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7 Pitfalls that Can Kill Your IoT Project

AND HOW TO AVOID THEM

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Investing in your project success

IoT can provide tremendous value and utility for small businesses and enterprises alike - especially when it's combined with big data analytics, artificial intelligence, cloud computing and other disruptive technologies.

It enables business leaders to make informed data-driven decisions, allows them to predict maintenance issues before crises occur and provides them with a platform to track their assets in real time.

With approximately 88% of companies believing IoT is critical to their success, the Internet of Things represents the new era of operations in business, and is the gateway to compete in today's fast-moving market.

However, nearly one-third of IoT projects fail in the proof-of-concept stage — far before businesses can take advantage of its insights.

Despite the clear benefits, many businesses are struggling to take their IoT projects from plans to reality, investing hundreds of thousands of dollars to build products and services that ultimately fail.

That's why it's essential to form a strategic plan before jumping into an IoT project — one that anticipates these potential roadblocks before they occur and provides the solutions that can keep your project growing.

Here are seven of the most common pitfalls that keep IoT projects from succeeding, and three key tips on how to avoid them:

PITFALL #1

IoT Security Vulnerabilites

Whenever data enters the picture, chances are that security will be a leading concern. IoT projects are no different, with 97 percent of professionals believing a data breach or cyber-attack on their IoT devices would prove to be “catastrophic.”

The introduction of hundreds (or in some cases thousands) of IoT-connected devices to a network greatly increases the potential attack surface, adding vulnerabilities that weren’t present before. Without the proper defenses, hackers can use these IoT devices as doorways to enter your network, where they can introduce malware, carry out ransomware attacks, or access personal information.

As a result, IoT security must become a priority in the design stage for both your devices and your network, rather than an afterthought.

Since the IoT market is still relatively new, many device and module manufacturers have yet to adopt strong security features in their designs, making it crucial that you choose the best IoT hardware for your project.

Basic security features such as IoT device encryption and authentication are essential, but on their own, they might be insufficient to guard against external threats.

IoT network management is another essential component of IoT security, as it enables businesses to remotely monitor and access each IoT device on their network.

Achieving full network visibility may seem challenging — especially for global IoT projects — but it doesn’t have to be if you choose the perfect IoT partner for the job.

PITFALL #2

Lack of IoT Technical Expertise

According to a 2017 report, 75 percent of IoT projects fail due to a lack of technical expertise. This is often caused by failing to acquire the personnel or partners to help support your IoT project.

Without an understanding of the IoT network and all of its components, your IoT project could fall victim to incorrect estimates on time to market, device cost, maintenance requirements, security protocols and more.

Also, when businesses launch IoT projects without appropriate plans and projections, they often end up with siloed data that's difficult to leverage for insights. This limits the value that your IoT project can provide to potential consumers while preventing you from optimizing your operations around the collected data.

For instance, failing to understand what type of IoT cellular connectivity would best serve an wide-range IoT project such as a vineyard can result in poor quality of service and very disgruntled clients.

Instead, IoT businesses must assemble a team of specialized experts in a variety of areas including software, hardware, cloud, connectivity, and cybersecurity. Ideally, they'll also bring in a partner with proven experience in IoT deployments to ensure they stay on the right track.

By arming themselves with the technical support that they need, IoT projects can have the confidence and know-how to deal with any problems as they occur.

PITFALL #3

IoT Connectivity Issues

With the prevalence of WiFi in our everyday lives, business leaders often assume that IoT devices can be connected effortlessly and without any additional value. However, this is a misunderstanding that can cost your IoT project dearly.

IoT devices might be placed in isolated areas that are far from Wi-Fi routers such as agricultural IoT sensors scattered across thousands of acres of cultivated land.

Or, they may be IoT sensors attached to mobile assets such as cargo ships or transport trucks that need continuous IoT connectivity as they travel so they can be tracked in real time; something that cannot be easily provided by WiFi.

A recent survey of businesses showed that IoT connectivity is their biggest challenge when deploying an IoT project.

The best way to ensure that your IoT project is being powered by the correct IoT connectivity for your specific is to understand the needs of your devices and deployment.

For instance, IoT projects that are underground or in other hard-to-reach locations need IoT hardware and connectivity that can penetrate through concrete and other materials.

Similarly, IoT devices that are transmitting small amounts of data should choose a low-power low-data IoT connectivity such as LTE CAT M1 so that they can save on battery life.

PITFALL #4

IoT Integration Problems

Connecting and managing thousands of endpoints on a single IoT network presents another unique challenge for IoT businesses. Integration platforms that are not specially designed for IoT may not be used to the number of devices that IoT projects can scale to, and therefore only support a set number of end points.

Plus, these platforms likely lack the functionalities that IoT projects require to optimize their operations such as remote access, device monitoring, encryption offloading and more.

Lacking the correct integrations can cause IoT businesses to manually do the work that they could have automated, wasting time and money that could be better spent elsewhere.

By finding a way to predict integration challenges and choosing the correct software and hardware partners for your IoT project, you can quickly move forward with production and deployment without a hitch.

PITFALL #5

IoT Long-term Vision Commitment

One of the major pitfalls that affects IoT businesses is the belief that the project will reach a point where it can be left alone to operate fully without any tweaks or adjustments.

Each IoT project is an ongoing commitment that can change depending on evolving hardware and software, new client demands, market opportunities and more.

This could involve adding more IoT devices to the network, extending support and coverage to another country, finding new ways to harvest and analyze data and even investing in more high-performance IoT security as you scale to protect your network.

Understanding that IoT projects need to be nurtured indefinitely as they grow can foster growth and success by ensuring that the correct personnel and funding is allocated.

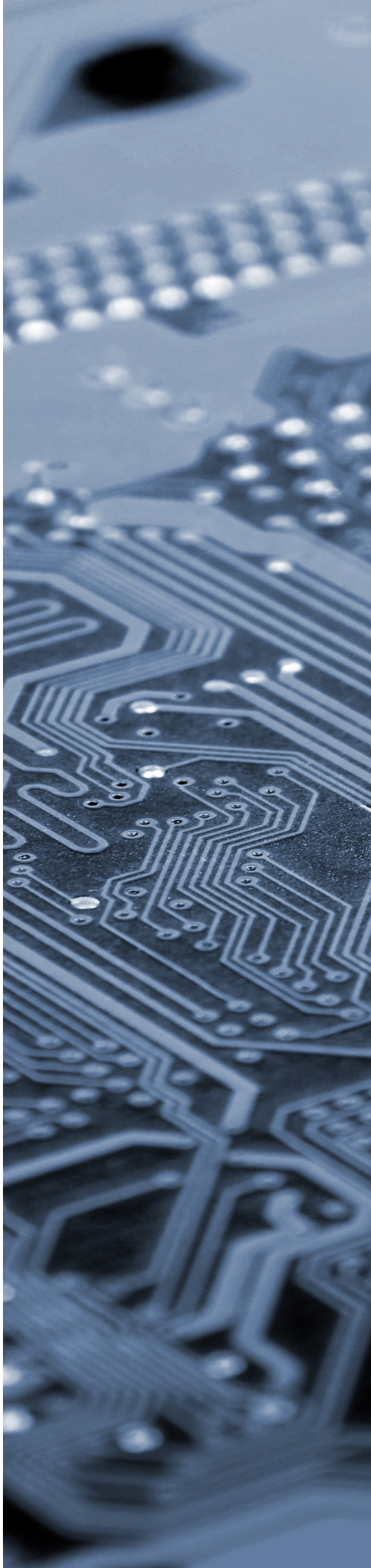
PITFALL #6

Low IoT Data Quality

It might be tempting to buy a large number of inexpensive IoT sensors and depend on a team of analysts to work their magic on the data. However, even the sharpest data scientists can't do anything with data that's sub-par due to cheap hardware. To ensure they're collecting high-quality data from the outset, IoT businesses must do preliminary research and invest in good hardware.

But even with high-quality sensors in place, the process of data aggregation must be standardized to ensure the most accurate analysis. If data is siloed, it's difficult to achieve the big-picture view that IoT promises to deliver.

Luckily, there's a variety of different IoT hardware choices that can provide you with the reliability, functionality and support that you need to maximize the value of your data.



PITFALL #7

Improper IoT Data and Protocol Management

It's easy to ship thousands of IoT devices to the field for deployment but it's much harder to build a plan for how they will be managed, provisioned and maintained from any location.

This is particularly important for IoT devices that are set in hard-to-reach locations or even other countries, as it can be difficult to travel to switch batteries or check-up on your project.

In addition, failing to realize that a handful of IoT devices aren't collecting data could have a long-lasting impact on the overall performance of your IoT project, resulting in sub-par results and wasted resources.

As a result, it's important that businesses have IoT data and protocol management software that can allow them to remotely monitor and access their IoT devices in real time from anywhere.

That way, they can stop and start their IoT devices instantaneously and receive alerts when certain devices are performing irregularly.

3 Ways to Ensure a Successful IoT Deployment

The roadblocks to successful IoT projects are varied and complex. Most result from lack of foresight—for example, neglecting to build security features into end devices, resulting in unnecessary vulnerabilities or other unanticipated complications that result in unexpected time and money spent adjusting.

However, some are from a lack of technical understanding both internally and externally, leaving IoT projects vulnerable to any problems down the road that can derail their operations.

Here are three practical steps you can take to get your IoT project off to a solid start:

1

Set Business Metrics

Before you aim at bringing your IoT project to market, you should take a close look at your objectives. What are your priorities? How will the IoT project advance your bottom line?

If you are an IoT device manufacturer, improving your operational efficiency (OE) rate might be your goal. However, if you're a telehealth company, your objectives might be around improving patient outcomes or boosting customer satisfaction.

Whatever your goals, be sure to quantify them so you can build your IoT solution with clear objectives in mind. That way, there will be no unnecessary straying from your goals, allowing you to focus strictly on the growth of your IoT business.

2

Research Pre-built Services

These days, there are plenty of pre-built IoT solutions to choose from. Many companies that build SIM cards and connectivity modules also offer IoT platforms—cloud-based management software that allows you to remotely monitor your IoT devices and data in real time. Vetting IoT platforms and hardware can be tricky, so start by looking for providers that work with companies in your sector. Alternatively, you can speak with colleagues at other organizations to hear what's worked for them.

3

Consult an Experienced IoT Partner

Once you identify project goals and have a service provider in mind, take time to consult with an IoT partner that has a history of projects in your sector.

With their industry experience, they will likely have insights into the specific issues you face or know someone that does.

To start, here are a few questions to ask that are worth asking.

- Which IoT connectivity option (LTE-M, CAT M1, NB-IoT, LPWAN, etc.) makes the most sense for my deployment?
- What IoT data plan is best (pay as you go versus large-scale data plan) based on the number of IoT devices in my deployment and the amount of data that will be transmitted?
- Is an embedded module (eSIM) or traditional SIM better for my IoT devices?
- What steps can I take to ensure the IoT security and visibility of all the devices on the network?
- Which platform will best support my IoT device deployment? Will it be able to accommodate an increase in the number of endpoints as I scale over time?
- How can I ensure that my IoT project yields the highest possible data quality for analytics?

Ultimately, your project is as strong as the team behind it. Bringing an experienced IoT partner like Soracom on board can go a long way toward ensuring success.

Since 2015, we've worked with developers around the world, from startups to global enterprises, to bring IoT projects from prototype to full worldwide deployment. Today, we serve 10,000 customers worldwide, and we've learned a lot along the way.

About Soracom

Soracom is a global provider of smart IoT connectivity, offering cloud-native wireless service designed specifically for the needs of connected devices.

Founded in 2015 to create a more connected world by removing the barriers to IoT development, Soracom now serves over 15,000 customers across all industries, from agriculture, energy, construction and transportation to consumer electronics, manufacturing, real estate and healthcare.

From global enterprises to fast-growing start-ups, customers trust Soracom for affordable, reliable connectivity that accelerates speed to market and makes it easy to connect to the cloud. Soracom is an AWS IoT Competency Partner.

Learn more about our intelligent IoT connectivity platform and cloud-based services at www.soracom.io.

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