



Cyber and Information Domain Service Headquarters



OR - a CID perspective

NATO OR conference

10/15/2018

Brigadier General Armin Fleischmann
Director Plans & Policy CID Service HQ



Agenda

The new CID Service

Cyber Security

Artificial intelligence

Big Data Analysis

Take Away



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The nature of war has not changed...



„War is an act of violence,
conducted to force an opponent
to fulfill our will.“



*Carl v. Clausewitz, Vom Kriege, First book,
translation by AFL*

... but its means and goals have!



WHY???

former wars : **territory** and **ressources**

modern wars: **information** and **knowledge**



territory and ressources **are singular**

information and knowledge are **still usable by opponent**

+

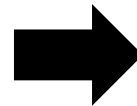
information can be copied
without loosing its quality



Digitalisation is a game changer!



armed forces
impacted
by
digitalisation



- Weapon Systems/Equipment
- Processes/Organization/Personnel
- Military Operations
- Scenarios (hybrid warfare)
- Whole-of-government approach



Trait of Cyber Threats

- Raising **vulnerability** of the society by digitalisation and connectivity



- Low inhibition threshold and difficult **attribution**



Cyber Attack Trends



- Attack-complexity: ↗
Attack-cost: ↘

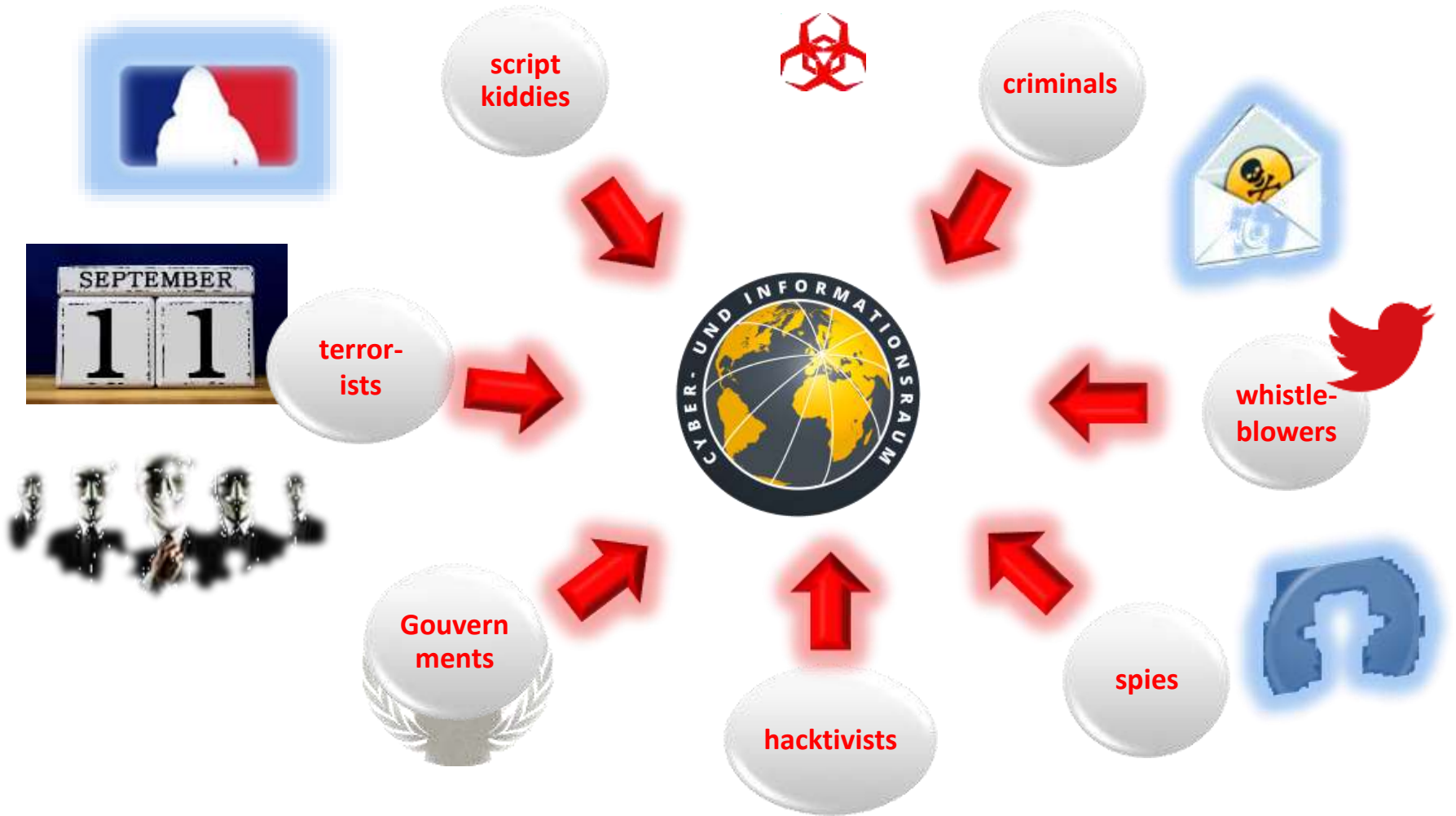


Challenges





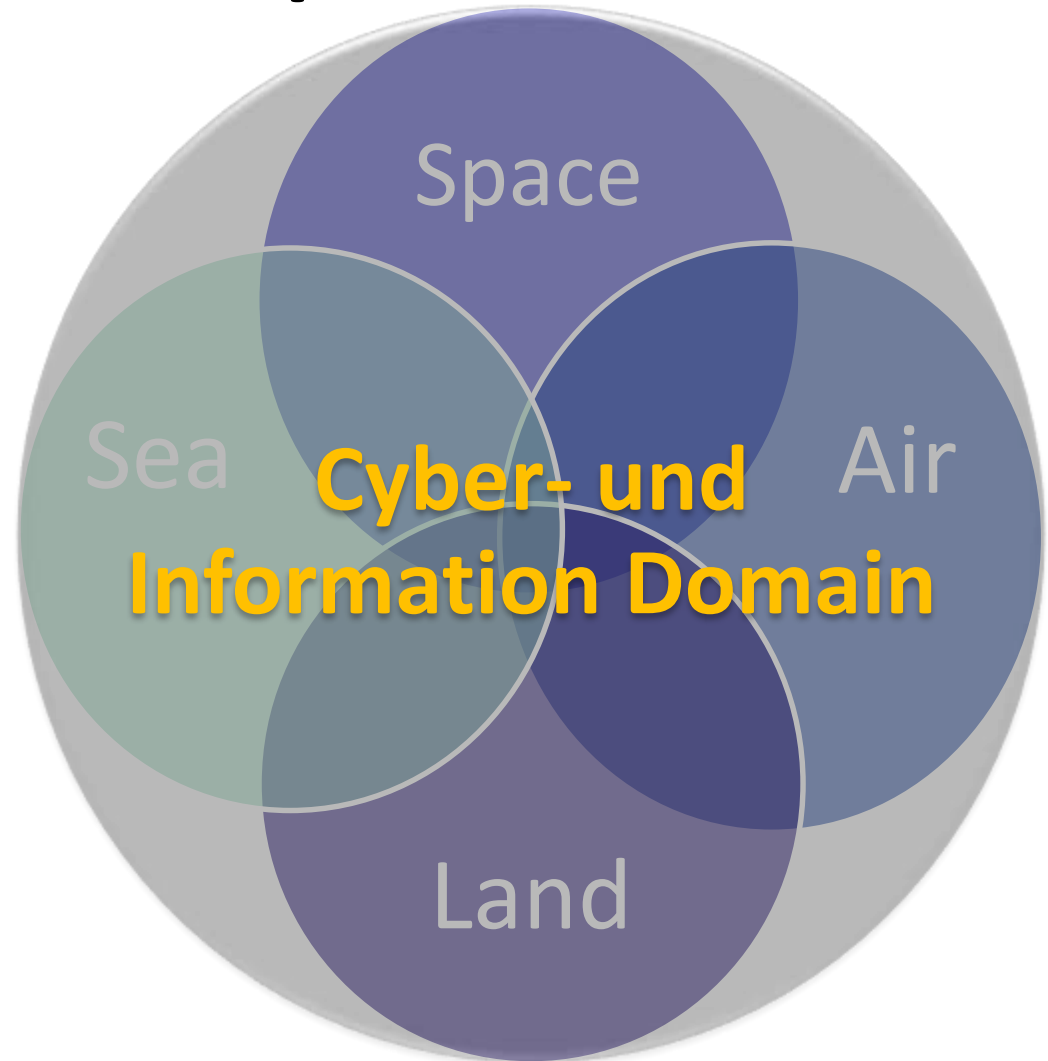
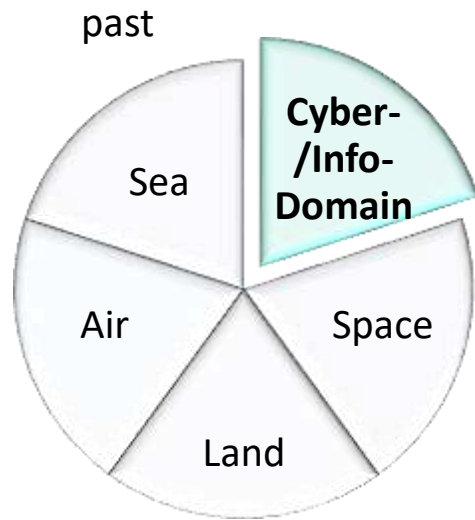
Potential Actors





Cyber- and Information Domain

5th Domain of Operations





CIDS –



integrates all relevant capabilities

Military Intelligence



SIGINT

Electronic Warfare



Computer Network Operations



IT-Services CIS-Support



Cyber-/Information Security



GEO/METOC Support



Operational Communication





Main Pillars of the Cyber and Information Domain Service



- Secure and Maintain Operation of the „IT-System Bundeswehr“ (standing mission)



- INTEL and Effects (electromagnetic spectrum, cyberspace, information environment)



- Geo-Information as enabler



- Intergovernmental Cyber-Security



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Cyber security

Computer security

- Protection of computer systems
- From theft or damage
- To their hard- or software or electronic data
- Or disruption and misdirection of provided services



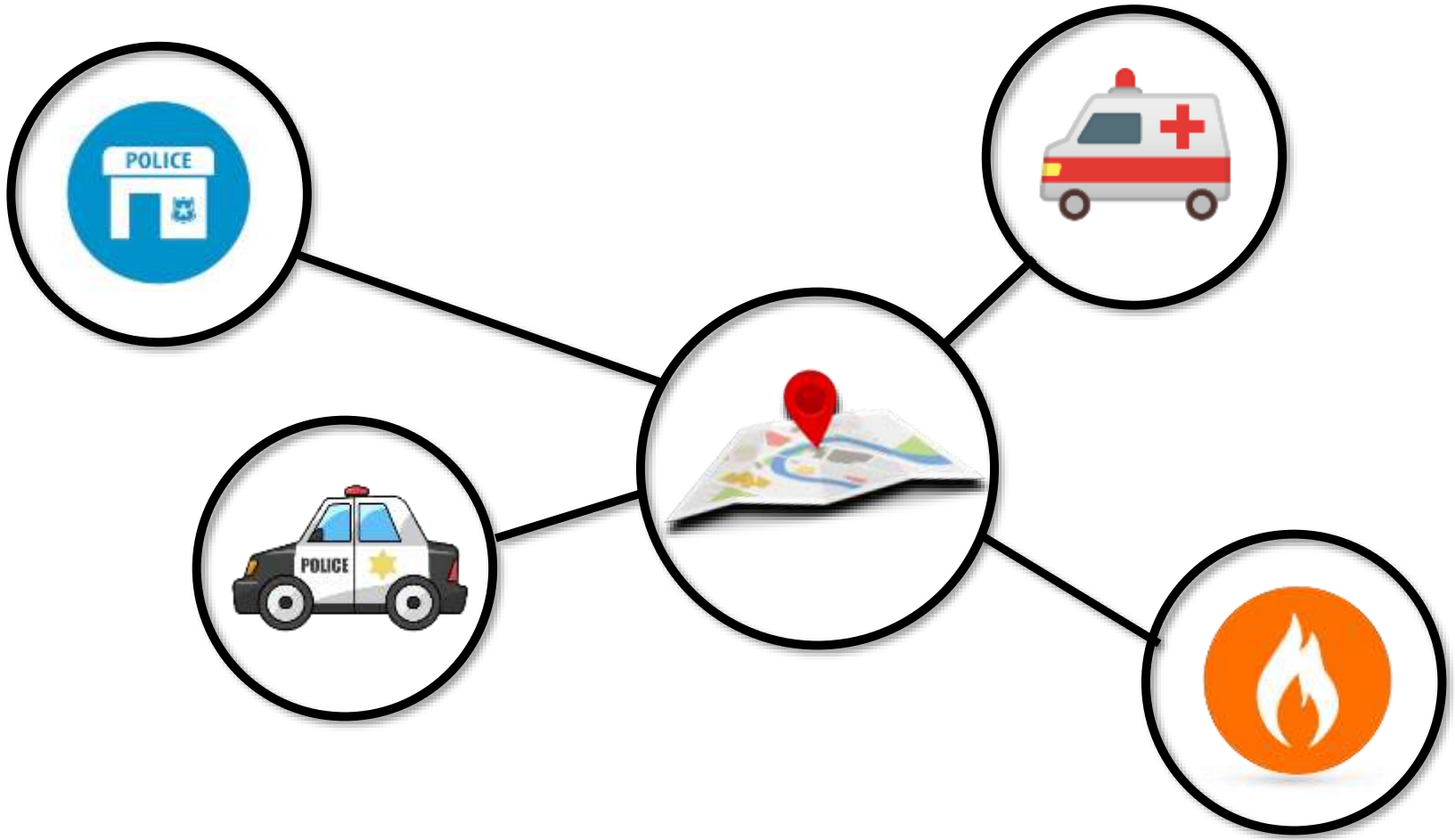
Information security

- More complex than computer security
- Confidentiality, integrity and availability of data
- In physical or electronic formats



Emergency response

in real life





Emergency response in digital „life“





Ongoing studies



Gamification of Cyber Defence/Resilience

- 1) Examine definition, advantages and disadvantages, common problems, characteristics, game mechanics and technologies and defense applications
- 2) Understand the big picture of cyber defense and resilience, classification of operations and decisions and examples of cyber security training and education.
- 3) Develop methodology guidelines for cyber defense and resilience

Centre for Cyber Security



Centre for Cyber Operations

CIS School





Ongoing studies

Information Operations for Influence

Two key trends:

- 1) Increased appearance of and involvement by non-state actors (NSAs) in violent conflicts
- 2) Exploitation of the Information Environment (IE) to shape and manage the narrative and conduct information warfare as a leading line of effort within a larger non-linear/hybrid warfare construct

Strategic
Reconnaissance
Command



Centre for
operational
communication



Ongoing activities



Cyber decision making and response

Threat characterization and investigating feasibility of cyber intelligence within an automated computer network defence construct.

Proposing a high-level cyber threat model that conceptually bridges the gap between cyber operations and intelligence processes.

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Artificial intelligence

AI research as the study of „intelligent agents“:

„any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals“

Poole, Mackworth & Goebel (1998)





Ongoing activities

Artificial intelligence in the cloud

Cloud as fundamental to AI model:

- 1) Data sets would not be accessible
- 2) Enabling phenomenal scale for data-intensive services at affordable cost



Data Fusion Centre

Propaganda Awareness



Ongoing activities

Augmented reality

Improve human machine interface and maximize human experience and analysis capabilities.

The initiation of an AR capability to augment and improve human abilities and training experience requires planning and establishment of a goal and objectives for the systems and specific applications.





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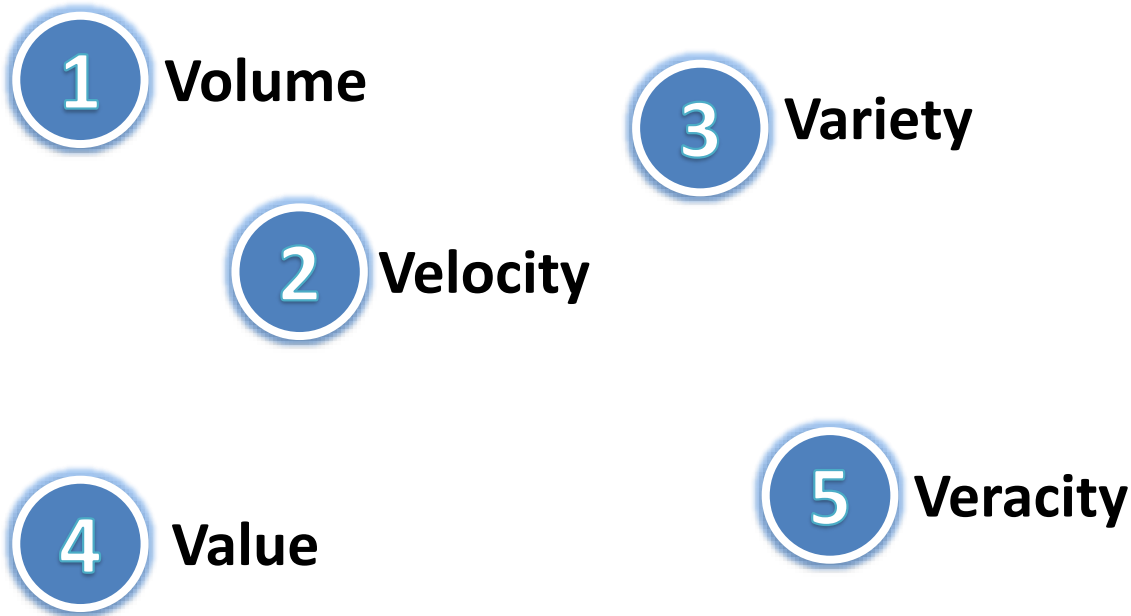
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Big data

„Big data is data that contains grater variety arriving in increasing vournes and with ever-higher velocity. This is known as the three Vs.“

Gartner Inc. (2001)





Ongoing activities

Geo data layers

Correlation of different geo data, e.g. infrared, radar, pictures to create an outstanding 3D picture including pinpoint landmarks of mission areas

Fusion centre

Correlation of internal and external data sets to produce a global view of events and extract anomalies





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Take Away

Means and **goals** of war have changed.

Take care about cyber **and information (cognitiv)**

Digitalization & Cyber is a **Game Changer!**

Big Data and AI offers new

Possibilities as well as **Challenges**

=> OR is possibly the key for optimal usage of digitalization