

INITIATION STAGE DOCUMENT

1.1 Business-Analysis Initiation Stage for Retail Chain.

Project: integration of Electronic Shelf Labels (ESL) for Electronics retailer.

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1.2 Background.

The author of this business analysis project has two years of professional experience working as a salesperson at one of the Ukraine’s leading consumer electronics and appliances retail chain. As someone who was interested in more than just their direct responsibilities and was well versed in about other positions’ operations, they gained comprehensive insights and personal point of view on various management processes, including manual price tag replacement.

Through that hands-on experience, several unproductive actions were identified that have a significant impact on both operational costs and customer experience. The current system requires substantial manual labor for price updates across the entire chain, not just individual stores. The process involves multiple steps in each location: checking price updates or revaluations in ERP, copying revaluation numbers and pasting them into a specialized admin panel, or manually type (or copy+paste) products IDs with required counts of the product. Store associates must then choose between two printing options: “by remains”, “by availability”. Additionally, incorrect paper color (white or yellow) different format of price tags, could be inside one revaluation, therefore associates making enough duplicates for correct formats and part of the paper just throwing into bin, just because of duplicates. After this lengthy process, which remains human error risks, store staff must print the tags, cut them in size (which means due to bad cutting staff must reprint the price tag), walk around to find out where does the product is on the tag. Often, products have been

sold or moved, that requires additional time to take item(s) from storage, unpack them, and properly display them with updated pricing, or just throw the paper into bin.

This project focuses on analyzing the integration of ESL as a strategic solution to optimize one of the very first sales business process – “Prepare” which involves time-consuming price tag management operations. This initiative aims to solve the identified problems and help the company stay competitive in Ukraine’s retail market. Additionally, ESL implementation will improve customer experience by ensuring price accuracy and reducing pricing errors and additional checkout.

The analysis draws upon practical knowledge of existing workflows, stakeholder requirements, and operational limitations observed during the author’s employment period, implementation realistic and implementable recommendations.

1.3 Project Rationale

Implementation of ESL integrated with the Product Data Server that feeds into the “revaluation” page in current ERP will eliminate manual price tag management bottlenecks, reduce costs by minimizing paper consumption, printing supplies, associated logistics expenses while enabling rapid price updates during promotional periods. Ultimately, it will significantly improve operational efficiency and enhance customer experience through automated and accurate pricing.

1.4 Problem Statement.

- Highly unpredictable workload of price tag management depending on the different activities like promotions, volume of revaluations, etc.
- Both other duties and high-volume revaluations could mutually create bottlenecks
- Repeated price changes during day/week/etc. require repeating of the process

- Significant store staff productivity and motivation could be worse because of high volume revaluations, their repeating, and a big dealing part with manual labor.
- Correct price verification needed with laptop and scanner due to potential discrepancies between retail and internet prices, especially after major repricing
- Risk of human error in price tag placement and accuracy

1.5 Business Goals.

1. Achieve price accuracy of > 99% between price tag and POS system.
2. Reduce supply costs by at least 50% during the first 2 months through the significant minimization of expenses related to price tag management such as paper, printing materials and their associated logistics expenses.
3. Eliminate over 90% of manual labor related to price tag management by implementing ESL specially for price change sensitive products.
4. Enhance overall retail-chain operational efficiency and store associate's productivity through comprehensive ESL system integration.
5. Accelerate automated price deployments to within 1 minute.
6. Increase customer experience by reducing price discrepancies, especially at the checkouts

1.6 Scope

In scope:

- ESL deployment for all open display products with dedicated fixed shelf positions including electronics, gadgets, home appliances, audio equipment except hanging ones;
- Required product information display like on paper tag depending on the format: price, name of product, ID, characteristics, last time update. Except product barcode due to unnecessary manual price validation with laptop and scanner;

- ESL integration with current PDS;
- Development or adaptation of software for managing ESL system;
- Development of monitoring and supporting the ESL system;
- Selection of ESL;
- Pilot implementation in 2 selected stores in Kyiv;

Out of scope:

- ESL deployment for hanging products;
- Chain-wide implementation rollout;
- ESL integration with other systems than PDS;
- Developing new ERP or POS system;
- Store associate's study;
- Installation and configuration of ESL required equipment;
- Purchase of ESL;

1.7 Initial stakeholders

Stakeholder	Role/Interest
Retailer Senior Management	Project approval, budget allocation, strategic decision making, reduce operational costs by minimizing paper and printing supplies, establish competitive advantage by this innovation, positioning the company as industry leader in retail automation.
Store Associates	Primary system users, responsible for daily operations and pricing accuracy, are interested in reducing risks of manual labor.
IT Development Team	Development/Adaptation software for ESL managing and monitoring, creating databases for new system, sync with PDS.
Retailer IT Team	System technical support, integration with other systems than PDS (if need), install and configure ESL equipment. Later chain-wide rollout of ESL system.
Merchandizing department	Using ESL for promotions and advertising campaigns. Creating new ideas for designing.
Customers	Accurate pricing information, good customer experience, store associates focus on us.
ESL Supplier	Saling and supplying ESL components.

1.8 High-Level Requirements

Core Requirements:

- Fully automated price synchronization: PDS price change > ESL update without store associate's intervention
- Real-time sync: price changes appear on shelf within 1 minute of PDS update
- Complete information display on ESLs – same as current paper tags, but without barcode.

Product Management Requirements:

- Web-based admin panel with mobile adaptation for price tag management
- In addition to standard black and white, yellow color support is mandatory, and red color support is desired for ESL displays
- Product reassignment options:
 - On-site Reassignment via smartphone by scanning unique QR-code displayed on ESL (accessed via a physical button press) which opens web-based admin panel, enabling scanning of the product barcode, or manually entering product ID
 - Remote Reassignment via in-store computer by selecting or manually entering ESL ID, then scanning product barcode, or manually entering product ID
- ESL update within 1 minute after assignment confirmation

System Requirements:

- Integration with existing PDS
- ESL Base Stations for Zigbee protocol communication
- Mesh network architecture supporting 100-200 ESL devices per Base Station
- Developing error reporting and sync failure alerts
- Admin access from store computers and mobile devices

ESL Requirements:

- Battery life: at least 5 years
- Programmable physical button
- Ability to save last update timestamp, own ID, shown product ID
- Reliable wireless connectivity via dedicated ESL Base Stations
- Zigbee protocol compliance for low-power mesh networking