

# Enquêtes / Formulaire / Sondages - VIRTFac

## VIRTFac - Technische Umfrage (TeleMatrix)



Virtual innovative real time factory

Dear Sir or Madam,

Welcome to our survey about the VIRTFac project, short for Virtual Innovative Real-Time Factory. VIRTFac is a European research project that aims to develop a **platform for virtual factories**.

Four French and German public research institutions are working on a **cost-efficient tool** for the **design and optimization of production systems**. The goal is a generic solution to support companies of different levels of maturity in reconfiguring, optimizing and further developing their production system.

You can find out more about the project at <https://virtfac.insa-strasbourg.fr/en/>.

We are conducting this survey in order to better **understand the everyday processes** and to be able to orientate our research to the **actual needs of the industry**. These questions concern the state of development and the use of modeling, simulation and digital twins in the company.

All respondents will receive the anonymized results of the survey.

The survey contains 23 questions.

VIRTFac is funded by the European Initiative Interreg and by the Science Offensive on the Upper Rhine.



There are 28 questions in this survey.

## Company Information

Questions about your company.

### What is the size of your company?

Choose one of the following answers

Please choose **only one** of the following:

- 1 to 9 employees
- 10 to 49 employees
- 50 - 249 employees
- 250 employees and more

### Does your company produce goods or services?

Choose one of the following answers

Please choose **only one** of the following:

- Goods
- Services
- Both

### Please specify your company's business field.

Choose one of the following answers

Please choose **only one** of the following:

- Automotive Industry
- Aerospace and Defense
- Electronics
- Pharmaceutical and Process Industry
- Healthcare
- Consumer Goods
- Agribusiness
- Petrochemistry / chemical processes
- Civil engineering
- Transportation
- Mechanics
- Other

**What is the degree of autonomy of your design and control processes?**

Please choose **all** that apply:

- Designer
- Procucer
- Subcontrator

**What type of manufacturing process does your company use? (regarding time)**

Choose one of the following answers

Please choose **only one** of the following:

- Continuous process
- Discontinuous process
- Per project (single piece production)

**What is the average size of your production batches?**

Please choose **all** that apply:

- Individual production
- Mass production

**What is the type of production process in your company? (concerning space)**

Please choose **all** that apply:

- Flow Shop
- Job Shop
- Group manufacturing
- Site production

**What advanced technologies does your company use?**

Please choose **all** that apply:

- RFID (Radio Frequency-Identification)
- Augmented Reality (Google Glass)
- Virtual Reality (3D models and 3D vision)
- Cyber-physical systems (embedded systems- robotics, sensor networks, camera networks)
- Artificial intelligence
- Exoskeletons
- Other:

**Do you use systematic time recording methods?**

Please choose **all** that apply:

- Time and motion study
- MTM (methods-time measurement)
- Other:

**Simulation Today**

Questions about the current state in your company in the context of modeling and simulation. - Static analysis of layout and material flows - Dynamic simulation of production and logistics (discrete event simulation) - Simulation of ergonomics and human work

**Are the following topics addressed/processed in your company?**

Please choose the appropriate response for each item:

	yes, inhouse	yes, subcontracted	planned in future: in-house	planned in future: subcontracted	no
<b>Modelling</b>					
<b>Simulation</b>					
<b>Optimization</b>					

**Which departments in your company are addressing the topics modeling/simulation/optimization?**

Please choose **all** that apply:

- R&D
- Business unit
- Design office / Methods office
- Production
- Planning
- Quality management
- Continuous improvement
- None
- Other:

**What kind of problems does your company address by Modelling and Simulation?**

Please choose the appropriate response for each item:

	yes, in-house	yes, partially subcontracted	yes, fully subcontracte	no
<b>Layout-optimization of the factory</b>				
<b>Layout-optimization of the shop</b>				
<b>Design of a production line</b>				
<b>Design of a shop</b>				
<b>Simulation/Visualization of human work (ergonomic aspect)</b>				
<b>Simulation and optimization of static flows</b>				
<b>Simulation and optimization of dynamic flows</b>				

**What are the objectives of modeling and simulation in your company?**

Please choose **all** that apply:

**What are the industrial engineering methodologies used for optimization?**

Please choose **all** that apply:

- QMS (quality management system, ISO Certification)
- Lean Management (continuous improvement approach, overall quality)
- Six Sigma
- Value stream analysis
- Product-Service-System
- Innovation (TRIZ/inventive design)
- Other:

**Input for Simulation**

Questions about the boundary conditions of hard- and software.

**What is the estimated percentage of each data collection method in your company? (~100% in total)**

Please choose the appropriate response for each item:

	0%	20%	40%	60%	80%	100%
<b>Manual gathering, e.g. observation, stop watch</b>						
<b>People based systems, e.g. expert interviews</b>						
<b>Paper documents, e.g. written documents, manuals, etc.</b>						
<b>Office Tools, e.g. Excel</b>						
<b>Business Information Systems, e.g. ERP, PLM, MES, etc.</b>						

**Where does you company store the majority of data for modeling and simulation?**

Please choose **all** that apply:

- Data-base
- People based systems, e.g. expert interviews
- Paper-based systems
- Office tools, e.g. Excel
- Business information systems, e.g. ERP, PLM, SAP, etc.
- Other:

**What is the update interval for data (ERP data, work plan data, factory plans, etc.) in your company?**

Choose one of the following answers

Please choose **only one** of the following:

- Daily
- Weekly
- Monthly
- Several months
- Yearly
- Data is obsolete since more than a year
- Other

### **How is simulation data in your company transferred to the simulation model?**

Please choose **all** that apply:

- Experts write data manually to the simulation model
- The simulation model gets connected to local tools, e.g. spreadsheets
- The simulation model gets connected to a data-base
- The simulation model gets connected to the business information systems, e.g. ERP, PLM, SAP, etc.
- Other:

## **Simulation in 10 Years**

Questions about the planned usage of Simulation within the next 10 years.

### **Are you interested to use Modelling and Simulation in context of production in you company within the next ten years?**

\*

Choose one of the following answers

Please choose **only one** of the following:

- Yes
- No

## **Simulation in 10 Years**

Questions about the planned usage of Simulation within the next 10 years.

### **What kind of Modeling and Simulation does your Company plan to use?**

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '22 [Q04]' (Are you interested to use Modelling and Simulation in context of production in you company within the next ten years? )

Please choose **all** that apply:

- Modeling of static layouts and material flows
- Dynamic simulation of Processes
- Simulation and Visualization of human work
- Other:

### **What kind of problems does your company plan to address by Modeling and Simulation?**

Only answer this question if the following conditions are met:

Answer was 'Yes' at question '22 [Q04]' (Are you interested to use Modelling and Simulation in context of production in you company within the next ten years? )

Please choose **all** that apply:

- Layout-optimization of the factory
- Layout-optimization of the shop
- Bottleneck detection
- Line Balancing
- Dimensioning
- Visualization of complex systems
- Virtual Commissioning
- Other:

## **Contact Information**

We will use your contact information exclusively to share the results of the survey with you.

### **What is your company's name and adress?**

Please write your answer here:

### **What is your name?**

Please write your answer here:

**What is you Email-Adress?**

Please write your answer here:

**Are you interested to be contacted for events organized by the VIRTFac project? \***

Choose one of the following answers

Please choose **only one** of the following:

- Yes
- No

Thank you for your support! We are going to share the results with you as soon as the survey is evaluated.

Best regards,

VIRTFac-Team

Submit your survey.

Thank you for completing this survey.