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## MODELING OF THE PRODUCT DEVELOPMENT PROCESS OF A COMPANY OF METALLIC STRUCTURES TO SUPPORT PHOTOVOLTAIC MODULES

**Abstract.** Renewable energy is of great importance nowadays in the world, as well as the reduction of emission of greenhouse gases and CO<sub>2</sub> into the atmosphere. The use of photovoltaic (PV) modules is directly linked to this behavior change. Brazil is a country that has great potential for generating energy through the incidence of solar radiation, since it has an average of 1,600 kWh/kWp of energy. Given the importance of a subject such as green energy in a continental country as big as Brazil, PV energy and all the surroundings business show an expressive growth in the production of metallic support structures for PV modules in the Brazilian market. The main objective of this study was to model the process of product design currently developed by a small company, in the state of Rio Grande do Sul, now active in this sector. To achieve this purpose, a case study research was conducted in the company. The collected data were tabulated in electronic spreadsheets and presented through graphics, flowcharts, and associated with descriptions of its contents. The main result obtained was the establishment of a particular formalized model of the performed process by the company in the date of this research. From the company's particular model drawn in this case of study, it was possible to evaluate it in terms of its completeness compared to the prescriptions shown in the reference in the model for the Integrated Product Development Process – PRODIP. Seeking to establish an equivalence between the particular model for the company and the literature reference model, it was found that the process currently practiced by the company has the same number of phases (eight), however, with a lower number of activities. Regarding to the product development process formalization, the company has 37.5% and to the project management 28.6% compliance with the proposed requirements shown in PRODIP. In this way, it is possible to identify the weaknesses of the current process and, on these, apply the principles of continuous improvement to build a more complete process, with the implementation of new intermediate activities. It promotes a greater alignment and approximation between the strategic planning of the company and the tasks of product design. In the end it will bring greater competitiveness to the company in a rapidly expanding market. The improvement of this process creates a new possible study to keep up following the evolution on product design development.

**Keywords:** Reference model, solar energy, product development process, renewable solar energy, case study