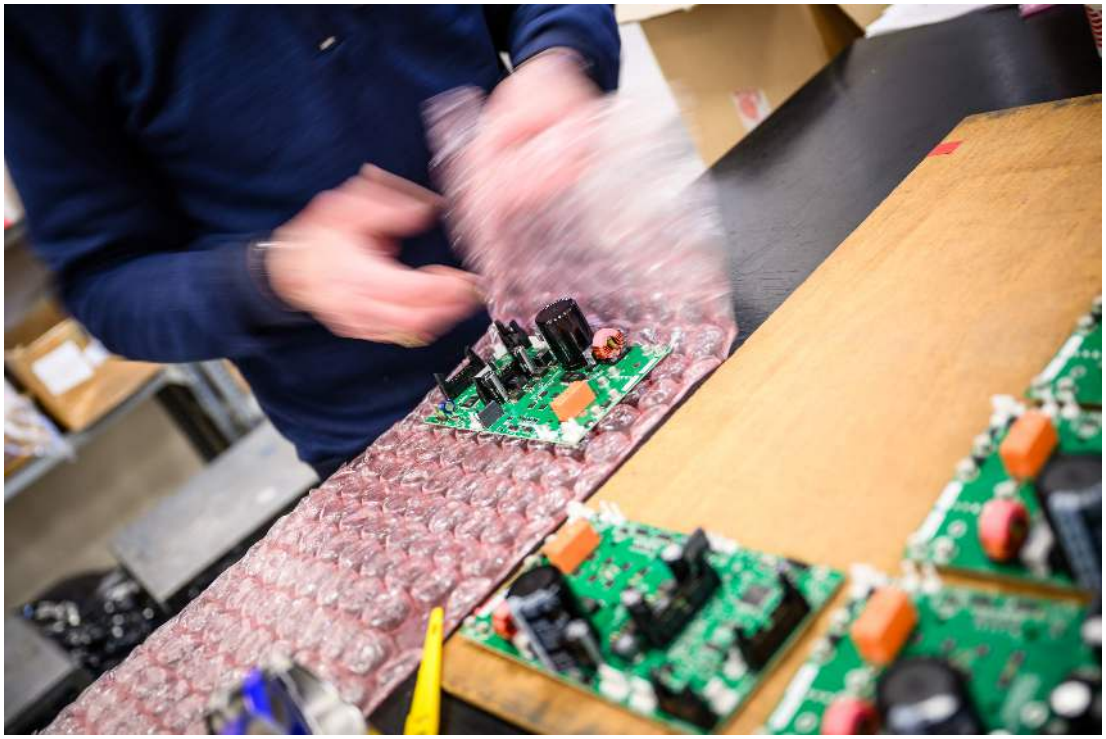
GETTING PCBAs RIGHT FIRST TIME: WHY TODAY'S DEFENCE MARKET NEEDS A STRONG NPI PROCESS



With defence spending continuing to surge against a backdrop of mounting geopolitical tension, the need for robust supply chains capable of delivering critical electronics right first time has rarely felt more important.

The industry needs electronics partners that can respond with accuracy, scalability and discretion. This keeps projects on track but it also ensures public money is spent effectively.

Having a solid New Product Introduction (NPI) process in place, which catches errors before they impact production, is central to achieving this. It's critical for reducing time-to-market, ensuring product quality and cost control.

At Offshore, we set ourselves apart through our rigorous NPI process, throughout which our customers play a crucial role.

This iterative process puts us in an ideal position to help defence primes and OEMs respond to the world's increasingly diverse threats, in turn helping to maximise the value of every pound spent in the sector.

Our NPI process is integral to the unparalleled levels of quality assurance and manufacturing excellence that our company is known for. But what exactly does the NPI process involve, and why is it so crucial to ensuring consistently high-quality results for our customers?

In this piece, we break down the key points.

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How it works

After a new customer comes on board with us, and the initial conversations with our sales team have taken place, the new product in question is uploaded to our system. At this point, a review of material content is held at a dedicated NPI meeting.

This meeting, which brings together colleagues from our production, engineering, QA, testing, purchasing and sales teams, involves a discussion about any potential difficulties that might occur during the build stage and how they can be prevented. It provides an early opportunity to avoid any time and cost-consuming snags later during the assembly stage - such as parts on long lead times, manufacturability concerns or build queries – which is vital for fast-paced industries that work to tight deadlines, defence chief among them.

Given our extensive experience working with customers in industries with similar electronics requirements, many of the new products we produce share similarities to those we have worked on previously. This means any features that have been successful in the past and we feel might work well for new projects – such as thermal relief pads – are considered for suitability on a case-by-case basis.

The first few units built are built as sample boards based on the specification are created and shared with the customer for their feedback. This gives the customer an opportunity to voice any issues with the design, preventing any features they are unsatisfied with ending up in the final product.

Above: A series of checks and inspections catches errors long before they reach production

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Once the build begins, extra checks are carried out at every stage to ensure a high level of quality is maintained. Before the surface mount programme is first written, for instance, visual checks are also made by the QA team to check for any remaining oversights, such as bill of materials (BOM) errors or process flow considerations. Though rare, this extra level of care pays dividends, allowing Offshore to minimise returns or redesigns.

During this stage, we also collate all our first-off findings, including any issues experienced. This information is then fed back to the customers at the end of the build as part of the approval process. Once the board has been approved, the NPI process is complete, and full production can begin. If a product is only provisionally approved, however additional sample boards can be created to ensure a customer has complete control of the build.

Below: The strength of Offshore's NPI process lies in the input of all company directors

Choosing the right partner

The rigour of our NPI process sets Offshore apart from other CEMs.

Our engagement with customers is far more involved than a typical subcontractor, demonstrating our understanding of unique requirements, as well as the value that we place in the input of in-house design and engineering teams.

Every member of our highly skilled team is trained to IPC610 and asked to target IPC Class 3. However, unless specified otherwise Offshore will allow class 2, allowing the company to scale-up production of assemblies for harsh environments, such as those deployed thousands of feet beneath ocean surfaces.

These benefits are combined with our status as a Guernsey-based business – a prime location for safeguarding sensitive electronics IP. As such, Offshore stands as the perfect CEM partner for defence customers, with the team, experience, and high levels of workmanship that the industry demands.

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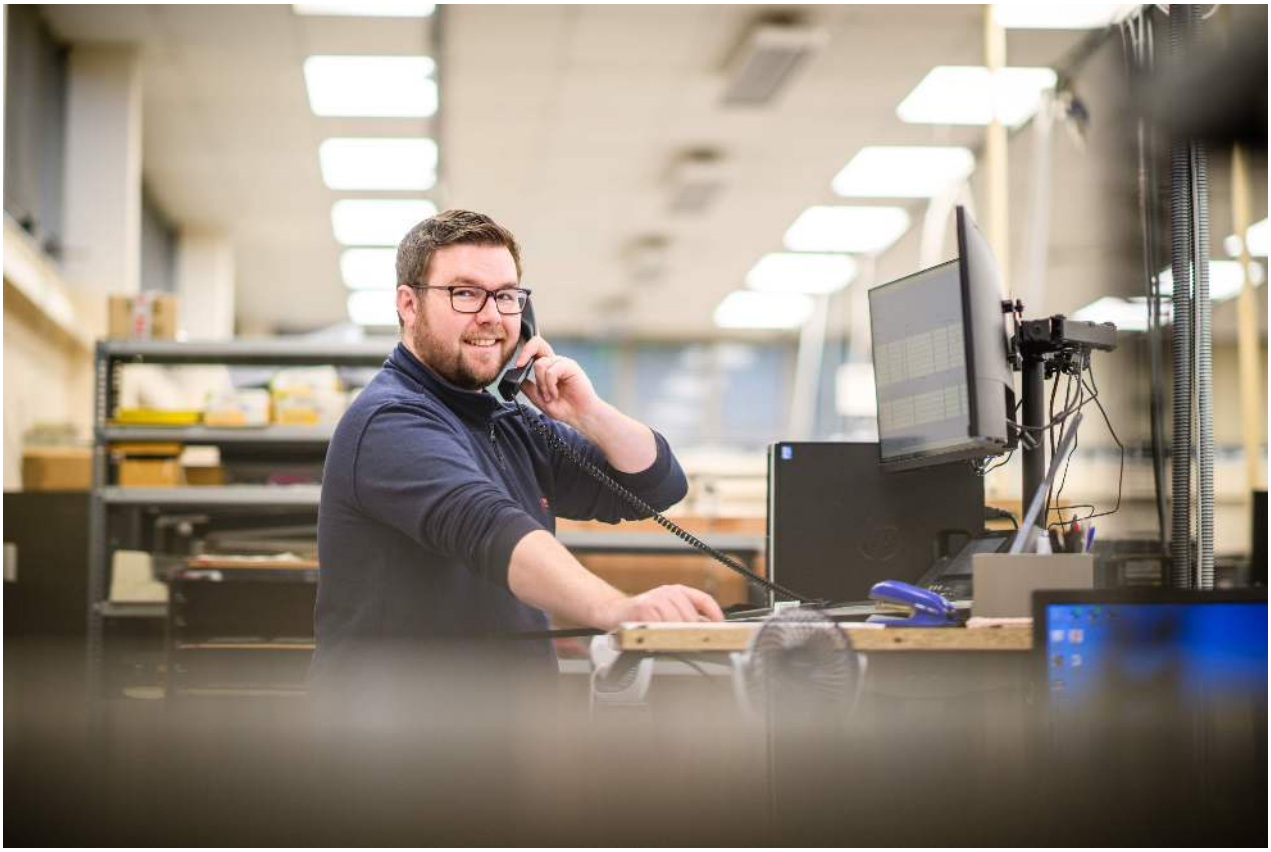
QUICK CHECK– WHAT MARKS OUT A GOOD NPI PROCESS?

- It has **cross-department collaboration** – bringing together design, procurement, quality, build and test teams early in the development cycle
- It features **design for manufacturing (DFM) and design for testing (DFT) reviews** – to spot issues before they increase costs
- There's a **standard and repeatable framework** – including stage gates, deliverables and checklists
- It uses **product lifecycle management software** – to manage version control, BOMs and engineering change notices
- The CEM is able to **consult effectively** – including layout issues, component selection and test strategies
- It emphasises **speed AND quality** – maximising use of automation, where appropriate
- Features **pilot runs and prototypes** – to guarantee a link between the design and finished board



Offshore's NPI process has been developed through constant communication with customers

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