



2026 Belt and Road and BRICS Competition of Skills Development and Technological Innovation

Innovative Methods Application Competition

Technical Guidelines

BRICS Business Council Chinese Working Group on Skills Development, Applied
Technology and Innovation
Organizing Committee of the Belt and Road and BRICS Competition of Skills Development
and Technological Innovation
Expert Panel of the Technical Committee of the competition

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1. Competition Name

Competition Name: Innovative Methods Application

Competition Level: International Competition

Competition group: student group (for higher education institutions)

2. Objectives of the Competition

To implement the relevant principles on skills development outlined in the BRICS Xiamen Declaration, Johannesburg Declaration, Brasilia Declaration, Moscow Declaration, New Delhi Declaration and Beijing Declaration, and to carry forward the important instructions and directives of President Xi Jinping on the development of skilled professionals, the BRICS Skills Development and Technological Innovation Competition is hereby organized, featuring the competition track on Application of Innovative methods.

Through the organization of this competition, wisdom and resources from all stakeholders will be brought together to strengthen the cultivation of innovative talent, promote technological innovation, advance industrial upgrading, accelerate the incubation and application of innovative achievements, and enhance national competitiveness.

By building a high-level platform for competition and exchange in innovation methodologies, the initiative aims to further identify and nurture innovative professionals, encourage teachers to engage more deeply with industry, innovate teaching models, and promote the extensive application and continuous optimization of innovation methods within the integrated development of industry and education, as well as the convergence of science, education, and industry.

3. Competition Content

This competition mainly assesses the contestants' ability to apply innovative methods. This includes the practical application of innovative techniques (TRIZ) and other innovative approaches in research and development, production, learning, and daily life. (The key points of the assessment are detailed in Attachment 1.)

Contestants can submit their entries in the form of invention and creation, process improvement, innovative design, or life creativity. The technical solutions of the entries

should demonstrate strong innovation, novelty, and originality. They should make meaningful contributions to the technological progress in their respective fields and have significant academic value. ([Template for Contest Entries.ppt](#))

This competition is divided into two stages: the Preliminary Competition and the Final Competition.

3.1 Preliminary Competition

In the preliminary stage, a group of professional reviewers will conduct online evaluations of all the entries submitted by the participating teams. Based on the comprehensive assessment results, the list of projects advancing to the final round will be determined and announced by the end of July.

3.2 Final Competition.

Final Round consists of two substages: Software Challenge and Project Defense.

3.2.1 Final Substage 1 — Software Challenge (Pro/Innovator 10.0)

This stage is in the form of a computer test. Contestants are required to solve the given problems through the innovative software platform on the computer within 120 minutes. The problems will be announced at the start of the competition. Contestants must log in to the software platform and complete the specified solutions within the given time according to the specific requirements of the problems. Completing the solution and submitting it is considered as completing this stage. Contestants can submit their solutions in advance after completing the task, but they are not allowed to leave the examination room. If a contestant fails to submit within the specified time, the system will automatically submit the solution.

3.2.2 Final Substage 2 — Project Defense

This stage will be conducted in the form of a roadshow (8 minutes per team) and defense (4 minutes per team). Each participating team must designate one project member with strong presentation skills as the main presenter. The roadshow will focus on the self-developed project submitted in the Preliminary Round. During the defense session, the team will provide on-site responses and explanations to questions raised by the judging panel.

4. Competition Procedure

4.1 Team Participation Requirements

- This competition is a team-based event, and each participating team must consist of members from the same independent higher education institution.
- Each higher education institution may register a maximum of ten teams.
- Each team must be composed of three eligible contestants and may be accompanied by no more than two advisors.
- All contestants and advisors must complete the registration process and pass eligibility review before they are permitted to participate.

4.2 Registration

The participating teams must fill in the registration form and submit both the form and the participating works as a whole to the designated electronic email of the competition: BRIMC@aliyun.com. ([Registration Form Template.pdf](#))

The deadline for registration and project submission is **May 31, 2026**.

The participants must ensure that the patent ownership of the project and other related technologies are free from disputes, and be responsible for the accuracy and authenticity of the provided information.

4.3 Preliminary Competition

From June to July, the Organizing Committee will organize a panel of expert judges to conduct an online review of all entries. During this period, contestants do not need to take any additional actions—they simply need to wait for the preliminary round results to be announced in July and check whether they have advanced to the Finals.

4.4 Final Competition

The Finals will be held as an on-site (offline) competition in Jinzhou City, Liaoning Province, China.

Final Round will be held in Mid-October 2026 (specific time to be announced)

If you are unable to travel to China for the competition, we will provide an online participation channel (provided that VOOV meeting is available in your country).

5. Specific Requirements for Submitted Projects

5.1 Preliminary Competition Entries

Entries must be the original work of the participating team. Teams should submit their project works along with supporting materials as attachments, which may include, but are not limited to: project/product description, principles and processes, structure, design innovations, proof of intellectual property rights (e.g., patent certificates or acceptance notices), novelty search reports, other awards or honors, business license, organization code certificate, sales contracts, technical service contracts, development contracts, and user reports.

5.1.1 Requirements for Submission Format

- I. The submission language must be English.
- II. Both PowerPoint and PDF versions should be submitted. The PowerPoint must be created in an Office-compatible format, with a slide ratio set to 16:9.
- III. The name of PowerPoint file should be: Country + Institution Name + Project Name (For example: Malaysia + University of Kuching + TRIZ-Based application in XXX)

5.2 Final round project presentation requirements

- I. The language of the defense shall be English.
- II. Each student team will have 8 minutes for the project presentation (roadshow) and 4 minutes to answer questions from the expert panel.
- III. Teams participating via the online channel must conduct platform and network tests in advance and join the online meeting room before the competition starts.
- IV. After the defense, teams should remain online and reachable for at least 30 minutes to address any follow-up inquiries or unexpected situations.

6. Awards

- I. Based on the final scores of the participating teams, the awards are set as following.
 - ✓ First Prize: top 10% of all participating teams will be awarded a gold medal and a certificate.
 - ✓ Second Prize: next 20% of all participating teams will be awarded a silver medal and a certificate.
 - ✓ Third Prize: next 30% of all participating teams will be awarded a bronze medal and a certificate.

II. advisors of teams winning the first and second prizes will be awarded certificates as Excellent advisors.

Additional awards including Best Organization Award and Excellent Organization Award will be presented to the institutions that demonstrate outstanding organization and performance.

※The specific knowledge points and evaluation rules can be found in the attachment.

Attachment

1. Knowledge and Skill Requirements for Contestants

The competition assesses contestants' knowledge and capabilities in innovation, with a primary focus on their abilities in innovative thinking, problem solving and technology application. This competition places particular emphasis on the following key competencies.

I. Capability of Innovative Thinking

- ✓ Creativity: the ability to propose novel and original ideas or solutions.
- ✓ Critical Thinking: the ability to analyze problems and identify the limitations of existing solutions.
- ✓ Systems Thinking: the ability to understand how complex systems operate and how innovation can be implemented within such systems.

II. Capability of Problem Solving

- ✓ Application of innovation methods: Using methodologies such as TRIZ (Theory of Inventive Problem Solving), Design Thinking, Six Thinking Hats to analyze and solve practical problems.
- ✓ Feasibility and effectiveness of solutions: Ensure that proposed solutions are practical and capable of effectively addressing the problem.

III. Capability of Technical Application and Implementation

Technical Understanding and Integration: Master and apply relevant technical knowledge and solve problems by integrating knowledge from different disciplines.

Contestants are required to master the following basic knowledge and skills as detailed in Table 1.

Table 1: Fundamental tools and knowledge that contestants are required to have		
Specific Tools and Requirements		Weight %
1	Function Analysis	15%

Basic Knowledge	<ul style="list-style-type: none"> -Concept of system and its hierarchy -Concept and definition of function -Steps of Function Analysis: component analysis, interaction analysis and function model -Principles and details of function analysis -Value of function analysis 	
Practical Ability	Ability to build function model through Function Analysis	
2	Cause and Effect Chain Analysis (CECA)	
Basic Knowledge	<ul style="list-style-type: none"> -Methods of CECA -Characteristics and forms of CECA -Common methods of CECA -Two methods of 5 Why analysis: status quo analysis and principle analysis -Feature engineering methods such as sampling, dimensionality reduction, and feature selection -Common problems and solutions of overfitting and underfitting, data imbalance processing in machine learning. 	15%
Practical Ability	Ability to apply CECA to analyze a problem, build multiple cause-effect chains, clarify logic, and uncover key disadvantages.	
3	Resource Analysis	
Basic Knowledge	<ul style="list-style-type: none"> -The concept and category of resources: substance resources, energy resources, information resources, time resources, space resources and function resources. -Method and steps of resource exploration: the nine-screen method. -Core principles of resource utilization 	15%

Practical Ability	Ability to use the Nine-Screen method with the six types of resources to visualize the available and invisible resources of the system and related systems and find available and inexpensive existing resources to solve problems.	
4	Technical Contradiction and Inventive Principles	
Basic Knowledge	-Definition of Technical Contradiction -39 typical parameters -Steps of formulating Technical Contradiction -Application of Contradiction Matrix -40 Inventive Principles	20%
Practical Ability	Ability to define the 2 parameters of a technical contradiction from 39 typical parameters and obtain the Inventive Principles from Matrix to generate new solutions	
5	Physical Contradiction and Methods of Separating Physical Contradictions	
Basic Knowledge	-Definition of Physical Contradiction -Steps in formulating Physical Contradiction -The four methods of separation: separation in time, separation in space, separation in condition, separation at system level. -Transformation between Technical Contradiction and Physical Contradiction	20%
Practical Ability	Ability to define two contradictory demands for a parameter using Physical Contradiction and generate new ideas through separating contradictory demands.	
6	How To model and Function Oriented Search (FOS)	
Basic Knowledge	-Definition of FOS -Ways to define a FOS search formula -Steps of FOS -Sources for FOS include, but are not limited to, patents, scientific effects, and knowledge databases.	15%
Practical Ability	Ability to generalize function description and search information to generate new ideas.	

2. Registration Rules

2.1 Registration of Contestants

2.1.1 Qualifications

Contestants must be full-time enrolled students of any gender and age. Students enrolled in any higher education institution are eligible to apply.

2.1.2 Personnel change

Contestants and advisors are not allowed to change after registration is confirmed. If any participant or advisor cannot participate in the competition for any reason during preparation, they shall provide a written explanation to the Organizing committee 10 working days before the competition starts, and can only replace personnel after verification by the Organizing committee. If a team member is unable to participate in the competition due to special reasons, he/she will be deemed to give up the competition automatically.

3. Technical Specifications

Participating teams are required to the knowledge specifications in the books including but not limited to the following.

Number	Book Name
1	State-of-the-Art TRIZ, Theory of Inventive Problem Solving (L1) English version

4. Evaluation

4.1 Self-developed Project Evaluation Rules

Evaluation Dimension	Weight	Explanation
Content Completeness	20%	Content should cover the project background, objectives, technical plan (the output of the technical plan should demonstrate the application and process

		of innovative methods), and outcome benefits, etc.
Application of Innovative Methods	30%	Emphasis is placed on the team's application of systematic innovative methods, innovative thinking, and related tools to solve practical technical problems, and the complete process from problem identification, analysis and solution to scheme generation, ultimately forming a feasible technical plan.
Innovation of Technical Plan	30%	Frontier and necessity of the technical topic, innovation and breakthrough of the technical plan, whether it solves industry pain points.
Format Standardization	20%	The submitted files should be in English, in the formats of ppt and pdf, with a size of no more than 100MB, and the naming rule: country + university name + group + entry name (for example: Malaysia + Kuching University + xxx problem solution based on TRIZ).

4.1.2. Promotion Rules

Sort by total score. The top 60% (with a score higher than 60) will advance to the international competition final.

4.2 Rules of Software Application Stage

This stage is scored out of 100 points. Computer-based intelligent scoring will be used to calculate points for each step, and the total score will be the sum of all steps. The specific scoring criteria are as follows.

Dimension	Description	Evaluation Criteria	Score
Goal Definition and Problem Clarification	Clearly define the technical or business problem to be solved, specifying objectives, system boundaries, and success criteria.	<p>Are the objectives specific and measurable?</p> <p>Are user needs or engineering pain points accurately identified?</p> <p>Are the system boundaries clearly defined?</p>	10
Current Situation Diagnosis and	Systematically analyze the current state based on data	Has relevant data been comprehensively collected?	40

Dimension	Description	Evaluation Criteria	Score
Root-Cause Analysis	and facts; identify bottlenecks, and reveal root causes.	Have appropriate problem analysis methods been applied, including but not limited to function analysis, CECA, fishbone diagrams, FMEA, fault tree analysis? Does the analysis go beyond surface to address fundamental technical or process-level issues?	
Innovation Strategy and Solution Design	Propose feasible and innovative solutions; Address identified root causes.	Does the solution break conventional thinking and explore multiple approaches? Are systematic innovation methods applied (e.g., contradiction matrix, substance-field model, 40 inventive principles)? Does the solution balance technical feasibility, cost-effectiveness, and practicality?	40
Comprehensive Evaluation and Value Verification	Conduct a multi-dimensional assessment of solutions; Lay the foundation for subsequent verification of their effectiveness, robustness, and scalability.	Are evaluation criteria clearly established? Are the advantages and disadvantages of multiple solutions compared and analyzed? Are recommendations provided for further iterations or large-scale implementation?	10

4.3 Evaluation Rules of Defense Stage

- ✓ Application of TRIZ in the project (50 points)
Comprehensiveness and accuracy of the application of tools and the degree of application of methods
- ✓ Ingenuity, novelty and originality of the idea (20 points)
The concept of the solution reflects the guidance and application of innovative methods.
- ✓ Simple structure and High practicality (10 points)
Evaluate the proposed solutions based on structural complexity and feasibility, selecting

- the most optimal solution.
- ✓ Market Value for Promotion and Application (10 points)
Advanced technologies are used or unique innovation points are adopted so that the solution is better than existing products in terms of performance, functionality, user experience, etc.
 - ✓ Presentation and Defense (10 points)
Strong language skills, logical thinking, and the ability to accurately express their views on the questions raised by the experts.