Rapport de veille n° 47

BIM

31/05/2023

Objectif : *L'utilisation du BIM en phase de conception et de ses potentiels applications pour la prévention des risques*

La validation des informations fournies (exactitude, fiabilité, pertinence par rapport aux principes de prévention, etc.) est du ressort des auteurs des articles signalés dans la veille. Les informations ne sont pas le reflet de la position de l'INRS.

Les liens mentionnés dans le bulletin donnent accès aux documents sous réserve d'un abonnement à la ressource.

Table des matières

1. Références anglophones

1.1 Articles scientifiques

Lean and BIM integration benefits construction management practices in New Zealand
AJ Likita, MB Jelodar, P Vishnupriya, JOB Rotimi - Construction Innovation, 2023
DOI : https://doi.org/10.1108/CI-06-2022-0136
The construction industry is inefficient in terms of quality products, productivity and performance worldwide, including in Australia and New Zealand. The construction industry is becoming more innovative, competitive and complex; and more participants are involved in construction projects. There are new attempts to implement the Lean construction philosophy, integrated project delivery method and building information modelling (BIM) technology in construction industry to improve productivity and efficiency. This paper aims to identify Lean and BIM integration benefits in construction industry globally and in the New Zealand. A systematic literature review and case studies were used to identify various benefits of the integrating Lean and BIM in construction industry. It focused on articles published between 1995 and 2021. Lean and BIM benefits identified in the study were documented such as benefits over the traditional approach, critically increased efficiency and visualization, better building process, better building performance, mitigating risk and reduce cost. Also, several factors were identified as major benefits such as improved onsite collaboration, better coordination, improve onsite communication, increase productivity, mitigating risk, reducing waste and reduced cost. The study showed integrating Lean and BIM in construction management practice will help reduce several challenges which affect expected goals and customer anticipation. The research outcome ultimately will assist different stakeholders in applying Lean and BIM in construction management practice.

Innovative Technologies for Occupational Health and Safety: A Scoping Review
O Flor-Unda, M Fuentes, D Dávila, M Rivera, G Llano… - Safety, 2023, 9(2(), 35
DOI : https://doi.org/10.3390/safety9020035
Technological advancements have allowed for the design and development of multiple intelligent devices that monitor the health and safety status of workers in the industry in general. This paper reviews and describes the alternative technologies and their potential for monitoring risk situations, vital signs, physical variables, worker positions, and behavioral trends of workers in their work activities in the workplace. A scoping review was conducted using PRISMA ScR in which information was extracted from 99 scientific articles related to these technological advances. The operational characteristics and utilities of devices whose primary function is to control better and monitor worker safety and health were identified. It was concluded that technology strongly improves the acquisition and sending of information. This information can be used to provide alerts and feedback to workers so that they act more safely and protect their health. In addition, technological developments have resulted in devices that eliminate operational risks by replacing manual activities with automated and autonomous tasks.

1.2Conférence / ouvrage / thèse

BIM and Construction Health and Safety

H Golzad, S Banihashemi, C Hon, R Drogemuller - Routledge, 2023, 166 p.
DOI : https://doi.org/10.1201/9781003224853

This book aims to conceptualise the implementation of building information modelling (BIM) in the workplace health and safety (WHS) management of construction projects to reduce occupational accidents. The safety performance of the construction industry has always been a concern across the globe, and this devastating reputation has drawn the concern of many nations. The potential functions of BIM can drastically alter the WHS practices of the construction industry. BIM facilitates WHS information exchange and management and supports better collaboration and project planning through virtual visualisation of the construction WHS management process. Despite an increasing interest in BIM, a successful mechanism for employing BIM in construction WHS management is absent. Therefore, this book aims to fill this dearth by presenting a model for the integrationof such innovative interventions with the current industry practices in a practical manner through the proper identification of effective areas and evaluation of their impacts on the key criteria of construction projects and organisations. This approach will foster the implementation of BIM in the current state of WHS management in the industry and can potentially reduce occupational accidents on construction sites. This book is essential reading for researchers and professionals interested in how BIM technology can improve health and safety in construction projects. It is intended for engineers, project managers, construction managers, safety officers and safety managers.