**Week 7: eHealth and Cloud**

Nate Bachmeier

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# eHealth and Cloud Computing

An eHealth system uses information and communication technologies (ICT), to enable both medical practitioners and their patients to gain insights into their total health. Many nations have implemented these systems with varying levels of success. This is due to their inherently complex nature as the medical facilities are politically and economically incentivized to be decentralized (Yang, et al., 2018).

## Core Subsystems

The three core subsystems to an eHealth system are (1) Electronic Medical Records (EMR); (2) Electronic Health Records (EHR); and (3) E-Prescription Services (ERX).

EMR systems address digitizing and storing medical information for regulatory compliance, sharing with authorized partner facilities, and simplifying record keeping. An EHR performs analytics, notifications, and patient dashboarding scenarios with the EMR data. ERX manages the treatment lifecycle such as refilling medications and billing insurance providers.

## Levels of Maturity

Stroetmann performed an analysis of fifty health care systems and loosely categorized them into different maturity levels. The levels are Patient Workflow Support Systems; Basic EHR-like Systems; Comprehensive, Complex Systems and Platforms; National Framework Systems with Common Components; and International Core Patient Data Exchange Services (Stroetmann, 2015).

Many eHealth systems have not acknowledged the existence of these levels and bitten off more than they can chew. Australia wasted over a billion dollars between 1999-2008 in failed systems that were meant to solve any issue that ever arose.

Then look at South Africa and Pakistan which focused on nationalized Patient Workflow Support Systems. Their solutions are very narrow in scope handling only appointment scheduling and record storage. The patient experience is improved through reduced wait times, and the facility can focus on differentiating characteristics (Mandil, 2015) (Stroetmann, 2015).

# Reasons for Failure

* What is eHealth
  + Areas
  + Levels of Maturity
* Why do eHealth Systems Fail
  + Lack of commitment or funding
  + Over ambission, unrealistic timelines
  + Lack of maintenance
* Design considerations for building system in the cloud
  + Extensibility and Interopability
  + Security, Privacy, Encryption
  + Locality, wifi, iot, and connectivity