Evolution of an Engineering Intensive Local Industry

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Overview

- RF/Microwave/Optical industry (telecommunications) has developed in Southeast Queensland over the last 20 years
- History and how (and why) it happened
- Estimates of growth and extent of industry
- Comments on overall strength and viability

Introduction

Technology Intensive Industries do not arise spontaneously, or by accident

High barriers to entry:

- Setup cost
- Market demand for products
- Development of sufficient intellectual property and ongoing innovation
- Sufficient skilled workers

Broad Influences

- Government policies (protection, R&D funding, purchasing)
- Economic conditions (access to funding, exchange rate)
- Industry specific issues (deregulation of telecommunications)

Often outside the control (or even knowledge) of fledgling local industry

Will try to focus on factors which are under control of local industry

Background

- RF industry in existence since 1920s, AWA major Australian company
- Microwave industry boost from WW2 then in 1970s with commercial satellites
- Australian electronics manufacturing industry in decline during 70s
- Major world industry by 1980 but not much in Australia even less in SE Qld
- UQ world class centre for microwave research in 1970s 80s

Creation of the Local Industry

- Fertile ground: UQ research MWG, PJK, RST, dozens of postgrads
- MWG persuaded Government to fund a new industry centre in Brisbane
- Microwave Technology Development Centre set up at UQ
- Right people, JBN

Early Days at Mitec

- Engineering intensive group
- Took on wide range of work
- Built up intellectual property and skills
- By 1987 had 12 staff and an established product range

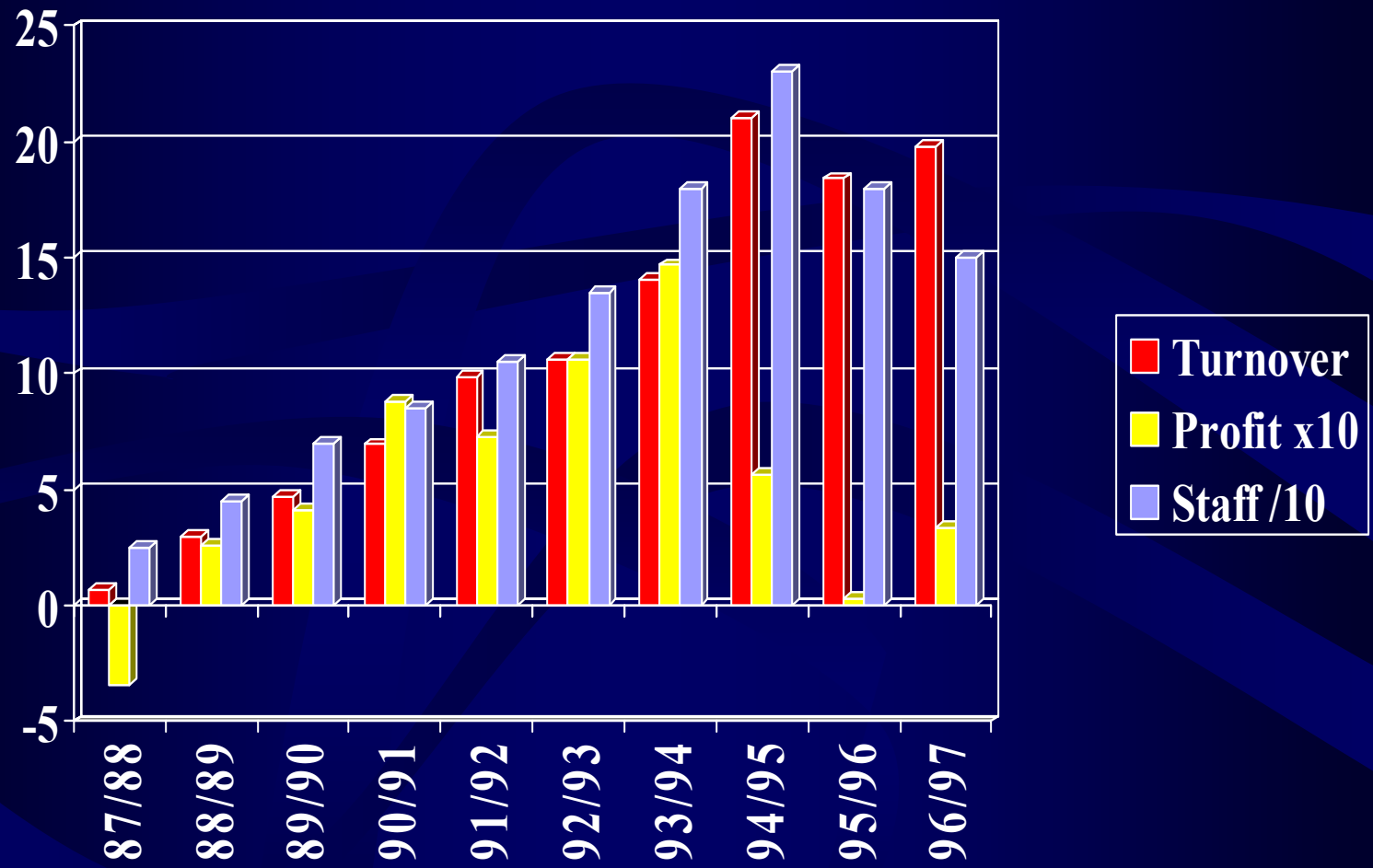
Conditions for Success

- Access to funds (initial grant, venture capital)
- Access to markets, customers
- Industry support (Codan, OTC)
- Efficient organisational structure
- **Strong engineering core and control over its own products**
- Competitive advantage; Microwave GaAs FET - new technology which temporarily leveled the playing field

Engineering Intensive

	Start 1987	*+4 yrs 1991*	*+8 yrs 1995*
Turnover $M	0.7	7	21
Total Staff	12	90	230
Engineers	6 (50%)	20 (22%)	35 (15%)

Mitec Growth



Spreading Out

- Mitec was vertically integrated, but started to subcontract (important)
- Satellite and Defence work - high level of quality and project control spread to subcontractors
- Space work not commercial success but outcomes for local industry were crucial to its development
- Engineering intensive nature of satellite work key to building local industry

Mitec Seeds Local Industry

- By 1995 there was an RF/Microwave industry in SE Qld, although concentrated
- After public listing, pressures increased, Mitec began to fragment
- Trained people left to start other companies
- Codan takeover in late 1997

Local Industry Flourishes

- Burgeoning Cellular market for filters and microwave links
- Diversity of subcontractors, precision machining, electroplating, PCB assembly
- Other RF manufacturing companies on scene e.g. Voxson, Elpro
- High water mark reached April 2000
- Approximately 500 people, $80M

Effect of Stock Market Slump

- Telecommunications sector devalued
- Capital investment cut back
- SE Qld Industry stabilised and survived perhaps due to diverse range of markets and activities
- Larger companies restructured, smaller ones found new market areas

Current State of Industry

- More diverse than Mitec days, although no satellite work
- Engineering skills which are the basic engine for the industry are spread out in sufficient concentrations to develop world competitive products
- Strong supporting infrastructure has developed e.g. die casting, supply chain, SMT pick & place, test facilities
- Global relevance, e.g. Filtronic only foreign supplier to NEC base stations

Size of RF/Microwave Industry

Definition used:

- Product design, manufacturing, marketing done or controlled locally
- Subcontractors providing specialised services or products
- Excludes importing/distributing overseas components and products even though contributes to overall industry activity

Industry Size Estimate

	98/99	99/00	00/01	01/02	02/03
EMS	3/0.4	8/2	10/1.7	12/2.2	16/2.5
Filtronic	81/12.5	104/19.8	242/45.7	189/36.9	78/13.8
Micreo					23/3.4
Codan	140/11	130/19.1	100/17.5	75/14.1	45/7.5
G'probe					10
Other			~60		~45
Millatec	3/0.2	10/0.8	12/1	15/1.5	12/1.2
Surtek	8/0.5	10/0.7	12/0.8	15/1.0	15/1.7
Ferra	10/1	15/1.5	20/2	40/5	30/3
Other			~40		~30
TOTAL			**495**		**305**

Conclusion

- What was the Mitec “magic”?
- Culture of technical excellence, diverse skills created, real desire to do it locally
- Could it happen again? maybe, but most companies narrow their focus
- Industry now of sufficient size that engineers can move between companies, driving up the price of labour and getting some small reward for building the industry in the first place