



Risk Management in Mechanical Engineering Business in China and New Zealand

Introduction:

With the rapid development of science and technology, the degree of global economic integration is gradually increasing. An increasing number of multinational business have been established in China and New Zealand, each company will face risks due to operating in different regions. This project focuses on identifying risks, assessing which risks should be addressed, implementing strategies to address these risks for Mechanical Engineering companies and to form a simple webpage to access and effectively use the data for Mechanical Engineering Business in different cities of China and New Zealand.



Fig1: The risk management process in Mechanical Engineering (Plotkin, 2018)

I. Identify and Assess Risks (Legal and Operational Risks)

Construction machinery products have the characteristics of many varieties and small batches. Facing complex user groups, they are greatly affected by the fluctuation of market demand. So in the process of risk identification, SWOT, PESTLE and BPEST are used for analysis.

In qualitative risk analysis, a risk matrix is used to define the severity of the risk. The product of the probability value and the potential impact value gives a value that defines the overall severity of the risk.

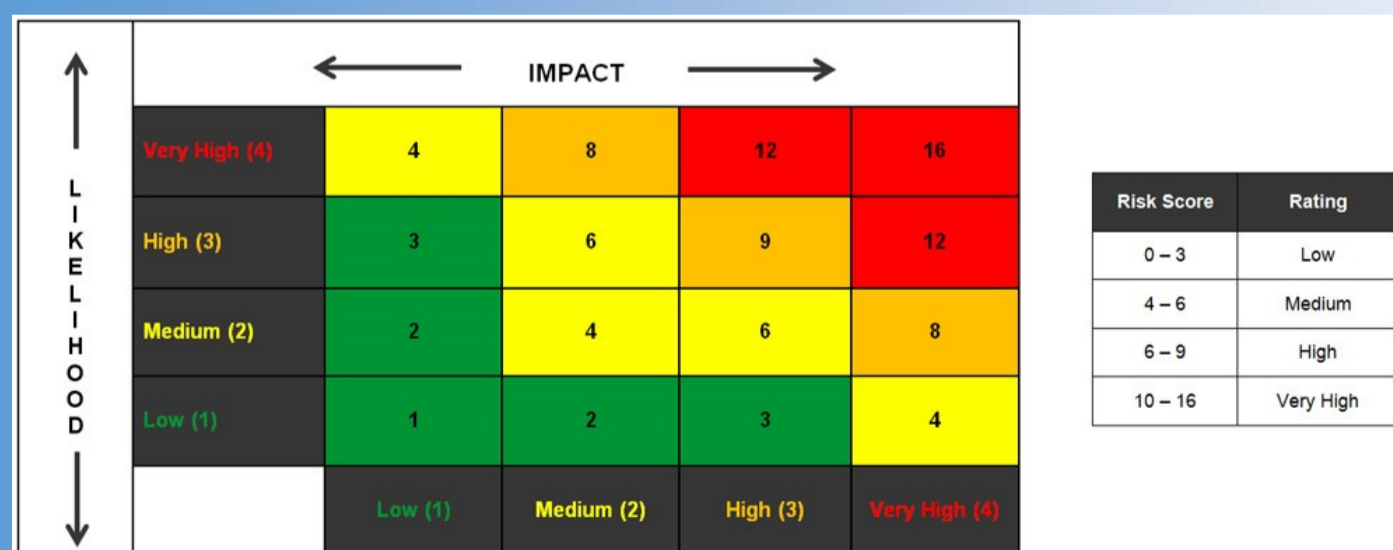


Fig2: Risk Assessment Matrix (Caldas, 2016)

II. Response Risks (Legal and Operational Risks)

There are four strategies to deal with risks as shown in Figure 3. In this project, for risks that were classified as high risk, the corresponding risk avoidance methods or risk mitigation methods are proposed and specific solutions are provided for eight cities, as shown in Figure 4 below.

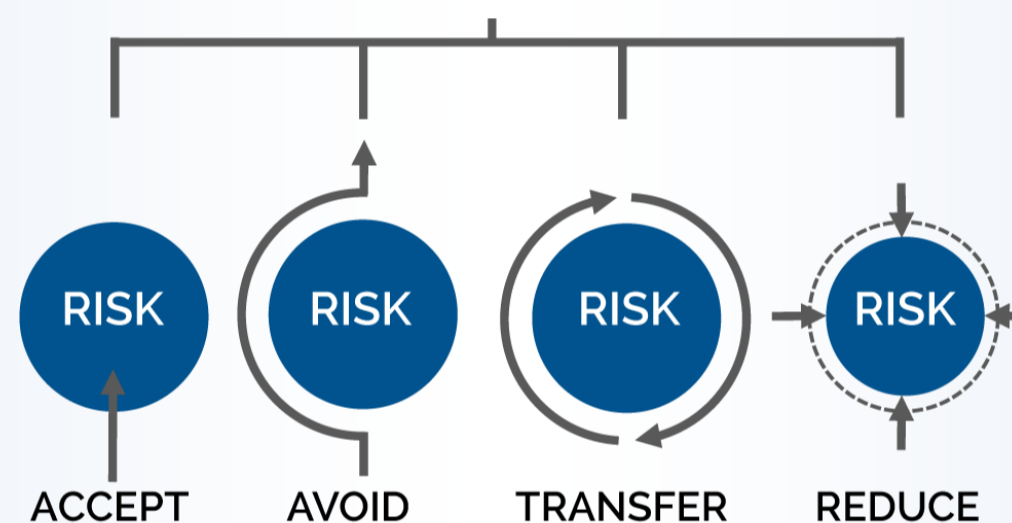


Fig3: Strategies to deal with risks in Mechanical Engineering (Herrera, 2013)

No.	Country	City	Risk Category	Subcategory	Severity	Likelihood	Ranking	Risk level	Avoid	Mitigation	Solution
1	China	Peking	Legal risk	Contract management risk	4	4	16	High	1. Develop standard contract format template. 2. Establish perfect contract management mechanism. 3. Establish the authorization and examination and approval system for enterprises to sign contracts with other countries.	1. Enterprises should attach importance to contract management and establish a standardized contract management mechanism. 2. Enterprises need a powerful contract management system to prevent these contract management risks.	Zhong Lun Law Firm(Beijing office) Address : SK Tower, 6A Jianguomenwai Avenue, Chaoyang District, Beijing 100022, P. R. China Website: http://www.zhonglun.com/en/bgs.html Phone Number: +86 10 5957 2288 Fax number: +86 10 6568 1022
316	New Zealand	Dunedin	Operational risk	Inventory risk	4	4	16	High	1. Improve the reliability of product development/ 2. Improve the procurement management system and procurement strategy 3. Measure the risk of inventory on sales forecast,	From the front-end sales forecast, sales demand, to the intermediate production, assembly, to the back-end procurement, all need to carry out strict process management and control.	Beijing Environmental Testing Center Address: Al Sanli Hebei Street, Xicheng District, Beijing Tel: 010-62926707 62924322 Fax: 010-62313933 Email: china-jcw@163.com Website: http://www.china-jcw.cn/

Fig4: Examples of risk management in Mechanical Engineering

III. Result

During the course of this project, through the identification, assessment, and feedback of the risks of Mechanical Engineering business in China and New Zealand, data was collated in a Microsoft Excel Spreadsheet and a webpage was made. Using this webpage, Mechanical Engineering companies from China and New Zealand find relevant risks, improve their operation ability, and avoid risks to a greater extent.

The webpage was created to facilitate users from Mechanical Engineering business in the chosen cities in China and New Zealand, so that they can easily access the information found during this project.

When using the webpage, the relevant country and city can be selected as well as level and category of risks that are to be shown. The webpage will then show the methods to avoid risks, methods to mitigate risks, and solutions for the specified risks.

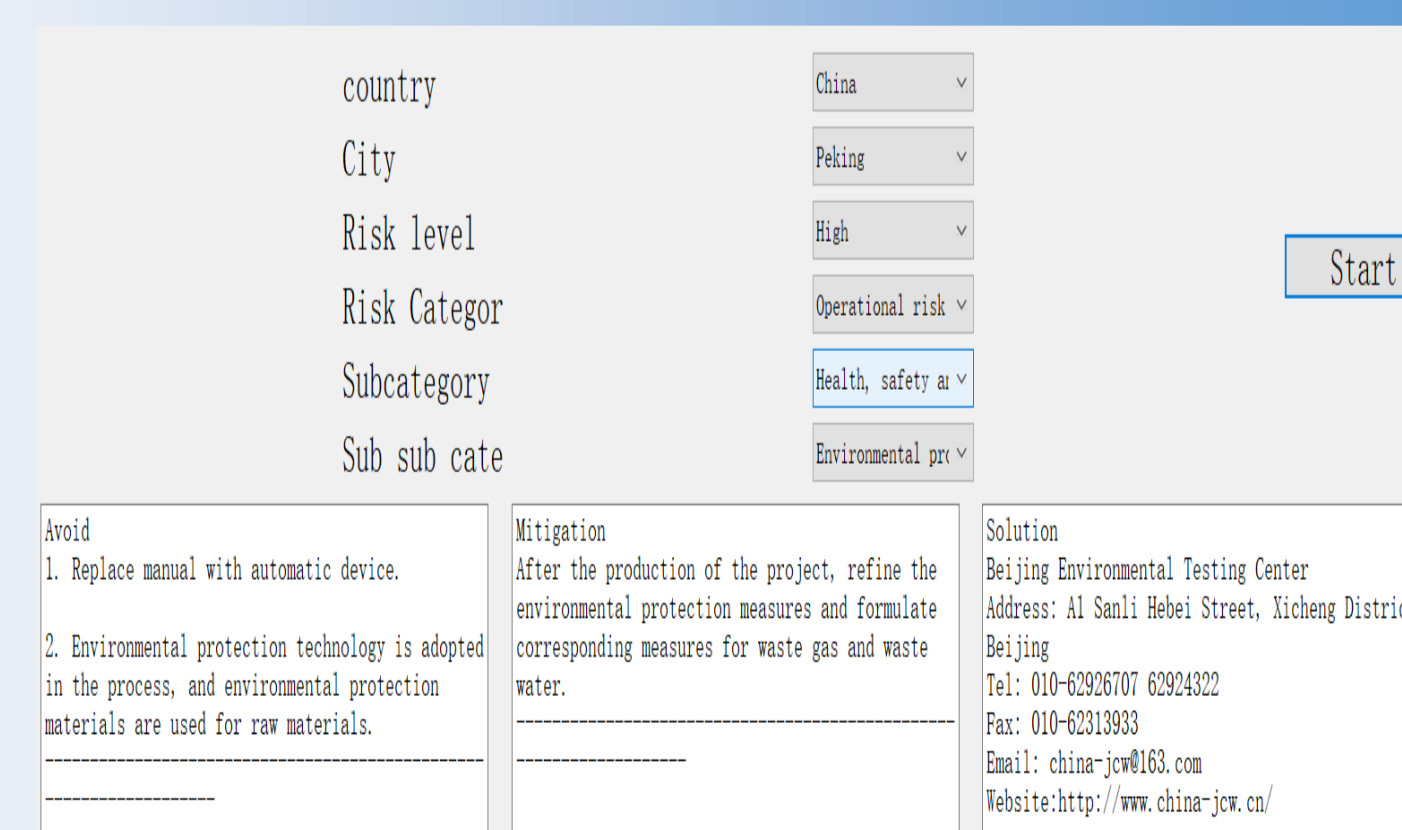


Fig5: Examples of webpage patterns

