Why your hardware startup might have stalled: a systems-thinking perspective

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Applying a systems approach can enable complex, uncertain and challenging projects to be undertaken with progressively less risk.

Success in the world of hardware startups can be illusive. 97% of hardware startups fail (compared with 70% of tech startups). Great ideas can sink in unsuccessful underline funding rounds, rejected grant applications and stonewalled emails. Frustrations build and, in the worst of cases, once inspiring ideas become phycological burdens and the system that's there to support you becomes the target of blame for failure.

We are here to light this tricky and challenging innovation path: pointing out what could trip you up; challenging your thinking when you're going off in the wrong direction; providing insights and connections to accelerate your progress.

One of the biggest challenges we observe relates to sequential decision making and lack of a holistic plan. There is a tendency to quickly skip past understanding the market, user journey and customer requirements; focus on design then to think about manufacturing and; planning finances and cash flow in a reactive rather than proactive manner.

I am increasingly convinced that the antidote to this is Systems Thinking.

Systems Thinking

Systems thinking is a employing a mindset that focuses on the relationships between elements (components, decisions, activities, perspectives) rather than focusing on the individual things themselves. Applying a systems approach can enable complex, uncertain and challenging projects to be undertaken with progressively less risk.

Each area of consideration interconnects and influences the others. It is pointless, for example, to have a polished product render and technically beautiful engineering drawings (full maturity, in the innovators mind) without clarity about the volumes required, the manufacturing processes needed, the cost to manufacture and refined engineering detail to optimise manufacturing (correct radii for inflection mould flow, for example).

The relationships between all the component decisions (market, volumes, design, manufacturing processes etc.) needs to be considered from the outset. Information should be incrementally matured across the whole piece (each of the components of the design process) rather than fully matured at each point before moving on to the next. Awareness of this concept and a mental model of product development that accommodates Systems Thinking is half the battle.

I've yet to meet anyone who can complete this journey alone. Why would you? Diversity of skills and experience is not only opportunity, it's an absolute necessity when it comes to hardware development. Building a team of complementary skills is key. This is critical for raising investment and securing grant funding. Get them on board at the start to truly benefit from their experience. Share your ideas – get feedback and input from customers, peers and trusted advisors. Seek out criticism and be open to it. All too often, innovators can't make progress because they are so concerned about IP. Don't be precious about it or spend a fortune on an underdeveloped idea. Make IP work for you. Be clear about why you are investing.

Applying a systems approach can enable complex, uncertain and challenging projects to be undertaken with progressively less risk. Basically, it means think holistically and incrementally mature information for richer and better-informed decision making.

Navigating the Design to Manufacture Journey Webinars

We've been running a series of weekly webinars – Navigating the Design to Manufacture Journey – during #lockdown, where we engaged with a number of industry experts exploring all aspects of systems thinking from funding and investment to scaling up manufacturing. If you managed to join us for some or all of these webinars, great. If not, you can catch up on recordings from the series here.

Over the next 12 weeks we'll be releasing a series of articles covering the webinar topics in more depth. Watch this space.