Improving Construction Project Performance

ABSTRACT:

Three strategies for improving construction project performance are briefly reviewed including: (1) development of new tools, (2) development of new processes, and (3) analysis of existing processes and tools. Examples are presented of new tools that enable generation of information with improved frequency, accuracy, and usefulness by applying sensor signal processing, wireless communications, evidence based reasoning, data fusion, and 3D image processing, such as: (a) automated construction progress tracking of structures using 3D imaging and a-priori 4D BIM models, and (b) automated construction materials locating and tracking using RFID, GPS, data fusion, and wireless communications. Examples of new processes that are based on emerging electronic product and process management systems are also briefly described, such as Interface Management (IM), Work Package Optimization, and Knowledge Management. Finally, examples of analysis of existing processes and tools using benchmarking and metrics program data as well as direct field observation data are presented.

BIO:

Carl Haas is the Tier I Canada Research Chair in Construction and Management of Sustainable Infrastructure and a Professor in the Department of Civil and Environmental Engineering at the University of Waterloo, Canada. His research, teaching and consulting are in the areas of advanced construction and transportation technology, sustainability, and construction productivity. He has received several research and teaching awards. He has supervised 29 PhD students to completion, and has well over 275 publications including over 100 refereed journal articles. He serves on a number of editorial boards and professional committees such as the Construction Industry Institute’s Breakthrough Committee. At the Transportation Research Board (TRB), he served as Chair of the Committee on Applications of Emerging Technologies (A2F09, 1996-2002), as a member of the Group 2 Council on Design and Construction of Transportation Facilities (2003-2006), and as a member of the Committee on Construction Management (AFH10) until last year. He has also served on several NA TRB special committees over the years such as the Planning Team for TRB “Radio Frequency Identification (RFID) in Transportation Conference,” Washington D.C., October 17-18, 2006. He has served on many ASCE committees over the years as well. His research has been supported by numerous companies including: Coreworx, SNC Lavalin, Aecon, OPG, GSE&C, Software Innovation, Dupont, Hilti, Houston Lighting and Power, Fluor, Crafco, EPRI, the Construction Industry Institute (CII) and their member companies, as well as agencies such as TxDOT, MTO, NSERC, NSF, CRC, etc. He is a member of the Canadian Academy of Engineering and a Fellow of the ASCE.