

Data Analytics to Evaluate Public Value from Megaprojects

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Abstract:

The unprecedented investment in megaprojects that has been witnessed in recent years seems likely to accelerate post Covid-19 with several countries, like Australia, announcing large infrastructure projects to boost the economy for economic revival <https://www.pm.gov.au/media/1-billion-unlock-thousands-infrastructure-jobs-nsw>. COVID-19 has also created social challenges due to increased unemployment that could result in increase in poverty which could be helped when these projects become a reality. . <https://www.abc.net.au/news/2020-07-25/australia-faces-youth-unemployment-crisis-amid-coronavirus/12487240>. However, some scholars caution that rapid urbanisation and inappropriate development of infrastructure could work against containing a pandemic like COVID-19 <https://theconversation.com/outbreaks-like-coronavirus-start-in-and-spread-from-the-edges-of-cities-130666>. The environmental damage caused by rapid urbanisation has prompted urban planners to rethink the ways in cities can be developed in the future. Riffat et al. (2016, p. 18) envision that 'future cities should also be the habitats where ambitions, aspirations and other immaterial aspects of life are realized, providing contentment and happiness and increasing the prospects of individual and collective well-being'. How do we ensure that such aspirations are not neglected in a rush to build more infrastructure ? How do we ensure that social and environmental issues will be taken into account while creating public values while responding to an urgent economic need for building more megaprojects? What means should we use to provide feedback to governments to monitor and ensure that megaprojects being built post COVID 19 do take into account creation of public value into account?

The creation of value delivered by megaprojects has been gaining a lot of interest by scholars studying megaprojects . For example, Oliomgobe & Smith (2012, p. 617) explored how 'stakeholders engage with the megaproject delivery process and value creation.' Lin et al. (2017) developed an indicator system for evaluating social responsibility. Liu et al. (2018, p. 684) studied how 'cocreation sessions with the client, market partners and knowledge partners co-created three sets of values (value-in-use) as follows: commercial, intellectual and collaborative values; in Dutch infrastructure development project. Lehtinen et al. (2019, p. 43) studied how 'actors in a megaproject create value through jointly planned and governed design principles, and through value-leveraging activities'. A common concern of scholars researching in megaprojects is how to measure value perceived by the public from these projects.

According to Mergel et al. (2016. P. 928) "'big" data sets are increasingly used to help public managers derive real-time insights into behavioral changes, public opinion, or daily life.' Big data has been used to evaluate customer agility and responsiveness for public value creation (Chatfield & Reddick 2018). In a special issue on generation of public value Criado & Gil-Carcia (2019, p. 438) predict that 'new smart technologies and strategies will shape and will be shaped by the future of public organizations and management' and could lead to transformative practices in the public sector. Thus, there is a growing interest in how smart technologies, such as IoT, can be installed and used to collect large amounts of data to be help in the measurement of value from megaprojects.

Based on this need this paper we would like to address the following question in our paper:

How can data science enable evaluation and monitoring of delivery of public value over the life cycle of a megaproject?

The dimensions of public value of interest to the authors using a public value framework developed by Devkar (2020) are:

1. Accountability
2. Transparency
3. Responsiveness
4. Responsibility
5. Quality

Some work towards this aim has already been carried out by the authors but more is needed. The authors have been collecting and analysing social media data from transport projects from Australia and India to see how large amounts data collected from these media can aid in the evaluation of benefits realised from these projects The proposed paper will include findings from these studies that are ongoing and also ways in which such data collection and analysis can be expanded to cover the life cycle of a megaproject.

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