User Experience Research:
Integrated Event Reviews (IR) / Turnaround Reviews (TR) Reporting Process

Research Findings Report
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INTRODUCTION

Background

Turnaround Advisors create Integrated Event Reviews (IR) / Turnaround Review (TR) and supplemental reports in Microsoft Word or Excel and save those files onto SharePoint, a cloud-based archive going back as far as 2005. Information in those reports is considered in data jail since it is currently in a format unable to be exported or easily analyzed across sites. The Advisors, and the Turnaround Review Team (TRT), would like to adopt a new tool that will allow specific data to drive improved analytics and actionable insight.

Goal

Identify the AS-IS user-experience states for IR / IR reporting, so that the project can meet or exceed the expectations for usability. Findings will identify pain points and opportunities to implement Digital Manufacturing and Data Management solutions, in an easily accessible, clear, learnable, credible and relevant way. The ideal tool will improve turnaround efficiency and analysis – by identifying trends, gaps and root causes for step change improvements.

Research questions

- How are Turnaround Advisors currently capturing their knowledge of turnarounds?
- What about that process is so painful?
- How can the Advisors leverage tools to capture data for future generations to analyze?
- How can we maximize efficiency during the reporting process?
- How can we utilize that data to improve business decision-making processes?

Benefits

IR / TR Reporting Process project

Through the documentation of processes, polices, practices and historical data, Turnaround Advisors can improve turnaround efficiency in both Planning and Execution and provide more accurate, reliable, timely analysis of performance and trend data.

Company-wide

Will help inform other research efforts to gain a more thorough understanding of the AS-IS state (and TO-BE state) for current Turnaround Advisors and their associated workflows in order to facilitate better informed decisions at Chemical and Refining sites. Although this research is focused on a specific project request, it will add to the accumulated knowledge that goes well beyond this project.

Individual sites

In the past, global solutions have been too generalized to meet all of the user needs at an individual site level, often resulting in increased workload and varying quality of output. Ensuring the solution will meet the usability and user experience needs of individual sites will increase their likelihood of adoption of the tool and will reduce the workload, thus improving their current working conditions.

What good usability means

For the project group

- Reduced implementation time and costs
- Higher return on investment

For ExxonMobil users

- Increased satisfaction
- Increased productivity
- Improved trending and analysis

EXECUTIVE SUMMARY

It is recognized that some of the issues documented here are already known to the project, or may be addressed by upcoming digital or tech solutions. We aim to bring additional visibility to existing issues to facilitate change and provide insight.

Major themes and observations

- Members of the Turnaround Review Team (TRT) notice there is a problem with the current workflow and data usability. Since it is considered in data jail, it limits the ability to efficiently and effectively conduct comparative analysis in order to identify key areas for turnaround improvement. As a result, there is a lag in efficiency and competitiveness across global sites. Identifying and addressing concerns earlier in the process would significantly reduce delays and costs associated with problematic turnarounds.
- TRT members do not want a big change in process, just want a more efficient way to execute.
- TRT members are familiar with the function and work processes of Microsoft Word, Excel and PowerPoint, but want a way to export that data into an easily usable format for continual analysis.
- TRT members want to be able to access older data from archival records.
- The solution needs to allow collaboration across internal and external teams to maximize efficiency and reduce time allotted for document creation and development.

METHODOLOGY

Stakeholder and SME interviews

Spoke with people most interested in the success of the project to determine alignment and potential research questions.

Secondary Research Audit

Collected and reviewed previous research efforts to better understand the general problem landscape and determine where we had "holes" in our domain knowledge.

Individual interviews

Conducted one-hour individual interviews with questions specifically targeting digital tools and processes for a deeper understanding of pain points and areas of opportunity to collect and analyze data points in a more efficient manner.

Research Design

A 60-minute interview was conducted with nine users and Subject Matter Experts (SMEs) diversified across the following groups:

- Experience in current role
- Experience with IR / TR reporting process
- Time working at Exxon
- Refining and Chemicals
- Region (North America, Europe / Middle East / Asia Pacific, Global)

People Interviewed

4 Turnaround Advisors

5 Subject Matter Experts

4 Stakeholders

7 Users

Research Attendees

Turnaround Advisors

- Frank Duke, Refining North America
- Steven Penteris, Refining North America
- Damon Broussard, Chemical North America
- Brian Moore, Global

SME

- Dean Morie, Shutdown Startup Network Technical Consultant, North America
- James Barnes, Baytown Refinery Overall Process Turnaround Plan, North America
- Eric Beam, Maintenance Efficiency Venture Manager, North America
- Richard Carruth, Reliability Engineer, North America
- Francois Auradon, Shutdown Startup Network Coordinator, Europe / Middle East / Asia Pacific

Participant Demographics

Region

- 7 North America
- 1 Europe / Middle East / Asia Pacific
- 1 Global

Plant Type

- 5 Refining
- 2 Chemicals
- 2 Both

Years of Experience	**Current Role**	**With Exxon**	**In Turnarounds**
<1	3		1
1-5	2		1
6-10	1		2
11-15	2	1	1
16-20		2	
21-25			3
15-29		3	1
30+		2	
40+		1	

STUDY LIMITATIONS

Limited time to execute research and analysis

There was only three weeks to coordinate and conduct interviews and one week to analyze the feedback.

Limited access to some roles

Since Turnaround Advisors and TRT members travel frequently for reviews, there was limited availability for interviews.

Role vacancies

The intent was to gather as much global insight as possible by speaking with regional representatives at international sites. However, there are two vacancies in EMEAP Refining so it was not possible to fully capture the pain points and opportunities from that region. [There are only three Turnaround Advisor positions assigned for that region].

Every review team is different

The process and tools utilized are majority the same, however there are slight variations. An important discovery is the desire for more standardization for global processes between turnarounds, sites, regions and plants. The research findings attempt to document the average key role user experiences.

DETAILED FINDINGS AND RECOMMENDATIONS

During the synthesis phase, I extracted **241 data points** from the interviews. While processing notes, clear trends emerged that helped inform data interpretation.

There were **9 identifiable pain point themes** (pain points that were mentioned at least 3 times), which yielded an average of 27 mentions each.

Current pain points with IR / TR review process

Top 5 Pain Points

PAIN POINTS	I1	I2	I3	I4	I5	I6	I7	I8	I9	*total*
Efficiency	9	5	8	3	3	15	11	3	5	**62**
Analysis	6	2	4	3	3	5	7	5	8	**43**
Docs access	4	3	5	1	1	8	6	1	7	**36**
Quality Control	4	1	4	4	6	4	3	2	3	**31**
Standards mgmt	5	2	6	3	1	5	5	2	4	**33**

NOTE: chart demonstrates the number of times each interviewee (I represents individual) mentioned a pain point based on the below specifications.

Efficiency

- Time-consuming to type in each customized key observation and recommendation, and collate individual disciplines into the Master report.
- Open to potential error when Turnaround Facilitator copies and pastes team members' individual sections from separate documents into the Master report.
- Workflow disruptions due to availability, accessibility, reformatting and quality of reports.
- Need to reference several documents in different programs, all at once, while compiling the Master report.

Analysis

- Cannot transform data assets into competitive insights that will drive business decisions and actions in a time- and effort-efficient manner.
    - Cannot export data from Word / Excel archive going back to 2005.
    - Cannot categorize data.
    - Cannot automate data filtering.
    - Cannot calculate analysis.
    - Cannot visualize / capture data.

- Cannot compare across regional and / or global sites.

Documents access

- Cannot work concurrently with teammates on the same report, which leaves opportunity to override data, duplicate files or miss edits.
- All associated reports (IRs, TRs, supplemental reports, score cards) are not linked for easy reference.
- Documents are only accessible in one location, via internet access on SharePoint.
  - Current archive is not 100% complete; there are some missing or misplaced files. The only way to retrieve those would be to identify gaps, track down those involved in the reporting process and see if they have the files saved onto their individual computer hard drives.
- Difficulty accessing SharePoint while traveling.
  - Need stronger internet connectivity.
- Search functionality is a major issue since the SharePoint archives requires many steps to find any specific file and does not provide relevant results in the search bar.

Quality Control

- Varying degrees of field experience with turnarounds and familiarity with IR / TR reports.
- Inconsistency in reporting (voice and approach)
  - Since reviews occur over several years, there may be different people reporting.
- Sometimes data is missing, input incorrectly or hard-typed as opposed to linked to original source, which directly impacts calculations.
- No historical record of how teams get to their decisions, which could assist with future discussions or concerns in similar situations.
- Determination of successful turnaround, and scores, can be somewhat subjective without proper access to thorough, objective analysis.

Standards Management

- There is no global reporting standard across all sites and Refining/Chemical plants.
- There are currently different templates used (Word and Excel).

Other relevant pain points:

PAIN POINTS	**I1**	**I2**	**I3**	**I4**	**I5**	**I6**	**I7**	**I8**	**I9**	*total*
Knowledge transfer	1	2	-	2	1	3	1	2	1	**13**
Scheduling	1	-	-	3	4	3	-	-	2	**13**
Notifications	1	1	1	-	2	1	-	-	1	**7**
Adoption	-	-	1	1	-	-	-	-	1	**3**

NOTE: chart demonstrates the number of times each interviewee mentioned a pain point based on the below specifications.

- Knowledge transfer
    - No formal succession plan from one Turnaround Advisor to the replacement.
        - Some do not have a replacement named prior to retirement.
    - Turnaround Advisors spend a significant amount of time traveling, so it can be difficult to get them to slow down and share institutional knowledge in a formal process.
    - There is a steep learning curve, as it requires heavy first-hand turnaround experience.
- Scheduling reviews
    - Advisors have difficulty getting volunteers to staff the reviews.
    - There are two schedules – Americas TA Review Schedule and SD/SU CER – both created and managed independently.
        - Changes made several times a week and updates are not synced or notified.
- Notification of changes
    - No standard notification in place to identify changes in:
        - TA schedule
        - CER schedule
        - File uploaded successfully
        - File ready to review
- Adoption of change
    - Threat that people will not use new solution, if it is:
        - Too difficult to use
        - Too time-consuming to execute tasks
        - Inconsistent across sites
        - Force fit to every regional / global site

Additional pain points

- Current data capture is in different formats, thus making it difficult to compare and analyze. There is no easy way to export data from Microsoft Word, Excel and PowerPoint.
- EMEAP turnaround review teams suffer the most from a lack of available, quality reviewers to contribute to the reporting process.
- There is less emphasis on earlier documents in the reporting process but a significant emphasis on the TR4. This prevents identifying issues earlier in the turnaround process to mitigate future delays and unnecessary costs.

Opportunities for improvement

While conducting research, I discovered patterns across all pain points that revealed additional general problem areas that are ripe for improvement, which would benefit the Turnaround Advisors and Turnaround Review Team.

Work flow

- Devise common standards for Chemical and Refining sites and regions, for each associated review document (example: TR0, TR1, TR2, TR3, TR4 internal, TR4 external, all supplemental reports and score cards) to ease reporting and analysis:
    - Build and complete each report in the same platform to reduce overall time spent to produce reports.
        - The current process requires 27 hours to compile and edit reports on average.
    - Integrate the checklist into the reporting process, like a wizard approach that walks through each expectation to ensure compliance and proper documentation.
        - If missing data, highlight for cross-reference, to ensure accurate calculations.
        - Mark the completion of key milestones and notify team members.
    - Create predefined set of common, reoccurring key observations and recommendations, with the option to add commentary as necessary.
- Allow site to access to reporting tool in order to pre-populate key information prior to the review.
    - Can limit write and read access appropriately.
- Automatically save progress, to ensure teammates are viewing most recent data. Allow only one person per section to make edits at any given time.
- Have the ability to go back and edit reports, make comments and track versions.

IR / TR user interface

- Allow for simultaneous collaboration among TRT members and site representatives.
- Cross-reference associated documents either inside or outside of the application
    - Most reviewers only utilize one screen (laptop or tablet), making it difficult to view several files, across programs, and enter information into the report at the same time.
    - *Long-term solution:* automatically populate necessary data so reviewer only has to verify.
- Since users are generally competent and comfortable with computers, and most familiar with Microsoft software, it would make sense to employ a simple and intuitive format that is consistent with current workflow in function and appearance.
- Implement a dashboard functionality for snapshots of the turnaround process to track progress, assess efficiency and conduct ad hoc queries
- Lock formatting.
- Provide spell-check.

Documents management

- Create a central depository of (old and new) data across all sites and regions that is easily accessible and usable for data analysis.
- Require all associated documentation to be linked / uploaded before closing out final report.
- Ensure there is a confirmation before deleting or moving information from the archive. Make it harder to remove critical information.
- Improve the ability for site roles and above-site roles to search and access the archive more efficiently when cross-referencing documentation and analyzing the data.

Trending and analysis

- Categorize content within reports and the reports themselves so that users can sort efficiently.
- Make disciplines for scoring consistent across expectations and reports.
    - Create a comprehensive Score Card that would auto-populate once a report is complete.
    - Automate calculations and produce illustrations.
- Low quality or incomplete data will hinder the effectiveness of search results and make it harder for others to search for specific keywords or conduct comprehensive comparisons.

Desired data integrations

- A new scheduling tool is being deployed, which is supposed to automatically schedule reviews once the turnaround criteria and timing data is input into the system. It will allow the team to self-populate the turnaround reviews they will support. TA Advisors will still provide oversight.
- Those interviewed concluded that we do not need to analyze all archived data but on average, the last 10 years still hold relevant data points. Having access to that wealth of knowledge will provide a fuller context for trend analysis.
- Provide a way for the users to be able to easily access and reference all reports related to reviews (schedules; internal, external, supplemental reports; score cards) so the reviewers do not need to have several programs and files documents actively open at once.
    - Users just want to easily access data. The archive system – of different associated content placed in different locations – should not limit that.
    - Users should link reports, when referencing data from them.

Device preferences

Every person interviewed stated that they use a laptop or tablet, with a single-screen, and need solid internet access.

Opportunities identified that are not in scope

Even though these opportunities are not related directly to the TR / IR reporting process, they are worth mentioning for future growth opportunities.

- Access to a more robust, automated scheduling tool.
- Access to increased work force when scheduling turnaround review teams.
- Access to more experienced TRT members.
    - Develop a formal transition plan and shadowing prior to Turnaround Advisor retirement or reassignment
- Access to stronger internet / intranet connectivity
- Increase language competency skills in EMEAP, since the language barrier impedes the best talent from executing turnaround reviews in English.

SUGGESTED NEXT STEPS

Good usability requires thorough user research and an iterative approach of constant testing and refining. It is strongly suggested that the UX team remain involved in the development of the TO-BE solution that is easily accessible, clear, learnable, credible and relevant in order to increase adoption rates and overall project success.

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