

ABSTRAK

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Program Studi : Magister Teknik Industri
Judul : Skenario Optimalisasi Peningkatan Kapasitas Produksi Berdasarkan *Multi-Criteria Decision-Making*

Keterbatasan UKM produksi terutama produsen genteng beton menyebabkan tidak adanya perencanaan kapasitas sejak awal didirikan, sehingga ketika terjadi peningkatan permintaan terjadi *out of stock* yang kemudian dilakukan peningkatan kapasitas yang tidak optimal. Untuk itu perlu penelitian terkait skenario optimalisasi peningkatan kapasitas produksi dengan mempertimbangkan faktor-faktor yang sesuai seperti biaya investasi, kapasitas efektif, upah tenaga kerja langsung dan lainnya melalui *Content Validity Ratio (CVR)*, *Multi-Criteria Decision-Making (MCDM)* baik *analytic hierarchy process (AHP)* maupun simpleks sehingga akan diperoleh solusi yang optimal berupa skenario strategi perencanaan kapasitas baik berupa rekayasa tenaga kerja, duplikasi waktu kerja, penambahan fasilitas produksi maupun kombinasi baik sekaligus ataupun bertahap.

Kata kunci:

Content Validity Ratio, Multi-Criteria Decision-Making, Analytical hierarchy process, kapasitas produksi, optimasi, simpleks

ABSTRACT

Name : Sutrisno
Study Program : Magister of Industrial Engineering
Judul : A Multi-Criteria Decision-Making Approach to Optimizing Production Capacity Expansion Scenarios

Limited resources in small and medium-sized manufacturing enterprises (SMEs), particularly concrete roof tile producers, often result in the absence of initial capacity planning. As demand increases, this condition leads to stockouts and suboptimal capacity expansion decisions. This study examines production capacity optimization strategies by considering key factors such as investment cost, effective capacity, and direct labor wages. The Content Validity Ratio (CVR) is used to validate the criteria, while Multi-Criteria Decision-Making (MCDM) methods, including the Analytic Hierarchy Process (AHP) and simplex optimization, are applied to determine optimal capacity planning scenarios involving labor reengineering, work-time duplication, facility expansion, or their combined and phased implementation.

Keywords:

Content Validity Ratio, Multi-Criteria Decision-Making, Analytical hierarchy process, production capacity, optimization, simplex