

PNO Global and its Bid for Central Bank Empowerment

In the May issue of *Currency News*[™], we published an interview with Orell Füssli, one of the oldest companies in the industry. Now we turn to one of the youngest companies, PNO Global, which was established in 2013 to offer specific products and technologies to the banknote industry that offer an alternative supply route to the normal channels.

Currency News caught up with the two company founders, Jan-Dirk Enschedé and Bart Goeman Borgesius, at the recent *High Security Printing*[™] Latin America conference in Guatemala, to find out about these technologies, and why PNO Global feels the central bank community will benefit from a new supplier.

Most in the industry know Jan-Dirk Enschedé as a member of the family of the same name, where he was Sales Manager for many years, before leaving after the company was taken over by a private equity firm. Bart, by contrast, is relatively new to the industry but is experienced in international business. Most of his companies belonging to the Goeman Borgesius Group are based in Asia and are involved in agriculture, chemicals, nano-technology and real estate.

Q: Can you describe why you both started a new company in the currency industry?

BGB: I contacted Jan-Dirk about four years ago to see if Royal Joh Enschedé was interested in a varnish based on nano technology. RJE already had a varnish but, after Jan-Dirk left, we were both convinced that there were opportunities in the banknote varnish market.

JD: PNO Global has developed – together with PPG – alternative and very competitive varnishes for both cotton and polymer substrates, even though we knew that the long-standing special relationships within the currency industry makes it very difficult for newcomers to introduce new products.

BGB: But it is in the interests of central banks that new companies and their products are able to access the industry. More suppliers give better prices and stimulate innovations. I was surprised that the industry has such control of the market, and the central banks are so dependent on traditional suppliers.



From left to right: Tom Buitelaar, Jan-Dirk Enschedé and Bart Goeman Borgesius, with their Snowfish system.

Q: Can you explain more what you mean by 'control'?

BGB: What we see is that central banks are not in control. Manufacturers and suppliers of services and products have created a high dependency relation with central banks, leading to policy related decisions that do not necessarily take into account alternatives.

JD: For example: who defines when banknotes are fit or unfit for recirculation? In many cases, central banks use the output of a sorting machine to define this. De facto, this means that the settings of a sorting machine define the criteria for fit/unfit and, therefore, the suppliers. In this way the central bank can never make an objective check of the performance of a sorting machine.

BGB: Another example is how quality control in tender documents for banknotes is defined. Traditionally, the printer checks the quality of the banknotes that they print. Of course, the central bank visits the printer to see if all is executed in accordance with the requirements. But how to check if the banknotes really meet the requirements? Most of the central banks do not have equipment to check the quality, and have to rely on the reports of the printer or require third party verification.

Q: So, in practical terms, how are you proposing to change this?

BGB: For us, as a newcomer, to try and overcome the special relationship between established suppliers and central banks makes no sense. The only thing that can be done is to offer the central banks tools and equipment to strengthen their independent position.

One of these tools is the *Snowfish* (Single Note Fitness Inspection System) – developed by Tom Buitelaar, formerly with the ECB and the Dutch central bank. When Tom was working for the central banks, he saw that many fit banknotes were declared unfit by the sorting machines. So how to improve the performance of a sorting machine?

JD: The first step is that the central bank has to define fit and unfit levels in, for example, five categories. Snowfish will 'read' these categories and will store all specific details of each category in the system. Now the Bank has objective data on their fit and unfit definitions. The human perception of fit and unfit is translated in objective data and figures. The next step is to check the output of the sorting machine.

All notes in the 'to destroy bucket' can be read by Snowfish and in a split second the category number will appear on the screen. This way the Bank can check if there are fit banknotes in the 'to destroy bucket'.

The tests PNO Global has done proved that all sorting machines are rejecting fit banknotes and accepting unfit notes. Based on the Snowfish data, a calculation of the financial losses can be made by the Bank, as well as the number of unfit notes that are being re-circulated.

Q: *What proof is there that central banks are losing money, and how much?*

BGB: We have been able to prove that fit banknotes in the amount of €1 million are being destroyed each year. After the conclusion that a sorting machine is not performing according to the central bank requirements, it has to be modified by changing, for example, the threshold, the algorithms or the sensors. It's even possible that buying a new sorting machine is more economical than modifying the old one.

JD: To check a sorting machine, central banks and/or CITs run test sets over the sorting machines. Until now, a special expert group prepares test sets and has to define the fit and unfit specifications. Mostly it is done by human perception. This process costs a lot of time and there is low consistency. After the Snowfish reads one test set, it is very easy to re-produce new test sets.

Q: *Many central banks have a problem with third parties who have to sort the banknotes. Can you solve that problem also?*

BGB: These third parties send the unfit banknotes to the central bank to trade for new notes. Sometimes the 'unfit' notes are not unfit at all, and sometimes third parties do not recognise unfit notes and so do not return the unfit notes back to the Bank but send them back in circulation.

To improve this process, the central bank can use the objective data and figures provided by the analyses of the Snowfish. No human perception, no disputes anymore. All sorting parties know exactly the objective data and before sending the unfit notes back to the Bank, they can check if the unfits are really unfit.

JD: Test sets are defined by the central banks and are based on objective data. The sorter machines have to follow the Bank's requirements and the third parties know exactly the objective sorting criteria of the central banks.

So the central banks are back in control!

Q: *This covers the sorting of fit versus unfit notes. But what about the quality control side pre-issue?*

JD: As noted above, until now there haven't been proper tools to check new banknotes. Quality control based on human perception was the only possibility to check the new banknotes. The dependency of the central banks on a printer is high and PNO Global thinks that they should be in a better position to check the quality, based on objective data.

This also avoids disputes with printers after delivery. These objective requirements, and the way in which the central bank will execute the quality control, can be specified in the tender documents.

BGB: PNO Global thinks that, with another quality control process, the central banks can avoid problems with printers. PNO Global developed an innovative quality control process for central banks. This process involves new steps and with these steps in the quality control process, the central banks are fully in control again. These steps can be part of a tender text.

Q: *Presumably this quality control is also based on Snowfish?*

BGB: Yes. Following the development of the Snowfish SP (Sorter Process), we are now developing the Snowfish QC (Quality Control), which will be launched in early 2018.

Given that there is no objective QC for new banknotes, Snowfish QC will make it much easier for the central banks to check if new banknotes meet their requirements. The Snowfish QC will be calibrated according to the specifications and tolerances of the new banknotes. After the printer has finished, the central bank can take samples and pass them through the Snowfish. In a split second, they can see on the screen if the banknote meets the requirements.

JD: To improve the quality control process PNO Global already advised central banks to change the 'traditional' tender text and has produced a roadmap. Steps such as the pre-bid meeting, tender opening meeting, pre-shipment inspection, a Final Acceptance Test document (FAT) and a Final Acceptance Certificate (FAC) are part of this new quality control process.

The new process avoids the printer shipping new banknotes before the FAT is passed since, once they have reached their destination, not many central banks send the notes back.

Q: *In a nutshell, what makes PNO Global special and different from other suppliers?*

JD: The currency market is one based on trust and long term relations. It is also dominated by a handful of suppliers, and it is hard for new companies to get a foothold. Hence new and alternative products are not easily accepted, but this is not beneficial for the central banks. With alternative products from newcomers in the currency industry, the central banks can 'win' in purchasing and in product innovation.

Hence the dependency of central banks on traditional suppliers should be decreased to allow innovation to flourish, and this is what PNO Global offers.

Q: *Finally, given your view on the barriers of dependence and long-standing relationships, what is it that drives you to enter this fascinating, but at times, inaccessible, market?*

BGB: When central banks are more in control, the market will be more transparent and it will give more opportunities for innovation and fair competition. It will be beneficial not only for the central banks but also for the industry.

JD: PNO Global wants to improve the empowerment of the central banks with Snowfish and a new approach of quality control of new banknotes. All our products and services give central banks the opportunity to control their sorter process, to dominate the quality control process and to make their own choice which varnish on the new banknotes is required.

That is what drives us.