

## INTISARI

Indonesia berada pada zona paparan sinar matahari yang ideal sehingga memiliki potensi energi surya nasional sebesar 207,8 GW. Intensitas radiasi cahaya matahari yang terpapar dimanfaatkan *solar panel* dalam pembangkit listrik tenaga surya. Gambaran mengenai kemampuan industri *solar panel* di Indonesia sampai saat ini belum ada yang dapat dijadikan bahan dasar untuk dilakukan analisis yang signifikan. Pemetaan kemampuan industri *solar panel* di Indonesia penting dilakukan untuk dapat mengetahui seberapa kemampuan dari industri *solar panel*. Kandungan teknologi dalam perusahaan yang mendukung material dalam instalasi *solar panel* perlu diukur. Pengukuran kandungan teknologi bertujuan untuk membentuk visualisasi gambar pemetaan model Teknometrik dan mengetahui tingkat kesiapan teknologi dari kemampuan industri *solar panel* di Indonesia dan pendukung sistem fotovoltaiik seperti perusahaan kabel dan *structure (mounting)*.

Teknometrik merupakan alat ukur kesiapan teknologi yang di antaranya diterapkan pada level perusahaan individu. Teknometrik terdiri atas tujuh komponen teknologi, yaitu *technoware* (T), *humanware* (H), *infoware* (I), *orgaware* (O), *cysnetware* (C), *manageware* (M) dan *partnerware* (P). Komponen teknologi tersebut disingkat THIOCMP. Pengukuran model Teknometrik komponen teknologi THIOCMP menghasilkan nilai *Technology Contribution Coefficient* (TCC). Nilai TCC didapat dengan cara penilaian tingkat kecanggihan, *state of the art*, bobot komponen teknologi dan kontribusi komponen teknologi. Nilai TCC dari suatu perusahaan menunjukkan kontribusi teknologi dari operasi transformasi total terhadap *output*. Analisa hasil dari pengukuran kesiapan teknologi klaster industri meliputi analisa kontribusi komponen teknologi terhadap kemampuan industri agar ditingkatkan atau diperbaiki berdasarkan grafik radar. Komponen yang telah mencapai kondisi ideal tetap dipertahankan. Kondisi ideal yaitu jika kontribusi komponen teknologi mencapai nilai 1 (pada skala 0 hingga 1) atau *best practice*.

Penelitian memberikan pemetaan kemampuan pada nilai kesiapan teknologi bagi industri *solar panel* di Indonesia dan pendukung sistem fotovoltaiik seperti perusahaan kabel dan *structure (mounting)*. Hasil pengukuran diperoleh dari nilai TCC terhadap industri *solar panel* di Indonesia pada rentang 0,79-0,87 dan perusahaan *structure (mounting)* sebesar 0,72. Nilai tersebut diklasifikasikan pada  $0,7 < TCC \leq 0,9$  bahwa tingkat kesiapan teknologi adalah Sangat Baik dan tingkat teknologi yang dimiliki adalah Modern. Nilai TCC pada perusahaan kabel berada pada rentang 0,64-0,79. Nilai industri yang berada pada rentang  $0,5 < TCC \leq 0,7$  dan  $0,7 \leq TCC \leq 0,9$  berarti perusahaan kabel tersebut memiliki kandungan teknologi yang Baik dan Sangat Baik dan tingkat teknologi yang dimiliki adalah Semi Modern dan Modern. Komponen teknologi yang berkontribusi terhadap teknologi yang diukur besarannya menjadi gambaran kemampuan teknologi pada industri.

**Kata kunci:** Teknologi, Teknometrik, Industri *Solar Panel*, Sistem Fotovoltaiik

## ABSTRACT

Indonesia is in an ideal sunshine zone so that it has a national solar energy potential of 207.8 GW. The intensity of solar radiation that is exposed is utilized by solar panels in solar power plants. An overview of the capability of the solar panel industry to now, there is not in Indonesia that can be used as a basis for significant analysis. Mapping the capability of the solar panel industry in Indonesia is important to find out how capable the solar panel industry is. The technology content in the company that supports the material in the installation of the solar panel needs to be measured. Measurement of technology content aims to form a visualization of the technometric model mapping image and determine the level of technological readiness of the capabilities of the solar panel industry in Indonesia and supporting photovoltaic systems such as cable companies and structures (mounting).

Technometrics is a technology readiness measurement tool, which is applied at the individual company level. Technometrics consists of seven technology components, namely technoware (T), humanware (H), infoware (I), orgaware (O), cysnetware (C), manageware (M) and partnerware (P). The technology component is abbreviated as THIOCMP. Measurement of the Technometric model of the THIOCMP technology components results in the Technology Contribution Coefficient (TCC) value. The TCC value is obtained by assessing the level of sophistication, state of the art, the weight of the technology component and the contribution of the technology component. The TCC value of a firm shows the technological contribution of the total transformation operation to output. Analysis of the results of the measurement of industrial cluster technology readiness includes analysis of the contribution of technology components to the ability of the industry to be improved or improved based on radar charts. Components that have reached ideal conditions are maintained. The ideal condition is if the contribution of the technology component reaches a value of 1 (on a scale of 0 to 1) or best practice.

The research provides a mapping of capabilities on the value of technological readiness for the solar panel industry in Indonesia and supporting photovoltaic systems such as cable companies and structures (mounting). The measurement results are obtained from the TCC value of the solar panel industry in Indonesia in the range 0.79-0.87 and the company structure (mounting) equal to 0.72. This value is classified at  $0.7 < TCC \leq 0.9$ , which means that the level of technological readiness is Very Good and the level of technology owned is Modern. Cable company TCC rating is in the range 0.64-0.79. Industry values that are in the range  $0.5 < TCC \leq 0.7$  and  $0.7 \leq TCC \leq 0.9$  means the cable company contains technology that is Good and Very Good and the level of technology that is owned is Semi Modern and Modern. The technological components that contribute to technology are measured in size, which illustrates the technological capabilities of the industry.

**Keywords:** Technology, Technometrics, Solar Panel Industry, Photovoltaic Systems