Building your Business Case for the Industrial Internet of Things

by Jordan Reynolds

You've seen demonstrations, read whitepapers, lived and breathed the hype, and now you're overwhelmed with a sense of urgency and wondering how to even get started with the Industrial Internet of Things (IIoT). You're right to feel perplexed. For all the alluring promises, there remains a troubling lack of testimonials, leading practices, or general consensus on where and how to approach these opportunities.

Industrial business leaders should take a structured three-part approach to evaluating their IIoT investments. These methods will ensure your organization picks the right investments, fully understands their true potential and can defend them from the scrutiny they're certain to be subjected to.

Explore the Art of the Possible

Evaluating investment areas like the Industrial Internet of Things is often a balancing act between recognizing current business needs and envisioning new possibilities. To complicate the matter, IoT technologies and standards are in flux. Obsolescence, new developments and redefinition create uncertainty about the right entry point and a reliable path forward.

It is these ambiguities that underpin the phrase "the art of the possible." Just as an artist bears the burden of reconciling something new with something desired, progressive business leaders are called to explore and pursue important new opportunities in line with their organization's strategic objectives.

To identify and evaluate new opportunities, we recommend starting with an approach organized around asking and answering key questions to stimulate critical thinking, draw out ideas and identify underlying presumptions. Industrial firms should consider a formal **opportunity assessment initiative** to answer these questions, and map the resulting decisions to enabling capabilities.

Start first by identifying immediate needs. While the questions to be answered vary across organization and industry, start with the basics.

- *How do we define digital within the context of our own industry?*
- *How are digital capabilities changing our industry?*
- *How are our customer expectations evolving within a connected world?*
- *Where do we want to play, and how should we stand against our competitors?*
- *What do we need to do differently and what will it take to succeed?*

Compare your answers to these questions to an evaluation of the possibilities. *"What can we do now that we couldn't do before, given advancements in digital technology and changing user behavior?"*

As an input to your ideation activities, you may consider how other industrial firms have met their strategic goals with IIoT capabilities, including:

- **Proactive decision making** – e.g., Using predictive analytics and machine learning to proactively identify leading indicators of problems in production and in the field
- **Blended digital & physical experiences** – e.g., Deploying advanced visualization techniques to field service agents to increase the speed and accuracy of repair operations
- **Enhanced situational awareness** - e.g., Identifying bottlenecked systems and issues in real-time alerts that allow management teams to respond immediately
- **Real-time automation** - e.g., Building industrial systems that can act autonomously, and make decisions with minimal human intervention
- **Digital integrations that cross over traditional boundaries** – e.g., Gaining insights from customer usage to influence requirements and design features

Working backwards from the possibilities to your evaluation of immediate needs, are there any clear and notable intersections? These may be the areas where you should focus your remaining efforts.

Form a Value Hypothesis

The desired output of an effective opportunity assessment is a set of targeted value drivers ready to be strengthened through an investment justification process. We recommend a **business case development phase** to comprehensively outline, communicate and gain alignment on

your ideas.

Your business case should be constructed as a set of measurable hypotheses, each with its own underlying assumptions to be validated, including quantitative and qualitative business impact. These hypotheses should address the chain of causation from technology, process and organizational changes implemented, upward to key operational targets for the business, and further on to top-tier strategic and financial goals.

Consider this example of an industrial machinery company evaluating an investment in predictive analytics capabilities:

"If we invest in a machine learning technology platform, we can use our telematics data to develop a predictive analytics capability. This will help us programmatically identify leading indicators of machine failure weeks before incidents occur, and procure replacement components early enough to reduce total asset downtime from three days to one day.

This could improve perceived quality of our products allowing us to sustain competitive advantage. It will also drive substantial financial returns. Two days of downtime reduction per asset translates to $2.5M in incremental annual cash flow. With an initial capital investment of $5 million, the investment yields $2.65M in net present value and a 35% internal rate of return (IRR) - 20 percentage points above our internal cost of capital."

Perhaps the most important components of the business case are the technological, organizational and market *assumptions* that you implicitly acknowledge throughout the value hypothesis. Particularly with emerging technology investments like IoT, an effective business case is one in which assumptions are diligently identified, documented and detailed with practical validation steps.

Inquire with Strategic Experiments

All too often, firms hastily move from the business case to a full capital appropriation and program implementation. While adding some incremental cost, strategic experiments geared to validate your value hypothesis are an effective way to mitigate risk and unlock previously unforeseen requirements.

A leading practice for IIoT investments is to sponsor one or more **proof of value** activities to reliably confirm the viability of your idea. Working from the hypothesis and assumptions outlined in your business case, build a plan and a focused team to examine areas of technical risk and business uncertainty.

Proof of Value activities often take the form of working product prototypes, theoretical models, consultations, subject matter research, and interviews with customers and business partners. Aside from the obvious risk mitigation benefits, they offer a stop-loss opportunity to start small and fail fast if it's determined that the idea is not viable or not ideal at the current time. They also lay much of the technical groundwork for the implementation phase that follows.

The best Proof of Value engagements also set out to identify scalability concerns that should capture attention early in the implementation.

- Can we organize our value chain such that our product or service can be manufactured and distributed at scale?
- Can we scale to the volume of data and bandwidth required to support production?
- Will the market bear the volume of products or services we forecast to secure profitability and growth?

A well-executed business case can help you make informed decisions and envision a clear picture of how an IIoT investment can generate incremental revenue and profitability. Aside from these analytical benefits, it's true value is the experience of ideation, hypothesis formation and validation that helps drive alignment and enthusiasm across your organization for an exciting new idea.

With a structured approach that incorporates leading practices, you can ensure that your business case for IIoT is the motivating experience you had hoped for, rather than the aimless misadventure you had feared.

Originally published on June 6th, 2016

What's your view? Add your question or comment

About the Author

Jordan Reynolds

jordan.reynolds@kalypso.com

Jordan is a data scientist, management consultant and leading expert in digital transformation, bringing over a decade of experience helping clients drive results from disruptive business models and emerging technology trends like the Internet of Things (IoT), big data, machine learning and artificial intelligence (AI).