



Building the Return on Investment Case for the Internet of Things

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Successful IoT Business Cases Are Holistic

Challenges in effectively demonstrating return on investment (ROI) are the leading reason why 42% of Canadian firms have not yet adopted Internet of Things (IoT) solutions, according to IDC Canada's research.

To build successful IoT business cases, organizations need to adopt a holistic approach to assessing the ROI of IoT deployments.

This report provides guidance on how to build a holistic ROI case for IoT by following these six steps:

1. Accurately measuring the cost of current processes to ensure a fair comparison
2. Quantifying productivity benefits based on use case
3. Identifying cross-functional benefits
4. Quantifying indirect benefits such as improved decision making and enhanced customer experience
5. Considering new revenue opportunities such as monetizing new data streams
6. Examining the opportunity cost of not innovating

Six Steps to a Better IoT Business Case

1. Estimating the Current Costs for Your Processes

Assessing the direct costs of new technologies and business processes is easier and more visible than measuring the actual cost of continuing to do what your organization has always done in the past. That can make building a persuasive business case more difficult. Ensure your firm is accurately assessing the cost of existing solutions across the following factors:

- **Capital and operating costs.** Assess the capital and operating costs of all assets such as vehicles and equipment required for the current process.
- **Technology support costs.** This needs to include datacentre, network, and connectivity fees, initial and ongoing hardware investments, software licenses, and maintenance fees. If custom or open source applications are required, include the incremental effort by your IT staff and external contractors to maintain the software (updates, patches, and other fixes).

- **Process staffing costs.** The fully loaded costs of existing processes need to include more than just salaries. Staff overtime bills, benefits, workplace insurance claims, etc. need to be taken into account. Processes may well rely on other departments like finance, customer service, IT support, legal, and other domains. Accounting for staff effort across the entire organization is critical to accurately measuring the cost of an existing process.
- **Benchmarking current performance levels.** It is important to quantify the actual operational metrics of the existing process in order to contrast against the expected performance of the proposed replacement. This may involve costing on a “per transaction” or “per customer” basis instead of complete cost.



Including all these components in the calculation of the current process cost ensures a fair comparison with the cost of a new IoT solution.

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2. Quantify Productivity Gains

IoT solutions have a range of benefits including reduced downtime, optimized inventory levels, increased workforce productivity, energy savings, and improved compliance reporting. Quantifying these benefits varies by IoT use case. A few examples of how to value these benefits are:

- **Predictive maintenance.** Predictive maintenance, in contrast to calendar or usage-driven maintenance, reduces equipment failures and diminishes downtime resulting in substantial savings:
 - » US Department of Energy experts report that IoT adopters could see 12% savings on scheduled repairs, 30% on reduced maintenance costs, and 70% through having fewer breakdowns.
 - » Elevator manufacturer ThyssenKrupp uses networked sensors for its predictive maintenance system to reduce downtime and unnecessary trips by service personnel for elevator repairs.

Harvard Business School research indicates that **31%** of consumers facing stock-outs go to another store to purchase the item, **15%** delay their purchase, and **9%** end up not even buying the item at all. Abandoned purchases due to stock-outs account for sales losses of about **4%** for the average retailer.

- **Inventory management.** IoT enhanced inventory management and warehousing solutions help ensure that products or parts are not “out of stock,” protecting retailers from lost sales and manufacturers from production delays.
- **Telemetry route optimization.** UPS deployed its On-Road Integrated Optimization and Navigation (ORION) solution and reduced drivers’ routes by an average of four miles a day. The firm also expects to reduce its fuel usage by more than 37 million litres and drop CO2 emissions by 100,000 metric tons when the rollout is complete. Quantified benefits for this solution included productivity gains, fuel minimization, equipment longevity savings, and regulatory compliance.

IoT providers can help your organization more easily quantify productivity gains by identifying all solution benefits, providing relevant case studies, and supporting the launch of a proof of concept.

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3. Include Cross-Functional Benefits

Organizations often operate with deep departmental silos. These divides can have dramatic impacts on how firms calculate ROI. IDC finds that many IoT business cases overlook cross-functional benefits that accrue to other parts of the organization because they are perceived to be external to the P&L of the funding department.

For example, many cities are investing in storm water monitoring to mitigate the rising costs of flood damage. The cost of preventative systems is typically borne by the water divisions of public works departments, yet the savings and benefits extend far beyond one department. Road maintenance, sewage, and even legal departments benefit from reduced repair costs and insurance claims resulting from fewer floods. The benefit to all impacted departments should be included in the IoT business case.

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4. Value Qualitative Benefits

It can be difficult to quantify the non-monetary benefits of IoT. IDC suggests organizations categorize these enhancements into three areas: decision making, customer service, and experience.

Improved decision making through analyzing data in greater volumes at more frequent intervals in more depth.

- The Artemis project uses streaming analytics to examine real-time data from respiratory rates, heart rates, blood pressure, and oxygen saturation to detect the onset of neo-natal sepsis before symptoms become evident to clinicians using manual monitoring.

Improved customer service levels due to faster response time and/or the tracking of behaviours.

- Geofencing apps enable retailers like Hudson's Bay to offer personalized coupons and incentives to nearby patrons. Starbucks' "Mobile Order & Pay" app enables customers to preorder from their phone and simply pick up their order in store, saving the customer time and reducing the frustration of waiting in the store.

- IoT lets retailers offer applications with “in-store” features using geofencing and beacons to help customers find products more easily while taking advantage of real-time, in-store, and client-specific offers.

Ability to delight citizens and customers with new services.

- Connectivity can turn street lights, signs, or garbage bins into something residents appreciate. Street advertising vendors Bell Media Out of Home and Alphabet’s Sidewalk Labs now offer free WiFi to passersby. Thanks to connected sensors in BigBelly’s trash cans, overflowing garbage bins could be a thing of the past.
- Some Tesla owners increased their cars’ ability to accelerate using an over-the-air software upgrade. The ability to “push” product upgrades to vehicles is a differentiator that has thrilled Tesla owners.

Organizations should identify the non-monetary benefits that result from IoT deployments in their business case. They should also try to translate outcomes such as lives saved and enhanced customer experience and loyalty into credible monetary figures that can be incorporated in the ROI calculation.

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5. Quantify New Revenue Opportunities

IoT is empowering Canadian businesses to offer services and products that wouldn't be possible without connectivity.

IoT allows organizations to create new products.

- Insurance firms are using IoT solutions such as telemetry to launch new plans that entice new customers, reward good drivers, and should reduce auto claims to drive increased profitability.

IoT enables price optimization to increase revenue.

- Wash, a chain of laundry rooms, installed IoT-enabled coin-op washing machines in order to obtain and analyze data on price, usage, and locations. The firm can now fine-tune each store's pricing in real time to maximize profit on a location-by-location, hour-by-hour basis.

IoT generates a lot of data which is increasingly valuable.

- Waste management firms use connected sensors to track the amount of rubbish their industrial composters divert from landfill. They offer this data to their customers who then claim carbon emission improvements under “cap and trade” or carbon tax regimes. This differentiates their products against cheaper dumpster haulers.
- The fitness monitoring app Strava monetized the running and cycling patterns of its free and paid adopters by selling it to cities to improve urban planning for bike lane locations.

IoT data combined with analytics enables firms to move from selling products to selling outcomes.

- John Deere is now selling advice — and not just tractors — to farmers. John Deere amalgamates climate and soil condition data from connected sensors on its farm equipment. The firm then analyzes that information and presents it as precise guidance about optimum seed and fertilizer combinations to its clients — for a fee.

While it is difficult to predict all the ways in which an IoT deployment may benefit the organization, firms should consider any new revenue opportunities and quantify these in the business case. In particular, organizations need to consider the value of the data being created by IoT deployments, and how to combine it with other data sourced inside and outside of the organization in order to monetize it.

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6. Assess the Competitive Opportunity Cost of Inaction

One of the considerations that traditional ROI calculations typically exclude is the competitive factor. IDC suggests that organizations quantify the opportunity cost of inaction by considering and estimating the impact of the following:

- Which of your products are most susceptible to competitors launching connected products and how would a decline in demand impact the organization?
- To what extent would a competitive IoT-enabled offering erode your firm's market share or margins?
- How could IoT entice partners and channels away from your own current and future offerings, reducing your supply or distribution channel?
- Does IoT create an orthogonal competitor such as Airbnb? Airbnb owns no real estate, but is the largest accommodation provider. The supply pool has been vastly broadened, with the market share coming out of the pockets of hotels. Is your industry susceptible to this threat?

Business cases should reflect the potential cost to the organization of a competitor's IoT deployment.

Successful IoT Business Cases Are Holistic

Every IoT use case has unique attributes and the specific physical environment of each organization alters the cost-benefit equation as a result of trade-offs between connectivity, bandwidth, energy consumption, latency, and other factors. Given this complexity, new IoT adopters may want to consider outside advice when calculating ROI models. IoT providers can be good sources of insight on the benefits and impacts of IoT deployments. They can provide assistance with the development of business cases, bring forward relevant customer experiences, and help stand up proofs of concepts that provide tangible results that can be incorporated in your ROI calculation. Additionally, they can provide compelling guidance on product, network, and industry standard road maps that will affect the longevity and total cost of your implementation.

Organizations should adopt a comprehensive approach to identifying the costs and benefits of IoT solutions. While every organization has existing ROI models and metrics, IDC believes that incorporating the six steps outlined in this paper will ensure that your firm has a holistic understanding of both the current and future outlays and gains of your business processes.

To learn more about how to transform your business using IoT, contact a Bell Business Representative now or visit www.bell.ca/loT.