

AI level definition in project management area

Automation Level	standard	Level 0		Level1		Level2		Level3		Level4	
	feature metric	Concept	Concrete example	Concept	Concrete example	Concept	Concrete example	Concept	Concrete example	Concept	Concrete example
	Automation Level Description	A program that only processes information and does not perform any particular control	Order management system, order management system, old system for tallying data	A program that operates on a simple control algorithm	Air conditioner that adjusts temperature and humidity based on the ambient temperature and humidity and the set temperature error	A program that selects combinations of multiple control parameters set based on known logic according to the conditions of the control environment, expanding the range of possible responses.	A chess game in which the player selects the best move based on the placement of pieces and multiple moves	In addition to Level 2, a program that learns to increase the number of corresponding patterns (features are designed by humans)	Google's search engine, machine learning programs (decision tree analysis programs, etc.)	Unlike level 3, this is a program that independently verifies hypotheses from acquired data and creates more corresponding patterns through repeated learning (it can design its own features).	Go program using deep learning
Project Integration Management	"Comprehensive judgment → Evaluation criteria → Proportion of each preparation → Adding up knowledge"	Only the input and output information of integrated management is managed. The extent to which changes in each knowledge area affect the entire project is unknown.	Just manage the project charter, project management plan and project documentation	"A system is in place to collect management information for projects, and the impact on project activity performance is visualized. Based on the project management plan, it identifies knowledge areas that will be affected according to project progress and issues warnings."	- Identify the affected knowledge area according to the contents of the change request and issue an alert (e.g., when the change request includes a "process delay" flag, issue an alert asking "Has the cost increase been evaluated?") - Following the scope, schedule, and RACI chart, issue an alert to check task progress at the appropriate time and request a review"	It has a system for collecting management information in projects, and the impact on project activity performance is visualized. In projects in areas where the organization has a lot of experience, it evaluates the knowledge areas that are affected and their extent according to the project progress and changes in assumptions and constraints, automatically presents countermeasures, and provides information for deciding whether or not to move to a phase.	When a change occurs in the task process that also affects procurement requirements, propose adding procurement changes to the change request	Using accumulated project data from the organization and features set by humans, the system automatically presents solutions and provides information to determine whether or not to move to a new phase in response to changes in project progress and assumptions and constraints.	Based on the correlation (feature) between current EVM data and past EVM data, it automatically proposes the issuance of change requests.	Automatically design features based on accumulated organizational project data, create project plans that achieve project goals, and manage activity performance and changes.	Learn the correlation (feature) between the project charter and project baseline (scope, schedule, cost) of past projects, and create an initial draft of the project baseline when the project charter and prerequisites are input.
Project Scope Management	"Degree of fulfillment of requirements → Number of requirements → Number of errors in design values → Number of cases → Upstream	It only manages information about the project's scope management. Even if the scope is updated, the extent of the impact is unknown.	Past scope information (requirements collection, scope definition, WBS, scope validation) is only managed on a file-by-file basis, and scope validation and scope control are judged by people based on their experience and features.	By inputting past scope information (requirements collection, scope definition, WBS, scope validation), the system collects the scope definition and WBS of similar projects from the past and displays the information necessary for scope management (scope validation and scope control).	Based on the characteristics of past scope information (requirements collection, scope definition, WBS, scope validation), the scope definition and WBS of projects that meet a single condition are collected, and a scope definition is automatically created.	By inputting past scope information (requirements gathering, scope definition, WBS, scope validation), the system combines the scope definition and WBS of similar past projects to perform scope management (scope validation and scope control).	Based on the features of past project data (scope definition, WBS, customer satisfaction, etc.), a combination of thresholds for multiple conditions is manually set to perform scope validation and scope control.	Based on the features of past project databases (requirements, scope definition, WBS), a person can set dynamic conditions for thresholds (project success definition) to provide information that contributes to scope management.	Once a person sets parameters using past project data (scope definition, WBS, customer satisfaction, etc.) as feature values, the AI performs scope validity checks. Using the results, a person performs scope control.	AI determines the conditions, automatically checks the validity of the scope based on past project data, and automatically updates the scope definition and WBS.	Learn the correlation (feature) between the project charter and project baseline (scope, schedule, cost) of past projects, and create an initial draft of the project baseline when the project charter and prerequisites are input.
Project Schedule Management	- Number of days - Time"	It only manages the schedule information for each individual task. When you update individual schedule information, you can view the updated information, but you cannot see the extent of the impact on the entire schedule.	- Create and update work lists - Deadlines for individual tasks - When updating schedules, schedule information for affected processes must be updated manually"	When a schedule is updated, affected processes are identified and adjustments are made automatically.	- If the task load of the person in charge is exceeded, the task will be automatically extended. - If the schedule of a task is changed, the schedule candidate will be automatically selected, such as setting a possible date for the affected task within the deadline.	When a schedule threshold is exceeded, notifications are sent based on rules, and appropriate actions are automatically selected and processed.	- When the SPI exceeds the threshold, the system automatically selects and handles whether to extend the process or work overtime, taking into account the correlation between the pile-up of the person in charge and the urgency of the work.	Based on the results of learning from past schedule delays, predict the possibility of exceeding schedule thresholds, etc and determine and handle the necessary actions.	Based on the correlation between multiple parameters such as EVM after past schedule updates and the number of problems, a decision is made as to whether the best course of action this time is to extend the process or work overtime.	By providing past schedule update information as well as other project-related information, the system automatically identifies features, predicts the possibility of exceeding schedule thresholds, and determines and processes the necessary actions.	Identify the correlation between risk clearing failure information and process staff characteristics, predict schedule delays, determine whether extending the process is optimal or working overtime, consider multiple options, and propose the optimal schedule solution.
Project Cost Management	- Man-hours - Amount	It only manages information on project fund consumption and remaining project costs. Even if the cost usage increases or decreases, it is not clear what the impact is on the entire project.	When you input the parts list, the product price is calculated by referencing the unit price master.	Automatically calculate remaining costs and contingency margins based on cost baselines and send alerts	- Earned Value Management (EVM) - Compare cost estimates with past results, notify of fluctuations, and understand the causes of fluctuations"	Calculate cost fluctuations according to project progress based on the organization's past cost overrun cases and send alerts	Due to the schedule delay, we will recalculate the associated costs such as personnel expenses and equipment rental expenses, and notify you that the additional budget has exceeded the contingency funds.	By providing features based on the organization's past cost overrun cases, the system can suggest cost-optimized change plans according to project progress.	By presenting factors that affect project costs (labor costs, equipment rental costs, etc.), it will show the most cost-effective process to be crashed when a schedule delay occurs.	Given past examples of cost overruns in an organization, the AI will define features on its own and suggest cost-optimized change plans.	When schedule delays occur, factors that do not seem to affect project costs at first glance (COVID-19, legal changes, etc.) are used to indicate processes that can be crashed at low cost.
Project Quality Management	- Number of bugs - Fulfillment of requirements → Number of requirements → Specific implementation → Mostly qualitative - Downstream	Only manages information about project quality. People use the managed information to make decisions. Even if project quality information is updated, the extent of the impact is unknown.	Based on the feature quantities of past quality performance data (number of design document pages, design review time, number of errors pointed out, etc.), humans predict the number of bugs introduced and the number of remaining bugs based on their experience, and the decision on phase transition (phase transition or re-review, redesign, etc.) is made manually.	- Automatically create a quality management plan by inputting the requirements of the project management plan and scope statement. - Perform quality management using statistics from current quality performance data.	Based on the features of past quality performance data (number of design document pages, design review time, number of errors pointed out, etc.), thresholds are set for the number of bugs introduced, number of remaining bugs, etc., and a phase transition decision is made (phase transition or re-review, redesign, etc.)	By inputting the requirements of the project management plan and scope statement, a quality management plan is automatically created and quality management is performed by combining multiple quality performance data.	Based on the feature quantities of past quality performance data (number of design document pages, design review time, number of errors pointed out, etc.), a combination of thresholds for the number of bugs introduced, the number of remaining bugs, etc. is set, and a phase transition decision (phase transition or re-review, redesign, etc.) is made.	By inputting the requirements of the project management plan and scope statement, a quality management plan is automatically created, and when the features are manually set, the AI automatically provides information useful for quality management from past project data.	Once a person sets parameters using past quality performance data (number of design document pages, design review time, number of errors pointed out, etc.) as feature values, the AI predicts the number of bugs introduced and the number of remaining bugs, etc., and the decision on phase transition (phase transition or re-review, redesign, etc.) is made by a person.	AI determines conditions and automatically performs quality management (appropriate corrective actions, preventive actions, and change requests) based on past project data	The AI automatically sets parameters from features based on past quality performance data (number of pages in design documents, design review time, number of errors pointed out, etc.), predicts the number of bugs introduced and the number of remaining bugs, and automatically determines whether to transition to a different phase (phase transition or re-review, redesign, etc.).
Project Resource Management	- Number of people - Skills of people - Experience of people → Small, medium, large - Test devices - Resource conditions - Human and non-human resources - Company resources - Resources on hand	It only manages information about resource acquisition, team development, and performance work. If resources become unavailable, the extent of the impact is unknown.	- Create a staffing plan - Individual tasks and required skills - Even if you update staffing plan information or schedules, it's hard to know the extent of the impact	When resource usage is updated, a resource that meets the conditions is selected from a predefined resource list.	- If a member with skill A is on vacation, automatically select a replacement member who has skill A.	When resource usage is updated, the allocation of replaceable resources is automatically performed according to organizational rules.	- When the schedule is updated, the system automatically selects resources based on the skills and personnel required for each process. - Extending processes or rearranging the order. - Getting help from others or outsourcing.	Using past resource performance information as feature quantities, determine and process optimal resource allocation.	- Based on the work efficiency after past personnel plan changes, we derive optimal personnel plans such as process extensions and overtime support. - Dispatch and outsourcing to external companies - Educational programs for our own members, etc.	By providing past resource performance information, schedule update information, and other project-related information (area, budget, tasks, etc.), the system automatically identifies features and automatically allocates resources according to project progress.	Select the optimal solution when changing manpower plans based on the work efficiency after past manpower plan changes (transfers, outsourcing, training programs, etc.)
Project Communication Management	Interpersonal relationships → Difficulty Physics, logic Language barriers Offshore Culture, religion - Minutes - Communication Requirements analysis value New types of risks	For specific communication information, information is only managed using predefined keywords. Even if the communication results change, the extent of the impact is unknown.	- Distribute minutes to selected members based on keywords - Classify and manage information on interactions between members in a database based on keywords"	Automatically identify and manage any communication information based on communication attributes	- AI is extracted from the predefined AI column of the created minutes and distributed to the relevant members. - For each piece of exchange information, the information classification is automatically identified and organized based on sender, recipient, content (keywords), medium (minutes, email), etc.	For any communication information, automatically analyze and manage the information based on the type and frequency of keywords in the communication content.	- Analyze the contents of the minutes that have been created and determine whether there are any issues with milestones or schedules. - Extract AI from the information organized at level 1, automatically assign urgency and importance, and prompt the person in charge to take action.	We propose optimizing communication management by using specific information from past projects and communication management information as features and providing information about the current project.	- By using specific information from past meeting minutes, milestones, and work progress reports as features and providing the corresponding information from the current project, we propose optimization of communication paths and rules.	Based on past communication information and subsequent project occurrences, when project-related information and new communication information are given, the system automatically identifies features and suggests optimization of communication management.	Based on past communication information and subsequent project occurrences, when project-related information and new communication information are given, the system automatically identifies features and suggests optimization of communication paths and rules.
Project Risk Management	Risk type RBS → Impact → Amount/relationship → Damage New/known troubles	Only manages information about identified risks, their impact, probability of occurrence, and countermeasures. Even if a identified risk is changed, the extent of the impact is unknown.	- Create a risk register - Track, monitor, and identify new risks and update the risk register"	When you input a project plan, risk information that matches the conditions is selected from a pre-registered risk database.	- When you specify basic project information, you can refer to registered risk standards and create a risk register based on them. - When you enter risk events as numbers, the risk weighting is calculated and the risks that require attention are visualized.	When you input the project plan, change requests, and project progress, and update the information and resource usage, the system automatically identifies risks that may arise from the changes based on a pre-registered risk database.	- Identify possible risks based on multiple conditions such as project changes and project progress. Example: Refer to the risk list held by each company based on multiple conditions.	Using risk occurrence information associated with schedule delays as feature values, automatically identify risks that may occur according to progress	- Risks are automatically identified when project progress is entered	By inputting project-related information such as past progress, risk occurrence, risks, countermeasures and effects, the system automatically identifies features and identifies, analyzes and presents countermeasures for risks according to project progress.	Automatically create risk response plans based on past risk occurrence information in response to changes in project status
Project Procurement Management	- Number of people - Skills of people - Experience of people - Test devices → Resource conditions - Human and non-human - External resources - Not at hand"	We only manage information about project procurement management. Even if the procurement situation changes, we don't know the extent of the impact.	- Order management system - Vendor management list (contracted work details, credit information, etc.)	Enter simple project criteria to search for procurement-related documents from similar past projects	Enter the business classification to search for contract documents (general specifications) and order candidate lists from a database of past projects.	Search for procurement-related documents from similar past projects based on a combination of multiple project conditions	Search for recommended vendors from similar past projects based on business classification and project baseline (schedule, cost)	The system learns from past procurement management plans and work performance information using features set by the user, and creates procurement-related documents appropriate for the input project conditions.	- Learn past work performance information as features and propose recommended vendors that are optimal for project conditions - Estimate expected contract amounts based on correlations (features) between past contract information and the current project - Automatically create special specifications based on correlations (features) between past contract information and the current project"	The AI learns from past procurement management plans and work performance information, and creates procurement-related documents appropriate to the input project conditions.	- Creates appropriate procurement management plans even when project conditions that the organization has no experience with are entered. - Learns correlations (feature values) between past contract information and current projects, and automatically creates bidding documents."
Project Stakeholder Management	Interpersonal relationships → Difficulty → Importance → Number, relationships"	Only various information about stakeholders is managed. There is a list of stakeholders. Even if the situation of a stakeholder changes, the extent of the impact is unknown.	Manage information such as stakeholder job titles, duties, and roles	Automatically determine changes in stakeholder identification information and automatically set and update evaluation information in the stakeholder register	Automatically determine changes such as organizational changes and personnel transfers, and automatically set and update evaluation information in the stakeholder register	Automatically set and update stakeholder classification information in the stakeholder register based on various stakeholder information	- By collecting stakeholder evaluation information and answering surveys of stakeholders, the degree of involvement is quantified, and stakeholder classification information is automatically set and updated.	By inputting stakeholder information, success/failure information, and specific information/status of the current project from past projects, the system determines the optimal stakeholder involvement level as a feature, compares it with the current stakeholder involvement level, and automatically presents a response policy.	The system determines the optimal stakeholder involvement level as a feature value based on the identification information and evaluation information of project stakeholders as well as event information/contents such as comments, transmitted information, and changes/decisions to project specifications, compares this with the current stakeholder involvement level, and automatically presents a response policy.	When various past and present project information is entered, stakeholder analysis information is automatically extracted as features and countermeasures are proposed.	By inputting various information related to the project, such as past and current project charter information, comments from project stakeholders, information sent out, and project status information, the system automatically extracts stakeholder analysis information as features and presents countermeasure proposals.