Tuberculosis (TB) is a major cause of the world's disease burden. Despite successes in combating TB in many parts of the world, multidrug resistance (MDR) is a growing problem which presents ominous prospects for future TB control. Much effort has been devoted to developing new technologies and interventions focused on cementing gains and addressing MDR, though their eventual success may hinge on healthcare system factors that determine how these technologies can feasibly be delivered. Focusing on examples including India and the Former Soviet Union, this talk describes the insights gained from a number of TB models we have developed to assess a variety of technology and health system interventions. It also covers the models themselves, their calibration and validation, and their linkage to our primary data collection efforts.