

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Understanding Collaboration effectiveness and its links to digitisation in the Construction Industry

The Government business population estimates show that the number of construction companies with less than 50 employees has increased to over 1 Million for the first time in 2017 (UK Government, 2017). This statistic is a stark reminder of the fragmentation of the construction industry. The BIM interface is a point at which digitisation collaboration occurs in the construction sector. Is the software fit for purpose and how could it be improved? Without investigation we have no measure of how successful this software is at the task of collaboration. Unicorn technology companies efficiently collaborate extensive digital user bases and demonstrate effective productivity for their users. These companies have clearly demonstrated the ability to engage fragmented user groups who use their technology to optimise workflows. These unicorns make an excellent comparison control group to measure how successful our construction design technology companies are in overcoming fragmentation and ultimately optimising productivity. Construction needs excellent software technology services to help solve its digitisation, productivity and collaboration issues. This dissertation reveals what legacy companies (or new companies entering the construction sector) can learn from the unicorns to design their services for phenomenal collaborative growth. The literature review revealed three broad themes which made unicorn companies successful. These broad themes cover software features, user cohesion and compatibility. From 452 unicorn companies, 11 were categorised as being archetypal of the construction sector and contrasted with an industry group of 8 leading construction technology companies. The paper establishes metrics for each theme, which were applied to both the archetypal unicorn companies and construction design software technology companies. This analysis exposed significant gaps in the approach between the unicorn companies and the long established, construction design software technology companies. This revealed that while all companies focussed heavily on feature delivery in the software, many were less aware of the commercial advantages which could be gained by leveraging the themes of contagion and compatibility. The implication of this work is that construction software design companies need to improve the creation of engaging content while urgently evolving near obsolescent technologies. Equally, Government should recognise the exponential gains in productivity which could be achieved by specific stimulation of the digitisation in the construction industry.

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