



Utilizing AI to Enhance Learning Culture and Improve Your Technical Programs

Can We Learn Better?

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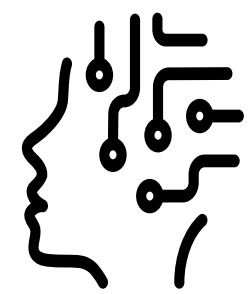


Overview

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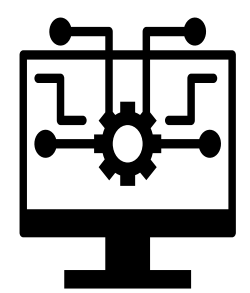
WHAT IS AI?



AI is the discipline **of teaching systems to imitate human tasks** through learning and automation.



It includes techniques like machine learning, deep learning, natural language processing, and computer vision.



AI is used in various applications, such as virtual assistants, self-driving cars, healthcare, and recommendation systems, to replicate human-like intelligence and behavior.



HOW DOES GENERATIVE AI WORK?

AI merges data with intelligent algorithms, using tools like "machine learning" and "deep learning".

Machine Learning allows computers to learn from data, identify patterns, and improve task results based on experience.

Deep Learning uses artificial neural networks to process data, making inferences and improving AI performance. These networks resemble the human brain's structure, enabling data processing, pattern recognition, and learning through reinforcement.



Chat GPT a conversational AI language model capable of understanding and generating human-like text for various language-related tasks.



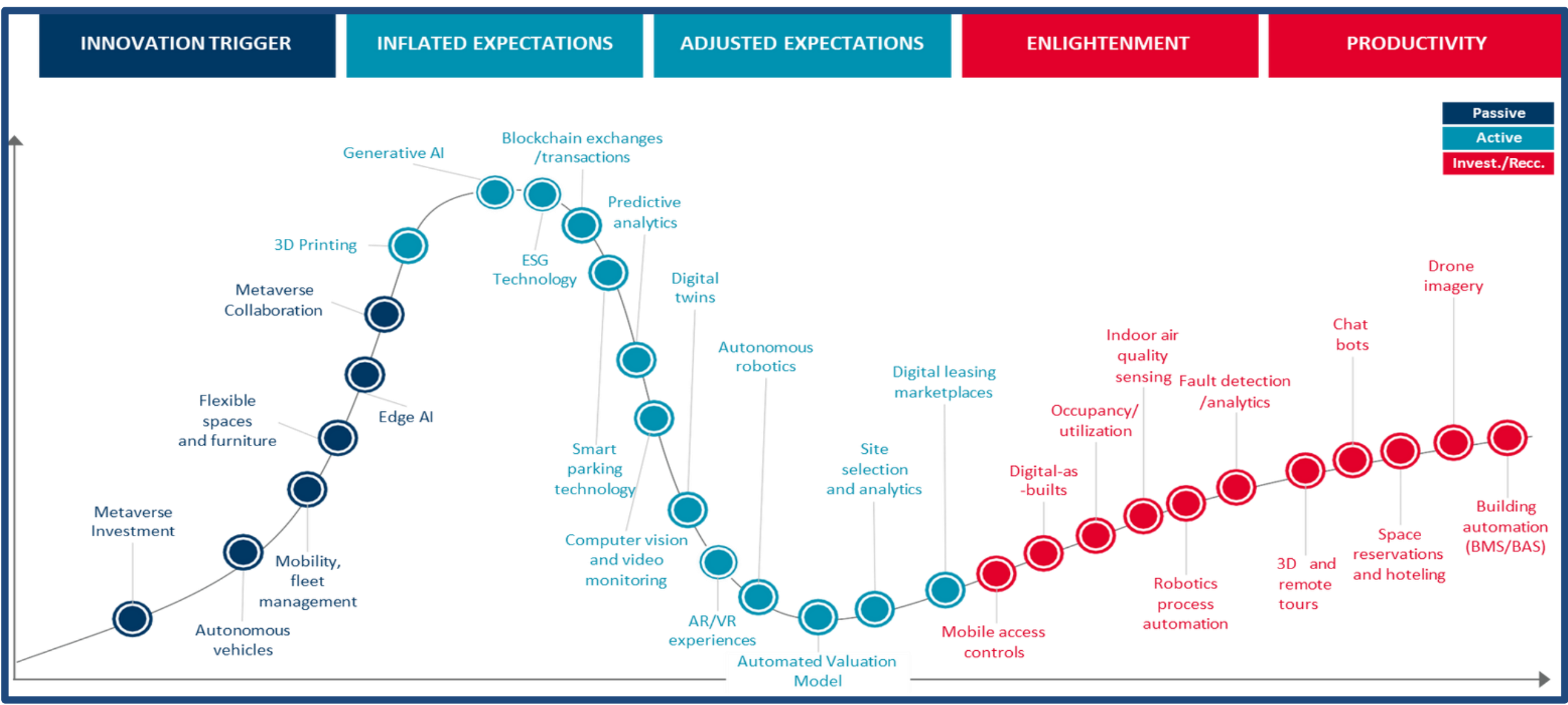
Siri/Alexa use Natural Language Processing (NLP) to understand and fulfill user requests, improving their responses over time.



Self-Driving Cars use employing deep neural networks to recognize nearby objects, gauge their proximity to other vehicles, identify traffic signals, and more.



AI HYPE HAS PEAKED, AND COMPANIES ARE FOCUSING ON SOLUTIONS THAT PROVIDE REAL VALUE



There is a 'Hype Cycle' or time-to-value for every emerging technology, according to Gartner research

- While discussion around Artificial Intelligence has hit a peak, the true productivity from this technology won't be seen for several years
- Generative AI still has 5-10 years to reach a plateau
- There is still value TODAY we can capture from AI by testing and executing immediately



PEOPLE FIRST SOLUTIONS - AI USE CASE #1

PROGRAM OVERVIEW: SKILLED BASED PROGRAM

Purpose:

- The Skill Based Program (SBP) was created to provide transparency for technician development paths and compensation increases.
- The program Aims to improve client contractual metrics such as TRIR, retention, and uptime.

Methodology:

- Competency Based Learning (CBL) is utilized by implementing three learning domains which technicians will navigate in the following order:
 - Knowledge-Based: The initial learning domain where individuals will undergo training by a Qualified Trainer.
 - Rule-Based: The intermediate learning domain that builds on the knowledge-based domain and comprises a mix of training and on-the-job-training (OJT).
 - Skill-Based: The most advanced domain where individuals will exclusively leverage OJT and build on skills developed in the previous domains.





OVERCOMING SCALABILITY CHALLENGES

RESOURCE SCARCITY

Business Problem:

- To fulfill OJT requirements, technicians must populate work order templates and submit the responses to be scored.
- Technicians must meet OJT requirements to progress through Rule-Based and Skill-Based learning domains.
- Progressing all 3,400 technicians through the program would require approximately 190,000 hours of manual scoring.

Solution:

- The LancerAI model was developed to score all submitted work orders without human interaction. Trained for 16 months by CWS Reliability Engineers, the model assesses WO quality with 95% accuracy.

For Work Orders that are PM or PdM, use the following question template to address on the WO comments prior to submission:

Question Template: [PM/PdM Template]

Core Competency Unique Code: [insert course unique code]

[Q1. What are possible hazards and controls associated with performing a PM or PdM on the asset?]

[Q2. What are the failure modes that the PM/PdM is looking for and preventing?]

[Q3. What tools were used during the PM/PdM that helped in identifying failure modes? Please describe how they were used, if any calibration were required, settings needed to be adjusted or verified.]

[Q4. Describe in summary what was done by you during the PM/PdM? Be descriptive and quantitative with critical tasks and measurements.]

[Q5. Using the quantitative and qualitative data captured during the PM/PdM, recommend follow up actions required by RME if applicable? If the data captured does not indicate failure, describe why.]



A UNIFIED INTERFACE FOR CENTRALIZED LEARNING

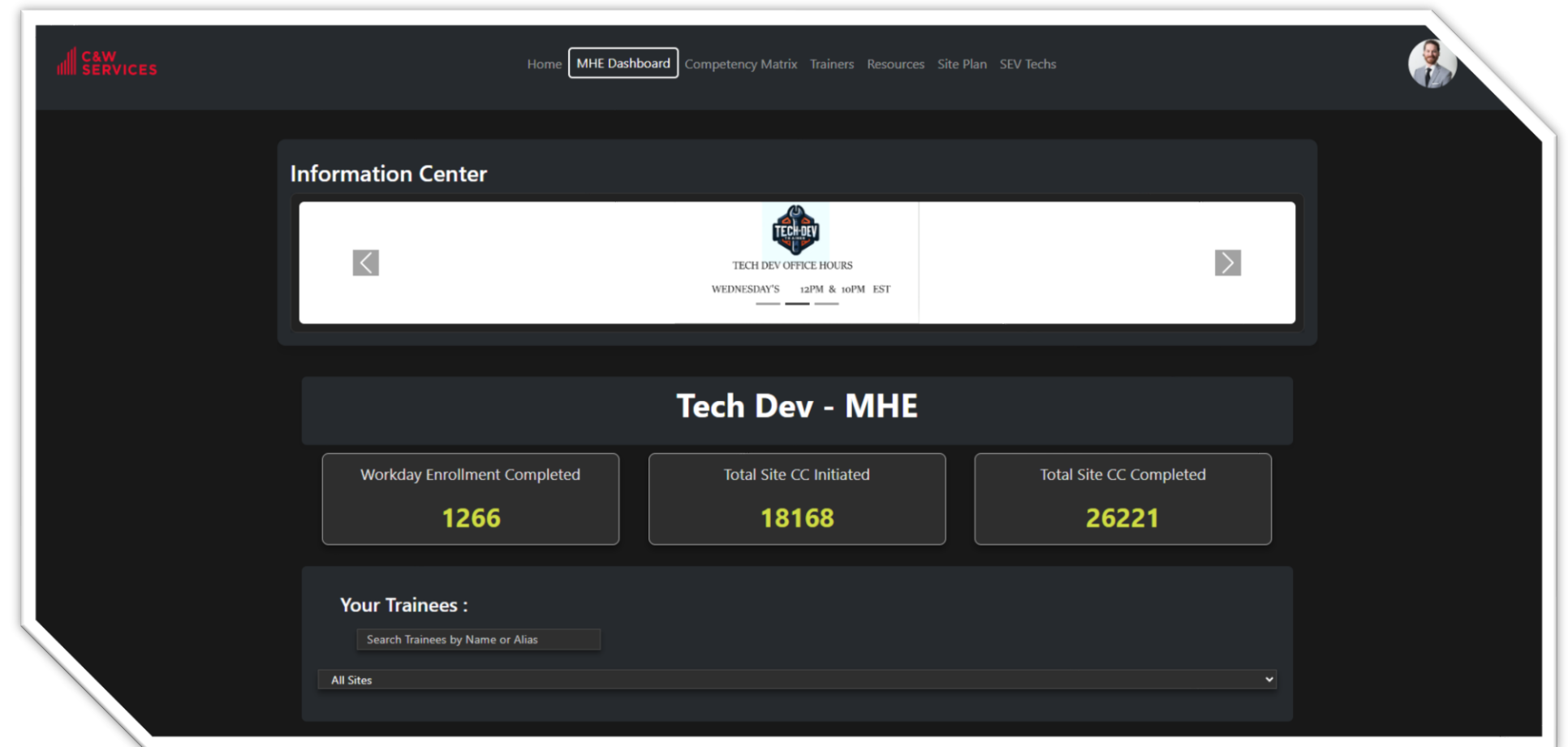
ELECTRONIC TRAINING PLAN (ETP):

Business Problem:

- Qualified trainers need a centralized location to monitor the progress of multiple trainees at their sites.
- An interface is also required to allow trainers to view, update, and edit trainee progress data, as necessary.

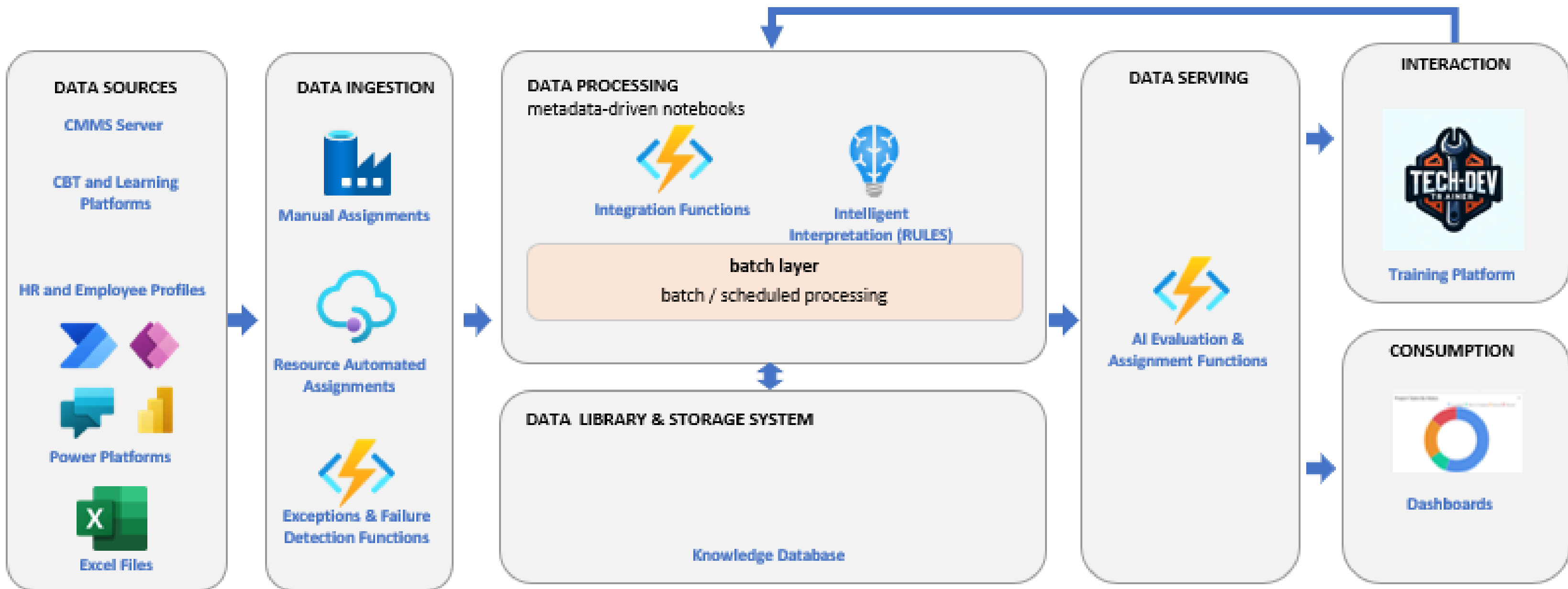
Solution:

- The Electronic Training Plan was developed as the program's central repository for all technician credit allocation and development progression.
- The tool integrates various data sources into a single platform simplifying the tracking and management of trainee progress.





TOOL INTEGRATION AND CONNECTIVITY ECOSYSTEM OVERVIEW





QUALITY DRIVEN SOLUTIONS - *AI USE CASE #2*

PROGRAM OVERVIEW

Purpose:

- Lan-Audit was designed to automate the PM Audit process and standardize the risk identification process while removing subjectivity.
- Tool aims to improve Equipment Health Risk % (focused in on quality variable), drive PM data collection into CMMS, push risk notifications to leaders instead of pull.

Methodology:

- The Lan-Audit model analyzes preventive maintenance work orders by validating task completion and assessing operational risk using structured data and GPT-based comment analysis. It outputs detailed CSV files with validation flags, risk scores, and follow-up indicators to help maintenance teams prioritize reviews and improve compliance.





Quality Driven Solutions - AI Use Case #2

LAN-AUDIT Report-PVD2-Week 32

Amabflex	<p>I have completed all tasks referenced on the task list of this PM I have created a follow-up work order for any issues found during this PM Infeed Conveyor Speed Ambaflex Speed Discharge Conveyor Speed Chain Wear Bottom Left Hand UHMW Nose Over Guide Thickness Bottom Right Hand UHMW Nose Over Guide Thickness Top Left Hand UHMW Nose Over Guide Thickness Top Right Hand UHMW Nose Over Guide Thickness VFD Accel Time VFD Decel Time Motor O/L Amps VFD Setting Motor NP FLA O/L Amps VFD Setting</p>	High	<p>An out-of-spec infeed speed may cause bottlenecks and increased motor strain. An out-of-spec outfeed speed can create downstream bottlenecks and affect throughput. Chain elongation beyond acceptable limits indicates severe wear and risk of failure. High severity risk identified. In [redacted] follow-up is advised. Out-of-spec spiral speed can lead to mechanical overstress and accelerated chain wear.</p>	PVD2	<p> <input checked="" type="checkbox"/> bottom_end_guide_thickness_left within spec (measured 15.80) <input checked="" type="checkbox"/> bottom_end_guide_thickness_right within spec (measured 16.10) <input checked="" type="checkbox"/> chain wear inspection (Completed) <input checked="" type="checkbox"/> final steps (Completed) <input checked="" type="checkbox"/> running visual inspection (Completed) <input checked="" type="checkbox"/> upper_wear_guide_thickness_left within spec (measured 15.90) <input checked="" type="checkbox"/> vfd manual drive operations (Measurements present) <input checked="" type="checkbox"/> vfd_accel_time (formula: T = 1.5 * speed / 30 - manual check) <input checked="" type="checkbox"/> vfd_decel_time (formula: T = 1.5 * speed / 30 - manual check) <input type="checkbox"/> chain_elongation out of spec (measured 16.20 not in [375.00..387.00]) <input type="checkbox"/> infeed_conveyor_speed out of spec (measured 194.00 not in [158.84..175.56]) <input type="checkbox"/> outfeed_conveyor_speed out of spec (measured 210.00 not in [175.56..194.04]) <input type="checkbox"/> spiral_speed out of spec (measured 176.00 not in [196.95..197.05]) <input type="checkbox"/> upper_wear_guide_thickness_right out of spec (measured 1.00 not in [14.00..18.00]) </p>	10034332216	11	<p>chain wear inspection final steps measure conveyor speeds running visual inspection vfd manual drive operations</p>	<p>week preventive maintenance per job plan documentation. safety protocols followed, including loto, brake disengagement, and pre-task briefing. inspected sprockets (top, bottom, 3rd, 4th), guides (uhmw), and slats for wear/damage. jogged spiral using manual vfd control to visually inspect chain, slats, and guides. verified proximity sensors for correct gap, alignment, and led response. measured uhmw guide thickness; all readings within acceptable specification. checked bearings for play, grease condition, and proper alignment. chain elongation measured; result below the 1.5% wear threshold. cleaned out spiral internals and lower return subsystems; no debris found. no abnormal noise, sway, or slat misalignment noted during operation. spiral returned to service in good working order. no corrective actions required. none none none none none none none work order 10034332216 – amer-ambaflex sv model spiral – 13 week</p>
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Where to learn more!

A plethora of Youtube© and LinkedIn© learning opportunities. You should play around to see what can be done in your world!

1. Simple AI Intro: https://youtu.be/m8o2GrbR3d8?si=4pp_WQLh0CHpzz76
2. How to Learn AI: <https://youtu.be/S2Gzte1CQR8?si=bTUBUgbCGUAXh0kQ>
2. What can AI do: https://youtu.be/EWFFaKxs_zs?si=P-sMzzKh9h0gmBpy
3. Using AI inside of Excel: https://youtu.be/CGxt_ENdsvE?si=1mBAw_n7e-C1kisH

Thank you for your participation!



Thank You!



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