

THE VULNERABILITY AND RESILIENCY IN OUR GLOBALIZED WORLD

Pejcoch, Jaroslav

Organization(s): T-SOFT a.s., Czech Republic

Keywords

Critical infrastructure, cyber security

Abstract

Our world appears to be more and more complex in a time. We are getting to use more and more tricky tools to feed and enjoy ourselves. Our society is getting more and more complicated, which is nice on one side, but might be dangerous on the other side. There are some features or procedures which (from some perspective) could be understood as vulnerabilities or - from another point of view - as strenghts, improving the resiliency of our society. Especially in the coming era of virtual and e-xxx functionalities, including the robotics the question of sustainability of our society is being raised.

Globalized world – pros and cons

Everything seems to be clear and positive. We are getting an ability to control and optimize our worldwide activities. Having an option to design products or services at a place where the optimal group of people gather, to produce goods at a place where the costs and skills of local people are optimal (and where probably the environment protection or human rights control is not so strict).

We have an excellent logistics systems, which are able to assembly the ingredients of yoghurt from the whole continent to one place and then distribute the product worldwide ... etc.

We have media, which can report any movement of the butterfly wing to the worldwide network and comment the possible consequences of it. There is a possibility to anyone, having the internet access, to comment any activity or event on the world.

BUT ... there is also a possibility to misuse this excellent infrastructure for a hostile actions. We, as the human race, are “designed” to keep and develop our genetics code, which all the time was expressed in various war acts. But what can happen when we have such an advanced tools as IT and genetics? Are we capable to handle those toos/weapons properly to the sake of civilization?

Or is there an opportunity to misuse the knowledge and technology to conquer the enemy (which might be whoever)?

The globalisation and ITC excellency may help in both positive and negative scenarios.

Structural threats

There is another risk ... even if all the people would behave right, there is a risk of the structural collapse.

We are more and more dependent on the infrastructure. We are in a role of a juggler, who keeps various things rotating in the air. It creates a nice show – everything moves, flies, rotates, shines ...

BUT ... what if the juggler loses the light? What if he loses the temper to keep-up? What if somebody hits him? ... The things fall to the ground and the show is over.

We have a similar situation – 24x7 services at mobile networks, energy supply, banking and credit-cards systems, health-care systems etc. We are juggling as well.

What about the situation the light goes off? What about a black-out? What about the hostile acts? (cyber-attacks ...).

Our critical infrastructure is so complex, that we can hardly determine or analyse what is interconnected with what, what is dependent on what and by what rules, ... So we might be surprised by a **SUPERSYSTEM**, which nobody designed, nobody created, but it is here!

We may treat such a supersystem as strengths. It brings us a possibility to interlink our activities and optimize our effort.

But in the same time we should treat a supersystem as a threat, as it could bring us an unforeseen situations and disaster scenarios. The more the robotics is incorporated to such a scenarios, it requires a proper and qualified response in the whole organization.

We have the vulnerability and resiliency at one platform to judge what is the real outcome of it.

Scenarios

There are immense number of possible scenarios, especially of the potential crisis situations.

We have more and more sophisticated infrastructure. We can communicate in zero time each to other. We have the current data of almost anything available. We have a geo-location and time-bound for those information.

So there might be a nice way how to manage scenarios of the potential crisis situations to minimize the damage.

Modelling and exercising

The key to success is to utilize the modelling and exercising to prepare the infrastructure for the possible crisis situations.

Modelling

There is a possibility to model and simulate the probable development of crisis situation. It could be used for the analysis of the real structure of “supersystems” and the relations in the whole critical infrastructure

Exercising

It has been a proven fact, that if you leave your people just on their own, they will forget or not learn the procedures how to properly treat various situations.

There is a need of an exercising plan and corresponding exercising methods and tools to keep-up the critical infrastructure and rescue forces staff up-to-date.