Case Studies
By

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# Editorial Pagination and Document Management System



#### **Summary**

 Easily composable and searchable Document Management library with multiple versions along with proofread, approve, publish, authoring framework



#### **Customer Profile**

 Indian Express, the large newspaper industry in India



#### **Challenges**

- DifferentDocument Types
- Too many categorizations
- Scanned Images
- DifferentDocument versions
- Different Indian languages like Dinamani, Andhra Prabha etc.



#### **Solution**

- CVS version control
- Tesseract OCR
- Full text Search
- Keyword Tag Search
- ISCII storage
- PostgreSQL
- Rich text editor
- Pagination, Collaborative editing
- Twain scanners



- Removed totally paper library and manual paste-up department
- Shortened publish time by 50%
- Increased readers' space
- Engaged Employees
- Cut down cost by 80%

# SMS Alerting System for Traffic Violation



#### Summary

Sending SMS who violate traffic rules such as wrong way drive, prohibited lane changes, speed limit and crossing while red light, through cameras by identifying vehicle number



#### **Customer Profile**

Wara, IT
consultant for
Ministry of
Interior, Kuwaitsubcontract from
Cherrytec,
Chennai



#### **Challenges**

- Capturing a speedy vehicle
- Mix of Arabic
   Numerals and Indo
   Arabic Numbers
- SMS should be sent in Arabic or English based on demographics
- Low Night vision



#### **Solution**

- 1 camera monitors3 lanes concurrent
- Synchronized IR
   Laser Flash at night
- 3D Radar for position, speed
- Manhattan and Canberra Distance calculator
- MTC, Kuwait for SMSC gateway



- Revenue increased by 40%
- Stop sign violation and wrong way drive brought near to 0% from 20%
- Accident rate reduced by 30%

## **DICOM SR VIEWER**



#### Summary

 Online software model for desktop, mobile and tablets, in a single login environment to view DICOM images and SR Reports in offline mode



#### **Customer Profile**

Toshiba
 Medicals, Japan
 based customer
 manufacturing
 CT, MRI, PET,
 CTPET machines



## **Challenges**

- Connectivity to DICOM Network to download files
- Adherence to DICOM Imaging Security policies
- Complex standards
- Complex templates
- Different modalities have different templates



#### **Solution**

- SOA
- 2 Pass Parser
- Code name
   Customizer
- Single Sign On
- Dcm4che, Dvtk Kit
- NEMA guides



- Faster on the fly viewer
- Increased customer space
- Reduced recurrence cost to maintain software
- One software for all modalities

## **ONC CERTIFICATION**



#### **Summary**

Get ONC
 Certification of EMR, PM System



#### **Customer Profile**

 US Health care eligible health care provider



## **Challenges**

- Compliance Hurdles:
  - Faced challenges in aligning with the stringent criteria set by ONC
- Interoperability Issues:
  - Encountered difficulties
     in achieving seamless
     data exchange
     between healthcare
     systems, hindering
     efficient
     communication and
     patient care
     coordination.



#### **Solution**

- Interoperability
   Emphasis with FHIR
- Patient-Centric
   Design and dynamic

   Patient portal
- Meaningful Use Integration
- ISO 27K, ISO 9001
- Auto correction with Rule based engine
- ATNA Audit Trail and Reporting



- Reduced Readmissions
- Efficient utilization of beds, operating rooms, equipment, staffs
- RCM streamlined cashflow
- Quicker Clinical Decisions
- Connected Care

## CLINICAL CONTENT QUALITY EDITOR AND SCORECARD



#### Summary

- Build a Clinical **Content Quality** scorecard
  - Load clinical content in the tool
  - Deploy clinical content evaluation criteria
  - Execute clinical content evaluation algorithm
  - Present Clinical content dashboard



#### **Customer Profile**

 US Health care eligible health care provider



## **Challenges**

- Content Standardization
- **Timely Updates**
- Interoperability Gaps



#### **Solution**

- Validation
- Tree bank algorithm
- Tableau
- Rule based validators with medical dictionary



- Automated Content Interactive editor with alerting user for wrong entries and auto suggest words
  - Final Score card display for doctors to input missing information

# Healthcare Business Intelligence And Data Analytics



#### Summary

- ONC Certified EMR, US Health care PM System and Al for improving efficiency, effectiveness, Health status and Patient safety
- Turn data into assets that provide results in real time



#### **Customer Profile**

eligible health care provider



## **Challenges**

- Legacy Systems and FHIR enabled systems •
- Complex Data-Health, Finance Standards
- Payers Follow-up
- PHI
- Life sensitive
- Physicians Availability
- Patients Cancellation | •
- Manual Prescription
- Paper Records



#### **Solution**

- Tableau
- RPA
- **HL7** integration
- Value care system
- Correct KPIs
- Rule engines for Data quality assurance
- DMAIC process
- UCD and SED for CX
- EMR, PM, RCM



- Reduced Readmissions
- Efficient utilization of beds, operating rooms, equipment, staffs
- RCM streamlined cashflow
- **Quicker Clinical Decisions**
- **Connected Care**

# PMO Business Intelligence and Data Analytics



#### **Summary**

- Monitor PMO activities
- Take instant decisions
- Re-prioritize projects and resources



#### **Customer Profile**

 gloStream DBA TRIARQ health practices, a healthcare consulting firm



## **Challenges**

- Simultaneous projects
- Different backlog channels
- No single point of status



#### **Solution**

- MS Project Online
- Power BI
- Predictive Analytics for Projects and Resources
- Business Driver Prioritization
- Projects SLA tracker
- Pareto Analysis



- 100% Resource utilization
- Employee engagement
- One-place dashboard
- Predictive decisions
- Transparency and improved
   Employee moral

# Digital Transformation – IT Modernization



#### Summary

- On-demand healthcare
- Artificial intelligence for precision medicine, medical imaging, drug discovery, and genomics
- Integration of wearable devices



#### **Customer Profile**

US Health care eligible health care provider



## **Challenges**

- Cyber Security and patient data
- The aging population
- Illiterate group
- New gen's changed expectations
- Mobile and wireless, remote healthcare from home
- Complex standards like FHIR and others



#### Solution

- Al to early diagnosis Better patient care
- ML in preventive medicine
- BI tools integration | •
- Automation tools like RPA
- IoT, AR/VR support
- Rule engines for Data quality assurance
- Mobile, Cloud Apps



- Saved time, improved decisions
- Reduced errors and risks of errors
- Easier to use
- Lower cost
- Connected with other systems
- Digital in-home care with AR/VR

# 121-ETPCOE

#### Summary

ETP is an Omni-channel Retail Software company serving market leaders in 24 countries across the Asia Pacific, India, and the Middle East regions. ETP's retail and ecommerce solutions include Omni-channel orchestration, POS, Mobility, CRM, Marketing Campaigns, Promotion Management, Smart Order Management, Supply Chain Management, Product Information and Inventory Management, Marketplace Management, and Analytics. ETP has successfully executed over 500 enterprise software projects for 500+ brands. ETP's unique value proposition is its ability to consistently deliver enterprisegrade Omni-channel solutions to its customers and build long-term strategic partnerships spanning decades.

#### **Engagement**

ETP has deployed a Point of Sale (POS) system using an old legacy client-server architecture, incorporating outdated Java Enterprise Beans and employing XSLT transformation for the UI interface. The objective is to migrate this system to a modern Angular application with a Spring Boot REST API, offering the flexibility of deployment either in the cloud or on-premises. ETP is actively seeking partners to collaborate with their team, expediting the development process and facilitating timely releases

#### Solution

I2I has identified the resources to work with ETP to have right mix of domain sme, technical delivery team, consulting and quality assurance team into 3 CoEs namely R&D, Projects and Consulting CoEs.

In subsequent slides, we have listed down the projects taken by each COE, their problem statement summary, challenges, solution and outcome.

# 121-ETPCOE

## **Top 5 Business Challenges**

- Seamless Integration Across Channels as well as Online and Offline Mode with a unified shopping experience
- Real-time Inventory Management visible counts accurate across all channels at any given time
- Customer Data Security and Privacy ensuring compliance with data protection regulations to build and maintain trust
- Dynamic Pricing and Promotions adapt to market conditions, competitor pricing, and customer behavior
- Consistent Personalized Customer
   Experience across various touchpoints,
   including in-store, online, mobile, and social media

## **Top 5 Technical Challenges**

- Integration with Legacy Systems with existing legacy systems, including ERP, CRM, and inventory management solutions
- Scalability and Performance scale to accommodate the growing volume of transactions depending upon seasons and provide consistent performance during peak periods
- Data Synchronization Across Channels real-time data to provide accurate and up-to-date information on products, prices, and inventory
- Mobile and Contactless Payments Supporting a wide range of mobile and contactless payment methods securely and seamlessly
- Cybersecurity and Fraud Prevention protect sensitive customer and transaction data from cyber threats and fraud

#### COMMUNICATION PROVIDER INTEGRATOR



## **Problem Statement**

- Develop and implement a robust communication infrastructure that seamlessly integrates with a selected communication service provider.
- Provide support for SMS, WhatsApp, and Email.
- Extendable to accommodate Facebook, Instagram, and Telegram in the future.



## **Challenges**

- Different authentication system
- Different Request End points, Protocols, Parameters
- Different Response status
- Different polling system and session system



## **Solution**

- Selectable authentication system
- Configurable API end points, Protocols
- Mappable Response Status
- Configurable Endpoints of Polling system and intervals



- Able to integrate all SMS and Whatsapp providers like Zenziva, Textlocal, Enablex
- Able to Integrate all email service providers like Google, Outlook, AOL

#### COMMUNICATION TEMPLATE GENERATOR



## **Problem Statement**

- Develop a versatile and user-friendly system designed for the creation and management of messaging templates adaptable for utilization across diverse communication channels and possess the capability to handle dynamic content insertion with localization support
- Provide support for SMS,
   WhatsApp and Email



## **Challenges**

- Different templates based on Trigged Events
- Different dynamic variables need to be fetched runtime from databases to assemble the delivery content
- Different message formats for different delivery providers
- Different languages for each customers



## **Solution**

- Selectable events and editable templates in given languages
- Variable Mapper from database fields
- Auto convertor of RTF to Email format, WhatsApp format or Plain SMS format
- Auto picker of language based on customer preference



#### **Outcome**

Able to send
 messages from all
 events such as Order
 Delivered, Invoice
 Generated, Customer
 Registered, etc in
 English as well as
 local language
 specifying product
 details, price details,
 discount information
 etc.

#### COMMUNICATION DISPATCHER



## **Problem Statement**

Ensure the dependable dispatch of diverse messages to a varied user base, including customers, vendors, and suppliers, adhering to their specified preferences and on time



## Challenges

- At the time of events trigger such as order delivery, communication provider may be having network issues or service outages, or other disruptions
- Ensuring privacy compliance



#### **Solution**

- Queuing system with producer of Kafka and Dispatcher system with consumer of Kafka was created
- Polling system written in Kafka retries until it is dispatched and then cleared queue
- Maintained reports of delivery status along with audit logs
- Transferred messages in SSL encryption



- Able to deliver SMS, WhatsApp, Email, Digital Receipts on time without failure
- Able to track the messages delivery.

#### **DIGITAL RECIEPT**



## **Problem Statement**

- Develop a Digital Receipt module that generates and dispatches receipts seamlessly from the store to the customer.
- Customers should have the capability to view digital receipts on their mobile devices via SMS and WhatsApp.
- Additionally, they should be able to download or share these receipts with others.



## **Challenges**

- Each store will have different receipt formats
- Each customer will expect the desired information in specific sequences



#### **Solution**

- Similar to
   Communication
   template, created
   another template to
   select header, footer,
   content with multiple
   columns
- Reused template library and Kafka dispatcher for this system



- Able to configure by the customer receipt with their personalized sequences of information and preferences
- Able to receive, download or share receipts

#### **EXCEL DATA FEEDER**



## Problem Statement

Establish a data creation mechanism for various imports, allowing for the selection of dynamic hierarchical data based on the current entries inputted. For instance, enable the selection of a city based on the chosen country and state, providing a user-friendly and adaptive interface.



## **Challenges**

- Customer can not have macros since it is against their domain security policies
- Excel does not have simple selection based on previous entries



## **Solution**

- Create a recursive table range dynamically and stored in a hidden sheet for selection
- VTable lookup formula was created through Java recursive program
- Created a reusable component which can be accessed in all modules imports



#### **Outcome**

 Able to enter hierarchical data under various modules like product, employee, address for their imports

#### PROFILE IMAGE CREATOR



## **Problem Statement**

- Create a system capable of capturing images from diverse imaging devices, providing functionalities for annotations such as rotation and clipping.
- Pracilitate the creation of profiles for customers, products, companies, and groups, incorporating the option to associate images with each profile for enhanced visual representation.



## **Challenges**

- Browser based devices capture
- Interactive Images transformation



## **Solution**

- Captured Web cam
- Created an Image editor to crop, rotate, flip, scale
- Provided selection for round and rectangle clipping based on the type of profile needs



- Customer profile with default sizing and round cropping is done
- Product profile with rectangle clipping to any size is done with rotation or mirroring to the perfect view
- Company and Group profile is done with default sizing and rectangle cropping

#### **ADDRESS PICKER**



## **Problem Statement**

- Ensure accurate entry of addresses into the system with an emphasis on preventing spelling mistakes, while maintaining a userfriendly interface.
- Additionally, enable the seamless reuse of addresses in the creation processes for Company, Vendor, Supplier, and Customer profiles



## Challenges

- Entering street names and the localities in correct spelling
- Entering correct pin code



## **Solution**

- Integrated with google maps
- On fly typing to select street names and exact location on map
- Auto fill of other information such as city, state, pin code etc. is made



- Able to save time of data entry
- Able to reduce errors of address feeding of both company, vendor, supplier and customers

#### **CASH MANAGEMENT**



## **Problem Statement**

 Eliminate complexity of Management of cash and cheques, a multifaceted convergence of diverse payment methods, online banking, and physical banking channels, coupled with the involvement of collection agencies in cash and cheque management system of multiple currencies



## **Challenges**

- Realtime Multi-Bank Integration and visibility
- Synchronization of collection agencies
- Bifurcation of Expense details paid by headquarters and paid by local stores
- Varying currency rates and currency conversion methods



## **Solution**

- Currency rates are stored along with transaction
- Ledger is maintained for cash, cheque
- Payment gateways are opened in SSL encryption in a different window
- Efficient reconciliation system
- Currency exchange rate is configurable according to store and stored along with transactions



- Able to maintain collection agency and banking details across all ETP customers
- Able to maintain individual store wise expense and collection details along with currency rates

#### STOCK TRANSACTION MANAGEMENT



## **Problem Statement**

- Implement Stock Transfer system that seamlessly integrates across diverse sales channels, encompassing physical stores, e-commerce platforms, and mobile applications.
- Ensure scalability in the system's design to accommodate potential growth in products, channels, and the overall scale of the business



## **Challenges**

- Ensuring real-time synchronization of inventory levels across all channels to prevent overselling or stockouts
- Establishing effective communication and collaboration with suppliers to streamline the supply chain, reduce lead times, and enhance overall efficiency



## **Solution**

- Maintain consistency in product data with Solr search to have fast shopping experience
- Implement barcode and RFID to improve accuracy in tracking and managing inventory levels
- Realtime communication channel is enabled across users



- Seamless stock transfer across omni channels
- Effective communication between users across system users

#### STOCK TAKE HANDLER



## **Problem Statement**

 Develop a streamlined and uninterrupted stock-taking operation that spans all channels, encompassing both physical stores and online platforms. The system should prioritize data integrity, effectively preventing discrepancies and ensuring accuracy throughout the stocktaking process



## **Challenges**

- To temporarily freeze real-time inventory updates, Concurrent transactions across all channels
- Ensuring the suspension of all transfer, selling, and buying transactions
- Strategies to minimize system downtime



#### **Solution**

- Implement barcode and RFID to improve accuracy in tracking and managing counts
- Realtime communication channel is enabled across users
- Efficient processes for reconciling inventory counts post-stock take, identifying and addressing any discrepancies



- Able to save time of data entry
- Able to reduce errors by barcode and auto reconciliation routines

#### IN-STORE AND AISLE CATALOGUE



## **Problem Statement**

Omnichannel retail store, operating across physical and digital platforms, faces a critical challenge in presenting a unified and user-friendly store catalog to customers which lacks cohesion, making it difficult for customers to seamlessly navigate, explore, and make informed purchase decisions across various channels.



## **Challenges**

- Inconsistent Product Information across different channels
- Limited Product
   Discoverability due to
   current catalog
   structure does not
   effectively showcase
   the breadth and depth
   of the product
   offerings
- Adaptability to Diverse Devices since existing catalog not optimized for various devices



## **Solution**

- Standardized the attributes across stores
- Centralized product balance table maintained to get real time inventory, price, promotions
- Intuitive HTML5
   responsive catalog is
   made for each item and
   browser made for
   variants lookup
- Communication channel is enabled across users



- Improved the user interface for the catalog to ensure an intuitive and visually appealing experience, regardless of the device or channel used by customers.
- Implemented strategies to easily find, compare, and explore the diverse range of offerings.

#### CLIENTELLING



## **Problem Statement**

- Show aggregated
   Customer data from
   multiple channels for a
   comprehensive view of
   various touchpoints such
   as in-store purchases,
   online orders, loyalty
   programs, and customer
   service interactions.
- Handling and analyzing real-time data to provide immediate insights into customer behavior and preferences



## **Challenges**

- Utilizing customer data to provide personalized experiences, product recommendations, and targeted marketing campaigns
- Creating meaningful customer segments based on demographics, purchasing behavior, and other relevant criteria.



## **Solution**

- Integrated graphs and chart components to visually interact with axis points and filter of data points
- Created an algorithm to update real time all the formula such as frequency of purchase, last time purchase etc so that there is no wait time to calculate



- Presented charts and interactive graphs to look at various ranges and filters.
- Developed segmentation strategies to tailor marketing efforts and promotions to specific customer groups.
- Leveraged historical customer data to predict future trends, preferences, and purchasing behavior.

#### **RETROFIT**



## **Problem Statement**

 Given time constraints, ETP aims to integrate new features into the older version of the application, ensuring backward compatibility and functionality enhancements without necessitating a full system upgrade



## **Challenges**

- Understanding of old database structure
- Menu IDs, Sub menu IDs won't match
- Labels, help texts and messages IDs won't match



## **Solution**

- ID mapper created from excel to replace old ID
- Manual test cases execution to find out any breakages and correcting them



## Outcome

 Able to integrate new features into old application

