

DeRISK Industrial 4.0

Cyber Risk Quantification and
Management for ICS/OT Asset Owners



The Business Impact of Cyber Risk

Industrial organizations today are exposed to catastrophic cyber risk. As cyber attacks on operational technology (OT) networks grow in number and complexity, so has their cost to critical infrastructure operators and stakeholders. In fact, cyber risk has ballooned to over \$1 trillion dollars in cost; and only 1% of it is covered by insurance.

 Cyber risk has ballooned to over \$1 trillion dollars in cost

In spite of the introduction of new cybersecurity and threat intelligence platforms that are built for Industrial Control System (ICS) environments, CISOs and industrial asset owners still find their critical infrastructure under attack with an increasing rate of success and cost to their organization. Ransomware targeting ICS and OT has grown faster than ransomware targeting IT, growing 500% since 2020^[1]. Clearly, the innovation rate of malicious attack techniques have outpaced cybersecurity innovation. Industrial organizations require more than security from cyber threats, they require resiliency.

Cyber risk quantification, as well as the management and remediation insights, allows asset owners to assess their cyber risk posture on a continuous basis and hedge their exposure. With the DeRISK Platform, DeNexus answers these questions better than anyone, enabling industrial organizations to manage and invest in their business wisely.

Introducing DeRISK Industrial 4.0

The DeRISK Platform is purpose-built for the CISO, CRO and CFO in-mind, located in an industrial infrastructure. DeRISK leverages operational asset data-flows, combined with contextual information and threat intelligence sourced from the DeNexus Knowledge Center® data lake illustrated in figure 1.

 Identify, quantify, mitigate and hedge cyber risk exposure.

DeRISK Industrial Benefits



Value Your Cyber Risk

Know your financial risk associated with every cyber risk at all times to make the right capital allocations



Defend Your Operation

Build better cyber defense strategies with detailed posture assessments of every facility under management



Mitigate Risk Exposure

Leverage the DeNexus Knowledge Center for detailed attack-path mapping



ROI-based Cybersecurity

Measure the financial impact of different mitigations and optimize capital allocation



Leverage Intuitive Interfaces

Reduce cyber risk with hundreds of visualizations built for the industrial asset owner in mind

The DeRISK Platform empowers risk stakeholders to financially quantify the cyber risk that their company is incurring in real-time. With version 4.0 DeNexus is proud to announce that we have integrations built with three of the top five OT Intrusion Detection Systems (IDS). Through the DeRISK UI, asset owners are armed with the main factors driving their incurred cyber risk, where in their infrastructure cyber risk is located and how cyber risk can be remediated. CISOs, CTOs, CFOs and all operational stakeholders are able to achieve a central, holistic assessment their cyber risk exposure to better document and measure results, performance and mitigation-related investments.

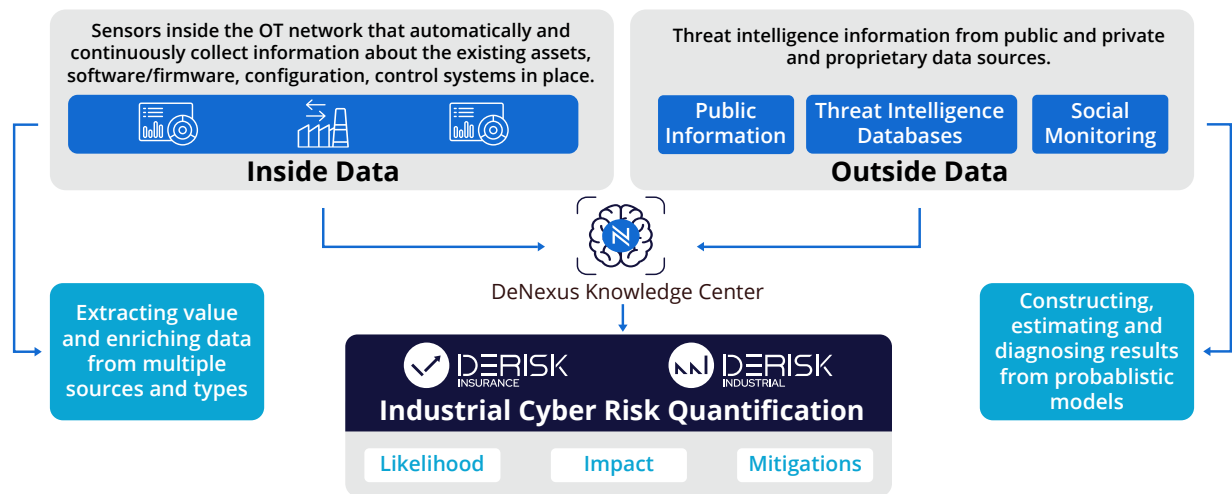


Figure 1: DeNexus Knowledge Center powered by trusted data, probabilistic inference and machine learning
MITRE ATT&CK framework - CIS CSC - NIST CSF - ISO 27001 - FAIR

The DeRISK Solution

Comprehensive risk management for industrial organizations is dependent upon actioning operational and cybersecurity data. This is why the DeRisk Platform sources and aggregates data from all key operational areas, including intrusion detection, threat intelligence, contextual information and impact of successful breaches. This provides dynamic and continuous cyber risk modeling via actionable dashboards that clearly visualizes the relationships between cyber-attack stages and the organization's specific infrastructure. The figure below illustrated how Initial Access Vectors (IAVs) are processed and analyzed.

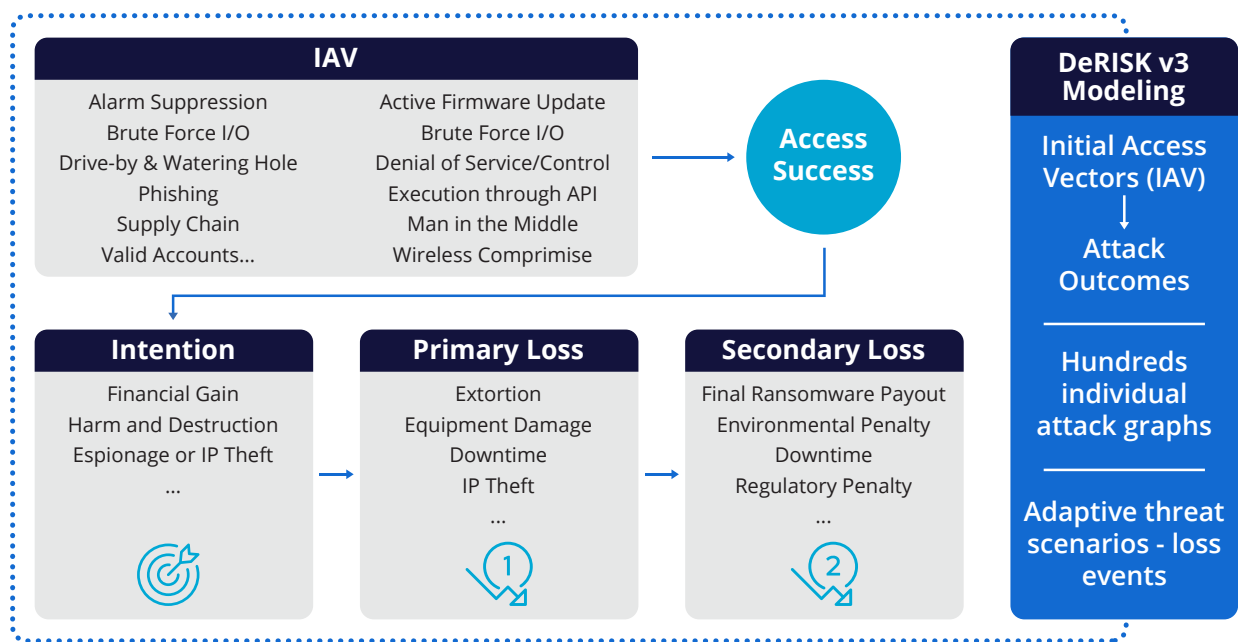


Figure 2: Attack-Path mapping using the DeNexus probabilistic modeling approach

Leveraging the DeNexus Knowledge Center, DeRISK explores every possible attack path that attackers could take against a target, estimates the probability of each attack path succeeding and what loss scenarios can be expected. Also, to quantify the impact of each loss event, the platform considers the impact of a primary loss plus any possible secondary losses as well. The result is a powerful risk quantification and management tool-set, offered as-a-service, that arms risk stakeholders with hundreds of actionable attack paths sourced from numerous different threat variables that are referred to as “nodes.”

This method of probabilistic modeling allows (re)insurers to use DeRISK Insurance to calculate client-side risk exposure for accurate underwriting policies and pricing. In addition, DeRISK Insurance can be leveraged to create new innovative risk products, better protecting both the underwriter and ICS/OT asset owner with an accurate understanding of cyber risk implications.

Key Capabilities and Functions

Attack-Path Mapping

- End-to-end mapping of potential attack and ultimate loss event
- Hundreds of actionable attack paths for loss scenarios
- Access vectors with attacker intentions represented for improved cyber risk remediation and loss prevention action
- Bayesian probabilistic estimation of cyber-attack attempts and potential outcomes

Loss Event Quantification

- Comprehensive loss event classification derived from the Organization for Economic Co-operation and Development (OECD)
- Hierarchical analysis of primary and secondary financial losses
- Loss distribution composition providing a complete evaluation of risk

Dynamic Risk Aggregation

- Orchestrated data flows from asset management and threat intelligence tools
- Threat intelligence informaton from public, private and proprietary data sources including supply-chain risks (outside-in risk sources)
- Multi-network Purdue level calculated risk visibility

Risk Scenario Modeling

- Continuous detailed, dynamic vulnerability analysis with environmental and industry context
- Adaptive quantification engine to industry, sub-industry, facility features and their technology
- Historical data, risk quantification, what-if scenarios can be compared

DeRISK Solves the Money Questions for Industrial Asset Owners

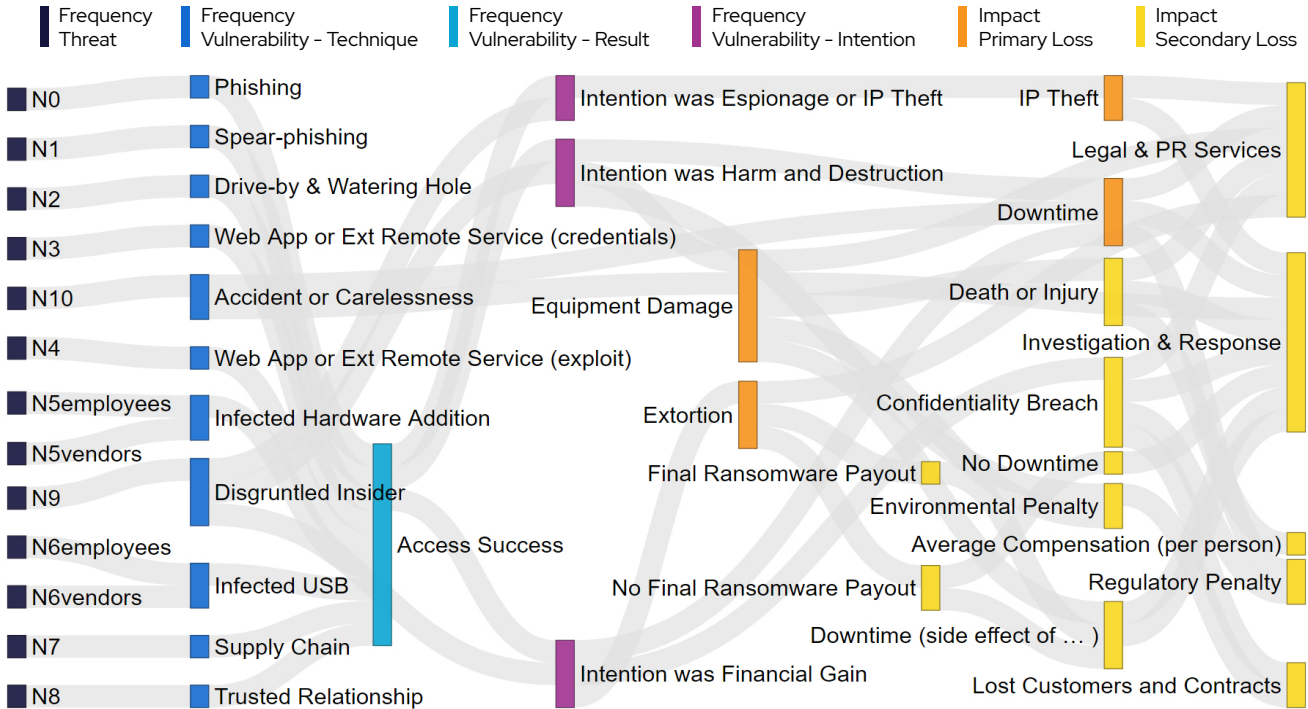


Figure 3: Attack-Path Mapping from IAV to Financial Impact

DeRISK combines empirical data and expert knowledge to provide Industrial organizations with:



Business Impact Valuation

- OT fleet risk aggregation for board level decision making
- Classifies losses by Initial Access Vectors (IAV) to provide more granular information to cybersecurity stakeholders
- Provides insights based on Loss Event Frequency (LEF) and Loss Magnitude (LM) for detailed cyber risk analysis
- Quantifies cyber risk via the DeNexus modified and proprietary approach to the FAIR Framework using financial impact



Defense Intelligence

- Highlights optimum risk mitigation actions based on host ICS/OT network
- Identifies potential attacker intention for improved cyber risk posture strategies
- Standardizes cyber risk across a fleet of assets using MITRE ATT&CK metrics



Risk Mitigation

- Aligns Value at Risk (VaR) with potential cyber events
- Aggregates dynamic risk data to guide cybersecurity investments by fleet or facility
- Visualizes analysis of multiple attack graphs representing specific threat scenarios and attack method



ROI-Based Risk Management

- Lowers operational costs by automating and optimizing risk assessments
- Improves cybersecurity investment and insurance selection with accurate, on-going cyber risk analysis



Actionable, Intuitive UI

- Intuitive data inputs for cyber security insurance evaluations
- Assesses changes in cyber strategies and ROI's
- Prioritizes corrective actions according to urgency and impact of cyber events

Quantify Cyber Risk. Save Money.

We are
DeNexus

DeNexus is the leading provider of cyber risk modeling for ICS/OT organizations and global (re)insurers. Our platform empowers the industrial enterprise and risk underwriters to quantify cyber risk exposure on a continuous, self-adaptive basis using the world's first evidence-based data analytics software and services. The DeRISK Platform from DeNexus is the world's first self-adaptive, cloud-based platform that uses evidence-based data to predict where and how breaches are likely to occur, what their business impact will be and how to mitigate them. DeNexus is headquartered in Sausalito, California with engineering based in Madrid, Spain.

Fortune 500 companies rely on DeNexus to understand their bespoke cybersecurity economics and optimize their risk reduction ROI with the SOC 2, type 1 compliant solutions. Leverage DeNexus and our DeRISK Platform to make asset, vulnerable, configuration, operational anomaly, supply chain and cyber intrusion data work for you.

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