Title

Experimental Design in the Drone Research and Development Process

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Abstract

The drone research & development process is young and growing fast. Like all scientific processes applied to real needs in our society it is shaping into a series of peaks of success and valleys of death. And like all scientific processes in this context, the inability to overcome the death valleys is due largely to the lack of a solid methodological framework that supports the delivery of evidence-based results.

So what can we learn from other scientific processes and how do we translate that knowledge into the drone R&D process?

In health research, the clinical development plan of medical devices and pharmaceutical products applies the concept of experimental design to test the efficacy and safety of a new 'tool/intervention/method'. It follows rigorous and highly regulated pathways to claim robust evidence that such tools show real health benefits to the user in a safe manner.

The methodological framework underpinning experimental design in clinical research is by no means trivial, it is a living process in itself and it is stress-tested constantly by the introduction of new, innovative methods.

The drone R&D process could benefit greatly from the lessons learned in the peaks and valleys of clinical research. Two case-studies are presented here, in the context of measuring the added value of drone technology to mountain search & rescue.