MachineMax takes fast lane to global analytics platform deployment with Flex

Customer: MachineMax

Product: iENBL

Services:

» **Product testing support**

» **Pilot device manufacture**

» **Global volume manufacturing**

Business objective

MachineMax started as a business with a bold idea: track and manage every off-highway machine on earth. But it needed help to get to market quickly. The company needed an experienced partner who could expedite its product development and testing, and give it the ability to scale globally once the final product was built.

The challenge

When BCG Digital Ventures, the global corporate venture, investment, and incubation arm of Boston Consulting Group, was approached by Royal Dutch Shell to help grow its lubricants business, neither company anticipated the remarkable business opportunity they would uncover.

In the world of heavy machinery commonly used in construction and mining, lubricants must be changed every few hundred hours of use. Shell wanted better information about the running time of their customers' machines, so they could better advise customers on the maintenance and management of their assets.

When the joint team investigated, they realized that running time was often recorded manually on paper and later transferred to spreadsheets. In one example, a mining company had 1,000 assets running two shifts a day, which meant 2,000 manual readings had to be taken daily.

Companies were losing productivity and incurring unnecessary costs due to this ineffective and time-consuming process. As an example, they found that machines were idling as much as 40-50% of the time. Idling is very expensive for companies and can cost up to $50,000 per machine per year.

Shell and BCG joined forces, and with some external investment from B Capital (VC firm run by Facebook founder) created a new company to address this manual and ineffective process.

The result was MachineMax.

Amit Rai from BCG Digital Ventures was appointed CEO. His team quickly set about building and testing prototypes of a wireless telematic device that could analyze and transmit usage data. However, they didn't have in-house expertise to build and scale the connected hardware units that would attach to the machines and supply the required information.

For any startup, delays of a few months can be costly, or even fatal. MachineMax knew that it was creating a product that would need to be iterated and improved. With pressure to meet deadlines to attract additional funding, as well as a pressing need to get a finished product in front of potential customers, MachineMax needed to find a partner quickly to help them build the product.

This partner would need to guide them through the innovation, prototyping, production and logistics processes and would also need to help MachineMax scale internationally from day one.

"There is no glory in re-inventing the wheel," said Amit Rai, CEO of MachineMax. "We are not an advanced electronics company, nor are we trying to be. We wanted a partner who had deep expertise in designing and manufacturing PCBs, so we could focus our attention on creating the best end-to-end user experience for the customer."

The solution

A simple internet search and e-mail connected MachineMax with Flex.

We had already sponsored the design and development of a platform for the pre-launch testing of IoT devices in the Flex design center at Linköping in Sweden.

Called iENBL, this platform allowed MachineMax to fast-track its development and test its solution in the field with working prototypes without investing in custom builds.

We quickly became MachineMax's innovation and collaboration partner, providing MachineMax with the tools and expertise needed to develop the hardware and software, as well as the certification – all under one roof.

iENBL is our low-power IoT development platform that comes embedded in a ruggedized clamshell enclosure with the sensors required for most IoT applications, as well as the latest technologies in long range and low power connectivity.

This was the base on which MachineMax could start to quickly develop the ideas it already had for the intended finished product.

Based on the results of its trials, MachineMax continually provided feedback to our team of experts, who in turn iterated the device, adapted the hardware and removed the elements of the iENBL platform that MachineMax didn't need.

While we were redesigning the electricals to fit the MachineMax specifications, MachineMax product designers and engineers were finalizing the external form factor and the firmware that would leverage the iENBL stack.

Shortly there was a working design that both parties were happy with and the seamless iENBL prototyping procedure meant that everything was portable straight onto the device firmware. This meant that the volume production and certification process could be carried out with minimal delay.

We supported MachineMax not only in the manufacture of the device, but also in the support the company needed to make tough decisions. The simultaneous tracks of development and testing was unconventional, but for MachineMax, it was essential to accelerate time to market.

"It's been good for us to have a relationship with Flex where we can be very open and honest," said Amit. "Similarly, they are frank enough to tell us the things we

might not want to hear, but need to hear if we want a polished finished product. We have an open dialogue with Flex and when we have an issue, they are open to feedback and they work on a solution with us. We know that when Flex promises something, it will get done, which has been vital in the planning process and keeping to schedule."

The result

iENBL helped MachineMax test its product straightaway without the custom build of a test device and when the finished device was ready, it could be manufactured quickly, at scale for international deployment. As a result, MachineMax was able to roll out the solution in six countries within four months of product launch. The company is ambitious about rapid growth among multinational organizations because of the confidence it has in both the device and our manufacturing capabilities.

We helped MachineMax get from a conceptual design to a device ready for volume production in less than a year, which is half the time it would have taken using any other partner.

Currently, the MachineMax device uses LoRa connectivity to communicate data across the network. However, we are in discussions to introduce low power cellular IOT connectivity, which is also available in the iENBL platform. This would enable MachineMax customers to benefit from the established networks of existing providers instead of building their own. When they take this approach, they can simultaneously monitor the performance of their machines wherever they are in the world.

"We invested a lot of time getting to know the people at Flex very well – and vice versa," said Amit. "I can talk to them as if they are part of my team and the people here at MachineMax know them really well. Knowing the individuals on the other side and really understanding their point of view has helped us move at a speed which would normally be very difficult."

About BCG Digital Ventures

BCG Digital Ventures is a corporate innovation, incubation and investment firm. They invent, launch, scale and invest in industry-changing new businesses with the world's most influential companies. Their diverse, multidisciplinary team of entrepreneurs, operators and investors work cross-functionally, rapidly moving from paper to product to business in less than 12 months. Founded in 2014 as a subsidiary of Boston Consulting Group, they have Innovation Centers and satellite locations in four continents and continue to expand their footprint across the globe.

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