

# Case Study

**Gappless Quality Assurance Users benefit from Docmosis for report customization.**



**Industry:**  
Construction

**Product:**  
Docmosis Cloud (2015-2020)  
Docmosis-Java (2018 onwards)

**Used in production:**  
Since 2015

**Volumes per Customer:**  
25-50 documents per day  
Peak 1,000+ documents per day

**Documents created:**  
Jobsite Registration Reports

*"Docmosis-Java allows us to scale, without bothering our users..."*

**Dr. Harmen van der Spek**  
CTO  
GAPPLESS B.V.

## BACKGROUND

Gappless is a SaaS fieldwork platform used in the civil construction industry for both construction and maintenance projects.

Founded in 2012, the Netherlands-based software development firm Gappless B.V. built their platform with the objective of making it easier for construction companies to record work done on jobsites, which in turn leads to faster acceptance and payments by clients.

As Chief Technical Officer at Gappless, Dr Harmen van der Spek explains, "These days it is up to construction companies to provide evidence during the execution phase that they are building large structures according to specifications."

The Gappless solution provides building supervisors with the capability to meticulously document the individual work activities done on jobsites in so-called 'registrations'. This is achieved through the use of customizable checklists referred to as Touchforms, which are filled in by supervisors on site using the Gappless mobile app.

Touchforms can contain many types of data gathered on site including comments, tables, sketches and photos as proof that work is being done in line with specifications. The evidence collected is sent to the Gappless web portal, where it is used to generate detailed registration reports, which facilitate faster acceptance and payment for work completed.

Gappless is currently used by private construction companies working on large civil engineering projects in the Netherlands. A recent major re-build of the entire Gappless platform, from its low-code roots to a flexible and highly scalable solution, has positioned the company to further expand its market across Europe and overseas.



## THE PROBLEM

From the outset, it was important that the Gappless solution could generate registration reports in PDF format. After all, the PDF reports provide the evidence which form the basis for payments by the contractor's client.

The initial low-code platform on which the original Gappless product was built, offered its own PDF document generation. However, the functionality was limited, with documents having to conform to a fixed layout and style.

Initial users of the Gappless platform requested more flexibility in the formatting of their reports. There was an expectation that finished reports should incorporate their company logo and corporate branded colours, fonts, headers and so forth. Furthermore, some users wanted the ability to change the layout and positioning of text and images on pages to suit specific project requirements.

As Operations Manager at Gappless, Mark Officier remarks, "For the Dutch market, customizability is expected. If they can't change things, they will be sceptical about the product."

This led the Gappless team to look for a template-based solution whereby users could define the layout and style of their own reports. From the start, they recognized the advantage in finding a solution which could generate PDFs from templates created in Microsoft Word, as most of their users were familiar with this word processor.

Additionally, it would be a natural fit for many of them who were using Microsoft Sharepoint as a collaborative platform to manage the large volume of documents being held on each construction project.

Aside from finding a Microsoft Word-based templating tool which could easily integrate into their existing system, it was equally important to identify a solution with sufficient features to handle the complexity and variations found within typical jobsite registration reports.

"The complexity of the documents is considerable," says Harmen. "It's not like an invoice with a few line items."

In terms of features, they required a solution which had the capability to handle complex nested logic, with conditional and repeating sections containing multiple sequences of dynamic images as visual and supporting evidence of completed work on the job site.

*"The complexity of the documents is considerable. It's not like an invoice with a few line items..."*





## THE SOLUTION

In early 2015, after refining the search and evaluation to several templating solutions, the Gappless team finally agreed on using Docmosis Cloud.

"The combination of the rich set of templating features and a well-documented REST API that allowed for easy integration with our existing solution, made Docmosis Cloud the right choice at that moment," says Harmen.

The other significant benefit was that users could create and edit templates using their favourite word processor, Microsoft Word.

During the implementation, the Gappless team consulted the Docmosis Support team frequently to discuss specific use cases. As Harmen comments, "While building the integration with Docmosis, the team received high quality feedback quickly."

Later that year, Gappless released their new, customizable document generation service which utilized Docmosis.

By 2016, the Gappless team were ready to embark on an ambitious re-build of their entire system to resolve certain limitations and performance-related issues attributed to using a low-code platform.

As Harmen explains, "Low code is nice to a point, but becomes harder to maintain when you are trying to do complex reasoning. We were getting bigger issues when onboarding new customers with higher loads on the system."

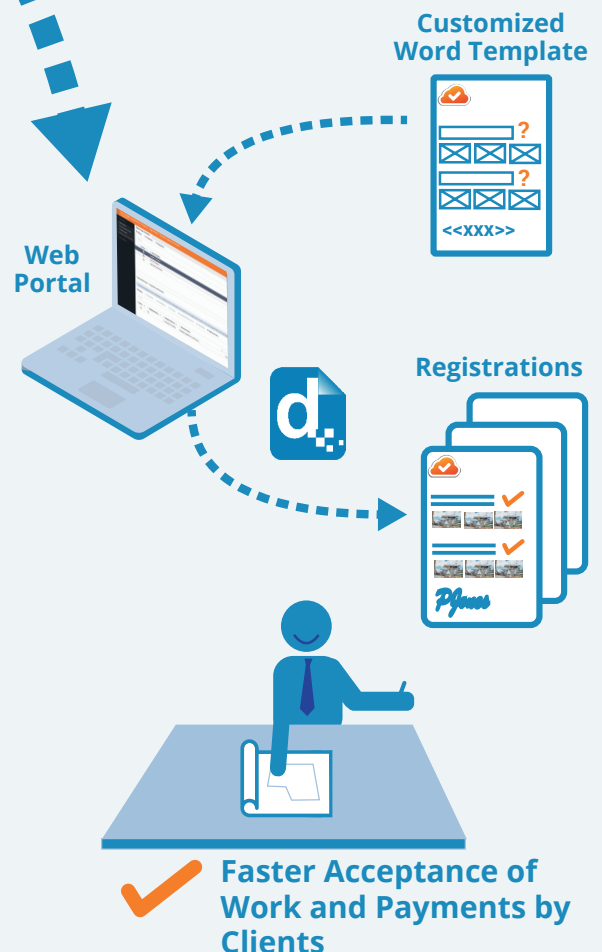
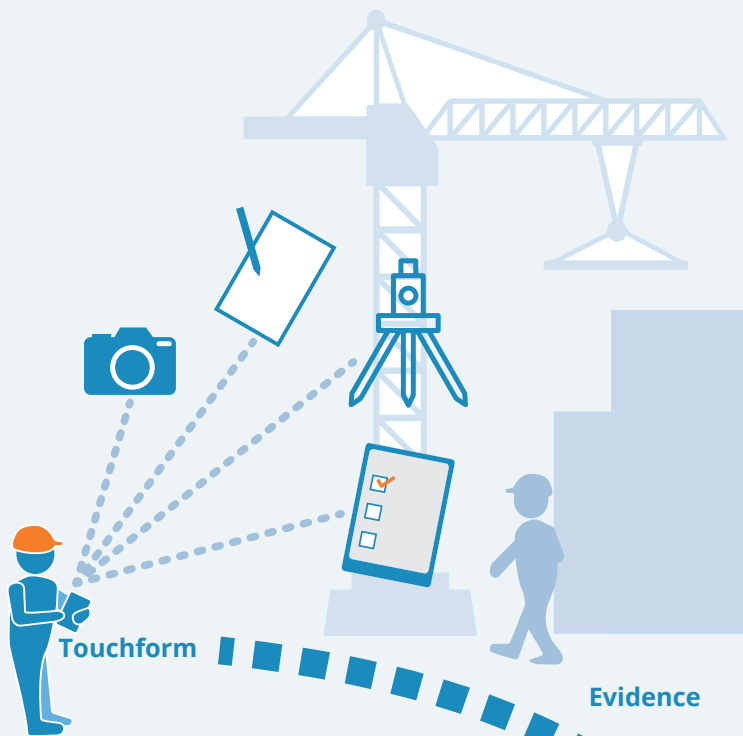
The team effectively decomposed their system into multiple services with the decision made to use Java in the re-write of the document generation component.


At the time, consideration was given to using an open-source Java library for the generation of the PDF and Word reports, but none of the available libraries matched the functionality of Docmosis.

As software engineer Matthijs van Drunen mentions, "I did play around with JODReports at the time but it was just too much effort. It had similar functionality to Docmosis but much less features."

Harmen agrees, "I don't know of any other Java library out there that provides the same functionality, that our customers require, as Docmosis."

As part of the rebuild in 2018, the team switched from the hosted Docmosis Cloud service to the on-premise Docmosis-Java.





*"I don't know of any other Java library out there that provides the same functionality... as Docmosis."*

The use of the Docmosis-Java library made sense given the rewrite of the document generation component in Java. However, the primary reason for the switch to a locally installed Java version came down to noticeably faster generation of customers' image-intensive reports.

As Matthijs explains, "With Docmosis Cloud, all the images used in the documents had to be transferred over the web which was not particularly efficient. It meant lots of traffic and memory usage. By running everything locally, documents can be generated much faster."

The transition from the Cloud to the Java version was relatively straightforward for the Gappless team. As Matthijs comments, "I got Docmosis-Java up and running pretty quickly as we had a starting point with using our old platform to generate the data. As we were using the same input Json file format, I could capture the data in the old platform and plug it quite easily into our new application. Using this method, I was able to get pretty similar results from the templates."

In early 2020, the Gappless team recognised the need for faster Word and PDF document generation at peak reporting times. As Matthijs explains, "Many of our customers will generate about 50 reports on a daily basis but suddenly need to generate a thousand in a single day to comply with project milestones."

This prompted the team to upgrade to a higher performance edition of Docmosis-Java with multi-threading capabilities to serve peak loads in acceptable time frames. Matthijs adds, "At present, only our test

and acceptance platforms are running the concurrent edition, but when we deploy it to production, it will make a huge difference to be able to produce documents concurrently."

## THE RESULT

According to the Gappless team, it is the 'customizability of documents' which has been the main benefit from using Docmosis within their platform. It has provided Gappless users with full control over the creation and maintenance of their reporting templates using a word processor they already know; Microsoft Word.

In his engineering consultancy role at Dutch Process Innovators, Mark has been a long-time end-user of the Gappless application.

"I really like the fact that you can use your own word processor to create a template in a simple way, for complex data structures", he says. "It's very important to many clients that they can create templates in Microsoft Word. Some clients get scared of the angled bracket syntax used with Docmosis. It doesn't worry me. It's a matter of finding someone in a company that is happy to take it on."

"We provide customers with one standard Microsoft Word template for their reporting", says Matthijs, "The data structure that works with this template will also apply to any other templates set up by our customers."

In addition, customers are given links to the Docmosis Resources site where they can access template and reference guides for the full set of features that can be used when modifying their templates.

According to Matthijs, some customers are content with making only minor modifications to the standard template. "It may be as minor as changing the positioning of their company logo on the report which can easily be done by editing the Word template," he says. "Whereas other customers will go so far as to create completely different reporting templates. They may even change the page orientation from portrait to landscape. Now and then, they will want complicated things and will contact us. In these cases, we can normally resolve any issues for them."

In terms of generating the reports, Matthijs mentions, "Our users can generate their PDF documents individually or they can select a thousand registrations all at once and then we will combine them into a ZIP file which we will offer as a download from our platform."

Not long ago, the Gappless team completed the time-consuming task of migrating all the customers' data, including reporting templates, from the old platform to the new one. This means all customers are now using the same document generation service which utilizes the Docmosis-Java engine to create their PDF reports.

Harmen acknowledges that now customers have one single way of generating their PDF and Word documents using Docmosis, it will be much easier for the technical team going forward. "Today with our new software stack, Docmosis-Java allows us to scale, without bothering our users," he says.

With customers managing their own templates, Matthijs agrees, "We won't have to put a lot of effort into maintaining the document generation side of things."

The Gappless team remain content with their decision to use Docmosis-Java in the new platform. "Creating a simple, stable and scalable solution is the key to our success in the construction industry," says Mark. "Docmosis is a perfect fit because of ease of use, the handling of our complex data and the large number of photos it's able to process as a document generation solution."

*"Docmosis is a perfect fit because of ease of use, the handling of our complex data and the large number of photos it's able to process ..."*



Docmosis USA

📞 +1 866 206 8919

Docmosis Australia

📞 +61 8 6111 0559

<https://www.docmosis.com>

