

Crystal Fountains Executive Summary

Crystal, a Canadian company leading the custom water features industry, aims to cement its position by improving its investment decision-making practices and its product development process. To do so, this report expresses the best methods to evaluate the performance and improve the rate of return of Crystal's investments in its new products. The report provides recommendations for key lagging & leading performance and financial indicators; for Crystal's product development process; and for methods on improving the return on investment and time to profitable return of Crystal's projects.

The second year on the development of this problem statement, the report begins by refining the work completed by Team 5 in 2017, selecting the critical performance indicators from those suggested by Team 5 that should be implemented in Crystal's investment strategies. Of the six suggested, three, the Net Present Value, Effectiveness Index, and the % Revenue of New Products are recommended. Using these metrics, the value of Crystal's products can be evaluated enabling better decision making on investment allocation.

The report continues and goes beyond prior recommendations and provides Crystal with forward thinking strategies through leading performance indicators. The implementation of these indicators is in the effort to streamline Crystal's product development, ensuring that projects do not deviate from their goals, and remain on schedule and under cost. To do so, the best practices in project management established through systems engineering are distilled to the following four recommended indicators: Project Changes, Requirements Validation, Affordability, and Schedule and Cost Pressure.

To effectively use the recommended indicators a well-structured product development process is required. Crystal currently implements a process loosely based on the 5-stage gate model that is both incomplete and ineffective. The root cause of Crystal's inability to

incorporate a standardized 5-stage gate model is due to the company's organizational and cultural limitations. For reasons outlined in this report, an Agile-Stage-Gate Model is recommended to support the company's current structure and product development goals.

With indicators to measure project progress, and a refined process to develop these projects, the report concludes by providing strategies and metrics to improve the project's return on investment and time to profitable return. In the effort to optimize Crystal's product development, it is recommended that Crystal put greater focus on its stakeholders and planning. Through stakeholder feedback, minimum viable products, and market requirement documentation, stakeholder insight can aid in the prioritization of feature selection and the allocation of resources. Through the application of Total Quality Management and the preparation of a launch plan, continuous improvement drives action plans iteratively improving innovation activities. Lastly, metrics that include the Time-to-Profit, R&D Uptime, Innovation Effectiveness Curve, and Return on Product Development Expense evaluate and monitor the health of the company's projects.

Upon implementation of the provided recommendations Crystal will cement their place as an industry leader in innovation strategy. Through the incorporation of the provided indicators, the company will possess the ability to assess its past and future projects enabling stronger decision making. With the provided Agile-Stage Gate Model, Crystal's product development process is optimized for its current structure and through the provided return on investment strategies and metrics, it has the capability to monitor its processes and continuously improve upon them.