SGF SUCCESSFULLY DIGITIZES THE AUDIT PROCESS

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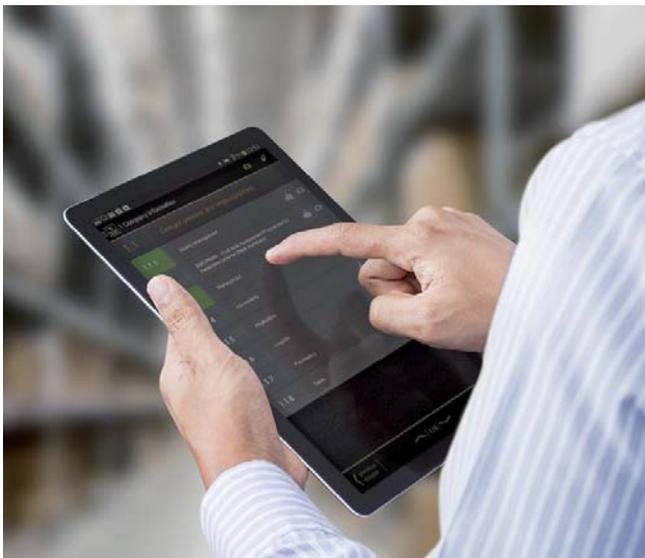
SGF digitized their audit process   © shutter_m/shutterstock

The audit process as it was done, with paper and pencil, was an outdated method, especially in today's technological world. In order to create a system current with technology today, SGF International e.V. – Sure-Global-Fair (SGF) endeavored to digitize their whole audit process. The SGF Audit App was a success and since the beginning of the year 2014 the new app has favorably been used by all SGF e.V. auditors.

THE INITIAL IDEA

Modern technology today allows for the optimization of processes and for SGF, technology was exactly what they used to turn their audit process into a highly digital one. SGF aims to be the world's leading independent industrial self-control platform for fruit juices, fruit nectars and other products made from fruits and vegetables. Through a seamless chain of custody, SGF audits respective member production plants from the initial fruit processing stage to the finished product. This auditing process must be exact, comparable, independent, traceable and must maintain integrity. This commonly comprises a long trail of paperwork.

At the beginning of 2013, Mrs. Alexandra Heinermann, general manager of SGF, saw the potential for a digital auditing process that could be built upon the existing one. She envisioned a digitized process that could work even faster, more efficiently, and would be less prone to mistakes. With this in mind, SGF proposed this ambitious idea to the bodies responsible for decision making, the Executive Committee and the General Assembly. SGF approached their IT consultant, Peter Eulberg with the idea. It was crucial to know how economically and technologically feasible it would be to digitize the audit process and send auditors to members with a mobile device. It was soon recognized that this transformation would be a complex IT project with many systems and people involved.

SGF had previously worked with Peter Eulberg and giinco; therefore they knew the initial team consisted of reliable partners. Giinco, an internet and multimedia agency with expertise in digital transformation and User Interface Design, was already a well known partner having created the first SGF Member Portal and the SGF website. Mr. Eulberg was selected as product owner and technical representative for SGF and giinco was hired on as project management lead. The initial team made decisions concerning all facets of the digital process: the technology used, implementation, and data-models. They also had the difficult task of setting up a team of specialists to create the software needed. Mutual trust and close cooperation with one another was crucial for the success of the project and for the behalf of the customer.

When the SGF Audit App was created, it was essential to use the already existing proprietary SGF database, containing member and sample data previously taken, for outgoing and incoming audit data. Therefore an intermediate piece, the intranet, was created. For SGF staff the intranet is also necessary in order to connect auditors to the specific audit and the respective member. Furthermore, a separate web portal was developed so that remote auditors and SGF can digitally interact with one another beyond using just email and file transfers.

WORKING WITH THE DETAILS

After consulting the Executive Committee the decision was made and the challenge was to be taken up. Similar to any other project, the details and issues arising before and during the transformation had to be addressed and tackled early on. Questions related to how to best improve the process and how to handle the transformation were proposed and evaluated. One of the first steps Mr. Eulberg and giinco had to take was to understand the audit process in every single detail. With this knowledge, they could then evaluate what the audit process required and how they could achieve digitization. The team streamlined the existing system of identifying and placing value on audit questions, such as rating them on a scale from one to five or dividing them into yes or no answers to fit the newly digitized process.

Other questions that arose were: What base technology is needed? Is it possible to incorporate pictures? How should samples be handled? How do we set up the IT infrastructure? The challenge was to design a user-friendly, as well as globally applicable process, that would be accepted by auditors. There was some concern about how auditors would respond to the new technology. Therefore, it was important to make sure that the system would be suitable for the multi-cultural, diversified auditors who would be using the SGF Audit App on a tablet PC.

THE SGF AUDIT APP DEVELOPMENT SET IN MOTION

The mobile cordless printer   © giinco

Specialized experts in this field are hard to find and bring together. Peter Eulberg and giinco used their extensive network to set up a team of specialists including Jan Unger, who was responsible for the software architecture and PHP development, as well as the company SANID GmbH for Android app development. They brought the

team together for their professional service, competitive prices, reliability and especially for their efficient, communicative teamwork style. Lean and agile project management was key to the project's success.

The next issue to resolve dealt with the base technology that would be used. In order to meet the needs of the auditors, a tablet with a camera and a mobile cordless printer were chosen. There were some limitations to the decision, but the opportunities outweighed them. The screen size is naturally limited and the brightness of the tablet was also a concern. The battery life of the mobile cordless printers and the size of the sample labels also posed limitations, but in the end were not an issue. The screen size ended up being very readable, the mobile cordless printers were extremely practical, the cameras a necessity, and the audit could be signed using an electronic signature.

The choice of mobile hardware went hand in hand with the available choices for an operating system. After careful consideration of three available products, Android was chosen because it is open source, a well developed ecosystem, and the platform is simple to implement. As a result the total cost of ownership per device was less than that of competing technologies. Other aspects that

had to be taken into account, apart from the mobile device, were matters concerning the server side. Here, open source was also used, e.g., the LAMP stack (Linux, Apache, MySQL and PHP), as well as modern development patterns like MVC (Model, View, Controller) or Continuous Integration.

EVALUATION, ADAPTATION, TRANSFORMATION

The whole project was done in very close dialogue with SGF. The audit structure had to be streamlined and made concise so that it could be handled within the digital environment. The developers worked with what was already there and used the existing proprietary SGF database and the previously built SGF Member Portal as building blocks. Previous audits were evaluated and improvements were made. During this process, SGF identified and removed questions that were no longer necessary, consequently optimizing the existing SGF audit checklist standard. A question repository was created where questions were divided into types.

The whole process of selecting the team, the software, the architecture and the detailed examination of the complete audit process resulted in a consistent SGF Audit App that covers all steps of the audit process. The project's intense phases were handled calmly not only by all project members, but also by SGF, resulting in success.

THE DIGITAL AUDIT PROCESS AND THE FLOW OF DATA

While designing the new architecture to be used by the digital process, many considerations had to be taken into account, e.g., data security, consistency and reliability. Therefore, mostly a pickup and store principle was implemented between each element (comparable to email). The new digital audit process allows for digital reading and writing, which in turn allows for all important data to be written back to the SGF proprietary database. The use of the app, at the end of the process, yields only one single source of truth, the SGF proprietary database. The whole process consists of many steps.

First, the internal and proprietary SGF database was transformed into a data service (1) that can be queried from the SGF intranet server (2). This data which was once inaccessible has now been made generally available. The SGF Intranet then pushes the data to the Data Exchange (3), from where it can be directly accessed by the auditor's tablet (4). Once this has been done the tablet is independent of any network access and the auditor is able to audit a remotely located factory without internet access. Once the audit has been finished and the device has network access, the auditor initiates the upload of all audit data back to the Data Exchange (3). During the audit, the auditor can access any required information about the member company and can use the tablet and the mobile cordless printer to complete the audit (5). The auditor takes pictures of necessary documents or anything note-worthy and labels the samples with a barcode sticker (6).
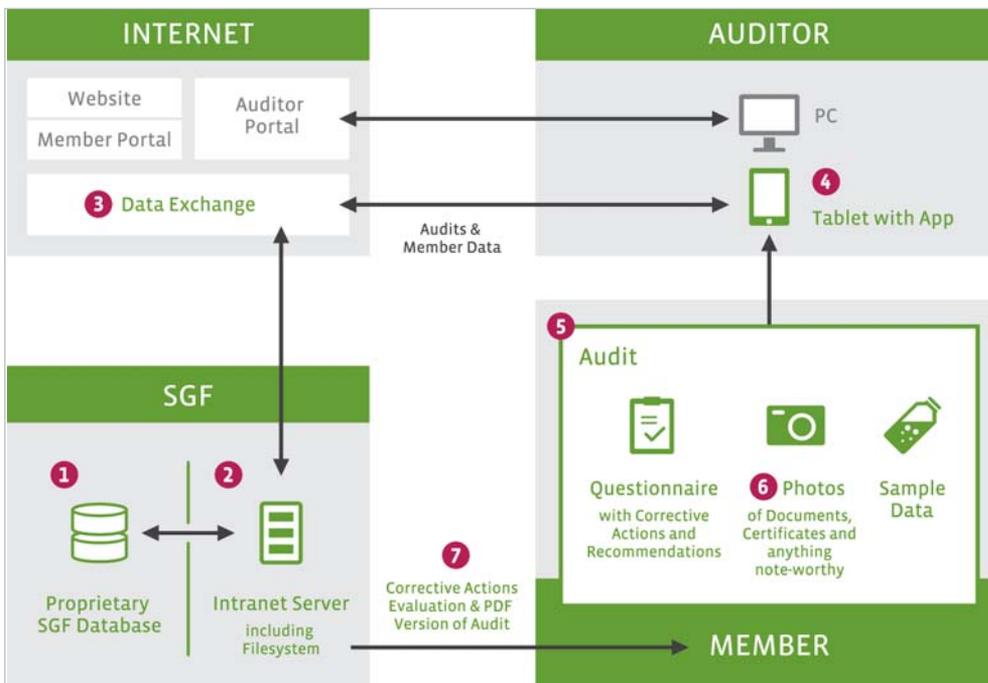
The Digital Audit Process and the Flow of Data © giinco

Generally the auditor can use the tablet to record answers to questions, take and label samples and integrate photos into the process. The audit is assessed on whether or not questions are answered positively or negatively. There are certain rules for each type of question that decide whether or not the member factory will pass the audit. There is also the ability to make recommendations or to request corrective actions and to record note-worthy, additional data. All samples are labeled directly with a unique ID and a barcode using the mobile

cordless printer and stickers. If possible, documents that used to be collected are now photographed (6). Once the audit has been signed by a member representative on-site, it is no longer editable. After sending back the audit data to the SGF, the audit will be evaluated and commented upon if further actions by the audited company are required. The evaluation and comments are then directly sent to the respective member company and a PDF version of the audit is generated (7).

WHY GO DIGITAL

Since the beginning of 2014, the SGF Audit App has been successfully and enthusiastically used by auditors auditing fruit processing members all over the world. This paperless system is environmentally friendly, cost and time efficient, is less prone to mistakes, and makes documentation of data even more efficient and effective. Collecting printed flowcharts has been made mostly redundant because all information and documents are digitally and readily available. In addition, SGF handles around 420 audits every year and the app is invaluable in handling this amount of audits. The SGF Audit App is a step towards increasing professionalism, customer satisfaction, and towards preparation for accreditation. When SGF saw the potential and the benefits of using modern technology for their audit process, they set the project in motion.

There are other benefits as well. The service-oriented architecture allows for other services to build upon it and shows potential for further development. Continual workflows for audit changes can easily be set up without media disruptions and the turnover of audits has improved. What used to take weeks is now a matter of only a few days because the evaluation process can be done more quickly. Also beneficial has been the liberalization of data, meaning that all data has become usable and accessible. The challenges taken on during the transformation were worth the effort for the resulting overall benefits.

FUTURE OUTLOOK

The possibilities this new digital system can offer have not yet been exhausted. In the near future, any other company organizational information could be available on the SGF Member Portal. Information concerning tour plannings, contracting details, and appointment calendars could be made readily available on the SGF Auditor Portal.

If SGF were asked if they would go through the entire process again, they would answer with a definitive yes. The expected benefits were immediately seen by members, auditors, staff and other stakeholders. Even more surprisingly were the unexpected benefits that also surfaced. The auditors and the members were very appreciative and enthusiastic about the new way SGF now handles their audits. There is much potential in the digital world and SGF was very innovative in harvesting this potential.

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