

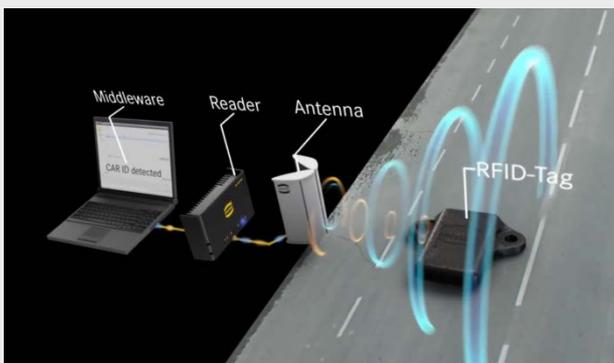
Doing RFID right: Avoiding 12 common missteps

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Adopting RFID asset-tracking for the first time involves more than just slapping tags on traceable materials. It requires research, expert support and a well-thought-out plan.

The Dirty Dozen

RFID can provide a huge boost to a company's productivity and reliability. It can generate valuable real-time data that help it avoid product and equipment shortages, assure customers reliable, on-time delivery or service, track parts inventory, provide maintenance history in the field and much, much more. But like any technology, those embracing it for the first time should know why they are doing it and how it can improve their business, not just what it costs. When implemented properly, with realistic goals and the right technology, RFID pays for itself quickly, again and again. Doing it right means recognizing and avoiding some critical mistakes – common ones – that can leave a new adopter regretting the initial RFID investment and leery of spending more. These are what I call the Dirty Dozen – 12 mistakes that can make an RFID investment go bad and how to avoid them.



A complete RFID package includes tags, antenna, a reader or readers and a middleware package and/or software suite

1. RFID isn't for everyone

RFID has come a long way. It's the right step forward for many businesses. But not all. Some may see it as must-have technology, without having a firm grip on how it would improve their business. Perhaps a competitor is using it. Or they like being early adopters. That's well and good, but not enough to justify an initial RFID investment. Step 1 in making a good RFID investment is knowing why it's right for you. How would you use the intelligence the data provides? Are you ready to change your operations, even if that costs money, too? Might another technology do just as well for now, with less cost and complexity? For example, do you do any electronic asset tracking now? Do you use barcoding, and if so, how well has it been working for you? Is it now falling short? These are all good questions to ask yourself to avoid making a poor RFID investment.

2. Pain point not clearly defined

It's fine to have general goals of improvement. Every manager wants to optimize his or her company's operational efficiency and asset management. However, when considering a RFID system, some first time adopters go in without an understanding of what they are trying to accomplish and end up buying too much or too little RFID. What pain points do you want to address? Are you losing, or misrouting, too many assets? Is it hard to find inventory in your plant or warehouse? Have you incurred costs, or faced unscheduled downtime, because the incorrect tool was inserted into a machine, damaging one or the other? Whatever specific pain you are experiencing should be analyzed, quantified and given a dollar cost value. You should be able to estimate the theoretical savings and later benchmark actual savings achieved by adopting RFID.

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3. ROI estimate is inaccurate or incomplete

Now that you have an accurate picture of how much your pain points are costing you, estimating the ROI and time frame for achieving it should be straightforward. Should be, but not always. Hardware is sexy. Software is not. Focusing on hardware alone can lead to seriously underestimating how long it will take to recover an RFID investment. A complete RFID system is a capital investment. The majority of the investment is the software and integration portions, not the hardware. An accurate ROI calculation will take all costs into consideration, including training and potential operational changes to make good use of the data. Once all of this has been taken into consideration it may become a CFO capital investment decision. In most cases it will not be a major investment and the ROI will be fully captured in less than 18 months. Don't let a single outside party do the ROI for you. Do it yourself or even better, have multiple parties provide an estimate. That way, you can be sure all angles have been considered and a consensus ROI figure emerges.

4. Not understanding what the technology can do

Some new adopters are confused about RFID's capabilities. They often have a pre-conceived idea that their inventory, tooling, or shipping containers can have a smart label slapped on them and will be traceably automatically at all times. That's not true. A successful RFID system requires many properly matched and integrated hardware and software components. Do some research about the technology. Ask lots of questions of people selling RFID. The time to understand what the technology can and can't do is before you sign the purchase order.

5. Not involving the IT Department

Also, don't wait until the last minute to bring your IT Department into the RFID discussions. Their involvement is critically important. RFID, after all, is all about data. The data has to get through their system and come out in a

useful format. This is IT's turf and the importance of their buy-in to the process, system, and output cannot be understated. Respect the maxim regarding RFID projects: 'It's not serious until IT is involved'.

6. Not considering the correct frequency RFID

Now, let's get a little more technical. The choice of frequencies refers to the size of the radio waves passing between RFID components. The wrong choice may add cost or introduce inefficiency. Passive ultra high frequency (UHF) technology is the most versatile choice now, capable of covering a broader read range – and hence supporting more applications – than ever. Where historically high frequency (HF) technology was used for short distance read ranges, the same results now can be successfully obtained using UHF technology. Today's smaller UHF antennas and passive UHF tags can provide excellent short read ranges, down to inches, or long read ranges, even beyond 50 feet. This can make passive UHF an attractive alternative to either HF or active UHF.

7. Active or Passive RFID? You can go wrong

With active RFID systems, there are a couple of potential pitfalls to keep in mind. First is the expected life of the batteries in the transponders (tags). In your proposed application, will it be practical to change the batteries when they need replacing? More often than not, it's simpler to change the tags. This is an expense, both for new tags and the labor time to do the job. Also, your Wi-Fi system you may not be able to cope with active tags. Such an RFID system may overpower an existing Wi-Fi network, leaving both systems battling for bandwidth. When it comes to active RFID, consider whether you would be better off upgrading your Wi-Fi, too.

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8. Not all tags are robust enough for their environment?

Finding the right tag is critically important to the success of your RFID project. Yet, some adopters fail to make sure their tags are tough enough to face all operating and environmental conditions to which they will be subjected. The wrong tag will not only jeopardize the success of the project but could provide a false impression about the overall effectiveness of the technology. Consider the operating environment, and find tags tough enough for it. Will they be exposed to harsh temperatures, a lot of water or high humidity? Will the tags need to operate on metal or in a metal-heavy environment? Or are they destined for non-conductive surfaces? What read range is needed? Is extended memory needed? Among the many options for tags today you will find solutions to any application-specific requirements!

9. In choosing hardware, there is such as thing as too little or too much

Failing to choose the correct antenna and reader is another common misstep. The size and strength of the antenna should be considered to make sure it will align with the read range needed. Select an antenna which allows you to read all of the tags desired and not more or less. Standard patch antennas are the norm but there are new technologies on the market which can be ideal for tougher applications like server racks, doorways, and smart shelves. Readers come in many different configurations as well and can be selected to fit your application. Options include the number of antenna ports, power levels, antenna range, and more. Larger, extended range readers have many features to cover most applications, with all the bells and whistles. For some new RFID adopters, buying such readers may seem like future-proofing. However, the technology is getting better all the time, and businesses might be perfectly well-served starting with a smaller, short range reader. As they say, there is no need to bring a bazooka when a fly swatter will do the job.



HARTING's Ha-VIS LocField traveling wave UHF antenna shows how new technology is expanding the reading zones and hence the flexibility of RFID in specific applications, like those involving doors and pass-through or small shelves.

10. Making the wrong software decision

There are very good options available for RFID software. Choose carefully, because the wrong choice can be limiting, or at the other extreme, overload users. Configurable middleware packages offer an easy-to-use bridge from the reader to your core IT system. Many expert RFID integrators can supply excellent middleware and software packages. Also, there are options for application-specific software for handheld readers. This can be important for users in the field. A system will be even more efficient when that user doesn't have to think about how to manage the data; the application software does it for them. Such a system will be easier to master, and foolproof.

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11. Not using an expert integrator

Maybe this should be the first on our must-not-do list, but let's assume you've taken the trouble to do all of the internal assessments of needs and learned the RFID basics. That makes you an informed first-adopter. However, putting together RFID hardware and software to create a properly functioning system is a systematic process involving many sequential steps. Often companies try to install RFID themselves only to have it fall short of expectations because of poor implementation. Then the technology gets blamed. The burden of implementing RFID is going to fall on your IT department. So ask yourself this, and be honest: 'Are we up to doing the job ourselves?' In almost all cases, the answer is no. The solution is to outsource RFID integration. An expert integrator can analyze the application, optimize the hardware, provide the appropriate software, implement and maintain the system, even train staff. Such an integrator will bring you efficiency and results that exceed your expectations.

12. Not doing a Proof of Concept (POC)

Last but not least, don't go too far too fast. Take a phased approach to your RFID implementation. Start with a small manageable portion of the project. Perform thorough testing at each stage of the implementation. Let the system run for a while so you can identify any need for adjustments. And be flexible. The reader or antenna that seemed like the best choice prior to getting under way may need to be changed. Before relying on your RFID network, satisfy yourself that everything is functioning as it should by doing a Proof of Concept. The POC will help ensure everything fits together in practice like it did on paper.

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