

# **Dynamic Instructions Editing Tool Requirements (DIRECTOR) Workshop Summary Report**

Rachael Hill, Johanna Oxstrand, and  
Zachary Spielman

October 2019



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**October 2019**

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**Prepared for the  
U.S. Department of Energy  
Office of Technology Transitions  
Under DOE Idaho Operations Office  
Contract DE-AC07-05ID14517**



## ACKNOWLEDGEMENTS

Idaho National Laboratory (INL) would like to acknowledge the support from the following individuals and organizations who have contributed to planning and execution of the Dynamic Instructions Editing Tool Requirements (DIRECTOR) initiative’s workshop in June, 2019 and to the review of this report. These individuals represent the DIRECTOR core team as well as all the Topic Area Group leads.

|                 |                                     |
|-----------------|-------------------------------------|
| Adam Smith      | Los Alamos National Laboratory      |
| Billy Baker     | Lean Power                          |
| Brandon Pearse  | NuScale Power                       |
| Carlos Williams | Arizona Public Service              |
| Craig Primer    | Idaho National Laboratory           |
| Devin Jankowski | Volian                              |
| Dwayne Coffey   | EPRI                                |
| Dwight Hargett  | Procedure Professionals Association |
| Elliot Lander   | ATR Inc.                            |
| Eric Jurotich   | Southern Company                    |
| Harry Julian    | Volian                              |
| Jeffrey Hebert  | Layline Associates                  |
| Jerome Pratt    | Dominion Energy                     |
| Kike Cerezal    | Tecnatom                            |
| Lee Rogers      | Dewonway                            |
| Linda Mar       | Energy Northwest                    |
| Mark Coffing    | Sandia National Laboratories        |
| Mark Johnson    | Arizona Public Service              |
| Sandy Zylka     | NextAxiom Technology Inc.           |
| Stephen McCord  | Procedure Solutions Management      |
| Steve Kuhlman   | Lean Power                          |

INL would also like to acknowledge all the organizations participating in the DIRECTOR initiative. Their dedication, curiosity, interest, and drive to make a positive change in the industry are why DIRECTOR was launched initially and how it keeps progressing.

|   |  |
|---|--|
| Absolute consulting                     | Los Alamos National Laboratory         |
| Accelerant                              | Luminant                               |
| Ameren Missouri                         | MSTS/NNSS                              |
| American Transmission Company (ATC LLC) | Nawah                                  |
| APS                                     | NextAxiom Technology Inc.              |
| ATOM Logic                              | NextEra                                |
| ATOS                                    | NuScale Power                          |
| ATR inc                                 | Oakridge National Laboratory           |
| Barakah                                 | Ontario Power Generation, Inc.         |
| Cargill                                 | Pacific Northwest National Laboratory  |
| Consolidated Nuclear Security (CNS)     | Procedure Professional Association     |
| Cragg Consulting                        | Procedure Solutions Mgmt               |
| Curtiss-Wright                          | Public Service Enterprise Group (PSEG) |
| Devbridge                               | Sandia National Laboratories           |
| Devonway                                | Savannah River Nuclear Solutions, LLC  |
| Dominion                                | Savannah River Site                    |
| DTE                                     | SCANA                                  |
| Duke Energy                             | South Texas Project                    |
| DuraBante                               | Southern Company                       |
| Energy Northwest                        | Southern Nuclear Operating Co.         |
| Entergy                                 | Talen Energy                           |
| EPRI                                    | Talen Energy Corporation               |
| Exelon                                  | Tecnatom                               |
| Fermi National Accelerator Laboratory   | Teco Energy                            |
| Hanford                                 | Tennessee Valley Authority             |
| Honeywell FM&T                          | Texas A&M                              |
| Human-Factored Procedures               | Volian                                 |
| Idaho National Laboratory               | Westinghouse                           |
| INJE University South Korea             | Wolf Creek Nuclear Operating Corp.     |
| Layline Associates                      | Xcel Energy                            |

This report was made possible through funding by the U.S. DOE Office of Technology Transitions.



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## ACRONYMS

|          |  |
|----------|--|
| API      | Application Programming Interface                          |
| DIRECTOR | Dynamic Instructions Editing Tool Requirements             |
| eWP      | Electronic Work Packages                                   |
| INL      | Idaho National Laboratory                                  |
| NEWPER   | Nuclear Electronic Work Packages – Enterprise Requirements |
| PPA      | Procedure Professionals Association                        |
| RFID     | Radio-Frequency Identification                             |
| TAG      | Topic Area Group   |
| QR       | Quick Response   |



# Dynamic Instructions Editing Tool Requirements (DIRECTOR) Workshop Summary Report

## 1. INTRODUCTION

The purpose of the Dynamic Instructions Editing Tool Requirements (DIRECTOR) initiative is to bring industries together to identify utility generic functional requirements for dynamic smart procedures editing/authoring tools. DIRECTOR, which is a follow-on initiative to the Nuclear Electronic Work Packages – Enterprise Requirements (NEWPER) initiative, aims to gather potential concerns of procedure writers related to the transition to dynamic procedures as well as identify utility generic design and functional requirements. A successful transition to a digitized and dynamic work management process is dependent on the consideration of all different types of stakeholders and their specific needs and requirements, hence the focus now has shifted to procedure writers and planners.

DIRECTOR kicked off mid-January 2019. Thirty-six participated in the very first phone meeting. After surveying the members it was decided to widen the scope of the initiative to include additional topics along with the requirements for editing/authoring tools. Eight Topic Area Groups (TAGs) were created to address the following topics;

- Overall transition strategy from paper to dynamic instructions
- Conversion of existing documents
- Creating new dynamic instructions and documents
- Approval process and change management
- Utility generic selection criteria for editing tool
- Dashboard requirements
- Advanced technologies and dynamic smart documents
- Utility generic data structure for dynamic instructions

Each TAG has two co-leads tasked to facilitate the discussions needed to address the topics and to make sure the TAGs progress forward. The co-leads as well as the participants in the TAGs are a mix of representatives from utilities, vendors, and research organizations.

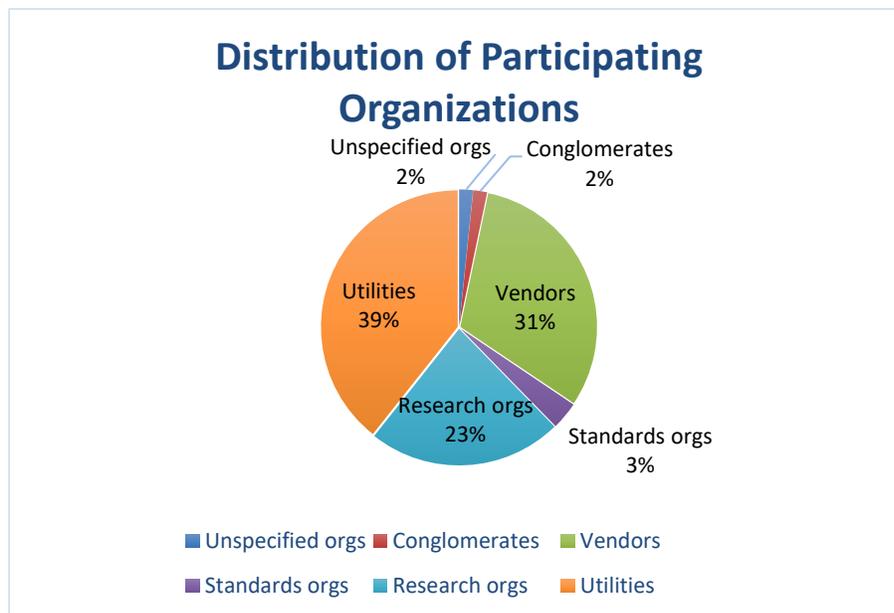


Figure 1. Distribution of Participating Organizations.

As of September 2019, DIRECTOR has 182 participants. Figure 1 illustrates the distribution of the participants between different types of organizations. The three largest types of organizations represented are utilities, vendors, and research organizations. Figure 2 shows the distribution between unique companies within each organization type as well as how many individuals are in each of these organization type. Almost half (46%) of all members are from utilities.



Figure 2. Participants in DIRECTOR.

In June, 2019, the Procedure Professionals Association (PPA) held its annual symposium. PPA offered the DIRECTOR initiative a three hour block with access to all of the symposium’s participants. The topic areas hosted small group sessions providing participants the opportunity to offer their expertise and insight to their areas of interest during the three hour block. This report will describe the workshop, insights gained, and path forward.

## 2. JUNE 2019 WORKSHOP

### 2.1 Objective

The workshop at the 2019 PPA Symposium served two main purposes. The first was to educate the variety of participants (i.e., personnel from utilities, vendors, research organizations) in the research and initiatives dedicated to the transition of electronic work package (eWP) management tools and dynamic instructions within the nuclear industry. The second was to gather feedback from a different type of end user in the eWP process that hasn't been as emphasized as others; the procedure writer.

The workshop was structured to provide the opportunity to gather procedure writers' feedback for a variety of topics pertaining to the dynamic instructions and editing tool requirements platform such as overall transition strategy, creating new dynamic instructions, conversion of existing documents, selection criteria, advanced technology integration, approval and change management, utility generic data structure for dynamic instructions, and dashboard requirements.

### 2.2 Method

Two primary activities were conducted during the workshop; a presentation on the history of research surrounding dynamic instructions/editing tool initiatives and breakout sessions dedicated to each of the TAGs. Although eight TAGs make up the DIRECTOR initiative, only seven topics were discussed during the breakout sessions due to time conflicts of the co-leads of the Approval and change management TAG. However, approval and change management remains an important part of DIRECTOR and will continue its development as the initiative moves forward.

Three hours were allotted the DIRECTOR workshop activity and broken down as listed:

| Time | Event                                |
|------|--------------------------------------|
| 1:00 | DIRECTOR Presentation                |
| 1:30 | 1 <sup>st</sup> TAG Breakout Session |
| 2:15 | Break                                |
| 2:30 | 2 <sup>nd</sup> TAG Breakout Session |
| 3:15 | 3 <sup>rd</sup> Breakout Session     |

A 30 minute DIRECTOR presentation was delivered by Zachary Spielman and Rachael Hill of Idaho National Laboratory (INL). Main topics of discussion included digital transformation of commercial nuclear power plants, importance of dynamic instructions, high level goal of DIRECTOR, participation in DIRECTOR leading up to the conference, and an introduction to each of the TAGs.

The assigned breakout session location for each TAG was available on the conference app for quick reference. TAGs remained in the same location for each of the three breakout sessions. Prior to the workshop activity, the co-leads of each TAG identified questions/discussion points to address during the sessions. Each TAG had three breakout discussions to allow participants to take part in discussions for multiple TAGs. Depending on participation within each TAG, some questions were asked for all three sessions while other topics built off the previous session's discussion.

The TAGs were introduced to the PPA Symposium attendees with a short paragraph intended to explain the goal of the breakout session should an attendee choose to participate. The participants were encouraged to attend multiple TAG discussions throughout the workshop, but were also informed that if they preferred they could stay with the same TAG. More than half of the participants attended multiple TAG discussions.

## 2.3 Participants

Participants were logged using both the conference app and paper roster. The two lists were compared to get a complete list of participants in each breakout session per each TAG. The workshop had 100 participants. Participants were only asked to share demographic information based on their employment (i.e., vendor, utility, research organization or other). Out of the 100 participants 67 were new to the DIRECTOR initiative. The 100 participants represented a total of 43 different organizations.

Figure 3 shows the distribution of workshop participants and their organizational type. More than half of the participants were from utilities (52 out of 100). Five participants selected to not provide information about which organization they represent.

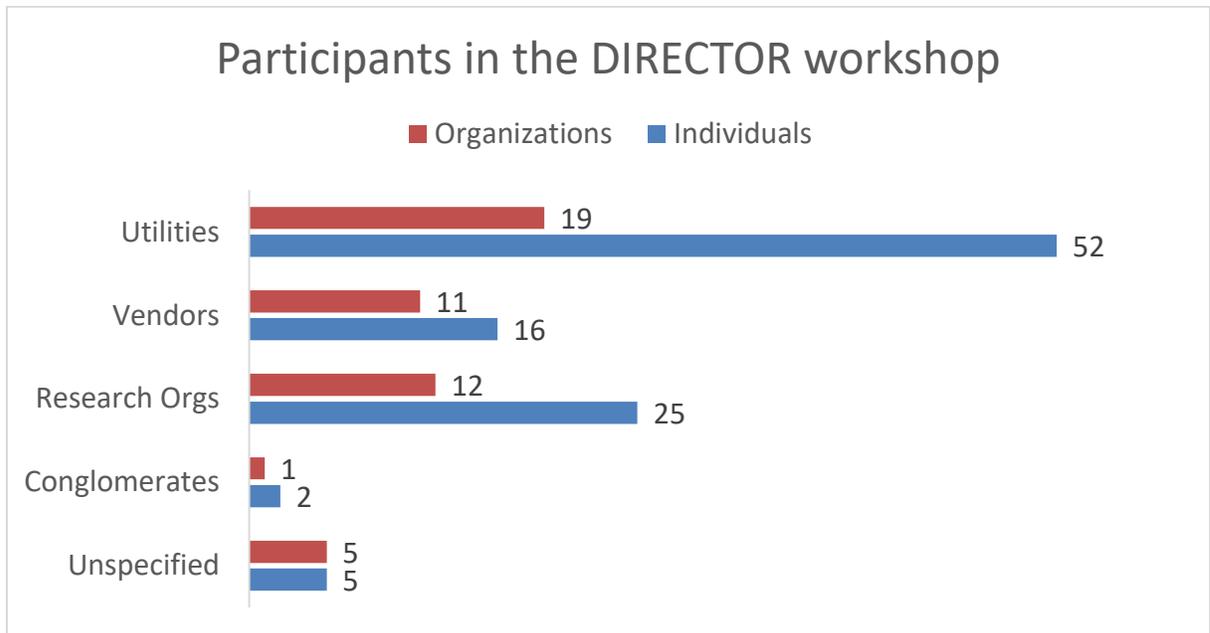


Figure 3. Distribution of Workshop Participants.

As mentioned, the workshop participants were encouraged to participate in multiple TAG discussions. Figure 4 provides information about the total amount of participants in the discussions for each TAG. This number is the total amount of participants across the three breakout sessions provided.

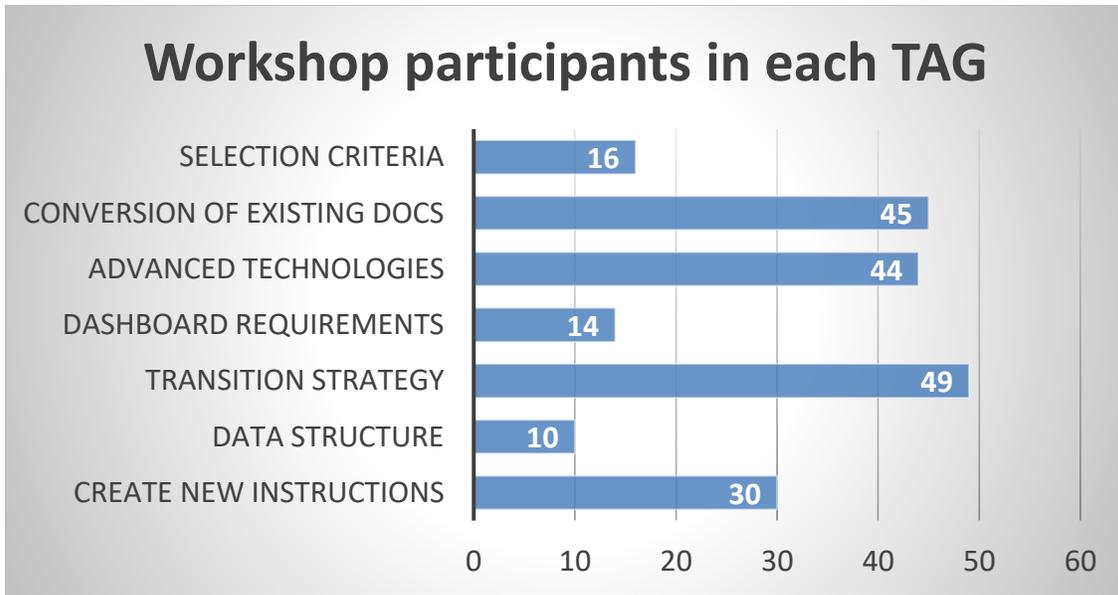


Figure 4. Workshop Participants in Each TAG.

## 2.4 Lessons Learned

### 2.4.1 Participation

A result of giving the participants the freedom to choose their break-out sessions was unequal participation among the topics throughout the three breakout sessions. If a similar activity to this is conducted in the future, a survey will be sent out to registered conference attendees to gauge interest in topics. Based on results, conference facilitators can evenly distribute participation among the topics to ensure all topics acquire equal attendance.

### 2.4.2 General feedback

The overall feedback gathered from the DIRECTOR workshop as a whole was positive. Utility personnel from single unit and multi-unit sites expressed a desire to become involved in a variety of the topics. Multiple participants also expressed how the ideas discussed during the workshop activity would not have been considered as plausible five years ago and recognized how not only are these ideas plausible now, but how some plants are already adopting them.

A shared concern of those attending was how to decide which eWP and dynamic instructions vendor to adopt. Although it is not the purpose of DIRECTOR to help match customers to vendors, the concern created opportunity to communicate the importance of initiatives such as DIRECTOR. That is, the opportunity for the utilities, vendors, and research organizations to collaborate and co-create the purpose, functionality, and needs a product must meet to successfully transition to eWP and dynamic instructions. Keeping open a communication channel between the developers and the users keeps vendors and users aligned on what is expected.

### **3. SUMMARY OF INSIGHTS**

Each TAG hosted three breakout sessions at the workshop. Some TAGs used each session for the same discussion topics while others split sessions into different discussion topics. The goal was utilizing the knowledge and expertise of those attending the symposium. However due to the nature of some topics, participants came with more questions than input, which in itself, helps each group understand how they can better educate the industry in their respective topics. The way discussions organically developed also differed resulting in slightly different structure summaries of the information each session collected. Following is the summary of responses and feedback each TAG received during the three hosted breakout sessions.

#### **3.1 Overall Transition Strategy from Paper to Digital Instructions**

Facilitators: Eric Jurotich of Southern Nuclear Company and Lee Rogers of Devonway

##### **3.1.1 Charter**

The Overall Transition Strategy from Paper to Digital Instructions focuses on the strategy needed to transition the work process from paper-based to dynamic instructions. The goal is to identify the customer for the transition strategy and the need for a graded approach. In other words, instead of transition 100% to dynamic overnight there might be need for a graded approach to the transition. The question is how do you get the most impact and which type of documents do you transition first and how to the measure effort involved?

Since it is not likely that all documents will be converted to dynamic all at once there is a need to consider planning and conducting work while using a mix of basic and dynamic smart documents. There is a need to support a continuum of types of smart documents.

The goal is to produce a guidance document that helps utilities effectively implement smart procedures/dynamic work instructions. This guidance document covers:

- The characteristics of procedures to target first
- How smart procedures fits into your EWP tool architecture
- The training/skill set needed for writers of smart procedures
- The required output for records

This guidance document will include by reference the work of other TAGs such as Conversion and Approval/Change Management.

##### **3.1.2 Workshop insights**

Overall participants were engaged in this topic and came with many questions and some concerns, regarding both the possibilities of transitioning to all digital systems and how plant specific constraints can be dealt with. Largely this break-out session helped identify knowledge gaps end users have when it comes to transitioning from paper to digital instructions and authoring tools. Knowing these gaps informs the content of DIRECTOR's final product to effectively educate the industry.

The first breakout session tackled factors of a graded approach. The discussion involved explaining that piloting a system and developing a meaningful criteria for selecting which procedures to transition such as the following list:

- Document use rate
- Document execution risk to the plant or people
- Data extraction volume and significance
- Critical hold points

- Branching – how many and how critical?
- Frequency of data entry validation
- Calculations – complexity & frequency

The discussion also addressed concerns regarding electronic procedure systems in general such as battery, power availability, back-up systems and failure modes. The group had varied experience with electronic instructions ranging from none at all to electronic pdf mark-up systems. Thus the discussion catered to the whole range.

The second session focused on the training and skillset for creating digital instructions. Again many questions regarding what the future has in store were addressed based on the work done in DIRECTOR and past applications such as how burdensome manual tasks can be replaced with digital solutions. Some identified information needed to be covered in the report included:

- How are quality assurance records of the procedures themselves implemented for both the execution record and the quality procedure record?

The third session provided participants with a general overview integrating the tool, how to select procedures or how to determine where a digital solution (and how dynamic it needs to be) adds the most value. While most the conversation involved answering questions, one idea was proposed to benchmark the news print and magazine industry regarding how they transition into digital media.

## 3.2 Conversion of Existing Documents

Facilitators: Kike Cerezal of Tecnatom, Steve McCord of Procedure Solutions Management

### 3.2.1 Charter

The Conversion of Existing Documents TAG is mainly focused on the challenge of the process of conversion of the existing paper documents to dynamic instructions. Specifically, it will address several critical issues to success when facing this process (i.e., plant documents structure level, criteria of conversion tool, conversion scope, full conversion vs partial conversion, new skills for procedure converters, review and approval process, and support to make conversion decisions) and provides the main points to consider in order to minimize the initial reluctance to digitalization phase and maximize the future benefits of the procedures to be used.

### 3.2.2 Workshop insights

Participants came to this break-out session with conversion concerns wanting to hear answers to potential problems. However the hosts began to turn those concerns from audience members into suggestions or requirements for a conversion tool to be useful to them and developed the conversation that way. Most participating audience members remained across multiple sessions.

The three main sub-goals which were dealt with were:

- What a conversion tool should include
- What to convert and to what extent
- Review and approval process

The following bulleted summary reflects the conversion tool needs captured in the session, which was the main focus:

- Need capability to handle different file types and software sources including outdated or older platforms otherwise it must be clear up front what file types are and are not supported

- Need to convert and maintain, flag, or otherwise have a solution to efficiently deal with hyperlinks, document links or other cross referencing links
- Need to handle differences in procedures (e.g. how spacing is accomplished) smoothly. There is not an expectation that the tool converts every blemish or abnormality but a function that clearly communicates what was and was not converted easily by the tool for review by the procedure writer is important.
- Needs a “paper version” created in parallel (one that is maintained and updated with the authoring software) for use as back-up in a fail-safe situation.

Based on other discussions it is clear the business case and conversion costs should be clearly defined based on how effective a conversion tool can be. Also, new skills required to convert documents was a concern to cost of training or error potential during the conversion process. Perhaps such topics should be addressed and advised in the final conversion topic document.

### **3.3 Creating New Dynamic Instructions and Documents**

Facilitators: Linda Mar of Energy Northwest and Steve Kuhlman of Lean Power

#### **3.3.1 Charter**

Creation and editing of dynamic documents are the future. It is imperative that the process is defined, vetted and implemented to allow organizations to move forward with creating interactive documents and the supporting processes including creation, editing, and retention of quality records both prior to work, after initial approval of the revised document, and after completion of work.

Utilities, vendors and end-users will be provided with recommendations for implementation of such an interactive process. The process will need to be adaptable to meet varying groups’ needs as well as all license requirements and commitments.

The TAG will provide recommendations and solution discussion in the following areas:

**Editor UI/UX:** this solution will need to be adaptable, provide consistent structure and not require a significant change management overhead for implementation. The tool should be one that both writers and planners can use and should support the ability to format instructions in accordance with the user’s procedure writing governance. The tool will support legacy document importing, proofing/review, editing and creation functionality.

**Digital step/instruction portability:** The document needs to have digital step portability and allow for the accurate presentation of steps (augmented/automated) in a connected or disconnect mode or in a hardcopy rendition.

**Quality records:** Consideration must be given to ensuring quality records can be rendered from the entire document or a portion of the document. The quality record rendition should be in a form that meets regulatory requirements of a record prior to work starting and indicate how the quality record will be managed and handled after completion, including flexibility and adaptability.

#### **3.3.2 Workshop insights**

The discussion revealed differing insights between larger and smaller plants. Larger, multi-unit plant must consider how to handle multiple equipment sets, long approval processes and plant wide integration. Furthermore, how do electronic instructions integrate with simulator data and how can the simulator be leveraged for verification and validation processes. Importantly, all this must be accomplished in a single tool, the industry is not interested in maintaining and training on multiple software platforms to manage this job.

The tougher use-case to make is in smaller plants. Participants from smaller plants had a harder time seeing the cost of converting and using electronic procedures be met with benefit enough to make the business case. This situation also demands that a single tool integrates approval, allows reusing past procedures and comes with error mitigation technologies.

Discussion led to the issue of ‘nudging’ the next in line of the approval process and how a new tool could possibly change this work culture. Perhaps there are other cultural frustrations that can be relieved with the right tool functionality.

Lastly, a Department of Energy baseline agreement across standards was described in this TAG discussion and is as follows:

Product should include the capability to:

1. Have different view modes (plant versus simulator)
2. Different data source for simulator and plant (it needs to be consistent for training purposes however)
3. Capability to integrate with existing systems
4. Reusable content (reusable content templates with dynamic variables for component IDs)
5. Branching/referencing
6. One stop shop (can accomplish all they need to such as creating a drawing, copying an image and so on all in one tool)
7. Search capability within the authoring tool (media library)
8. Ability to store as a native record or convert it to a PDF before it’s archived

## **3.4 Approval Process and Change Management**

Facilitators: Jerome Pratt of Dominion Energy and Jeff Hebert of Layline Associates

### **3.4.1 Charter**

The Approval Process and Change Management TAG address how to revise and approve dynamic smart documents, e.g., on-the-spot changes. The discussions will have a process focus and cover topics such as change request management and template control.

### **3.4.2 Workshop insights**

This TAG was not represented during the workshop. However, this topic was brought up and, at least briefly, discussed in other TAG breakout session. Below are a summary of comments and questions brought up in other TAG discussions. The importance of this TAG to DIRECTOR is therefore reinforced and work developing this topic is greatly needed.

Selection Criteria: How can dynamic procedures be applied to operational vs. maintenance instructions?

Transition Strategy: How are quality assurance records of the procedures themselves implemented for both the execution record and the quality procedure record?

Create new instructions: Discussion led to the issue of ‘nudging’ the next in line of the approval process and how a new tool could possibly change this work culture. Perhaps there are other cultural frustrations that can be relieved with the right tool functionality.

## 3.5 Utility Generic Selection Criteria for Editing Tool

Facilitators: Mark Johnson of Arizona Public Service and Adam Smith of Los Alamos National Laboratory

### 3.5.1 Charter

The Utility Generic Selection Criteria for Editing Tool TAG aims to Define selection criteria for DIRECTOR related application as required based on business and product capabilities. Consideration shall include functionality, price, performance, vendor viability, training required, vendor services, scalability, support and services, interoperability and product's position in the market. Overall the product selected shall improve quality of procedures and efficiency of execution. Reference PPA AP-907-005.001, "Functional Requirements for Advanced and Adaptive Smart Documents" The TAG will consider project and return of investment statements or impact of such on the selection and identify the general basis for tool selection, such as:

- **Functionality:** "Does this product do exactly what you need it to do?" Does the editing tool functionalities allow you to obtain a final product (dynamic/computerized procedure) with enough quality?
- **Price:** Should not be the sole criteria for selection but should be considered along with the other evaluation points.
- **Editing tool Performance:** Hardware speed and Software performance benchmark
- **User experience:** how important are user tests and demos? A big effort invested in a human-centered designed editing tool interface should reduce "Training required" for the utility users to work with the tool; and if the tool is designed considering best practices (Human Factors, PPA recommendations, etc.) it should also improve the future procedure efficiency of execution.
- **Conversion process automation grade:** does the editing tool facilitate the transition from paper-based to dynamic? **Cost/benefit analysis:** is it necessary a big effort at this point and reduce the future training and time conversion or is it enough with a first step to reach an acceptable level of conversion and add additional capabilities manually?
- **Vendor viability:** Is vendor stable, will they be around for the foreseeable future.
- **Training required:** Is training required or can staff pick it up on their own. Level of effort to perform training.
- **Vendor services:** Professional services from the vendor to customize the product or help with installation and integration to site's environment.
- **Scalability:** Will the product scale to meet the size of your environment. Consideration for performance in a test region versus a full production environment.
- **Support and service:** Site and vendor capability to support and maintain product's production performance requirements.
- **Interoperability:** Does the product integrate well to site's environment. Will it require specialized interfaces?
- **Product's position in the market:** Is it a proven solution or is it cutting edge.

### 3.5.2 Workshop insights

The participation in this TAG's breakout session was scarce, eventually leading to a combined breakout session with the Dashboard requirements session.

The goal "Identify high level selection criteria to be used when comparing different options for dynamic procedure editing tool" was addressed during this TAGs breakout sessions. The feedback provided came as a list of requests that should be met by a dynamic and adaptive editing tool. Also, many requests brought up in the *Conversion of Existing Documents* and *Create New Dynamic Instructions and Documents* TAG sessions overlap with that of an editing tool.

The requests for what a dynamic and adaptive editing tool is are as follows:

- It can validate data entry
- It can place keep
- It can connect to live plant data
- It can manage reviews and approvals
- It manages revision control
- Content of the procedure should be independent of the format

\* Although the discussion was intended for an authoring editing tool, the feedback seems more applicable to the execution side of a dynamic procedure.

Also brought up were questions regarding how a new tool will handle different situation, or possibilities of a new tool. One such question was the capability to configure a system (bring offline the to-be-worked-on equipment) directly from the procedure. Similarly how are procedures managed to meet the needs of operations versus maintenance groups, different needs suggests different interaction designs or informational needs. Lastly, with all the new capabilities of a dynamic and adaptive procedure, how will approval be handled and done thoroughly.

## 3.6 Dashboard Requirements (Function and Design)

Facilitators: Harry Julian and Devin Jankowski of Volian

### 3.6.1 Charter

The Dashboard is a critical element of the DIRECTOR program and the user interface to assess the status of the overall Dynamic Documents initiative at a site. It should be an easy to use, well organized User Interface for the Desktop procedure authoring tool used by the procedure writer and the mobile device used by the procedure end user. Each of these two DIRECTOR users will be addressed by this TAG in defining the requirements for an advanced Dashboard.

The Functional Requirements provided in PPA Document PPA AP-907-005.001, Functional Requirements For advanced and adaptive Smart Documents will be reviewed and evaluated, as a starting point. In addition, we will be compare programs like EPRIs [Mark C place title of the other program] used in the nuclear industry or DOE-xxx used in the nuclear complex which can be utilized.

The team will provide recommendations and solutions following the three High level user interface requirements in the PPA Document referenced above which are a natural outline for this DIRECTOR Dashboard TAG. Therefore, the focus topics for this TAG are:

- Optimized for Human Performance,
- Optimized for Worker Efficiency and

- Optimized for Navigation.

### 3.6.2 Workshop insights

This TAG ended up combining sessions with the Utility Generic Selection Criteria TAG after not receiving any participation in the first session. Possible reasons for the low participation and how to improve participation in future instances is described in the Lessons Learned section above.

Joining sessions improved participation and a list of needs was developed to help sculpt what a dashboard is. In short, the dashboard was viewed as a combination of process flow status monitor and an editing tool interface. However, the mix of responses could be a result of joining sessions with the Utility generic selection criteria for editing tool TAG. The gathered responses are split into two groups to reflect this perspective.

Editing Tool Requirements:

- A place to maintain new and existing documents
- Needs a spellchecker with customizable dictionary
- Includes linking and branching features
- Includes place keeping for steps
- Needs ability to show or hide information on the execution device

Dashboard/Process Monitor Requirements:

- Needs to specify a workflow (e.g. Adobe’s workflow but improved)
- Clear differentiation from conversion and integration
- EOPs and program documents are included
- Needs “Customizable Panels” to fit work being done or monitored
- Needs to include an approval process
- Needs to include levels for review for specific departments and steps

Going forward this TAG needs consideration for its larger place in DIRECTOR. Based on feedback from the TAG lead there is little participation in sessions and the term “Dashboard” may not be clear enough to act as a TAG foundation.

## 3.7 Advanced Technologies and Dynamic Smart Documents

Co-leads: Dwayne Coffey of EPRI and Elliot Lander of ATR Inc.

### 3.7.1 Charter

The Advanced Technologies and Dynamic Smart Documents TAG looks at enabling the interface and interaction between dynamic instructions and future advance technology, such as augmented reality, virtual reality, smart glasses, and drones. The TAG will attempt to understand human error traps with dynamic instructions when incorporating them with advanced technologies. More specifically, the TAG will address what can be applied to the advanced technology for better use and error reduction. The TAG will also discuss how the authoring tool can accommodate future applications of advanced technologies and generate a best practice for this type of tool.

### 3.7.2 Workshop insights

The Advanced Technologies TAG saw large participation numbers and collected a large amount of feedback as a result. The session was prefaced asking the participants to speak in generic terms (i.e. tablet

instead of iPad). The goal of the session was focused on general standards so hardware vendors know how to develop the future accordingly. The following is the feedback grouped and summarized.

### **3.7.2.1 Tool selection considerations**

Many suggestions reiterated what is already being tested or floated as a possibility such as having bar code, quick response (QR) code, or radio-frequency identification (RFID) scanner capabilities, scalability to device size, durability to temperatures and rough wear as well as strategies for handling radiological controlled areas. The reiteration could be an indicator of end-user buy-in to such technologies once testing has confirmed the viability. However, some less common ideas came forward such as voice controlled content and mobile devices with screen projection capabilities (whether projection meant “projector like” or pushing to another screen was not mentioned) as a way around the scalability and ergonomic constraints of some devices.

### **3.7.2.2 Support infrastructure for advanced technologies**

To handle advanced technologies the right infrastructure must be in place not only to support a specific technology but remain agile as technologies evolve or new technology is brought in. Installing the necessary computing power (speed and storage), accommodating hybrid information transmission availability (e.g., wireless network, hot spots, docking, and paper), and a flexible authoring platform that can easily adapt along with the technology used to deliver work instructions were among the top subjects discussed in this TAG session.

### **3.7.2.3 Plants investigating technology**

Fossil plants demonstrate wider acceptance and ability to accommodate new technology but some nuclear utilities have begun testing and adopting new technology. Duke Energy uses digital procedures on tablets and is investigating the use of wearable technology. Duke has equipped their trucks with hotspots as a solution to plant connectivity but is still maturing that idea. Savannah River and Xcel are both working on electronic instructions on tablets in attempts to move away from paper while Southern Co. has an app to review procedures on mobile devices.

## **3.8 Utility Generic Data Structure for Dynamic Instructions**

Co-leads: Carlos Williams of Arizona Public Service and Dwight Hargett of PPA

### **3.8.1 Charter**

The Utility Generic Data Structure for Dynamic Instructions TAG aims to define a high level data structure for dynamic instructions. The TAG will make sure it is aligned with the data structure discussion in PPA AP-907-005.001 “Functional Requirements for Advanced and Adaptive Smart Documents”.

### **3.8.2 Workshop insights**

This session also struggled with small participation numbers but the session leads reported good feedback nonetheless. This topic discussion had to overcome some difficulties communicating to the PPA audience what a generic data structure meant to the overall goal of DIRECTOR. However, a demonstration was used in the discussion which cued some helpful feedback. The session leads also learned the importance of communicating the value of the data structure in the bigger picture of digital connections to the people, processes, technology and the reactor core. To do so a diagram is under development and further collaboration, in particular with Department of Energy’s Light Water Reactor Sustainability program working towards the same end, is taking place to further this TAG.

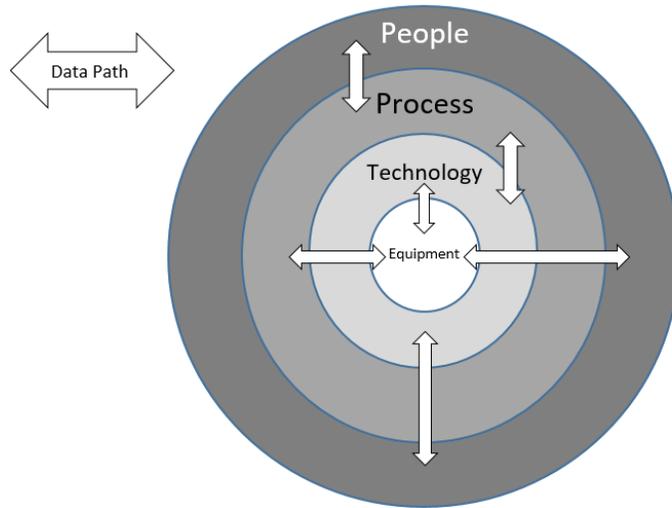


Figure 5: Initial diagram attempt to represent how a generic data structure can link all parts of plant operations. Arrows represent data pathways between the integrated groups.

## 4. PATH FORWARD

As the DIRECTOR initiative move forward the TAGs have updated their charters based on the insights gained from the workshop. The TAGs have been tasked to summarize their efforts and results in an end-of-year-1 report, which will be published by the end of February 2020. Based on the feedback from the workshop and the DIRECTOR members there will be some reorganization of the TAGs to better reflect the members’ interest.

The need for additional face-to-face meetings to identify and document requirements has been identified. The TAGs that would benefit from such meetings will start planning these meetings in the next months.

Figure 6 represents a high-level timeline for the time period September 2019 to February 2020. This timeline does not include core team and TAG team phone meetings and potential face-to-face meetings. If there is an interest amongst the members and an identified need to address remaining questions, the DIRECTOR initiative will continue for a second year.

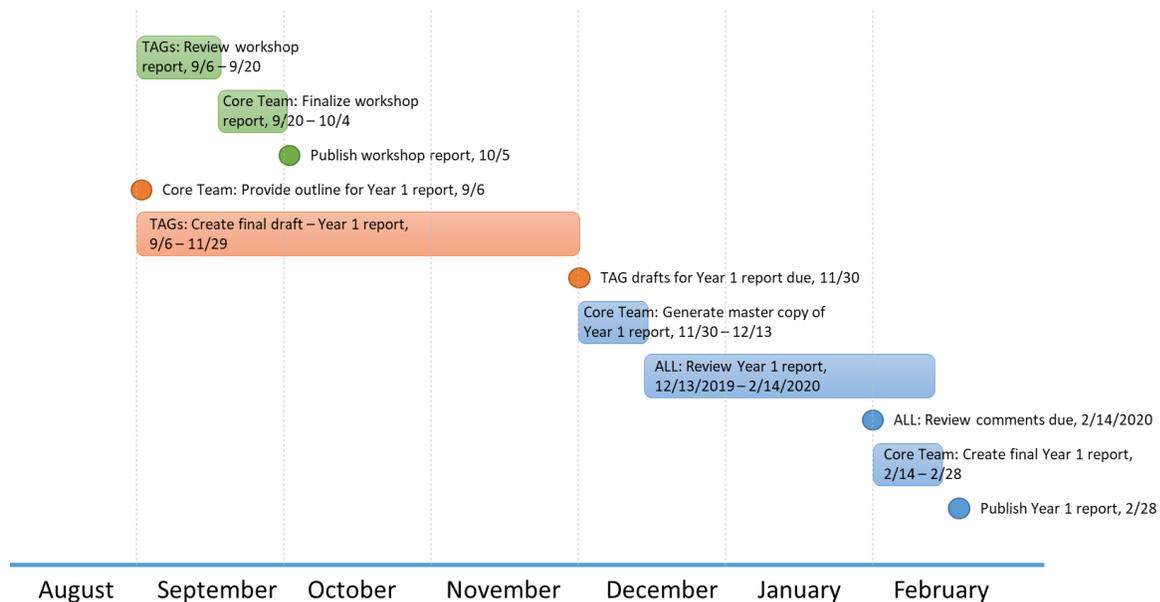


Figure 6. September 2019 to February 2020 timeline.