Financial crises, large-scale conflicts, pandemics, global warming, failures of information and communication systems and their interdependencies can be considered global hyper-risks posing serious threats to our society. They may be triggered by small perturbations or coincidences, or may not need a trigger at all. They are hard to understand, predict, and control. Identical causes may have different effects, while the same effects may have different causes. Global hyper-risks can materialise even if decision-makers are well skilled and do their best. The resulting damage may have any scale. Yet, a "global systems science" could create the understanding needed to manage and avoid them. The talk will discuss, how the above 21st century challenges may be scientifically approached.