

Research Project: Industry 4.0 and IT security in production

Investigation of digitalization and IT security in North Jutland production companies.

Survey - Industry 4.0 and IT security in production

At UCN, we have initiated a research project within IT security in small and medium-sized production companies.

In this context, we will investigate digitalization and cybersecurity in small and medium-sized production companies (SMEs) in this questionnaire. This is motivated by the fact that SMEs are increasingly targeted by hackers, in the form of ransomware (extortion) and losses as a result.

We focus on technical and organizational aspects of cybersecurity in connection with (use of) digitalization in production companies. By digitalization, we mean that the company uses or plans to use digital solutions and aids in its production. It could be in connection with order management, administration, control of and overview of production machines, etc.

If you do not believe that you are among those in the company who can answer these questions, you are welcome to forward the questionnaire to a manager and/or employee with technical insight into production. It takes about 10 - 15 minutes to answer the questionnaire.

The results will be treated confidentially and will be used for recommendations within IT security in production companies and research articles.

Neither your name nor your company's name will appear explicitly. We thank you for answering the questionnaire and look forward to hearing from you.

Best regards

Henning Thomsen, Mikkel Graugaard Antonsen, Bent Rosenkilde

Research Team IT Security in Production Networks University College UCN, Technology and Business

Fields marked with * are required.

Company Information

1. What is the company's name *: _____
2. Name of respondent *: _____
3. Title of respondent *: _____
4. Write your email if you wish to follow the research group's work:

Digitalization and equipment in production

We will now ask some questions about digitalization at your place. Here we are thinking specifically about digitalization in production. By digitalization, we mean that the company uses or plans to use digital solutions and aids in their production. It could be in connection with order management, administration, control of and overview of production machines, etc.⁹

Digitalization in production

5. To what extent do you see the following as important priorities in digitalization in production? *

Product overview:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

Preventive maintenance:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

Optimization on production:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

Development of new products:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

6. Please justify your answers to the previous question:

Purchasing equipment

7. When purchasing new production equipment, which criteria do you weigh as important? *

Certification/approval of production (e.g. from Danish Standard):

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

That employees in production (e.g. operators) can operate it:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

That the equipment is backwards compatible with the production line:

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

That the equipment is pre-compatible for future production. (e.g. additive manufacturing, modular type manufacturing):

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

That the equipment meets the latest IT security requirements (e.g. ISA 62443):

☐ Not at all ☐ To a lesser extent ☐ To some extent ☐ To a high degree ☐ To a very high degree.

Retrofitting sensors on production equipment and the age of the equipment

8. Do you have any equipment in your production that you have subsequently fitted with sensors / data collection units? *

☐ Yes ☐ No ☐ Don't know.

9. Can you give an example of subsequent data collection and the purpose of this. This could be retrofitting of measuring power consumption on the unit, measuring wear on the unit or other:

10. How long do you generally estimate that production equipment in the company is in operation before it is replaced? *

☐ 1 – 3 years ☐ 4 – 6 years ☐ 7 – 10 years ☐ 11 – 15 years ☐ More than 15 years.

IT security of equipment in production

We continue with the IT security itself and your considerations thereto in connection with production equipment. Here we are thinking both about the production equipment itself and whether it is connected to other equipment or to servers.

We will also touch on production networks. By this we mean a computer network (either wired or wireless), which production machines are connected to. It can be, for example, in the form of PLCs or similar, which are connected.

11. Do you have any equipment in your production that is connected to a network (either wired or wireless)? *

☐ Yes ☐ No ☐ Don't know.

12. What is your purpose in connecting equipment in production to a network? *

Remote Access

13. Do employees have access to your production network and machines thereon (e.g., to PLC, SCADA, etc.) from outside? *

☐ Yes ☐ No ☐ Don't know.

14. If employees have access to the production network from outside, what is the purpose of this access? * (Multiple answers can be selected)

☐ Monitoring of machines in terms of operation

☐ Monitoring of machines in terms of IT security

☐ Troubleshooting/maintenance

☐ Other: _____

15. What methods are used for remote access to the production network? *

☐ VPN (Virtual Private Network)

☐ Remote Desktop

☐ Other: _____

16. Are the devices on the production network being updated? *

☐ Yes, when there are new updates for them

☐ No

☐ Don't know

Overview of production units

17. Do you use a system to keep track of and have an overview of the units in your production? *

- ☐ Yes
- ☐ No
- ☐ Don't know

18. What system do you use to have an overview of the units in your production? *

19. Has your company set up IT security requirements for subcontractors of equipment in production? *

- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Other: _____

20. Do you use standards/guidelines, etc. to formulate requirements for IT security for subcontractors of equipment in production? It is possible to specify multiple answers. *

- ☐ ISA62443
- ☐ ISO27001
- ☐ NIST 80-553
- ☐ D-mærket
- ☐ NIS2
- ☐ No
- ☐ Other: _____