

# Risk Management Operations



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The 2<sup>nd</sup> Audit Committee of the 4<sup>th</sup> Session and the 3<sup>rd</sup> Session  
of the 16<sup>th</sup> Board of Directors

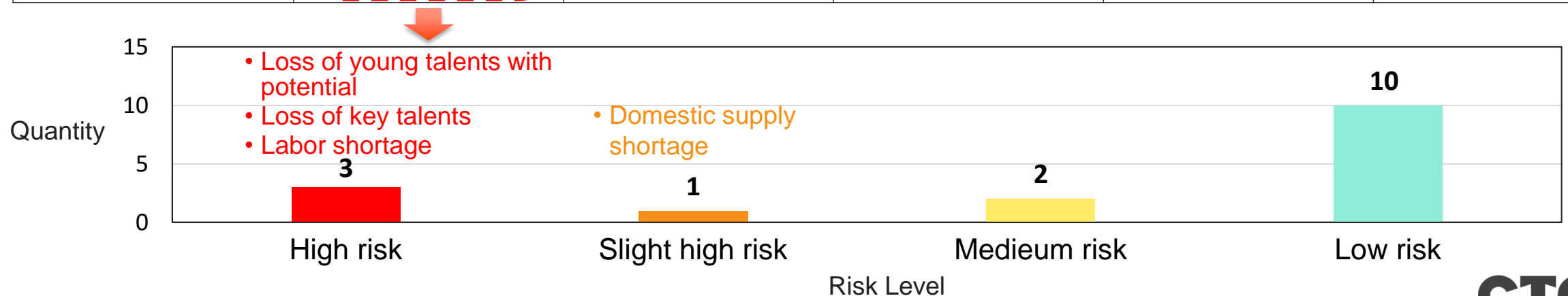
# Risk Management Execution Results Report

- Risk Identification Overview
- Risk of Operational
- Risk of HSE
- Risk of Quality Management Processes
- Risk of Information Security
- Risk of Climate Change

# Risk Identification Overview

The risk identification for various categories in 2023H1 is as follow in the table below:

Risk Category \ Risk Level	Risk of Operational	Risk of HSE	Risk of Quality Management Processes	Risk of Information Security	Risk of Climate Change
Quantity of High risk	3	1	0	0	Risks : 2 Development opportunities : 2
Quantity of Slight high risk	1	0	1	1	
Quantity of Medium risk	2	1	0	0	
Quantity of Low risk	10	0	0	2	



# Risk of Operational (1/4)

## Young Talent Loss

In the first half of 2023, there were seven units with a high or relatively high risk of losing young talents with potential. The risk mitigation actions and improvements implemented are explained as follows:

Risk Mitigation Action	Result
<p><u>Overall salary adjustment at the systemic level:</u></p> <ul style="list-style-type: none"><li>• <b>Adjusting entry-level salaries</b> for two consecutive years in response to market trends.</li><li>• Implementing a <b>structural salary adjustment</b> linked to entry-level salaries.</li></ul> <p><u>Talent retention measures adopted by each unit:</u></p> <ul style="list-style-type: none"><li>• Intensifying <b>career consultations</b> with junior colleagues and <b>establishing IDPs</b> based on their aptitudes.</li><li>• Assessing competencies and <b>providing diverse job assignments</b> and <b>internal rotations</b> for junior colleagues.</li></ul>	<ul style="list-style-type: none"><li>• <b>The departure and retirement numbers of young talents with potential have significantly decreased.</b></li><li>• <b>The risk levels of many high-risk units have also been reduced.</b></li></ul>

# Risk of Operational (2/4)

## Key Talent Loss

In the first half of 2023, there were three units with a high or relatively high risk of key talent loss. The risk mitigation actions and improvements implemented are explained as follows:

Risk Mitigation Action	Result
<p><u>Overall systemic mitigation measures:</u></p> <ul style="list-style-type: none"><li>• <b>Strengthening KPI communication</b> and <b>establishing a highly linked mechanism between performance and compensation.</b></li><li>• Implementing a <b>structural salary adjustment</b> linked to entry-level salaries.</li></ul> <p><u>Talent retention measures adopted by each unit:</u></p> <ul style="list-style-type: none"><li>• Regularly organizing learning workshops in various knowledge domains to <b>enhance and exchange professional knowledge.</b></li><li>• Aligning with IDPs and increasing opportunities for <b>external training.</b></li><li>• Conducting <b>regular career consultations</b>, caring for colleagues' <b>job rotations</b>, and assessing their willingness to take on <b>overseas assignments.</b></li></ul>	<ul style="list-style-type: none"><li>• <b>The departure and retirement number of key talents have decreased.</b></li><li>• <b>The risk levels of many high-risk units have also been reduced.</b></li></ul>

# Risk of Operational (3/4)

## Manpower Shortage

In the first half of 2023, there were five units with a high or relatively high risk of manpower shortage. The risk mitigation actions and improvements implemented are explained as follows:

Risk Mitigation Action	Result
<ul style="list-style-type: none"><li>• <b>Utilization of human resources from the Group's subsidiary: comprehensive scheduling and deployment.</b></li><li>• <b>Increase recruitment of foreign engineers:</b> through <b>local recruitment by overseas subsidiaries</b> and <b>recruiting foreign students in Taiwan.</b></li><li>• <b>Expansion of recruitment channels:</b> internal employee referrals, engagement of recruitment professionals (hunter), and utilization of LinkedIn.</li><li>• <b>Actively rehire retired or resigned talent</b> to serve as project consultants and pass on their experience.</li></ul>	<ul style="list-style-type: none"><li>• As of September, <b>the manpower gaps and risk levels of each high-risk unit have all decreased:</b><ul style="list-style-type: none"><li>– <b>Foreign engineers dispatched to Taiwan</b> by the Group's overseas companies</li><li>– <b>Foreign students</b> recruited both internationally by overseas subsidiaries and locally in Taiwan</li><li>– <b>Rehired consultants</b></li></ul></li></ul>

# Risk of Operational (4/4)

## Domestic supply shortage

Due to the domestic labor shortage and sharp rise in wages, resulting in a shortage of resources for manufacturers, large and medium-sized contractors will be selective case taking from 2022, resulting in the project being unable to be successfully contracted as originally planned. Mitigation measures proposed by supervisors at all levels, the risk has been reduced from high risk to medium risk.

Risk Mitigation Action Measures	Improve Results
<ul style="list-style-type: none"><li>For <b>difficult to outsource work items</b> (such as civil, piping prefabrication and installation, steel structure and equipment installation, etc.), <b>a different approach is adopted</b> :<ul style="list-style-type: none"><li><b>All self-perform</b></li><li><b>Semi-self-perform</b>: direct outsourcing by professional worker class(civil subcontract)</li></ul></li><li><b>Introducing a large number of foreign labors</b>, in addition to the <b>CN coordinating the use of self-perform</b>, and <b>encouraging contractors to use foreign labors</b> to promote the efficiency of the use of foreign labors.</li><li><b>Sign long-term contracts</b> for construction materials.</li></ul>	<ul style="list-style-type: none"><li>In various domestic projects, difficult projects are all contracted by <b>self-perform</b> or <b>outsource by professional worker class</b>, which <b>has been improved the impact of supply shortages</b>.</li><li>Half of the foreign labors in Taiwan are used as self-perform, <b>and the other half are used by contractors, which has effectively improved the problem of labor shortage</b>.</li><li>The PRO has <b>signed long-term contracts with domestic construction material suppliers</b> (steel bars, concrete) <b>in the north, middle and south for the whole group to use</b>, which has improved the supply shortage.</li></ul>

# Risk of HSE

## Fatal occupational accident affects the work progress

If a fatal occupational accident significantly affects work progress and is still classified as high degree of risk even after the risk assessment. The table below outlines the relevant risk control actions and their effectiveness in improving the situation.

Risk Control Action	Effectiveness of improvement										
<ul style="list-style-type: none"><li>• <b>Strengthening Near miss Incident Reporting</b></li><li>• Starting this year, every construction site is <b>required to report every week</b>. The HSEMD will focus on near misses that occur in <b>each quarter, identifying potential hazards associated with higher-frequency incidents</b>. They will then develop <b>Lessons &amp; Learned</b> to enhance <b>awareness campaign</b> at construction sites.</li><li>• <b>Site CCTV System:</b> In addition to site management personnel monitoring, this year, we are <b>increasing periodic checks by headquarters management personnel</b> to enhance overall site awareness.</li><li>• <b>Establishing safety training rooms</b> at each domestic site to enhance overall safety awareness.</li></ul> <p>Continued Activities :</p> <ul style="list-style-type: none"><li>• Conduct <b>rolling education</b> and occupational <b>safety and health card training every two weeks</b>.</li><li>• <b>Continue conducting weekdays and weekends audits</b> : Carried out <b>140 audits</b> from Q1 to Q3 on both weekdays and weekends, <b>collaborating with each department to review deficiencies</b> and improve effectiveness.</li></ul>	<ul style="list-style-type: none"><li>• There were no fatalities record in 2023</li><li>• The annual target for the Total Recordable Case Rate (<b>TRCR</b>) of occupational safety incidents is set at 0.1. As of the end of September 2023, the current TRCR is 0.05.</li></ul> <table><tr><th>Year</th><th>2020</th><th>2021</th><th>2022</th><th>2023 Until Sep.</th></tr><tr><td>TRCR</td><td>0.07</td><td>0.09</td><td>0.08</td><td><b>0.05</b></td></tr></table> <ul style="list-style-type: none"><li>• For <b>six consecutive years</b> (2018 to 2023), the Dow Jones Sustainability Index (<b>DJSI</b>) assessment has maintained a <b>PR 100 score</b> in the “occupational safety and health” category.</li><li>• In 2023, we participated in OSHA's program "Leading Companies in Healthy Workforce Sustainability" and were <b>selected as one of the "Top 10% Outstanding Companies in the Other Categories" among listed OTC companies</b>.</li></ul>	Year	2020	2021	2022	2023 Until Sep.	TRCR	0.07	0.09	0.08	<b>0.05</b>
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TRCR	0.07	0.09	0.08	<b>0.05</b>							



# Risk of Quality Management Processes

## Operation without following the procedures

Works conducted without following relevant procedures will lead to systematical quality issues, which may incur project extra cost and delay the progress, and further damage company's reputation. It was ranked as slightly-high risk. After improvements, the risk is now reduced to medium level.

Risk Mitigation Measures	Improvements																										
<ul style="list-style-type: none"><li>Continue establishing <b>training material of project management procedures</b>, request relevant project members to attend the courses, and 100% pass the exams to ensure their awareness.</li><li>Quarterly analyze the major audit findings, and incorporate these findings into the main check items of <b>PQM’s routine check</b> in next quarter, and review the check results weekly for improvements.</li></ul>	<ul style="list-style-type: none"><li>5 systematical problems observed in 2022 have been all reduced in 2023 Q1~Q3 audit findings as below.</li></ul> <table><tr><th rowspan="2">Systematical Problems</th><th colspan="2">Freq. (case/Quarter)</th><th rowspan="2">Eff.</th></tr><tr><th>2022</th><th>2023</th></tr><tr><td>Construction Self-inspection not fulfilled</td><td>3.0</td><td>2.7</td><td>↓ 10%</td></tr><tr><td>Improper Control of E/M Inspection</td><td>3.5</td><td>1.3</td><td>↓ 63%</td></tr><tr><td>Improper E/M Preservation / Maintenance</td><td>3.0</td><td>1.0</td><td>↓ 67%</td></tr><tr><td>Measuring instrument calibration control not fulfilled</td><td>1.5</td><td>1.0</td><td>↓ 33%</td></tr><tr><td>E/M storage control not fulfilled</td><td>1.5</td><td>1.3</td><td>↓ 13%</td></tr></table>	Systematical Problems	Freq. (case/Quarter)		Eff.	2022	2023	Construction Self-inspection not fulfilled	3.0	2.7	↓ 10%	Improper Control of E/M Inspection	3.5	1.3	↓ 63%	Improper E/M Preservation / Maintenance	3.0	1.0	↓ 67%	Measuring instrument calibration control not fulfilled	1.5	1.0	↓ 33%	E/M storage control not fulfilled	1.5	1.3	↓ 13%
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# Risk of Information Security

## Cyber Attacks

A successful cyber attack can cause major damage to our business. It can affect our bottom line, as well as the business' standing and consumer trust. By taking the relevant actions as follows, the risk has been rating from a Slightly High Risk to a Medium Risk.

Risk mitigation measures	Improvement
<ul style="list-style-type: none"><li>Implementing <b>Managed Detection &amp; Response (MDR)</b> to establish a <b>24/7 continuous cybersecurity protection</b> from the service providers.</li><li>Continued Activities :<ul style="list-style-type: none"><li>– <b>Advanced Defense for E-mail.</b></li><li>– Extending protection to mobile user in order to establish an always-on secure connection.</li></ul></li></ul>	<ul style="list-style-type: none"><li>A total of <b>17 malicious attacks were detected and successfully blocked</b> by MDR in 2023.</li><li>The Advanced Defense for E-mail has <b>successfully intercepted over 175,000 fraudulent/phishing emails</b>. We will continue to implement awareness campaigns for all colleagues.</li></ul>

# Climate Change Risk (1/2)

Climate change risks are identified from the organization, supplier and customer perspectives, and the implementation effectiveness of each management action is reviewed annually.

## • Risk

Risk	Management Action	Implementation Effectiveness
Customers may spend less on high carbon missions investment	<ul style="list-style-type: none"> <li>Net zero EPC technology development, implementation of carbon capture and energy circulation conversion Technology.</li> <li>Business transformation to enhance the expansion of low-carbon green engineering business.</li> <li>Net zero EPC achievement rate and green engineering contract .amount achievement rate are included in department KPIs</li> </ul>	<ul style="list-style-type: none"> <li><b>The proportion of low carbon and environmental protection projects increased</b> from 23% in 2015 to <b>58%</b> in 2023 (as of July).</li> </ul>
Suppliers are levied carbon tax/carbon fee, which are passed on to CTCI	<ul style="list-style-type: none"> <li><b>Establish CTCI Supplier Net Zero Alliance</b> to encourage suppliers to reduce carbon emissions.</li> <li><b>Improve suppliers' carbon management capabilities</b>: share "CTCI Learning" low-carbon courses and help match government coaching resources</li> <li>The supplier selection system will add the <b>vender's green label</b> as a priority screening condition.</li> </ul>	<ul style="list-style-type: none"> <li><b>172</b> companies have joined the Net Zero Alliance.</li> <li>Suppliers have signed "Vendor's Commitments to Corporate Sustainable Management and Net Zero", reaching a <b>100%</b> signing rate.</li> <li>"CTCI Learning" has shared <b>11 courses</b>, with over <b>200 participants</b> trained so far this year.</li> <li>It is expected to complete the <b>green certification and registration</b> of CTCI Supplier Net Zero Alliance by the end of 2023.</li> </ul>

# Climate Change Risk (2/2)

## • Opportunity

Opportunity	Management Action	Implementation Effectiveness
<p><b>Global net-zero trend increases green engineering business opportunities:</b></p> <ul style="list-style-type: none"> <li>Public Construction: The government is pushing for the "12 Key Strategic Action Plans for Net Zero Transition"</li> <li>Private enterprise : Promote green engineering and diverse operations</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen the development of net-zero EPC technology and enter the fields of <b>hydrogen blending power generation</b> and <b>CCS</b>.</li> <li><b>Establish partnerships</b> with government project execution units and investment companies.</li> </ul>	<ul style="list-style-type: none"> <li>The <b>gas-fired hydrogen-mixed power generation</b> and <b>CCS</b> has been included in the bids that are being actively pursued, such as: the rectification and application of hydrogen blending power generation and related infrastructure construction, and the carbon sequestration projects of CPC Tiezhen Mountain and TPC Taichung power plant.</li> <li>Cooperate with <b>ITRI</b> to research technologies and business development such as hydrogen energy, energy storage, CCUS, carbon neutral applications, etc.</li> <li>Served as the convener of the carbon capture group of the <b>Taiwan-US CCUS Industry Promotion Alliance</b> and <b>mastered</b> key technologies</li> </ul>
<p><b>Green R&amp;D and innovation support CTCI capacity:</b></p> <ul style="list-style-type: none"> <li>Intelligent production,</li> <li>Various new carbon reduction/net-zero technologies</li> </ul>	<ul style="list-style-type: none"> <li>Enhance the knowledge of green engineering and sustainable net-zero among all employees through <b>CTCI University</b></li> <li><b>Green engineering combined with intelligence</b></li> </ul>	<ul style="list-style-type: none"> <li>CTCI University has opened <b>9 courses</b>, and <b>more than 900 people</b> have studied.</li> <li><b>Green engineering combined with intelligence:</b> iEPC, Digital Twin, digitization of design drawings.</li> </ul>

# **Risk Management Training Implementation**

- Invite external experts to hold lectures on risk-related topics
- To conduct internal risk control of promotion activities

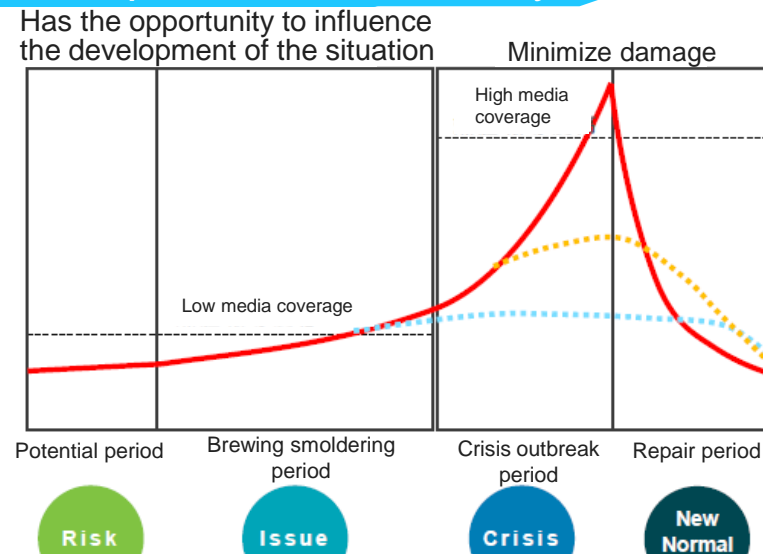
# Invite external experts to hold lectures on risk-related topics

## 「Corporate Reputation Crisis Management」Lecture (April 27, 2023)

The first spark of reputational crisis may occur in the daily operations of each unit. We invited "Carat Media Services Strategic Consultant" to share the case of "Corporate Reputation Crisis Management" and integrated it into the Group's SOP control mechanism, in order to enable each units to be alert and responsive when facing emergencies.

Participants : Group domestic risk control representative and project department manager, 90 People in total(23 from physical, 67 CTCL University).

### Corporate reputation crisis life cycle



Share content:

- Reputation crisis has become a corporate norm
- Analysis of Taiwan's media circumstances
- CTCL Group Corporate Reputation Crisis Map
- CTCL Group Corporate Reputation Crisis Management Mechanism
- Corporate Reputation Management Dos and Don'ts



# Invite external experts to hold lectures on risk-related topics

In response to the hidden concerns and risks of the development of digital technology, as well as the data privacy and security risks derived from artificial intelligence, the Secretariat of the Board has also planned relevant risk training courses to enhance the risk awareness of the Group board directors (include non-executive directors), supervisors and Senior Executives.

**“The Explosion of the Virtual World: The Metaverse and the Development of Future Virtual Worlds” training courses** (May 5, 2023)

**“The trends and risk management of digital technology and artificial intelligence” training courses** (Aug. 2, 2023)



# To conduct internal risk control of promotion activities

In compliance with the requirements of the new law (Code of Practice for Risk Management of Listed Overseas Companies) and the revision of the risk management SOP. We communicate with each unit through workshops and review the risk management operations, with a view to making each unit understand the relevant regulations and operational requirements. in order to let each risk control unit understand the relevant regulations and operational requirements as well as implement the control in daily operations.

Unit	Date
HBO	May 9, 2023
IEPBO	May 19, 2023
ATFBO	May 12, 2023
EPCO	May 2, 2023
EMO	June 20,2023
Related companies	June 27,2023



## Contents

- Risk target
- Risk index
- Risk assessment
- High/Slight High risk control
- Emergency risk treatment
- Lessons Learned and feedback



