

**Supreme  
Allied  
Commander  
Transformation**



# **Long Term Military Transformation SFA/FFAO and Regional Perspectives**

**SACT SPP SF Branch  
Breakout Sessions out-brief**

## ❑ NORTH AFRICA

- Political, Human, Technology, Economics, Environment

## ❑ RUSSIA & EASTERN EUROPE

- Political, Human, Technology, Economics, Environment

## ❑ ARCTIC & HIGH NORTH

- Political, Human, Technology, Economics, Environment

## ❑ Analysis of trends and implications:

- **Political manipulation of Islam will continue:**
  - Will increase its influence with likely impacts on the West.
- **Mass Migration:**
  - The point of inflexion: A political game changer which can redesign the political map in Europe;
  - The roots of the problem seem to be impossible to fix.
- **The redistribution of power:**
  - New international order in preparation. Unilateralism vs Multilateralism will drive future strategy.
- **Actual borders could be challenged.**

## ❑ Key areas/concerns/issues:

- **Radical political manipulation of Islam:**
  - A driver of political polarization of western societies; could impact the NATO and EU's cohesion;
  - How to fight inequality to access to the opportunities and promote good governance.
- **Africa, Playground for Great Power and Regional Power competition:**
  - China: Increase influence to control resources and develop their economic business plan;
  - Russia: Increase political influence to weight onto Suez canal area;
  - West: A promise of an alternative approach.
- **Implementation of democracy:**
  - Which political and societal models are relevant for North Africa and the Sahel strip;
  - What is the price to pay to have stability?

## ❑ Initial ideas for call papers:

- How to build effective institutions in North Africa and Sahel;
- Potentially paths of Political manipulation of Islam for the future.

## **Analysis of trends and implications:**

- Demographic change applies but at slower rate and with youth bulge. Developing social systems will have to deal with increased health care demands and unemployment leading to instability and migration.
- Urbanization rate high due to fertility. Government challenged to provide basic needs.
- Root causes for polarization not addressed, which might lead to instability and migration.
- Social media will play important role in social networks. Recredibilization of institutions required.

## **Key areas/concerns/issues:**

- Protection of civilians
- Health situation/Pandemics
- Tribalism vs Nationalism
- Uncontrolled spaces/Counter state sovereign
- Poverty and radicalization

## **Initial ideas for call for papers (2035 focused)**

- How are ungoverned spaces actually governed and what implications does this have for North Africa and/or NATO
- Border control (land and sea)

- **Global influences will impact North Africa**
  - Climate change (renewable), migration of disease (vaccines, access to healthcare)
- **Ubiquitous computing and predictive analytics allows information everywhere, monitoring of everything.**
  - Will everyone have access? Will government/companies limit access?
  - Behavioural design?
  - Ubiquitous education, gender equality in education
  - Quantum technologies
- **Business evolves supported by**
  - Mobile payments (M-pesa), Blockchain, cryptocurrency
  - Crowd sourcing/Uber of everything
  - Distributed autonomous organisations
- **Renewable Energy – when do we reach tipping point?**
  - Improved storage
  - Possibility of fusion
  - Improved solar panels and efficient transmission - infrastructure
- **Communications and social media**
  - Changes to way we communicate – what is email in 2040?
  - Avenue for disinformation, propaganda, and intelligence
- **Changes in labour structures**
  - Greenfield support leap ahead
  - Human performance augmentation
  - Being able to identify to achievers vs non-achievers
- **Healthcare**
  - Universal vaccines
  - Democratisation of healthcare - ubiquitous computing, AI, lab-on-chip, CRISPR ...
- **Agriculture**
  - Genetically modified organisms – support against climate change
  - Mega-farming
  - Desalination
  - Food security
- **Military**
  - Affordable and accessible, and more powerful weapons and training
  - Micro-targeting
  - Swarms

## Initial ideas for call for papers:

- Ethics in Technology
- Renewables in 2040 in North Africa
- Other idea....

## Analysis of trends and implications:

- Remaining or rising unemployment and frustrations (age, gender)
- Define North Africa - countries are not representative of Africa
  - Consider larger problems –Sahel and sub-Sahel
- Conditions required:
  - Security, stable government, legal organization, trust of the people in the government and in future potential, relations with neighboring countries
- New institutions (China) playing by different set of rules
- Changing standards of economic co-operation

## Key areas/concerns/issues:

- Resources – who owns, controls, and exploits: Tribal vs. Formal legal system
- Danger of informal economy
- Growing influence of state and non-state actors
  - China, Russia, GCC, multinational companies

## Initial ideas for call for papers:

- Translation of Eastern Europe from Soviet system to capitalist success to North Africa
- Cultural challenges and roadblocks to development and individual initiative
- North Africa / regional solutions to solve regional problems
- Roles – China, Russia

## Analysis of trends and implications:

- Climate and Environmental Challenges to Government
- Increased requirements for environmental awareness
- Impacts of climate change adaptation and migration measures
- Increased requirement to improve resilience

## Key areas/concerns/issues:

- Secondary impacts of N. Africa environmental aspects on other themes
- Updated trajectory for climate change impacts based on newest modeling data
  - Validation of degree of impact in N. Africa from sea level rise
- Stressors outpace N. Africa's current ability to invest in mitigation
- Renewable energy and Bio-tech (↑opportunity)

## Initial ideas for call for papers:

- To what degree will the multiple results of climate change (↑ temperature, ↑ sea level, ↓ arable land, ↓ access to water) combine upon each other and result in a “perfect storm” complex humanitarian problem?
- Where can NATO best engage to reinforce successes of AU and regional organizations?
- What is NATO's role in strengthening governance and security and reducing corruption to reduce exploitation of natural resources?



## Analysis of trends and implications:

- Russia continues to challenge the liberal world order
  - Weaponization of information and cyber domain
  - Nuclear first use
  - Increase number of military activities by Russia
  - Targeting Alliance cohesion
  - Activities falling “just under” Article V threshold

## Key areas/concerns/issues:

- Power transition and demography change
- Understanding Russian perspectives
- Russia/China relations going forward
- Russian military posture in the Arctic and other areas
- The level of energy interdependence and asymmetric dependence

## Initial ideas for call for papers:

- How can we create space for Russia in the international system?
- How can we revitalize confidence building measures?



## Analysis of trends and implications:

- Russia will suffer disproportionate from aging and negative net growth rate, with considerable implications for health care
- Urbanization is not a significant trend, but the situation in their population centers contributes to the vulnerability of Russia
- Political polarization is low (almost non existing) compared to Western countries. External threats are even more necessary to cover internal fractures.
- Network trend is more insular and controlled by Russian authorities. Role of non digital/social networks important.

## Key areas/concerns/issues:

- Loyalty of immigrant soldiers i.r.t. expeditionary capabilities
- Population unrest
- Russia is far ahead in shaping the narrative
- Post-Putin
- Role of the Russian diaspora

## Initial ideas for call for papers:

- What does political polarization in an authoritarian society mean?
- How does Russia's future look past Putin?

- **Environmental Factors**
  - All systems must be able to operate under extreme cold conditions
  - Technology to remediate old dump sites (nuclear/chemical)
- **Governance**
  - Strong motivation to be technological leaders
  - Highly educated population
    - Develop military systems
    - Can we engage them?
  - Strong criminal structures (cyber and other crimes)
- **Energy concerns as renewables reach tipping point**
- **Communications**
  - Social media interference
  - Strong need for tools (AI) to moderate social media
- **Synthetic Biology**
  - Can support dual-use (same lab for agriculture and weapons)
- **Critical Infrastructure Protection**
  - UUVs and other systems to defend pipelines, telecommunications lines
- **Thoughts on Military Systems**
  - Requirement for autonomous systems/being to counter autonomous systems (ground, maritime and air systems)
  - Space situational awareness
  - Anti-satellite weapons/protection of our systems (hardening, stealth, maneuverable)
  - Weaponisation of space (kinetic, DEW, debris)
  - Increase our resilience to loss of space
  - Hypersonics weapons/defence against hypersonics
  - A2/AD (Cognitive Electronic Warfare, stealth)
  - Emerging classes of WMD
- **Cyber Protection**
  - Attribution tools to strengthen deterrence
  - Cognitive cyber protection
- **No calls for papers**

## Analysis of trends and implications:

- Russia overly reliant on energy sector – needs to diversify
- Problems with legal system and property rights leads to lack of foreign investment
- Diversification = Stability: Strong and Stable preferred over Weak and Unstable
- Existing energy transport infrastructure will continue dependence of Eastern European countries on Russian supplies

## Key areas/concerns/issues:

- Different distances from Russia leads to different perspectives
- Define „Eastern Europe” in context of NATO interest related to Russia
- Increasing state control over economy
- Impacts of changing price of oil on infrastructure growth and dependence on Russia

## Initial ideas for call for papers:

- Potential role of renewable energy and overcoming distribution challenges
- Migration patterns and settlement variation by social benefits offered by countries
- Technological advances in energy storage options will significantly change economic landscape

## Analysis of trends and implications:

- Increased range of activities in the Arctic due to growing accessibility
- Climate and Environmental Challenges to Government (domestic opportunity)
- Increased requirements for environmental awareness
- Impacts of climate change adaptation and migration measures

## Key areas/concerns/issues:

- Decreasing sea ice/increased navigability will expand NATO maritime AO and exacerbate demand for asset contribution
- Nuclear issues
  - Cleanup/mitigation of decommissioned nuclear submarine site(s)
  - Aging Russian nuclear reactors nearing end of life-cycle and bring radioactive waste and by-product concerns
  - Potential for resumption of nuclear weapon testing
- Loss of permafrost & rising temperatures
  - Uncertain impact of changing weather patterns/extreme weather
  - Potential for more farming land, extended crop cycle
  - Potential for new hazardous material/waste management and mitigation needs
- Greater potential for human induced environmental disasters
- Widespread water & air pollution

## Initial ideas for call for papers:

- Nuclear ramifications
- Decline of permafrost

## Analysis of trends and implications

- Increased militarization to protect investments (**Key area for Arctic Workshop**)
- Increased commercial activity drive need for regulations and agreements, SAR resources
- States use companies, info campaigns, scientific research, NGOs to support strategic goals
- Migration - Will more people move to the Arctic as it warms

## Key areas/concerns/issues

- Greenland – what if Greenland leaves Denmark (Strategic shock)
- NEP vs Suez vs Panama (Jellyfish)
- Environment and climate change (Jellyfish)
- Russian Militarization (Elephant)

## Initial ideas for papers

- What is the possible economic/security/social impact of the opening of the Arctic SLOC on Suez and Panama Canals
- CSBM

## Analysis of trends and implications:

- Climate change will be the biggest driver of demographic changes with a predominantly young male population/work force in the North
- Urbanization is a trend but at a much smaller scale
- Symptoms of the fractured and polarized society are likely to occur but without a huge external impact
- Penetration of networks is limited but with similar consequences as the general trend but there are difference between Russia and the other nations

## Key areas/concerns/issues:

- How the indigenous population relate to non indigenous influx
- Weaponization of migration by Russia, China and India
- Polar Islamism
- Effects of climate change to the habitability and exploitability of region
- Possible independence of Greenland (and arctic part of Russia)
- Growing anti military/nuclear movement
- Governing of the growing arctic population might challenge nations
- How will the exploitation of the arctic influence social movement around the world

## Initial ideas for call for papers:

- How the smart arctic project impacts the human domain in the high north?

- **Communications**
  - Improved satellite communications/PNT (more activity drives demand for communications)
  - Improved internet infrastructure
- **Resources**
  - Autonomous systems for energy exploration, mapping, transportation ...
  - Does zero carbon reduce resource exploration?
- **Healthcare**
  - Remote medicine supported by AI, communications, robotics (persistent presence)
- **Environmental**
  - Better remediation for environmental disasters
  - Cold engineering – difficult to develop systems for both south and north
- New transportation technology
  - Hyperloop for the Arctic
  - may make transportation of fresh water, other goods, people, more economic
  - Support building of new communities (tourism)
  - Construction difficult in evolving permafrost
- Weather Engineering
  - Ethical concerns
- **Improved Situational Awareness**
- **Call for Papers**
  - Cold Weather Engineering
  - Robotics in the Arctic



## Analysis of trends and implications:

- Time horizons – short versus long term benefits and strategic decisions – but horizon is uncertain / not clear
- Russia projection of soft power via rule of law makes attractive to investment – how this differs from their approach in other geographic areas
- Price of energy drives attractiveness (positive or negative) of High North options

## Key areas/concerns/issues:

- Balance between cooperation and competition
- High North route better for Just-In-Time supply chain
- Opening of North West passage will impact dependence on Russia High North – creates a limited window of time for Russia
- Environment impact of economic development and resulting impact on future economic opportunities
- Current Russian monopoly in icebreaker capacity
- Potential risk of new biological weapons due to melting permafrost

## Initial ideas for call for papers:

- Potential partnerships – trading access or services (pilotage, icebreaking) for technology
- Russia has a strategy for High North – do other countries? Does NATO?
- Sustainability of Russian strategy? Focus on short term wins or long term like China
- Contrast Russian adherence to legal system and property rights in High North versus Eastern Europe – reasons and impact
- Impact on on-shore economy (agriculture, etc.) in lower latitudes of Russia (positive and negative)
- Power projection and tensions among nations other than Russia
- Future opportunity for digital services and transmission (Facebook, Google in Sweden, Finland) but lack of satellite coverage

## Analysis of trends and implications:

- Increased range of activities in the Arctic due to growing accessibility
- Impacts of climate change adaptation and migration measures
- Increased requirement to improve resilience

## Key areas/concerns/issues:

- Pace at which natural resource extraction becomes economically viable
  - Balance between commercial use and environmental preservation/sustainability
- China's increasing agenda; freedom of environmental responsibility
- Departure from international norms on EEZs in the Arctic
  - Political will and resources for enforcement
- Northern sea route(s)
  - Sovereignty issues
  - SAR implications and cooperation
  - Revenue extraction
- Implications of a changing Arctic ecosystem?
  - Aquatic habitat and fishing grounds
  - Complex, non-linear relationship between melting ice and changing oceans

## Initial ideas for call for papers:

- What are the IMO's projections on future shipping lane scenarios in the Arctic?

**Aim:** Regional Perspectives Workshops (RPWs) will facilitate discussion and interaction between NATO Command Structure and Agencies, NATO and Partner Nations, NATO COEs, International Organizations, Industry, Think Tanks and Academia on developments in regions relevant to NATO and Euro- Atlantic security such as the Arctic/High North, Russia and Eastern Europe, Asia-Pacific, and North Africa.

RPWs will be planned in 2018 and executed in 2019 to provide in-depth analysis and different points of view in support of decision-makers in the development of new Military Strategy as well as to support the development of the SFA 2021 Report.

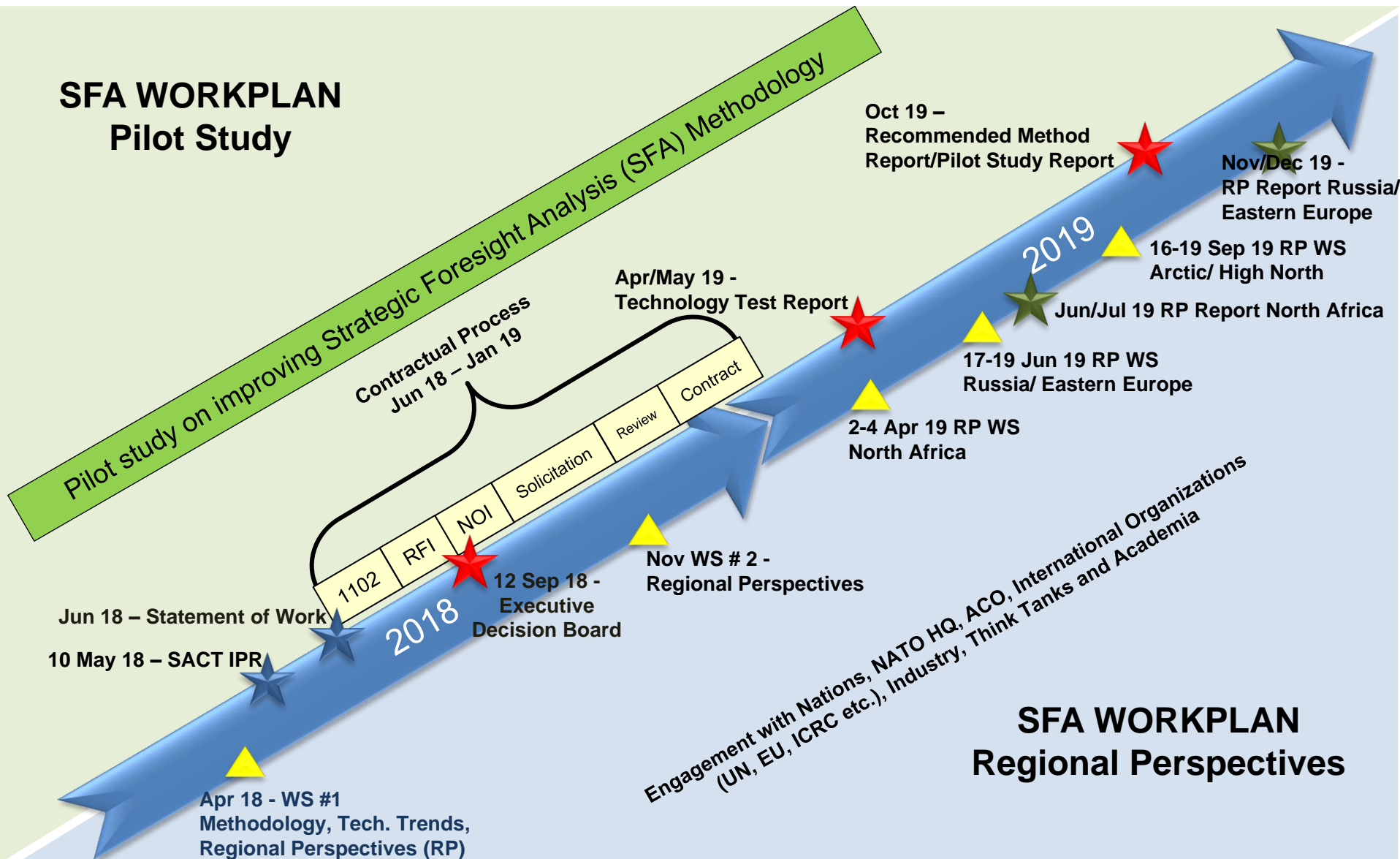
## **The Regional Perspective Reports context:**

- Academic/Think Tank Views (Call for papers)
- National Views (Through think tanks or white papers etc.)
- SFA Team's Analysis/Findings (Using Computing power when it is available)





## SFA WORKPLAN Pilot Study



# QUESTIONS?

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