Application of BIM (Building Information Modeling) in construction and management work

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The application of BIM will achieve absolute accuracy, time and cost saving in surveying, design, construction and management of the project etc.

On November 2nd 2019 in Ho Chi Minh City, Viet Nam Roads and Bridge Association (VIBRA) has organized the Workshop with the topic “BIM based Project management from surveying, project planning, design, construction, management and exploitation in the entire life cycle of infrastructure and transportation works.”
According to VIBRA, currently, in some developed countries around the world, it is compulsory to apply BIM in survey, design, construction, management, operation and maintenance of big-scale infrastructure works. BIM model in combination with different hi-tech equipment and software to scan and taking photo from the sky, survey and build 3D model provides the accuracy to mm. Thanks to this technology, project owner can easily manage the construction techniques, the construction schedule and quality etc. Especially, BIM model application in the world show the significant cost cutting down.

Speaking at the Workshop, Mr. Nguyen Ngoc Hue, Chairman of Viet Nam Association of Port – Waterway - Offshore Engineering (VAPO), in recent years, developed countries have strongly promoted the application of this science and technology to design and construction works to improve quality. In particular, the BIM model is an inevitable trend of the construction industry in general and the infrastructure sector in particular.

In Viet Nam, the application of BIM in construction and operation management activities of infrastructure works has been approved in the Decision No 2500/QD-TTg dated December 22nd 2016 in which it is required to apply BIM into construction activities and management works over the periods 2017-2019 and 2018-2020. Since 2021, this model must be widely applied.

Portcoast Consultant Corporation (Portcoast) is a pioneer enterprise with high determination to apply BIM and Scan to BIM technology into transportation projects. BIM model is capable of evaluating the whole project and managing the whole life cycle of the project instead of the traditional, costly and time-consuming methods.

According to Dr. Do Tien Si, Head of Construction and Management Division of Civil Engineering Faculty of Ho Chi Minh University of Technology, most survey and assessment works in our country are based on hand-writing drawings and manual methods. Meanwhile, the entire process of construction, operation management and maintenance are integrated quickly and accurately by BIM.

Applied BIM, the entire process of the project from the beginning of construction to the end of the life cycle is clearly analyzed. The project owner is easy to find out just a small change in the construction structure. Since then, a timely response plan to any possible risks will be prepared. In the world, developed countries has started to apply this technology since 2008. Some countries such as Thailand and Singapore have effectively applied this technology since 2015. By 2016, in the UK, application of BIM to construction and management is compulsory to all projects.

The application of BIM has shown remarkable economic efficiency. According to the world's research, this model cuts down 10% in cost, 10% in construction time, 10% in construction risks and 40% in design changes. Based on BIM model's results, it is easily for the project to prepare cost estimation, suitable capital
allocation schedule and unnecessary risk avoidance. However, so far, BIM has not been being applied widely due to the high operation and investment cost and high-skilled manpower resource requirement.

Mr. Ngo Thinh Duc, Chairman of VIBRA delivered his speech at the Workshop Mr. Ngo Thinh Duc, VIBRA’s Chairman affirms that Portcoast is the one among of pioneers to apply BIM and other hi-tech equipment in operation management activities, especially to infrastructure conservation work in Viet Nam. Such as the application of Faro to scan, photo taking and reproduce drawing of many key projects such as Cai Mep - Thi Vai port group, Ho Chi Minh City Opera House, Dung Quat Refinery Plan, Nghi Son Petrochemical Refinery, thermal power project etc. Based on the obtained results, plan for exploitation, operation, maintenance and conservation of those projects can be easily planed.

Mr. Ngo Thinh Duc affirms that the VBRA is willing and ready to conduct training to assist the Ministry of Transport in applying the BIM model.

As recommended by Mr. Ngo Thinh Duc, the project owner, professional Associations and other state-owned construction management companies should pay special attention to widely apply BIM so that operation and maintenance
management of transport infrastructure shall be effectively. Moreover, the construction and conservation works shall also be more qualified and cost saving.

Mai Huyền