



PROVIDING BETTER HEALTHCARE THROUGH SYSTEMS ENGINEERING:

Tracking A Pandemic: An Analytical View of the COVID-19 Progression and Implications for Business Plans to Re-Engage in the Economy

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The SARS-CoV-2 virus caused widespread disruption across the globe, affecting literally every aspect of human life. The business environment was not spared in this disruption, as customers, the workforce, workplace environments and supply chains were each turned upside-down, almost overnight. Operating practices needed to be challenged, re-engineered and re-adopted – at the speed of business. That is akin to replacing the aircraft engine while the plane is mid-flight. The challenge faced by business leaders from the outset of the pandemic, and remains true today, is that objective, analytical information on the state of the virus was and remains woefully inadequate. Further, every organization operating in multiple geographical and political jurisdictions has to navigate different and every-changing rules governing the ability to conduct operations. In mid-March, I launched an effort to build a repository of critical virus-related information (tests, positives, infections, recoveries, fatalities) at various levels of granularity – world, country, state or province, and metropolitan area. From this, I established a daily reporting mechanism and underlying analyses, designed to equip business leaders, economic and investment advisors and clinicians with insight about the state of the virus spread and underlying trends. My intent was to inform these leaders with actionable intelligence, free of both the fearmongering and denial perspectives that were dominating the general and social media. These efforts have resulted in my direct engagement with four organizations' operational planning efforts around the pandemic: two for-profit organizations involved in the manufacture and distribution of critical medical/life sciences products to consumers around the globe, a not-for-profit agency supporting families of critically-ill children and a governmental agency charged with administering a state-wide pandemic response effort. Additionally, I provide daily reports on the state of the virus to an estimated 2,000 clinicians, health organization managers, economists and investment managers. These lessons provide strong insight for the analytical practitioner. Through this effort, I have discovered the challenges of making actionable sense of data from a novel virus . . . in real-time. Data sources and definitions are in constant flux, external reporting lacks analytical rigor, and, new knowledge frequently trumps previously held scientific beliefs. More profoundly, models reported on and used extensively by government officials are often accepted as dogma but, may be nothing more than assumptions built upon several more layers of assumptions.

Mark currently serves as the Board Chair of Crown Healthcare Laundry Inc., a Quilvest Private Equity-portfolio company and as Strategic Advisor to Terso Solutions Inc., a subsidiary of Promega that provides Real Time Location Services (RTLs) for field-based inventory of leading medical implant and biotech companies. He previously served as chief strategist and business intelligence officer for Owens & Minor, Inc.; as a Partner in the healthcare consulting practice at Ernst & Young, where he launched the firm's health care supply chain practice; and as a Management Engineer at the Detroit Medical Center. Mark also serves on the National Advisory Board of the Congenital Heart Center at C.S. Mott Children's Hospital at the University of Michigan, and on the Advisory Board of the Medical Device Supply Chain Council. He recently completed two terms on the Board of the Bellwether League Inc. In the midst of the COVID-19 situation, Mark is producing an objective and analytical daily report on the virus progression in the US and worldwide. This report has become a go-to source for nearly 2,000 physicians, scientists, health system and supplier executives, economists, investment bankers and, one former head of the Centers for Medicare and Medicaid Services. Mark holds an MBA from the Ross School of Business at the University of Michigan and a Bachelor of Science in Industrial & Operations Engineering, also from the University of Michigan.

This seminar series is presented by the U-M Center for Healthcare Engineering and Patient Safety (CHEPS): Our mission is to improve the safety and quality of healthcare delivery through a multi-disciplinary, systems-engineering approach. For the Zoom link and password and to be added to the weekly e-mail for the series, [please RSVP](#). For additional questions, contact CHEPSseminar@umich.edu. Photographs and video taken at this event may be used to promote CHEPS, College of Engineering, and the University.