



Whitepaper

Active monitoring of store processes in retail

**Reduce financial
risks. Increase
efficiency.**



Preface

Retailers are facing the challenge of reducing the financial risks of store operations. This can only be managed with consistently active and efficient monitoring of store processes. For example, inventory discrepancies in North America have figured in the billions of Dollars for years. Retailers are also experiencing pressure from the climbing costs of goods, and weakening margins. The comparatively high turnover of store staff, the continuing high level of investment in training, and the focus on identifying (rather than preventing) problems characterize the strategy, which has been somewhat successful thus far.

For this reason, IT solutions are needed that continuously monitor all store transactions and provide just-in-time, targeted notifications of business-critical processes. Only when measures can be specified and initiated in a very prompt fashion can financial risks (inventory losses) be minimized and process weaknesses eliminated in a targeted and sustainable manner. Ultimately, this also benefits data quality and allows for solutions to comply with the provisions of the European General Data Protection Regulation (GDPR).

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Store-based retailing today and in the medium term

It's no secret that the retail industry is currently reorganizing itself. New players on the market are permanently changing the way customers consume. During this process, these changes are subject to vastly different influences depending on the respective retail segment.



For decades, store-based retail has represented the most successful distribution channel for retailers. Despite low margins and rising costs, the principles of this distribution channel have not been, and will not be, called into question. Pure online players in retail, like Amazon, are increasingly moving in this channel. Young companies are now leveraging these structures with fast delivery services and online stores that are cannibalizing a considerable volume of sales from store-based retail.

An online presence that is intentional and meticulously constructed conveys a unique shopping experience and supports a convenient checkout process. When product ranges are dynamically tailored to customer needs, these services become particularly innovative and customer-friendly.

Retailers are responding to the multiple challenges by developing technologies that make all cash points obsolete. As a side effect, the customer's shopping path in the store, similar to the browsing behavior in the online store, is made transparent for analysis purposes. With the widespread introduction of these technologies, the consumer is then ultimately given complete freedom over the planning, execution, and finalization of the purchase. Customer interactions are analyzed in real-time, and potentials are identified. These are provided to the customer in multimedia form and ensure that the consumer can complete the purchase in full and to their satisfaction.

However, it may take much longer than expected before these systems will reach significant coverage in the retail market. Chain stores are preparing to deploy these technologies by planning and finalizing the necessary IT infrastructure measures now. In addition, customers will gradually gain access to services such as scan-and-go, which will grant them greater autonomy in their shopping experience.

The shopping experience used to center everything around troublesome cash registers, but now customers can simply scan the

barcode of an item with their smartphone or a scanner-device. They can then put it in their shopping cart, and checkout via a short billing process (in the mobile app or by scan processes at special checkout zones). Therefore, direct contact with local staff is becoming a rare exception and replicates the online experience. A vast majority of retailers confirm that introducing these new processes results in considerable risks, such as inventory differences.

Click-and-pick/collect or direct delivery from stores are additional convenience services to offset measurable losses in the customer's shopping frequency and significant decreases in basket size. Furthermore, they are expensive to maintain, are susceptible to additional financial risks and do not minimize existing risks. Thus, the goods (especially fresh/ultra-fresh products or frozen food), which are either delivered or picked in advance, must always be handed over to the customer in the best possible quality.

Currently, majority of retailers are making conscious investments to establish some sort of "online" shopping experience to boost total sales in the stores. Ultimately, however, as stores evolve, there will be a significant reduction in the use of cashiers, interestingly staff numbers are not reduced though. But instead, these staff will focus on addressing challenges associated with new services.

Furthermore, currently common payment methods are increasingly being replaced. For example, cryptocurrencies such as bitcoin and Ethereum are now accepted as a means of payment by selected merchants, which varies based on financial restrictions by region or country. Each bitcoin contains the complete payment history, meaning this can be checked (when special instructions for such exist) for anomalies or illegal transactions within the payment process. This verification is intended to prevent fraudulent activities such as money laundering.

Despite all the changes, store-based retail will continue making a significant contribution to overall sales in the future, albeit one that

Inventory differences – the key figure that has always been and will continue to be one of the biggest challenges retailers are facing.

varies from branch to branch. Therefore, solutions that are currently used for monitoring store processes should even now be checked for their longevity. A company that still uses a wide variety of systems with multiple, differently structured reporting logic (that are mostly highly dependent on legacy systems that have not been updated or replaced) today must seriously question if they are cost-effective.

Inventory differences

According to the study “NRF 2021 / 2019 National Retail Security Survey” by the NRF Association, the damage caused by inventory losses in the North American retail sector reached 2020 1.62% of sales and it is even forecasted to exceed 2% of losses in 2022. DIY and home improvement stores and fashion outlets also reported corresponding inventory losses. The share of losses due to intentional actions on the part of customers, employees, suppliers, and service staff amounted to around 3.4 billion dollars. This results in economic damage due to VAT losses of around 420 million dollars per year. It is obvious, that retail is saving costs by reducing head counts in-store. However any reduced headcount leads to significant invest in technology to lower additional financial risk.

Diverse causes for irregularities

Various types of irregularities in store processes lead to financial risks. In daily business, there are (in addition to theft) a host of commonplace occurrences that are due to conscious or unconscious oversight. In addition, there are problems due to intentional or negligent actions of employees, external service providers, or deficient delivery processes. Irregularities may include, employees' lack of appropriate training, items not recorded or incorrectly recorded at the scanner checkout, incorrect bookings of deposits, even empty containers, returns or insufficient accounting of receipts generated at the service counter (fresh meat, cheese, fish). Further examples include voids of checks or within cash register receipts as well as unexpected accumulations of price overwrites and/or discounts at the checkout. Failure to properly execute these transactions does significantly increase financial risk.

Typical conspicuous product groups that carry a particularly high financial risk are tobacco products, alcoholic beverages, cosmetic products, and highly-priced non-food items. In addition, incorrect bookings or cancellations of gift or credit cards as well as challenging merchandise group bookings are

frequent sources of error that lead to financial loss. In addition, there are other possible irregularities such as non-compliance with preventive risk mitigation measures. Removing cash from cash drawers promptly reduces financial risk. Statistically, most retail robberies occur in the last two hours before the store closes, therefore cash lifts need to be executed at the right time to reduce the potential impact of losses.

Further challenges for the retail sector

In this context, both auditing and sales are confronted with serious challenges. These include for example occasionally intense expansion of many retail groups as well as new checkout methods and technologies that are gradually being introduced by retailers, which brings with them additional potential for financial risk. New processes or responsibilities must also be taken into account for checkout methods and business logistics such as self-checkout (SCO/ independent scanning of goods by the customer at the checkout), scan-and-go, click-and-collect (ordering a product on the Internet and later picking it up at the store's physical location) or direct delivery. These must be checked for irregularities. For example, with the introduction of scan-and-go technology, the attention will increasingly be on the consumer. These technologies provide logical, yet trustworthy testing that goes a significant step beyond pure transactional analysis. Event-based verification uses different sensor information to evaluate transactions and non-transactions and, if necessary, check them before the customer leaves the store.

Platform for complex challenges

Both, auditing and sales operation management demand a platform that will allow them to reduce the complexity of the challenges described. In addition, the platform must reliably support the faster evaluation of all store processes, which is often required by corporate management,

while maintaining the same staffing levels. Due to new regulatory data protection requirements, such as the European General Data Protection Regulation (GDPR), legacy platforms pose a particularly high financial business risk. Experience has shown that these cannot even begin to meet the high requirements. In this regard, BI tools or solutions developed outside the US pose a particularly high risk as data privacy has at all-time been a topic with low prioritization. A violation of any data privacy restrictions can be penalized with a significant amount typically calculated based on the annual turnover. The additional damage to the company's image caused by the media and social networks is incalculable.

The platforms must be consistently aligned with the strict guidelines, up to EU GDPR, regarding necessary data analyses. This entails an amount of effort that should not be underestimated and requires the latest technologies.

To successfully curb financial risks (such as inventory losses or empty container transactions), auditors, as well as store and regional managers, need to have more visibility into store operations.

New checkout methods include:

- **Self-checkout (SCO):** independent scanning of goods by the customer at the checkout
- **Scan-and-go:** continuous scanning while shopping; in Germany, this method is often combined with checking out at specific, separate checkout terminals
- **Click-and-collect:** ordering a product on the internet and later picking it up at a physical store
- **Direct delivery:** this type of delivery takes place either from a dark store or directly from the store

This means continuous and area-wide evaluation of transactions. This is essential to promptly distinguish business-damaging transactions from those that are business-critical. This is the only way to avert consequential damage through the shortest possible time-to-action. Maximum efficiency and rapid intervention can only be ensured by a platform that makes the complex interrelationships from the transactions available to users in a simple and intuitive way. This also prevents financial risks from “snowballing” and thus growing even larger. Continuous access to business-critical incidents enables users to take proactive and preventive action. Furthermore, the transactions must be enriched with all available details in plain text. There must be a distinction between business-damaging incidents and those which are business-critical. This is illustrated by the following examples:

- Reasons why a return or discount transaction was performed
- Conspicuous elements identified on a receipt line (e.g. transaction type in recurring amount) or a receipt created, for example, outside of business or working hours
- Transactions that were created before or after the incident

The holistic provision of data enables the individuals responsible to derive and implement effective measures in the shortest possible time. This effectively prevents stores from suffering losses that are sensitive, and could continuously compound in keeping with the snowball principle.

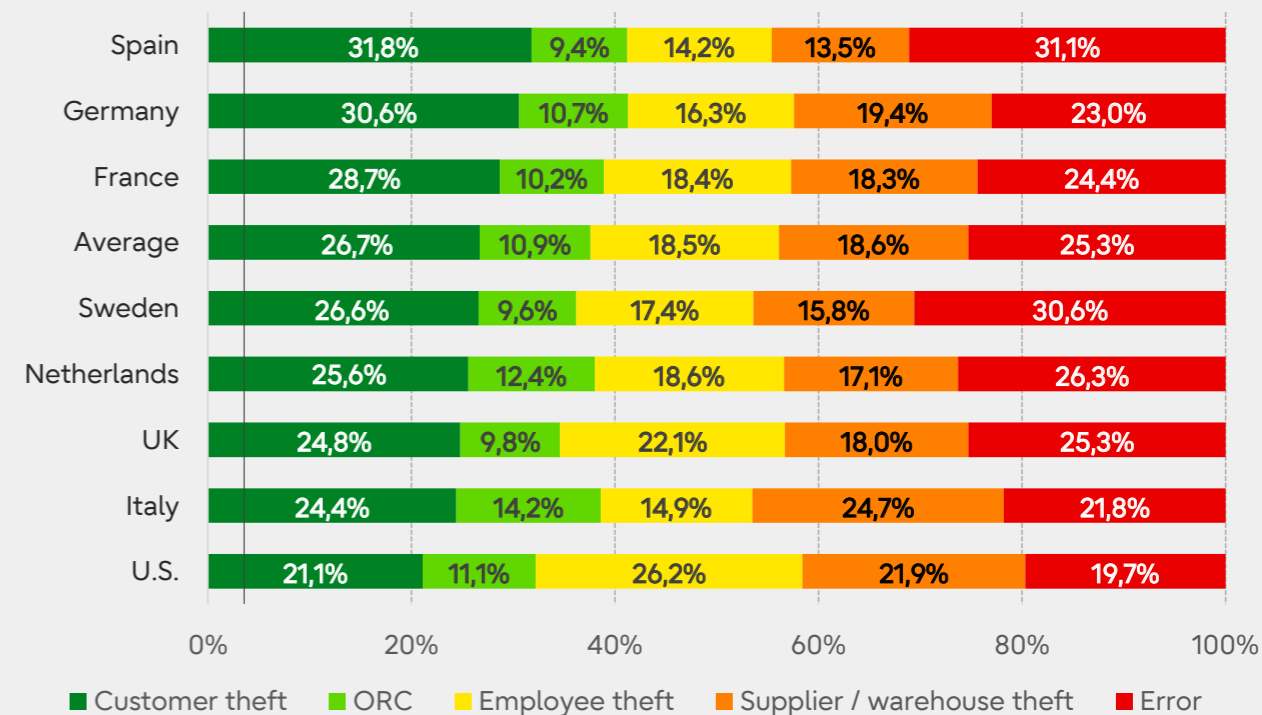
A closed system that also ensures compliance to strict EU data protection guidelines, such as Fujitsu profit protection, minimizes legal risks and damage to the organization’s image.

The main aim here is to detect irregularities quickly and to find the corresponding causes. In this way, all store processes can be efficiently protected against losses, with the aim of minimizing the damage to retail groups. This also results in the process and data quality in the stores being raised to the necessary level.

Modern training concepts required

Every year, retailers invest up to seven-digit euro amounts in training their employees. When doing so, they should ensure that this training is based on actual cases where process weaknesses occurred and that these uses cases are consistently included in training schedules. In this context, inventory discrepancies reveal a potential that retailers often fail to fully leverage. Every delay brings with it the risk of additional costs, which in individual cases might be negligible, but the high amounts invested in training show that these cannot be isolated cases. Therefore, modern training management based on actual process weaknesses and inventory discrepancies is what is required.

Sources of crimes against retailers U.S. and Europe 2019



The chart illustrates the sources of trading losses in the U.S. and Europe. Source: Centre of Retail Research, U.K. ORC = Organized Retail Crime



A promising and proven solution approach

To cover all requirements, a holistic and well-thought-out IT-based solution approach such as Fujitsu profit protection is needed. This enables continuous and seamless monitoring of all store processes.

With Fujitsu profit protection, retailers are able to monitor all transactions. For example, all sales and cash transactions including scale transactions at the service counter, cash management processes in the back office, price, merchandise markdowns and item inventory management.

A dashboard that visualizes all processes serves as the solution's transparent interface. It provides all business-critical transactions in a central location through a unified reporting workflow. In addition, the dashboard provides agile analytics to reliably identify structures that indicate intentional actions. It also enables correlations to be identified and evaluated accurately in their entirety across multiple transactions. If suspicious, business-critical behavior of any individual occurs repeatedly, this can be quickly and clearly assigned via the dashboard.

Another component of the solution is a Smart Report Engine. It enables the targeted identification of a large number of suspicious transactions in store processes, such as a singular, conspicuous line transaction or even several similar or identical transactions that occur repeatedly on one or more cash register receipts. In addition, the tool recognizes receipts and transactions that occur in a specific overall context, e.g. outside of regular store opening/working hours, or immediately after a log-in or before a log-out and if such transactions occur more frequently in a similar or identical form, they are identified by the system. Conspicuous basic patterns in cash register receipts, such as disproportionate amounts, can also be reliably detected. Another point is to ensure the availability of promotional merchandise or items that are currently in short supply. This is because these should only be sold in quantities typical for a household, boosting customer satisfaction.

The tool is characterized by a self-service approach: this allows authorized users to customize their own sets of rules. And finally, new test routines, as well as the threshold logic can be checked for relevance in real-time using the Smart Report Engine.

Concrete advantages for retail:

Retailers benefit from numerous advantages by using the monitoring solution:

- Fundamental approach to actively counteracting financial risks of all kinds and consistently preventing losses
- Retrospective consideration and identification of factors responsible for damage already incurred due to inventory discrepancies
- Development of effective preventive measures by precisely identifying the causes and thus avoiding future inventory losses
- Detection of weak points in the workflows through root cause analysis
- Raising all store processes to a high-quality level
- Precise identification of inconsistent data as well as the corresponding causes
- Significant improvement in data quality in retail companies

Active in-store monitoring of processes from the field

Fujitsu profit protection is now used in retail worldwide. As a central instance, profit protection makes all relevant information centrally available to the user.

As a central instance, profit protection provides the user with all of the information that most retailers, up to now, have painstakingly gathered (if at all) from various systems.

The number of stores that are continuously checked for financial risks and process compliance with this solution is growing steadily and has now reached a volume numbering in the thousands. Typical users include store operations management/sales (sales management, regional managers, store management), auditing, and/or the profit protection team. In particular, store management's access to profit protection allows for truly active prevention. Any abnormalities that profit protection reports to store management enable immediate action to be taken on the floor without delay. The consistent minimization of latency, which experience has shown to lie between a business-critical incident being reported and reviewed and the appropriate action then being derived, provides the basis for preventing repeated disruptive behavior. The prerequisite for this is provided by the platform logic and its intuitive UX. They are

the key factor in actively involving store managers to ensure process compliance and reduce losses.

Experience shows that after 1 to 2 hours of training, an employee can independently navigate the platform, reliably evaluate process anomalies, and initiate appropriate measures.

Fujitsu profit protection achieved high acceptance and much praise from users in all installations from the very beginning. This exceptionally high and rapid response from users is the most important factor in efficiently and quickly guaranteeing compliance with the prescribed routines. Retail companies confirm that just by identifying and avoiding financial risks, ROI is achieved in less than a year after implementation. Fujitsu profit protection is used in retail to actively identify and uncover fraudulent activities as well as process weaknesses throughout the entire store process. These factors make it possible to secure a significant competitive advantage despite cost increases and dwindling margins.

Successful deployment at major German retail group

A global food retailer from Germany is already successfully using Fujitsu profit protection. It is benefiting from the following advantages, among others:

- **Multidisciplinary consultation was a significant factor in the success of the project and the adherence to the schedule for the worldwide rollout.**
- **Constant advice and support with short response times during the rollout enable agile finetuning of the platform logics.**
- **Rules that have been defined and agreed together with Fujitsu can be adapted independently and internally within the company. Customer-specific configurations can be carried out autonomously.**
- **For the quality assurance of store processes, profit protection is being rolled out worldwide.**
- **An intuitive user interface simplifies the training of new users.**
- **Fujitsu profit protection combines a range of information from different data sources and provides the user with a cross-application analysis.**
- **The automated filtering of conspicuous transactions leads to an efficient transaction audit and allows for the determination of appropriate measures.**

Key areas of Fujitsu profit protection:

Optimization of training activities

Training needs are identified in a more targeted and problem-specific manner, which ensures optimized allocation of training budgets (a major cost driver for retailers).

Increase in process quality and efficiency

Store processes are fine-tuned based on insight from transactions that have been identified as either business-critical or business-damaging. Especially in the correct accounting of the empty containers, the potentials that led to adjustments could be identified very quickly.

Reduction of inventory differences

Product-specific cause-effect analyses in the case of increased inventory differences make it possible to narrow down the causal factors in the shortest possible time.

Rapid deciphering of fraudulent acts

Behavior that is detrimental to business, including existing long-term effects, is identified and evaluated in the shortest possible time. Here, in addition to the cash register transactions, scale receipts that were created at fresh food counters and were not posted at the cash register are also checked. If video installations are present, the retrieval of transaction-specific video footage in the platform complements the burden of proof.

Reducing the financial risks associated with criminal assaults

Active monitoring of cash flows e.g. to ensure timely removal of cash prior to high-risk periods reduces the potential for default in the event of a raid.

Increase data quality at the checkout

Identification and reduction of situations/products that require particularly frequent PLU posting or manual entry at the checkout.

Mitigate the financial risks associated with any data privacy regulations up to GDPR/DSGVO

Together with a trading partner and the data protection authorities, a compatible logic was developed that minimizes the financial risk that can arise in the event of non-compliance with the rules.

A look into the future

In the future, customers will increasingly be able to carry out the scanning and payment process autonomously. What does this mean for store processes? How can artificial intelligence support the detection of issues at the checkout?

In the future, customers will increasingly be able to conduct the scanning and payment process autonomously. To ensure the quality of these processes, also in the interests of the customer, video and sensor information, for example, will play an important role in the analysis and interpretation of transaction data. Fujitsu is one of the market leaders in the development of AI solutions. This experience will be gradually incorporated further into the development of Fujitsu profit protection. With Fujitsu's proprietary merge&match technology,

sensor data generated by mobile scanning (scan-and-go), video data from cameras in the check-out, and transaction data will all be considered in the medium term when identifying conspicuous behavior. By directly matching information from video streams and transaction information, Fujitsu profit protection identifies potential customer misconduct at SCOs or through scan-and-go and notifies the staff. These can launch immediate "soft interventions" and call the customer's attention to minor errors. In particular, events are evaluated for this purpose (in addition to the classic transactions) by Fujitsu profit protection. In addition, other transaction components e.g. from the distribution centers or delivery information are gradually taken into account and evaluated. Distribution centers and logistics processes in particular are responsible for an average of 18.6% (Centre of Retail Research, U.K.) of retail losses worldwide. These arise for example from incorrect picking (misappropriation) of goods, damage to products and loss of goods during the delivery process.

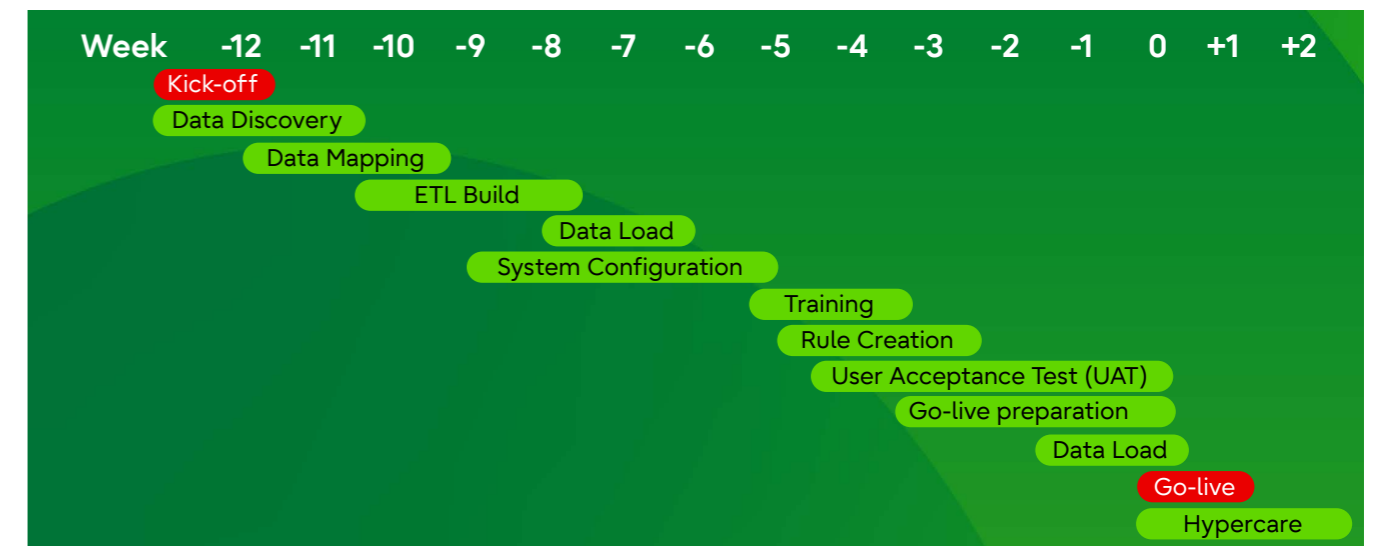
Fujitsu – a competent partner for retail

Competence and partnerships for the retail industry

- Since 2005, Fujitsu has been offering retailers sophisticated solutions that focus on identifying conspicuous checkout transactions.
- Since 2019, Fujitsu profit protection has allowed monitoring of all store processes (cash transactions, back office, cash management, markdowns, deliveries, etc.) as part of a complete redesign of the platform.
- Since 2022, Fujitsu profit protection is available as SaaS cloud version (Endorsed App).
- Fujitsu profit protection is expected to be available as a hybrid offering in 2023. This allows computer vision (AI) logics installed locally in stores to be connected to the central profit protection platform.
- From Germany, the Fujitsu profit protection competence team controls the worldwide activities with its profound, long-standing expertise.

Fujitsu profit protection – the project

Fujitsu profit protection is a subscription-based SaaS cloud solution. The project setup is in line with Fujitsu's recommended approach for a project that is implemented step-by-step and with high quality within the phases:



Workshop – 1 Day:

“Smart managing and monitoring of in-store processes”

Analyze the potential of your in-store processes with us and let us show you the short-, mid-, and long-term options to future-proof them against financial risks. The workshop includes:

- **360° analyses of your customer touchpoints**
- **Grouping of in-store processes and their risks**
- Assessment of solution components to reduce risks in stores:
 - **Fujitsu profit protection:** Reduction of business critical transactions by your employee
 - **ComputerVision@POS:** Reduction of conspicuous customer behavior at the POS
 - **Supply2POS:** Reduction of delivery risks (distribution centers/routes)
 - **Discard@POS:** Targeted reduction of costs and write-offs
- **Prioritizing** components
- **Business case consideration** per component



Sign up here:
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Interested in getting tailored advice on Fujitsu profit protection?

Contact us at

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or visit us at

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