



PRODUCT DESIGN
SCOTLAND

A NETWORK OF



PRODUCT DESIGN SCOTLAND TOOLKIT



05

STAKEHOLDER MANAGEMENT

WITH

filament

IN PARTNERSHIP WITH

filament



THE GLASGOW
SCHOOL OF ART

wideblue
making technology happen

SCINTILLA

systolic
product development



ENIGMA
PEOPLE SOLUTIONS

MAGE
CONTROL SYSTEMS





ABOUT US

With a long tradition of innovation, entrepreneurship and commercialisation, the product design sector is one of Scotland's key industries. Through advances in technology, designers are providing innovative products across a number of global markets, including healthcare, energy, communications and mobility. Integration of these technologies into viable, efficient and commercially attractive products is key, and the partnership between technology and product design is becoming ever more important.

Product Design Scotland, managed by Technology Scotland, the representative body for Scotland's Enabling Technologies Sector, has been established to support the product and industrial design sector in Scotland. The network aims to be the focal point for the community, raising awareness of the critical importance of design to future growth and competitiveness and creating a thriving, collaborative network to drive innovation.

By working with companies and organisations across Scotland, we support the sector through:

- Promoting the value of strategic design to government and industry
- Raising the profile of Scotland's product/ industrial design sector
- Increasing visibility of those operating within relevant supply chains
- Improving competitiveness through collaboration and knowledge exchange
- Creating new networks to shape the future of design in Scotland.



TOPIC INTRODUCTION

STAKEHOLDER MANAGEMENT FOR PRODUCT DEVELOPMENT

Even the simplest new product development will involve collaboration between multiple team members and organisations. Knowing your project stakeholders and understanding their unique communication needs is an essential, and often undervalued, part of successfully realising a new product.

This topic introduces the concept of Stakeholder Management and explores some principles that can be used to improve outcomes in product development and innovation projects.

WHAT IS A STAKEHOLDER?

According to the Project Management Institute project stakeholders are defined as:

“Individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion.”

In other words, your project's stakeholders are the people or groups who have something to gain (or lose) from your project's outcome.

There are two main categories of Stakeholders:

Internal Stakeholders

These are people of groups within your business.

These could include:

- Project managers
- Team members (In-house resource such as technical, marketing, procurement, sales etc)
- Management and executives

External Stakeholders

As the name suggests, these are people or groups outside of your business.

These include:

- End users
 - Customers
 - Consultants (Product development, intellectual property, regulatory compliance etc)
 - Suppliers (Manufacturing and assembly partners, component vendors etc)
 - Investors and shareholders
 - Government and public bodies
-

WHAT IS STAKEHOLDER MANAGEMENT?

Stakeholder Management is the process by which you organise, monitor and improve your relationships with your stakeholders. Understanding and empathising with the unique needs and desires of each stakeholder ultimately leads to developing better products. Customers feel valued, team members feel empowered and suppliers feel engaged to support the project's common goals.

WHY IS STAKEHOLDER MANAGEMENT IMPORTANT IN PRODUCT DEVELOPMENT?

There's a saying in product development that 'hardware is hard'. The reality is that the majority of hardware startups ultimately fail. The most common reason for this isn't insurmountable technical challenges but rather a lack of stakeholder understanding resulting in poor market demand.

No matter how brilliant your idea is, it's almost impossible to successfully commercialise it without strong stakeholder relationships. These may be co-developing with your customer, keeping investors onboard, motivating your internal team or getting the best from key suppliers. Having a formal strategy to identify and manage these relationships can give your innovation the best chance to succeed.



KEY STEPS IN STAKEHOLDER MANAGEMENT

STAKEHOLDER ANALYSIS

The first step in Stakeholder Management is to conduct a Stakeholder Analysis. This will help to define the strategy for how to best engage stakeholders at different points throughout the product development process.

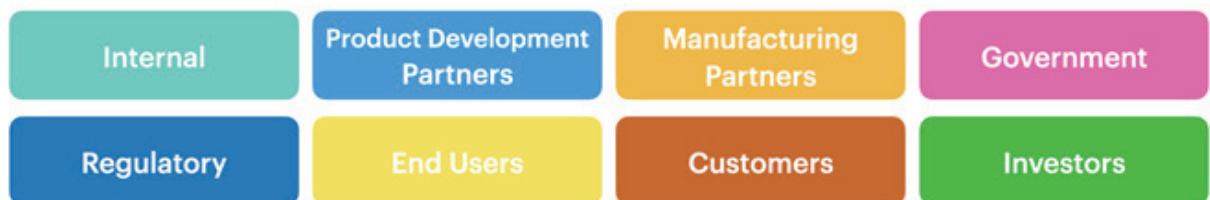
As soon as the scope of your project is defined you can use it to start mapping out your stakeholders.

Below are the steps involved in a basic Stakeholder Analysis.

1. IDENTIFY YOUR STAKEHOLDERS

Using your project charter, project plans and other documentation as a reference, compile a list of all the project stakeholders, both internal and external. It can help to categorise stakeholders to ensure none are missed.

Example stakeholder categories



Stakeholders can be both people and organisations but remember that we ultimately communicate with people so be sure to identify the key individuals within a stakeholder organisation.

Note that not all stakeholders will be involved throughout the entire project lifecycle but it pays to build a relationship with them as early as possible and help them feel involved from the beginning. An example of this might be a manufacturing partner where early engagement helps to build buy-in and align project goals long before production begins.

2. PRIORITISE YOUR STAKEHOLDERS

Prioritising your stakeholders is important as it helps you to understand where to invest your resources at a particular time in the project. You can do this by mapping stakeholders against how much influence they have over your work and how interested they are in it.

A simple yet effective technique to visualise this is a Power-Interest Grid.



- High power, highly interested people (Manage Closely): you must fully engage these people, and make the greatest efforts to satisfy them.
- High power, less interested people (Keep Satisfied): put enough work in with these people to keep them satisfied, but not so much that they become bored with your message.
- Low power, highly interested people (Keep Informed): adequately inform these people, and talk to them to ensure that no major issues are arising. People in this category can often be very helpful with the detail of your project.
- Low power, less interested people (Monitor): again, monitor these people, but don't bore them with excessive communication.

For example, a key investor will have high influence and interest in your project whereas your family might have high interest but are unlikely to have much power over the project outcome.

3. UNDERSTAND YOUR STAKEHOLDERS

Now that we've compiled a list of our key players and which ones we should prioritise, the next step is to work out how to best communicate and engage with each of them.

Early in the project have a short face-to-face conversation with key stakeholders to understand:

- What motivates them most of all within the context of the project?
- What they perceive as their responsibilities and expectations for the project
- What resources are they going to devote to the project? cash, time, contacts etc
- Do they have any reservations about the project and its desired outcomes
- Who influences their opinions, and who do they influence in turn?
- What impact a positive or negative project outcome would have on them
- Whether there are any anticipated issues or conflicts of interest with other stakeholders

This process not only helps to build a picture of your stakeholder network and how they interrelate, it informs preferred communication styles and lays the foundations for a relationship with each stakeholder. It also gives you the ability to make informed decisions based on how you anticipate stakeholders are likely to act.

Stakeholder Analysis is just the first part of Stakeholder Management. To give yourself the best chance of a successful project outcome, stakeholder requirements, goals and overall happiness should be monitored throughout the project.

BEST PRACTICE FOR SUCCESSFUL STAKEHOLDER MANAGEMENT

- **Document Key Stakeholders Roles**

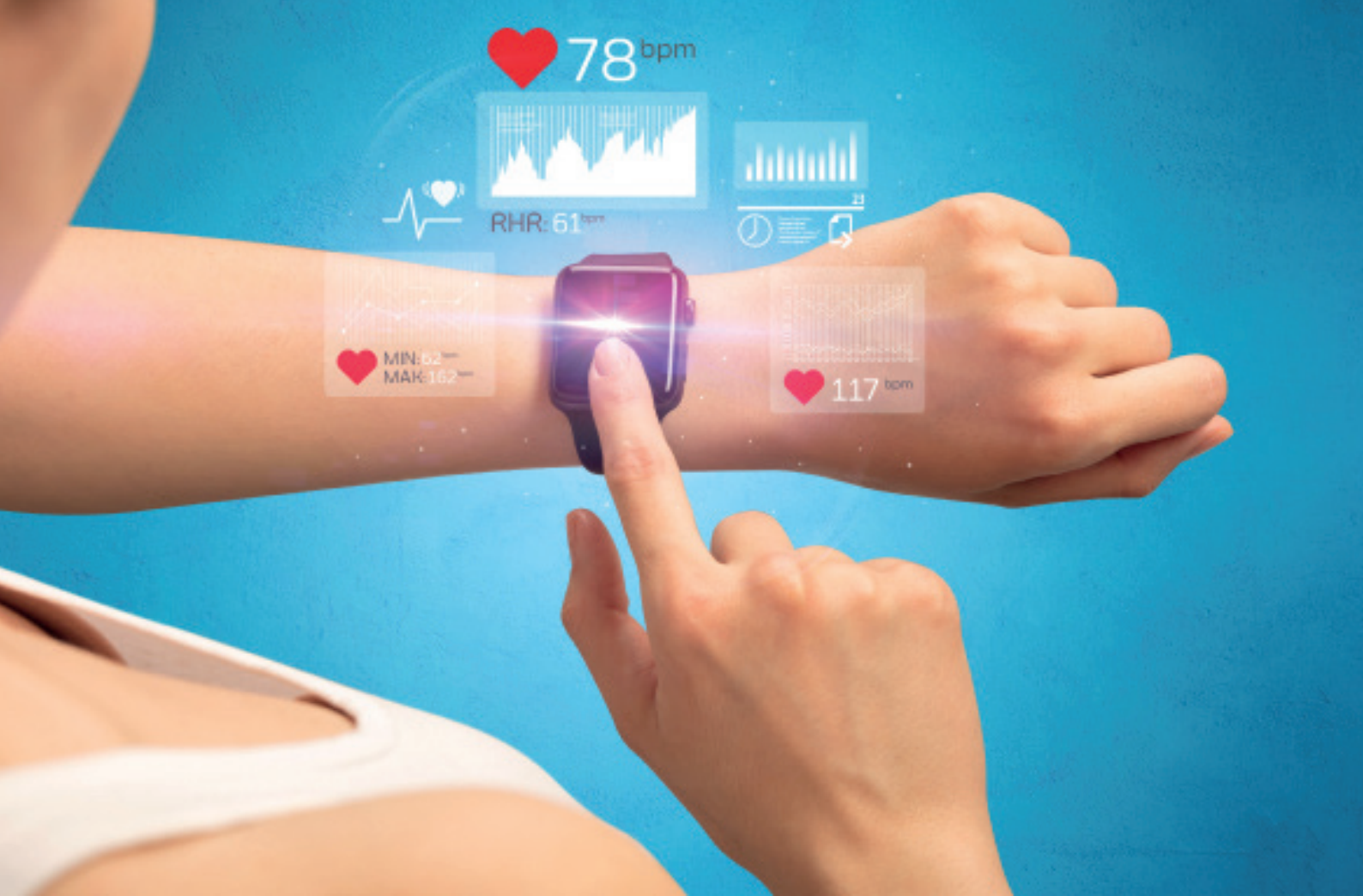
Make an accessible document that outlines each key stakeholders responsibilities and what they will be accountable for. This stakeholder register keeps everyone on the same page and can be edited throughout the project to keep everyone informed.

- **Decide on a communication strategy**

Different stakeholders will be comfortable interacting in different ways depending on the volume and frequency of communication required, one size rarely fits all. Try to only give them visibility of information that is relevant and important to them. Remember that too much information can be as frustrating as under-communication. For instance product development consultants may be used to interacting using software management tools such as, Jira, Monday.com or Wrike while component vendors may simply prefer email for occasional updates. Try to decide on a strategy that tailors communication to stakeholders needs while still providing an audit trail. As a rule of thumb consulting early and often usually results in a solution that is acceptable to most stakeholders.

- **Remember they're human**

A key part of being an effective product designer is having empathy for the people that use the products we design and trying to gain a deep understanding of their needs, desires and behaviour. This can also be extended to stakeholder management. Accept that humans do not always behave in a rational, consistent or predictable way and operate with an awareness of human feelings and potential personal agendas. By understanding the root cause of stakeholder behaviour, you can assess if there is a better way to work together to maintain a productive relationship.



CASE STUDY

STAKEHOLDER ANALYSIS FOR A WIRELESS WEARABLE VITAL SIGNS MONITOR

PROJECT BACKGROUND

A start-up healthcare software company has developed a novel AI powered vital signs monitoring platform. They have recently won funding via a government backed competition to develop a next generation clinical decision support system including wireless vitals signs monitors. The monitors should be capable of being worn on the patient's body continuously and accurately measure a wide range of vital signs including heart rate and body temperature.

The project aim is to automatically identify patterns in a patient's deterioration and suggest interventions to clinicians earlier than is possible through traditional methods.

The goal of the 12 month project is to deliver a small batch of working prototypes for initial user validation trials in two University Hospitals in the UK and EU. If feedback from the trials is positive there is the possibility of a further funding and support phase to help the project reach commercialisation.

Two of the founders have decades of software development and project management experience in the finance sector while the third is a trauma surgeon. The company doesn't currently have any internal medical hardware development resource or experience and will be relying on a consortium of development partners and sub-contractors to fill in the knowledge gaps.

STAKEHOLDER ANALYSIS EXAMPLE

At the beginning of the project the company decided to conduct a Stakeholder Analysis to help identify, prioritise and understand the complex stakeholder landscape in order to give this high risk project the greatest chance of success.

1. Identify stakeholders

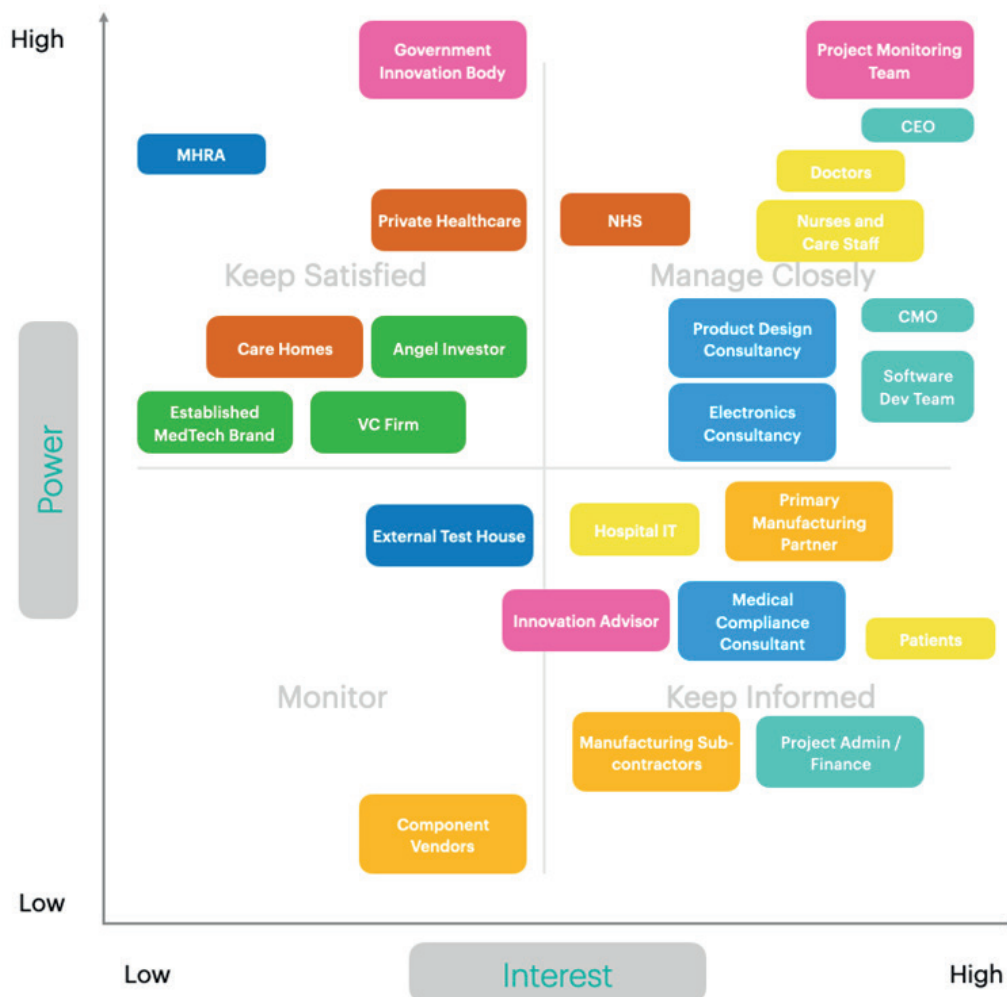
First a categorised list of all internal and external stakeholders was made. This included potential future stakeholders such as Angel Investors and Venture Capital Firms as the company recognised they would likely require significant external investment beyond the government funding to commercialise such a complex product.

Stakeholder Category	Key Stakeholder Person/Group Description	Project Role and Responsibilities
Internal	CEO (Chief Executive Officer)	Overall Company Vision and Project Strategy
	COO (Chief Operating Officer)	Project Management and Implementation
	CMO (Chief Medical Officer)	Clinical input and ensuring the product meets the end user's requirements
	Software Development Team	Build AI Clinical Decision Support System - Mobile App and Back End Integration
	Project Admin and Finance	Control financial transactions with funding body and sub-contractors/suppliers
External (Product Development Partners)	Product Design and Engineering Consultancy	Mechanical design, engineering, prototyping and testing of the wearable device
	Electronics and Firmware Consultancy	Electronics/firmware design and verification testing of the wearable device
	Medical Device Compliance Consultant	Setting up ISO 13485 Compliant Medical Quality Management System. Ensuring device is compliant to all relevant regulations.
External (Manufacturing Partners)	Primary Manufacturing Partner	Build and assembly and production testing of the product according to ISO 13485 QMS processes
	Manufacturing Sub-contractors	Produce and supply custom components to the Primary Manufacturing partner such as the device enclosure and packaging.
	Key Component Vendors	Supply key off-the-shelf electronics components to the Primary Manufacturing Partner
External (Government)	Government Innovation Body	Supply funding for project and monitor outcomes
	Project Monitoring Team	Group of clinicians from around Europe that created the competition including securing finance
	Innovation Advisor	Help advise and connect the company with the right contacts to support the project
External (Regulatory)	MHRA (Medicines and Healthcare Products Regulatory Agency)	Review product IMDD (Investigational Medical Device Dossier) to ensure risk is acceptable to conduct human trials.
	External Compliance Test House	Conduct device electrical safety and EMC (electromagnetic compliance) testing to relevant regulations. (ISO 60601)
External (End Users)	Doctors	Ensure Information presented to them from the system and accurate and relevant
	Nurses and Care Staff	Ensure the usability and robustness of the system is fit for purpose (Clinical Perspective)
	Patients	Ensure the usability and robustness of the system is fit for purpose (Patient Perspective)
	Hospital IT	Ensure effective integration with other IT systems and infrastructure
External (Customers)	NHS	Feedback on uses cases and business case
	Private Healthcare Providers	Feedback on uses cases and business case
	Care homes	Feedback on uses cases and business case
External (Potential Investors)	Angel Investors	Provide additional funding and experience to enable product to reach the next development milestone
	Venture Capital Firm	Provide additional funding to enable product to reach the market
	Established MedTech Companies	Provide additional resource, experience and network to scale the company

2. Prioritise stakeholders

Next stakeholders are prioritised according to their expected power and influence over the project. Note that these can shift as the project progresses and should be revisited throughout.

Power Interest Grid



3. Understand Stakeholders

Following prioritisation, the company had discussions with all key stakeholders to better understand their motivations and expectations as well as any reservations and potential conflicts that may arise. From this a stakeholder communication plan was developed to ensure that the individual needs of each were being met. This helps the company to build trust with stakeholders, anticipate situations and pre-empt decisions that should in turn have a positive impact on the project outcome.

Stakeholder Category	Key Stakeholder Person/Group Description	Influence Level	Needs and Expectations	Engagement Strategy	Responsibility
Internal	CEO (Chief Executive Officer)	High	<ul style="list-style-type: none"> - Kept up to date on progress including key milestones and metrics - Informed of any issues impacting project delivery 	<ul style="list-style-type: none"> - Attendance weekly project progress review - Attendance at bi-weekly design review meeting - Provide monthly update report 	Project Manager (COO)
	Software Development Team	High	<ul style="list-style-type: none"> - Detailed user and technical requirements - Feedback from user testing 	<ul style="list-style-type: none"> - Daily stand-up meetings - Set-up project portal on appropriate Project Management software - Attendance at bi-weekly design review meeting 	Project Manager (COO)
	Project Admin and Finance	Medium	<ul style="list-style-type: none"> - Aware of project payment milestones from government body - Payment schedules of suppliers 	<ul style="list-style-type: none"> - Informal (weekly) - Attendance at monthly finance review meeting 	Project Manager (COO)
External (Product Development Partners)	Product Design and Engineering Consultancy	High	<ul style="list-style-type: none"> - Detailed user and technical requirements - Access to project plans and key milestones - Well defined project scope - Regular feedback from Company 	<ul style="list-style-type: none"> - Regular stand-up meetings - Set-up project portal on appropriate Project Management software - Attendance at bi-weekly design review meeting 	Project Manager (COO)
	Electronics and Firmware Consultancy	High	<ul style="list-style-type: none"> - Detailed user and technical requirements - Access to project plans and key milestones - Well defined project scope - Regular feedback from Company 	<ul style="list-style-type: none"> - Regular stand-up meetings - Set-up project portal on appropriate Project Management software - Attendance at bi-weekly design review meeting 	Project Manager (COO)
	Medical Device Compliance Consultant	Medium	<ul style="list-style-type: none"> - Detailed regulatory goals for the product at certain stages in the products lifecycle. (CE by X, FDA Clearance by Y etc) 	<ul style="list-style-type: none"> - Bi-weekly QMS Progress review meeting 	Project Manager (COO)
External (Manufacturing Partners)	Primary Manufacturing Partner	High	<ul style="list-style-type: none"> - Detailed manufacturing documentation and spec - Key production milestones well in advance - Understand scope of support required 	<ul style="list-style-type: none"> - Attendance at bi-weekly design review meeting - Bi-weekly QMS Progress review meeting 	Project Manager (COO)
	Manufacturing Sub-contractors	Medium	<ul style="list-style-type: none"> - Detailed manufacturing documentation and spec - Key production milestones well in advance 	<ul style="list-style-type: none"> - Review meetings as necessary 	Primary Manufacturing Partner
	Key Component Vendors	Low	<ul style="list-style-type: none"> - Key production milestones well in advance 	<ul style="list-style-type: none"> - Review meetings as necessary 	Primary Manufacturing Partner
External (Government)	Government Innovation Body	High	<ul style="list-style-type: none"> - Ensure project is meeting the terms of the contract - Ensure value to the economy and taxpayer - Correct finance documentation filled out in order to process claims 	<ul style="list-style-type: none"> - Quarterly project progress reports - Final project outcomes report 	Project Manager (COO)
	Project Monitoring Team	High	<ul style="list-style-type: none"> - Ensure prototypes produced meet the required standard set out in the project brief. - Ensure the outcome meets the needs of the end users (clinical and patient) - Make sure the project is a success in order to apply for follow-on funding 	<ul style="list-style-type: none"> - Provide monthly update report - Quarterly Project Progress Review Sessions 	Project Manager (COO)
External (Regulatory)	MHRA (Medicines and Healthcare Products Regulatory Agency)	High	<ul style="list-style-type: none"> - Clear understanding of the function of the product and its intended use - Clear outline of the intended human trial protocol 	<ul style="list-style-type: none"> - Introduction meeting to understand MHRA requirements - Provide Draft and final IMDD Documents for review 	Project Manager (COO)
	External Compliance Test House	Medium	<ul style="list-style-type: none"> - Clear understanding of the standards the product will be tested to - Supplied with correct information in technical file 	<ul style="list-style-type: none"> - Introduction meeting to introduce the product - Emails/call as necessary - On-site attendance during compliance testing as required 	Project Manager (COO)/Product Development Partners
External (End Users)	Doctors	High	<ul style="list-style-type: none"> - Concerned that product supports rather than tries to replace them. - Feel included in the product development - Feedback taken on board and fed into product requirements 	<ul style="list-style-type: none"> - Several requirements workshops, 1 on 1 interviews and questionnaires early in the project. - User testing and human factors workshops once early prototypes become available 	Project Manager (COO)/Product Development Partners

filament

FILAMENT PROFILE

At Filament we believe that successful product development strikes the fine balance between customer desire, technical feasibility and business viability.

Our multidisciplinary team of strategists, designers and engineers specialise in the development of connected hardware, we work at the intersection of physical and digital product and service innovation. We live in an increasingly complex world where everything is more interconnected than ever before. Products must now encompass the entire customer experience, not just the physical object.

Our goal is to positively impact people's lives and the wider world while adding measurable value to our client's businesses. Over the past decade we've helped more than 100 ambitious Start-Up's, SME's and Global Organisations successfully launch new products and innovations.

Projects range from short-term assistance with strategic decisions to long-term collaboration through the whole product development cycle - from concept to manufacture, including product verification testing and regulatory compliance support.

If you don't yet have a full development and manufacturing team in place, we can also help to shortlist and select right-sized design, technology and manufacturing partners.

We have extensive experience across diverse markets with key sectors including:

- Digital Health and MedTech
- Renewable energy, Circular economy and Cleantech
- FinTech and Security
- Connected transport and Smart Buildings
- Retail and Customer Experience
- Laboratory automation and Industry 4.0

Our mantra of Product Design Connected not only describes the types of projects we work on, it also encompasses our highly collaborative approach. We help clients navigate the complexities of new product development from initial strategy through to production and market launch connecting them with the right partners along the journey.



WANT TO KNOW MORE?

**PRODUCT DESIGN SCOTLAND'S FULL
TOOLKIT SERIES IS [AVAILABLE HERE.](#)**

PDS SPONSOR



CORPORATE SPONSORS

