Product configuration systems (PCS) are increasingly being used in industrial companies to enable the efficient design of customized products. The literature describes substantial benefits that companies have achieved from the use of PCS, such as reduced resource consumption, reduced lead-time, improved quality, and increased sales, which should lead to a significant return on investment (ROI). However, there is little detailed quantification of the benefits, costs, and ROI from using PCS in the literature. Thus, the true value of PCS remains unknown. Hence, this study quantifies (1) the benefits in terms of reduced man-hours, improved quality of specifications, reduced lead-time, and increased sales and (2) the costs of development, implementation, and maintenance of PCS. Based on this, the ROI is calculated. The analyses presented in this study are based on a world-leading company in pump manufacturing. This study verifies the benefits of PCS that are described in the literature. Further, it contributes to the field by introducing a method to quantify the related benefits, costs, and ROI. Finally, the article illustrates how PCS can be used in companies having product portfolios consisting of a standard to engineered products.