledge
         1. Knowledge of data model
         2. Knowledge of the development process
         3. Knowledge of the tools used for development
      2. Lack of adequate toolchain
         1. Lack of automation
         2. Technology obsolescence

References

<https://ieeexplore.ieee.org/abstract/document/6475408>

<https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso_strategy_2016-2020.pdf>