

# The 5 Elements of a Successful RFID Implementation

What you need to know to get started and stay on track with your RFID project

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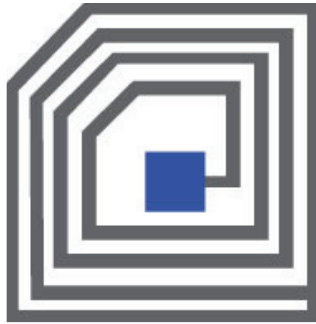
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You need to deploy an RFID system, but don't understand the key risk factors affecting your project. What should you prioritize? How should you choose a partner? How can you evaluate RFID vendors effectively? What activities will determine the project's timeline?

You are not alone. The RFID landscape can be confusing. With RFID middleware and hardware vendors claiming they can do it all and with traditional systems integrators angling to get some experience with the technology, the claims are often conflicting and difficult to verify. To navigate a successful RFID implementation you need to understand the key hazards: objectives, physics, process, systems and interdependencies. End users looking to adopt RFID today have a big advantage over their predecessors because the technology, software and know-how are improving. Follow these best practices to reduce project risk and ensure a successful implementation.



## 1. Establish clear objectives

First and foremost you should tackle your RFID project based on a clear set of objectives. Whether you are complying with a retailer mandate or deploying RFID to meet asset tracking needs you must define your desired outcomes. This creates a framework for your decision making. Trade off decisions will certainly arise in your process design, software selection, RFID hardware and solution scope. A clear set of objectives helps keep your team focused on what is most important and separate "must have" from "nice to have" scope elements.

## 2. Get the physics right

The first point of success and therefore the first point of failure in any RFID system is tag and reader communication. If the reader cannot communicate

with the tag, your RFID system will not work properly no matter how elegant your software and processes. Tags must be able to successfully transmit data to the readers for the RFID solution to work properly. However, the effectiveness of tag/reader communication is governed by RF physics. While most implementers will employ trial and error by waving a tag and asking "can you see it now," this invariably leads to poorly performing systems.

You should employ a scientific approach to tag selection and reader optimization in order to maximize your read performance over time. Utilize a lab with FCC licensing and extensive RFID testing and field implementation experience to ensure proper equipment selection and deployment specifications.

## 3. Get the process right

If anyone suggests that you can implement an RFID solution without modifying your processes, you can be sure they are not experienced implementers. If you are not tagging product today, then you surely need to add processes to apply and verify tags and most likely to track movement of goods or assets.

You should first base your process design on meeting your business objectives. The next step is to modify the new processes where appropriate to increase your read performance. Yes. Process can help improve your read performance. It is one of the variables you have at your disposal to ensure your RFID system can meet your objectives. You may also want to adjust your process to account for constraints of your RFID middleware to reduce implementation, time, complexity and cost. RFID technology ultimately should support your business objectives and processes and not the other way around.

## 4. Get the systems right

Users need to interoperate with your RFID software. Devices and enterprise systems need to integrate with your RFID software. The biggest delay in most RFID implementations can be attributed

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to RFID software configuration and integration. Once you have determined your hardware needs and configuration specifications your RFID infrastructure should not be a bottleneck as long as you employ an experienced implementation team. However, from a systems standpoint, every RFID implementation is somewhat unique. RFID middleware also happens to be the least mature component of any RFID solution stack.

End users should take great care designing their RFID systems architecture and selecting RFID middleware. No one RFID middleware vendor can meet all client needs well, so trade offs are an inevitable part of finding a good fit for your needs. As a testament to the variability of end user requirements, Quake Global has worked on RFID implementations with six different RFID middleware solutions, none of which could have worked well across all of the solutions. It is worth extra time to make sure that the RFID middleware you choose can meet your platform, workflow, rules, user interface, device support, data management and integration requirements.

## 5. Get the interdependencies right

For an RFID solution to work properly, the physics, process and systems need to work in concert. As mentioned above, process can be adjusted to improve read rates and systems should be selected with a clear understanding of process and device support requirements. These are just a few of the interdependencies.

Another area to pay close attention to is the coordination of the physical installation. RFID systems tend to have complex bills of material for installation and requirements for power and network drops in addition to the software installation and training. You need to tightly coordinate the procurement and component delivery process with the site preparation work in order to ensure a smooth implementation and testing experience.

Many end users have struggled through the actual deployment and testing process because

a single item is missing which causes a delay in the implementation timeline. A best practice is to have a single organization oversee the entire implementation process so the installation and testing can go smoothly. For someone to understand all of the variables that can impact your deployment process you also need to work with someone experienced in multiple RFID designs and deployments and knowledgeable in RF physics, RFID middleware and processes.

## Conclusion

RFID projects are complex. A typical enterprise software implementation must coordinate processes, applications and people. A typical RFID implementation includes those elements and adds a physical device layer, a sophisticated wireless communication network governed by RF physics, and impacts to physical facilities and material flows. However, by leveraging experienced partners and understanding the five key elements of a successful RFID program, you can establish a sound foundation for a successful RFID implementation.

