

Infrastructure Information Experience Framework (IIEF): IMA Impact Mapping and Computational Design Framework

Project Title: Infrastructure Information Experience Framework (IIEF).

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Computational design is about how to use data analytics (information and information flow) to understand an environment. This is a fundamental aspect of the Health Internet of Things (HIOT) infrastructure.

To fully understand how the clinical and patient experience can be impacted and supported by infrastructure, it is necessary to analyse these experiences from multiple facets including in relation to the environment, cognition, people, processes, and organisational culture. Using methods such as computational design allows for the consideration of the multiple and complex factors involved in experience analysis, and provides the basis for mapping these factors to digital infrastructure.

The research requires a detailed investigation of the characteristics of information and how IT impacts experience across individuals, groups and the community. This is then used to map experience to IT infrastructure and articulate how information (access, sharing, and coordination) informs decision making using integration with cognitive models. This is a vital component of any IOT infrastructure and will be used in the Campus Mental Wellness and other Infrastructure Capability projects.

The significance of this research is in its application to different contexts. For instance, when applied to a hospital environment (looking at people, time, and location) it will provide a better understanding of information flow and process, and will facilitate identification of patterns that may be indicative of certain states

e.g. stress and patterns of movement. In a BYOD policy or sensor deployed environment the collection of this data from the network is already available. Ultimately, this may contribute to a measure of performance of a hospital.



As an example of application in context, an **infrastructure capability - infrastructure to experience mapping** exercise is underway to design a framework for infrastructure to experience mapping, called the Infrastructure Experience Framework (IEF). The scope is to understand how clinicians and patients define experience, how to characterise and measure these experiences, and how infrastructure can support these experiences. The framework will be built on previous research that resulted in the Infrastructure Maturity Assessment (IMA) framework and its characterization of information infrastructure capabilities. Once developed, the project will use ethnographic studies with healthcare institutions to create use cases and case studies to demonstrate how such a framework can drive action.

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