

# Chapter 11

## DHM2–TS Framework for Evaluation of Tele–Health Platforms and Solutions: A Multi User–Centered Perspective

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### ABSTRACT

*The global surge in teleconsultations in response to the COVID-19 pandemic resulted in flooding of the market with multiple telemedicine solutions. This placed healthcare providers and seekers in a dilemma, as they lacked benchmarks and assessing tools to identify the appropriate solution that would satisfy their individual demands. After reviewing the existing frameworks for evaluating telemedicine solutions and platforms, both scholarly and widely known, the authors realized that they all focused on either the commercial perspective or the information management competencies of telehealth delivery systems. After establishing this research gap, a new unified integrative model suitable for assessing telehealth solutions has been proposed, which is described in this chapter. They first summarize the methodology used to develop the framework, and then the framework's various components. This framework can be used by all stakeholders of the telehealth ecosystem: healthcare providers, patients, solution providers, and policy makers.*

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## INTRODUCTION

Telehealth, i.e., delivering healthcare using information and communication technologies as a mode of connecting patients in remote areas with healthcare providers at a distant location has existed for a few decades with its own set of challenges in incremental growth and adoption across the globe (Joesph et al., 2010; Ellimoottil et al., 2018). Although it was shown to be an effective modality for providing medical consultations in remote and inaccessible areas during disaster situations, the use in mainstream clinical practice remained far from desirable. However, the reliance on Telehealth solutions and platforms increased in response to the crisis created by COVID-19 pandemic and the subsequent sequential lockdowns which precluded direct interaction between the healthcare providers and the patients in the same physical proximity (Mann et al., 2020). Governments of both the developing and developed nations actively made policy level changes to provide appropriate legal guidelines for enhanced usage of tele-health (U.S. Department of Health & Human Services, 2021; Saksena et al., 2021; Kulatungaa et al., 2020). Whereas, the benefits of telehealth became apparent in all countries, the challenges of unavailability of trained human resources, internet connectivity, lack of affordability, lack of understanding of implementation of telehealth and limited supply of devices also emerged (Jnr, 2020; Kim, Desai, Cole, 2020). These and many others remain as challenges that need to be resolved for the wide scale adoption of telehealth platforms. The technology providers responded with a sudden increase in the number of available solutions and remotely usable devices. The flooding of the market with such technology left the healthcare providers and seekers in a dilemma as they did not have any benchmarks and evaluating tools to choose the appropriate solution that would meet their specific needs. The technology providers also did not have a complete understanding of the specific needs of the end users related to the Telehealth ecosystem. Whereas, on the one hand there was an increased investment in tele healthcare products and platforms, it was also apparent that many products failed (Schroeder, 2020; Khandelwal, Kolte, and Rossi, 2021) to find the right product market fit. As tele-health is a collaborative engagement between stakeholders (Ekeland, 2021), and aligned with daily clinical practices (Jansen-Kosterink et al., 2016), it became apparent to the healthcare practitioners that an evaluation framework needed to be developed that could help them to choose from the multitude of tele-health platforms and solutions available in the market.

It is in response to this need that we decided to look at the tools available to evaluate the telemedicine solutions. On review of all the existing frameworks to evaluate the telemedicine solutions and platforms, published in both academic and popular outlets, we came to the conclusion that all of them focused either on the economic aspect (Hailey, et al., 2015) or on the information technology competencies (Chang, 2015; Greenhalgh et al., 2017; Kidholm et al., 2012; Van Dyk & Schutte, 2013) of telehealth delivery systems. In the case of tele-health products, the existing frameworks focused mainly on data exchange standards (Van Dyk & Schutte, 2013), and specialty-specific product development (Lapierre et al., 2018). Most of these existing frameworks deal with factors relating to the aspects of platform ideation, user experience, data safety and user's privacy, national guidelines, and others in a standalone manner and lack the ability to combine these critical aspects into a singular model, primarily because of narrow and isolated focus on economic or technological aspects of telehealth delivery (Trupia et al., 2021; Williams et al., 2003). Having established this hiatus and the urgency to fill this gap, we proposed to develop a framework under the Digital Health India Association (DHIndia) along with its alliance partners. In this chapter we first describe the methodology adapted for the development of the evaluation framework and

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