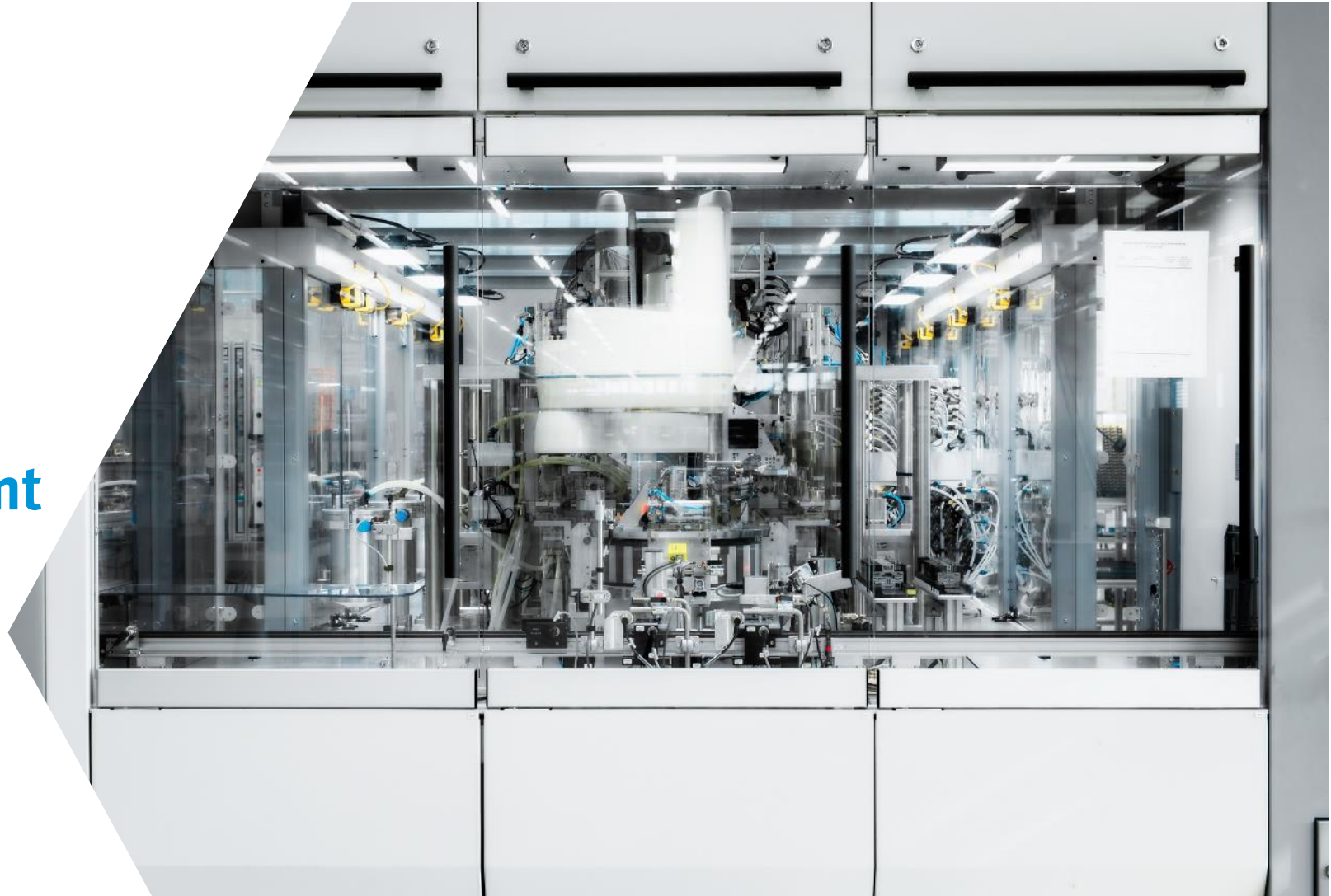




Smartenance

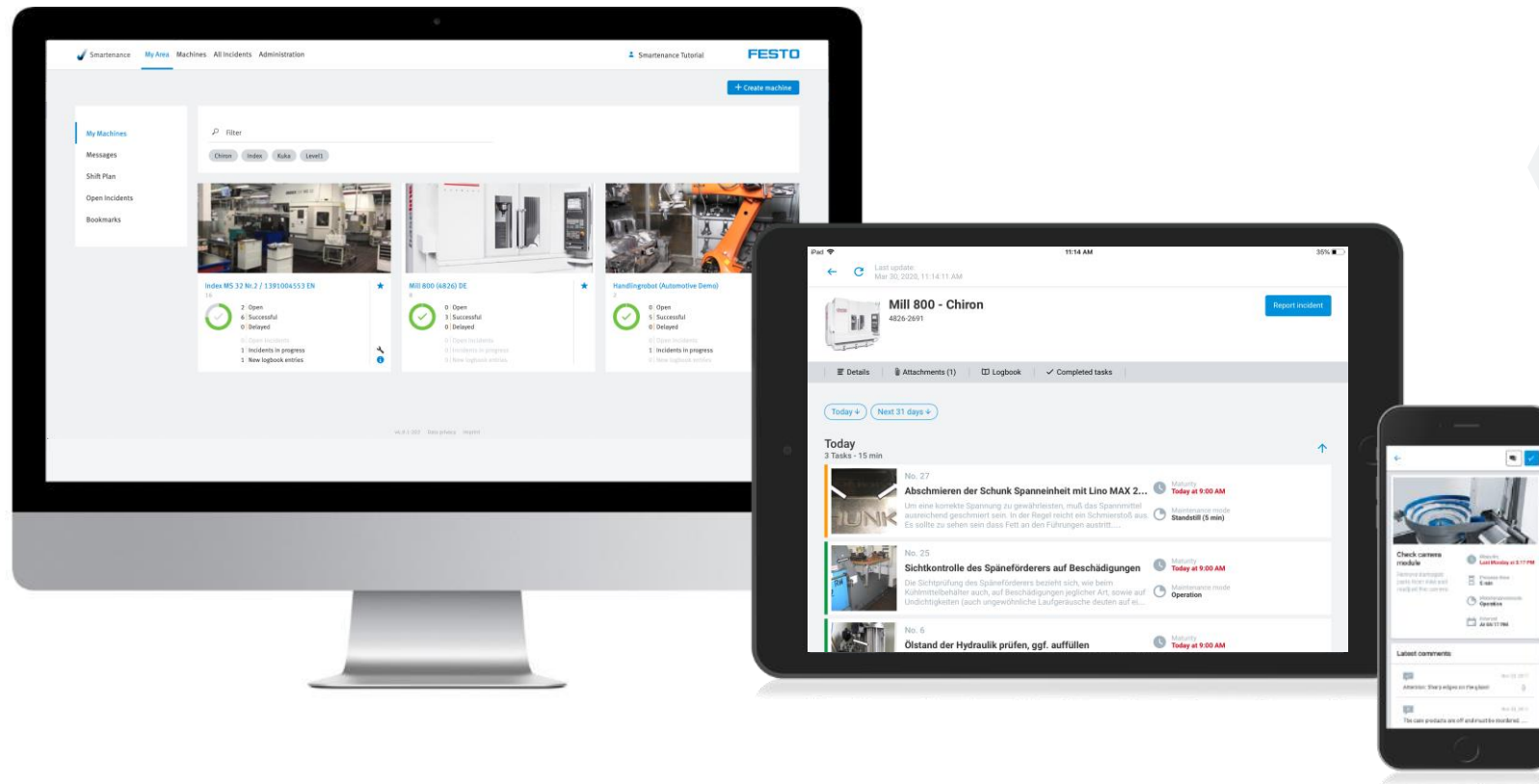
digital
maintenance management
incident management
machine logbook





Engineers of productivity - managing all maintenance activities in one application

Smartenance - keeps maintenance simple!





The evolution of maintenance management

Maintenance in the past

Value Production			
Maschine:	Spindel- und Werkzeugmagazin	Durchführung:	Maschinenbediener
Häufigkeit:	je nach Vorgabe	Abteilung:	PF-SPL
Vorgang Nr.	Beschreibung	Bild	Hilfsmittel
1	Einlegeplatz: - Späne von Schwenkbalken mit KSS abspülen, Zustand von Schwenktrieb prüfen.		
2	Maschinenraum: - Werkzeugaufnahme in der Spindel reinigen, Späne an Spindelansatz entfernen.		
3	Maschinenraum: - Späne von Schwenkbalken und Maschinenraum mit KSS abspülen.		
4	Magazin im Maschinenraum - Späne im Magazinraum mit Sauger entfernen, Späne an den Sensoren für Bohrerbruchkontrolle und Spänestaub abwischen.		
5	Magazinbeladeplatz hinten - Späne an der Kette und Werkzeugmagazin abblasen, Schwenkfelder für Werkzeughalterung kontrollieren, Späne von Magazinboden entfernen.		
Erstellt am:	04.02.2012	Verantwortlich:	THB/C. LASSAU (LAL)
		Blatt:	1 von 1

Maintenance today: Smartenance





The evolution of maintenance management

Maintenance in the past

Paper-based maintenance

- Constant printing, distribution and gathering of maintenance lists
- Extra effort needed for documentation and audits
- Missing or outdated documents

No overall maintenance systems

- Two separate systems for autonomous maintenance and incident tickets
- Complicated incident documentation and search for previous solutions
- No structured information exchange or collaboration within the team

Maintenance today: Smartenance

Cloud-based maintenance management

→ enables mobile access from anywhere

One system for planned & reactive maintenance

→ improves communication

Manufacturer-independent and user-friendly

→ easy to operate and covers all machines

✓ Perfect tool for **TPM*** and **ticket management**

✓ **Higher OEE**** through preventive maintenance

*Total productive maintenance **Overall equipment effectiveness

Smartenance license packages – Pay for what you need

Start out with digital maintenance.

Smartenance Basic

Autonomous Maintenance Management

Starting from **€12.50** license/month*

*annual invoice

Extend with incident management.

Smartenance Advanced

Autonomous Maintenance Management

+

Incident Management

+

Machine logbook

Starting from **€17.00** license/month*

*annual invoice

Integrate in your infrastructure.

Smartenance Premium

Autonomous Maintenance Management

+

Incident Management

+

Machine logbook

+

Data Interface/API

Starting from **€22.00** license/month*

*annual invoice

* One license per mobile device or web user, upgrades always possible

Smartenance license packages – Pay for what you need

Start out with digital maintenance.



**Smartenance
Basic**

Autonomous Maintenance Management

Extend with incident management.



**Smartenance
Advanced**

Autonomous Maintenance Management

+

Incident Management

+

Machine logbook

Integrate in your infrastructure.



**Smartenance
Premium**

Autonomous Maintenance Management

+

Incident Management

+

Machine logbook

+

Data Interface/API

* One license per mobile device or web user, upgrades always possible

Smartenance Basic - getting started with digital maintenance management

Smartenance offers two user interfaces



A web application
for production managers

Overview
of maintenance
status

Create
and manage
maintenance
schedules

Access
feedback and
machine
logbook

→ **User-friendly
and fast roll-out
supported**



A mobile app
for machine operators

Comprehensive
maintenance
calendar

Access
all maintenance
information

Give feedback
directly from
the shop floor

→ **Intuitive to
operate and
always at hand**

The web application for production managers

- › Stay informed about the maintenance status and feedback
- › Create maintenance tasks with attachments and images
- › Work from the office using your browser

- ✓ **Detailed documentation for audits**
- ✓ **Export and import possible**
- ✓ **No time-consuming consultation necessary**



The mobile app for machine operators

- › Maintenance descriptions with text, images, videos & PDFs
- › Intuitive, straightforward operation of the application
- › Send a message straight from the shop floor

- ✓ **Smartenance saves time:**
 - less searching & quicker execution**
- ✓ **Easy to train new employees**



Smartenance Advanced - extend Smartenance with incident management

Now maintenance staff can also use the web application



A web application

Additional: for maintenance staff

Additional:
Process
incident tickets

Additional:
Document
all maintenance
activities

Additional:
Intelligent searches
for previous
activities

→ **Create your
own internal
knowledge
base**



A mobile app

for machine operators

Additional:
Report incidents
with the app

Additional:
Follow
maintenance
activities

→ **Report
incidents
directly where
they occur**

The web application for maintenance staff

- › Intelligent searches for previous maintenance activities
- › Document incidents and actions taken
- › Ticket system with status and categorization

- ✓ **Work with one central machine logbook**
- ✓ **Create internal knowledge base**
- ✓ **Share experience within the team**



Smartenance Premium - integrate Smartenance in your application infrastructure

Smartenance Premium includes a data interface (REST API) for Smartenance

SMARTENANCE HOME APIS GETTING STARTED MANUEL

Search

Smartenance OData API

API change history

Gets all maintenance tasks, associated with a given machine.

Try it

Request

Request URL

`https://test-apim-ecm.azure-api.net/external/odata/Machines({key})/Tasks?api-version={api-version}&select=[&$filter]&$orderby=[&$stop]&$skip=[&$count]`

Request parameters

key	string	Format - uuid. The ID of the machine for which you want to query the maintenance tasks.
api-version	string	The requested API version
\$select (optional)	string	Limits the properties returned in the result.
\$filter (optional)	string	Restricts the set of items returned. The maximum number of allowed functions are: allfunctions.
\$orderby (optional)	string	Specifies the order in which items are returned. The maximum number of expressions is 5.

The API offers read and write access to Smartenance

Integrate Smartenance in your application environment

Option to connect to ERP/MES/condition monitoring systems

✓ **Trigger** maintenance tasks (event based)

✓ **Export** and **import** information to your applications

✓ **Automate** maintenance processes

Smartenance Premium

The screenshot displays the Smartenance Premium developer portal. At the top, a navigation bar includes links for SMARTENANCE, HOME, APIS, and GETTING STARTED. A large blue banner welcomes developers and states that they can discover and learn about the Smartenance API. Below this, the 'API Documentation' section is visible, featuring a list of API endpoints with their methods (POST, PUT, DELETE) and brief descriptions. The 'Create a new task' endpoint is highlighted. To the right, a detailed form for creating a new task is shown, including fields for 'api-version' (set to 1.0), 'Content-Type' (set to application/json), and a 'Request body' section containing a JSON schema for task data. The JSON schema includes fields like 'id', 'machineId', 'number', 'title', 'description', 'expectedMachineStandStillTime', 'expectedWorkTime', 'color', 'createdat', 'modifiedat', and 'closedTasks'.

- Developer portal with documentation
- Trial access possible
- Integration needs to be done by customer



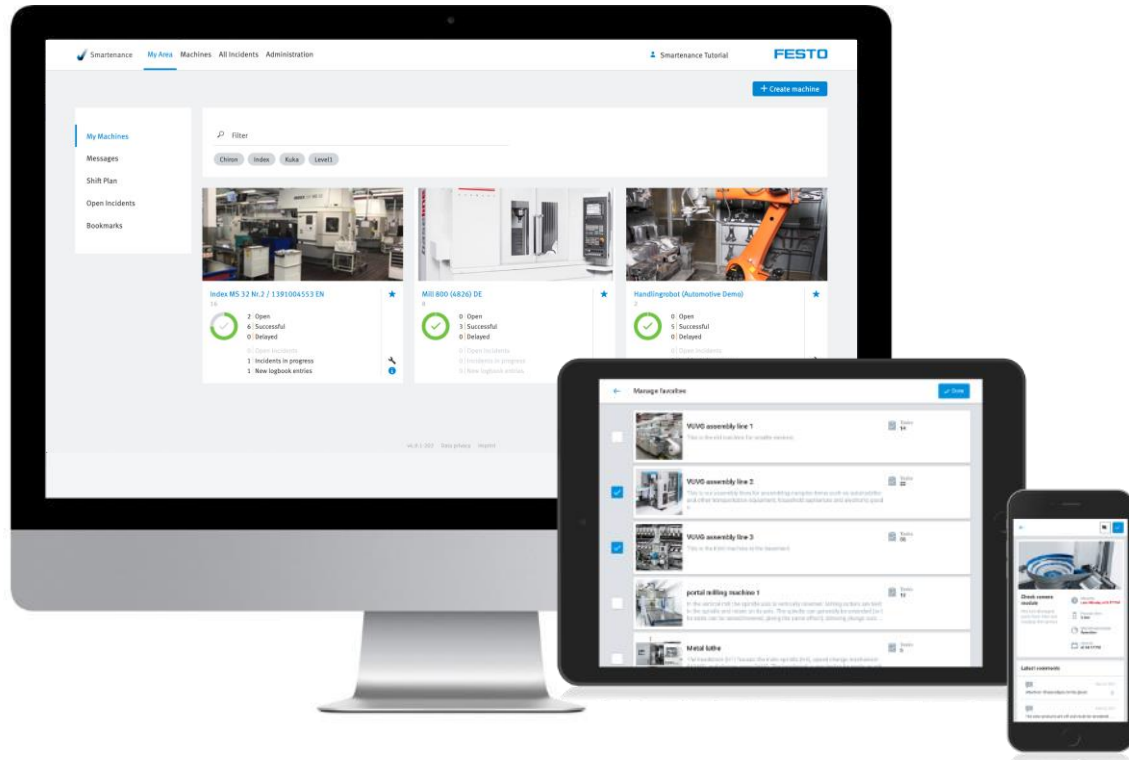
Choose the **functionality** you need for your team

		Functions	Smartenance Basic	Smartenance Advanced	Smartenance Premium
Web application	for production managers and maintenance staff	Overview of maintenance status & feedback	✓	✓	✓
		Create and manage maintenance schedules	✓	✓	✓
		Access feedback and machine logbook	✓	✓	✓
		Process incident tickets	-	✓	✓
		Document all maintenance activities at a machine	-	✓	✓
		Intelligent searches for previous activities	-	✓	✓
Mobile app	for machine operators	Comprehensive maintenance calendar	✓	✓	✓
		Access all maintenance information & all attached documents	✓	✓	✓
		Give feedback directly from the shop floor	✓	✓	✓
		Report incidents where they occur	-	✓	✓
		Follow maintenance activities	-	✓	✓
Data interface		Read and write access using REST API	-	-	✓
		Integrate Smartenance in your application environment	-	-	✓
		Option to connect to ERP/MES/condition monitoring systems	-	-	✓
		Event-based maintenance possible	-	-	✓
		Unlimited cloud storage	-	-	✓



Smartenance - keeps maintenance simple!

Where can I use it?



The benefits to you:

- ✓ **Saves time:** less searching & quicker execution and no time-consuming consultation necessary
- ✓ **Efficient:** share experience within the team
- ✓ **Convenient:** possible to export and import information
- ✓ **Location-independent:** report the incident directly where it occurs
- ✓ **Educational:** internal knowledge base & easy to train new employees
- ✓ **Cloud-based:** efficient, unlimited storage of cloud data
- ✓ **Industry 4.0:** automate maintenance processes

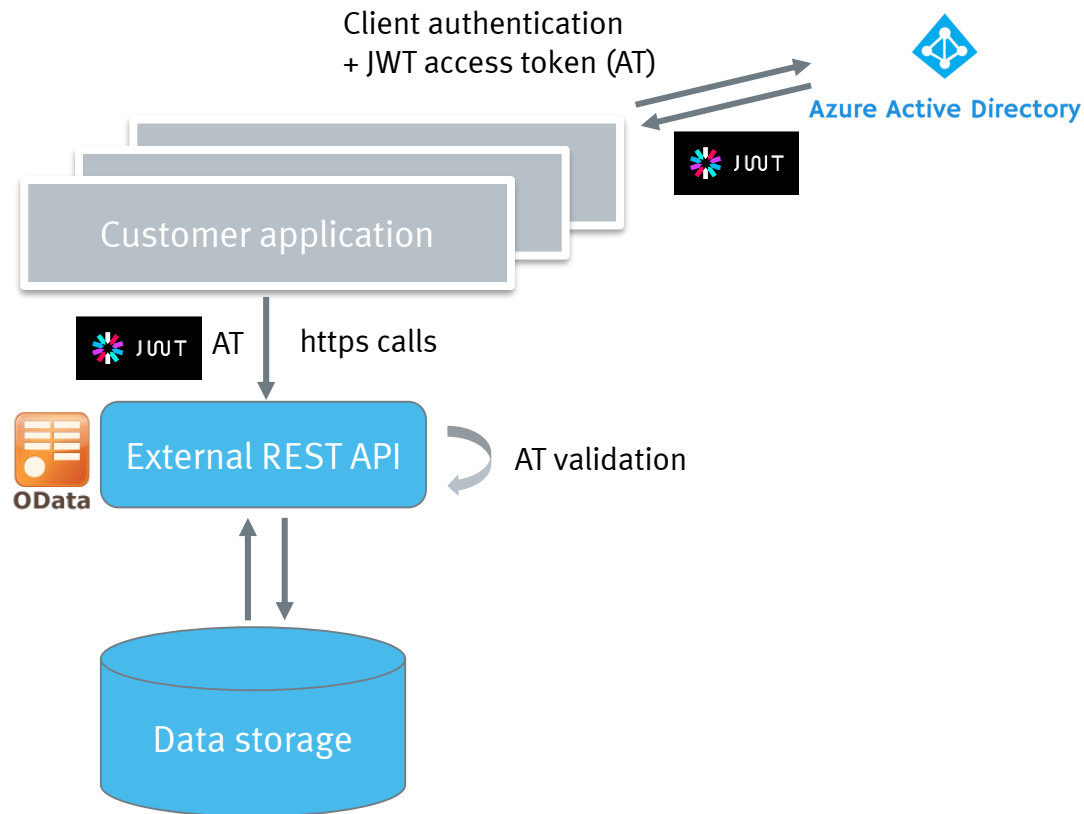


Test Smartenance for 4 weeks for free!

With
Smartenance
you'll enjoy all the
advantages of digital
maintenance
management.



Technical description for developers



- Passwords and client data are not handled by Smartenance but through Azure Active Directory (AAD).
- Customer applications are validated by AAD via client authentication and an access token (AT) for Smartenance is provided.
- Customer applications use https calls to communicate with the REST API of Smartenance.
- For the REST API we use OData and offer documentation.
- Once their AT is validated, customers can access the data storage of Smartenance.

Data security

Password protection:

- User management runs via Active Directory from Microsoft >>> [LINK](#)
- Passwords are hashed (encrypted) (the password is never stored in plain text)
- Standard password complexity fully meets Microsoft requirements

Cloud data

- Festo Cloud is within Microsoft Azure and is certified to ISAE Type 2
- Customers have their own database with individual Tenant Management
- Data recovery management and data back-up systems in place - 90 days back-up
- On expiry of the license, all data and account information are fully erased after 30 days
- Secure https connections established between Dashboard PC, cloud and app
- Access to data is restricted to Microsoft/Festo/customer

Mobile apps

- Festo apps have been security screened by Apple and Google
- Regular patch releases by logging in via Application Insights (monitoring service)

Note: Within the Festo AppWorld, each country has its own End User License Agreement approved by the local company and the Festo legal dept.

Explanation of terms:

Azure Active Directory (Azure AD) is Microsoft's multi-tenant, cloud-based directory and identity management service that combines core directory services, application access management, and identity protection into a single solution.

Application Insights is an extensible analytics service that monitors your live application. It helps you detect and diagnose performance issues, and understand what users actually do with your app.

Tenant Management describes how an organization owns and manages a specific instance of cloud service. Within Microsoft Azure, customers will own their own dedicated space managed by the Azure Active Directory protocols set-up by Festo.

Selling Smartenance via OEMs

Currently, Smartenance is sold “empty” to end users.

Our goal: To sell Smartenance via our OEMs, already equipped with maintenance plans and enable:

- **Warranty extension** by the OEM to the end user
- **White labelling** of Smartenance for OEM (colour/logo/URL, etc.)

Benefits for the end user

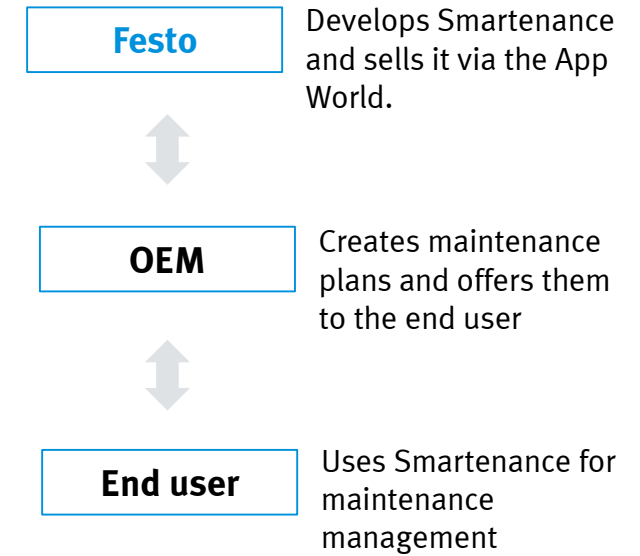
- No need to create maintenance plans.
- Start right away.
- OEM might grant additional warranties if maintenance activities are tracked by OEM.
- Data exports for audits

Benefits for the OEM

- No need to print maintenance instructions.
- Offer digital maintenance management as a competitive advantage.
- Strengthen contact with the end user and use a white label solution.
- Track maintenance activities and gain insight into problems of his machines.

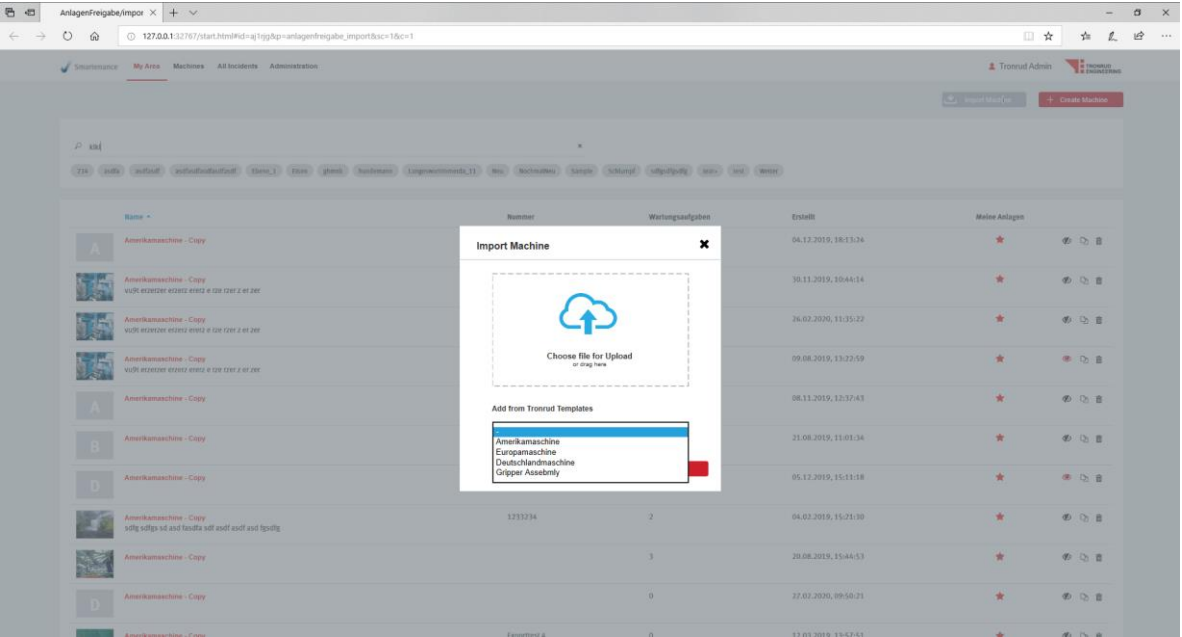
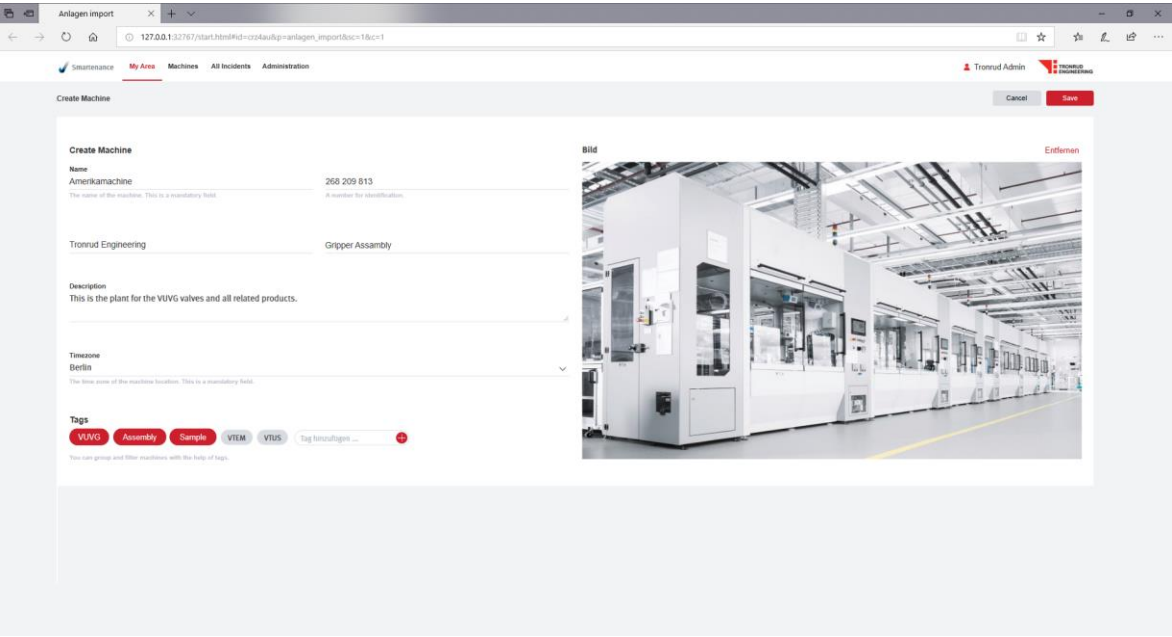
Benefits for Festo

- The OEM is our distributor and generates revenue for Festo.
- Strengthen contact with OEM.

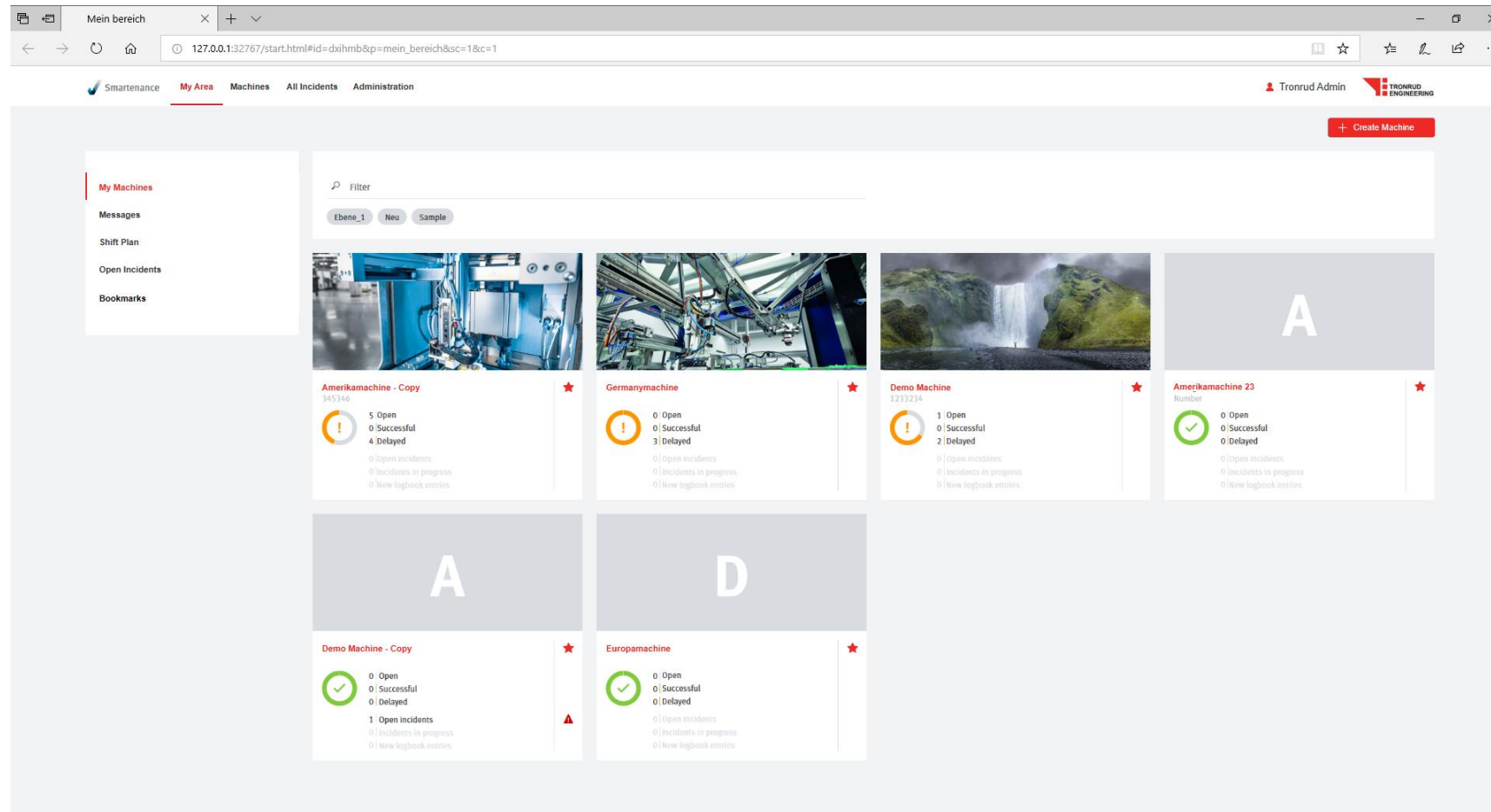


→ If you know an **interested OEM** who would like to discuss this business model, [please contact us: smartenance@festo.com](mailto:smartenance@festo.com).

Individual white labelling of your Smartenance account



Individual white labelling of your Smartenance account



The Smartenance maintenance software video

Smartenance - keeps maintenance simple!



<https://youtu.be/FRO2x6ESx8w>



What makes Festo digital solutions so special?

Smartenance - keeps maintenance simple!

- › Modern UX
- › Agile development
- › Interdisciplinary product teams
- › Use cloud approach for rapid deployment
- › Allow on-premise for data sovereignty

14
services

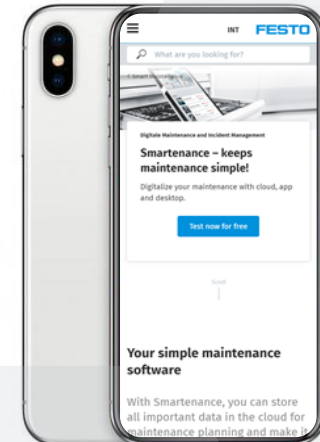
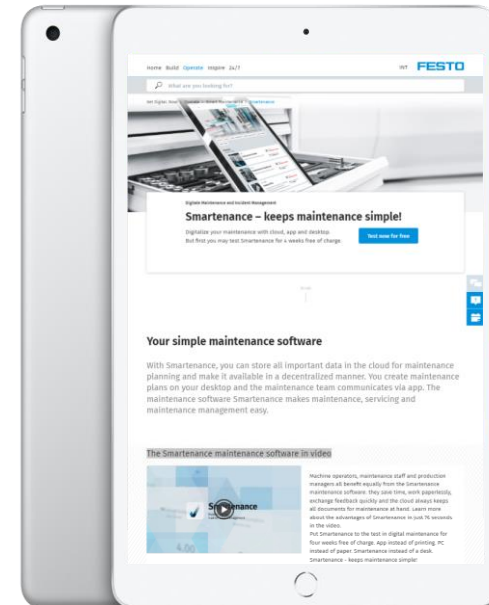
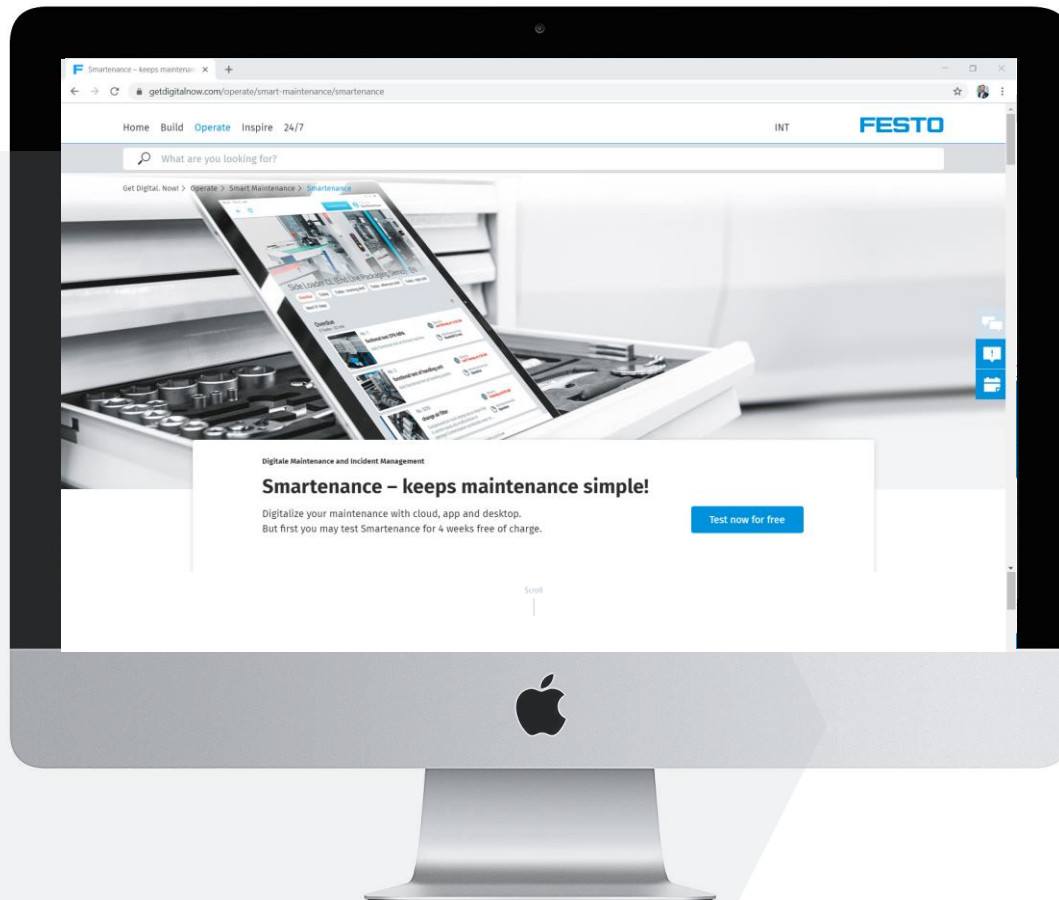
14
solutions

Smart
data
Digital
twin



www.getdigitalnow.com/smartenance

Find out more about Smartenance



www.getdigitalnow.com/smartenance/freetrial

Success stories - there from the beginning

Smartenance roll-out in Festo plants

>>> <https://getdigitalnow.com/operate/smart-maintenance/success-stories>

- › Festo China
 - › Festo Hungary
 - › Festo Germany / Scharnhausen
 - › Festo Germany / Wiebelskirchen
 - › Festo Germany / Rohrbach
-
- › ROI < 6 months!

*»By using Smartenance as our primary maintenance management system, I **save one hour of work every day** that I can use to improve the process and engage with my employees.«*

Maintenance owner, Festo

