Investigating Artificial Intelligence Commercial Scheduling Software for Construction Projects

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Abstract –
Artificial Intelligence (AI) is increasingly being adopted across various areas of construction projects. Previous studies have identified applications of AI in construction, including improving construction site safety through real-time monitoring and predictive analytics; optimized planning and scheduling; automating construction activities using robotics; identifying construction risks and potential delays; improving allocation of resources; automating the process of developing bids and cost estimates; defect detection using computer vision; supporting the documentation and analysis of contracts and specifications. Generative scheduling for construction projects is the focus of this paper, and it represents an AI-driven process that relies on software to explore multiple feasible schedules while optimizing resources and constraints, and by offering "what-if" scenarios beyond the capability of traditional scheduling tools. Commercial software for generative scheduling has already been developed, and this paper examines the capabilities of such tools. Despite these advancements, most construction companies and construction management programs in universities continue to rely on traditional scheduling software for different reasons. Generative scheduling software introduces new tools to the construction industry, yet many construction professionals and educators lag in evaluating the practicality of adopting commercial AI tools in both industry practice and education. Therefore, this paper investigates the capabilities of commercial AI-based scheduling tools and their potential benefits for construction professionals and educators.

Keywords – Artificial Intelligence; Generative Scheduling; Commercial Software

1 Introduction

Artificial Intelligence (AI) has rapidly expanded across multiple sectors of the construction industry, offering new opportunities to enhance the efficiency, accuracy, and safety of project delivery [1,2]. AI-driven approaches are being embraced across the project life cycle, from design and construction to maintenance and management, offering data-driven insights and predictive capabilities previously unattainable [3]. These advances have established AI's potential to improve construction site safety through real-time monitoring and predictive analytics, support optimized planning and scheduling, automate repetitive or labour-intensive tasks through robotics, identify potential risks and delays, enhance resource allocation, streamline bid preparation and cost estimating, detect defects using computer vision, and assist in contract and specification analysis [4,5]. These applications present a shift toward data-driven decision-making in the construction industry that is impacted by schedule overruns, budget deviations, and labour shortages [6]. Beyond project delivery, automated decision-support tools have also been applied to long-term maintenance scheduling; for example, Alsharqawi et al. developed an automated tool to optimize maintenance, repair, and replacement (MRR) strategies under performance-based contracting settings [7].

In this context, generative planning and scheduling have become important areas of interest. These AI-driven methods use software to quickly create and compare many possible project schedules and workforce management scenarios. They help teams explore different options, understand the impact of changes, and make better planning decisions. Unlike traditional tools that require a lot of manual work and produce only a few outcomes, generative tools can provide a wider range of alternatives and "what-if" scenarios [8]. Commercial software that supports these capabilities is now available, offering new opportunities for improving how construction projects are planned and scheduled. Despite these developments, adoption within industry and academia remains limited. Many construction companies and construction management programs continue to rely on traditional scheduling and estimating software [9], often due to unfamiliarity with emerging AI tools, perceived complexity, unclear return on investment, or the lack of independent evaluations of these technologies [10]. As a result, there is a growing gap between the capabilities of modern AI applications and the tools currently used [11]. To address this gap, this paper investigates the capabilities of existing commercial AI-based software designed for generative scheduling. The goal is to assess the practicality, functionality, and potential benefits of these tools for construction professionals and educators. By providing a structured evaluation, this study aims to support informed decision-making regarding AI integration in construction workflows and contribute to the ongoing dialogue about the future of technology in the built environment.

2 Current State of AI Commercial Software in Construction

AI is emerging in various industries currently, such as construction, manufacturing, and telecommunications [12]. Integration of AI and project management of construction presents innovative solutions for enhancing project scheduling, reducing costs, and improving efficiency [10]. Some studies investigated the advantages of using AI in construction projects [13,14]. While other studies focused on AI tools that can be utilized in construction management, such as expert systems/fuzzy logic, machine learning (information fusion, computer vision, and natural language processing), optimization algorithms, and process mining techniques [15,16]. However, few studies investigated the capabilities of AI commercial software for construction projects [17].

This study, therefore, selected and evaluated representative commercial AI-based software to assess their generative capabilities, automation functionalities, and practical applicability in enhancing construction project scheduling.

2.1 ALICE

The most innovative AI scheduling software so far is called "ALICE," which is an AI-powered platform for optimized scheduling of large-scale construction projects [18]. ALICE was developed in 2015 by René Morkos based on research conducted at Stanford University to acquire dynamic and automated solutions for a more efficient way of managing construction projects. ALICE is based on three modules: 1) ALICE plan; 2) ALICE optimize; and 3) ALICE model. ALICE plan utilizes a 2D interactive canvas where users can upload project data (schedule, drawings & takeoffs) so ALICE can develop a work breakdown structure (WBS) for construction activities that can be overlaid on construction drawings and connected to the project schedule after defining relationships between construction activities. ALICE optimize can test different strategies for schedule optimization, such as adding more equipment, adjusting crew schedules, and material availability, while visualizing how these factors can impact construction schedules using "what-if" analysis powered by AI. The ALICE model is beneficial for Building Information Modelling (BIM) based projects by allowing the upload of 3D BIM models into ALICE, which is connected later to production rates, resource availability, and constraints. Then the construction sequence is uploaded using a network schedule called "recipes" in ALICE software that includes activities, resources, and logic to produce the baseline schedule. The 3D BIM component of the ALICE model would visualize the 4D schedule for different scenarios generated from the "what-if" analysis. Finally, the final schedule can be exported as a Primavera P6, MS Project, CSV, or PDF file. The software is being promoted by highlighting its ability to reduce project duration by 17%, trim labor costs by 14%, and decrease equipment costs by 12%.

2.2 Trunk Tools

Another AI software, called "Trunk Tools," was introduced in 2023, and now it includes several modules in its Trunk Tools platform, which are called AI agents, including "Trunk Submittal" for discrepancy detection, "Trunk Text" as Q&A agent, and "Trunk Schedule" as schedule agent [19]. Trunk Submittal will catch any discrepancies included in project documentation, such as specifications and submittals, before they may cause schedule delays or rework. Trunk Text reads and structures all construction documents, drawings, schedules, RFIs, submittals, contracts, etc. into searchable data. Then, field workers would ask Trunk Text any question, searching for answers supported by uploaded documentation. Trunk Schedule is an autonomous AI-powered agent that creates a dynamic connection between scheduled activities and all supporting documentation, to make sure projects stay on time and on budget while working independently for monitoring schedule files and providing timely notifications. However, the Trunk Tools platform does not provide any BIM or schedule optimization capabilities and does not provide professional scheduling visualization, such as Gantt charts or Critical Path Method (CPM) networks.

2.3 nPlan

"nPlan" software was introduced in 2017 with AI-powered project controls and delivery capabilities. nPlan generates and edits detailed schedules with an AI engine which is trained on 750,000 real-world construction project schedules [20]. nPlan hunts down, quantify and report schedule integrity errors, and it discovers issues such as negative floats, wrong logic and long activity durations, and it forecasts milestones based on machine learning technology.

2.4 Prediction 3D

"Prediction 3D" software was introduced in 2020 as an AI-powered scheduling and cost estimating software that allows a 3D BIM model upload for: 1) generating accurate take-offs; 2) identifying potential cost overruns; and 3) anticipating delays and streamlining project schedules and material estimates [21].

2.5 BuildVision AI

"BuildVision AI" software was introduced in 2023 to perform many tasks in construction projects, such as scheduling, workforce management, cost estimates, document management, financial control, equipment management, automated takeoffs, and analytics. The scheduling component of BuildVision AI can automate scheduling for construction workflows while tracking RFIs, change orders, submittals, and punch lists [22].

2.6 Buildxact

"Buildxact" presented its AI-powered assistant named "Blu" in 2025 which is trained on thousands of residential projects for conducting different tasks to work as 1) takeoff assistant that scales and measures digital plans; 2) estimate generator for creating cost estimate from scratch; and 3) estimate reviewer to double-check on cost estimates for common mistakes, and also Buildxact presented a mobile app and a desktop version for an AI-scheduling software called Buildxact onsite which uses daily logs to share project progress and site conditions as well as sharing progress photos and data related to the project and connects all data to the bar chart schedule of the project [23].

2.7 Nodes & Links

"Nodes & Links" is an AI-powered schedule management platform that was founded in 2018 to help large, complex projects (highways, rail, data centers, nuclear, energy) get control of their schedules instead of being controlled by them. Nodes & Links is positioned as a kind of "intelligent layer" that sits on top of Primavera P6, MS Project, and similar tools, automating the boring but critical parts of project controls such as schedule health checks, delay analysis, risk, portfolio reporting, and even CO_2 tracking [24]. Functionally, the platform is organized around several modules that mirror the way planners and project controls teams work. "Schedule Health" runs automated checks on uploaded schedules (logic density, constraints, negative float, missing relationships, etc.) and highlights the integrity problems that make a program hard to trust. It is reported that using these automated checks can save planners over 200 hours per month and deliver 40× faster schedule diagnostics and a 327% return on investment on some projects. On top of that, Nodes & Links provides time risk analysis, where Monte Carlo schedule simulations are coupled with AI-assisted configuration and reporting so risk runs and what-if analyses can be produced in hours instead of weeks. In practice, the platform ends up being schedule-centric rather than BIM-centric. It processes and analyzes schedule files while integrating seamlessly with existing BIM and document-management systems, rather than attempting to function as a 4D modeling tool. This approach positions it more as an AI-driven project controls cockpit than a traditional BIM-based 4D simulation solution.

2.8 Buildots

"Buildots" takes almost the opposite angle to "Nodes & Links". Instead of starting from the schedule and asking, "is this plan realistic?", Buildots starts from the site and asks, "what is actually happening out there every day?" Founded in 2018, the company built an AI-driven reality-capture platform that turns routine site walks into high-resolution record sets by mounting 360-degree cameras on hard hats and then processing the footage with computer vision [25]. The core workflow is straightforward from a field perspective: supervisors walk the site as usual, the system uploads 360° video, and Buildots automatically localizes the imagery in the BIM model, detects installed elements (walls, MEP components, finishes, etc.), and compares "as-built" against "as-planned". That comparison drives a web dashboard that shows progress curves, delayed zones, trades that are ahead or behind, and areas where work is out of sequence or missing. Buildots markets this as AI-powered progress tracking that accurately measures site performance and reduces delays by up to 50%. What Buildots does not try to do is full schedule authoring or optimization. It typically consumes a master schedule exported from tools like P6 or MS Project and uses that as a benchmark for measuring production, not as a dynamic object to be re-sequenced inside Buildots. The strength of the platform is the closed loop between site and model. As-built status is grounded in visual evidence, mapped to BIM elements, and rolled up into familiar controls views. Buildots is therefore best understood as an AI engine for progress measurement and deviation detection that feeds more reliable data back into traditional planning and control processes, rather than as a standalone scheduling engine.

2.9 Gantt AI

"Gantt AI" is a newer entrant that sits much closer to "ALICE" in terms of ambition. It aims to generate and refine construction schedules using AI rather than just audit or monitor them [26]. The company, based in Canada, was founded around 2023, specifically as a construction-focused scheduling assistant that learns from historical project data. Gantt AI is described as a natural-language-driven engine. Users describe their project in plain language, upload any existing schedule files, and the system produces a detailed Gantt chart with phases, tasks, durations, and dependencies in seconds. Gantt AI suggests that users can reduce schedule development effort by more than 50–70% and achieve up to 20% cost savings by avoiding rework and poor planning, particularly by catching schedule issues early in the lifecycle. Compared to the other tools, Gantt AI is deliberately schedule-centric, focuses on uploading and manipulating schedule files (P6, MS Project, and XLSX) and on collaboration around those files via a web interface. There is currently no strong emphasis on BIM or 4D visualization; instead, the platform differentiator is its combination of natural-language interaction and learned patterns from a user's own historical schedules. That makes it conceptually closer to an AI co-planner sitting on top of conventional scheduling tools than to a BIM-integrated progress-tracking platform like Buildots or a network-science analytics engine like Nodes & Links.

3 Methodology

This study employed a quantitative Multi-Criteria Decision-Making (MCDM) approach based on the Weighted Average Method (WAM) to evaluate AI-driven construction scheduling platforms. The WAM was selected due to its transparency, computational simplicity, and suitability for comparative evaluation of technology platforms across multiple qualitative and quantitative criteria. Nine software, including ALICE, Trunk Tools, nPlan, Prediction 3D, BuildVision AI, Buildxact, Nodes & Links, Buildots, and Gantt AI, were selected based on market relevance. The identification of commercial AI-based scheduling software was conducted using a structured and iterative search strategy, targeted searches using multiple sources, including academic databases (e.g., Google Scholar), industry reports, software vendor websites, and professional construction technology platforms. Search keywords included combinations of terms such as "AI construction scheduling software," "generative scheduling tools," and "AI project controls platforms". The initial pool of identified tools was then screened. Tools that were purely conceptual, lacked verifiable functionality, or did not directly relate to scheduling were excluded. Twenty-six evaluation sub-criteria were developed across six main criteria: (1) Core scheduling & planning capabilities; (2) AI & generative intelligence; (3) Integration & interoperability; (4) Automation & workflow orchestration; (5) Usability, learning curve & adoption; and (6) Other criteria that includes cybersecurity, privacy & compliance and pricing model & total cost of ownership. Each sub-criterion was discretized into a four-level scale reflecting the degree of software support: not supported, low, medium, and high. To enable quantitative analysis, these qualitative assessments were mapped to a normalized discrete numerical scale of {0, 0.33, 0.67, and 1}, and the same evaluation was applied across all tools, where:

0 = Not supported,
0.33 = Very limited or indirect support,
0.67 = Partial or assisted support, and
1 = Strong and production-ready support.

All platforms were assessed consistently using this scoring framework. Sub-criterion scores were derived from an evidence-based review of official product documentation, vendor demonstrations, white papers, and peer-reviewed literature. To reflect the relative importance of the main criteria, weights were assigned to each criterion, with the sum of weights equal to one. Main criteria-level weights were also applied to account for their strategic importance in AI-driven construction scheduling. The final score for each software was calculated using the weighted average formula:

$$GroupScore_{g(s)} = \Sigma_{i \in I_g} \left(w_{g,i} x_{s,i} \right)$$
$$OverallScore(s) = \Sigma_{g=1}^{6} \left(W_g GroupScore_{g(s)} \right)$$

where, $x_{s,i}$ is the score assigned to software s for sub-criterion i using the scale {0, 0.33, 0.67, or 1}; W_g is the normalized weight of the main criterion g with $\Sigma_{g=1}^{6} W_g = 1$; $w_{g,i}$ is the normalized local weight of sub-criterion i within main criterion g with $\Sigma_{i \in I_g} w_{g,i} = 1$; and $w_{g,i} = W_g w_{g,i}$ is the resulting global weight for each sub-criteria such that $\sum_g \sum_{i \in I_g} w_{g,i} = 1$. This yields OverallScore$(s) \in [0,1]$.

This discrete structure reduces subjective judgments and avoids false precision that can arise when scoring commercial tools with uneven documentation and variable access to full functionality. Using a small set of clearly anchored categories improves consistency and transparency, making it easier to justify each rating with observable evidence (e.g., whether a feature is integrated, repeatable, configurable, and auditable in practice). The same rubric was applied across all tools to ensure comparability and reproducibility of results. Scores were treated as a normalized 0–1 index to enable weighted aggregation across criteria while preserving the underlying ordinal interpretation of capability maturity. Also to ensure this methodology mitigated potential vendor bias during the scoring process, a conservative scoring strategy was utilized, by assigning high scores only for features that acquire clear evidence of functionality across multiple sources, and evaluation criteria were focused on observable and verifiable capabilities (e.g., presence of CPM functionality, or BIM capabilities) rather than subjective performance criteria. Moreover, developed scoring rubric inherently favors end-to-end AI scheduling platforms (standalone scheduling engines) over specialized AI agents.

4 Results

The WAM multi-criteria evaluation produced a consistent weighting structure across all six main criteria and twenty-six sub-criteria.

Expert evaluation was conducted using a panel of 10 experts with a combination of academic and industry backgrounds to ensure rigor and practical relevance. The panel consisted of 3 academics specialized in construction management and AI applications, and 7 industry professionals with experience in construction scheduling. Expert inputs were collected by a structured evaluation framework where participants assessed each AI software against the main criteria and sub-criterion using standard scoring scale. Data collection was performed using a single-round survey-based approach, where each expert evaluated software based on their experience, and available documentation.

Expert judgments showed strong convergence, with only minor variation in local and global weights, indicating a stable and reliable prioritization of capabilities relevant to AI-driven construction scheduling platforms. At the main-criterion level, core scheduling & planning capabilities and AI & generative intelligence received the highest average weights (both ≈0.21), together accounting for over 40% of the total importance. This indicates that experts assign equal priority to robust traditional scheduling functionality and advanced AI-based intelligence. Integration & interoperability ranked next (≈0.18), followed by automation & workflow orchestration (≈ 0.15) and usability, learning curve & adoption (≈0.14). Other criteria, including cybersecurity, privacy & compliance and pricing, accounted for the remaining weight (≈ 0.12). Within core scheduling & planning, CPM support achieved the highest global importance, followed closely by predictive schedule forecasting and Gantt/timeline visualization. Schedule risk analysis and mitigation, while still significant, received comparatively lower weights. These results confirm that deterministic planning rigor and forecasting remain foundational requirements for scheduling platforms. In the AI & generative intelligence criteria, generative schedule and logic modeling were the most highly weighted sub-criterion. Optimization and objective handling, constraint- and resource-aware reasoning, and scenario and alternative generation followed with comparable importance. Explainability and auditability received the lowest weight within this domain but remained non-negligible, reflecting baseline expectations for transparency and governance in AI-supported decision-making. Results for Integration & Interoperability show that BIM/4D and model-based interoperability is the most influential sub-criterion, followed by compatibility with industry-standard scheduling tools such as Primavera P6 and MS Project. APIs and extensibility, document and contract data integration, and ERP/cost/procurement integration were weighted slightly lower, indicating their role as enabling capabilities rather than primary differentiators. In automation & workflow orchestration, automated schedule creation and automated progress and status updating received the highest importance. Automated QA/QC of schedules and constraint and rule enforcement were also valued, while automated document understanding was assigned the lowest weight within this group, suggesting it is currently viewed as a supplementary capability. For usability, learning curve & adoption, user interface and workflow intuitiveness were the most important sub-criterion. Required domain and technical skills, data and model preparation effort, and onboarding and training support received similar weights, while accessibility, trial availability, and deployment options were assigned lower importance. Within other criteria, cybersecurity, privacy, & compliance were weighted more heavily than pricing model and total cost of ownership, indicating that security and regulatory considerations are prioritized over cost factors in the evaluation of AI-driven scheduling platforms. The average global weight introduced in Table 1 is calculated for every sub-criterion by multiplying the average weight of sub-criterion ($w_{g,i}$) times the average weight of main criteria (W_g). Then this average global weight is multiplied by the average score assigned to software (s) for sub criterion (i) ($x_{s,i}$) for calculating the overall score for ranking all software. Noting that the average weight of sub-criterion ($w_{g,i}$), the average weight of main criteria (W_g) and average score assigned to software (s) for sub criterion (i)($x_{s,i}$) were identified based on average experts' opinions. Adding all the average global weights for all sub criterion =1, while adding all average weight of main criteria =1. A radar chart is shown in Figure 1 to rank the software based on its overall score (out of 1), where the ranking for ALICE, Nodes & Links, BuildVision AI, nPlan, Gantt AI, Prediction 3D, Buildxact, Buildots, Trunk Tools was 0.674, 0.640, 0.639, 0.564, 0.502, 0.429, 0.416, 0.415, 0.375 respectively.

Table 1. Results of comparing AI scheduling software (from software headlines 2.1:2.9 mentioned earlier)

Main Criteria	Sub- Criterion	Average global weight	x_{si}: Average score assigned to software (s) for sub criterion (i)								
			2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Core Scheduling & Planning Capabilities	Critical Path Method (CPM) support	0.059	0.67	0.11	0.56	0.56	0.78	0.67	0.89	0.33	0.56
	Gantt chart and timeline visualization	0.055	0.67	0.11	0.56	0.67	0.78	0.89	1.00	0.44	1.00
	Predictive schedule forecasting	0.052	0.78	0.22	1.00	0.56	0.67	0.11	0.89	0.56	0.56
	Schedule risk analysis & mitigation	0.041	0.67	0.22	1.00	0.44	0.56	0.00	0.89	0.45	0.44
AI & Generative Intelligence	Generative schedule & logic modeling	0.053	1.00	0.00	0.44	0.67	0.44	0.22	0.33	0.00	0.89
	Scenario and alternative generation	0.039	1.00	0.11	0.56	0.33	0.44	0.11	0.67	0.11	0.78
	Optimization & objective handling	0.042	1.00	0.00	0.33	0.56	0.22	0.00	0.67	0.00	0.22
	Constraint & resource-aware reasoning	0.046	1.00	0.11	0.33	0.33	0.78	0.33	0.67	0.11	0.44
	Explainability & auditability of AI decisions	0.032	0.67	0.56	0.78	0.44	0.67	0.33	0.67	0.56	0.56
Integration & Interoperability	Schedule file interoperability (P6, MS Project)	0.044	0.78	0.56	0.89	0.44	0.89	0.00	0.67	0.89	0.11
	BIM / 4D & model-based interoperability	0.047	0.78	0.11	0.22	1.00	0.33	0.00	0.11	0.89	0.00
	Document & contract data integration	0.029	0.33	1.00	0.56	0.22	0.67	0.67	0.22	0.11	0.11
	APIs, extensibility & AI agent embedding	0.029	0.56	0.67	0.67	0.11	0.67	0.33	0.44	0.33	0.22
	ERP/cost/procurement integration	0.027	0.33	0.33	0.33	0.33	0.56	0.56	0.00	0.11	0.00
Automation & Workflow Orchestration	Automated schedule creation	0.038	1.00	0.00	0.33	0.67	0.45	0.33	0.22	0.00	0.89
	Automated QA/QC of schedules	0.030	0.67	0.22	0.67	0.22	0.56	0.00	1.00	0.33	0.67
	Automated constraint & rules enforcement	0.030	1.00	0.11	0.33	0.22	0.56	0.22	0.78	0.11	0.33
	Automated progress & status updating	0.033	0.22	0.45	0.44	0.22	0.89	0.44	0.67	1.00	0.00
	Automated document understanding	0.020	0.11	1.00	0.56	0.11	0.55	0.33	0.00	0.22	0.00
Usability, Learning Curve & Adoption	User interface & workflow intuitiveness	0.037	0.56	0.78	0.56	0.67	0.78	0.78	1.00	0.67	0.89
	Required domain & technical skills	0.028	0.33	0.78	0.56	0.78	0.67	0.78	0.78	0.67	0.89
	Data/model preparation effort	0.028	0.33	0.78	0.56	0.78	0.78	0.78	0.67	0.56	0.78
	Onboarding, training & support ecosystem	0.028	0.56	0.78	0.78	0.44	0.67	0.78	0.67	0.67	0.44
	Accessibility, trials & deployment options	0.019	0.33	0.55	0.44	0.56	0.78	1.00	0.44	0.33	0.55
Other Criteria	Cybersecurity, privacy & compliance	0.062	0.78	0.78	0.67	0.44	0.78	0.56	0.89	0.67	0.44
	Pricing model & total cost of ownership	0.054	0.33	0.56	0.44	0.44	0.67	0.89	0.56	0.44	0.67

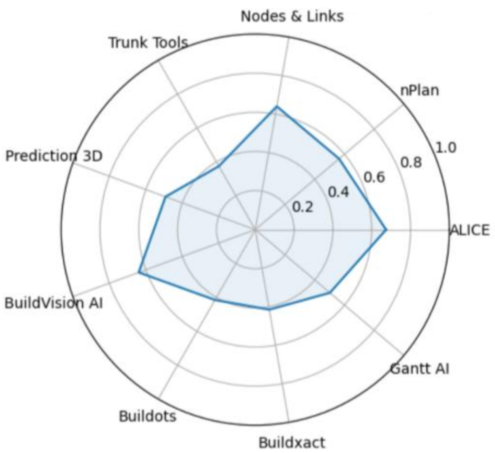

Figure 1. Radar chart for software ranking (out of 1)

5 Discussion

Based on the results mentioned earlier, ALICE, Nodes & Links, and BuildVision AI software can be considered to have higher capabilities compared to the other software based on their overall score. However, the other software might be more specialized in specific areas while having lower overall capabilities. For example, the focus of Trunk Tools is for document understanding, workflow automation, field productivity, schedule monitoring, and integrations with construction management systems, rather than being a full standalone scheduling software like P6 or MS Project. It is designed to reduce administrative overhead by getting answers from unstructured data. Prediction 3D's core strengths are related to automated schedule creation, BIM-based interoperability, visualization of Gantt charts, and AI-cost estimation, as well as turning 3D/2D models into practical schedules and take-off estimates. However, compared to full enterprise scheduling and project controls software, its risk assessment, what-if scenario investigation, CPM logic control, and integration with other software like P6/MS Project or ERP are less emphasized. Buildots is less centred on creating schedules with full logic, different scenarios for optimization, or deep resource/constraint analysis. Instead, it is focused on automated progress tracking using computer vision, predictive analytics, project visibility, and integration with schedules, rather than focusing on traditional CPM scheduling. Buildxact is considered an AI estimating, take-off, and scheduling software for residential builders via its AI-assisted estimating agent (Blu). However, it is not heavy in predictive forecasting like enterprise scheduling software. Also, it utilizes 2D plans without any 3D modelling capabilities. Also, it focuses on ease of use for smaller builders of residential projects, integration between estimates and schedules, and automation of construction workflow. Gantt AI is strong in automatic schedule generation from natural language and trained models, as well as schedule review and comparisons versus schedule baselines. However, it is less developed in areas like deep resource optimization, automation of progress tracking, BIM/4D modelling, and extensive APIs/support ecosystems. Hence, construction professionals should investigate the specialties of every AI scheduling software to make sure it satisfies their practical needs instead of focusing on getting the best AI scheduling software with more capabilities that they might not use. Another strategy for construction professionals can be to use the AI scheduling software with more capabilities and investigate how to integrate these capabilities in their companies to get the full benefit of AI generative planning and scheduling tools.

6 Conclusion

This paper set out to investigate the capabilities of commercial artificial intelligence software for construction scheduling, with specific emphasis on generative scheduling functions and the practicality of adopting these tools in industry and construction education. Using a quantitative multi-criteria decision-making framework based on the Weighted Average Method, nine platforms were evaluated across twenty-six criteria grouped into six main criteria covering scheduling fundamentals, AI and generative intelligence, interoperability, workflow automation, usability, and additional considerations such as cybersecurity and cost. The results indicate that expert weightings placed the greatest importance on Core Scheduling and Planning and AI and Generative Intelligence, jointly representing over forty percent of total importance, followed by Integration and Interoperability. At the sub-criterion level, Critical Path Method (CPM) support, predictive forecasting, and timeline visualization were prioritized within core scheduling, while generative scheduling and logic modelling received the highest emphasis within the AI domain. Overall ranking based on the normalized scoring approach showed ALICE as the highest scoring platform, followed by Nodes and Links and BuildVision AI, with nPlan and Gantt AI forming a mid-tier, and the remaining tools reflecting more specialized strengths rather than broad capability coverage. The discussion highlights that lower-ranked platforms were not necessarily weaker in their intended use cases, since several tools focus on narrower objectives such as document intelligence, reality capture progress measurement, residential estimating, and workflow simplicity, or rapid schedule generation from natural language rather than enterprise-level optimization and deep controls.

Future research should include validation through hands-on pilots using standardized project datasets and controlled case studies that measure schedule quality, forecast accuracy, decision latency, and downstream outcomes such as reduced rework or improved milestone reliability.

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