

SMART HOMES CYBER THREATS IDENTIFICATION

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June 28, 2013

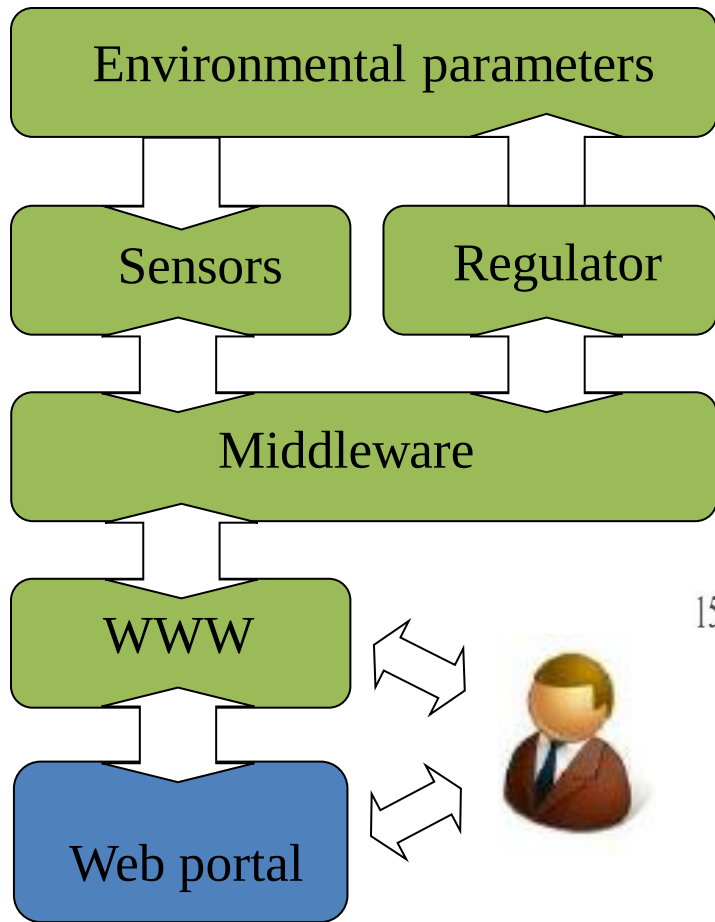
XI Plenary Meeting



CONTENTS

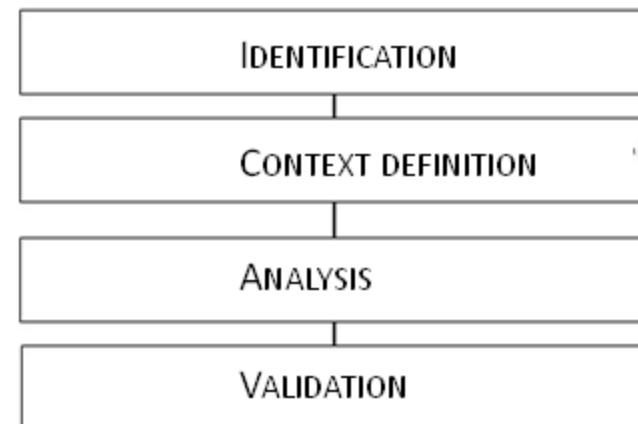
- ❑ **SMART HOMES – HUMAN FACTOR WEB BASED INTERACTION**
- ❑ **METHODOLOGICAL FRAMEWORK FOR CYBER TREATS
IDENTIFICATION**
- ❑ **ONGOING AND FUTURE WORK**

SMART HOMES – HUMAN FACTOR WEB BASED INTERACTION



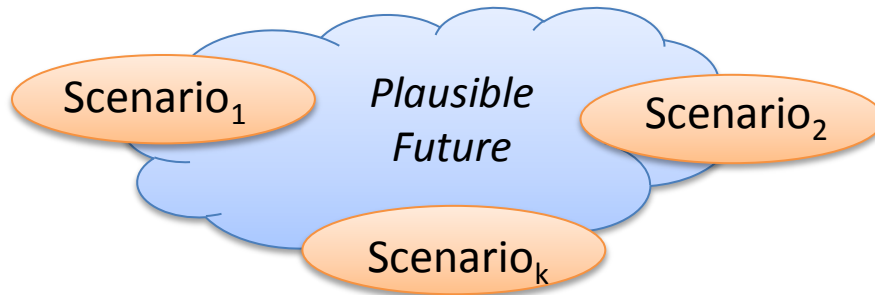
METHODOLOGICAL FRAMEWORK FOR CYBER THREATS IDENTIFICATION*

- ❑ WE ASSUME THAT SMART HOMES ARE CYBER-PHYSICAL SYSTEMS ENCOMPASSING BOTH TECHNOLOGIES AND HUMAN FACTORS;
- ❑ THE MAIN IDEA IS TO CREATE A PLAUSIBLE SCENARIO SET USING AT FIRST MORPHOLOGICAL ANALYSIS FOR PROBLEM SPACE DEFINITION AND LATER ON, A SYSTEM ONE, CONCERNING A MORE DETAILED OBSERVATION.



*[Minchev, 2013](#)

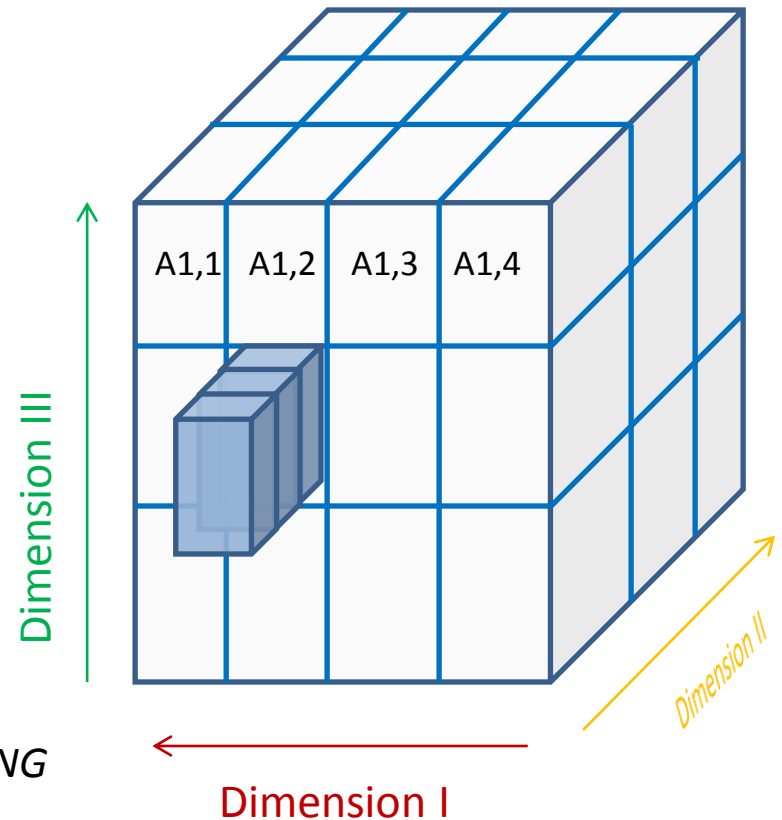
PROBLEM SPACE DEFINITION*



Dimensions

Alternatives	Dimensions		
	Dimension I	Dimension II	Dimension III
	A1,1	A2,1	A3,1
	A1,2	A2,2	A3,2
	A1,3	A2,3	A3,3
	A1,4		

Morphological Analysis

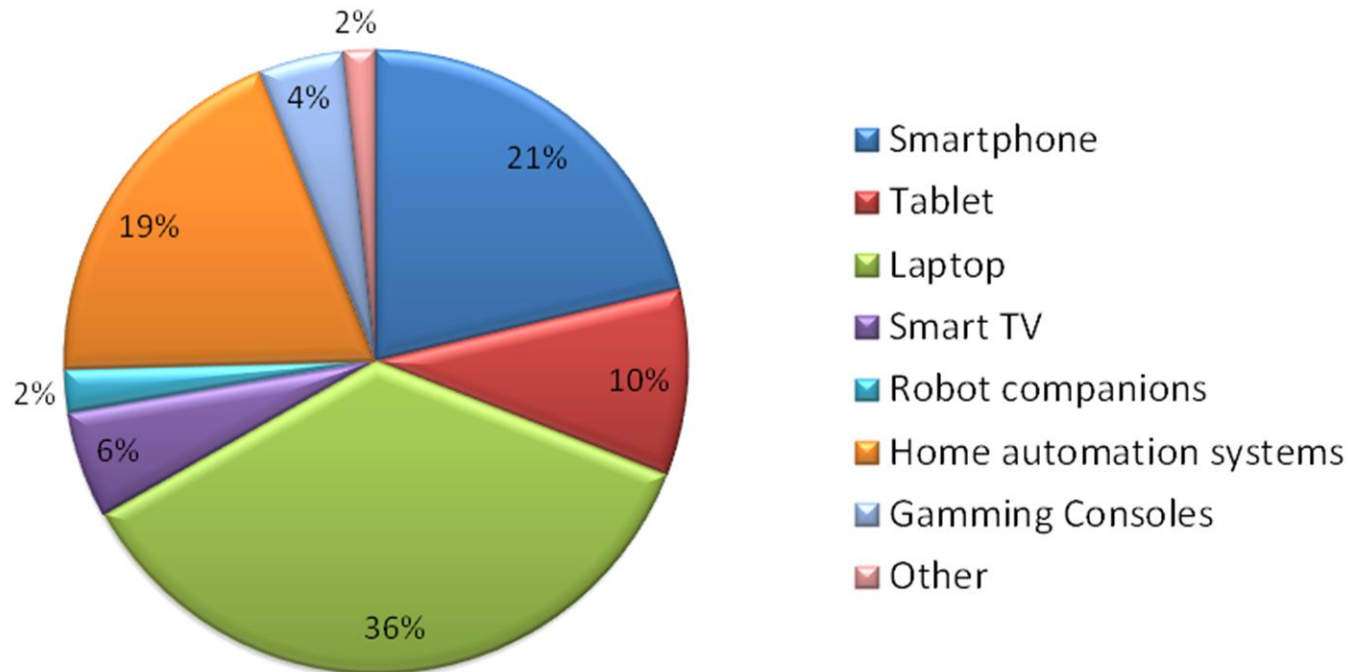


BRAINSTORMING & Q-BASED DELPHI INFO GATHERING

*Minchev, 2012



SMART DEVICES Q-BASED SURVEY EXAMPLE*



More than one answer is allowed.



EN

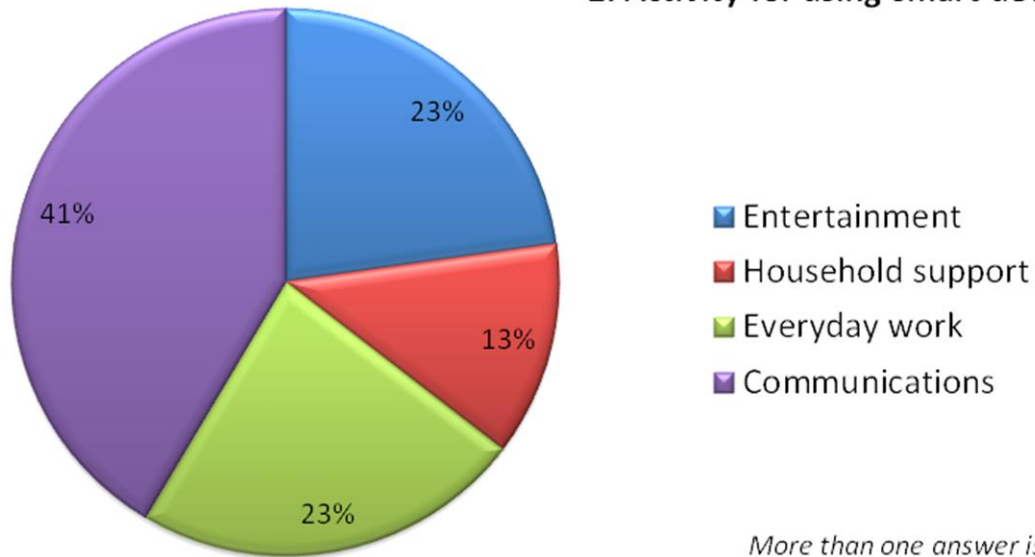
BG



[John V. Atanasov 110 Years Anniversary Conference*](#)

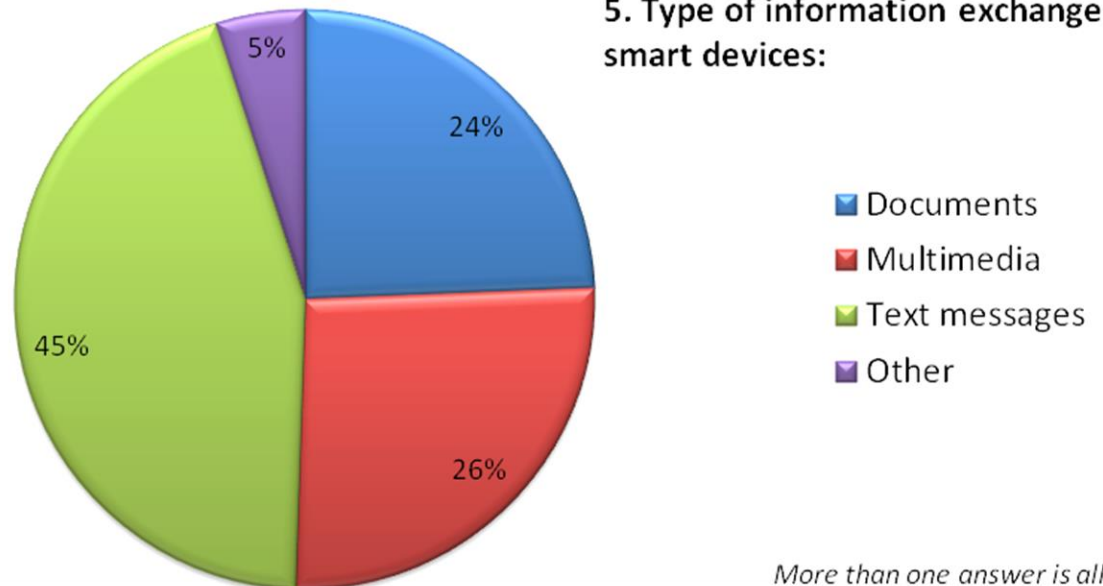


2. Activity for using smart devices:



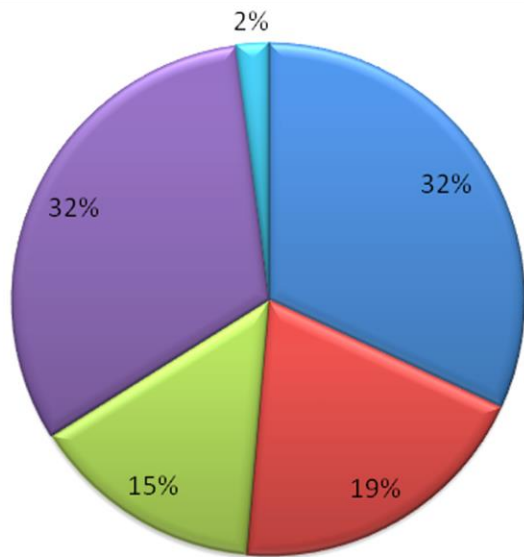
More than one answer is allowed.

5. Type of information exchange via smart devices:



More than one answer is allowed.

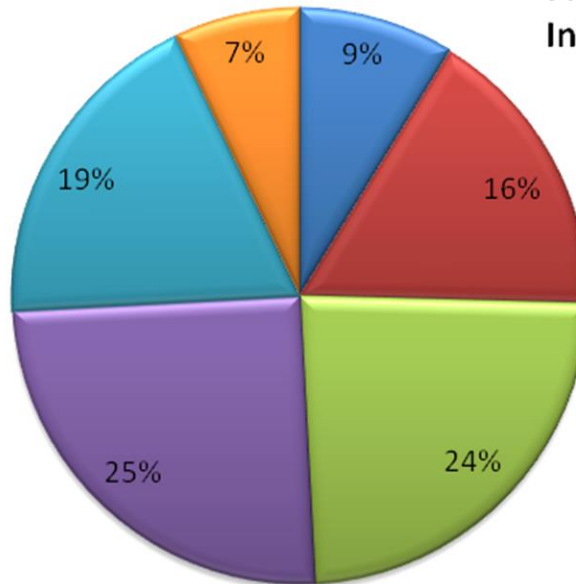




6. Positives of smart devices with Internet:

- Communication facilitation
- Time saving
- New contacts
- Extended access to usefull information
- Other

More than one answer is allowed.



7. Negatives of smart devices with Internet:

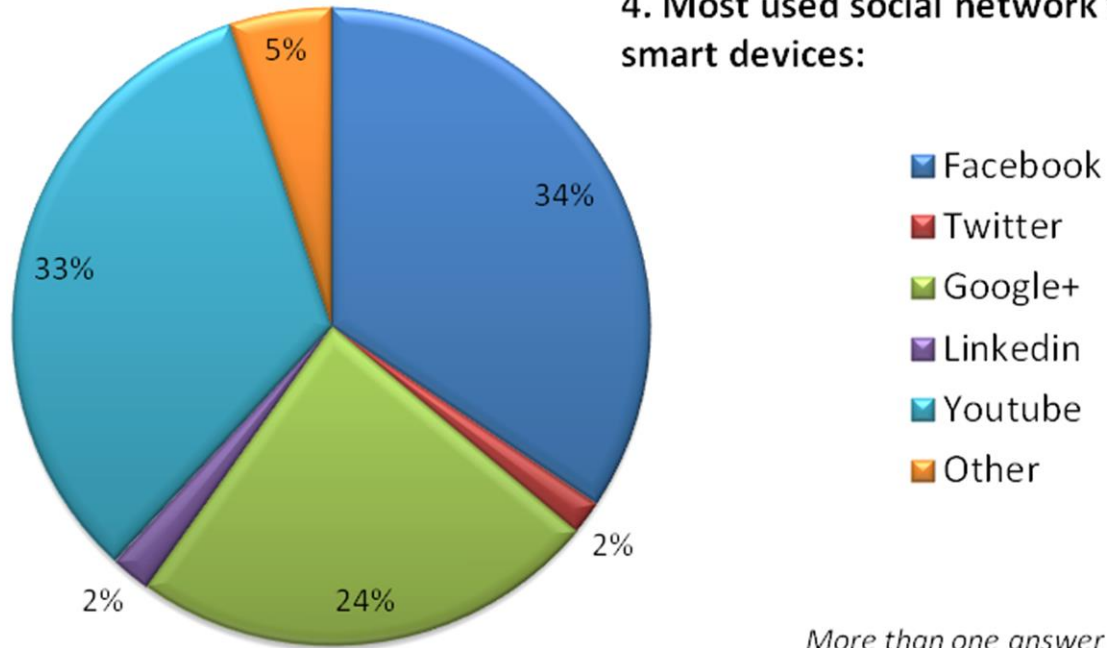
- Alienation
- Physical discomfort
- Overweight
- Cyber crimes
- Stress
- Other

More than one answer is allowed.



2013

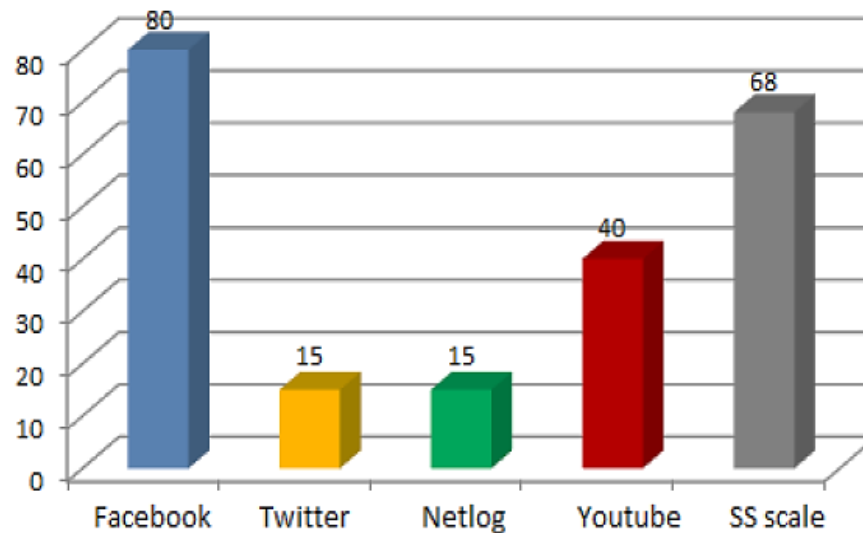
4. Most used social network via smart devices:



More than one answer is allowed.



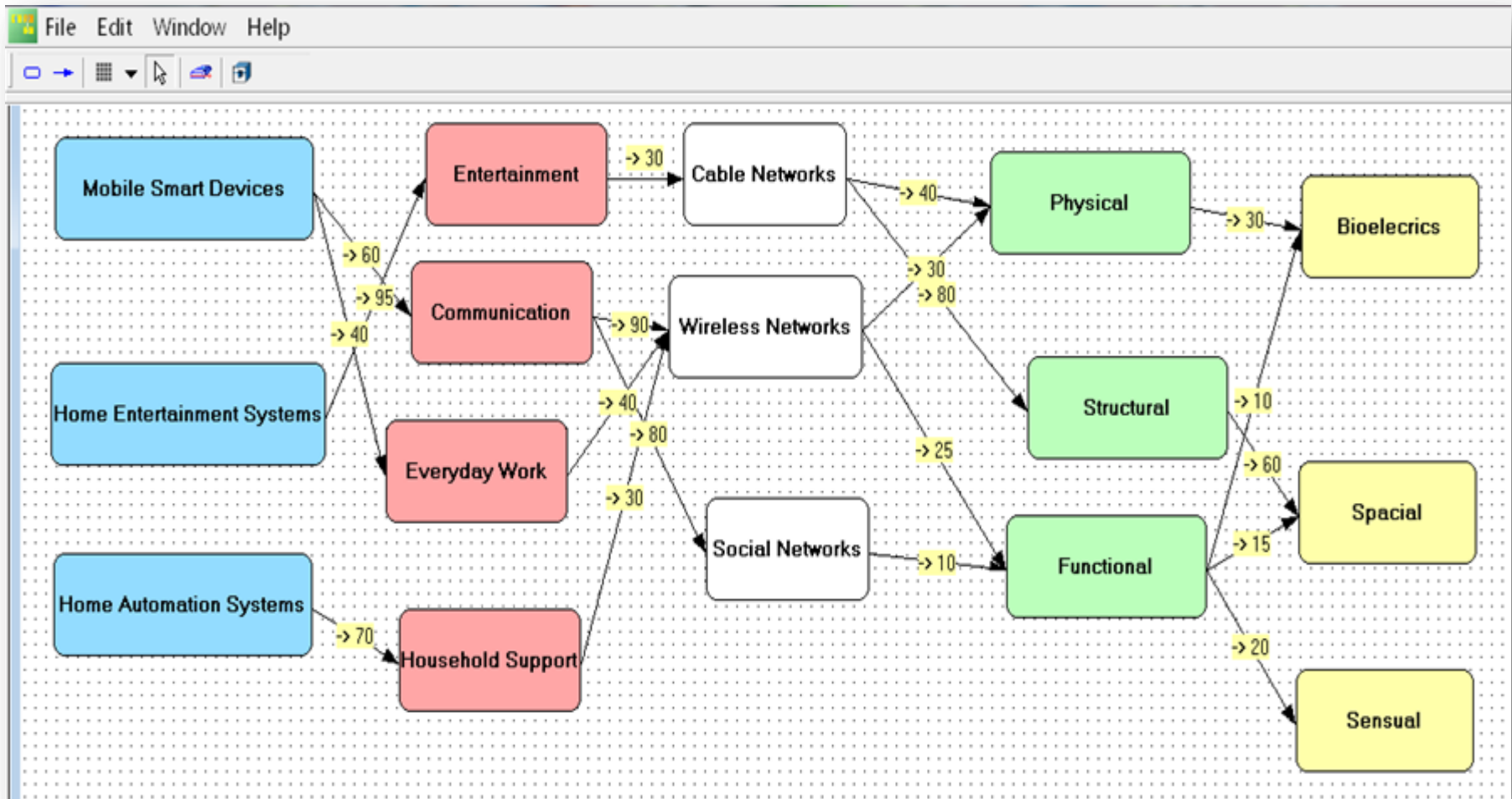
2012



Minchev, 2012

IMPLEMENTATION WITH SCENARIO EXAMPLES*

MAXIMUM SCENARIO COMBINATIONS: $5 \times 3 \times 4 \times 3 \times 3 \times 3 = 1620$





RESULTING SCENARIOS

Morphological Analysis

Devices	Activities	Communication Medium	Environment Characteristics	Human Factor Characteristics
Mobile Smart Devices	Entertainment	Cable Networks	Physical	Bioelecrics
Home Entertainment Systems	Communication	Wireless Networks	Structural	Spacial
Home Automation Systems	Everyday Work	Social Networks	Functional	Sensual
	Household Support			

Index	Length	Weight	Name
1	5	170	Scenario1
2	5	125	Scenario2
3	5	265	Scenario3
4	5	145	Scenario3
5	5	195	Scenario4
6	5	195	Scenario5
7	5	140	Scenario6
8	5	160	Scenario7
9	5	210	Scenario8
10	5	165	Scenario9
11	5	120	Scenario10
12	5	140	Scenario11

Active scenarios +



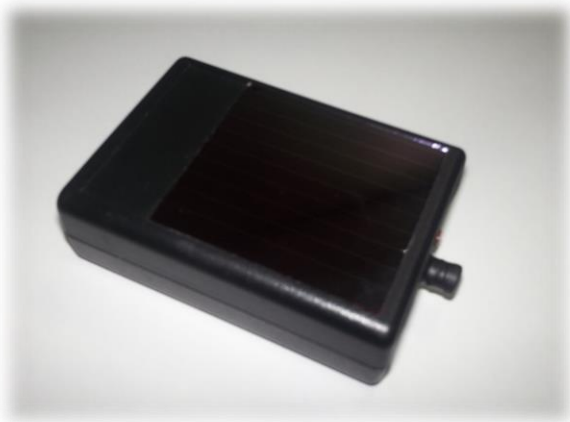
Passive scenarios -

Selected Scenarios Set



ONGOING & FUTURE WORK

- ❑ AGENT BASED SYSTEM MODELING IS BEING CARRIED OUT RELATED TO GENERAL & DIFFERENT SCENARIO CONTEXT;
- ❑ WIRELESS ENVIRONMENTAL SENSOR SYSTEMS ARE BEING DEVELOPED AND WILL BE DEPLOYED FOR EXPERIMENTAL WORK^{*};
- ❑ ON-HAND EXPERIMENTS CONCERNING VALIDATION IN AUGMENTED & VIRTUAL REALITIES^{*}.



^{*}Georgiev, Kolev, Obreshkov & Lalev, 2013



Technical
Committee on
"Entertainment
Computing"

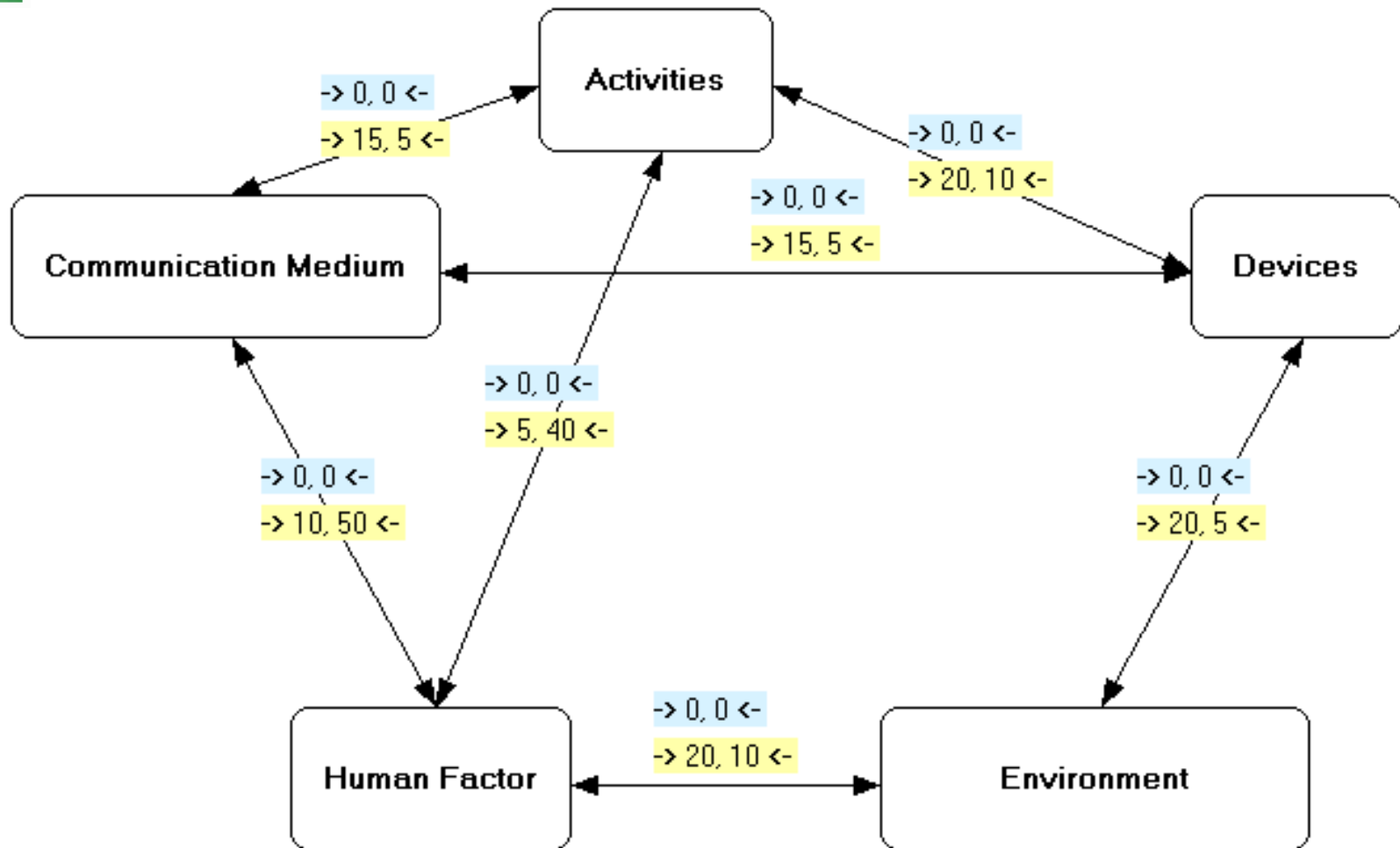
^{*}ICEC 2013



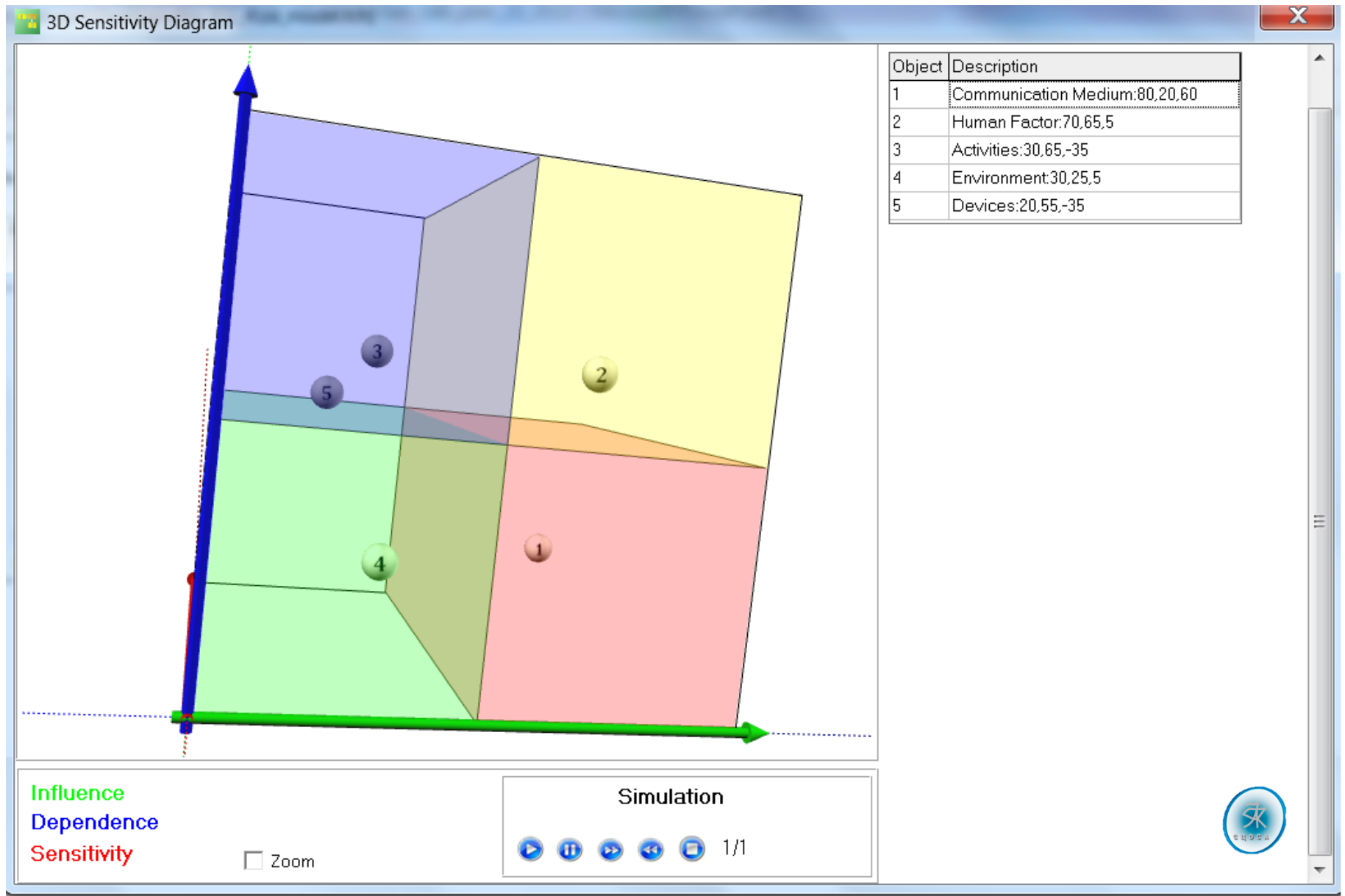
GENERAL SYSTEM ANALYSIS



I-SCIP-SA



RESULTING CLASSIFICATION



ACKNOWLEDGEMENT

THIS STUDY IS FINANCIALLY SUPPORTED BY: 'A FEASIBILITY STUDY ON CYBER THREATS IDENTIFICATION AND THEIR RELATIONSHIP WITH USERS' BEHAVIOURAL DYNAMICS IN FUTURE SMART HOMES', GRANT DFNI-T01/4, NATIONAL SCIENCE FUND, MINISTRY OF EDUCATION, YOUTH AND SCIENCE, 2012 – 2014, WWW.SMARTHOMESBG.COM. THE AUTHORS ALSO EXPRESS SPECIAL GRATITUDE FOR THE METHODOLOGICAL SUPPORT TO: 'EU NETWORK OF EXCELLENCE IN MANAGING THREATS & VULNERABILITIES FOR THE FUTURE INTERNET – SYSSEC', GRANT 257007, 2010-2014, WWW.SYSSEC-PROJECT.EU; 'A STUDY ON IT THREATS AND USERS BEHAVIOUR DYNAMICS IN ONLINE SOCIAL NETWORKS', GRANT DMU 03/22, NATIONAL SCIENCE FUND, MINISTRY OF EDUCATION, YOUTH AND SCIENCE, 2011-2014, WWW.SNFACTOR.COM; 'CORTICAL REGULATION OF THE QUIET STANCE DURING SENSORY CONFLICT', GRANT TK 02/60, NATIONAL SCIENCE FUND, MINISTRY OF EDUCATION, YOUTH AND SCIENCE, 2010-2013, WWW.CLEVERSTANCE.COM

THANK YOU FOR THE ATTENTION!