# Perancangan indikator kinerja lean construction pada proyek infrastruktur dan bangunan gedung = Lean construction performance indicators design for infrastructure and building projects / Ary Hikmasari

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Abstrak

[Industri konstruksi mempunyai karakteristik lingkungan dengan gejolak yang tinggi, berubah dengan cepat, proses yang tidak kontinyu dan sangat kompleks. Hal tersebut menyebabkan ketidakefisienan dan timbulnya waste dalam pelaksanaan konstruksi. Waste yang terjadi pada pekerjaan konstruksi tidak hanya berupa waste material di lapangan, tetapi juga akibat aktivitas konstruksi seperti overproduction, waktu tunggu, handling, processing, inventory, perpindahan pekerja dan sebagainya. Belajar dari industri manufaktur, salah satu inovasi untuk menjawab tantangan tersebut adalah penerapan Lean Production (produksi ramping), yang dalam bidang konstruksi disebut Lean Construction. Tujuan penelitian ini adalah untuk mendapatkan indikator kinerja lean constuction dengan pendekatan 6 elemen/kriteria lean construction yang spesifik, terukur, memiliki bobot indikator pengukuran kinerja yang jelas di proyek infrastruktur dan bangunan gedung. Objek penelitian dalam perancangan indikator kinerja dilakukan di sebuah perusahaan konstruksi nasional. Kuesioner disebar ke proyek-proyek untuk mendapatkan indikator lean construction. Hasil penelitian mengidentifikasi ada 31 indikator kinerja lean construction pada proyek infrastruktur dan bangunan gedung. Pembobotan indikator dilakukan menggunakan Analytical Hierarchy Process (AHP) dengan bantuan software expert choice. Untuk menentukan faktor keberhasilan penerapan Lean Construction yang paling berpengaruh, maka dilakukan pemeringkatan menggunakan Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). Hasil penelitian ini menunjukkan bahwa faktor organisasi kunci: keterlibatan karyawan, dukungan pimpinan puncak, pelatihan, dan keterkaitan kinerja dengan penghargaan mempunyai pengaruh yang hampir sama terhadap penerapan lean construction di proyek infrastruktur dan bangunan gedung;The construction industry is a highly volatile industry characterized with frequent
changes and complex and non-continuous processes. These factors often lead to inefficiency and waste in the construction process. The waste in construction work is not only limited to material waste, but also includes waste in construction activities such as over production, delay, handling, processing, inventory, and worker movements. Learning from the manufacturing industry, one of the innovations to tackle the problem is to apply the concept of Lean Production, which in the construction sector is adapted to Lean Construction. The goal of this research is to obtain performance indicators of Lean Construction. The approach is to utilize six specific elements/criteria of Lean Construction which can be measured with clear performance indicator measurement in

infrastructure and building projects. The research was conducted in a national construction company. Questionnaires were distributed to a number of projects to collect the Lean Construction performance indicators. The result identifies 31 Lean Construction performance indicators in infrastructure and building projects. The performance indicators are weighted based on Analytical Hierarchy Process (AHP) with the help of the expert choice software. To determine the most important performance indicators in Lean Construction application, the performance indicator is ranked using a method called Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The resul shows that the key organization factors: employee participation, top management support, training, and performance based rewards have an almost equal impact to the application of Lean Construction in infrastructure and building projects;The construction industry is a highly volatile industry characterized with frequent changes and complex and non-continuous processes. These factors often lead to inefficiency and waste in the construction process. The waste in construction work is not only limited to material waste, but also includes waste in construction activities such as over production, delay, handling, processing, inventory, and worker movements. Learning from the manufacturing industry, one of the innovations to tackle the problem is to apply the concept of Lean Production, which in the construction sector is adapted to Lean Construction. The goal of this research is to obtain performance indicators of Lean Construction. The approach is to utilize six specific elements/criteria of Lean Construction which can be measured with clear performance indicator measurement in infrastructure and building projects. The research was conducted in a national construction company. Questionnaires were distributed to a number of projects to collect the Lean Construction performance indicators. The result identifies 31 Lean Construction performance indicators in infrastructure and building projects. The performance indicators are weighted based on Analytical Hierarchy Process (AHP) with the help of the expert choice software. To determine the most important performance indicators in Lean Construction application, the performance indicator is ranked using a method called Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The resul shows that the key organization factors: employee participation, top management support, training, and performance based rewards have an almost equal impact to the application of Lean Construction in infrastructure and building projects, The construction industry is a highly volatile industry characterized with frequent changes and complex and non-continuous processes. These factors often lead to inefficiency and waste in the construction process. The waste in construction work is not only limited to material waste, but also includes waste in construction activities such as over production, delay, handling, processing, inventory, and worker movements. Learning from the manufacturing industry, one of the innovations to tackle the problem is to apply the concept of Lean Production, which in the construction sector is adapted to Lean Construction. The goal of this research is to obtain performance indicators of Lean Construction. The approach is to utilize six specific elements/criteria of Lean Construction which can be measured with clear performance indicator measurement in

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