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**Risk-evaluation possibilities concerning IT-activities in home-office**

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**Abstract**

History: The AI-based, automated risk analysis is a central topic of the interinstitutional and transdisciplinary-oriented MY-X research team (c.f. <https://miau.my-x.hu/miau2009/index.php3?x=e0&string=risk>). The focus of the own experiments is the optimized anti-discrimination or term-creation-oriented evaluation process based on stair-case function in frame of self-validating similarity analyses – because of their context-free characteristics.

Background and benchmarks: Home office workers are likely to face more cyber risks compared to controlled networking and secured internet access in office. Talking about risks, it is unlimited possible based on naïve (not-optimized) ways. The publication will present a set of alternative techniques (like weighting, ranking, etc.). These rule-based, arbitrary parametrized risk-interpretation processes are intuitive and arbitrary at the same time. About self-validation, it can never be spoken, although the human intuition can unlimited be fine-tuned/matured. The not-optimized solutions can be seen as benchmarks concerning the AI-based approaches.

Highlighted details: The risk potential concerning the IT-activities in home-office can be described with a lot of abstractions (c.f. Compliance Violations, Remote Access Vulnerabilities, Cyber Attacks, Data Breaches, Third-party Software Risks, etc.). All these keywords are parts of the phenomenon “magic of words”, where the KNUTH-oriented definitions of these keywords are lacking in general. A definition is KNUTH-oriented, if the data about the keywords/phenomenon can be measured/logged and/or derived based on real observations. An observation is real, if a human expert is capable of making a MP4-movies about the manually realized steps – in order to automate as far as all these steps.

One of the most challenging tasks is the collection of real or realistic raw data: the generation of quasi randomized OAMs (object-attribute-matrix-variations) can be managed based on Solver-techniques where a lot of restrictions (like maximum, minimum, median, modus, standard deviation, correlation (matrix), etc.) should be approached in form of an optimizing challenge. The realistic datasets should lead to such objects where the anti-discrimination principle is to validate for each generalized dataset – but never in case of a real random (c.f. Monte-Carlo-Method) dataset.

The alternative solutions of the risk-evaluation are compared to each other – with the same anti-discrimination modelling technique as the AI-based evaluation approach itself was created. The tool can be used by IT monitoring team for threat analysis and Management team to provide targeted trainings and preventive measures against cyber security threats.

The results are trivial: the arbitrary techniques might not be seen as professional enough. The entire AI-based process can be automated (from the logging to the hermeneutical subsystem concerning the interpretation of the visualized results. The most complex challenge is the interpretation of the whole combinatorial space of the potential results. Furthermore, cross verifying the results of the solver analysis with the results of threat and intrusion detection systems can help understand the validity both the systems.

Future aspects: After closing the manual-driven test-cases, the entire evaluation process will be automated in frame of a bachelor's degree/thesis and the software will be available to access as a web application.