



**VILNIUS UNIVERSITY**  
**ŠIAULIAI ACADEMY**  
BACHELOR PROGRAMME SOFTWARE ENGINEERING

**Modelling in Software System Development**  
**Project Draft**  
**“Prevention of internet scamming and fraud in Ukraine”**

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## **Issue**

In the Ukraine the scamming and fraud on the internet causes a lot of trouble for the people. A lot of money is stolen every single day, the plenty of cases still remain unsolved, people are still falling for calls from various “bank managers” with the voice changer software. So, today our group will try to analyze the issue and find the solutions using system dynamics.

## **System**

Research in governmental scale of systematic occurrence of scamming cases in Ukraine

## **Goal**

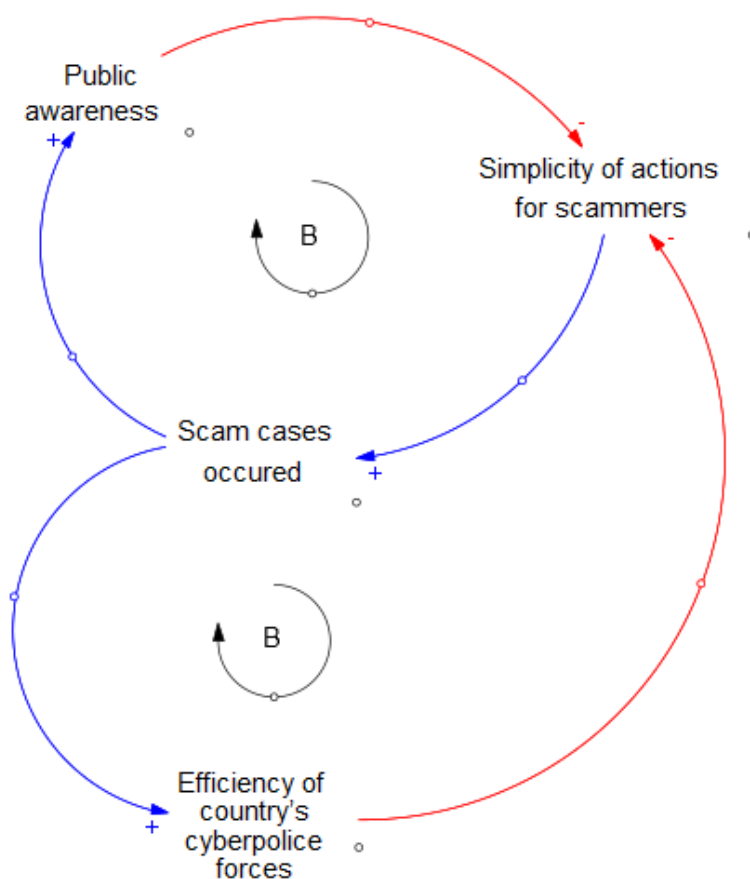
To cut the number of occurred internet scam cases in half by the end of 2030

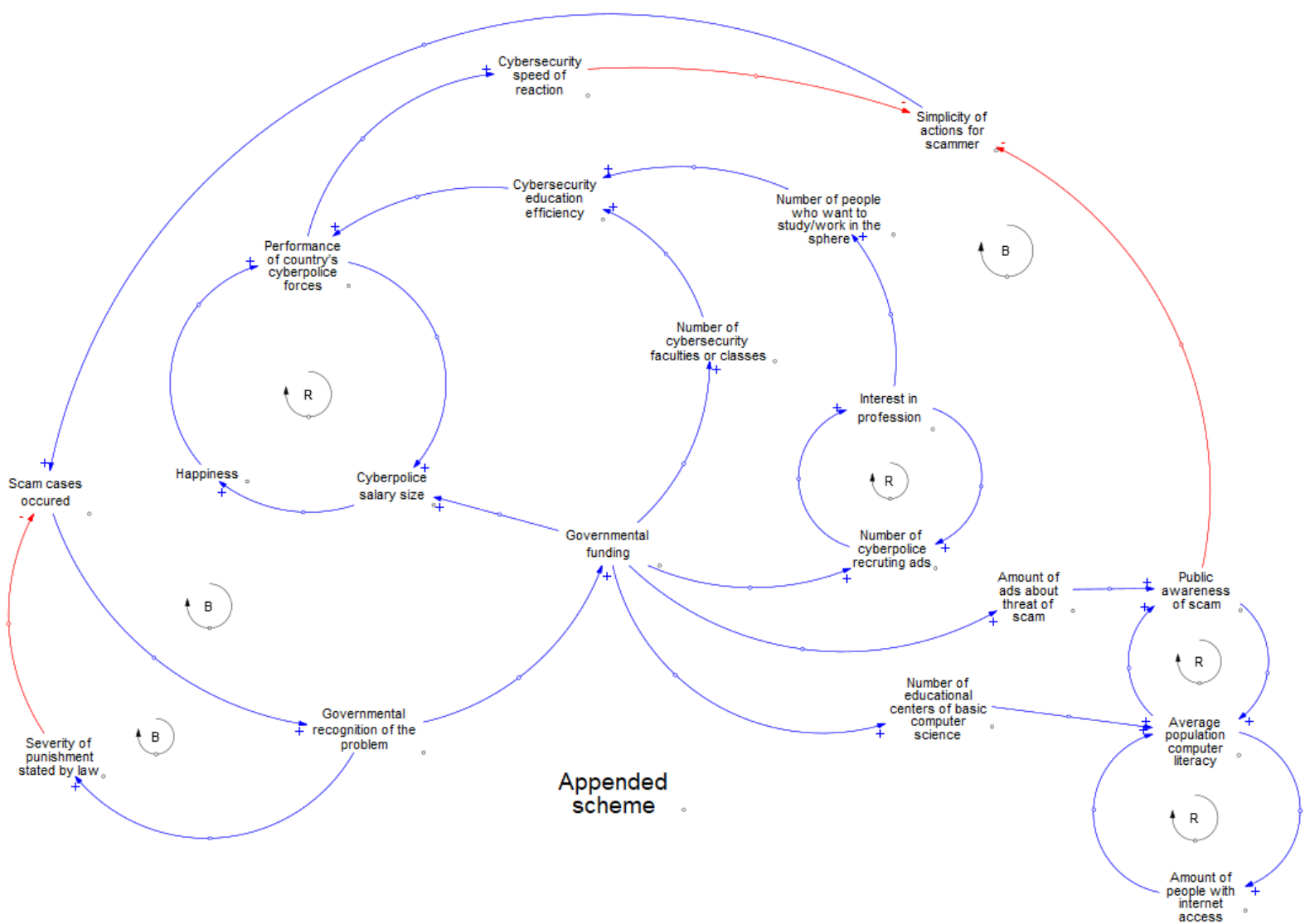
## **Factors**

1. Development and efficiency of country’s cyberpolice forces.
  - 1.1. Amount of governmental funding of the internet security police department that results in salaries of the cybersecurity workers, which will affect the motivation of people to efficiently do their job. (Can be measured by the correlation between the salary size and motivation, which would be represented using surveys of workers)
  - 1.2. Number of schools, universities, and educational centers, where the cybersecurity is studied. (Can be measured by the number of faculties or classes, which relate to the subject)
  - 1.3. Number of public ads, social encouragement, and the governmental propaganda which will relate to the public interest of the profession (Can be measured by the number of people who know about the profession and the number of people who want to study/work in the sphere)
2. Awareness of civilians.
  - 2.1. Level of basic computer literacy of the vulnerable social groups, such as elderly or underage people. (Can be measured by offering various test-like surveys on the streets)
    - 2.1.1. Number of educational centers or school classes where the basic computer science can be studied.
    - 2.1.2. Percentage of the country, which have access to internet.
  - 2.2. Amount of social ads about the caution of scamming.
3. Simplicity of actions for scammer.

- 3.1. Cybersecurity speed of reaction. (Can be measured by mean time to locate the scammer and arrest him)
- 3.2. Amount of available technologies with unrestricted unauthorized access which could assist the scammer. Such as voice-changers, keygainers, look-changers.
- 3.3. The severity of punishment if caught. (Can be measured by amount of fines or years of imprisonment stated by the law)
- 3.4. Country stability index (Represents amount of worryness of people and busyness of police structures. Can be affected by the country corruption, internal struggles or ongoing wars)

## Simplified scheme





## Conclusion

Overall, this system might be considered stable. The presence of negative (balancing) loops proves the statement. System tends to balance itself by the course of revolution of relations between various factors, some of those are bend into the reinforcement loops, but the most influential tend to be those from balancing loops:

- A) Scam cases occurred → Public awareness → Simplicity of actions for scammers → Scam cases occurred.
- B) Scam cases occurred → Efficiency of cyberpolice → Simplicity of actions for scammers → Scam cases occurred.

In the model the most engaged aspect tends to be Governmental funding. It more or less directly influences the most important model aspects, such as Public awareness and Efficiency of cyberpolice, so the increase of this factor, especially because of the presence of the four reinforcement loops downstream, will lead to the most rapid changes in the model.

To cut a long story short, all off the changes can be viewed at the simplified scheme.

Increasing the Governmental funding [+] will increase the Efficiency of cyberpolice [+] and Public awareness [+], both of which would reduce the Simplicity of actions for scammers [-], which will ultimately lead to decrease in Occurred scam cases. Eventually, the problem would be almost completely solved, if enough Governmental funding is present.

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