

Optimizing Operations with Connected Devices

White Paper

Abstract

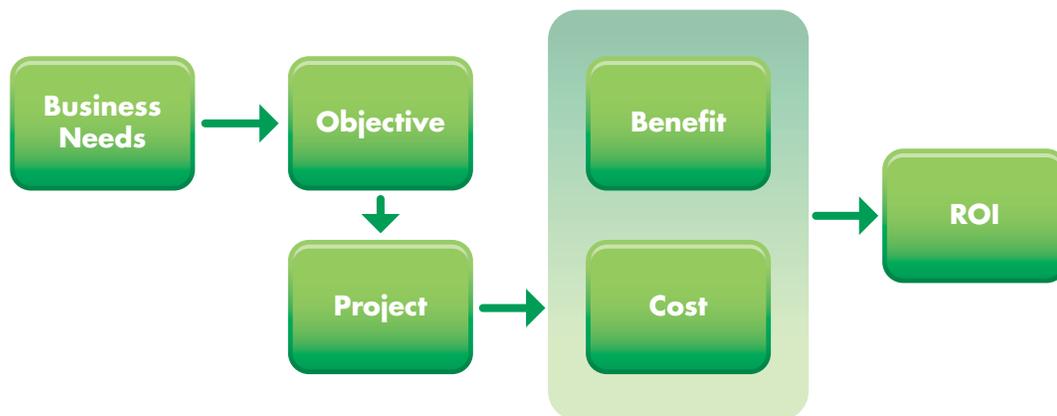
Machine-to-Machine (M2M) technology allows organizations to gather data from the edge of the enterprise and apply it in ways that impact the business. This white paper will provide an overview of how organizations can optimize operations using M2M technology to create strong return on investment (ROI). It will offer examples of how companies are using equipment data throughout the enterprise to gain efficiency and increase revenue. Specifically, it will discuss M2M and its potential to impact the business by improving operational efficiency, increasing profitability, creating new revenue streams and enhancing customer service.

Machine-to-Machine (M2M), machines communicating with other machines, is no longer a buzzword. And embracing M2M technology is no longer an option for organizations that wish to stay competitive. Companies are using M2M technology to improve operational efficiency, differentiate their products, improve customer service and add new revenue streams to their business. Consider a vending machine operator. M2M technology would allow a vending machine to contact a centrally located computer and communicate when a particular type of soft drink or snack is running low. The computer can then react to this information and dispatch more inventory to the machine. Today, people often manage devices manually. They physically monitor the equipment and maintain it as needed. M2M technology allows devices to check and adjust one another, with human intervention only when necessary.

Return on Investment (ROI) is key to any business initiative, and the opportunities for M2M projects are limitless. From inventory management to customer service, organizations should consider all areas of the business that an M2M deployment can impact to maximize ROI. When establishing an M2M initiative, businesses should determine where the greatest opportunity resides to improve processes and enhance the bottom line rather than focus on the type of data that the equipment can produce. By taking a strategic perspective from the outset, organizations can ensure their technology investment is contributing to the bottom line – not diminishing it – and generating strong ROI.

This white paper will provide an overview of how organizations can optimize operations using connected devices to create strong ROI. It will offer examples of how companies are using equipment data throughout the enterprise to gain efficiency and increase revenue. Specifically, it will discuss M2M and its potential to impact the business by improving operational efficiency, increasing profitability, creating new revenue streams and enhancing customer service.

$$\text{ROI} = \frac{\text{Gain from Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}$$

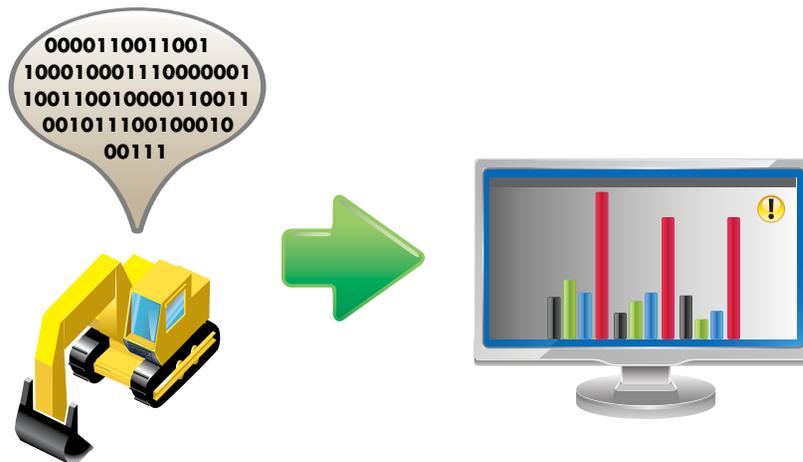


M2M and ROI: More than Just Numbers

ROI is more than a mathematical equation. ROI compares costs with gain, but defining those gains within an M2M initiative can be challenging. Organizations should look at the impacts across the organization – not just those directly associated with the M2M deployment. For example, is there labor reassignment as a result of an M2M initiative that has created cost savings or new revenue opportunities? When establishing ROI for M2M projects, organizations should consider (in order of significance):

1. Context of goals and strategy – Does the project align with the direction of the organization and its overall strategy?

2. **Needs and demands** – Analyze the needs and demands of customers and internal users of the data, and establish how the data is consumed and how M2M technology can be used to generate ROI.
3. **Initiatives and options** – There are various initiatives that may be undertaken and different options to consider for each initiative. Companies should consider how those initiatives play into the overall context of the organization and how an M2M project can contribute to the bottom line.
4. **Risks and assumptions** – Some risks are more expensive than others, and assumptions can have a positive or negative impact on how an organization calculates ROI. Ideally, risk should be mitigated, although some risk may be necessary.
5. **Benefits and cost** – Identify the hard engineering and material costs for comparison with project benefits.
6. **The recommendation** – Traditionally, organizations start with the benefits and costs. But as described above, enterprises should begin with the goals and strategy. Determine the business needs and then establish which initiatives to undertake. Once this process is complete, costs and benefits can be defined and an ROI case established.



M2M Impacts the Business

When considering ROI, there are numerous areas where M2M technology can impact the business. Common areas to consider include:

1. **Operational efficiency** - Inventory management is a good example of where M2M technology can impact operational efficiency and generate strong ROI. Managing inventory so that the appropriate amount of product (or equipment part) is available at the right time can be extremely difficult. Consider a technical support group that is responding to equipment in the field. That group must understand what parts are required to support equipment in order to be effective. Most manufacturers therefore keep replacement parts on inventory in case something in the field fails. However, maintaining inventory requires capital and depletes organizational funds. Carrying too much inventory can lead to lower turns, inefficiency, and additional storage and maintenance costs. But not carrying enough inventory can lead to machine down time, frustrated customers and most importantly, lost revenue. Therefore, companies seek to maintain the optimal level of inventory. This can be achieved by having visibility of what inventory or part is needed directly from the device. In doing so, inventory can be managed in real-time to minimize wastage and maximize cash flow.

M2M solutions can also help enterprises anticipate when a machine is going to fail based on data generated over time. By servicing equipment over time and capturing and analyzing that data, the enterprise has much greater insight into the useful life of components operating under normal conditions. Therefore, it knows what parts are required on hand, and by monitoring the equipment, can also determine the optimal level of parts inventory based on the age of the equipment and service history. Collecting and analyzing historical machine data allows organizations to become more efficient and achieve near just-in-time inventory control.

2. **Customer service** - Good inventory management can also lead to better service and more efficient logistics. By understanding what parts are needed, and when they need to be installed, companies can schedule service technicians more efficiently to reduce costs and improve customer satisfaction. For example, if a condenser fails in a restaurant's refrigerator, that part would need to be replaced immediately or risk loss of inventory. Therefore, the refrigerator manufacturer would have to service that equipment, regardless of technician availability, at any cost. By remotely monitoring and anticipating the failure, the refrigerator manufacturer can replace the part before it breaks and do so when a technician is already in the area. In fact, it could schedule similar maintenance for other units in the area to limit future service runs. This reduces service delivery cost and leads to improved customer satisfaction.

Being able to monitor equipment remotely also allows a company to have a greater understanding of how its customers are using its equipment – and if customers are using it efficiently. For example, a company may determine that if a customer ran its equipment more regularly in a different cycle it would allow them to be more energy efficient. M2M technology enhances customer service because it allows an organization to be preemptive in servicing equipment and ensuring uptime. It also allows enterprises to help customers be more successful in how they use their equipment.

The 2005 October Harvard Business Review provides a great example. Consider Heidelberg Druckmaschinen (commonly known as Heidelberg), a maker of high-end printing presses. The company provides ongoing repair services for its customers and developed the ability to monitor its equipment remotely. With its machines communicating data continuously over the Internet and relaying information between print shops and Heidelberg's regional and global technical support specialists, Heidelberg has the insight to optimize printing performance within its customers' shops. The total product support that Heidelberg now offers provides a whole new level of value for its customers. Further, the company found that it could also provide maintenance much more cost effectively.

3. **Profitability** – M2M deployments create efficiency and therefore extract cost from the business – a classic ROI case. Consider service delivery. In order to service equipment, managing a fleet of vehicles is necessary. This can be very costly without service route visibility. Routes not only impact the size of the vehicle and the fleet, but also day-to-day costs such as wear and tear on tires, fuel consumption, vehicle maintenance, etc. By designing the most optimal route, organizations can limit miles traveled to minimize impact on the vehicle and reduce fuel cost. For example, if an enterprise has 100 pieces of equipment in a particular area, some likely require service sooner than others. By understanding the equipment's history through the machine generated data, an organization can manage its routes more strategically and efficiently to reduce cost and enhance profitability.
4. **Revenue** - By connecting equipment using M2M technology, enterprises have the opportunity to take full ownership of the product support lifecycle. For example, knowing when a customer's equipment is nearing end of life or needs to be serviced allows sales personnel to be preemptive. Being preemptive depicts heading off an undesirable event based on real-world evidence. This means basing actions upon actual evidence that a machine is nearing failure, a customer's supply is about to be depleted, a shipment of materials has been delayed, etc. Ultimately, this allows an organization to improve its value to its customers and creates revenue generating opportunities.

4. **Revenue (continued)**- Warranty management is another area M2M technology can generate new revenue. Traditionally, a company provides a warranty without much visibility into how the equipment is being used. By monitoring that equipment, organizations can determine with ease if the machine was being used for its intended use. If so, warranty claims can be honored, if not, it becomes a potential revenue opportunity for service and support. It also allows the organization to validate if the issue is with the equipment or if it is due to user error.

Enabling M2M Communications

Considering the value and ROI potential of an M2M project, forward-looking organizations are embracing this technology to create a competitive advantage. However, even the most modest M2M projects can be complex for most organizations. Digi International offers experienced M2M Solution Architects that have the expertise and creativity required to design unique solutions with an organization's needs in mind. Digi's solution design team works closely with its customers to identify their business drivers and implement a reliable solution that will enhance the organization's business efficiencies and deliver strong ROI. Key deliverables from Digi's solutions group include: Solutions architecture specification, including:

- System architecture
- Product communications technology
- Application functionality

Digi has more than 25 years of device connectivity experience and offers the industry's broadest line of wireless technology. Digi also developed Device Cloud by Etherios™, an industry first, which provides the infrastructure required to manage dynamic device networks over the Internet and develop M2M applications in a secure cloud environment. Device Cloud provides the infrastructure required to access, control, configure and upgrade unlimited devices securely over the Internet. Its secure and scalable platform meets the highest standards of reliability.

Conclusion

Many companies still view their devices as standalone objects, not things that could be connected to improve operational efficiency, enhance customer service and increase revenue. The business opportunities for a networked product are infinite – there are no cut-and-dried markets. However, there are many proven areas where M2M technology has demonstrated significant ROI. From warranty management to delivery route optimization, M2M solutions are driving organizations' profitability and competitive standing within the marketplace. Experts predict that there will be 50 billion connected devices by 2020. Is your enterprise prepared for the connected device revolution?

DIGI SERVICE AND SUPPORT / You can purchase with confidence knowing that Digi is always available to serve you with expert technical support and our industry leading warranty. For detailed information visit www.digi.com/support.

© 1996-2015 Digi International Inc. All rights reserved.
All trademarks are the property of their respective owners.

91002363
B1/1115

DIGI INTERNATIONAL WORLDWIDE HQ
877-912-3444 / 952-912-3444 / www.digi.com

DIGI INTERNATIONAL FRANCE
+33-1-55-61-98-98 / www.digi.fr

DIGI INTERNATIONAL JAPAN
+81-3-5428-0261 / www.digi-intl.co.jp

DIGI INTERNATIONAL SINGAPORE
+65-6213-5380

DIGI INTERNATIONAL CHINA
+86-21-50492199 / www.digi.com.cn

