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THE INTERNET OF THINGS FOR ALL:

How Mid-Cap Companies Can Shine in the Age of Connectivity

Mike Harmon and Tim Haney

IoT may just be the thing to help mid-cap companies level the playing field by helping them improve current products, create new service-based business models, reduce operational costs and improve brand image.

Nearly three-quarters of organizations have an Internet of Things (IoT) initiative. All but six percent of enterprises are looking at how they will leverage analytics, and virtually every organization is looking at how it can create new revenue streams from services enabled by connectivity. Indeed, a number of innovative startup companies, such as Uber and AirBnB, have radically disrupted well-established industries. And to defend themselves, large-scale enterprises are moving forward with their own initiatives around IoT, rethinking products altogether in much the same way connected car makers are viewing the automobile – as a vehicle for delivering a new user experience rather than a vehicle for mere transportation.

There is an archetypal company that has yet to realize the opportunity of investing in the IoT as a way of differentiating themselves, and that is mid-cap companies of less than $5 billion dollars in valuation. The reason for this limited realization? It's less about a lack of interest or need and more about a lack of resources and know-how required to develop and execute a robust IoT strategy.

To be sure, most of the world's business is conducted by mid-cap companies. These organizations often have the agility and flexibility to respond quickly despite lacking some economies of scale. So, while they may suffer resource limitations, their ability to respond gives them a potential advantage over larger competitors. Additionally, many of the new products enabled by IoT are digital and therefore have a scalability element that does not necessarily tie itself to these companies' physical infrastructure.

But combining these two factors can provide a pathway for mid-cap companies to leapfrog their larger competitors. IoT may just be the thing to help mid-cap companies level the playing field by helping them improve current products, create new service-based business models, reduce operational costs and improve brand image. A very real opportunity exists for them to revolutionize their industries through the use of IoT, but they first must overcome some common barriers:

1. Developing a vision and roadmap

2. Filling the skills gap

3. Executing with velocity

This ISG white paper explores these challenges and the opportunity for mid-cap companies to take advantage of IoT in their digital transformation.

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Developing a Vision and Roadmap

One of the greatest hurdles in embarking on an IoT journey is determining which initiative will reap the greatest reward. IoT and Industry 4.0 are not science experiments; they are measured investments in technology that increase connectivity to transform a business. Establishing the right business case begins by considering the customer and the customer's journey. Companies should evaluate opportunities through the lens of customer value by asking "what can we do to benefit our end customers?"

While many benefits may be in the form of tangible services and features, a number of intangible benefits are worth considering, such as improved production information or delivery traceability that enhance the customer's journey. Thinking clearly about investing in IoT means evaluating every way a customer interacts with or could interact with a product and the operations around that product.

This requires a cross-functional team to explore and ideate on the vision and roadmap for their IoT journey, and this is where mid-cap organizations often have the advantage. With the reduced complexity of their operations, smaller companies can draw out the entirety of the customers' perspective in very short order with the help of a handful of participants. This allows team members to more readily identify the customer value streams they each impact, gain consensus on prioritization and develop a roadmap.

The five key steps of successful roadmap development are:

1. Establishing who the future customers will be – how they are different from today's – and defining the customer value

2. Ideating without boundaries around the customer value chain

3. Scoring and prioritizing ideas

4. Aligning the ideas in a logical sequence of events

5. Evaluating the business case for execution

Once a roadmap has been outlined, the next step is executing on that plan. Though many mid-cap organizations lack some of the core skills needed to execute on new technology initiatives such as IoT, there is a way to solve the talent issue.

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Filling the Skills Gap

Most often, organizations pull talent from their traditional business units to help carry out new initiatives, so it is not unusual to experience skill gaps when it comes to transformational initiatives. And closing the gap on skills will determine the velocity with which an enterprise can execute an IoT initiative. While it behooves them to develop new intellectual property (IP) that is core to their long-term strategy, mid-cap organizations are smart to leverage external service providers for enabling technologies and niche areas of expertise, such as embedded software development or connectivity infrastructure, to help them accelerate their plans.

When evaluating and selecting providers, companies should focus on four key criteria:

1. **Niche expertise:** Carefully score and evaluate providers for their adherence to industry best practices and for their technical skills required to develop solutions.

2. **Domain expertise:** It is impossible to develop meaningful client solutions without a robust understanding of the customer's end use, so domain knowledge becomes paramount – even trumping technical skill – in any IoT engagement.

3. **IP protection:** Be sure to protect inter-industry IP from redeployment and reuse within competing enterprises. While many providers leverage base development platforms for building an IoT solution, enterprises must carefully define ownership of deliverables to ensure they have legal rights to the differentiating IP in the solution.

4. **Establishing new "cooperation models" with partners:** The complexity of this type of solution means it does not lend itself to independent internal development, particularly where resources are limited. Establishing partners is key to a successful initiative.

Executing with Velocity

Velocity refers to both speed and direction. In many cases, moving fast but aimlessly can be more dangerous than doing nothing. This is why companies must commit to maintaining a sharp focus through the road-mapping and team-selection process. And, once this is complete, action to implementation must follow quickly. IoT is a strong differentiator, and the impact of any differentiator is largely realized in its time to market.

A sound roadmap combined with the force multiplier of external support from a service provider is the key to achieving velocity. Every day a company is waiting to kick off its IoT initiatives or stalling on an investment strategy is another day the competition has the chance to move ahead, disrupting and possibly even redefining the industry.

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Before a team can develop a solution, it must have the most complete business case possible. The figure below depicts a sample of potential use cases, starting from the center and moving outward.

Figure 1: Total Business Case for IoT Initiatives
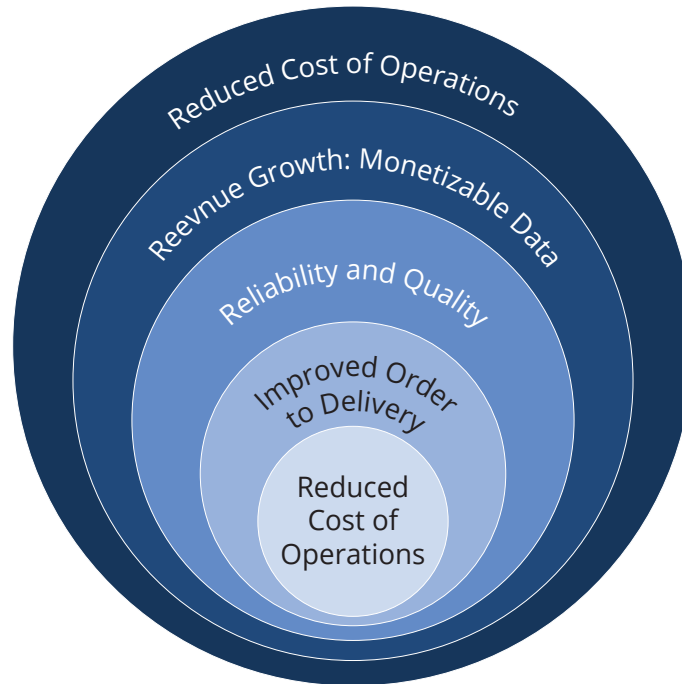
- **Reduced cost of operations:** Reducing operational costs not only benefits an enterprise but also the end customer by reducing pricing or creating longer-term pricing stability. IoT initiatives that focus only on this outcome will miss out on many significant benefits that can come from having a more direct impact on the end customer.

- **Improved order to delivery:** IoT has the potential to improve order-to-delivery performance and transparency. In some industries, such as aerospace, this improvement is becoming key. In other industries, such as healthcare, order-to-delivery processes are being regulated. One example is the Unique Device Identification (UDI) regulation, which was signed into law in the FDA Amendments Act of 2007 requiring unique identification of medical devices.

- **Improved reliability and quality:** Condition monitoring is one of the most commonly executed IoT use cases with the goal of improving maintenance cycles to reduce downtime and predict failure.

- **Monetizable data:** Often, only after an enterprise has begun to collect data from the field does it realize the data's inherent value in its ecosystem and its ability to monetize it. In agriculture, for example, data originally used to measure performance is now being leveraged by a number of stakeholders to predict yield.

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- **Customer revenue growth:** There is little of greater value than implementing an initiative that gives your customers the ability to enhance offerings or provide new services to the end customer. This is commonly seen in dealer and distributor models in which the enterprise connects to the end client through an intermediary. In these cases, the original equipment manufacturer (OEM) can provide to their dealers information from sold units in the field about the use and disposition of the assets/vehicles that the dealer can then turn into opportunities to provide services.
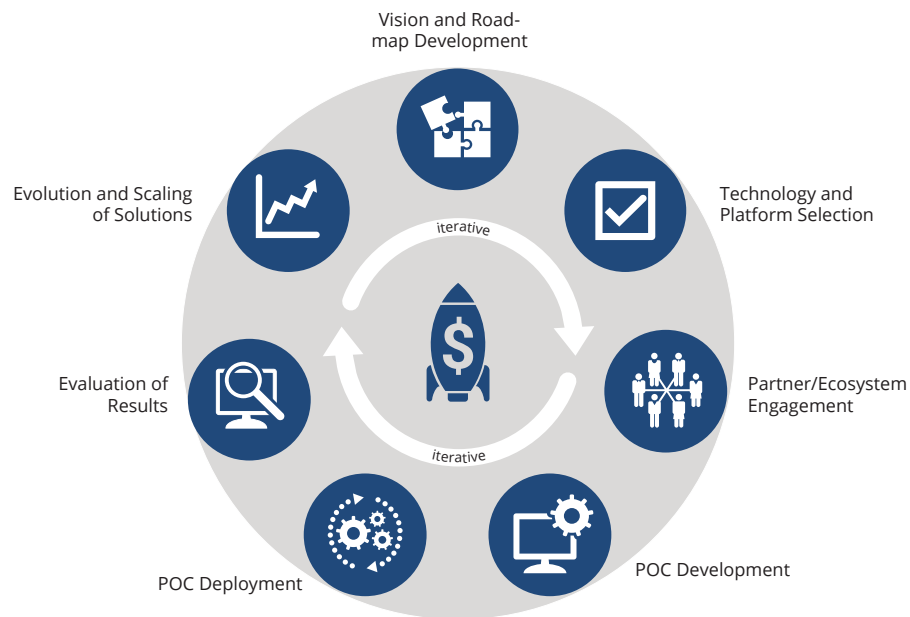
Conclusion

The real value of the IoT is in the aggregate of these business cases that act as a force multiplier creating the total business case. A key to achieving velocity is capturing the ideas that capitalize on the greatest potential value and the strongest business case. As organizations ideate and plan, they need to be careful to realize the full potential of the solution through understanding all its potential impacts to the end customers. Equally important is a framework that allows an organization to tap into the solutions and ideas that only a larger ecosystem can provide.

Agile development methodologies help companies iterate faster on the components of solutions in their roadmap. Key to this strategy, as depicted below, is the selection of ideas that can quickly be developed and deployed as a proof of concept in a continuous and iterative way, which allows a team to quickly evolve the ingredients of the solution and achieve velocity in development.

Figure 2: The Agile Development Methodology at Work

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Conclusion

IoT is becoming an imperative for organizations big and small. However, mid-cap enterprises need not be shut out of this market because of their size and access to resources. Through a guided exercise on roadmap development, they can realize the near- and long-term vision for their products and services and revolutionize how they interact with their customers.

Truly agile enterprises will leverage providers in the marketplace to fill critical skill gaps while maintaining a firm hold on the differentiating IP they create. They also will leverage the base IoT platforms of those providers to gain a jumpstart and quickly build up their offering.

By developing a complete business case and fully understanding the potential solutions, smaller enterprises can achieve greater velocity than some of their larger enterprise competitors who may be slow to respond and less agile in the face of change.

This means the mid-market segment has the opportunity to leapfrog their competition and reinvent both new and established markets. While the products and services companies offer may have been considered mature a decade ago, this is no longer the case. With the advent of IoT and the power of connectivity to revolutionize markets, companies no longer have the luxury of complacency. Even the most well-established markets are in flux. Survival will depend on the ability to reinvent products and services by infusing new technology and connectivity. Mid-market enterprises that embrace this thinking and prepare for increased agility will position themselves to capitalize on change and become a dominant player in the future.

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Mike Harmon leads ISG's engineering service practice in the Americas and has over twenty years of leadership experience. He offers ISG clients considerable expertise in engineering services, IoT and manufacturing and has a diverse background working in virtually all discrete and process manufacturing segments with a wide range of clients from leading technology companies to heavy equipment manufacturers, railways, aerospace and industrial products. He has crafted solutions and managed the relationship and overall delivery of consulting and outsourcing services for each of his clients.

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