# HARNESSING THE POWER OF AloT

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#### PEOPLE, PROCESS & TECH



#### **GOLDEN TRIANGLE RULE**

When one element changes, other two must also change to maintain an effective balance.



#### PEOPLE, PROCESS & TECH



#### LINEAR POINT OF VIEW

#### Change occurs when People decide a change is needed



# **ARTIFICIAL INTELLIGENCE**

Machine Learning (ML) A subset of AI that uses algorithms to learn from data and improve over time. Automates data analysis but prone to biases in data.

**Deep Learning** Type of ML that mimics the human brain using neural networks with multiple layers. Excels in image and speech recognition but need large amounts of labeled data.

Natural Language Processing (NLP) Enables machines to understand, interpret, and generate human language. Powers chatbots and virtual assistants but lacks nuances in language related to human emotions.

Computer Vision Enables machines to interpret and understand visual data from the world.

Highly effective in image and video analysis like for self-driving cars or medical imaging but sensitive to environmental factors like lighting and angles.

Expert Systems AI systems that mimic the decision-making abilities of a human expert .

Good for rule-based tasks but lacks adaptability in new situations.



# **ARTIFICIAL INTELLIGENCE**

**Robotics** AI integrated into physical systems to perform tasks autonomously or semi-autonomously. Useful for repetitive, dangerous, or precise tasks but expensive to develop and maintain.

**Reinforcement Learning (RL)** AI learns by interacting with its environment and receiving feedback through rewards or penalties. Excellent for real-time decision-making tasks like robotics but difficult to apply in highly complex or unpredictable environments.

**Generative AI** AI models that can create new data, such as images, text, and music, based on existing data. Creative applications in art, design, and content creation but ethical concerns with misinformation or deepfakes.

**Fuzzy Logic** AI that deals with reasoning that is approximate rather than fixed and exact, mimicking human decisionmaking. Useful in control objects like thermostats and washing machines, but often require manual tuning of rules

AI in Edge Computing AI integrated into edge devices (e.g., IoT) to process data locally rather than in the cloud. Low latency, faster processing and improved privacy as data remains on local devices (autonomous vehicles). Security concerns if devices are compromised.



#### AGENDA

01	Thinktank Rules	Workshop Overview and Ground Rules
02	A-C-D of PM	Exercise 1 - Administrative, Documentation & Communication
03	WIIFM	Exercise 2 – Prioritization of What Helps Now
04	AIOT Challenge	Exercise 3 - Future of Project Management
05	Human Challenge	Exercise 4 - Preparing for the Future



### **GROUND RULES**

1	Participation mandatory	5	Respect your colleagues
2	Be ready to network	6	Respect the space
3	Listen to the rules before starting	7	No one is the SME, but ask questions anyways
4	When time ends, discussions end	8	Most importantly: Have fun



### **EXERCISE 1 RULES**

- This is a group activity your table-mates are your team members for this exercise.
- On the next screen, we have list of **"mundane" Project Management Tasks** by the three categories: Administrative, Documentation and Communication.
- Pick 1 Task from each category (total of 3) and answer these questions:
  - Who would it help if this task is automated or improved?
  - What type(s) of AI would you apply to bring efficiencies into this task?
  - What would the end deliverable look like?
- Once you have discussed the three tasks, pick a presenter from the team each team will present on the task they picked and how AI can improve it.
- You have <u>15 minutes</u> for the discussions.



### EXERCISE 1: A-C-D of PM

Administrative	Documentation	Communication
Schedule initial project meeting	Update project schedule	Send project kickoff emails
Track team attendance	Prepare progress reports	Coordinate with stakeholders for requirements gathering
Monitor project budget	Archive project documents	Conduct daily stand-up meetings
Arrange project closure meeting	Document initial project scope	Send status update emails
Assign project roles	Create risk management plan	Set up project communication channels
Allocate resources	Record meeting minutes	Facilitate risk assessment workshops
Track project milestones	Maintain issue log	Update team on task assignments
Finalize project budget	Compile lessons learned	Conduct project debrief



# **EXERCISE 2 RULES**

We need results **NOW** and we all ask WIIFM (**What's In It For Me**). This exercise helps us prioritize our discussions.

• You have three sticker dots at your table.

Green Dot = Administrative | Yellow Dot = Communication | Pink Dot = Documentation

• Your goal is to head over to each whiteboard and place a sticker next to the one that answers this question for your current situation:

"Which improvement discussed will give me the most benefit NOW"

- Objective narrow down tasks / use cases to top six that we can further discuss.
- You have **<u>5 minutes</u>** for this activity.



# AI OF THINGS (AIOT)





### AIOT IN PROJECTS

**Resource and Asset Management** – Track real-time usage, location and condition of resources to optimize the use of resources and reduce downtime and unnecessary costs.

Example: AIOT can help in dynamic scheduling of tasks in manufacturing projects, reallocating resources as soon as certain milestones are met or delays occur.

**Real-Time Monitoring and Reporting** - Continuously monitor work progress, environmental conditions, or material usage for real-time reporting on project status, delays, or inefficiencies for immediate insights allowing for better decision-making and timely adjustments.

Example: In IT projects, AI can monitor network performance and user feedback, providing project managers with early warnings about potential issues or delays.

**Predictive Analytics for Risk Management** - Track environmental variables like temperature, pressure, or traffic conditions that may impact a project to analyze historical and real-time data to predict risks like delays, cost overruns, or safety hazards to reduce unforeseen project disruptions.

Example: In large infrastructure projects, IoT sensors can monitor weather conditions, and AI can predict potential delays, allowing managers to adjust schedules proactively.



### AIOT IN PROJECTS

Automation of Routine Tasks - Collect project data automatically, such as attendance tracking and task completion, and material usage for routine tasks like status reporting, task assignments, and updates, reducing human error and ensuring consistency.

Example: Automate time-tracking and material procurement in construction.

**Enhanced Collaboration and Communication** - Keep the team informed of the latest data and provide intelligent suggestions, prioritize communication, and automate updates based on the IoT data received. Example: In global IT projects, AIoT can synchronize team collaboration platforms, providing real-time updates on project progress to geographically dispersed teams.

**Budget and Cost Control** - Track the consumption of materials, equipment usage, and labor to forecast budget overruns, compare actual costs to projected costs, and suggest cost-saving measures, reducing the risk of budget overruns. Example: In complex engineering projects, tracking logged hours allows project managers to reallocate resources and avoid budget blowouts.

Sustainability and Green Project Management - Devices can track energy usage, carbon emissions, and material consumption during a project to recommend more sustainable practices, optimize resource usage, and reduce environmental impact.



# AIOT IN PROJECT MANAGEMENT

Example (or should I say My Wishlist) ... wouldn't it be awesome if:

- You have a chatbot for your website with standard prompts and machine-learning capabilities to predict what your customer may need.
- During a project, you are looking to capture feedback from customers on a specific topic that could improve your deliverable.
- The chatbot sends relevant data via an IoT hub that is integrated with your project management tool to automatically identify requirements based on feedback collected from the online interaction.

Example Use Cases as presented by ChatGPT:

**Predictive Maintenance Projects:** An AIoT system predicts when equipment will need maintenance, and project management tool automatically updates the project timeline with maintenance tasks.

**Smart Manufacturing**: Data from connected machines can help schedule production tasks more efficiently, and project management tool can track those tasks.

**Energy Management Projects:** For energy optimization in buildings, IoT sensors might collect usage data, and AI can optimize schedules for energy-saving initiatives that are then tracked in the project management tool.



# **EXERCISE 3 RULES**

- Your new groups are now the number that you were assigned when you entered the room.
- As a group, talk about the future as AIoT initiatives:
  - How can you incorporate data to the AI to improve tasks?
  - If you have experienced a tool or technology that offers something similar, what were some of the challenges with adoption and usage?
  - What would the future look like with full automation?
- Identify one person to summarize your group discussions for the room
- You will have <u>15 minutes</u> to complete the discussion, followed by presentations



### EXERCISE 4 – HUMAN-FOCUSED

Now that we know how AI+data can bring about advancements to Project Management tasks, let's discuss this question:

What can you do today to prepare yourself and your team to easily adopt these inevitable innovations?

This discussion is open for **everyone** – simply raise your hand and we will bring a mic over to you.





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