EXPLORING IOT SME REQUIREMENTS FOR MENTORS
Summary

IoT SMEs in the UK face a range of challenges to bring their IoT solution to market. Many greatly benefit from the experience and guidance of a mentor to help them navigate the change as they scale up.

Digital Catapult as part of its IoTUK programme has created this Best Practice guide, based on the work we have been conducting as part of our three year initiative. By surveying SME founders and mentors to IoT SMEs, we have created an outline to offering the strongest support possible to mentees. The analysis is based on interviews with 16 technology and business leaders who have experience in mentoring IoT or High Tech SMEs as well as 28 IoT SMEs in the UK.

Working with IoT SMEs can be rewarding and enlightening. Helping SMEs to develop and grow strengthens the economy and also boosts people’s abilities as a business owner. To help with this, the Digital Catapult, through the IoTUK programme, is setting up a mentoring programme to ensure that SMEs in the UK get off to the best possible start. We are seeking mentors both nationally and internationally to bring the world’s best expertise to UK SMEs.
Introduction

The IoT has great potential here in the UK to transform sectors including healthcare, manufacturing and the creative industries. However we are still in the early stages and there are many challenges to be overcome.

As a result of these IoT challenges together with the commercial inexperience of some founders, IoT SMEs in the UK that the Digital Catapult has spoken to have said that they face significant business challenges including investment, sales, marketing and building an effective team.

The consequence is that many UK IoT SMEs are struggling to bring their solutions to market, scale, and become sustainable businesses.

One way which these initial problems that SMEs face can be effectively overcome is through engaging with an effective mentor. The IoTUK programme has interviewed a number of mentors that work with IoT companies as well as the SMEs that received their guidance to get a clear understanding of what the relationship entails.
What is a mentor?

‘A good mentor discerns a protégé’s personal and vocational dream, endorses this as realistic, and offers an environment conducive to facilitating this dream.’ A mentor is many things to people. They can be a guide, a teacher, professional support, or sponsor to someone who may be just starting out in the industry. In the IoT sector, it may be the founder or CEO/CTO of an organisation that works in a similar field. A mentor can provide a person with guidance knowledge, advice, counsel and instruction. It is a unique and personal relationship, with a wide range of roles which can work in different ways for the people involved.

What are the motivations for mentoring?

In our study, Digital Catapult spoke with 16 experienced mentors. We asked what their motivations were for mentoring. Responses showed that these motivations varied depending on the individual and their experience. For serial entrepreneurs and experienced professionals, mentoring comes from a sense of altruism and the need to give something back. Senior mentors indicated they mentored as an opportunity to have connection with new generation of people. Some professional mentors in the middle of their career did mentoring to gain experience and add it to their CV before taking their first non-executive position.

Other motivations included:

- gaining enjoyment and inspiration from mentoring people that are so enthusiastic
- meeting other mentors and strengthening their professional network
- gaining exposure to emerging and exciting industries
- mentoring for the intellectual challenge
- gaining thanks from mentee (although many mentors were disappointed to receive no thanks or follow-up from their mentees)

IoT SME Survey Results

IoT SMEs we spoke to suggested that there were three main areas that they needed additional guidance in. These were gaining investment, sales and marketing and building a team.

1) Lower barrier of tech access
- LPWAN test network
- Tutorials & Training
- Convening of tech eco-system

2) Lower barrier of innovation
- Community platform
- Knowledge transfer
- Skill-up workforce

3) Lower barrier of market access
- Challenge based open calls
- Partner network opportunity
- Proto-typing and pilot support

Gaining Investment
In our survey, IoT SMEs consider gaining investment a key challenge. There was a consensus that there is very limited funding available in UK beyond grants. UK Angel Investors and VCs are perceived as having limited interest in IoT ventures. The hypothesis is that they have limited appetite for risk and are more familiar with investing in software only ventures where the business models are proven.

Sales and Marketing
Gaining customers for a new solution in a new market is inherently challenging. IoT SMEs expressed the following challenges related to sales and marketing their solutions:

- **Customer Understanding** - As IoT applications are so broad, it is challenging to get customers to understand the concepts and believe the benefits.
- **Early adopters** – Finding customers that see the need for change and are willing to take the risk of being first whilst the benefits maybe marginal can be challenging.
- **Procurement** - Procurement departments don’t know how to work with SMEs and handle innovations like IoT.

Building a Team
IoT SMEs we spoke to say that they find it difficult to get skilled people at competitive rates. In particular a common issue that many mentioned was finding and retaining Data Scientists and staff with combination of technical and commercial skills (i.e. pre-sales roles) who are capable of explaining the concept to potential buyers effectively.

Other notable challenges which were listed were **cash flow**, as the upfront costs of ordering components and devices can restrict business with some customers or necessitate different commercial models. **Scaling business processes** through automation was mentioned, as was **converting POC/pilot projects into orders**.

Key issues that IoT SMEs we spoke with also included **establishing good manufacturing relationships** and **acquiring components** at competitive prices at low volumes, and **technical architecture issues** as the lack of established IoT solution stacks increases the development complexity, cost and redesign.
Mentor Results: what are the problems that mentors in the IoT industry are coming across?

Experienced mentors have spoken with the Digital Catapult about what they have found in their dealings with SMEs. They said that they found that while many SMEs working in the IoT industry struggle with similar issues to any small business, there are a number of problems that are specific to the sector. Mentors spoke about a range of issues that they typically find when speaking with IoT SMEs.

Raising and Managing Finance

Many mentors spoke about the gap between early stage angel investment, and just pre-revenue/early revenue investments from VCs. They have found that SMEs that were working on hardware found it more challenging to raise capital than software only IoT SMEs as they require more investment.

Mentors expressed that they found that many IoT SMEs to be made up of teams that lacking in hands-on business experience. This could mean that they may be unfamiliar with business planning, running a business, and how to effectively present their work to investors and purchasers. Because of this, limited cash flow is a common challenge that limits the ability to scale, especially for hardware IoT SMEs. To counter this, careful financial planning is required. Mentors can bring a needed helping hand to those businesses to ensure that the IoT ideas and concepts are backed up with effective business strategies.

Sales and Marketing

Mentors told us that many IoT SMEs struggle with scaling up their processes as they go from 1 to 10 to 100 customers. For pre-revenue IoT SMEs, funding for commercial activities like launch marketing can be neglected in the race to finish the product. Mentoring is one way that this can be overcome, as an experienced business person can help to challenge the founders on what their processes need to look like to ensure that a scale-up is successful.

IoT solutions are a brand new solution in a brand new market, leading to a challenge to find out where it fits and what is the story. For inexperienced IoT SMEs, it can be difficult to work out who their target customer is, especially in more complex solutions when the end users are not necessarily customers.

Mentors told the IoTUK programme that many IoT SMEs have interesting solutions but don’t have clarity on the problem they are addressing and who is going to benefit. This lack of clearly defined value proposition can limit the ability to pitch effectively and secure investors. A mentor with a thorough understanding of the customer proposition and user proposition, and how they relate to each other, can greatly increase an IoT SMEs commercial success.

Easy to Start, Harder to Scale

Within the IoT sector in the UK, barriers to getting started are now lower, as SMEs can use references to prototype rapidly. However, this then creates challenges to scaling. There are not many hardware based IoT SMEs that have scaled successfully to provide a model that can be followed. Mentors have said that IoT SMEs tend to be quite tactical, focusing on one milestone to another, which becomes a challenge when the business needs to start scaling. This means that they can underestimate the difficulty in getting their product to market.

Leadership

In our survey, mentors we have spoken to have told us that in some cases, as an SME grows, they can discover that it can be a challenge to move beyond the founding team. In some cases, the changing role of the founder can cause problems. The founder might have been the best person to get the business off the ground but may not be the best person to scale up.

Another key factor which was mentioned was is confidence. It requires a level of confidence to commit to producing a product, and not every IoT SME is able to make that transition. For some IoT companies, it can be difficult to make the transition from simply designing and building prototypes.

One mentor told us that, in their experience, many founders of IoT SMEs don’t have a passion for their proposition and are just building a business to sell it on.

---

2 See the IoTUK Report ‘UK IoT Investment’ for more information on investment in the IoT Industry.
Business Models, Partnerships & Collaboration

According to mentors that we interviewed, for many IoT SMEs the key challenge is finding a sustainable business model. As newcomers to the industry, SMEs often underestimate how hard and expensive hardware is to develop. Alongside this, SMEs find it hard to recruit the talent they require at competitive rates, as many people with the appropriate skills can be paid more when working for larger, well established companies.

In SMEs with partnerships with third parties, it is common to find that they are missing vital documentation of the partnership. This then becomes a challenge when looking for investment as investors want evidence of what has been committed.

Mentors also told us that they often found that SMEs tend to be isolated and try to own the whole the stack themselves. Their lack of network leads to an inability to collaborate. SMEs need to work with other companies and take advantage of the ecosystem. This is one area that mentors can be very helpful as they already have the connections needed to help SMEs to grow their businesses.

Limited Customer Engagement

Gearing up from creating prototypes to reaching customers requires different skill sets. IoT SMEs can find it difficult to get in touch with customers. Mentors stated that in some cases, due to the technical background of the founding team the comfort zone is adding features, rather than speaking to customers.

Mentors and some SMEs working with large Corporates perceived there were risks in this business relationship. One mentor warned that young SMEs need to be careful, as some Corporates will attempt to block SMEs or stifle them and attempt to pick up the IP for nothing. It was also perceived that Corporates are often very conservative and this makes securing a proper pilot challenging. Corporates are typically enthusiastic when introductions are made, however sometimes they are just trying to educate themselves or do not have a remit to actually do business.

Security

Security is a key issue for many IoT customers. Mentors told the IoTUK programme that SMEs assume they are secure. Many of them struggle to delve deeply into potential issues with their devices. This means that they only act when they see catastrophic problems which can irreparably damage the company if they are revealed. Experienced mentors can challenge SMEs on their security to make sure that devices and platforms are built with established security standards to stop unsafe and insecure products coming to market.
What is best practice for mentoring and mentoring programs?

The common success factor for mentoring expressed was that the mentor/mentee relationship should be win-win. A majority of mentors highlighted the importance of efforts upfront to get the relationship off to a good start. An effective strategy is to train both mentors and mentees on what to expect from mentoring and how to get the most out it.

**Trust**

A successful mentoring relationship is built on trust and understanding and this requires time to develop. Regular monthly meetings, ideally face-to-face, over a period of six to 12 months should be considered a minimum. Communication should also go through online groups to allow mentors and mentees to share and communicate as and when they need to.

**Timing**

Mentoring is most effective when started around six months after founding. Some mentors told us that starting mentoring after 18 months becomes difficult as the founders are far too invested to listen to challenge or consider changing direction.

**Quality**

When launching a mentoring program it is important to have quality control to make sure value is really being delivered. This includes vetting the mentors, following up with mentors and mentees to confirm that the mentoring relationship is working, and providing an opportunity for feedback.

**Matching mentors and mentees**

Facilitating both mentors and mentees to choose each other is very important. An approach that has been seen to be effective is a ‘speed dating’ style event. Mentors and mentees sit across from each other and have a set time to speak before mentees move on the next mentor. This is followed by drinks when the mentors and mentees are free speak further, and at the end of the event each mentor and mentee submits a form indicating the top three mentors or mentees they would like to work with. The key to the success of this event is getting people into the right mindset.

Before an on-going mentoring relationship is confirmed, it is recommended that there is an initial mentoring session between mentor and mentee.

<table>
<thead>
<tr>
<th>Mentoring formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are a number of mentoring formats that are effective.</td>
</tr>
<tr>
<td><strong>Fixed period/focus</strong> - Helping someone deal with a specific issue.</td>
</tr>
<tr>
<td><strong>Monthly</strong> - Couple of hours a month, ideally face to face. This can be electronically.</td>
</tr>
<tr>
<td><strong>Mandatory</strong> - Mandatory mentoring (typically as part of incubator/accelerator) is considered important, as some founders are reluctant to ask for a mentor.</td>
</tr>
<tr>
<td><strong>Depth</strong> - When the mentors have a specific amount of time to really get involved in-depth with the SME.</td>
</tr>
<tr>
<td><strong>Layers</strong> - Highlighting within the program that layers of mentoring are valuable. Mentors may themselves have mentors, and mentees may mentor someone else.</td>
</tr>
</tbody>
</table>
What makes a good mentor for IoT SMEs?

The majority of mentors considered the following mentor attributes important:

- Relevant experience to know intuitively what do to in the next step
- Ability to listen
- Ability to challenge and ask the right questions
- Ability to share and reflect on their own experience
- Either specific industry experience or entrepreneurial experience (has raised money, grown a business, sold a business), as founders are more naturally inclined to believe and trust a mentor who has been in their situation before
- No requirement for remuneration or expectation of future position
The IoTUK Mentoring Programme

The IoTUK programme’s objective is to advance IoT development and adoption in the public and private sectors through facilitation, coordination and promotion. Mentoring is already a part of the Hardware Accelerators Programmes IoTUK Boost, R/GA & Startupbootcamp. To help more IoT SMEs with their development, Digital Catapult is setting up a mentoring programme that provides external challenge and guidance to help them overcome their challenges, to network and grow their companies so as to boost the digital economy in the UK.

We have found in our surveys that IoT SMEs do benefit from a trusted mentor to help them navigate the difficulties that many businesses have in their first couple of years. Unfortunately, some mentors have quite fixed ideas about what people that are inventing new technology for the IoT are like. The IoTUK mentoring programme will ensure that mentor/mentee relationships are built on a foundation of trust and respect from the start, refreshing the dynamic that can potentially be unbalanced if mentors are not aware of the particular issues that IoT SMEs face specifically.

The IoTUK mentoring scheme is being created for founders of UK based IoT SMEs that are approximately between 12 months and 18 months from securing first revenue (real sales), and those that have not yet gained early stage funding. This is the typical make or break period for IoT SMEs, when the decisions they take will decide whether they succeed or die, and when challenge and external perspective is most required and accepted.

If you would like to be part of the programme, either as a mentor or as an SME, please get in touch with us by emailing info@iotuk.org.uk for more information.
Get in touch:

IoTUK.org.uk
info@IoTUK.org.uk
@IoTUKNews

Digital Catapult
101 Euston Road
London
NW1 2RA