

Threats and Challenges in Social Networks. A European Glance and Alliance Perspective in the Context of the New Strategic Concept.

Assoc. Prof. Dr. Zlatogor Minchev



National Conference "NATO's Policy on Cyber Defense"



Sofia, Bulgaria

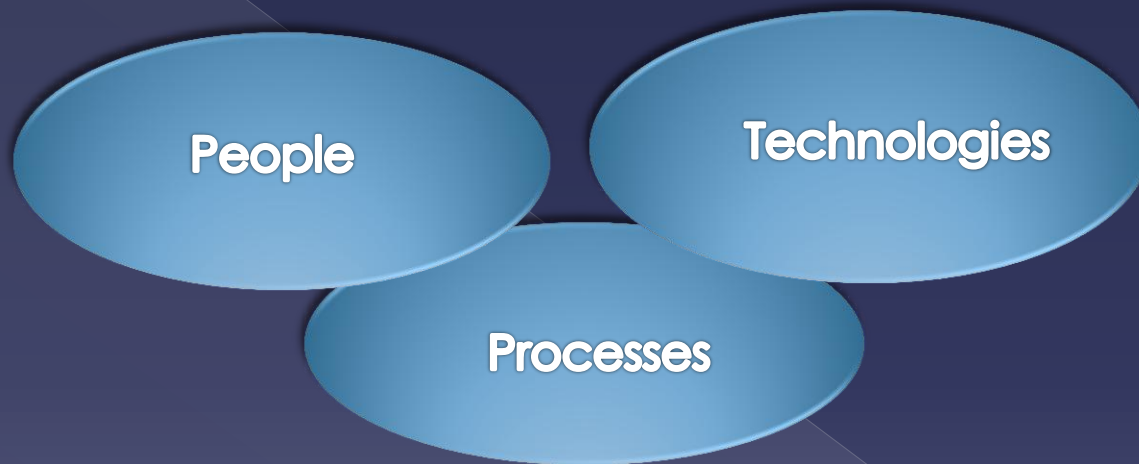
Central Military Club

December 9-10, 2010

OUTLINE

- What to address today in Cyber Security?
- NATO & EU in Cyber Security
- Why to address Social Networks?
- Methodology of the Study
- The Model
- Future Work

What to address today in cyber security?



Building Capabilities in All These !!!

NATO & EU in Cyber Security



12. Cyber attacks are becoming more frequent, more organised and more costly in the damage that they inflict on government administrations, businesses, economies and potentially also transportation and supply networks and other critical infrastructure; they can reach a threshold that threatens national and Euro-Atlantic prosperity, security and stability. Foreign militaries and intelligence services, organised criminals, terrorist and/or extremist groups can each be the source of such attacks.

19. We will ensure that NATO has the full range of capabilities necessary to deter and defend against any threat to the safety and security of our populations. Therefore, we will:

- develop further our ability to prevent, detect, defend against and recover from cyber-attacks, including by using the NATO planning process to enhance and coordinate national cyber-defence capabilities, bringing all NATO bodies under centralized cyber protection, and better integrating NATO cyber awareness, warning and response with member nations;

Some other activities in NATO related to Cyber security

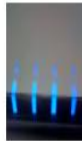
- ◉ Cooperative Cyber Defence Centre of Excellence Annual Activities, Tallinn, Estonia;
- ◉ NATO ACT Cyber Defence Framework & Conferences, 2010
- ◉ NC3A Multinational Cyber Defence Program, 2010

Some recent publications on cyber security

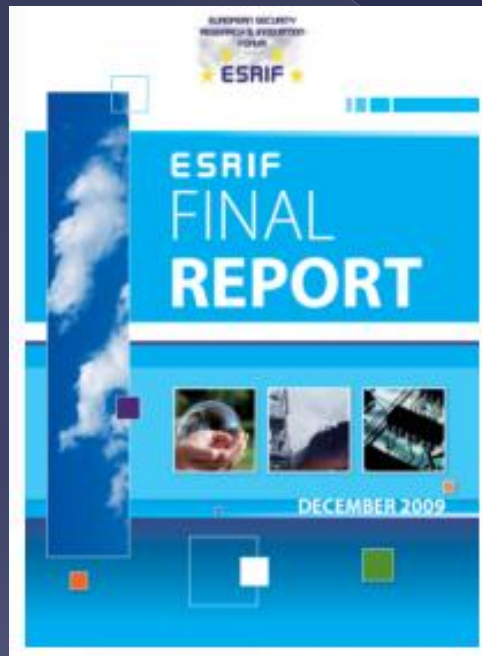
DCAF HORIZON 2015 WORKING PAPER No. 1

DEMOCRATIC GOVERNANCE CHALLENGES OF CYBER SECURITY

BENJAMIN S. BUCKLAND, FRED SCHREIER, THEODOR H. WINKLER



Some recent EU activities related to cyber security



2020

ICT INFRASTRUCTURE THREATS

forward»

Managing Emerging Threats in ICT Infrastructures

incubators legacy systems virtualization underground economy parallelism floating infrastructure sensors and data cloud computing social networks mobile device malware cascading effects advanced malware targeted attacks

FORWARD is an initiative by the European Commission (under FP7) to promote the collaboration and partnership between Academia and Industry in their common goal of protecting Information and Communication Technology (ICT) infrastructures.

Basic Result:

FORWARD WHITEBOOK: "EMERGING ICT THREATS"

<http://www.ict-forward.eu/>

POSSIBLE CYBER THREATS

#	Threat Description	High Priority			
		Impact	Likely	Oblivious	R&D
1	Threats due to parallelism	M	M	H	M
2	Threats due to scale	H	M	H	M
3	Underground economy support structures	H	H	L	H
4	Mobile device malware	H	H	M	H
5	Threats related to social networks	H	H	M	H

Medium Priority					
#	Threat Description	Impact	Likely	Oblivious	R&D
6	Routing infrastructure	H	H	L	M
7	Denial of service	H	H	L	M
8	Wireless communication	H	H	M	M
9	Unforeseen cascading effects	H	M	H	H
10	False sensor data	H	M	H	M
11	Privacy and ubiquitous sensors	M	M	M	M
12	User interface	M	H	M	H
13	The insider threat	H	M	M	M
14	System maintainability and verifiability	M	H	M	M
15	Hidden functionality	M	M	H	M
16	New vectors to reach victims	M	H	M	H
17	Sensors and RFID	M	H	M	H
18	Advanced malware	M	H	M	M
19	Virtualization and cloud computing	H	M	H	M
20	Retrofitting security to legacy systems	M	M	M	L
21	Next generation networks	H	H	M	M

Low Priority

#	Threat Description	Impact	Likely	Oblivious	R&D
22	IPv6 and direct reachability of hosts	M	H	M	M
23	Naming (DNS) and registrars	L	H	M	L
24	Online games	L	H	M	L
25	Safety takes priority over security	L	M	H	M
26	Targeted attacks	M	H	M	M
27	Malicious hardware	M	L	H	M
28	Use of COTS components	M	H	M	M

“A European Network of Excellence in Managing Threats and Vulnerabilities in the Future Internet: Europe for the World”

EU FP7

SySSec 2010 -2014



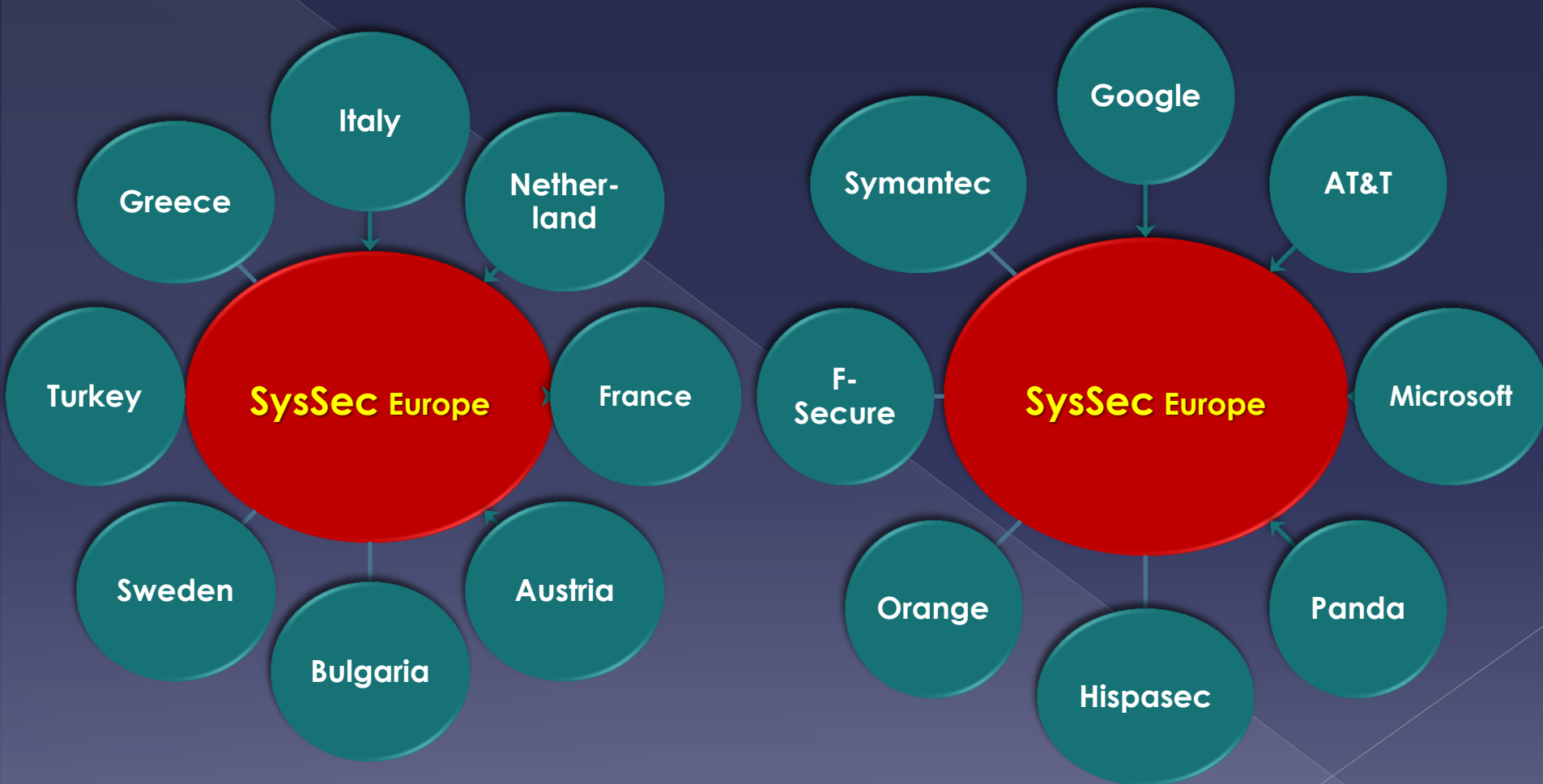
<http://www.syssec-project.eu/>

**... Instead of reactively chasing after attackers,
we should start working proactively and think
about emerging threats and vulnerabilities...**

The Consortia



Participating Countries & Industry



Why to Address Social Networks?

The Web 2 Technology Challenges and what's coming in Web 3.0



DiNucci, 1999

"...The Web will be understood not as screenfulls of text and graphics but as a transport mechanism, the ether through which interactivity happens..."









One of the most suitable place for studying emerging Web technologies are Social Networks

List of social networking websites

From Wikipedia, the free encyclopedia

This is a **list of** major active **social networking websites** and excludes dating websites (see [List of online dating websites](#)). For defunct social networking websites, see [List of defunct social networking websites](#).

Please note the list is not exhaustive, and is limited to notable, well-known sites.

Name 	Description/Focus 	Date launched 	Registered users 	Registration 	Global Alexa ^[1] Page ranking 
Academia.edu	Social networking site for academics/researchers		211,000 ^[2]	Open	18,100 ^[3]
Advogato	Free and open source software developers		13,575 ^[4]	Open	128,340 ^[5]
aNobii	Books			Open	10,734 ^[6]
aSmallWorld	European jet set and social elite world-wide		550,000 ^[7]	Invite-only	8,583 ^[8]
AsianAvenue	A social network for the Asian American community	1997		Open	
Athlinks	Running, Swimming		68,496 ^[9]	Open	73,295 ^[10]
Audimated.com	Independent music	2010		Open	25,648 ^[11]
Avatars United	Online games	March 2008		Open	294,575 ^[12]
				Open to	

http://en.wikipedia.org/wiki/List_of_social_networking_websites

Our Case Study

The screenshot shows a Facebook interface from 2010. The top navigation bar includes the Facebook logo, a search bar, and links for Home, Profile, and Account. The left sidebar features a user profile for Zlatogor Minchev, a News Feed section with links to Messages, Events, and Friends, and a 'Create Group...' button. The main content area displays a news feed with several posts. The first post is a poll asking 'Would you like to use Facebook in България?' with a 'close' button. The second post is from ACT, titled 'ACT's Contribution to Bulgaria's Phoenix 2010', featuring a photo of people at a conference. The third post is from Maha Bakat, titled 'Maha needs help to complete an important mission and earn rewards!', featuring a photo of a person. The fourth post is from Holly Kennedy, titled 'I am so fed up with Internet Explorer & Zynga...', featuring a drawing of a person. The right sidebar contains sections for Events, Requests, Pokes, and Get Connected.

facebook

Search

Home Profile Account

Would you like to use Facebook in България? [close](#)

Facebook is available in 76 languages. [Click here to switch to България.](#)

News Feed **Top News · Most Recent 49**

What's on your mind?

ACT's Contribution to Bulgaria's Phoenix 2010
Talking about next year's "Energy Flame" iteration in Bulgaria, and our linkages with the UK's Defence Science and Technology Laboratory with General Consul Jon O'Shaughnessy

ACT personnel hard at work

2 hours ago · Like · Comment · Share

Todor Tashev is at SF International Auto Show with Ventsi Gaydazhiev and 2 other people.
2 hours ago via iPhone · Like · Comment

Maha Bakat
1 more

FRIENDS IN NEED
Maha needs help to complete an important mission and earn rewards!
Maha needs help to finish the Transport Stolen Uranium mission. He is looking for 6 friends to help out!

7 hours ago via Mafia Wars Game · Like · Comment · Help Maha

Holly Kennedy
I am so fed up with Internet Explorer & Zynga. I wish they would play nice together. You'd think two such popular, widely used programs would work together. So tired of "not responding" every single time I try to get on FarmVille. I can't even get to FV Help. =(asckkkkkk --- Thanks for reading this little vent. You know I hardly ever complain about anything, but really...
about an hour ago · Like · Comment

Events [See All](#)

What are you planning?

MAFIA WARS Happening Now
RSVP: Yes · No · Maybe

FV - 1 MIN. Level 70 for...
Happening Now
RSVP: Yes · No · Maybe

Requests [See All](#)

29 group invitations
19 Page suggestions
99 game requests
1 application request

Pokes

Maria Petkova · Poke Back

Get Connected

Who's on Facebook?
Find your friends

Who's not on Facebook?
Invite them now

Who's here because of you?
Track your invites

Connect on the go
Try Facebook Mobile

The book cover for 'KOOFACE: Inside a Crimeware Network' features a dark, textured background with a faint, glowing green 'KOOFACE' logo. The title 'KOOFACE: Inside a Crimeware Network' is at the top in green and white. The author 'By NART VILLENEUVE' and foreworders 'with a foreword by Ron Deibert and Rafal Rohozinski' are listed below. The publisher 'TheSecDevGroup' and date 'November 12, 2010' are at the bottom. A 'WEB VERSION' link is also provided. The cover is part of the 'MUNK SCHOOL OF GLOBAL AFFAIRS' series.

KOOFACE:
Inside a Crimeware Network

By NART VILLENEUVE

with a foreword by
Ron Deibert and Rafal Rohozinski

November 12, 2010

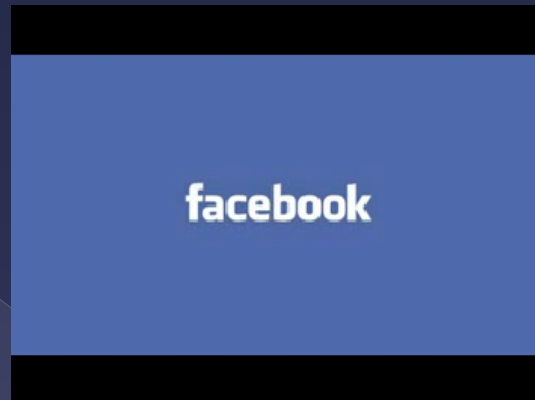
WEB VERSION. Also found here:
<http://www.infowar-montreal.net/kooface>

TheSecDevGroup

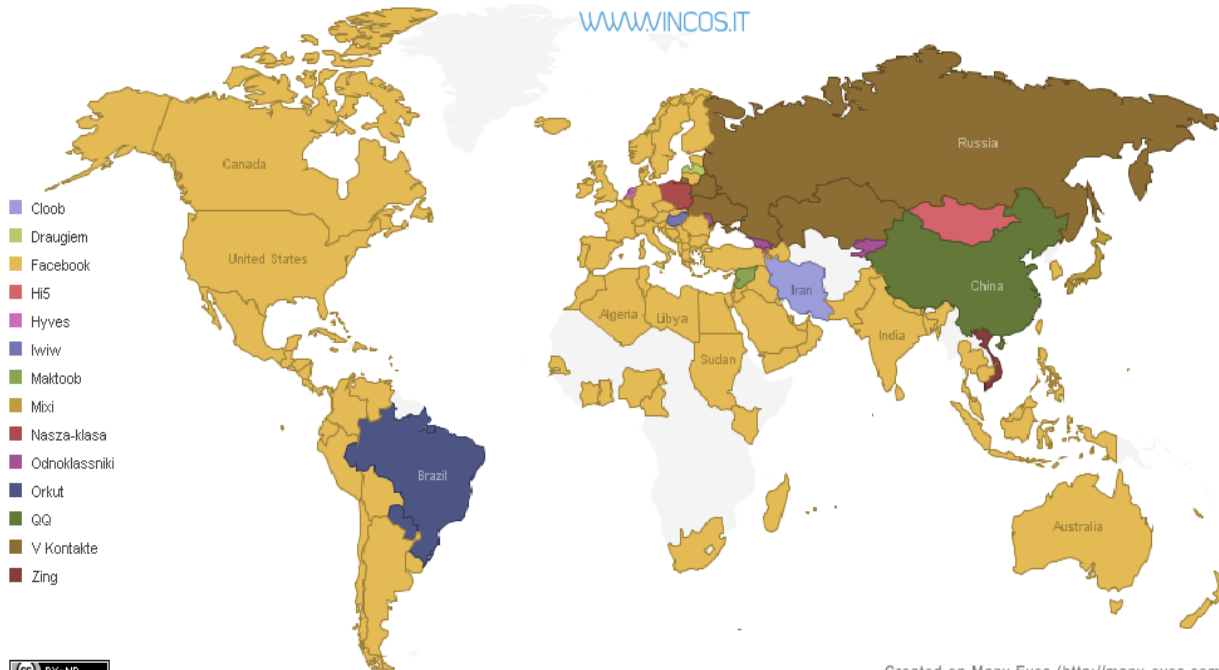
INFOWAR
MONITOR

kooface
facebook

Why did we choose Facebook?



WORLD MAP OF SOCIAL NETWORKS
WWW.VINCOS.IT



A map of the World, showing the most popular social networks by country, according to Alexa & Google Trends for Websites traffic data (June, 2010).

Methodology of the Study

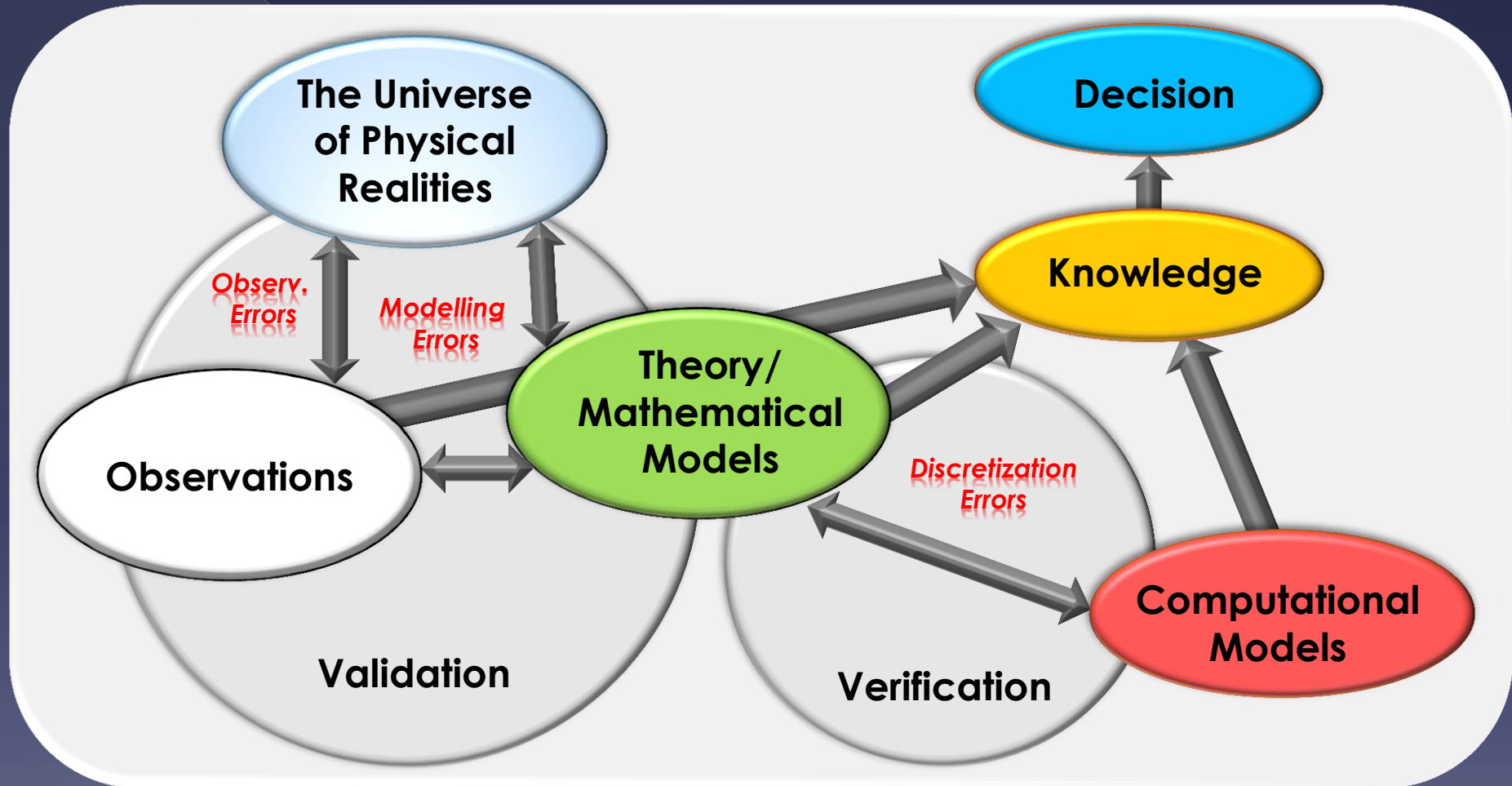
System Analysis

- Intuitive entity-relationship notation;
- Details' consideration in I-SCIP*;
- Familiar to the scientific world for more than half a century.



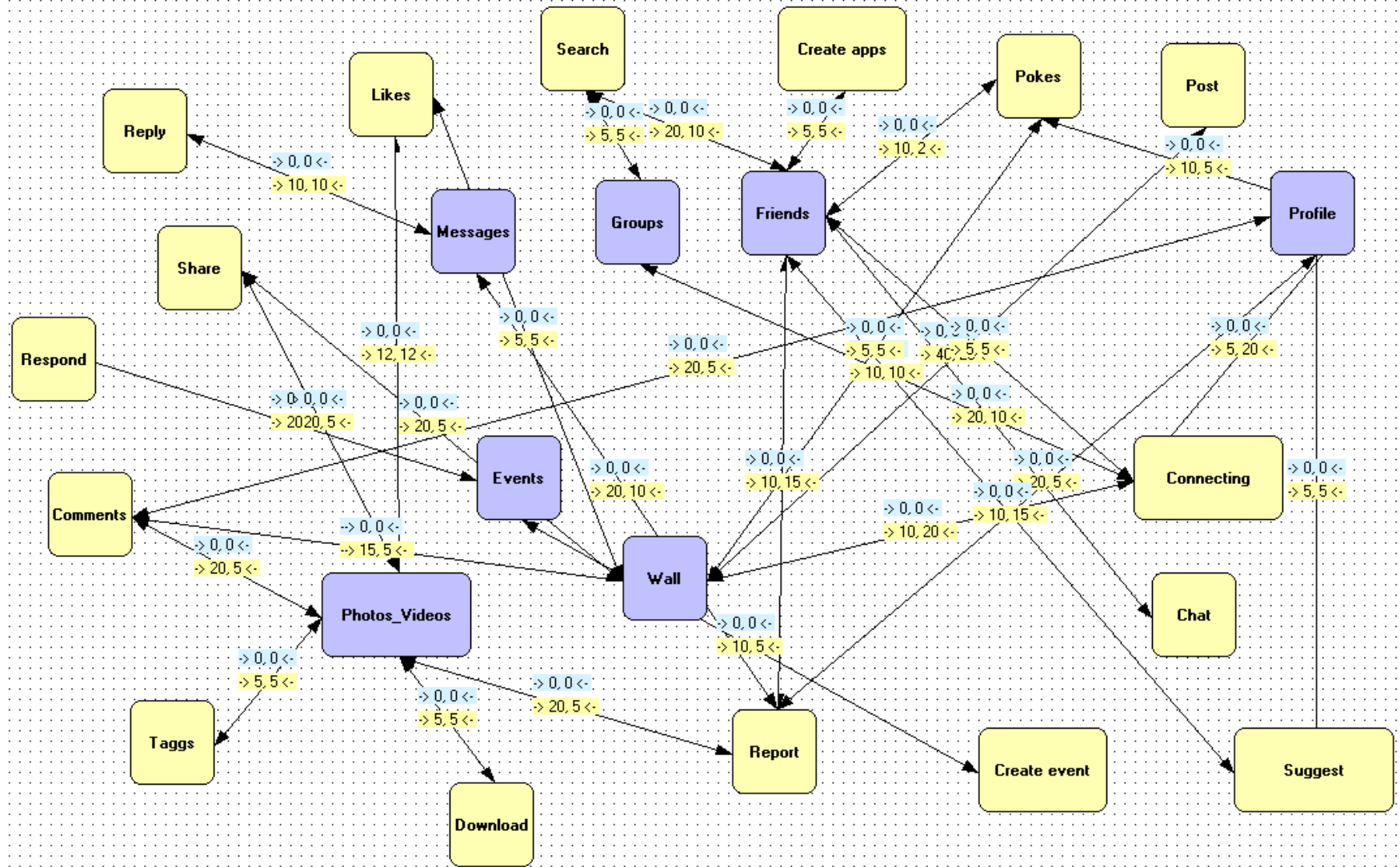
* I-SCIP software environment general description is available in “Minchev, Z., Shalamanov, V., Scenario Generation and Assessment Framework Solution in Support of the Comprehensive Approach, In Proceedings of SAS-081 Symposium on “Analytical Support to Defence Transformation”, RTO-MP-SAS-081, Sofia, Boyana, April 26 – 28, 22-1 – 22-16, 2010”.

Why to use modelling in the digital world and are there any limits?

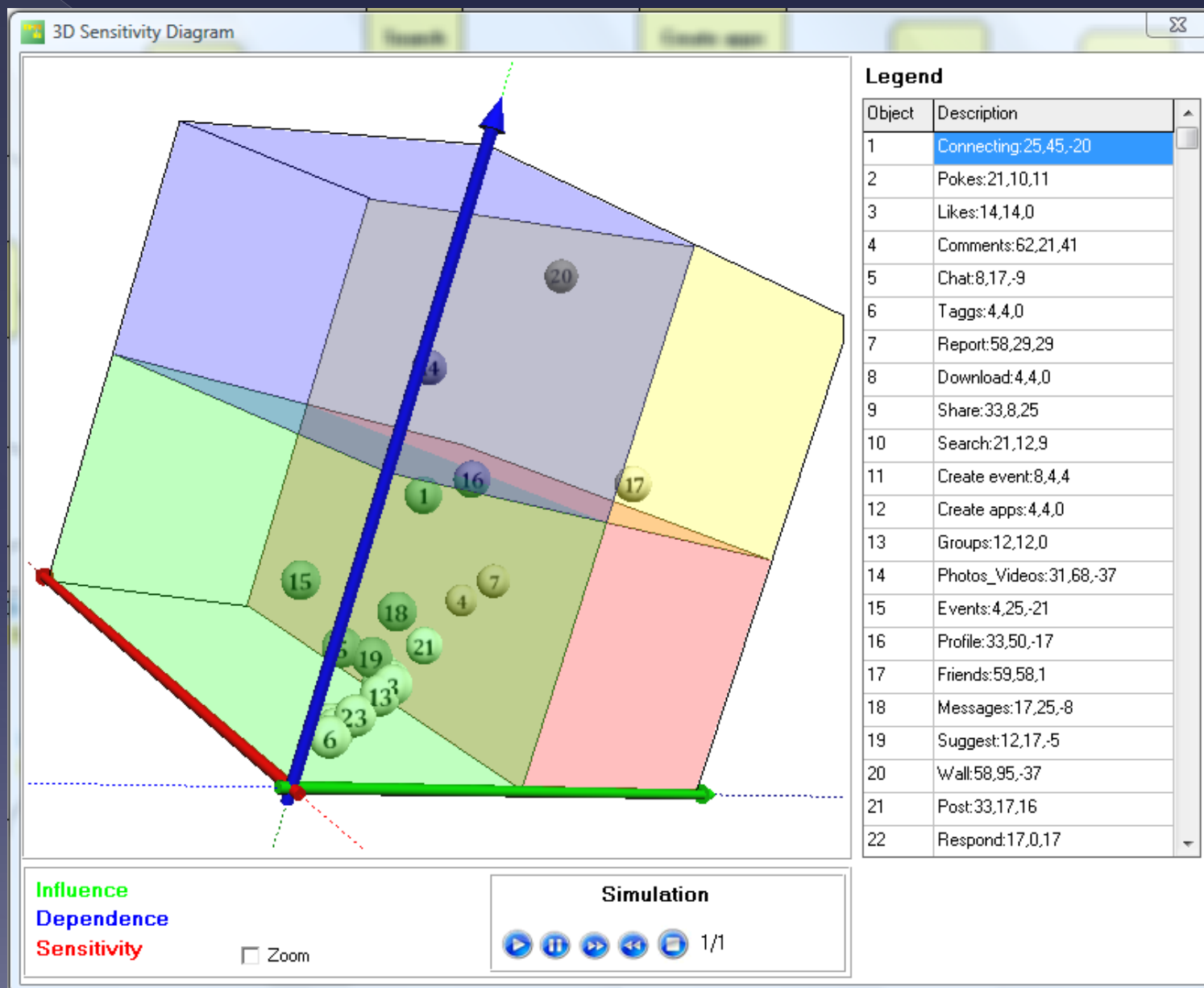


After Oden, Moser & Ghattas "Computer Predictions with Quantified Uncertainty", SIAM NEWS, November 12, 2010

The Model



Results of Sensitivity Analysis



THANK YOU FOR THE ATTENTION!