



# CORMT**T**ESSA

**Core Competence Center for  
Operations Research**

**25<sup>th</sup> ASEAN  
FORUM**

**Management Intelligence  
Tenacity Experience**

**THANK  
YOU!**

**Safety & Security**

**ALLIANCE**



[Welcome](#) [Call for Papers](#) [Program / Speaker](#) [Registration](#) [Organization](#) [Venue](#) [Contact](#)



# Uni Bw München

**25th  
ASEAN FORUM  
2.8.2023**

# Uni Bw München

- Founded in 1973
- Civilian and international students
- Well-established Scientific Research, part of two excellence clusters
- Large focus on **Safety & Security**
- Special Partnership NPS - UNM - Malaysia



# COMTESSA Team





# Prof. Dr. Stefan Pickl



- Chair for Operations Research in the Department of Computer Science at UniBw
- German Educational Representative within **European Operations Research Society (EURO)**
- Head of **German OR WG**  
*“Simulation and Optimization of Complex Systems”*
- Vice-President **DKKV German Committee for Disaster M**
- Member of **Munich Aerospace** and **HOLM**

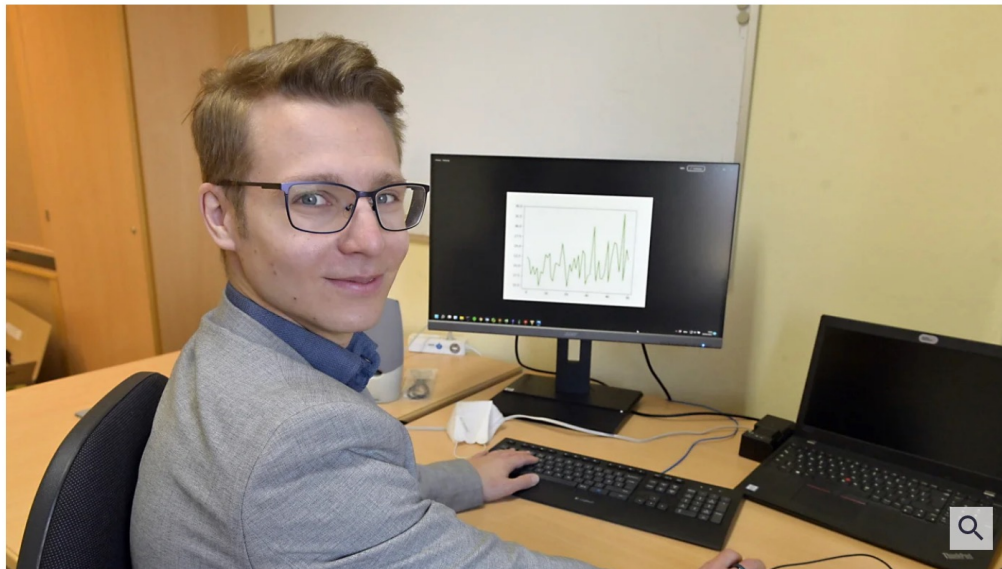


# - Prescriptive - Analytics | Prof Dr. Maximilian Moll

Bundeswehr-Uni

## Ein Professor, kaum älter als seine Studenten

4. Mai 2022, 19:44 Uhr | Lesezeit: 5 min



Als Schülerstudent hat Maximilian Moll die Bundeswehr-Uni schon kennengelernt. Jetzt ist er mit 31 Jahren der jüngste Professor dort. (Foto: Claus Schunk)

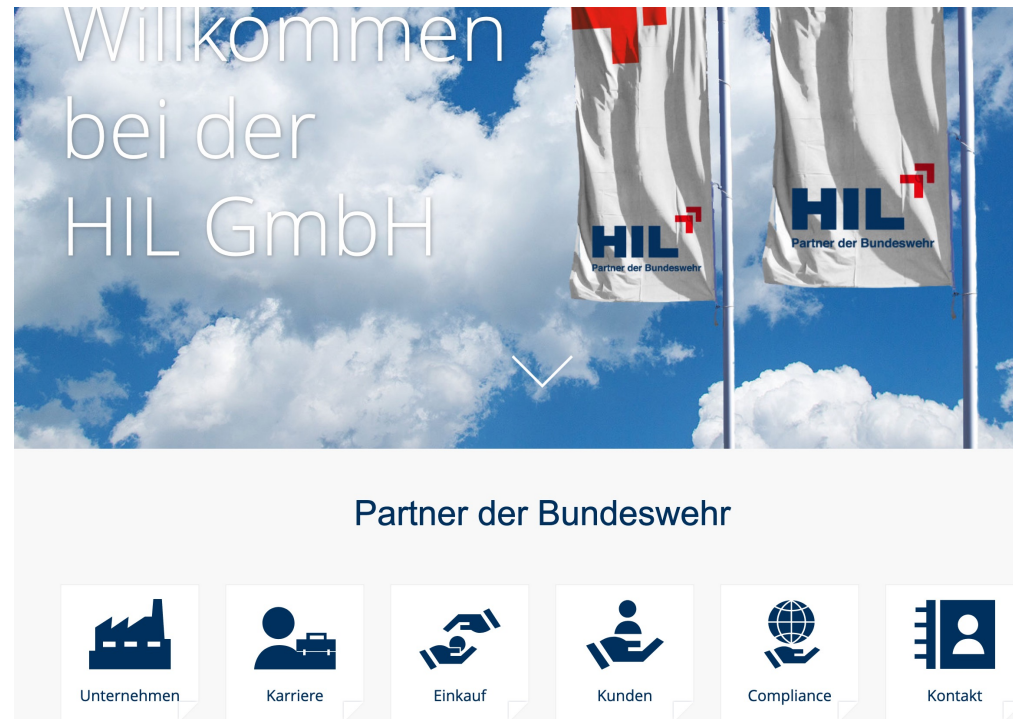




# - Visual - Analytics | Dr. Sorin Nistor



# - Predictive - Analytics | Dr. Son Pham

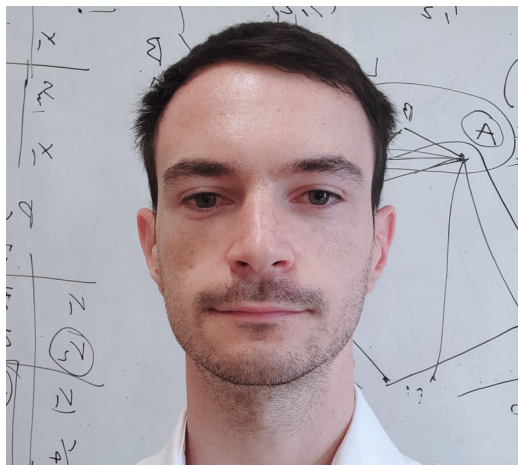


# Adversarial Intelligence | Dr. Leonhard Kunczic



Schwärtzel Award 2022

# Algorithms | Rudy Milani



## Rudy Milani

*Mathematician and creative thinker*

PhD student in Reinforcement Learning (Artificial Intelligence), Master degree in Mathematics and Applications and Excellence degree from the School of Advanced Studies Carlo Urbani (Camerino, Italy). Rudy has plenty of experience in Machine Learning



# Agent-Based Modelling | Jacob Ehrlich



# Architectures | Dr. Brigitte Buchetmann



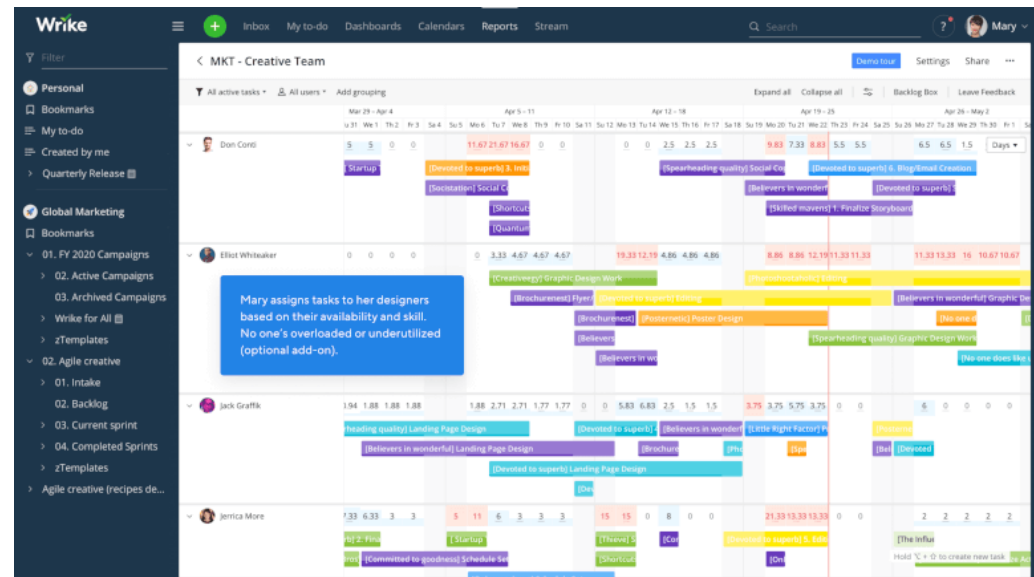
TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

NATO NAF V4 Grid

		ASPECTS OF CONCERN									
		Taxonomy	Structure	Connectivity	Processes	Behaviour	Sequences	Information	Constraints	Roadmap	
SUBJECTS OF CONCERN	Concepts	ES-01 Capability Taxonomy NAV-2, NCV-1	ES-02 Enterprise Vision NAV-1	ES-03 Capability Dependencies NAV-4	ES-04 Standard Processes NCV-4	ES-05 Effects NAV-4b		ES-07 Performance Parameters NAV-1	ES-08 Planning Assumptions	ES-09 Capability Roadmap NAV-3	
	Service Specifications	ES-01 (NSM-3)		ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09	
	Service Taxonomy NAV-2, NSM-1		ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
	Service Interfaces NSM-2		ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Specifications	ES-01	ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Node Types NAV-2		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Scenario NAV-2		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Interactions NAV-2, NAV-3		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Activities NOP-5		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical States NAV-4b		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Sequence NAV-4c		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Data Model NAV-11a		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Logical Constraints NOP-4a		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Lines of Development NAV-2		ES-02	ES-03	ES-04	ES-05	ES-06	ES-07	ES-08	ES-09		
Physical Resource Specifications	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	
Resource Types NAV-2, NSM-2, NSM-11		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Structure NAV-4, NAV-3		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Connectivity NSM-2, NSM-4		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Functions NSM-4		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Status NSM-4b		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Sequence NSM-11c		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Physical Data Model NSM-11a		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Resource Constraints NSM-11a		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Configuration Management NSM-8		NSM-4, NAV-3	NSM-2, NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	NSM-4	
Architecture Meta-data	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	
Meta-Data Definitions NAV-3		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Products		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Correspondence ISO42010		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Methodology Used NAF Doc		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Status NAV-1		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Versions NAV-1		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Meta-Data NAV-112		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Standards NAV-112		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	
Architecture Roadmap		NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	NAV-3	

Question : How to update these viewpoints and ensure their traceability ? : We need a well-defined Methodology !

# Assignment | Prof. Dr. Max Krüger



# Awareness | Teresa Franziska Loreth



universität  
wien



## Droht Deutschland der Blackout?

FAQ zu schweren Stromausfällen in Deutschland

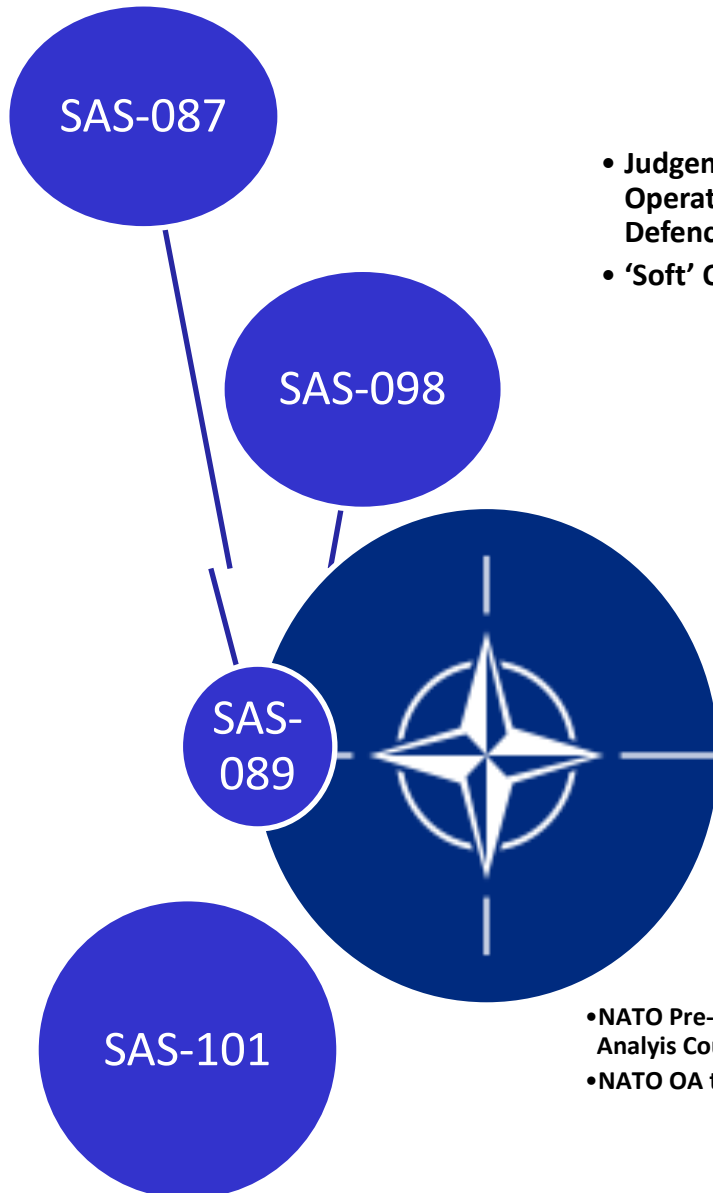
	"Brownout"	"Blackout"
<b>Definition</b>	Stromnachfrage übersteigt das Angebot	Großflächige, unkontrollierte Störung im Netzbetrieb
<b>Gründe?</b>	Zu geringe Stromproduktion, Brennstoffmangel in Kraftwerken	Schwere technische Fehler (z. B. durch Unwetter) bei gleichzeitig hoher Stromnachfrage
<b>Dauer?</b>	Minuten bis wenige Stunden	Bis zu mehreren Tagen
<b>Folgen?</b>	Ausfall von Licht und technischen Geräten	Ausfälle in der kritischen Infrastruktur, Seuchengefahr
<b>Häufigkeit?</b>	In den letzten 17 Jahren nicht vorgekommen	Bislang nicht vorgekommen
<b>Im kommenden Winter wahrscheinlich?</b>	Geringe Wahrscheinlichkeit	Äußerst geringe Wahrscheinlichkeit
<b>Was kann jeder zur Vermeidung tun?</b>	Stromverbrauch drosseln, z. B.: keine Heizlüfter betreiben, Stand-By-Betrieb vermeiden, PC/Laptop bei Nichtnutzung ausschalten, Kühlschränke/Gefriertruhen richtig einstellen	

Stand: 01.11.2022  
Quellen: Bundesnetzagentur, Bundesregierung





# Academy | Generalmajor a.D. Dr.Dr. Budde



- Judgement-Based Operational Analysis in Defence Decisions
- 'Soft' Operational Analysis

- OR / OA Orientation Course Curriculum for NATO Nations
- Motivate Senior Leader for Operations Reseach

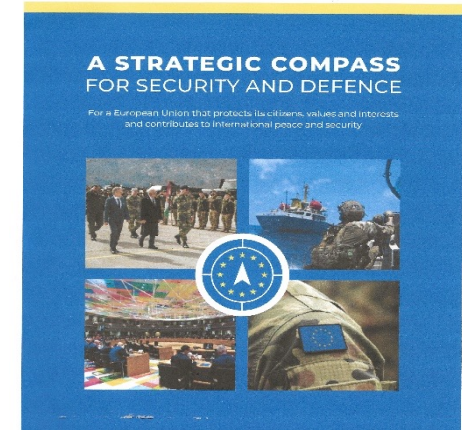
- Operational Analysis Support to NATO Operations

- NATO Pre-Deployment Operational Analysis Course
- NATO OA training concept



**NATO Excellence Award 2023**

# Artificial Intelligence | Generalmajor a.D. Wolski



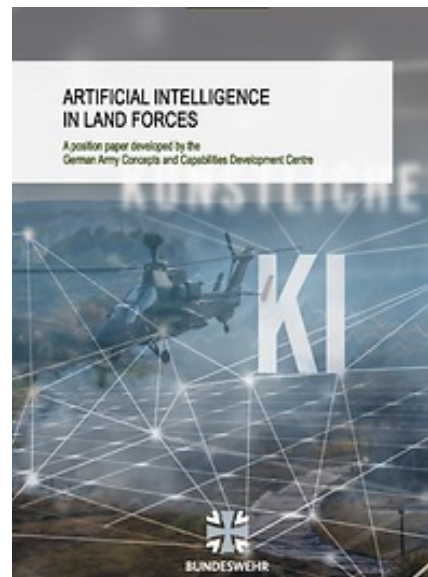
## Strategische Technologien und Abhängigkeiten auf den Gebieten Sicherheit und Verteidigung

- 2022 werden wir innerhalb der Europäischen Verteidigungsagentur ein **Innovationszentrum für den Verteidigungsbereich** einrichten, das partnerschaftlich mit der Kommission zusammenarbeiten wird, um Synergien mit den damit verbundenen Arbeitsbereichen zu nutzen, einschließlich des EU-Innovationsprogramms für den Verteidigungsbereich. Die Parameter für dieses Zentrum werden im Rahmen der Europäischen Verteidigungsagentur festgelegt werden.
- Ab 2022 werden wir über die **Beobachtungsstelle für kritische Technologien** weiter strategische Abhängigkeiten im Verteidigungssektor ermitteln und wir werden an ihrer Verringerung arbeiten, indem wir Instrumente und Maßnahmen der EU und der Mitgliedstaaten mobilisieren und etwaige Lücken sondieren. Wir werden mit der Kommission und der EDA zusammenarbeiten, um von Anfang an einen EU-weiten strategischen koordinierten Ansatz für kritische Technologien zu entwickeln, die für die Sicherheit und Verteidigung von Bedeutung sind. In diesem Zusammenhang werden wir uns auch auf die Arbeit der EDA zu strategischen Schlüsselaktivitäten stützen. Wir werden weiterhin den **EU-Rahmen für die Überprüfung ausländischer Direktinvestitionen** nutzen, wenn eine Investition in den Verteidigungssektor der EU die Sicherheit oder die öffentliche Ordnung bedroht. Wir werden zusätzliche Vorschläge prüfen, um solche Risiken für den EU-Verteidigungssektor zu mindern.
- Ab 2022 werden wir Forschung, technologische Entwicklung und Innovation in der gesamten EU weiter fördern und unsere **strategische Abhängigkeit** bei für die Sicherheit und Verteidigung kritischen Technologien und Wertschöpfungsketten auf der Grundlage der übergeordneten strategischen Forschungsagenda der EDA und des von der Europäischen Kommission vorgeschlagenen Fahrplans für kritische Technologien für Sicherheit und Verteidigung verringern.
- 2023 werden wir gemeinsam mit der Kommission das Risiko für unsere **Lieferketten kritischer Infrastrukturen**, insbesondere im digitalen Bereich, bewerten, um die Sicherheits- und Verteidigungsinteressen der EU besser zu schützen.

# Research Peace Orientated

## AI for Operational Planning Process in Headquarters

***Prof. Dr. Stefan Pickl***, Universität der Bundeswehr München  
***Dipl.-Ing. (Univ) Reinhard Wolski***, Generalmajor a.D



# „Big Rocks“ für OR/OA

- **Combat Cloud(s)**
- **Reach Back**
- **Streitkräfteplanung-Kräfteplanung-  
Operationsplanung**
- **Information Management**
  - **Battle Space Management incl.  
Cyber und Weltraum**
  - **Planungshorizonte und Battle Rhythm**
  - **Joint Intelligence and Joint Targeting**
- **STRATCOM**



# BSC Berlin Security Conference

22<sup>nd</sup> Congress on European Security and Defence



## Europe and NATO – Enhancing Resolve and Resilience

29-30 November 2023

Vienna House Andel's Berlin  
Landsberger Allee 106  
D-10369 Berlin

[www.euro-defence.eu](http://www.euro-defence.eu)



### Advisory Board 2023



**Wolfgang Helmich**  
MP, Chairman of the SPD Parliamentary Group in the Defence Committee, German Bundestag, Congress President BSC 2022



**Dr Tobias Lindner**,  
Minister of State at the Federal Foreign Office of Germany



**Siemke Müller**,  
Parliamentary State Secretary, Federal Ministry of Defence, Germany



**Bettina Cusack**  
Assistant Secretary General for Political Affairs and Security Policy NATO, former Director for Security Policy at the Federal Foreign Office, former Ambassador of Germany to Georgia



**Prof Ioan Mircea Paşcu**  
former Vice-President of the European Parliament, former Defence Minister of Romania, Congress President BSC 2018



**Claude-Françoise Arnould**  
Senior Advisor on European matters of the French Institute of International relations (Ifri), former French Ambassador to Belgium, former Chief Executive of the EDA



**Michael Gahler**  
MEP, EPP Group Foreign Affairs Coordinator, European Parliament



**Robert Walter**  
President of the Assembly of the WEU 2008–2011, President ESDA, Congress President BSC 2012–2014



**Silvia Petig**  
Chairwoman of the German Section of Women in International Security, WIS.de

For internal use only

!!! Not to be published !!!  
The persons mentioned in the draft programme have not been contacted by the organizer. However, they will very soon be invited to contribute to the conference as outlined.

## Panel B6

### The use of Artificial Intelligence in the Military Domain

#### Chair:

» **Prof Dr Stefan Pickl**,  
University of the German Armed Forces, Munich  
Introduction:

» Industry Partner

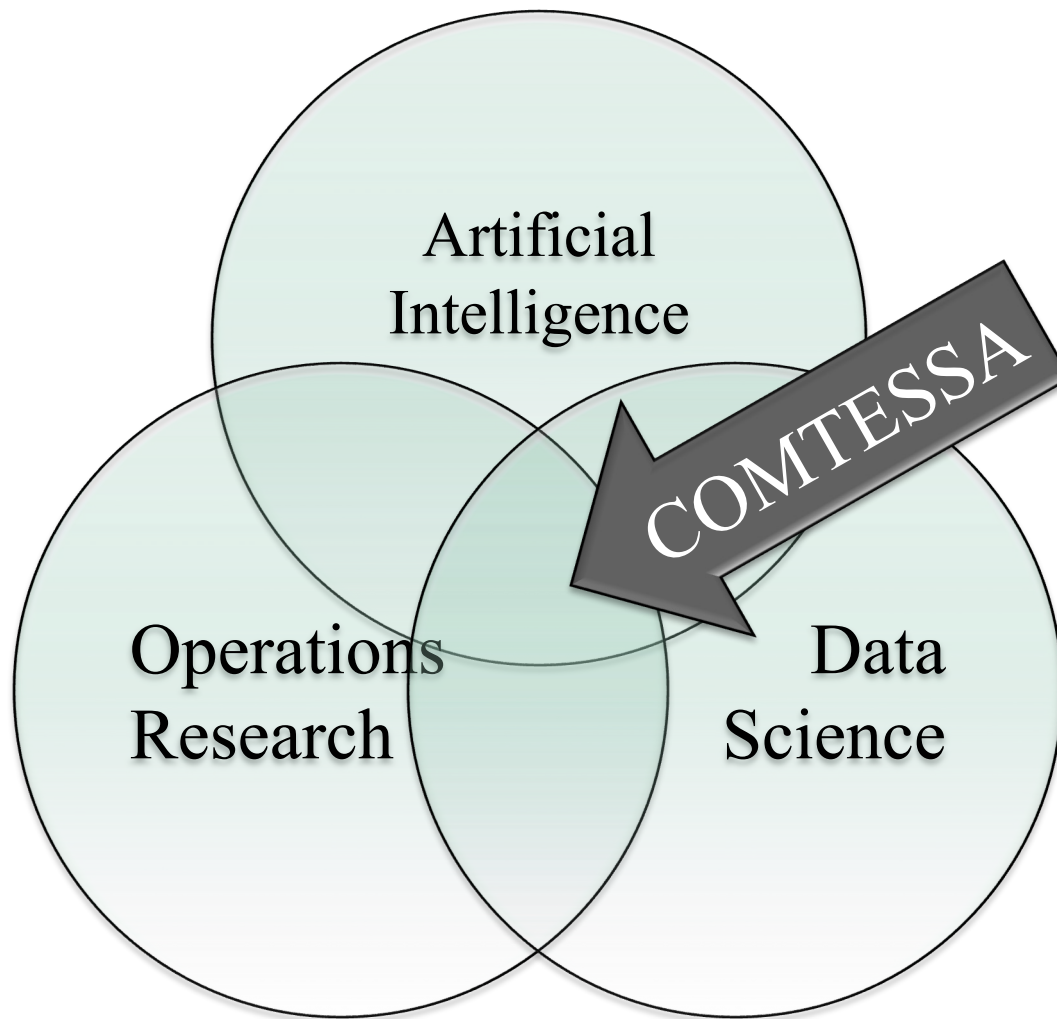
#### Panellists:

» **Major General Bruno Hofbauer**,  
Capability Director, Austrian Armed Forces

» **Dr Bryan Wells (UK)**, NATO Chief Scientist

» **Dr Peter Wekhoven**, Chief Scientist TNO, NLD »

# Research Focus



# Projects Overview



Protection of Train Stations



Protection of Railway Systems (ICE Network)

**RAHSS**

Protection of Cyber-Systems in Rail



Management of Mass Casualty via an Artificial Intelligence Based System

**JRC LIVE**

Supply Chain Value Visibility





## REsilience of the Franco-German High Speed TRAIIn Network

- Defensive **measures against threats**
- Adjusting the safety requirements to changing threats
- Reducing the vulnerability
- Preparation for the **rapid and sustainable coping** with the consequences of an attack by the flexible and efficient use of the **intervention system**



# RiKoV

- Protect Critical Infrastructures better from terrorist attacks
- Protection by an overall tracking and risk management (RM)
- Taking public transport (PT) on rails as an example

Köln Stadt-Anzeiger › Köln › Kölner Innenstadt › GroÙseinsatz-Übung: Terroranschlag in der U-Bahn am Bonner Wall in Köln simuliert

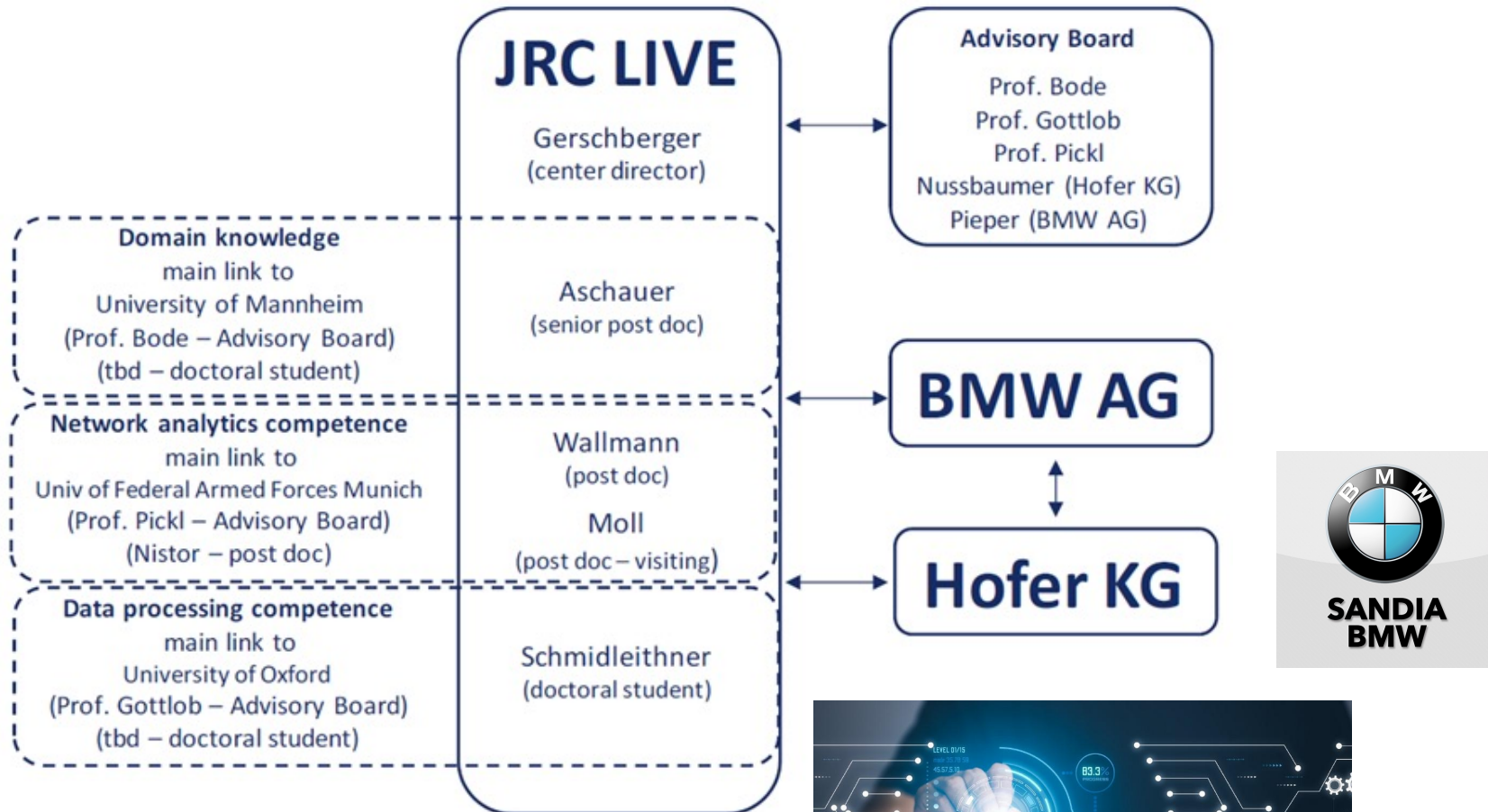
**GroÙseinsatz-Übung** Terroranschlag in der U-Bahn am Bonner Wall in Köln simuliert



GroÙübung am Bonner Wall: Bis zum Eintreffen der Rettungskräfte haben die meisten Verletzten die U-Bahn-Station verlassen und sich, oft unter Schock stehend, rund um die Ausgänge verteilt.  
Foto: Stefan Worring

# JOSEF RESSEL CENTRE for

## REAL-TIME VALUE NETWORK VISIBILITY





Gründungsmitglied

Blackout-Szenarien

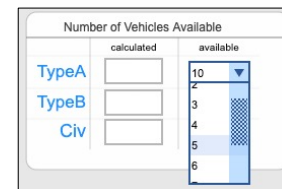
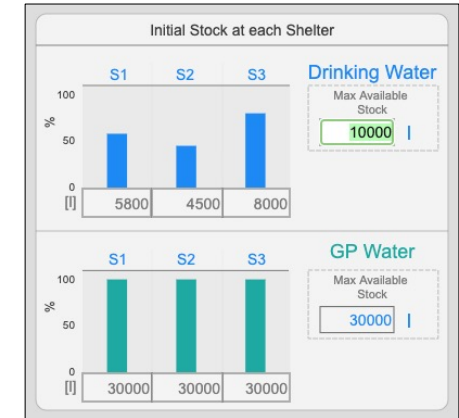
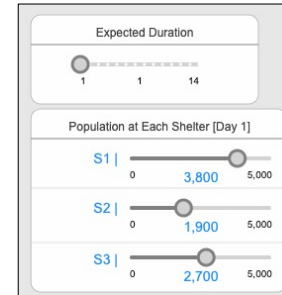
Komplexe Planungstools



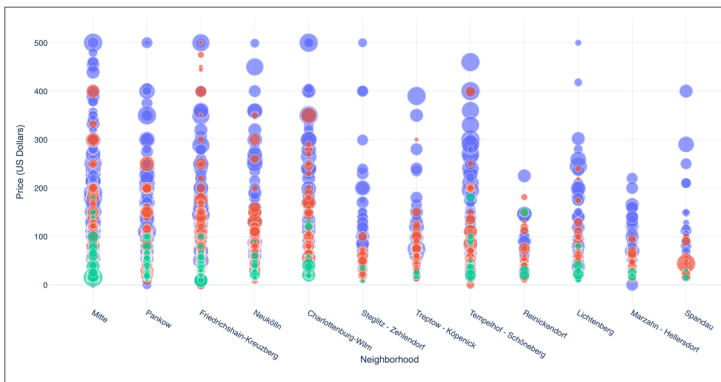
<https://www.govisible.org/>

# Blackout

# Black Out | Expert Decision Support



Status | Normal Transport parameters



- **Complex Data & Representations**
- **Highly Abstract**
- **Domain Background Expected**



**CORMTESSA**

Core Competence Center  
For Operations Research  
Tenacity - Management - Excellence  
Safety & Security ALLIANCE



# Outlook

# Ausblick: “Digitalization” | Role of New Technologies

AI - Quantum Optimization

Control Tower VR - AR

Smart Visualization

Digital-Twins

Living  
Lab



REACHBACK → The world as open innovation environment




General Petraeus's next challenge | Petraeus's next war | The Economist - Microsoft Internet Explorer

Adresse [http://www.economist.com/world/mideast-africa/displaystory.cfm?story\\_id=12342136](http://www.economist.com/world/mideast-africa/displaystory.cfm?story_id=12342136)

**Petraeus's next war**  
 Oct 2nd 2008  
 From *The Economist* print edition

**After success in Iraq, can America's favourite general win in Afghanistan?**

**The general plots his next squeeze**

AFP  

 IN LESS than two years General David Petraeus has become the most admired American general of recent times. His success in overseeing America's military surge in Iraq, reversing the country's descent into a sectarian bloodbath, has earned him praise from both contenders in America's presidential race. He is a "great general" in the view of John McCain, and has "done a brilliant job" according to Barack Obama. Given his intelligence, ambition and deft handling of the media, the general is talked of as a possible future president.

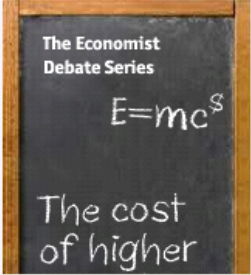
First, though, he has some more soldiering to do. As he has left Iraq to take over Central Command later this month, presiding over operations from Egypt to Afghanistan, his views will do much to shape the course of the "war on terror" under the next president. He faces a persistent question: can his Iraqi success be replicated in Afghanistan?

As security has improved in Iraq, it has worsened in Afghanistan. And as the surge of forces comes to an end in Iraq, there are calls for a similar one in Afghanistan. In its dying days, the Bush administration has ordered a full review of policy in Afghanistan. General Petraeus took part in lengthy high-level meetings in London and Paris last month, and in August he brain-stormed with Pakistan's top brass on an American aircraft-carrier in the Indian Ocean.

**Related Items**

- From *The Economist***  
Talking to the Taliban  
Oct 2nd 2008
- Country briefing**  
United States, Iraq
- More articles about...**  
Afghanistan  
Iraq's troubles

**Advertisement**



The Economist Debate Series  
 $E=mc^2$   
 The cost of higher

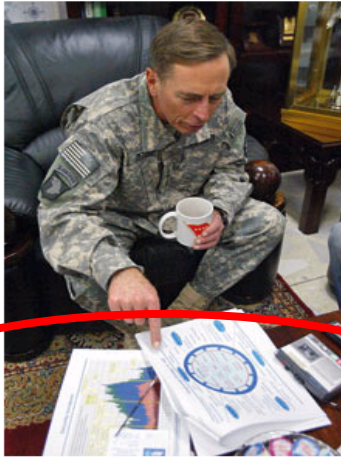
Start | Fertig | General Petraeus's n... | Microsoft PowerPoint ... | DE | 17% | 19:00

General Petraeus's next challenge | Petraeus's next war | The Economist - Microsoft Internet Explorer

Adresse [http://www.economist.com/world/mideast-africa/displaystory.cfm?story\\_id=12342136](http://www.economist.com/world/mideast-africa/displaystory.cfm?story_id=12342136)

**Petraeus's next war**  
 Oct 2nd 2008  
 From *The Economist* print edition

**After success in Iraq, can America's favourite general win in Afghanistan?**

AFP  IN LESS than two years General David Petraeus has become the most admired American general of recent times. His success in overseeing America's military surge in Iraq, reversing the country's descent into a sectarian bloodbath, has earned him praise from both contenders in America's presidential race. He is a "great general" in the view of John McCain, and has "done a brilliant job" according to Barack Obama. Given his intelligence, ambition and deft handling of the media, the general is talked of as a possible future president.

First, though, he has some more soldiering to do. As he has left Iraq to take over Central Command later this month, presiding over operations from Egypt to Afghanistan, his views will do much to shape the course of the "war on terror" under the next president. He faces a persistent question: can his Iraqi success be replicated in Afghanistan?

As security has improved in Iraq, it has worsened in Afghanistan. And as the surge of forces comes to an end in Iraq, there are calls for a similar one in Afghanistan. In its dying days, the Bush administration has ordered a full review of policy in Afghanistan. General Petraeus took part in lengthy high-level meetings in London and Paris last month, and in August he brain-stormed with Pakistan's top brass on an American aircraft-carrier in the Indian Ocean.

**The general plots his next squeeze**

**Related Items**

- From *The Economist***  
Talking to the Taliban  
Oct 2nd 2008
- Country briefing**  
United States, Iraq
- More articles about...**  
Afghanistan  
Iraq's troubles

**Advertisement**

The Economist Debate Series  
 $E=mc^2$   
 The cost of higher

Start | Fertig | General Petraeus's n... | Microsoft PowerPoint ... | DE | 17% | 19:00



## MUNICH WORKSHOP 2024





June 2023

TRAVELBOOK

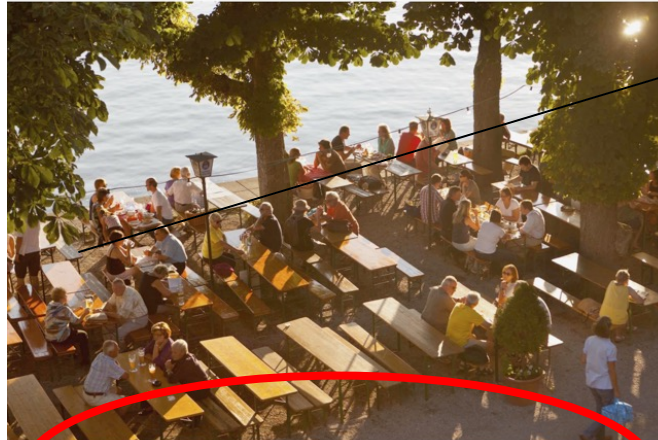


ANZEIGE

ite > Ziele > Städte > Die 18 schönsten Biergärten in Deutschland

VON MÜNCHEN BIS KIEL

## Die 18 schönsten Biergärten Deutschlands



Der Biergarten in Herrsching am Ammersee im Abendlicht Foto: picture alliance / imageBROKER | Martin Moxter

Von TRAVELBOOK | 07. Juli 2023, 12:30 Uhr

Sommerzeit ist Biergarten-Zeit! TRAVELBOOK zeigt 18 Biergärten von München bis Kiel, in denen sich Bier, Bratwurst und mehr besonders gut genießen lassen.



TRAVELBOOK



ANZEIGE

ite > Ziele > Städte > Die 18 schönsten Biergärten in Deutschland

VON MÜNCHEN BIS KIEL

## Die 18 schönsten Biergärten Deutschlands



Der Biergarten in Herrsching am Ammersee im Abendlicht Foto: picture alliance / imageBROKER | Martin Moxter

Von TRAVELBOOK | 07. Juli 2023, 12:30 Uhr

Sommerzeit ist Biergarten-Zeit! TRAVELBOOK zeigt 18 Biergärten von München bis Kiel, in denen sich Bier, Bratwurst und mehr besonders gut genießen lassen.



# manager magazin

10.12.2018

KI-Strategie

## Künstliche Intelligenz - was Deutschland besser machen muss

Von *Mirjam Hecking*

Teilen:     



Mensch und Maschine: Künstliche Intelligenz stellt Politik und Gesellschaft vor neue Herausforderungen

**Deutschland will zum führenden Standort für Künstliche Intelligenz werden. Bislang ist die Bundesrepublik davon weit entfernt. KI-Experten kritisieren die jüngst ersonnene Strategie. Damit Deutschland zur Weltspitze aufschließen und von der riesigen Wertschöpfung profitieren kann, muss sich einiges ändern.**

