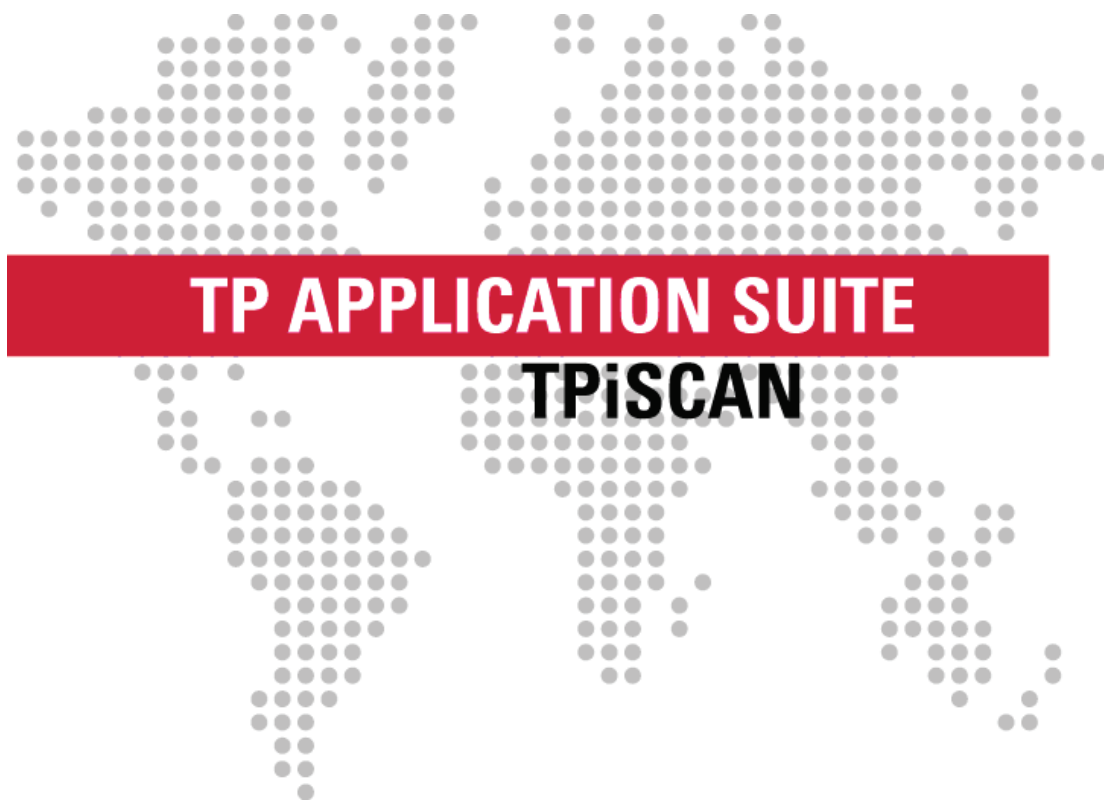


Wincor Nixdorf Self-Service Checkout End-To-End



Empowering your customers has never been so simple

0 Executive Summary

Wincor Nixdorf's TPiSCAN software has been especially designed to enable new approaches to self-service in shops. As such, it extends the typical approaches taken around existing checkout procedures and ensures that it does not interfere nor duplicate other store processes. Indeed TPiSCAN harnesses those traditional processes and extends them for self-service operation.

Using Wincor Nixdorf software, a retailer can freely mix varieties of checkout processes and different types of hardware in a unified architecture. This includes all store formats across all of your brands. TPiSCAN controls self-service lanes, and this software will make all new types of peripheral available to you which may in future be connected to your self-service solution.

TPiSCAN makes use of industry standards and communication protocols such as ARTS UPOS and ARTS Retail Transaction Interface, which are used to connect to peripherals and to existing POS software. The result is a modern architecture, which is superior to common glue-logic integration from point to point.

The productivity features explained in this document will help your customers as well as your store staff and corporate colleagues. Extensive feedback from Wincor Nixdorf customers and a very flexible tailoring concept have allowed us to implement a vast toolbox for the retail market. The features included range from user guidance through to ease of maintenance, which reduce the running costs and include reporting and data synchronization, across all devices in your entire enterprise.

TPiSCAN includes freely deployable web application modules for administration in your store back office and enterprise head office, meaning that TPiSCAN is the most modern and functional self-service software suite available today. Wincor Nixdorf predicted the need for corporate integration of self-checkout lanes throughout all retail store formats and a retailer's full range of brands. The deployment mechanism thus quickly makes lanes productive during rollouts and changes of software generation; the ability to roll back keeps your options open. Synchronization of security weight data drastically reduces intervention rates by combining and propagating observations from each store across your entire enterprise.

Wincor Nixdorf combines its expertise in banking and retail automation for future efficiency improvements. TPiSCAN self-service software will bring cash cycle management into your shops with minimal costs for integration. Further improvements, such as so called "tunnel scanning", will also be at your fingertips with a low cost of integration. TPiSCAN co-exists with existing systems, simply doing its job – and doing it remarkably well.

1 Offering a New Experience to Your Customers

Self-service is an established checkout scenario in today's retail market. With Wincor Nixdorf's TPiSCAN self-service checkout software and services, you can now easily offer self-service checkouts to your customers with minimal change to your existing store environment. Wincor Nixdorf's self-service terminals have the smallest footprint and the most configuration options in the market and our software stands out through its advanced modularity. TPiSCAN allows you to keep your existing Point-of-Sale (POS) software and all of your established and proven processes; you just add functionality, module by module, using state of the art technology.

TPiSCAN is an application specifically designed for an automated checkout environment. Using a workflow-based structure, separating the user interface from the logic, we provide the appropriate checkout flow for you, and in all of your vertical market segments:

- Food and grocery
- Do-It-Yourself
- Cash & Carry
- Fashion
- Electronics
- Fast food
- Convenience shops, e. g. at gas stations
- Duty free and other kiosk settings

To pick only one example, for do-it-yourself retail, Wincor Nixdorf software complements our exceptionally sturdy yet elegant hardware design with self-service features that customers love for their ease of use. Items can be sold by weight, length, area, or volume. Bulky items stay in the trolley and customers' own bags and transport boxes can be handled with the security weighing concept.

TPiSCAN's user interface is your interface to the customer. Based on XML layout descriptions, modifications are as easy as maintaining a web page. Layout changes do not require recompilation of the program code. Multiple languages both for text and voice output come as a standard feature. This can easily be aligned to your corporate design.

In terms of process optimization, the separation of item registration and payment is a key lever for shortening queues and better use of your staff time. This is possible in any market segment and can be combined with other setups: TPiSCAN allows the combination of different process configurations within the same store. A mixed-mode checkout scenario like this can be monitored using the same supervisor terminal (attendant station), be it stationary or mobile – or both at the same time.

Self-service machines and staffed terminals, powered by TPiSCAN, integrate seamlessly with mobile shopping and loyalty solutions. You can use the software itself on any self-service hardware checkout product on the market. Read how we achieve that flexibility in the next chapter.

Fact: TPiSCAN adds functionality to any POS software, enhancing it to a customer-driven, self-service solution.

Fact: TPiSCAN supports a split check-out process and seamlessly integrates with any mobile shopping solution.

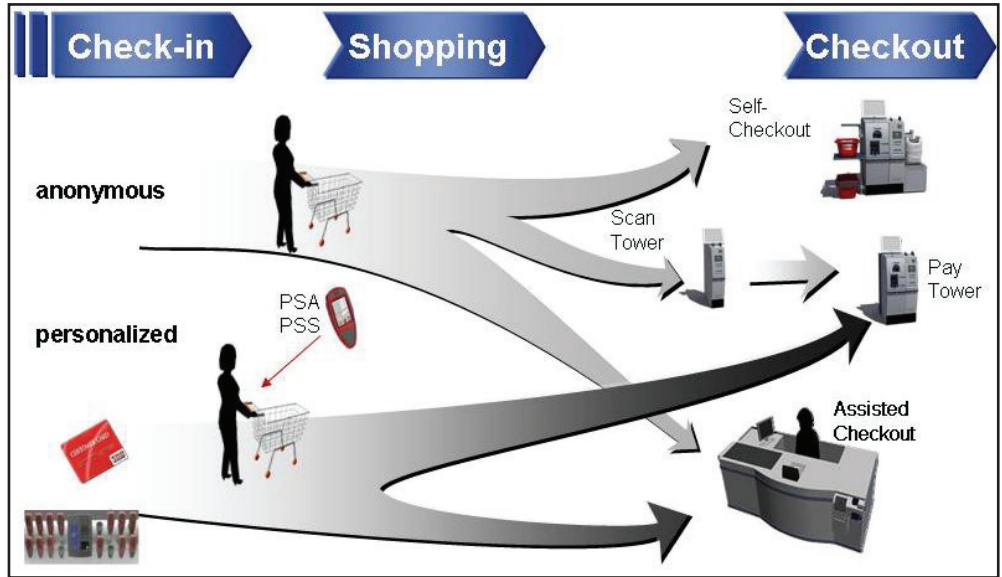


Figure 1: Different checkout processes can be mixed depending on the store format, or even within the same store.

2 Flexibility Based on Standards

It is vital that any self-service solution integrates smoothly with your existing architecture and store infrastructure. Wincor Nixdorf understands that, and our retail experience tells us just how heterogeneous our different customer requirements are. Having well designed interfaces at all points of contact between our components and your existing environment, we provide very flexible hardware and software.

TPiSCAN does not replace your existing POS system, but enhances it into a customer-driven self-service solution – it leverages the business logic and presents it to your customers in an intuitive way. This separation of business logic, of a POS system on the one hand and the self-service specific functions on the other, reduces your total cost of ownership, as changes can be made independently from the other system.

The Wincor Nixdorf self-service software does not require any additional component to be coupled to a POS system. TPiSCAN's POS interface follows the design criteria of the NRF ARTS Retail Transaction Interface standard, so you are not at the mercy of proprietary glue logic provided by some vendors to make it work. Wincor Nixdorf helps you and your supplier turn your POS into an all-purpose business service, which TPiSCAN simply uses.

Wincor Nixdorf's strong commitment to UPOS, the industry driver standard, enables us to support all hardware peripherals present and future. TPiSCAN controls all of the peripherals related to the self-service scenario. No integration is required for your POS system. Only printers and EFT terminals traditionally need localization and integration into POS systems.

Items can be registered using hand scanners, vertical scanners or using bi-optical scanners including item scales for products sold loose. TPiSCAN also integrates with mobile shopping solutions, where shoppers register items during their trip through the store. Automatic scanning with a conveyor belt and "tunnel" is now mature enough to satisfy our German engineers.

Security features include the classic bag platform scales and lights to signal that assistance is required. Cameras may be installed and monitored even from the store's back office. Our devices feature soft tag deactivation and hard tag notifications, and biometrical identification mechanisms such as signature pads and finger print sensors can also be added.

Fact: TPiSCAN is your integration layer for present and future self-service peripherals.

The handling of cash and non-cash addresses the payment phase of transactions, whether items were registered at the same machine or somewhere else. The devices supported include cash components with and without cash recycling, through to closed cash cycle management features. Non-cash tenders like coupons, vouchers, checks, registered manually or sensor-based and processed by the customer or collected by a sales associate are also part of our portfolio.

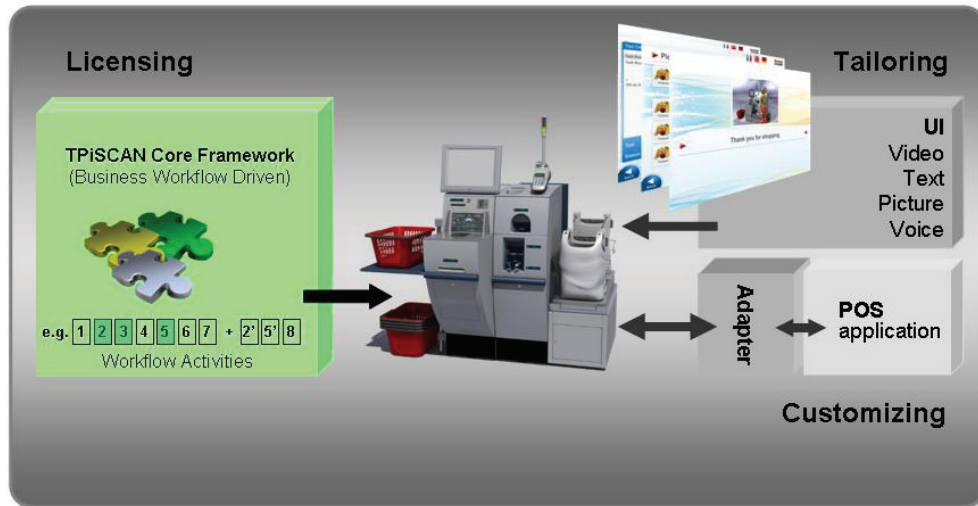


Figure 2: A modern architecture with optimally crafted components is the key to flexibility.

Once your solution is up and running, you can modify the self-service configuration, incurring no additional costs from the provider of your POS system. You may simply want to extend the number of lanes, or even add a different self-service component. With TPiSCAN you can freely evolve, as your own business evolves, and all our components can be combined with each other. You can modify the self-service environment, all without touching the POS system. This includes major software updates in TPiSCAN itself, which do not result in any additional integration costs on the POS system’s side.

Should you want to change your POS software, this would not require changes to the self-service environment. As we have explained, Wincor Nixdorf does not integrate your POS software, we connect to it. Our TPiSCAN software allows it to move and evolve, reusing functionality through an internationally agreed standard interface. Changing your POS software will not conflict with self-service nor vice-versa.

Flexibility based on standards, when delivered from Wincor Nixdorf, means that your business gets the solution it needs, quickly and within a carefully defined and implementable architecture.

3 Productivity Features

Self-service must be easy to use for your customers. Since you are no longer assisting them with a sales associate permanently at the till but only on request, the screens, the sound and video output, and all other functionality must be carefully designed. It is here where only a specifically engineered application like TPiSCAN can deliver a feature-rich system, which is at the same time easy to use for a customer.

TPiSCAN’s workflow concept addresses these important requirements as it allows you to set up the way all users best work with the machine. Regardless of whether you are using stationary self-service checkout terminals or mobile shopping handhelds, TPiSCAN’s productivity features serve these three stakeholders: the customer, your staff and your enterprise.

Fact: Scientifically verified usability improves customer experience.

Ease of use will convince customers about your self-service system. The more customers make use of self-service, the higher the throughput will be in your stores. TPiSCAN gives you a toolbox of choices to create the right user interface. We design all features with usability in mind, in fact, we use scientific studies to prove these goals.

Higher staff productivity is achieved by keeping intervention rates down. We pursue this idea in every aspect of the TPiSCAN software, from our self-learning security weighing mechanism, which automatically keeps the whole enterprise up to date, through to remote control and mobile supervisor features. These features allow you to assign less staff to the self-service area. Depending on store size, staff can even fill up shelves while “keeping an eye on” the checkout area.

Increased return on investment for your enterprise is the ultimate goal, which Wincor Nixdorf aims for. Our consulting team has tools at hand to simulate procedural and financial aspects of a product scenario. Better use of labor and shop floor area, higher throughput of customers and a reduced total cost of ownership during deployment and maintenance compared to other solutions all add up to a convincing proposal.

From our installations worldwide, we have added functionality to the toolbox, allowing you to choose the parts to form the right workflow for your needs. Remember that, once you take away the sales associate, your customers need to cope with a preconfigured machine. They need to register all of their merchandise, submit coupons, handle cards for loyalty and payment, and also comply with all legal requirements, all of which would otherwise be taken care of by staff.

TPiSCAN displays age restrictions and any other kind of item-based sale restrictions. Customers may have prices displayed as gross or net values, with all applicable taxes listed. Graphic displays are available for the selection of non bar-coded items, or for crated or bundled items that come with the same bar code in different sizes. Customers can easily register coupons, regardless of whether they have a one-time barcode or need to be collected by a sales associate. During payment, cash-back can also be combined with any kind of tender.

All supervisor functions are tied to a flexible system of permissions. TPiSCAN allows existing POS cashier usernames and passwords to be reused. In addition to that, TPiSCAN’s web-based administration components use an open-interface, single sign-on service. This can be combined with other authentication services.

Fact: Features chosen for a TPiSCAN installation can be localized to the destination country.

Summing up, TPiSCAN’s productivity features help both customers and staff. On the one hand, there is lab-tested usability, from an internationalized display of taxes through to audio guidance, which makes the customer experience more enjoyable. On the other hand, your staff is relieved of work and can spend more valuable time on direct customer service. The following chapter focuses on productivity boosters, which we conceived for the backend of a self-service IT environment.

4 Enterprise Level Control

Wincor Nixdorf can support you during the introduction of your self-service with business analysis know-how, project management professionals and security consulting. Once your self-service solution is in place, we have thought ahead about giving you control over that part of the IT landscape.

When large installations are deployed, Wincor Nixdorf understands the challenges of a quickly changing environment in the shop. You want to respond quickly to varying customer behavior. A self-service terminal is a marketing instrument as much as it is a physical representation of a customer process. A process like this is subject to the usual control loop of design, monitor & optimize. You want to react to changes in customer behavior, or you want to promote particular items or run campaigns.

TPiSCAN offers enterprise-level control specifically designed for retail self-service. These features crucially give you manageability of the self-service customer processes, which you can use to put yourself ahead of the competition. The TPiSCAN Enterprise Manager consists of server components, which are accessible by any web-browser throughout your corporate network.

More control comes at no additional cost for software development. TPiSCAN's modularity permits the appearance of screens to be changed, it allows the fundamental system behavior to be altered by configuration, it allows types of hardware to be added, removed or mixed and it allows checkout flows to be modified within an existing landscape. Preconfigured reports complete the management control cycle.

The management of deployment of a national or even an international store landscape is of great value to your business. Our software is built with maintainability in mind. This includes the ability for side-by-side installation, deployment using the built-in mechanisms or any standard package-management solution, and reports about the versions in place.

Data synchronization is used to centrally update an international network of checkouts, allowing for local variations. The catalog panel comes with a browser-based drag-and-drop editor. For our weighing security feature, all machines synchronize their weight databases, which drastically reduces interventions by sales associates.

Reduced TCO is the result of more control and fast deployment at an enterprise level. Getting your deployments (and roll-backs) done fast, assures high uptimes with a positive impact on your turnover and risk assessment. Relying on internationally agreed data standards lets TPiSCAN easily blend into your existing IT-environment.

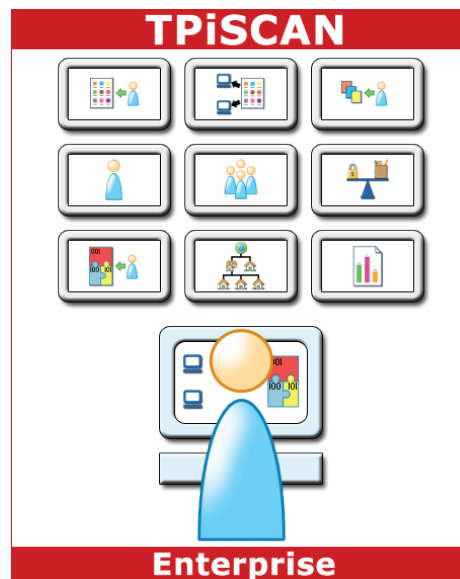


Figure 3: All enterprise functions are accessible from a standard web-browser, no plug-ins required.

Fact: Wincor Nixdorf is the only provider of enterprise support specifically crafted for self-service environments.

Enterprise 1 – Software Distribution and Deployment

TPiSCAN’s software distribution mechanism has been built from the ground up to be both simple, effective, and extensible. Not only can TPiSCAN installation packages and data be transported, but also foreign files can be moved. The service works both upstream and downstream, which is needed for reporting or configuration changes.

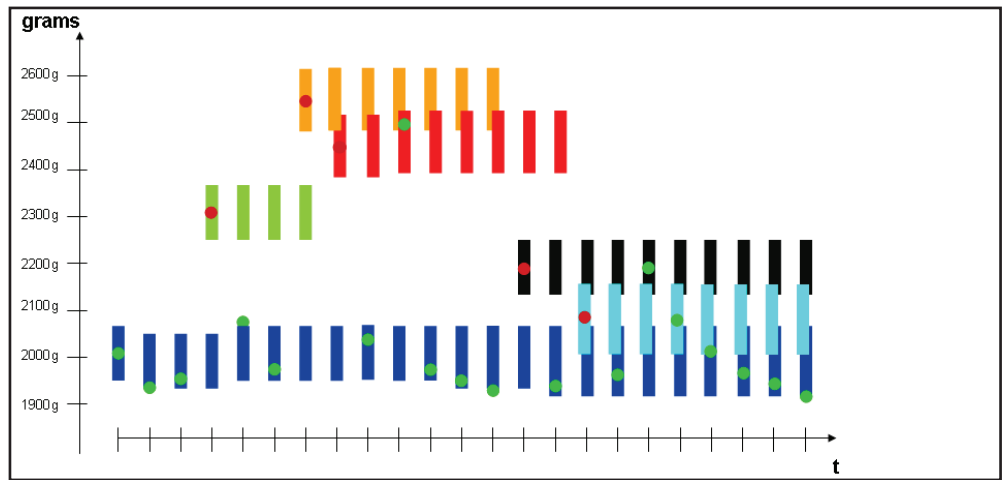
Being specifically designed for the very distributed IT networks often found in the retail industry, our software distribution features three-stage deployment. Data is first sent from headquarters to the store servers. From there, it is sent to the individual network nodes, such as POS CPUs and self-service terminals. Finally, the available packages are activated following a predefined schedule. This ensures maximum availability of your IT environment.

The side-by-side installation option allows you to roll-back to a previous configuration of the TPiSCAN systems. Our software distribution mechanism also works with third-party tools.

Enterprise 2 – Synchronized security weight data

“Wrong weight, please wait for assistance!” is what you do not want to see on the self-service screen, neither as a customer nor as an employee. Each intervention like this also costs your business by reducing throughput. There are many reasons for problems with weight, for example item assortments and packaging change frequently. Each change in weight requires a change in the database so that the following customers’ merchandise can be verified without intervention. Imagine all of your stores and all of your employees having to repeat the same process – and potentially the same mistakes!

Figure 4: Weight security data synchronization leads to a measurable reduction in interventions.



Instead, Wincor Nixdorf’s self-service software eliminates these inefficiencies and adds that staff cost back onto your bottom line. TPiSCAN combines the intelligence of all checkout terminals with their self-learning database. All weight databases in the network are synchronized and continuously updated. As a result, all stores profit from shared knowledge. Moreover, consolidation algorithms at the enterprise level make sure that mistakes by individual employees are wiped from the database.

Finally, the enterprise database at headquarters allows you to easily preload new stores and new machines with a sanitized set of item security weights. This will get you going much quicker than before, as weight security interventions are a problem of the past.

Enterprise 3 – Catalog panel maintenance

In self-service checkout lanes you often need item panels, which allow your customers to choose from a variety of products which do not have barcode labels. For this, the item panel is the traditional and established input mechanism. For self-service customers it needs to be graphic display and always up-to-date. While employees are able to remember which items are out of stock or out of season, you do not want to offer choices to your customers which are actually unavailable.



Figure 5: Image data management with drag and drop functionality lets marketing easily adjust catalog panel pictures.

This item panel is graphical and browser-based, and is set up by a corporate employee in your headquarters on any regular office PC. If your assortments are managed locally, the same service is available at the store level. Our application conveniently distinguishes between image data management and the composition of the catalog; two functions which are usually assigned to two different roles in an enterprise.

The catalog panel definitions are first distributed to the stores, and then from the store back-office computers to the lanes, according to the definition of your store landscape and as described for software distribution above. At a defined moment in time, the new panel definitions will automatically appear on the self-service terminals.

Enterprise 4 – Reports and Journal (for audit and profit analysis)

Are you aware of the many questions you can ask about operations? A self-service environment produces more and different data compared to regular, staffed registers. This includes the technical aspects of the features mentioned above through to data proving your ROI and the customers’ revolutionized experience. Fraud detection is another point worth observing, as increased convenience for your customers almost inevitably comes at the cost of a reduction of surveillance.

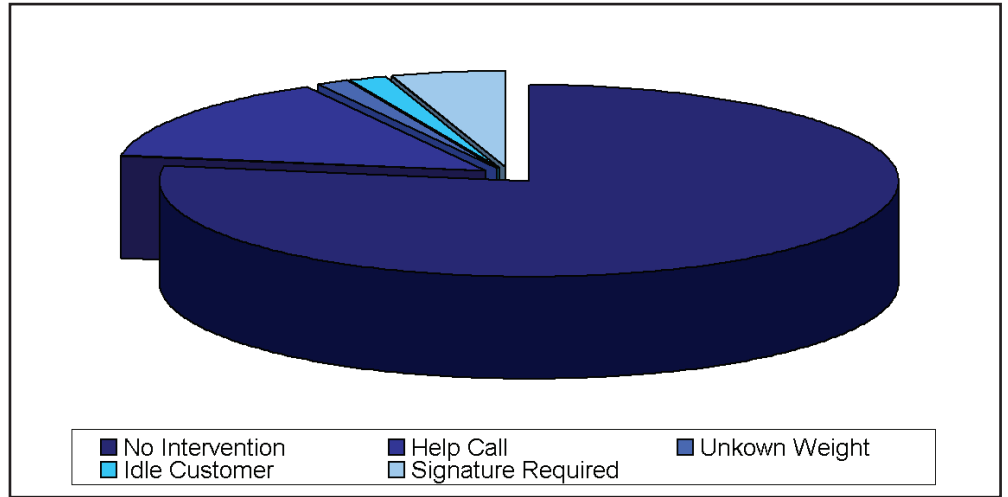
Many retailers have reporting infrastructures in place. They profit from being able to retrieve the full scope of logged data at the database level via XML export files. Where required, any

Fact: All enterprise functions are browser-based and accessible throughout your network at any PC.

browser can access preconfigured analysis pages. TPiSCAN offers all mechanisms and the appropriate interfaces to produce neutral reports for various needs covering

- Analysis of the business process
- Consistency checks
- Technical support

Figure 6: Fully customizable reports allow specific monitoring of the self-service use case.



Customer feedback has made us confident that TPiSCAN comes with all logging and journaling features, which will give you transparency about revisions and a reliable maintenance setup.

5 Looking Ahead

With almost 60 years of experience in retail and banking, Wincor Nixdorf has a proven track record of delivering cutting-edge solutions for retail automation. Today, our software development includes agile methods and our products are prepared for frequent increments to quickly respond to market needs, to your needs.

We publish major releases periodically according to our roadmap and deliver increments to existing releases upon request. You can benefit from extensions by employing new software versions, while keeping reintegration costs down. As we have shown you above, the coupling of components, as opposed to tight integration, allows you to exchange parts without violating dependencies towards others. Most importantly, the interface between TPiSCAN and POS systems supports backward compatibility.

This flexibility does not just serve you. It enables us to add functionality and new peripherals to the self-service business case and deliver this to existing environments.

Closed cash cycle will be brought to the industry as a powerful concept combining Wincor Nixdorf’s experience in banking and retail. Employing TPiSCAN today, you will be able to enjoy closed cash cycle features as part of your self-service installation in your shops tomorrow.

Wincor Nixdorf is perfecting **automated registration using tunnel** or similar conveyor belt enhancements by the use of image recognition for unparalleled accuracy and throughput. Its open design is very appealing to customers and staff. In self-service environments driven by TPiSCAN you will be able to deploy scanners like this in combination with traditional lanes with no additional development effort required for the POS software.

Fact: Our supply chain is maximized towards adaptability: from headquarters’ product development to project management, to implementing change requests in our international subsidiaries

Wincor Nixdorf has committed itself to bringing world-class automated checkout solutions to the retail industry. TPiSCAN is the key component of our software portfolio as part of the Wincor Nixdorf TP Application Suite. We believe that advanced software will implement processes, which are still unknown today. It is your future-proof choice, as TPiSCAN will make new peripherals' functionality and procedures available to your retail IT landscape.

We are developing our software products with interoperability in mind. That naturally leads to concepts such as Service Oriented Architectures and Software as a Service. While the hype around these architectural strategies has faded, our customers can rely on Wincor Nixdorf to deliver applied technologies which benefit the whole organization and which will help every store manager.

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Michael Reschke
Haus 16
Rohrdamm 7
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Germany
Phone: +49 (0) 30-5017-1332
www.wincor-nixdorf.com

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