**BIA 674 Supply Chain Analytics**  Aishwarya Jha (20016802)

M11.E1: Assignment: Course Project Part 3

Phase 1: Procurement Analysis

**Introduction and Overview**

The data provided in the sheet serves as a critical tool for MediCrystals in evaluating the risk profile of its suppliers amidst the challenges posed by the pandemic. In order to keep a robust and effective supply chain, the sheet carefully evaluates suppliers in a number of domains. This evaluation covers risk management, operational effectiveness, regulatory compliance, and financial health.

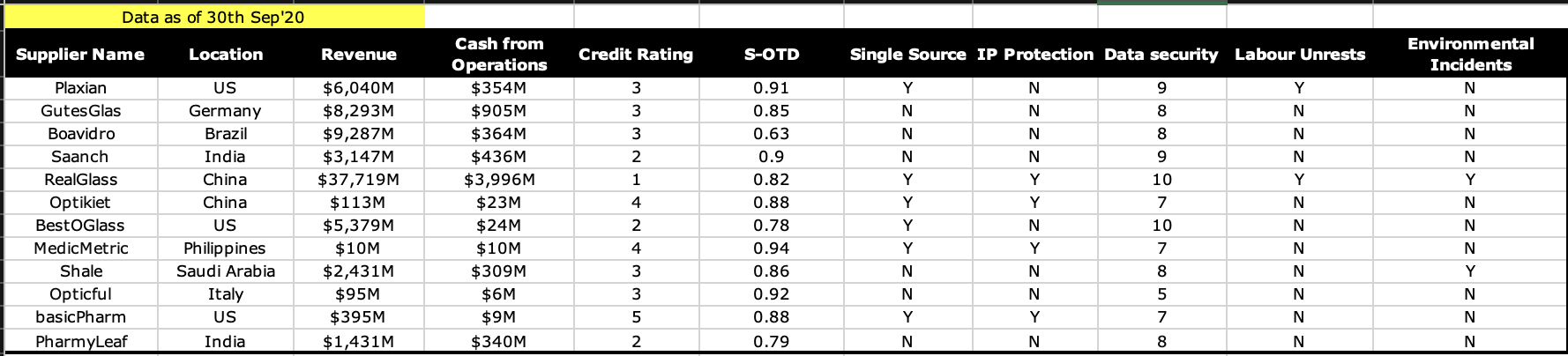


Figure:1

**Supplier Evaluation Criteria:**

Financial Health: Assessed using metrics like Revenue, Cash from Operations, and Credit Rating (Highest 5, Lowest 1).

Operational Efficiency: Measured through Supply-Chain metrics such as S-OTD (Supplier On-Time Delivery) and Single Source (denoted by "Y" for Yes and denoted by "N" for No).

Regulatory Compliance: Evaluated based on factors like Labour Unrests (denoted by "Y" for Yes and denoted by "N" for No), Environmental Incidents (denoted by "Y" for Yes and denoted by "N" for No).

Data Management: Intellectual Property (IP) Protection (denoted by "Y" for Yes and denoted by "N" for No), and Data Security.

**Methodology**

* The methodology employs a scoring system where suppliers are rated out of 100 for each criterion of the 4 domains (Financial, Operational, Regulatory and Data) with 100 representing the lowest risk and 0 the highest risk.
* Financial score, Operations score, Data Management score and Regulatory score are calculated for each supplier using the scores for each criterion of each domain.
* An Overall score for each supplier is calculated using the financial score, operations score, data management score and regulatory score.
* This system will enable MediCrystals to quickly identify potential vulnerabilities within its supply chain and implement targeted risk mitigation strategies while comparing the suppliers.

Scoring Criteria:

* Revenue score: Higher the amount, score closer to 100.
* Cash from Operations score: Higher the amount, score closer to 100.
* Credit rating score: (5~100, 4~80, 3~60, 2~40, 1~20)
* S-OTD score: Closer to 1, score closer to 100.
* Single Source score: Y = 50, N= 100
* IP Protection score: Y = 100, N = 50
* Data Security score: Y = 100, N = 50
* Labour unrests score: Y = 50, N = 100
* Environmental incidents score: Y = 50, N = 100

**Detailed Supplier Findings**

A screenshot of a spreadsheet

Description automatically generated

Figure:2

* The scores for each domain can be modified by changing the coefficients for each criterion of the domain based on their priority but the total of the coefficients for each domain should always be 1.

A screenshot of a screen

Description automatically generated

Figure:3

Based on the procurement analysis and the results in figure 2 and figure 3, we can conclude the findings about each supplier as below:

Plaxian (US):

Financial Score: Moderate at 66.6, suggesting a balanced financial position but room for improvement.

Operational score: Demonstrates strong S-OTD (score of 91) but is affected by single source (Y), impacting its overall operations score (70.5)

Data Management Score: strong data security measures (score of 90) but is affected by having no IP protection, impacting its data management score (70)

Regulatory score: Having labour unrests reduced the regulatory score (70)

GutesGlas (Germany):

Financial Score: Strong at 77.1, indicating robust financial health and stability.

Operations Score: A high score of 92.5 indicates strong operations.

Data Management Score: Low data management score of 65 due to not having IP Protection.

Regulatory Score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

Boavidro (Brazil):

Financial Score: High at 74, reflective of strong financial management.

Operations Score: Some concerns noted with a lower S-OTD score of 63, indicating potential delivery delays.

Data Management Score: Low score of 65 due to not having IP Protection.

Regulatory Score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

Saanch (India):

Financial Score: Lower at 59.3, pointing towards potential financial vulnerabilities.

Operations Scores: High (95), suggesting great performance in supply chain efficiency.

Data Management Score: Average

Regulatory Score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

RealGlass (China):

Financial Score: High at 81.8, suggesting an excellent financial position.

Operational score: Demonstrates strong S-OTD (score of 82) but is affected by single source (Y), impacting its overall operations score (66)

Data Management Score: Excellent data management with a perfect score of 100.

Regulatory score: Having labour unrests and environmental incidents significantly reduced the regulatory score (50)

Optikiet (China):

Financial Score: Poor at 45.2, suggesting plenty room for improvement.

Operational score: Demonstrates strong S-OTD (score of 88) but is affected by single source (Y), impacting its overall operations score (69)

Data Management Score: High at 85.

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

BestOGlass (US):

Financial Score: Poor at 52, suggesting plenty room for improvement.

Operational score: Poor at 64.

Data Management Score: Average at 75

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

MedicMetric (Philippines):

Financial Score: Very poor at 36.9, needs a lot of improvement.

Operational score: Average at 72

Data Management Score: High at 85

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

Shale (Saudi Arabia):

Financial Score: Below average at 56.2, suggesting room for improvement.

Operational score: Very high at 93

Data Management Score: Average

Regulatory score: Average

Opticful (Italy):

Financial Score: Very poor at 35.7.

Operational score: Very high at 96, indicating strong operations.

Data Management Score: Poor with just 50.

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

basicPharm (US):

Financial Score: Low at 49.1

Operational score: Low at 69.

Data Management Score: High at 85

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.

PharmyLeaf (India):

Financial Score: Low at 50.9.

Operational score: High at 89.5

Data Management Score: Average at 65.

Regulatory score: Excellent score of 100, signifying no significant concerns in labor or environmental aspects.



Figure:4

Figure:4 shows the comparison of the scores for all the domains for all the suppliers.

Financial Risk: RealGlas is the supplier with the lowest financial risk while Opticful is the one with the highest financial risk.

Operations Risk: Opticful has the lowest risks associated with operations and, BestOGlass has the highest risks for this domain.

Data Management Risk: RealGlass has the lowest risk while, GuteGlas, Boavidro, Shale and PharmyLeaf have the highest for this domain.

Regulatory Risk: Most suppliers have the lowest regulatory risk, but RealGlass has the highest.



Figure:5

Finding high-risk suppliers is made easier with the help of the overall score method. It also helps to focus efforts on the things that require urgent attention or strategic adjustments. After accounting for all risk indicators, a total score out of 100 is assigned to each supplier.

In terms of the overall score, the supplier with the lowest level of risk is GuteGlas (82.8), while the supplier with the most risk is MedicMetric (58.55).

**Risk Scoring and Monitoring**

The scoring framework is dynamic, allowing for regular updates based on the latest data, ensuring that MediCrystals remains responsive to changing supplier landscapes.

Regular monitoring and reassessment are crucial for early detection of risks and timely intervention.

**Strategic Recommendations**

* To mitigate reliance on a single supplier, particularly those with elevated risk scores, broaden the range of suppliers.
* The focus should be on measures for mitigating risk and building relationships with suppliers who have lower scores, particularly in the financial and operational domains. These scores should be updated and monitored on a regular basis to monitor changes in supplier performance and risk profile.
* Establish ongoing programs for suppliers' improvement to raise their risk and performance levels.
* Invest in processes and technology to improve the ability to track and analyze supplier performance in real time.

**Conclusion**

In conclusion, this thorough analysis and scoring system gives MediCrystals a strong foundation for controlling supplier risks, guaranteeing a strong and effective supply chain, and assisting with well-informed decision-making procedures in a demanding businesses environment.