ANL Assessment and evidences of China Mobile Fujian on GB1059K_Individual Service Assurance

No'vember 2025

Individual Service Assurance Questionnaire

Process	Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
Service assurance	Intent	Intent Translation & Fulfilment	10%	How does the System translate mobile Service intents (e.g., throughput, latency, availability) into network actions and evaluate their fulfillment?	The System automatically generates Service Assurance objectives (e.g., throughput targets, latency bounds) and policy actions based on mobile Service intents. The System evaluates intent fulfillment based on implementation effect.	The System processes Intent using predefined rules and policies. Intent fulfillment evaluation is manually validated.	Intent configuration and evaluation are entirely manual and rely on static KPIs and human expertise.	
	Awareness	Service Performance Monitoring & degradation Detection	10%	How does the System monitor mobile Service KPIs (e.g.: throughput, latency…) and detect performance degradation or anomalies?	The System continuously monitors mobile Service KPIs and detects anomalies or performance degradation, without human intervention.	The System monitors Service KPIs and detects anomalies or performance degradation based on predefined rules	Performance monitoring, Service degradation and anomaly detection are determined based on human expertise	
		Service Performance degradation Prediction	15%	How does the System predict Service performance degradation (e.g. Throughput, latency …) and SLA violation before they affect Service performance?	The System uses AI Models to analyze mobile Service performance and predicts SLA violations before they impact the user.	The System uses dynamically programable policies to analyze performance patterns and predicts potential SLA violations	The System predicts SLA violations based on pre-defined rules.	SLA violation is manually detected and addressed based on performance reports.
	Analysis	Service Performance degradation Impact Analysis	10%	How does the System identify and analyze the impact of performance degradation (e.g., throughput, latency …) on user experience or SLA compliance in the mobile network?	The System identifies and analyzes the impact of performance degradation, using AI models without human intervention.	The System identifies and analyzes the impact of mobile Service degradation using dynamically programable policies, but requires human confirmation to proceed.	The System identifies & analyzes impact of performance degradation, based on predefined rules	Impact of degradation is determined based on human expertise.
		Service Performance degradation Demarcation & Root Cause Analysis	10%	How does the System isolate the root cause of Service degradation across the network domains (i.e.: RAN, transport, and core)?	The System isolates and analyzes the root cause of mobile Service degradation across network domains using AI models, without human intervention.	The System isolates and analyzes the root cause of mobile Service degradation using dynamically programable policies, but requires human confirmation.	The System isolates & analyzes performance degradation Root Cause, based on predefined rules	Performance data and alarms are manually analyzed to determine the root cause.
		Solution Generation	15%	How does the System generate solutions to address Service degradation in mobile Services based on root cause analysis	The System generates corrective actions to address mobile Service degradation and continuously learns from past resolutions using AI models, without human intervention.	The System generates corrective actions using dynamically programable policies based on prior resolutions but requires human confirmation before execution.	The System suggests corrective actions based on predefined rules.	Solutions are manually created based on human expertise
	Decision	Solution Evaluation & Decision making	20%	How does the System evaluate solution and decide on the best solution to implement ?	The System evaluates multiple remediation options, analyzes risk and trade-offs, and selects the best solution using AI models, without requiring human decision-making.	The System assesses remediation options using dynamically programable policies and recommends the optimal choice, but requires human approval.	Remediation options, risk assessment and selection of appropriate solutions are manually done	
	Execution	Solution Implementation	10%	How does the System implement solution and apply fallback mechanisms in case of solution failure?	The System implements the selected corrective action and triggers fallback mechanisms in case of failure, without human intervention	The System applies corrective action and fallback mechanisms using pre-defined rules, based on human approval.	Implementation and fallback handling are manually executed	

China Mobile Self-Assessment 8A

Service Capability	Weight	Answer	Score
Intent Translation & Fulfilment	10%	A	4
Service Performance Monitoring & degradation Detection	10%	A	4
Service Performance degradation Prediction	15%	A	4
Service Performance degradation Impact Analysis	10%	A	4
Service Performance degradation Demarcation & Root Cause Analysis	10%	A	4
Solution Generation	15%	A	4
Solution Evaluation & Decision making	20%	A	4
Solution Implementation	10%	A	4
			4

Intent Translation & Fulfilment(Question 1 A)

Question

How does the System translate mobile Service intents (e.g., throughput, latency, availability) into network actions and evaluate their fulfillment?

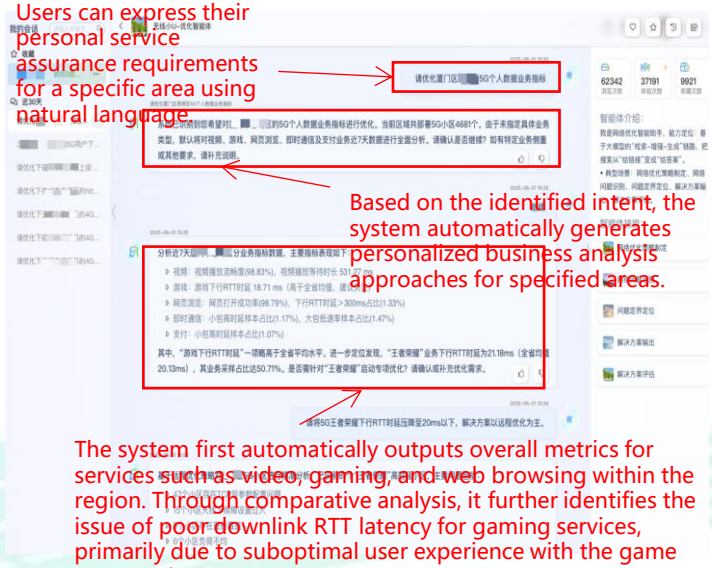
Options

✓ Option A	Option B	Option C	Option D
The System automatically generates Service Assurance objectives (e.g., throughput targets, latency bounds) and policy actions based on mobile Service intents. The System evaluates intent fulfillment based on implementation effect.	The System processes Intent using predefined rules and policies. Intent fulfillment evaluation is manually validated.	Intent configuration and evaluation are entirely manual and rely on static KPIs and human expertise.	

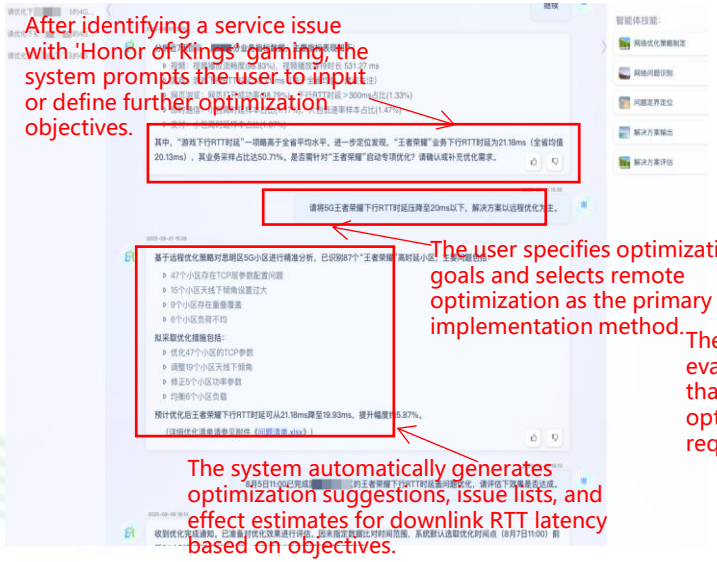
Example evidence for option A:

Optimization agent supports intent translation and execution: Taking the Individual data service optimization in a specified area as an example, based on the intent recognition function of the wireless small u-optimization agent, first determine the current perception indicators of key services such as video, gaming, web browsing, and instant messaging in the area, then the system analyzes specific performance shortcomings. Subsequently, generate an issue list based on preset optimization goals and implement corresponding optimization measures. After completion, the system automatically outputs an optimization evaluation report to verify whether the service perception meets the initial intent requirements.

Agent achieves intent understanding



Agent outputs operation policies



Intelligent optimization effect evaluation

Intent Translation & Fulfilment(Question 1 A)

The full online network optimization workbench supports intent translation and execution: Achieves automated collection of alarm, performance, and perception data through the workbench, deploys intelligent rules, focuses on monitoring indicators such as rate and latency, dynamically detects various abnormal patterns (e.g., spikes/sudden changes) using machine learning algorithms like the K-sigma statistical model, automatically generates a list of problematic cells, identifies specific causes, automatically generates and executes solutions, and forms an automatic evaluation closed-loop for the execution results, achieving 100% full automation from problem discovery to evaluation and resolution.

Service performance monitoring and deterioration detection(Question 2-1 A)

Question

How does the system monitor key performance indicators (KPIs) of mobile services (e.g., throughput, latency...) and detect performance degradation or anomalies?

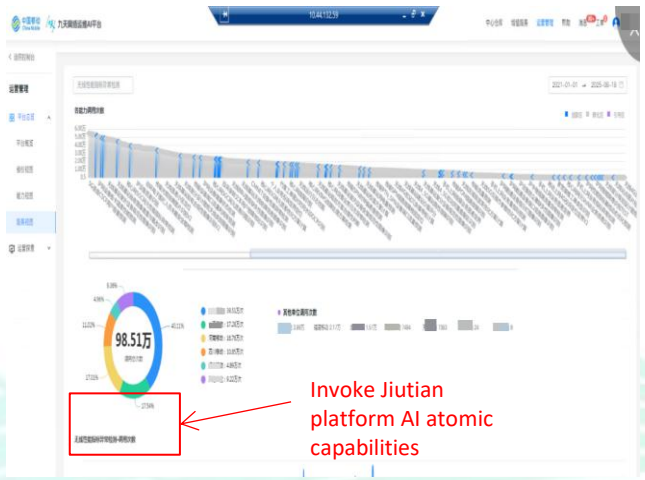
Options

✓ Option A	Option B	Option C	Option D
The System continuously monitors mobile Service KPIs and detects anomalies or performance degradation, without human intervention.	The System monitors Service KPIs and detects anomalies or performance degradation based on predefined rules	Performance monitoring, Service degradation and anomaly detection are determined based on human expertise	

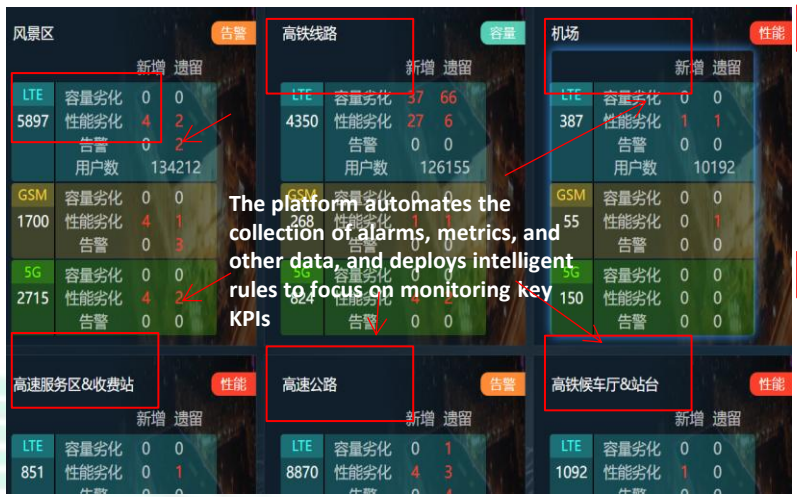
Example evidence for option A:

KPI monitoring: based on the fully online network optimization workstation, automatically collecting alarm, configuration, performance, and big data perception data, and focusing on monitoring KPIs such as throughput and latency by deploying intelligent rules, enabling continuous tracking of key indicators in critical areas.
Performance degradation detection: Based on monitored cell throughput/latency data, machine learning algorithms such as K-sigma and iForest are used to dynamically detect various anomaly patterns like spikes, sharp changes, gradual changes, and step jumps, outputting a detailed list of problematic cells (including metrics, timestamps, etc.).

Invoke atomic capability: Wireless performance metric anomaly detection



Embedded in the workstation, continuously monitors and automatically outputs a list of degraded cells.



Service performance degradation prediction(Question 2-2 A)

Question

How does the System predict Service performance degradation (e.g. Throughput, latency ...) and SLA violation before they affect Service performance?

Options

✓ Option A	Option B	Option C	Option D
The System uses AI Models to analyze mobile Service performance and predicts SLA violations before they impact the user.	The System uses dynamically programable policies to analyze performance patterns and predicts potential SLA violations	The System predicts SLA violations based on pre-defined rules.	SLA violation is manually detected and addressed based on performance reports.

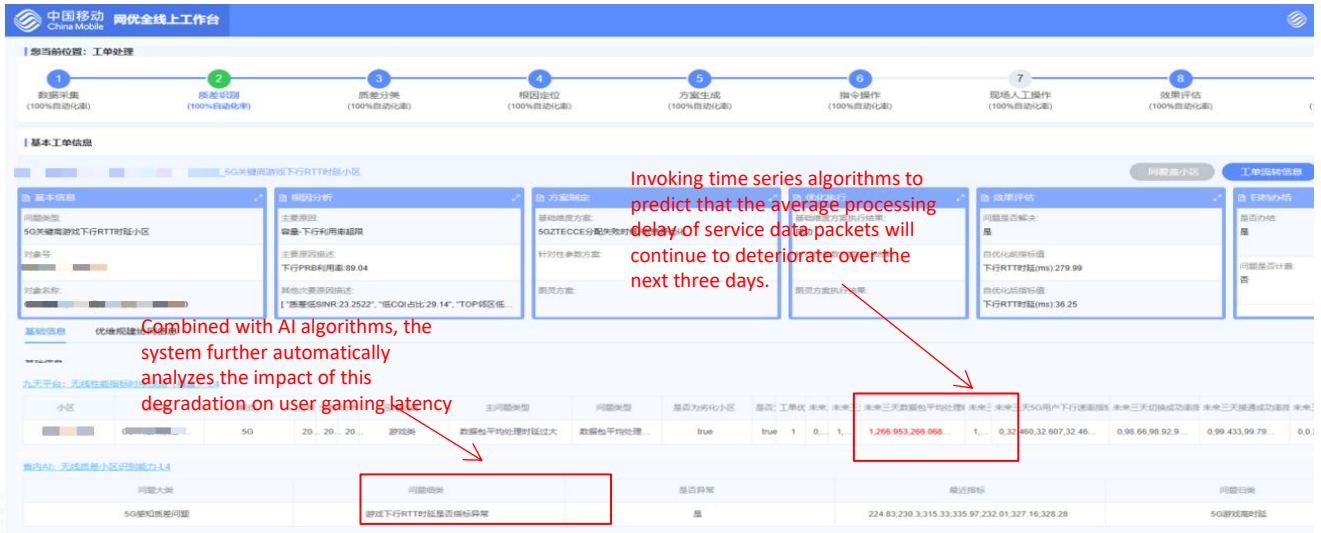
Example evidence for option A:

Predicting cell service performance degradation using algorithm capabilities of the Jiutian platform: invoking the platform's atomic capability for wireless metric prediction, building a predictive model based on time series algorithms for input cell metrics (such as PRB utilization, proportion of low CQI), to assess the trend of cell metrics in future periods. Furthermore, combining AI capabilities to intelligently analyze the prediction results, automatically identifying performance degradation and its potential impact on user experience.

Invoking atomic capability (prediction): Time-series prediction of wireless performance metrics

Invoking atomic capability (anomaly detection): Poor-quality wireless cell identification capability.

Embedded in the workbench, it automatically outputs the future rate and latency metrics of cells over a certain period.



Service performance degradation impact analysis(Question 3-1 A)

Question

How does the System identify and analyze the impact of performance degradation (e.g., throughput, latency ...) on user experience or SLA compliance in the mobile network?

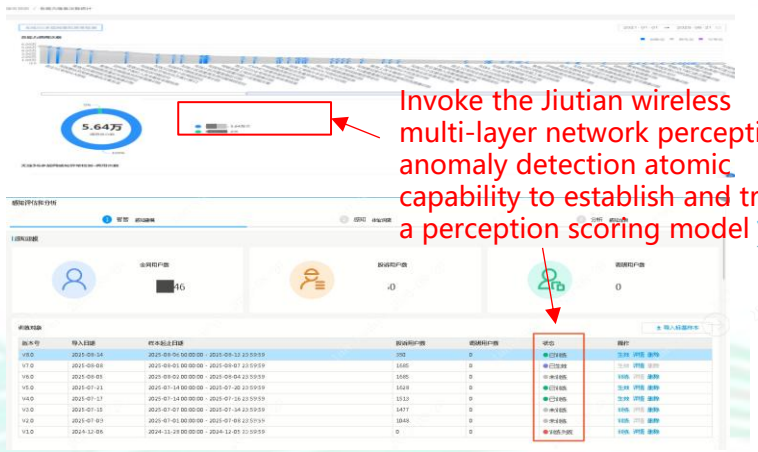
Options

✓ Option A	Option B	Option C	Option D
The System identifies and analyzes the impact of performance degradation, using AI models without human intervention.	The System identifies and analyzes the impact of mobile Service degradation using dynamically programable policies, but requires human confirmation to proceed.	The System identifies & analyzes impact of performance degradation, based on predefined rules	Impact of degradation is determined based on human expertise.

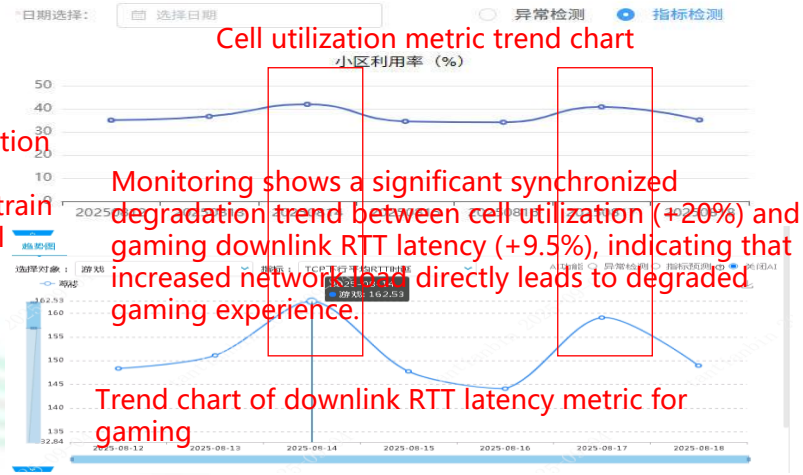
Example evidence for option A:

Service performance degradation impact analysis: invoking Jiutian's atomic capability for multi-layer wireless network perception anomaly detection, using AI algorithms (ResNet model) to learn the correlation patterns between performance metrics (e.g., utilization, proportion of low CQI) and perception metrics (e.g., RTT latency). Training a perception scoring model based on historical and sample data, thereby achieving quantitative modeling of user perception. Finally, the system automatically identifies and analyzes the impact of performance metric degradation on user experience by monitoring the decline in perception scores and the increase in the proportion of poor-quality users.

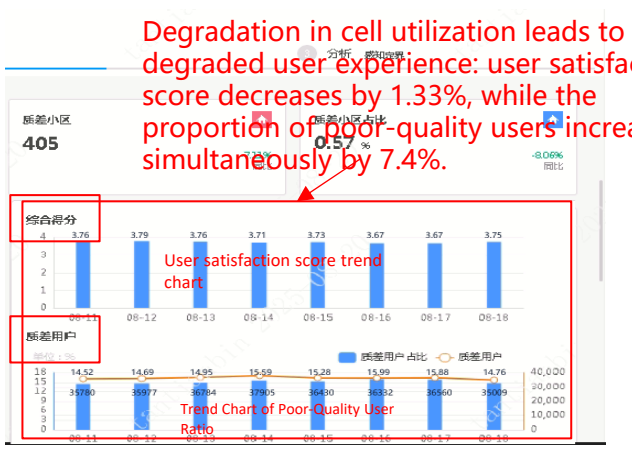
Invoking atomic capability: Multi-layer wireless network anomaly detection.



Embedded in the workstation, performing correlation analysis between performance and perception metrics



Performance metric degradation accompanied by impact on user experience



Service performance degradation problem demarcation and root cause analysis(Question 3-2 A)

Question

How does the System isolate the root cause of Service degradation across the network domains (i.e.: RAN, transport, and core)?

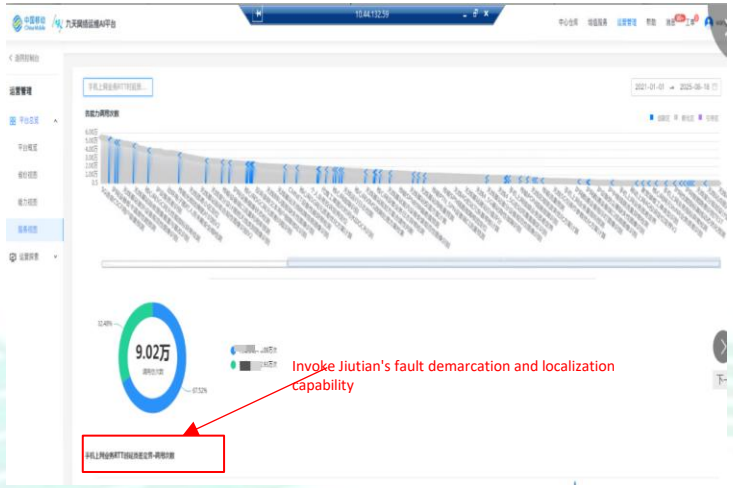
Options

✓ Option A	Option B	Option C	Option D
The System isolates and analyzes the root cause of mobile Service degradation across network domains using AI models, without human intervention.	The System isolates and analyzes the root cause of mobile Service degradation using dynamically programable policies, but requires human confirmation.	The System isolates & analyzes performance degradation Root Cause, based on predefined rules	Performance data and alarms are manually analyzed to determine the root cause.

Example evidence for option A:

Cross-domain fault demarcation and localization based on the Jiutian platform: first, performing Pearson correlation analysis between service perception metrics (e.g., RTT latency) and pipeline-type metrics (e.g., TCP downlink latency) using multi-dimensional data at hourly granularity, such as wireless cells and core network elements. Then, dynamically calculating the deviation and negative impact degree of poor perception metrics using Gaussian Bayesian algorithms. Finally, constructing a fault demarcation decision tree model based on the above analysis to output specific demarcation and localization results for poor-performing **cells.**

Invoke atomic capability: Mobile internet service RTT latency poor-quality demarcation



Embedded in the workstation, automatically performs cross-network domain fault demarcation and location for cells

Service performance degradation problem demarcation and root cause analysis(Question 3-2 A)

Cross-domain demarcation and location based on the Jiutian platform: Analyzes the correlation between service perception metrics (e.g., TCP downlink latency) and pipeline indicators across dimensions like wireless cells and core network elements at an hourly granularity using the Pearson algorithm. The Gaussian Bayesian algorithm dynamically calculates the deviation and negative impact of perception Indicator degradation, constructing a demarcation decision tree model to output specific results (**distinguishing wireless side, core network elements, transmission side, etc.**).

Embedded in the workbench, automatically performs cross-network domain demarcation and positioning for cells.

Solution generation(Question 3-3 A)

Question

How does the System generate solutions to address Service degradation in mobile Services based on root cause analysis?

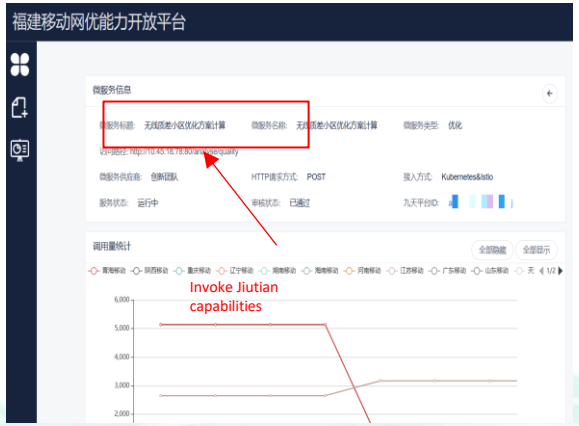
Options

✓ Option A	Option B	Option C	Option D
The System generates corrective actions to address mobile Service degradation and continuously learns from past resolutions using AI models, without human intervention.	The System generates corrective actions using dynamically programable policies based on prior resolutions but requires human confirmation before execution.	The System suggests corrective actions based on predefined rules.	Solutions are manually created based on human expertise

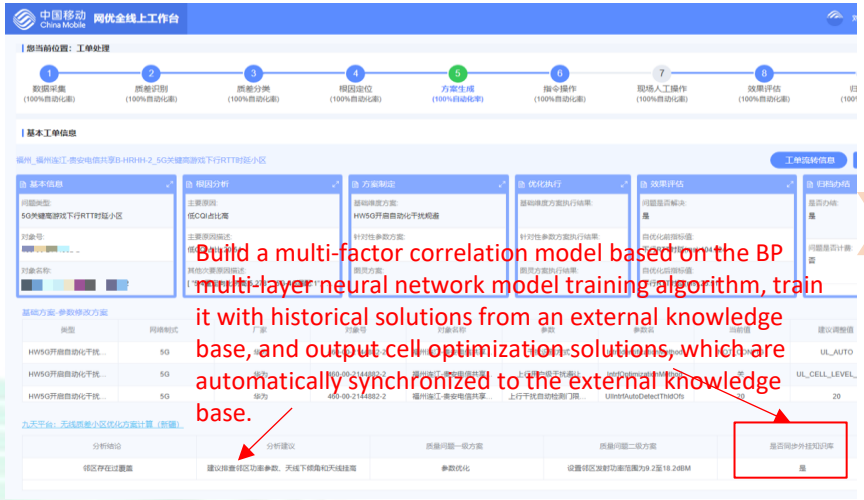
Example evidence for option A:

Generating optimization plans based on the Jiutian platform: the system has built a three-layer AI correlation model of 'performance degradation → analysis and localization → optimal solution selection'. After training with historical solutions from an external knowledge base, it can generate optimal measures for cells, including parameter adjustment, transmission troubleshooting, interference detection, and antenna feeder adjustment. The new solutions are automatically fed back into the knowledge base, forming a closed-loop optimization.

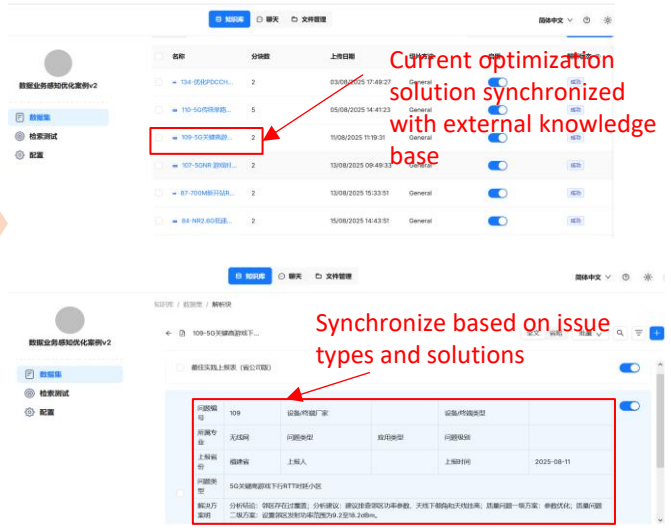
Invoke atomic capability: Calculation of Optimization Solutions for Wireless Poor-Quality Cells



Embedded in the workbench, it references historical solutions to output current optimization recommendations.



Current optimization Solution synchronized with external knowledge base



Solution evaluation and decision-making(Question 4 A)

Question

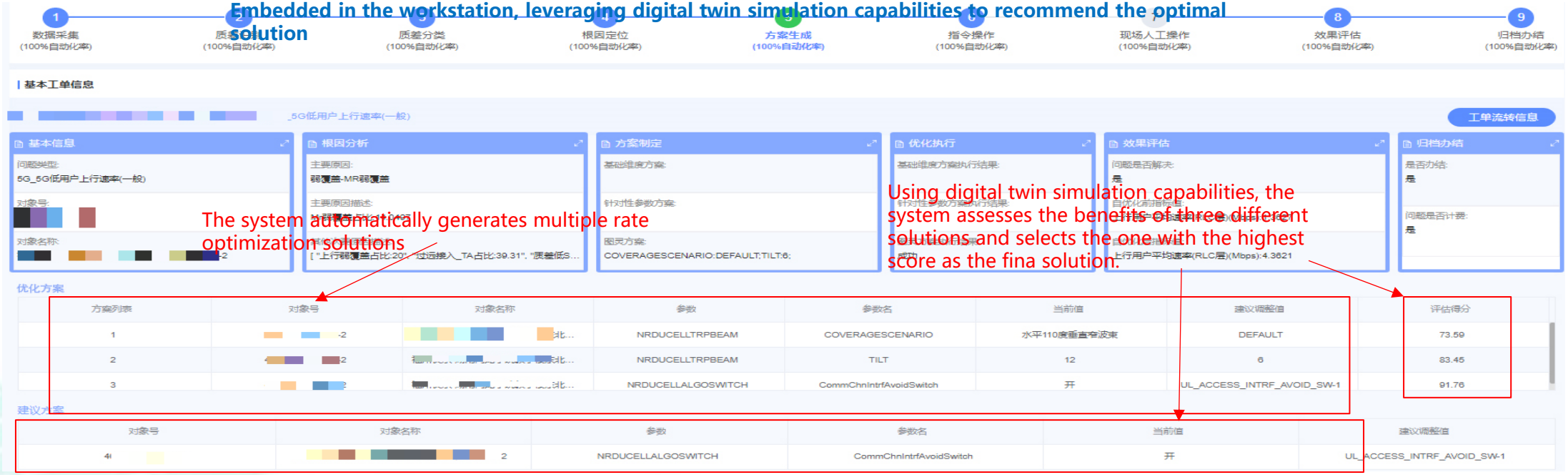
How does the System evaluate solution and decide on the best solution to implement?

Options

✓ Option A	Option B	Option C	Option D
The System evaluates multiple remediation options, analyzes risk and trade-offs, and selects the best solution using AI models, without requiring human decision-making.	The System assesses remediation options using dynamically programable policies and recommends the optimal choice, but requires human approval.	Remediation options, risk assessment and selection of appropriate solutions are manually done	

Example evidence for option A:

Leveraging digital twin capabilities to screen optimal solutions: The network optimization workstation automatically generates multiple optimization solutions, and uses digital twin technology to simulate and evaluate their effectiveness and associated impacts, thereby selecting the best one for implementation. This achieves automatic generation and deduction of solutions, effectively ensuring optimization results and reducing operational risks.



Solution implementation(Question 5 A)

Question

How does the System implement solution and apply fallback mechanisms in case of solution failure?

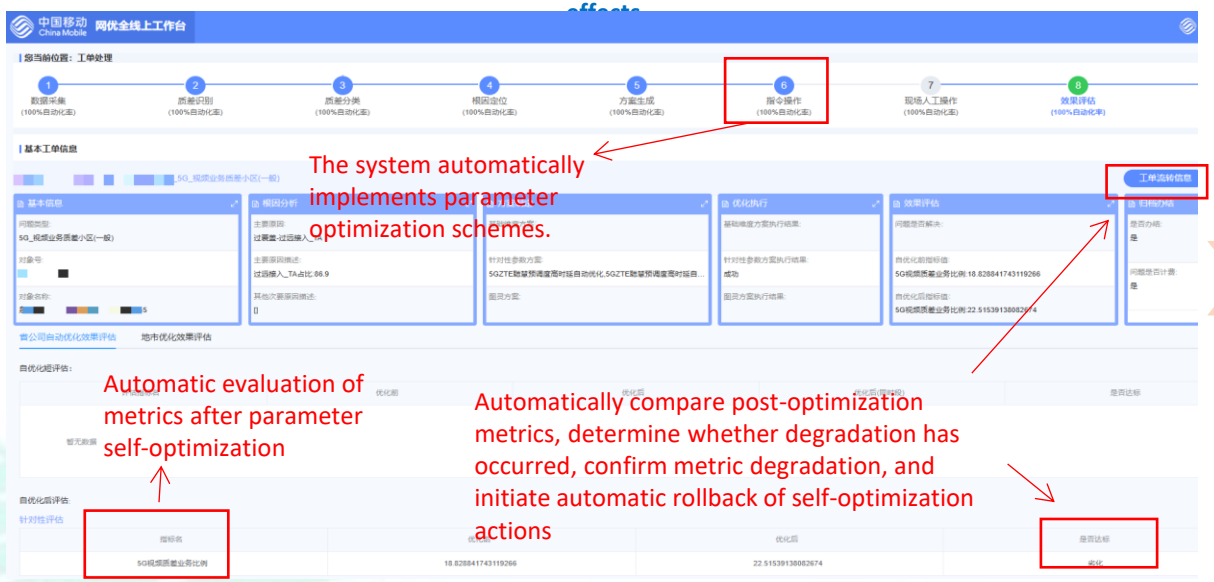
Options

✓ Option A	Option B	Option C	Option D
The System implements the selected corrective action and triggers fallback mechanisms in case of failure, without human intervention	The System applies corrective action and fallback mechanisms using pre-defined rules, based on human approval.	Implementation and fallback handling are manually executed	

Example evidence for option A:

Solution implementation: The full-online workstation integrates OMC parameters from multiple vendors and electrical tilt antenna data, enabling automated batch processing of data—including automatic verification, configuration, modification, and rollback. Additionally, the platform incorporates self-optimization effect evaluation capabilities; when a solution failure is detected, it automatically rolls back parameters or antenna weights to ensure no degradation in user perception.

The system automatically executes solutions and evaluates optimization effects



After self-optimization leads to indicator degradation, the self-optimization actions are automatically rolled back.

Thank you!