Realizing the gains from digital processes at Sabena Technics

François Doré, Deputy Director General Strategy and Innovation, Sabena Technics explains how the independent MRO has benefitted from Digitization Performance Gains

would like to use this article to share with readers how Sabina Technics decided to implement Trax as a performance lever for the activities of the business. We'll look at this in five main sections. The first two will be dedicated to an overview of Sabena Technics and the main challenges the business faces as an independent MRO. Then we'll introduce readers to the digital transformation plan itself, before focusing on Trax project timelines and methodology. To conclude, we will look at the performance levers that Sabina Technics has managed to put in place as a result of this project. So, first, some information about the business that is the subject of the article.

SABENA TECHNICS

Sabena Technics is a leading French independent MRO provider working in both civil and military operations (figure 1). The main areas of activity are airframe, CAMO, components, aircraft modification, painting, supply chain and training. With more than 3,000 employees, the business is valued at 520 million Euros and serves more than 500 customers around the world, performing 350 heavy checks as well as repairing 50,000 components each year.

SABENA TECHNICS GROUP

Sabena technics is a French leading independent provider of MRO and modification solutions for civil and military aircraft operators.

AIRFRAME   CAMO   COMPONENT   MODIFICATIONS & UPGRADES   PAINTING   SUPPLY-CHAIN   TRAINING

EASA PART/FRA 21J Design Office
EASA PART/FRA 21G Product Office
PART 147 Training solutions

3000	**520M€**	**+500**	**350**	**+50 000**
Employees (2020)	turnover (2020)	Clients worldwide	Heavy checks performed / year	Component repaired per year

Figure 1

:The main areas of activity are airframe, CAMO, components, aircraft modification, painting, supply chain and training. "

The Sabena Technics group had its origins in 1968 as TAT, Touraine Air Transport, (figure 2) which, in 2000, made an acquisition of ROM industry. That was followed in 2005 with the acquisition of Sabena Technics in Brussels and the group adopted the name 'Sabena Technics'.

GROUP KEY DATES

1968	2005	2014	2019	2020
Creation of Touraine Air Transport (TAT) by Michel Marchais	Acquisition of Sabena technics in Brussels	Sabena technics Brussels is no longer part of the Group	Acquisition of New EAS which becomes Sabena technics PGF	Acquisition of AeroTech Pro

2000	2007	2015	2019
TAT Industries acquires AOM Industries (1991)	Sogerma services (1924) becomes Sabena technics	Opening of a painting center in Toulouse	The Sagard, Bpifrance and TowerBrook funds acquire majority of Sabena technics' capital

EXPERIENCE AT THE SERVICE OF PERFORMANCE

The history of Sabena technics Group is marked by a dynamic industrial heritage spanning more than 90 years. Guided by its entrepreneurial spirit, daring and agility, the Group provides its customers with a efficient industrial tool and local solutions.
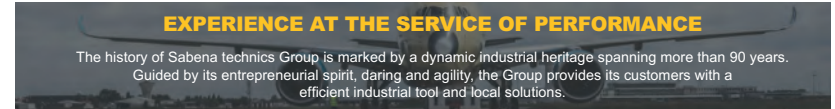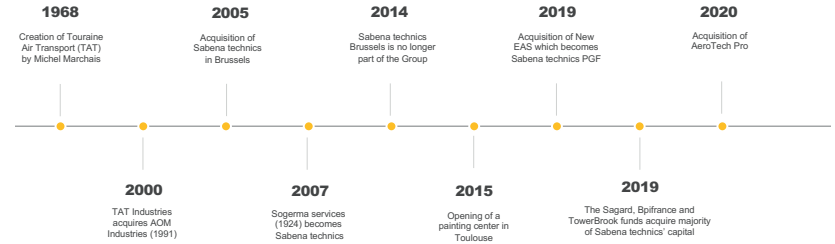
Figure 2

In 2007, the group bought Bordeaux based Sogerma Services then, in 2014, Sabena Technics Brussels left the group, but the group retained the name as Sabena Technics. A new painting center was opened in Toulouse in 2015 and, in 2019, Sabena Technics acquired New EAS which became Sabena Technics Perpignan. Also, in 2019, there was a change of shareholders when Sagard BPI France and Towerbrook took a majority shareholding in the business. Later, in 2020, there was a further acquisition, in this case of AeroTech Pro in the South of France.

Sabena Technics services are delivered on three main pillars (figure 3).
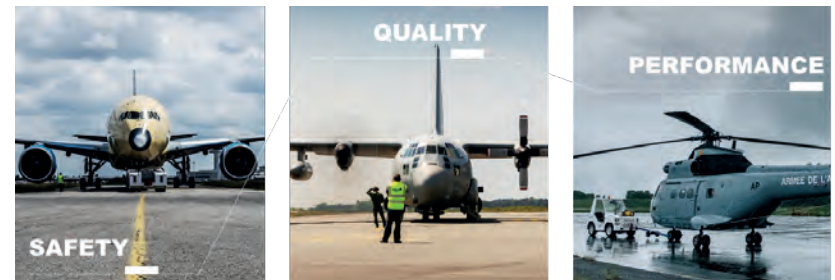
OUR MISSION

Figure 3

First, jobs are delivered with the highest level of safety for both aircraft and personnel working in the facilities; secondly, the best quality is assured in all Sabena Technics' operations to ensure customer satisfaction and, finally, all teams are also focused on performance, critical in this pandemic period.

Sabena Technics group is managed by Sabena Technics Odin (figure 4). There are several independent companies in the group with their own teams and facilities in Bordeaux, Dinar. Nime, Toulouse, Perpignan as well as Papeete, Dubai and Singapore.

ORGANIZATION

Figure 4

There are also some dedicated affiliates in specific business sectors, such as Manaero Interim, and Sabena Technics training in Bordeaux as well as some joint ventures such as X-Air, Sabena Technics Mere, IGO Solutions and SCS.

As a French MRO, Sabena Technics is mainly based in France in Dinar, Bordeaux, Perpignan and Paris. But there is also a global worldwide footprint (figure 5) in Monastir, Dubai, Singapore, Papeete, Noumea and Cayenne.

> "Being an independent MRO introduces more complexity to operations. There are multiple customers to be dealt with, not only different airlines and aircraft builders but also military customers."
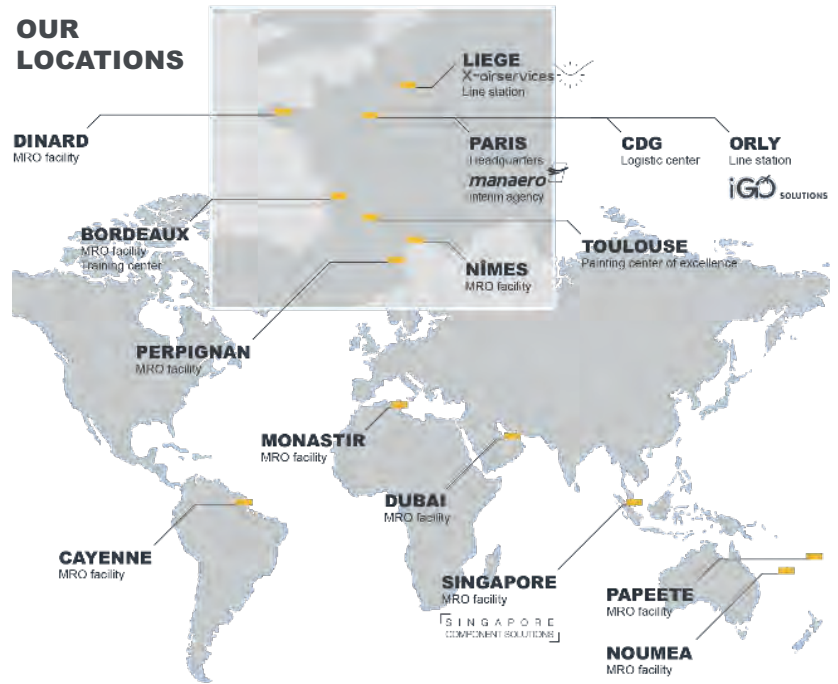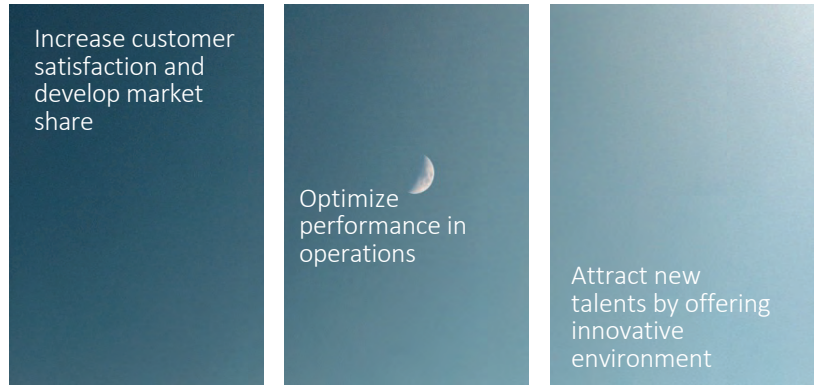

Figure 5

CHALLENGES FOR AN INDEPENDENT MRO

Being an independent MRO introduces more complexity to operations. There are multiple customers to be dealt with, not only different airlines and aircraft builders but also military customers. Furthermore, the business handles a range of aircraft types from the Airbus and Boeing families as well as military aircraft. That creates major constraints in aircraft documentation management. There are also a wide range of specific processes that have to be catered for as part of the business's activities and processes. For instance, in addition to Sabina Technics' own task card, they have to manage the sign-off of customer task cards. Add to all that, that the business also manages aircraft modification with an integrated engineering office and it becomes clear that, in order to deal with these levels of complexity, the organization and process tools have to be very flexible. It was in this context that the business decided two years ago to launch a large program of digital transformation.

DIGITAL TRANSFORMATION

In 2018, Sabena Technics launched its digital transformation program targeting three main objectives (figure 6). These were:

- To increase customer satisfaction and develop market share.
- To optimize performance in operations, which has become critical during this COVID period.
- To offer the 'best-in-class' working environment for mechanics in order to attract the best talent.

Digital transformation targets in Sabena technics

Increase customer satisfaction and develop market share

Optimize performance in operations

Attract new talents by offering innovative environment

- Sabena Technics launched in 2018 its digital transformation in a very practical approach

Figure 6

"To begin with, there was an effort to keep the Sabena Technics team aware about changes in the business. Then, the search for a partner meant looking closely at the main players and start-ups in different technologies such as mobility, big data, artificial intelligence, bots, and virtual reality"

This transformation plan was organized around five principles (figure 7).

Our approach of digital transformation

Watch	Pragmatism	Dynamic	Test	Appropriation
01 Main players Start up Mobility Big data IA Bot VR/AR ...	02 Be ambitious but also pragmatic	03 Do now	04 "test and learn" approach	05 Encourage users appropriation

Figure 7

To begin with, there was an effort to keep the Sabena Technics team aware about changes in the business. Then, the search for a partner meant looking closely at the main players and start-ups in different technologies such as mobility, big data, artificial intelligence, bots, and virtual reality. The second principle was to try to be ambitious with targets for significant changes in the way the business works, but also, to be pragmatic in the deployment of any changes. In order to make the change happen, it was decided to act quickly without undertaking many proofs of concept approaches but there was a test and learn approach launched with the project. Finally, there was attention paid to encourage user handover through a dedicated change management team.

"The second main target of this project is to be fully customer oriented by including their local representatives into Sabena Technics' process. To that end, each customer was offered a Customer Portal in order for them to access real-time data."

e-Enabling and making them mobile

In light of the approach and these objectives that had been determined, Sabena Technics decided to implement eMRO with e-mobility from Trax as key pillars in the airframe operation transformation (figure 8). The project to bring that about was called Connected Mechanics, to reflect the project's aims of putting the mechanics in the centre of the process.

eMRO and eMobility: heart of Airframe activity digitisation

Digitization of hangar activities

PAPERLESS

PUSH FEASIBLE
TASK CARDS
Supply chain and
Planning synchro

DIGITAL TASK CARDS
Execute Task Card assigned on iPads

REAL TIME
Information, Task Card
assignment, progress

NON ROUTINE ON IPADS
Document and speed up
Non Routine process

MOBILES RESOURCES
Access to multiple aircraft
documentation live

Connected mechanics

Figure 8

It was decided to directly implement a full paperless check approach whatever the level and so digital task cards were implemented for all mechanics, to support which, more than 400 iPads were deployed. As well as task cards, the iPads enable mechanics to record and notify defects on the aircraft and that speeds up the non-routine process including with the customer as well as enabling the mechanics to access online documentation. There is also work underway to enable the pushing of feasible task cards to mechanics by synchronizing the supply chain and operation planning. Finally, real time is a key factor to improve performance.

Bringing customers into the process

The second main target of this project is to be fully customer oriented by including their local representatives into Sabena Technics' process. To that end, each customer was offered a Customer Portal in order for them to access real-time data (figure 9).
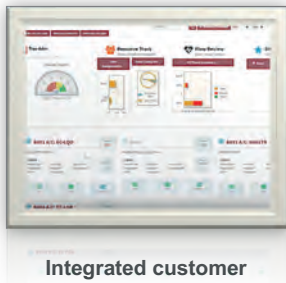
Customer oriented

CUSTOMER PORTAL
Real time access to work order data

FOLLOW UP
Progress and planning sharing

NON ROUTINE
Real time validation

SUPPLY CHAIN MANAGEMENT
Arbitration about who supply parts

INVOICING
Follow up of invoicing

WORK ORDER DOCUMENTS

Integrated customer

Figure 9

They can, for instance, follow the progress of a check on one of their aircraft by sharing the planning and Sabena Technics' task card process, but they can also access their own task card sign-off. Customers have full visibility on non-routines raised during the check and can arbitrate to ensure the part supply chain and validate the budget. Finally, customers will be delivered a full package with digital work order documents meaning that they are fully integrated into Sabena Technics' processes.

The project is not only about giving iPads to mechanics, the entire range of MRO processes are covered in order to build an end-to-end digital experience (figure 10).

Integrated end-to-end maintenance process

AIRCRAFT MODIFICATION PROCESS

CONTRACT AND INVOICING — 10

11 — 1 — TECHNICAL DATABASE

CUSTOMER PORTAL — 9

2 — WORK ORDER AUTHORING

NON ROUTINE — 8

3 — PLANNING AND WORKLOAD

TASK CARD EXECUTION — 7

4 — RESOURCES MANAGEMENT

6 — 5

WORK ASSIGNMENT

INTEGRATED SUPPLY CHAIN

Figure 10

It all starts with the technical database for each aircraft type and customer. The process also covers the work order offering which is, in the case of Sabena Technics, the key success factor in order to optimize the operation's performance. Planning is now the central element to monitor workload and resource planning and this planning is also synchronized with the supply chain. Synchronization alerts enable the planner to adjust the execution of the work in real time. As task cards are executed in iPads, the task assignment is now a real new key process to execute, but also it will contribute to improved performance by dispatching the right workload to each mechanic. Non-routine workflow is covered, from defect detection to customer validation, through the customer portal. As part of the project, Sabena Technics was also able to increase the Trax invoicing capabilities in order to cover the needs of multiple and diverse customers. Finally, the aircraft modification process was covered with a full integration with Sabena Technics' own engineering tool.

The tools that Sabena Technics' selected and how they are used
Having determined the solutions that Sabena Technics decided to use — Trax eMRO and e-mobility — and what they aimed to achieve with them, here is an overview of the scope of the tools that were implemented.

Starting with the choice of eMRO, the new version of the Trax tool, Sabena Technics also selected several modules from the e-mobility suite. First the Customer Portal, then the AeroDox for aircraft documentation, Production Control which is a key element to monitor production and execution, and finally the Task Control which is the main tool for the mechanics on the iPad.

Let us now look at how Sabena Technics integrated Trax tools into their IT landscape (figure 11).
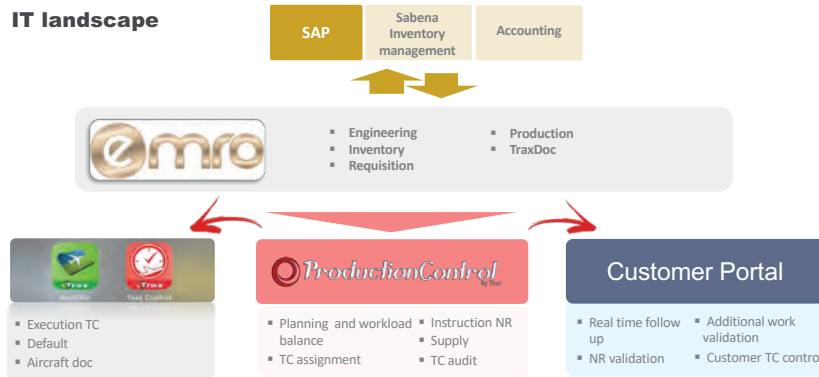
IT landscape

Figure 11

The main ERP is SAP where Sabena Technics manages its own inventory and accounting. eMRO is used to cover engineering, inventory for customer parts, requisition for customer parts, production and TraxDoc. It was decided to activate AeroDox and Task Control, in the iPad, for execution of the task card, Defect management and aircraft documentation. Production Control enables the business to cover the planning and workload balance, the task card assignment, the instruction of the Non-Routine, supply, and task audit. Finally, the Customer Portal enables customers to undertake real-time follow-ups, non-routine validation, additional work validation, and customer task card control.

THE PROJECT METHOD AND TIMELINE
I'd now like to share with you some elements about the methodology and the planning that Sabena Technics has used during this project (figure 12).
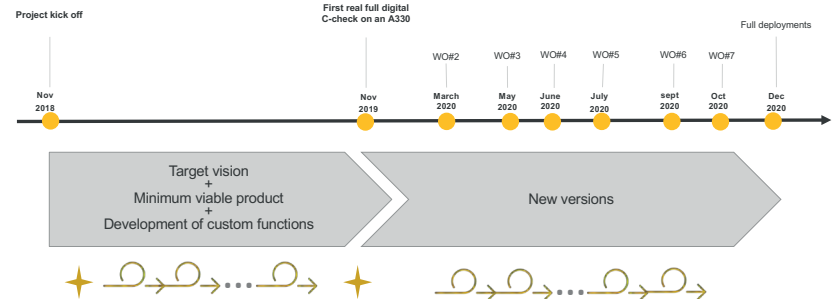
Planning and methodology

Figure 12

In terms of planning and methodology it was decided that both Sabena Technics and the Trax team would adopt an agile approach. During a first 12-month period they managed to build a minimum viable product including custom development functions. After those 12 months it was possible to conduct a full digital C-check on an Airbus A330. Following this first pilot process, the project entered into a period where there were a series of test and learn events in six new work orders. That enabled the project teams to develop new versions of the tools for each new work order taking into account experience gained. At the end of 2020, on December 20, Sabena Technics had fully deployed the Trax tools and will now be able to conduct any new work orders with a full digital approach.

PERFORMANCE LEVERS
Having introduced the project itself, I would like to share with readers the feedback around performance levers that have been identified and what implementations had to be done in this project (figure 13).

Planning centric method to optimize performance

Figure 13

The first access that it was decided to implement was to build a planning-centric method to optimize performance, this approach was built on three major levels.

- The first one is the central and shared work order planning in which Sabena Technics can optimize task cards and manage workload.
- Next comes the supply chain and planning synchronization. It enables the business to organize the work in advance according to the parts arrival.
- We can then assign the task card can then be assigned according to supply planning.

The final lever of performance is a workload capacity balance. Thanks to the planning it's possible to optimize resources and optimize individual workload. Sabena Technics felt that tasks and resource planning is a key factor in order to enhance performance in the execution of work.

> "Thanks to the planning it's possible to optimize resources and optimize individual workload. Sabena Technics felt that tasks and resource planning is a key factor in order to enhance performance in the execution of work."

Planning and methodology

In the next two figures we will see how Sabena Technics decided to use Trax tools in order to manage the performance levers covered above.

The first two, the planning at the task card level and the workload capacity balance, are managed through a new version of the flow tab that Sabena Technics developed with Trax team (figure 14).

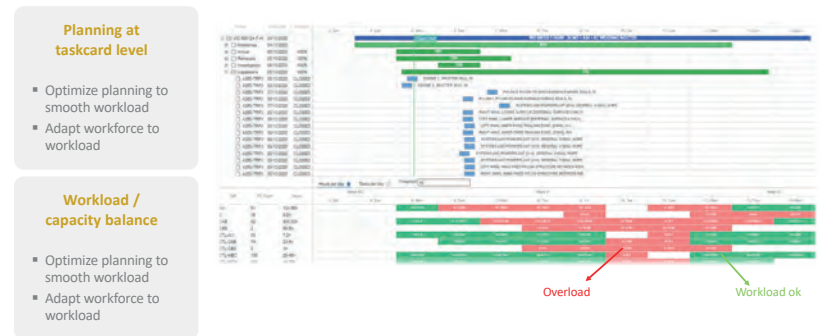### Planning centric and workload balance

Figure 14

In the first part of the screen in the figure, it can be seen that planning is managed at task card level which is then populated into the main phase of the project. These phases are populated automatically when the template is applied.

When the planning is populated and during the project, users can easily see on the second part of the screen the workload balance. In each cell, the figure on the left will have come from the shift team and represents the resources available. The figure on the right is the workload coming from the task card in planning. When the Cells are red, that means that there is an overload. When the cells are green the workload is okay, and the task card can be executed.

Supply Chain synchronization

The third performance lever is supply chain synchronization (figure 15).
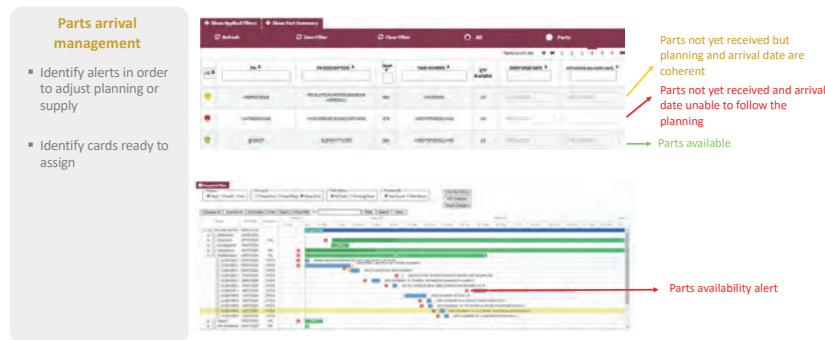
Supply chain synchronization

Figure 15

Sabena Technics can now manage parts arrivals through alerts in the Parts tab. The green alerts indicate that the parts are available, and the task card can be done. The yellow alert indicates that the parts have not yet been received in stock, but the arrival date is compatible with the planning date of the task card. The red alerts indicate that the parts and the planning are not compatible and that there is an action to perform. These indicators are also available in the flow view. When there is a red box, it means that there are parts availability alerts, and the task card cannot be executed. Based on these two views of the synchronization between planning and supply chain, any action can be taken in order to adjust and make it doable.

Reactivity

Reactivity was also identified as the second key performance factor and, in this case, four new performance levers were identified that the team wanted to activate in this project (figure 16).

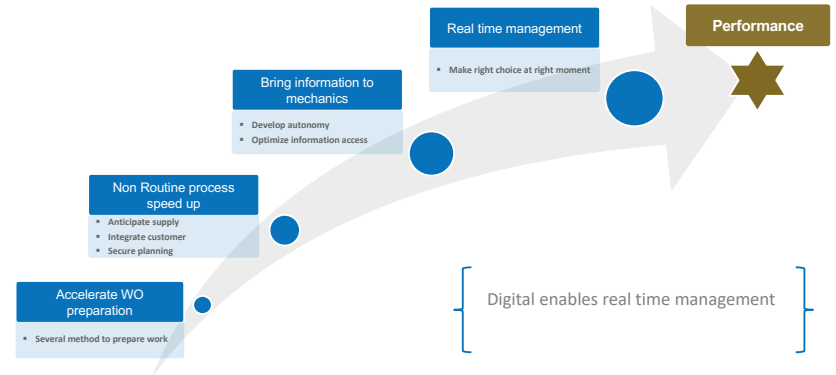**Reactivity as a second key performance factor**

Figure 16

The first lever was to accelerate the work order preparation and authoring by applying and offering several methods to prepare work.

The non-routine process was definitively accelerated by being able to identify and report defects very early in the process. It also enables the business to anticipate supply chain, to integrate customers into the decision process and, globally, it makes those involved with the process secure with the planning. With that, information can be easily brought to mechanics. It also enables Sabena Technics to develop autonomy and optimize information access. Globally the business has now managed to implement real-time management, which ensures that the right choices are made at the right times. These four performance levers have brought Sabena Technics to a new level in performance.

To summarize, digital enables real-time management.

NON-ROUTINE MANAGEMENT

Non-routine management has been a definitive key success in this project. Digital has enabled Sabena Technics to significantly speed up the process (figure 17).

Non Routine management

Figure 17

Defects are notified in the iPad with a photograph of the problem. Then, in Sabena Technics, defects are immediately analyzed in real time, by an expert. Based on the picture, they can easily identify the level of damage and define the repair solution, the man hours required to complete it, and the parts needed for the job. Non-routines are managed by the costing team and validated by the project manager while, in parallel with this workflow, the required parts are immediately made available for the supply chain team in order to prepare for or anticipate their supply. The final step is a customer validation made in that customer's own Customer Portal where he can also monitor the list of defects and the execution of the non-routine repair.

THE CUSTOMER PORTAL

The Customer Portal is the best way to bring the customer onboard with work on their aircraft. They can follow the progress of the check in real time, through visual indicators. And, as explained above, they can access any non-routine and repair solutions that are proposed for their aircraft. The pictures enable

"Non-routines are managed by the costing team and validated by the project manager while, in parallel with this workflow, the required parts are immediately made available for the supply chain team in order to prepare for or anticipate their supply. "

customers to clearly understand the defect on their aircraft and then be properly informed to be able to validate the repair. To an increasing degree, Sabena Technics' customers ask the business to sign off not only the Sabena Technics' own task cards but also the customers' task cards. These sign-offs are done digitally in the iPad and the customer can see the final results in real time in the Customer Portal.

CONCLUSION

By way of conclusion, it is safe to say that Trax tools are now an integral part of Sabena Technics digital transformation. Based on a full cooperation with the Trax teams, the business has been able to develop strategic processes for independent MRO's. Sabena Technics is now in a position to fully obtain the return on investment from their new digital tools.

FRANÇOIS DORÉ

François Doré is an aeronautical engineer who started at an international consulting firm, working in business transformation before working in an aeronautical supplies logistics company, then one of the most famous worldwide luxury brands as their Global Supply Chain Manager where he was ultimately promoted to Managing Director of their bespoke business. He joined Sabena Technics at the end of 2017 and is now the Deputy General Director in charge of Innovation and Strategy.

SABENA TECHNICS

Sabena Technics is an independent MRO (maintenance, repair, and overhaul) provider with its head office in Paris and offering services to civil and military aircraft operators across 15 sites worldwide. The group also provides customers with line maintenance operations at many other airports. This deployment is part of a key principle for the company, service proximity.

TRAX

TRAX eMRO and eMobility are positioned at the leading edge of industry developments with products that support digital signatures, paperless Workpacks and manuals, RFID-capable for logistics, Biometric security, off-line capability for mobile apps, web-based solutions and the ability for its users to work anywhere with easy access to real-time information. TRAX will continue to lead the industry through technological advances and a fruitful and long-lasting relationship with its customers and partners.

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