

**Title:** FATE – a method designed to anticipate socio-technical evolutions

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Traditionally the realm of defence seeks technological might through acquisition of better equipment. With such a focus on gaining a technical capability advantage, often scant attention is paid to social, economic, legal or environmental factors that shape technological diffusion. Increasingly the private sector dominates the development of technologies instead of states or governments. Furthermore, researchers in the field of future studies tend to guesstimate the trends that will prevail in the future; others extrapolate such trends into scenarios of the future; and still others focus on forecasting disruptive technologies. Few study the intersection of disruptive technologies relative to a scenario described at a specific time set in the future. Thus a method that enables a simultaneous examination of both is needed.

The North Atlantic Treaty Organization Systems Analysis Studies Research Task Group 123 (NATO SAS-123) was created with just such an intention. Its objective is to study over a three year term the interactions between diverse futures and socio-technical evolutions concurrently. It was formed in particular to assess the ability of these two variables to cause disruptions in defence and security. The novelty of the study meant that there was interest from a third of NATO member nations and NATO Allied Command Transformation (NATO ACT). Our NATO SAS-123 study group has designed a method titled Futures Assessed alongside socio-Technical Evolutions (FATE). We believe this work to be of use for decision-makers, as it facilitates their ability to make better informed decisions on socio-technical disruptors in the context of described futures.

The FATE method relies on examining a technology and social factors as a part of a socio-technical system (STS). It consists of four steps that start with the selection of an STS and its deconstruction into Organization, People, Policy, Technology and Infrastructure or OPPTI. A baseline STS is established as understood in the present by considering how an STS develops across OPPTI in the present. Step two involves selecting pre-described narratives of future states of the world and elaborating these into TEMPLES or Technical, Economic, Military, Political, Legal, Environmental and Social elements; step three looks at the intersection of the two by placing the STS in the future scenario. In step four, the impact of the interaction is assessed by identifying drivers and resisters that impact the STS.

It should be pointed out that an early iteration of our approach was presented at ANTICIPATION in 2017. Through the feedback from the Anticipation Community among others, our idea has matured into a method, a means to derive practical insights for informing action from framed futures.

It has since been revised after running a trial with participants not familiar with the method using the case study of Logistical autonomous systems (delivery to frontline by autonomous means). Examples of emerging technologies and their fate in about 15 years from today will be presented. The team's contention is that the FATE method is a collaborative action in the present that will help increase ones sensitivity to assumptions missed when planning for the future. Since the method relies on participation across disciplines it necessitates an active understanding of others' context which in turn, fosters commitment to decisions about the future.

Furthermore, as it transcends time horizons in looking at an STS in a future scenario relative to the current time, it is a representative of work in the present to anticipate actions for the future.

It is our belief that FATE is a much needed anticipatory practice for decision professionals, one that enables awareness of drivers and resisters for determinants of disruption.