Tracking Quality with RFID at Saudi Post Corporation

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Introduction

• Among the developments witnessed by Saudi Arabia, the Saudi Council of Ministers issued a decision on 29/3/1423H (10/6/2002) transferring the General Directorate of Post into a public corporation operating within the philosophy of the private sector.
• At the beginning of 1426 e, a number of steps were taken at Saudi Postal Corporation (SPC) such as establishing new departments, launching new services and announcing the new project of providing postal addresses and post delivery to business and residential areas
Mail Process
Monitoring Principle before RFID
Measurement Challenge

1. unidentified delivery time.
2. unidentified bottleneck within the mail process.
3. unidentified misrouting test letter.
Experience with Diagnostic Monitorings
1. Benchmarking with other postal industry.
2. Evaluate the available solution.
3. Select the suitable solution.
Monitoring system Target

• Assuring in time test letter registration.
• Continuous Monitoring of Test Letters on Mail Arrival at sorting centers until Mail Dispatch
• Reducing manual work
• Assuring in time delivery
RFID??
Radio-frequency identification (RFID) is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader.
Advantages of RFID

• Automatic and objective data registrations – no interference in daily work routines
• The tag can be read from up to 15-20 meters and is designed and proven to have a 99%+ read rate in the harsh postal environment.
• Multiple tags can be read at the same time and is distinguished by a unique number
• It can be identified exactly through which postal gate the tag is travelling and in which direction
RFID Hardware
A test letter containing a transponder is introduced into the normal mail flow. An exciter generates a magnetic field, which excites the transponder in the test letters as they pass through. When the transponder is excited, it sends out its identification number by radio signal to the reader. The reader transmits its data to a local site server, where data is validated and collected. The site server sends the data to a central database, where information is stored. All data registrations centrally stored in the database are available for reporting and analyzing in a web-based analyzing and reporting tool.
How AMQM works

1. The EX23 Exciter continuously generates a magnetic field at 125 KHz covering a postal gate.

2. When a postal tag enters the field, it is activated. The tag transmits its code and battery status together with the embedded exciter ID at 433.92 MHz.

3. The RD23 Reader receives the signal and adds exciter ID and time stamp to the tag data.

4. The RD23 reader transfers the collected data to the EDECS Site Server.
Overview of the AMQM system
Process Monitoring

- Optimise sorting centre performance
- Increase flow and process control – mechanisation?
- Improve work planning due to objective truck information and mail volume forecasting
- Increase coordination between production and transport

Shell and process monitoring inside sorting center
Overview of processes in sorting centre

- Process Area
- Customs
- Revenue protection
- Facing
- Cancellation
- Machine processing
- Manual sorting
QSM overview – QSM Operations

QSM MEASUREMENT

QSM OPERATIONS

Products
- Tracking of secure shipments
- Registered mail handling
- Tracking of postal items
- Proof of sending & delivery
- Revenue protection

Processes
- Vehicle & trailer tracking
- Roll cages & tray tracking monitoring
- Mail box collection control
- Certain day (stock control)
- Warehouse management

Resources
- Mail delivery management
- Production management planning
- Sorter control
- Technical administration & maintenance
- Time registration & resource consumption

System operation, connectivity & analysis
Management reporting
Consultancy & implementation
Training & education
<table>
<thead>
<tr>
<th>Stage</th>
<th>On Time %</th>
<th>Goal %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection</td>
<td>100.0%</td>
<td>99.5%</td>
</tr>
<tr>
<td>Collection sorting</td>
<td>66.7%</td>
<td>98.3%</td>
</tr>
<tr>
<td>Transport</td>
<td>100.0%</td>
<td>99.0%</td>
</tr>
<tr>
<td>Delivery sorting</td>
<td>100.0%</td>
<td>99.0%</td>
</tr>
<tr>
<td>Distributor</td>
<td>100.0%</td>
<td>85.6%</td>
</tr>
</tbody>
</table>

- 100.0% (3 of 3) with responsibility already set
- 0.0% (0 of 3) missing responsibility placement
- 0.0% (0 of 3) with responsibility set in a non-displayed register element
End 2 End 27.02.2009 - 27.05.2009: 97.1% (104 test letters - 3 delayed)
Goal 95.0%

- Collection: 100.0% (Goal: 99.8%)
  On time
- Collection sorting: 99.0% (Goal: 98.2%)
  On time
- Transport: 100.0% (Goal: 99.8%)
  On time
- Delivery sorting: 100.0% (Goal: 99.0%)
  On time
- Distribution: 100.0% (Goal: 98.6%)
  On time

97.1% (101 of 104) with responsibility already set
2.9% (3 of 104) missing responsibility placement
0.0% (0 of 104) with responsibility set in a non-displayed logistics element
Conclusion

- Using RFID in the supply chain will help to improve all mail process by diagnostic the hot spot zone.
- Measuring the performance for incremental improvements
- Tracking the complete process chain
- Preventing errors in real-time
- Cost reduction.
- Proven technology in the real time registration
Thank You