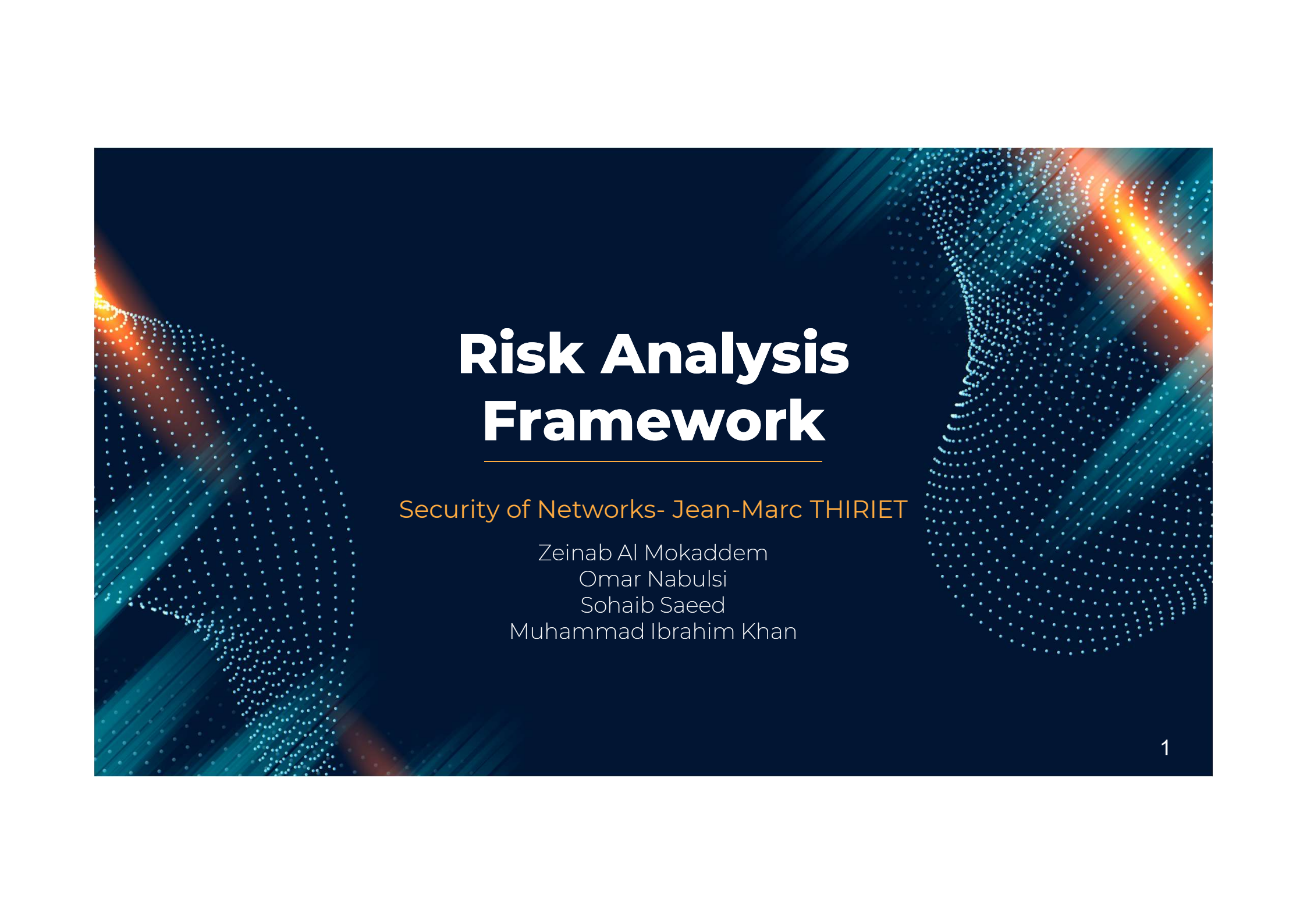




Risk Analysis Framework

Security of Networks- Jean-Marc THIRIET

Zeinab Al Mokaddem
Omar Nabulsi
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Muhammad Ibrahim Khan



01

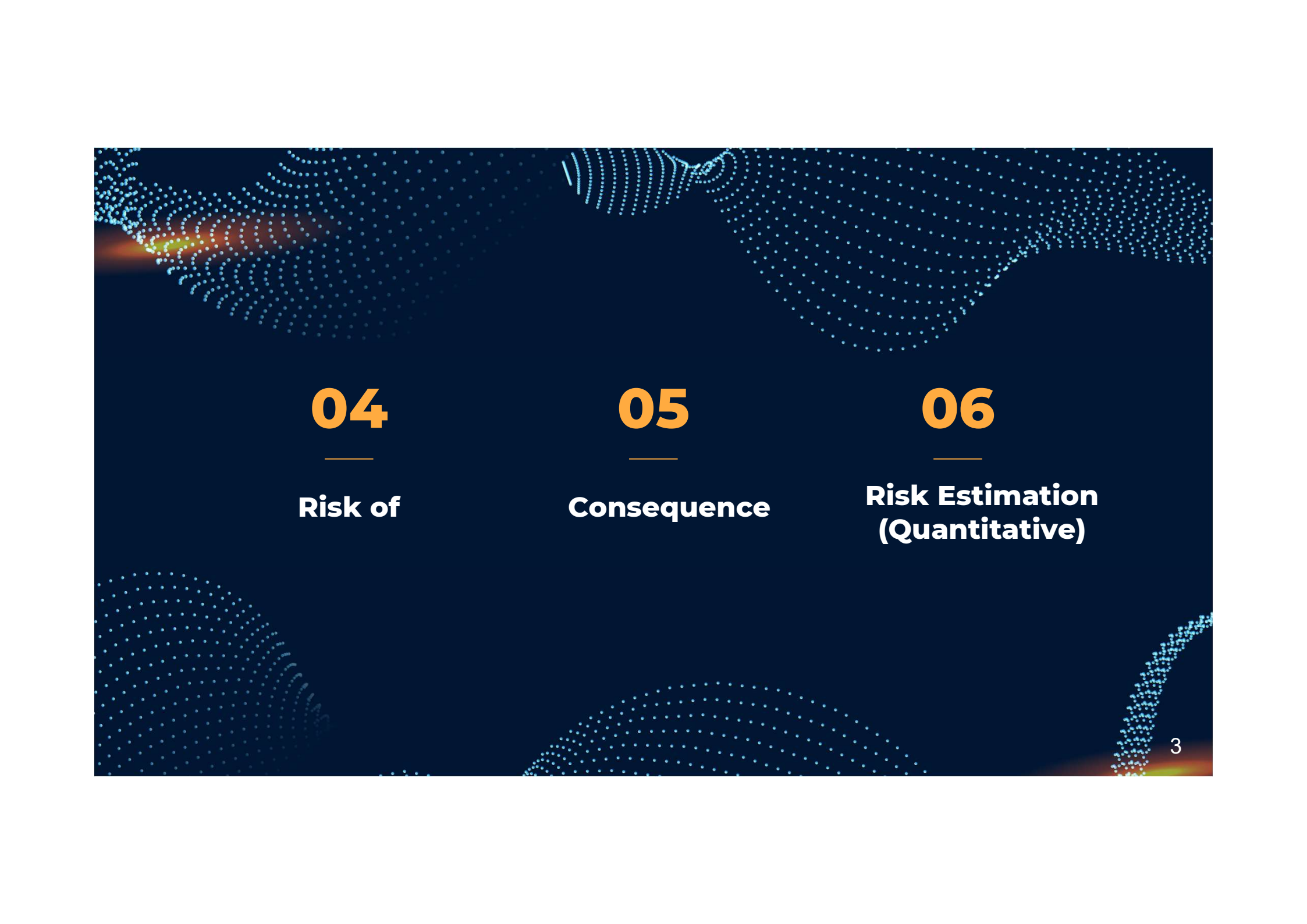
Danger (Cause)

02

**Dangerous
Situation**

03

Dangerous Event



04

Risk of

05

Consequence

06

**Risk Estimation
(Quantitative)**



07

**Risk Evaluation
(Severity &
Likelihood)**

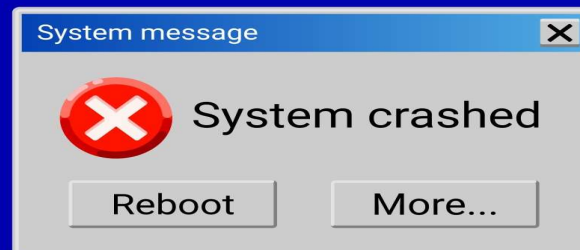
08

**Observations
(Mitigating
Measures)**

Danger (Cause):

- WINCC software crash
- SCADA system has ceased functioning
- SCADA (Supervisory Control and Data Acquisition) is a category of software used for monitoring and controlling industrial processes.

A problem has been detected and your Operation System has been shut down to prevent damage to your computer.



Check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for and Operation System updates you might need.

Technical information:
*** STOP: 0x000000FE (0x00000008, 0x00000009, 0x847075cc)
Your PC ran into a problem and needs to restart.
We're just collecting some error info, and then we'll restart for you.

Dangerous Situation

- Real-time monitoring of the system has been disabled.
- Loss of real-time control over all electrical devices, including heavy-duty DC motor speeds, water flow, and various automatic cutting machines.
- Complete loss of the database containing events that occurred during the production process.



Your PC ran into a problem and needs to restart. We're just collecting some error info, and then we'll restart for you.

0% complete



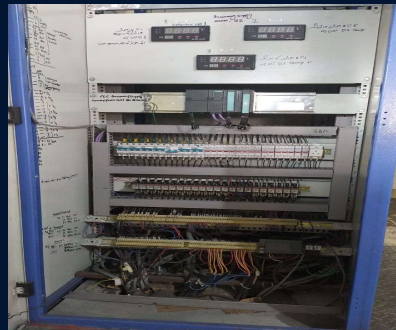
For more information about this issue and possible fixes, visit
<http://windows.com/stopcode>

If you call a support person, give them this info:
Stop code: MANUALLY_INITIATED_CRASH

Communication we lost



SCADA System (Operating Room)



Master PLC



Actuator on Site

Information by sensors



Slave PLC

Dangerous Event

Electrical devices controlled by the PLC system continue running nonstop due to the loss of control through the computer interface.



Risk of

- Uncontrolled operation of electric devices.
- Overload or failure of machinery.
- Risk of injury in case of uncontrolled operation



Consequence

- 4-day production shutdown.
- 1,200 tons of steel rebar production loss (equating to \$1,045,200 in loss).
- Additional \$10,000 cost for software reinstallation from Siemens (China).



Risk Estimation (Quantitative)

- Production Loss: \$1,045,200.
- Software Reinstallation Cost: \$10,000.
- Total Loss: \$1,055,200.



Risk Evaluation (Severity & Likelihood)

- **Severity:** High due to significant production loss and downtime.
- **Likelihood:** Medium to high, considering no software backup was in place.



Observations (Mitigating Measures)

Immediate: Shut down operations to prevent further uncontrolled actions.

Preventive:

- Take a backup copy of the WINCC software from respective company.
- Purchase and install a more robust system directly from Siemens to ensure support (\$3,500 investment).
- Conduct regular software health checks and implement an automatic failover system.

Thank you

