Potential implications of artificial intelligence for project management information systems *

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Abstract

Project management information systems (PMIS) are crucial tools in today's dynamic business environment. With the advancement of artificial intelligence (AI) technologies, there are significant opportunities for enhancing PMIS functionalities. The purpose of this article is to analyze current get AI implication for solving PMIS challenges module by module. The results of this study provide theoretical validation that certain modules within PMIS can be enriched through AI integration, thus engendering the emergence of supplementary module facilitated by AI.

Keywords

Project Management, AI, Artificial Intelligence, Project Management Information System, NLP, Data Driven Model.

1. Introduction

Project management plays a pivotal role in the success of organizations across various industries, serving as a structured approach to initiate, plan, execute, monitor, and close projects efficiently and effectively. In today's dynamic business environment characterized by rapid technological advancements and increasing complexity, the need for robust project management tools and systems has become more pronounced than ever before. Project management information systems (PMIS) emerge as a critical enabler, providing organizations with the capabilities to streamline project processes, enhance collaboration, and drive project success.

The landscape of PMIS is diverse, encompassing a wide array of tools, platforms, and methodologies tailored to meet the unique needs and requirements of different projects and organizations. From enterprise-grade solutions designed to manage large-scale projects and portfolios to collaboration platforms facilitating real-time communication and teamwork, PMIS offer a spectrum of functionalities to support project management endeavors. Moreover, Agile development tools cater to the needs of iterative and adaptive project management, while industry-specific solutions address the unique challenges and regulatory requirements of specific sectors.

As organizations continue to leverage technology to optimize project management practices, the integration of artificial intelligence (AI) into PMIS emerges as a transformative force with the potential to revolutionize project management processes and outcomes. AI technologies, including machine learning, natural language processing, and predictive analytics, hold the promise of enhancing decision-making, automating routine tasks, and providing actionable insights to project managers and stakeholders. However, the integration of AI into PMIS also raises important considerations regarding data privacy, ethical implications, and organizational readiness for AI adoption.

AI technologies are blossoming right now, it's implication found a way into different areas of our lives, starting with neural networks itself [1-3], data analysis [4-5] and even smart cities [6]. And no surprise that AI models itself was separated in different categories [7-9] depending on actual tasks that needed to be accomplished. But for Project Management and PMIS implementation of AI are fairly limited and mostly implies to knowledge and decision-making logic [10-17] without mentioning

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separate PMIS modules where AI could be incorporated. And we think this is not all what AI can help with.[1]

In this paper, we explore the potential implications of AI for project management information systems, examining how AI technologies can augment existing PMIS functionalities, improve project outcomes, and drive organizational performance. We delve into the current landscape of PMIS, including enterprise solutions, collaboration platforms, Agile development tools, and industry-specific solutions, highlighting their key features. Furthermore, we investigate current usage of artificial intelligence in different informational systems and propose potential implementation of AI into PIMS.

The purpose of this article is to analyze AI implication for solving PMIS challenges, which is to use the capabilities of current generation of AI to improve the efficiency of project management systems and achieve strategic goals.

2. Types of Information Systems for Project Management

Project management information systems (PMIS) encompass a variety of tools and platforms designed to facilitate project planning, execution, and monitoring. The selection of PMIS depends on various factors, including project complexity, organizational size, industry regulations, and preferred project management methodologies. Here in this figure, we list key categories of PMIS, that we selected as the most distinct ones:

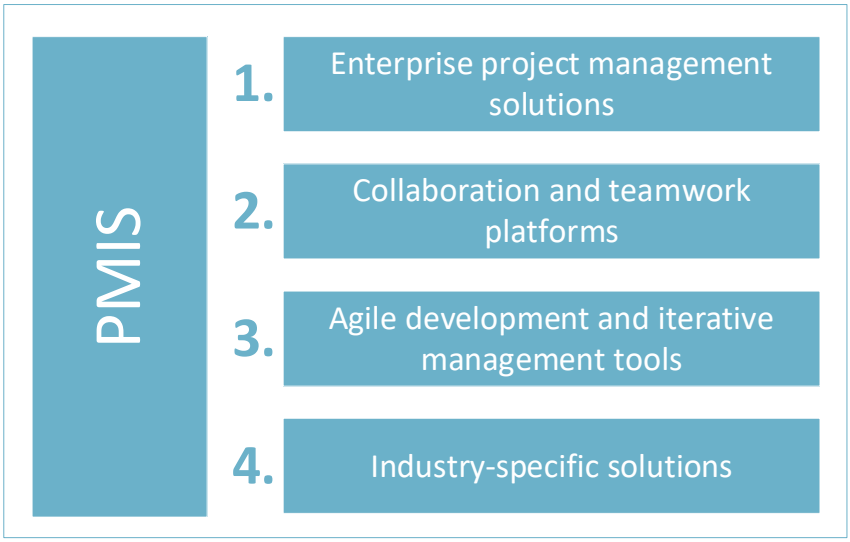

Figure 1: PMIS key categories

1. Enterprise project management solutions:

Enterprise-grade PMIS, exemplified by Microsoft Project and Primavera P6, are chosen for their robust features, scalability, and comprehensive support for managing large-scale projects and portfolios. These platforms offer a wide range of functionalities, including project planning, scheduling, resource management, and portfolio optimization, making them suitable for industries with complex project requirements such as construction, engineering, and manufacturing. With their ability to handle intricate project structures, dependencies, and resource allocations, enterprise PMIS provide centralized control and visibility, enabling organizations to manage projects efficiently and strategically. Main features are shown in Table 1.

2. Collaboration and teamwork platforms:

Collaboration-centric PMIS, represented by Asana, Basecamp, and Jira, are selected for their emphasis on communication, collaboration, and teamwork among project stakeholders. While these platforms are often associated with small to medium-sized teams, they have also gained adoption in

larger enterprises seeking to enhance collaboration and agility. Jira, for instance, is widely used for Agile software development, offering features such as user stories, sprints, and Kanban boards. Collaboration platforms prioritize ease of use, real-time collaboration tools, and task management functionalities, fostering productivity and engagement among project teams. Main features are shown in Table 2.

Table 1
Main features of enterprise project management solutions

Feature	Description
Risk management	Enterprise PMIS offer robust risk management functionalities, allowing project managers to identify, assess, and mitigate risks throughout the project lifecycle. Features may include risk identification tools, risk assessment matrices, and risk response planning capabilities.
Cost tracking	These systems provide comprehensive cost tracking and management capabilities, enabling project managers to monitor project expenses, track budget allocations, and analyze cost variances. Features may include budget tracking tools, expense management modules, and cost forecasting functionalities.
Portfolio optimization	Enterprise PMIS support portfolio optimization by enabling organizations to prioritize and align projects with strategic objectives, resource constraints, and financial goals. Features may include portfolio analysis tools, resource optimization algorithms, and project prioritization frameworks.
Integration capabilities	These systems offer seamless integration with other enterprise systems such as ERP (Enterprise Resource Planning) systems, CRM (Customer Relationship Management) systems, and financial management software. Integration capabilities facilitate data exchange, process automation, and cross-functional collaboration, enhancing organizational efficiency and agility.

Table 2
Main features of collaboration and teamwork platforms

Feature	Description
Task assignments	Collaboration platforms allow users to assign tasks to team members, set deadlines, and track progress in real-time. Task assignment features enable clear accountability, promote transparency, and facilitate effective task management within project teams.
File sharing	These platforms provide secure file sharing capabilities, allowing users to upload, share, and collaborate on documents, presentations, and other project-related files. File sharing features streamline document management, reduce email clutter, and ensure that team members have access to the latest project information.
Real-time messaging	Collaboration platforms offer real-time messaging and communication tools, such as chat channels, discussion boards, and instant messaging, facilitating seamless communication and collaboration among project stakeholders. Real-time

	messaging features enable quick decision-making, rapid problem-solving, and efficient information exchange within project teams.

3. Agile development and iterative management tools:

Agile methodologies have reshaped the landscape of project management, driving the demand for PMIS that support iterative development and adaptive planning. Tools like Jira and Azure DevOps are chosen for their specialization in Agile project management, offering features tailored to Agile practices such as sprint planning, backlog management, and continuous integration and delivery. While Microsoft Project is traditionally associated with waterfall project management, its adaptability to Agile frameworks like Scrum or Kanban is fairly limited. In practice, teams may use specialized Agile tools for Agile project management, leveraging features that support iterative planning, execution, and delivery. Main features are shown in Table 3.

Table 3

Main features of agile development and iterative management tools

Feature	Description
Sprint planning	Agile tools support sprint planning activities, allowing teams to define sprint goals, prioritize user stories, and estimate effort for each task. Sprint planning features enable teams to establish clear objectives, allocate resources effectively, and set realistic sprint targets.
Backlog management	These tools provide backlog management capabilities, allowing teams to create, prioritize, and refine the product backlog. Backlog management features enable teams to capture user requirements, manage feature requests, and track progress toward project goals.
Burndown charts	Agile tools offer burndown charts to visualize progress and track work remaining in each sprint. Burndown charts provide stakeholders with real-time insights into team velocity, sprint progress, and potential risks or bottlenecks, facilitating data-driven decision-making and continuous improvement.

4. Industry-specific solutions:

Certain industries have unique project management requirements that necessitate specialized PMIS tailored to their needs. For example, healthcare organizations may use PMIS like Epic Systems or Cerner Millennium for managing clinical projects and electronic health records. Similarly, construction firms may rely on solutions like Procore or PlanGrid for construction project management, encompassing tasks such as project planning, document management, and field collaboration. These industry-specific PMIS offer domain-specific features and integrations, addressing the unique challenges and regulatory requirements of their respective industries. Main features are shown in Table 4.

In addition to the selected types mentioned above, other existing approaches to PMIS state that types are: manual systems, online platforms, and cloud-based solutions. Manual systems involve using physical tools such as whiteboards, sticky notes, and spreadsheets for project management, which may lack the scalability and efficiency of digital systems. Online platforms offer web-based project management tools accessible through browsers, providing convenience and accessibility for remote teams. Cloud-based solutions leverage cloud computing technology to deliver scalable, secure, and collaborative project management capabilities, enabling organizations to manage projects from anywhere with an internet connection. And one PMIS can be in different types.

Table 4
Main features of industry-specific solutions

Feature	Description
Compliance management	Industry-specific PMIS offer specialized compliance management features to ensure adherence to industry regulations, standards, and best practices. Compliance management functionalities may include audit trails, regulatory reporting tools, and compliance monitoring capabilities, enabling organizations to mitigate compliance risks and achieve regulatory compliance.
Regulatory reporting	These systems provide tools for generating, managing, and submitting regulatory reports required by industry regulators or governing bodies. Regulatory reporting features streamline report generation, data validation, and submission processes, reducing manual effort and ensuring accuracy and timeliness of regulatory submissions.
Specialized workflows	Industry-specific PMIS offer predefined or customizable workflows tailored to the unique requirements and processes of specific industries. Specialized workflows may include approval workflows, change management processes, and quality assurance protocols, enabling organizations to streamline project execution and ensure consistency and compliance with industry standards.

3. Common Modules in Information Systems for Project Management

Project management information systems (PMIS) are comprehensive platforms designed to streamline project planning, execution, monitoring, and control. Within these systems, various modules provide essential functionalities to support project managers and stakeholders in managing projects effectively. Here, we explore the common modules found in information systems for project management, each playing a crucial role in project success. Visual representation of those modules is shown in the figure.

1. Project planning module: facilitates the creation and development of project plans, including defining project scope, objectives, deliverables, and milestones. It allows project managers to establish project timelines, allocate resources, and identify dependencies to ensure project success.
2. Task management module: gives possibility project managers to create, assign, prioritize, and track tasks throughout the project lifecycle. They provide visibility into task status, progress, and deadlines, facilitating efficient task allocation and resource utilization.
3. Resource management module: allow project managers to manage project resources, including human resources, equipment, and materials. They provide tools for resource allocation, scheduling, and optimization to ensure that project resources are utilized effectively and efficiently.
4. Scheduling module: support the creation and management of project schedules, including defining project timelines, milestones, and critical path analysis. They enable project managers to sequence project activities, identify schedule constraints, and manage project timelines to meet project objectives.
5. Budgeting and cost management module: facilitate the estimation, allocation, tracking, and analysis of project budgets and expenses. They enable project managers to create detailed

project budgets, monitor project expenses, track cost variances, and analyze project financial performance.

6. Document management module: provide tools for organizing, storing, and accessing project documentation and files. They support version control, document sharing, and collaboration among project stakeholders, ensuring that project documentation is centralized, up-to-date, and easily accessible.
7. Communication and collaboration module: facilitate communication and collaboration among project stakeholders, including team members, clients, and vendors. They provide tools for real-time messaging, file sharing, discussion forums, and virtual meetings, fostering effective communication and collaboration within project teams.
8. Reporting and analytics module: enable project managers to generate, customize, and analyze project reports and performance metrics. They provide insights into project progress, milestones, risks, and issues, empowering project managers to make data-driven decisions and optimize project outcomes.
9. Risk management module: support the identification, assessment, mitigation, and monitoring of project risks. They provide tools for risk identification, risk analysis, risk response planning, and risk tracking, helping project managers proactively manage project risks and uncertainties.
10. Quality management module: facilitate the planning, assurance, and control of project quality throughout the project lifecycle. They provide tools for defining quality standards, performing quality inspections, and addressing quality issues, ensuring that project deliverables meet stakeholder expectations and requirements.

Figure 2: Common modules in project management information system

These common modules form the foundation of information systems for project management, providing project managers and stakeholders with the essential tools and capabilities to plan, execute, and monitor projects effectively. It's important to note that while many PMIS encompass

most of these modules, some systems may offer a subset of these functionalities based on their target audience, industry focus, or specific project management methodologies.

For example, collaboration platforms such as Asana may prioritize task management and communication modules, while enterprise project management solutions like Microsoft Project may offer a comprehensive suite of modules covering all aspects of project management. Organizations should carefully evaluate their project management needs and select PMIS that best align with their requirements and objectives.

4. AI implication in current information systems

Artificial intelligence (AI) technologies are reshaping various information systems, including project management, by offering transformative capabilities to streamline processes, improve decision-making, and drive success. Here, we explore how AI is leveraged in different systems and provide examples of where these AI functionalities are utilized as shown in next figure.

- Automated task management: AI-powered task management systems automate repetitive tasks and optimize task allocation. For example, Asana utilizes AI algorithms to recommend task priorities and deadlines based on historical task completion times and team availability.
- Predictive analytics for risk management: AI-based predictive analytics tools enhance risk management by predicting potential risks and their impact. In insurance systems AI tools project risk rating of person based on person's history data including credit history, balance, purchases, family status etc.
- Natural language processing (NLP) for communication: NLP capabilities are widely utilized in chatbots and customer service systems to analyze and respond to user inquiries. For instance, AI-powered chatbots like those used in banking systems employ NLP to understand customer queries about account balances, transactions, and financial products, providing real-time assistance and support.
- Optimization of resource allocation: AI algorithms optimize resource allocation in various systems, including energy management systems. For example, smart grid systems utilize AI to analyze energy consumption patterns and dynamically adjust energy distribution to optimize grid performance, reduce energy waste, and lower operational costs.
- Enhanced project forecasting and planning: AI-driven forecasting and planning modules improve project planning and scheduling. In transportation systems, AI algorithms analyze traffic data, weather conditions, and historical travel patterns to forecast demand and optimize route planning for public transportation services, reducing congestion and improving commuter experiences.
- Image and video recognition: AI-powered systems can analyze and interpret images and videos, enabling applications such as facial recognition, object detection, and content moderation. For example, social media platforms use AI algorithms to automatically tag friends in photos and videos, detect inappropriate content, and suggest relevant hashtags. Or another example of system friend/foe in modern combat drones.
- Personalized marketing: AI algorithms analyze customer data to create personalized marketing campaigns and recommendations. This includes targeted advertising, email marketing, and product recommendations based on past purchases and browsing behavior. E-commerce platforms like Amazon and retail websites use AI to personalize product recommendations and promotional offers for each user.
- Healthcare diagnosis and treatment: AI technologies are transforming healthcare systems by assisting in medical diagnosis, treatment planning, and patient monitoring. AI-powered systems can analyze medical images, patient records, and genetic data to assist healthcare professionals in diagnosing diseases, predicting treatment outcomes, and recommending personalized treatment plans. For example, IBM's Watson Health uses AI to analyze medical data and assist physicians in diagnosing and treating cancer.

- Autonomous vehicles: AI plays a crucial role in the development of autonomous vehicles, enabling them to perceive their environment, make decisions, and navigate safely. AI algorithms process data from sensors such as cameras, lidar, and radar to detect objects, recognize road signs, and plan driving maneuvers. Companies like Tesla, Waymo, and Uber are developing AI-driven autonomous vehicle technologies to revolutionize transportation.
- Language translation and interpretation: AI-powered translation systems can translate text and speech between multiple languages in real-time. These systems use neural machine translation techniques and natural language understanding to accurately translate and interpret spoken and written language. Google Translate and Microsoft Translator are examples of AI-driven language translation platforms used for multilingual communication. Those systems are mainly used in Call-centers to reduce involvement of human person interaction.
- Financial trading and investment: AI algorithms are used in financial systems for algorithmic trading, risk management, and investment analysis. These systems analyze market data, news feeds, and economic indicators to identify trading opportunities, manage portfolio risk, and optimize investment strategies. Hedge funds, investment banks, and trading firms use AI-driven trading algorithms to execute trades and maximize returns.

Figure 3: AI common usage in different information systems

As organizations continue to integrate AI technologies into their information systems, it's essential to address challenges related to data privacy, ethical considerations, and organizational readiness for AI adoption. Additionally, ongoing research and development efforts are necessary to harness the full potential of AI in enhancing various systems and driving organizational performance.

5. Potential AI implications for project management information systems

In the context of project management information systems, the integration of artificial intelligence models holds immense potential to enhance project efficiency, decision-making, and success. When considering the application of AI models in PMIS, it is crucial to select models that are best suited to the specific needs and requirements of project management processes.

There are four primary AI models that can be potentially applied to PMIS: the Data driven model (DDM), the Data driven innovation model (DDIM), the Model driven model (MDM), and the Knowledge driven model (KDM). Each of these models offers unique strengths and capabilities for leveraging AI technologies in different areas.

1. Data driven model: This model focuses on leveraging large volumes of raw data to derive insights, identify patterns, and make predictions based on large amount of unrelated data. This approach attempts to improve precisely the questions through hypotheses that help explain trends and correlations between the data. Visual representation of the model is shown in next figure.

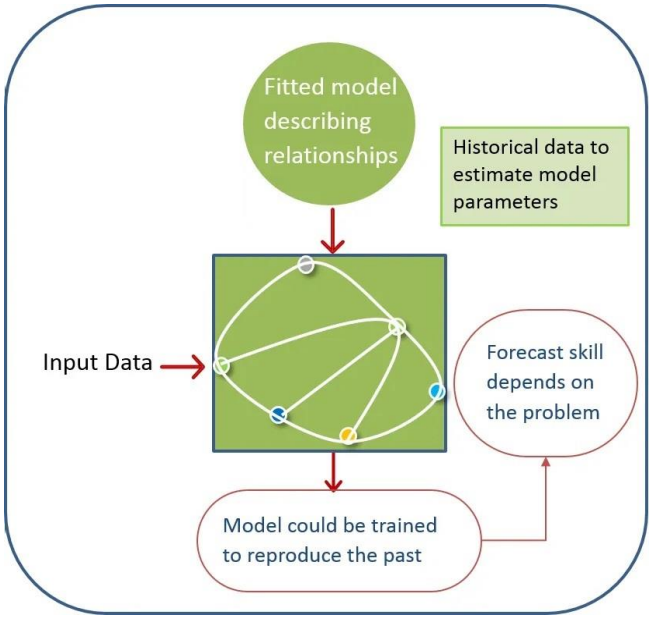

Figure 4: Visual representation of the data driven model

2. Data driven innovation model: Similar to DDM, the DDIM emphasizes the importance of data-driven approaches in driving innovation and decision-making. It encourages organizations to leverage data analytics and insights to identify new opportunities and develop innovative solutions. Visual representation of the model is shown in figure.

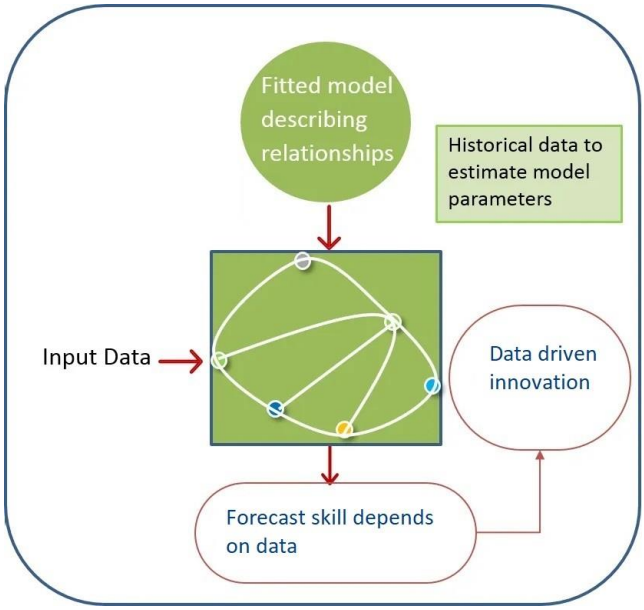

Figure 5: Visual representation of the data driven innovation model

3. Model driven model: The MDM emphasizes the development and utilization of formalized models to represent and analyze complex systems or processes. It involves building mathematical, computational, or conceptual models that simulate the behavior of real-world systems. MDM is commonly used in simulation, optimization, and system design tasks. Visual representation of the model is shown in next figure.

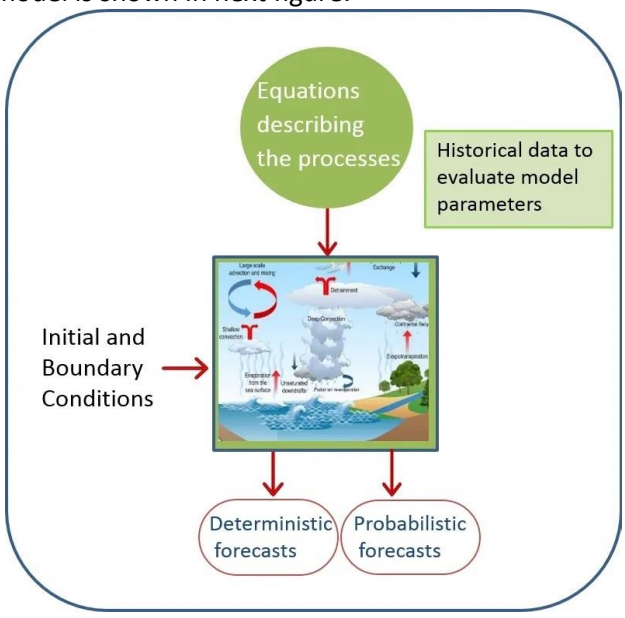

Figure 6: Visual representation of the model driven model

4. Knowledge driven model: Unlike the other models, KDM focuses on leveraging domain knowledge, expertise, and human insights to drive decision-making and problem-solving. It emphasizes the integration of human expertise with AI technologies to develop intelligent systems that can reason, learn, and adapt in complex environments. Visual representation of the model is shown in next figure.

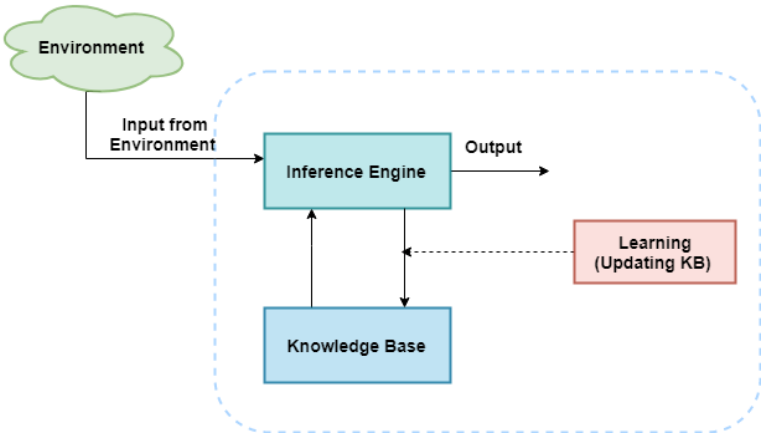

Figure 7: Visual representation of the knowledge driven model

From that four existing models we think that two of them, the Data Driven Model and the Knowledge Driven Model, are most applicable for enhancing PMIS. While each AI model offers unique strengths and capabilities, we believe that these two models align most closely with the nature of project management processes and environment around it.

The data driven model emphasizes the analysis of large volumes of project and company data to derive insights, identify patterns, and make predictions. This model could be trained from all unsorted data, such as pictures file storages, mail files and any other documentation related to whole company functionality. DDM is well-suited for tasks such as resource allocation, risk assessment, and project forecasting, leveraging historical project data to inform decision-making and optimize project outcomes.

Similarly, the knowledge driven model prioritizes the integration of human expertise, domain knowledge, and AI technologies to drive decision-making and problem-solving. This model could be trained on all project related information such as project charts, excel spreadsheets, tasks and assignments, meeting minutes and presentation files. Everything that correlates with current project management process will be useful. KDM values human input and domain expertise as essential components of the decision-making process, complementing AI technologies with human judgment and intuition in complex project management contexts.

While the Data driven innovation model and the Model driven model offer valuable approaches to AI-driven innovation and modeling, those approached does not align with nature of PMIS work. The DDIM's focus on driving innovation through data-driven approaches may not align directly with current project management objectives, which prioritize optimizing existing processes and enhancing decision-making capabilities. Similarly, while the MDM offers sophisticated modeling and simulation capabilities, its complexity and resource requirements may outweigh the potential benefits.

By focusing on the DDM and KDM, we aim to develop AI-driven solutions that enhance project management processes, improve decision-making, and make project management even more precise. These AI models will enable system to harness the power of data-driven insights, automation, and predictive analytics while incorporating human expertise and judgment to ensure informed decision-making and adaptability to changing project conditions.

In next figure we will show how AI models could be incorporated into existing PMIS modules.

Figure 8: AI enhanced PMIS modules

1. Project planning module: AI can improve project planning by analyzing historical project data, resource availability, and external factors to generate more accurate project plans. Machine learning algorithms can identify optimal project timelines, resource allocations, and critical path activities, reducing planning errors and enhancing project predictability.
2. Task management module: AI-driven task management systems can automate task assignment, scheduling, and prioritization based on project priorities, resource availability, and task dependencies. Natural language processing (NLP) capabilities enable task management platforms to understand and process project-related communications, automatically updating task statuses and deadlines in real-time. More of it, in systems that uses tasks with description, NLP with help of data driving learning could write technical and business description that will be meaningful and accurate.
3. Resource management module: AI algorithms optimize resource allocation by analyzing project requirements, team capabilities, and resource availability to recommend optimal resource allocations. Predictive analytics models forecast resource demands and identify potential resource conflicts. This functionality is crucial when project managers working with shared resources.
4. Scheduling module: AI-powered scheduling modules can dynamically adjust project schedules based on changing project conditions, resource availability, and external dependencies. Machine learning algorithms analyze project performance data to identify scheduling bottlenecks, optimize task sequences, and minimize project delays, improving schedule adherence and project efficiency.
5. Budgeting and cost management module: AI-driven budgeting and cost management modules analyze historical project data to generate more accurate project budgets. Machine learning algorithms identify cost-saving opportunities, forecast project expenses, and detect potential budget overruns, enabling project managers to manage project finances more effectively and mitigate financial risks.

6. Document management module: AI-powered document management systems automate document categorization, tagging, and retrieval based on content analysis and metadata extraction. NLP capabilities enable document management platforms to extract key information from project documents, identify relevant documents for specific project tasks, and facilitate document collaboration and version control.
7. Communication and collaboration module: AI-driven communication and collaboration modules facilitate real-time communication, information sharing, and collaboration among project stakeholders. NLP capabilities enable chatbots and virtual assistants to interpret and respond to project-related inquiries, schedule meetings, and provide contextual insights, enhancing collaboration and reducing communication barriers.
8. Reporting and analytics module: AI-powered analytics modules provide advanced data analysis, visualization, and predictive modeling capabilities to generate actionable insights for project managers and stakeholders.
9. Risk management module: AI-driven risk management modules identify, assess, and mitigate project risks by analyzing historical project data, external risk factors, and industry trends. Machine learning algorithms predict potential risks, assess their likelihood and impact, and recommend risk mitigation strategies, enabling project managers to proactively manage project risks and uncertainties.
10. Quality management module: AI-powered quality management modules automate quality assurance processes by analyzing project data, performance metrics, and customer feedback to identify quality issues and trends.
11. Decision making module: AI-driven decision-making modules support project managers in making informed decisions by providing data-driven insights, scenario analysis, and decision support tools. Machine learning algorithms analyze project data, historical trends, and stakeholder preferences to evaluate alternative courses of action, assess their potential outcomes, and recommend optimal decision strategies, enabling project managers to make timely and effective decisions.

These AI enhancements demonstrate the potential of AI technologies to optimize project management processes, improve decision-making, and drive project success within project management information systems. By integrating AI-driven functionalities into PMIS modules, organizations can leverage data-driven insights, automation, and predictive analytics to enhance project efficiency, mitigate risks, and achieve strategic objectives.

6. Conclusion

The integration of artificial intelligence into project management information systems represents a significant opportunity for organizations to enhance project efficiency, decision-making, and success. However, the effective implementation of AI in PMIS requires careful consideration of several key factors.

First and foremost, AI in PMIS necessitates a comprehensive understanding and learning from past projects. By analyzing historical project data, AI algorithms can uncover valuable insights, patterns, and trends that inform better decision-making and improve project outcomes. Organizations must prioritize the collection, storage, and analysis of project data to facilitate continuous learning and improvement within their PMIS.

Furthermore, the successful implementation of AI in PMIS relies on seamless integration with other systems and technologies within the organization's ecosystem. AI-powered functionalities must interact seamlessly with existing project management tools, communication platforms, and data repositories to ensure data consistency, interoperability, and usability across the organization. Close collaboration between IT teams, project managers, and stakeholders is essential to facilitate the integration of AI into PMIS effectively.

However, it's crucial to recognize the potential risks and challenges associated with the implementation of AI in PMIS. Incorrect interpretation of data or flawed AI algorithms can lead to erroneous decisions and compromise the functionality of the entire PMIS, this is especially valid for data driven model. And some organizations could not have such amount of data to train AI to operate within PIMS [17]. Or some regulatory and security restrictions could block usage of artificial intelligence on organizational level Organizations must exercise caution and rigor in the development, testing, and deployment of AI-powered functionalities within PMIS to mitigate the risk of data misinterpretation and ensure the reliability and accuracy of AI-driven insights and recommendations.

In conclusion, the successful integration of AI into project management information systems requires a strategic approach that prioritizes learning from past projects, seamless integration with other systems, and careful implementation to mitigate risks and maximize the benefits of AI technologies. By leveraging AI-driven insights, automation, and predictive analytics within PMIS, organizations can enhance project efficiency, optimize resource allocation, and achieve greater project success in an increasingly complex and dynamic business environment.

Further research needs to be focused on practical implementation of AI in current PMIS and how it could be done for existing modules. Also, it worth mentioning that this newly discovered module Decision Making could be analyzed in a practical way as stand-alone application that will be integrated (data feed, data exchange and technologies that could be potentially used for such integrations) with some of the existing project management information systems. In this case implementation will be much faster because of absence of need to change proprietary code in case of Microsoft Project.

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