The Flow System:
Practitioner Tools for Navigating Complexity

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EXECUTIVE SUMMARY

This chapter provides an overview of techniques, tools, and methods for organizations to manage and operate in today's complexity. Current literature is lacking in providing techniques and tools for organizations to operate in complex environments. This gap in the literature is especially troubling for practitioners who are trying to learn and apply new tools to support their customers in implementing new innovation initiatives. The techniques, tools, and methods provided in this chapter were derived from a joint effort from academia, industry, and the Navy. This juxtaposition of tools and practices provides a praxis that ranges from creativity, innovation, performance improvement, organization development, organizational improvement, and organizational transformation.

INTRODUCTION

As the environment changes around organizations (e.g., complexity, environmental threats, globalization, potential epidemics/pandemics) many hold on to best practices with the ill-conceived perception that the same tools and techniques will work in today's complex landscape. Organizations, leaders, and practitioners are only beginning to face the reality that current knowledge, methods, and practices will not work

when dealing in complexity (e.g., pandemics, wicked problems). For example, the automotive industry is at an inflection point, forcing manufacturers to pivot by producing electric vehicles over gasoline as the cost of ownership for electric cars had surpassed that of internal combustion engines (Archer, June 3, 2017). Automakers must also be looking beyond electric vehicles and develop the capabilities to build fully autonomous vehicles. Unfortunately, this has been problematic for the auto manufacturers: "the existing automotive ecosystem is struggling to grasp" (McGregor, January 3, 2020, p. first paragraph). This has also introduced several new vendors, and competitors, to the field (e.g., Apple, Intel, Nvidia, Samsung; McGregor, 2020). This inflection point highlights the fact that software-based innovations are beginning to take over the electro-mechanical aspects of the automotive industry (Kersten, 2018). This inflection point does not, however, only apply to the automotive industry.

This point has been realized in recent events when looking at the impact that software-based innovation had taken over control of Boeing's 737 Max. Boeing's Maneuvering Characteristics Augmentation System (MCAS) incorporated software to address mechanical deficits in the airline as a fix to prevent the plane from stalling. The Maneuvering Characteristics Augmentation System proved to be a less expensive option compared to "modifying the airframe to accommodate the larger engines (Travis, April 18, 2019, p. para. 22), resulting in a fix for operating a "dynamically unstable airframe, the 737 Max" (Travis, April 18, 2019, p.22) . These points are provided only to highlight the changing environment that organizations are currently facing, complexity:

What's become clear is that no sector of the economy is safe, that the disruptions are accelerating, and that the very talented and highly trained business leaders responsible for the majority of the world's economy do not have the right set of tools and models to properly assess risk and capitalize on opportunity. (Travis, April 18, 2019, p. 9)

Perhaps these points have not been any clearer than in today's environment, for the year 2020, where we are being threatened by the Coronavirus (COVID-19) Pandemic. Due to the global shut-down through social distancing, interventions designed to avoid social contact, the world has essentially come to a stop, or as some would claim, a re-set. Major U.S. and European automakers have suspended production on a temporary basis as an attempt to decrease the spread of the COVID-19. This impact has extended well beyond just automobile manufacturers. Most large manufacturers have been forced to shut down, at least temporarily. Some of these companies include Nike, Abercrombie & Fitch, Luluemon athletica, and Under Armour (Shih, 2020). Some manufacturers are repurposing their facilities to produce products that are in demand during these times. For example, Dior repurposed one of their facilities to produce hand sanitizer due to the shortages in their local community (n.a., March 17, 2020). Tesla, GM and Ford have announced that they will begin repurposing their facilities to make ventilators and other medical equipment (Cormack, March 19, 2020) while Honeywell, 3M, and GE have agreed to ramp up their existing facilities to produce face masks, hand sanitizers, and other needed hospital supplies (Smith, March 19, 2020).

This trend, with closings in Asia during the earlier part of 2020, followed by closings in Europe and the United States of America in March, has sparked a major disruption in the supply and demand market on a global scale like we have never experienced before. According to some experts, this sets up "a gigantic bull whip effect in which supply chain managers chase their tails trying to match supply with demand" (Shih, 2020, p. Get Ready for). These problems have highlighted new problems in the current industry best-practices, "the disruption of the current outbreak is shifting industry structures" (Craven,