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Dr. Wells has more than twenty years of senior civilian leadership experience with the U.S. government in national security affairs, including service as acting Assistant Secretary of Defense for Networks and Information Integration and Department of Defense (DoD) Chief Information Officer (CIO). Other senior positions have been related to Command, Control, Communications and Intelligence (C3I), and the interface between decision-making and technology. As Assistant Secretary (acting) and DoD CIO he oversaw the Defense Department's \$30 billion budget for information technology and related areas and was responsible for enhancing the Department's networked capabilities and support structures.

From 2010 to 2014 he led the Center for Technology and National Security Policy, a research center at the National Defense University where he taught courses on wicked problems and complex decision-making and emphasized civil-military relations such as the STAR-TIDES network (www.star-tides.net) on sharing sustainable solutions. In 2014 he completed 51 years of service with DoD. He is now the Managing Partner of Wells Analytics LLC (www.wellsanalytics.com), linking technology, strategy and decision-making.

During 26 years as a naval officer, he served in a variety of surface ships, including command of a destroyer squadron and guided missile destroyer. He holds a BS in Physics and Oceanography from the U.S. Naval Academy, a MSE in Mathematical Sciences and a Ph.D. in International Relations from Johns Hopkins University. Dr. Wells was the first U.S. naval officer to attend the Japanese National Institute for Defense Studies in Tokyo. He received the Woodrow Wilson Award for Distinguished Government Service from the Johns Hopkins University and thrice was awarded the Department of Defense Medal for Distinguished Public Service.

Applying the Complexity Lens to a National Security Problem

Two Complexity Lens models are proposed to examine the following problem: "What are the national security implications of the pending work force crisis caused by the replacement of labor by automation and artificial intelligence (AI)?" This problem also can be a key driver of social change in global cities.

This topic was explored during a recent course on "Wicked Problems" taught at the U.S. National Defense University (NDU). The basic question was: By 2030, will there be a workforce crisis and, if so, how much social unrest and what security concerns might it cause by spawning radical ideologies, mass-migration, protectionism, virulent nationalism, etc.?

The students were assigned roles, including: diplomacy and trade promotion, national security, labor and education policy, and leaders from partner nation in Asia and NATO. Others articulated the positions of high tech companies, manufacturing firms, worker advocates, and humanitarian non-governmental organizations (NGOs). The positions advocated varied widely, from promoting *laissez faire* aggressively to protectionism, from extolling the virtues of "creative

destruction” to humanitarian concerns, from worries about alliance relationships and trade policies to virulent nationalism.

Discussions grouped themselves into nine areas (in no particular order):

- Labor issues
- Opportunities in education, and its limitations
- Trade and alliance relationships
- The velocity and impact of technological change
- Migration
- Timing of decisions needed to effect meaningful results
- Inequality of wealth and possible ways to redistribute it
- Role of government
- Role of the private sector

Proposed solutions also applied the general principal that approaches should consider cross-cutting interactions across the dimensions of People, Organizations, Processes and Technology (POPT).

Based on this, two alternative complexity lenses are proposed for consideration: One focused on interactions among the above areas and the POPT taxonomy, the other folding the discussion areas directly into the POPT model (Labor into People, AI into Tech, etc.) and looking at interactions therein.

