Harold Boeck & Ygal Bendavid (ESG UQAM; Academia RFID), Targeting the Correct RFID Technology for the Right Project at RFID Journal live Tenth Annual Conf. - Preconf. seminar Warehouse & Inventory Management in the RFID Supply Chain, April 03 2012, Orlando, FLA.
Your presenter

- Harold Boeck
- Ygal Bendavid

- Professors at the UQAM
- Co-Founders of ACADEMIA RFID
- RFID certified
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Preconference seminar Agenda
“Warehouse & Inventory Mgt in the RFID Supply Chain”

- 11:30 Linking RFID to Inventory Management Best Practices
- 12:15 Targeting the Correct RFID Technology for the Right Project
- 13:45 Key Steps in Building an Inventory-Management RFID Solution: Build Your Own RFID Portal
- 14:30 Designing Your RFID Solution
- 15:30 Building Your RFID Business Case
- 16:15 Preconference Seminar Ends
Objective of the presentation

- Understand how RFID can be used to gain visibility over your inventory?
  - Define the RFID strategy & select the right project
  - Use a Methodological approach to solve problems & identify opportunities
  - Target the appropriate RFID technology for your specific case

1-Define the RFID strategy

(Vision & orientation)

Why a company would implement EPC & RFID?
- Mandated by their customers;
- Legislation
- Mimetic approach
- To improve their efficiency:
1-Define the RFID strategy
(Vision & orientation)

Is RFID a right for my (Warehouse) inventory management?

- How effective and efficient are the existing operation & business processes?
- What are the Strategic-Tactical-Operational goals of my warehouse/inventory project?
- How can RFID help me reach these goals?

“You can’t improve what you can’t /don’t measure…”

“A vision without a plan is an hallucination” Jack Welch, (ex) G.E.

1-Define the RFID strategy
Whatever your industry, Which applications are YOU interested in? Why?

- Warehouse & SCM
- Automating business processes
- Reducing Out Of Stock
- Managing Products recalls
- Reducing theft/product loss
- Managing product recalls
- Reducing spoilage and waste (e.g. Cold Chain Management)
- Etc.
1-Define the RFID strategy

Why adopting? Companies Have Different Goals for RFID…

« (...) save money by cutting costs and improving internal processes and operations (...) Cies are also looking toward the future (...) gain a competitive edge (...) Track goods to supply-chain partners»

A majority of respondents rated “business process improvement” as the number one driver for their adoption of RFID - ABI Research’s 2009 RFID end-user online survey

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Select the right RFID project

Using the Stage gate Model - Decision: a two step process

the first part (left) – to make Pass/Kill decisions on individual projects;

the second part (right) – to prioritize the project against the rest and to allocate resources

Source: Dr. Robert G. Cooper, Dr. Scott J. Edgett, and Dr. Elko J. Kleinschmidt, Research Technology Management, 45 (5)
Select the right RFID project

**Project Portfolio Management**

- **Strategies**
  - Resource allocation based on priorities

- **Financials Methods**
  - Popular but....

- **Bubble diagrams or portfolio maps**
  - Classification XY, E.g. P (technical success) and benefits (NPV)

- **Scoring Models**
  - Selected criteria's

- **Check-lists**
  - Yes-No; Go-Kill points (E.g. Stage gate model)

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2-Identify opportunities & Solve problems

- Use a **Methodological** approach to identify opportunities & Solve problems
  - Set of practices, procedures & rules used in the inquiry/investigation of RFID potential
  - With the goal to understand different situations & acquiring new knowledge
  - Based on gathering observable, empirical & measurable evidence in your warehouse!
  - It is not a formula!

### 2.1 Methodology

*Different Methods & tools at different phases of the project*

1. Problem definition
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and pay off Analysis
5. Implementation

*Do not envision nor position RFID as a technological project*
2.1.1 Methodology & Tools

*Defining the problem*

1. **Problem definition**
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and pay off Analysis
5. Implementation

- Employee surveys
- Issues Trees
- Root cause analysis
- Cause & Effect Diagrams (Ishikawa)
- (ABC) Pareto analysis
- Impact analysis
- Gap Analysis
- Organization analysis
- Industry analysis

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2.1.1 Methodology & Tools

*Defining the problem: narrowing the scope*

- Narrow the scope of the (RFID) project
- Analyze the organization (and network) core activities *(WHICH activities to select and WHY?)*
- Identify which macro-level problem would deliver the most benefits?
2.1.1 Methodology & Tools

Defining the problem: an example using an issue tree

- Build a root cause analysis
- Identify where RFID can have an impact

Drivers

- Higher Revenues
- Lower Costs
- Higher Market Share

Reconciliation/Deduction

Causes

- Theft during Distribution
- Price Issues
- Quality Issues
- Process Failure

Impact

- Real time alert: mismatch loaded vs. unloaded items
- Real time alert: mismatch order vs. loaded items

RFID enabler

- Door (light) Sensor
- Automatic Scanning
- Real time Access to back end sys.
- Unique (EPC) ID On tags

Sources: Adapted from EPC Global US, 2005 - EPC Value Model for Consumer products

2.1.2 Methodology

Data gathering to document your understanding of the current situation

1. Problem definition
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and pay off Analysis
5. Implementation

Business
- Plant tour/audits
- Flow charts/Business Processes
- Pareto charts
- Org. Charts
- Work sampling
- Value chain Design

Technical
- Site Survey
- IT Infrastructure/system maps
- IT portfolio
- Wireless Network
2.1.2 Methodology & Tools

*Data gathering (…) Map your processes using standardized process Modeling Methods*

Using basic business process/flow modeling tools & standards (ANSI, EPDC)

2.1.3 Methodology

*Methods & tools for data analysis & Sol. Development*

1. Problem definition
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and ROI Analysis
5. Implementation

- Value chain analysis
- Business process analysis (BPA)
- Use case & requirements definition
- Computer simulation
- Problem Analysis (SPC Tools)
- Labor productivity
- Laboratory experiments/ Pilot


Academia RFID
2.1 Methodology & Tools

Methods & tools for data analysis & Sol. Development: an example

2.1 Methodology & Tools

Methods & tools for data analysis & Sol. Development Product Value chain analysis

- Type of tags?
- Type of readers/
- Type of data transfer
- Etc.

Customize it according to you specific Product value chain...

Your product value chain (For warehousing)

Source: Ygal Bendavid, Academia RFID 2011
2.1.4 Methodology

Methods & tools for ROI analysis

1. Problem definition
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and ROI Analysis
5. Implementation

- Decision Tree
- Business Process Performance/Analysis (BPA)
- Balance scorecards (BSCD)
- SCM frameworks (e.g. Supply chain council - SCOR)
- Infrastructure cost analysis
- Lab. scenario design and testing (trade off)
- RFID system decision matrix

More details on: “Building Your RFID Business Case”


2.1.5 Methodology

Methods & tools for implementation

1. Problem definition
2. Data gathering
3. Data analysis and Solution Development
4. Cost Impacts and ROI Analysis
5. Implementation

- IT Project management guidelines & methodologies (e.g. PMBOK, APMBOK)
- New Product development (e.g. stage gate model)
- ERP/IOS implementation methodologies (BPR)
- Laboratory experiments
- Pilot project
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3 Select the appropriate RFID technology

**Some Basic Questions**

- Which products? Level of tagging?
- What activities? Processes?
- What functionalities? Need to rewrite? Security?
- Which capabilities required for the tags/readers?
- With who to share the info? Why?
- Where will items be identified?
- How Much products (tags) at a time?
- What is the reading/writing distance? where?
- What is the speed?
- Will the be process automated?
  - etc
3 Select the appropriate RFID technology

**A classification**

- Source of energy & frequency…

- Passive
- Active
- Semi Passive

3 Select the appropriate RFID technology for your specific case?

- The technology will support your case – **Requirement management**
  - Passive RFID (LF, HF, UHF)
  - Active RFID (proprietary 433Mhz, UWB, RFID/IR, RFID/WIFI)
  - Active RFID with sensors
  - Semi Passive RFID (BAP)
  - Hybrid solutions