

Extreme Precision Microsystem Product Commercialization- a start-up's journey from concept to volume

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There are many examples of technology start-ups that struggle to bring the intellectual concept from the design office to reality, often using small scale production where every employee has several roles. These nursery ventures often hope that they will be acquired before facing the daunting transition from a hobby or prototype shop to full scale manufacturing maturity; including the necessary infrastructure and business processes required in today's best practice environments.

There are also many start-ups that have survived those initial months and have found funding with understanding, patient and supportive investors, progressing to a state of profitable and sustained growth. However, those investors don't want to stay small, they naturally demand growth and comprehending how to do this safely becomes the challenge.

Success at this infant stage eventually presents a challenge far greater than market competition or market share, growth! All of the tools and techniques used when there were six members in the company, and where the CEO is also the designer and the installation engineer won't be successful in the next stage of this company's evolutionary journey. Standing still and remaining the same size, running a business as a life style is seldom an option as competitors are constantly replicating the competitive advantage of the intellectual property; any competitive advantage has a limited time window.

Often a small company with good investor support, or reserves can make the committed and enthusiastic leap to make significant investment in capacity in anticipation of order-book. However, demonstration of commitment alone in the absence of solid order-books can lead to cash flow issues if the order-book isn't linear and perfectly aligned to expenditure each month.

Then comes the challenge of scalability in manufacturing. No longer can assemblies be hand crafted by a doctorate engineer as they were at the outset, they have to be assembled in larger production volumes with predictable and sustained quality; and by production operators often using automated assembly equipment serving multiple geographies.

This presentation will focus on how our start-up business evolved to bring its intellectual property and competitive advantage to the market, to then mature further by converting and automating many of its manual high precision assembly processes for fabricating and assembling high precision high-speed optical switching systems. These processes have to be able to cope with fluctuation in demand and agility yet still deal with the challenges of skills, scalability, cash flow, sustained levels of product excellence and performance; and not least customer satisfaction.

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