

The Albright Strategy Group

Roadmaps and Roadmapping

Technology Futures

Strategy

www.albrightstrategy.com

Roadmaps for Global Platform Products

Developing and Launching Global New Products
Product Development Management Association
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Key Points

- **Roadmaps and Roadmapping**

Help people clarify, link, communicate and execute plans.

- **Product-Technology Roadmaps**

Enable product teams to link business strategy, product plans, and technology development.

Help coordinate across product lines and enable clear communication with customers and suppliers.

- **Product Platform Roadmaps**

Coordinate component subsystems or local features/adaptation.

Track progress, gaps, and help the team identify when changes are needed.

Roadmaps and Roadmapping

A Roadmap

- is the view of a group of how to get where they want to go or achieve their desired objective. (*Discipline*)
- helps the group make sure the capabilities to achieve their objective are in place at the time needed. (*Focus*)

Roadmapping

- is a *Learning* process for the group.
- is a *Communication* tool for the group.

Types of Roadmaps *

- **Science and Technology Roadmaps**
 - ONR, Bibliometric methods
- **Industry & Government Roadmaps**
 - Semiconductor (SIA), NEMI Component Roadmaps
 - Aluminum, Glass, Forging
- **Corporate Roadmaps**
 - Product Roadmaps
 - Manufacturing Roadmaps
 - Component Roadmaps
 - Product-Technology and Platform Roadmaps

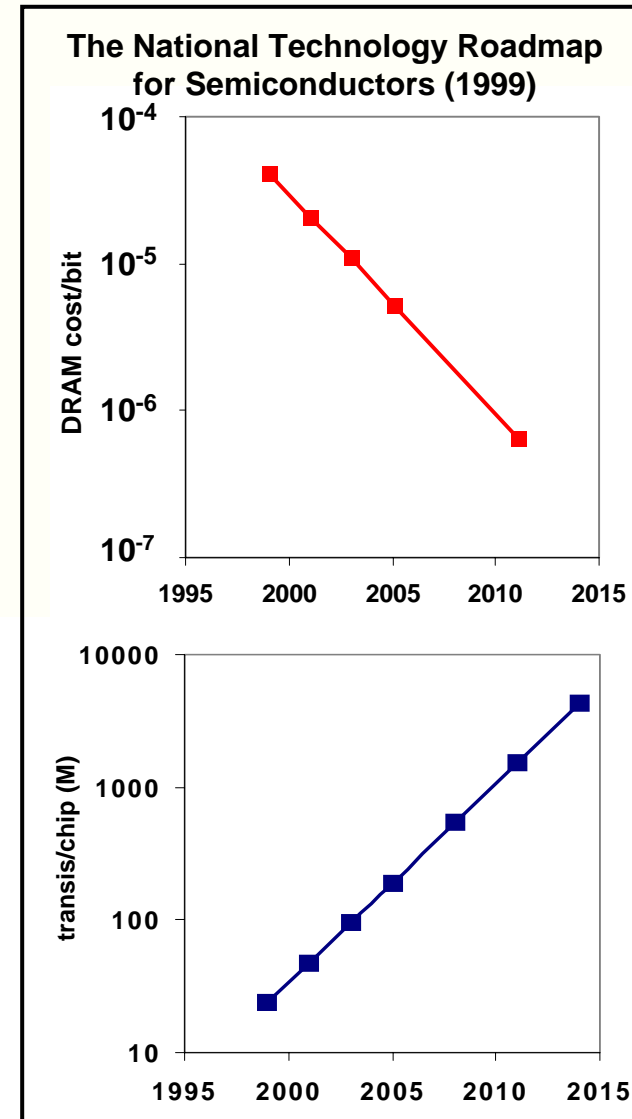
* Roadmaps can represent the need, current/planned capability or both

Key Objectives:

Identify or Set a Future Direction

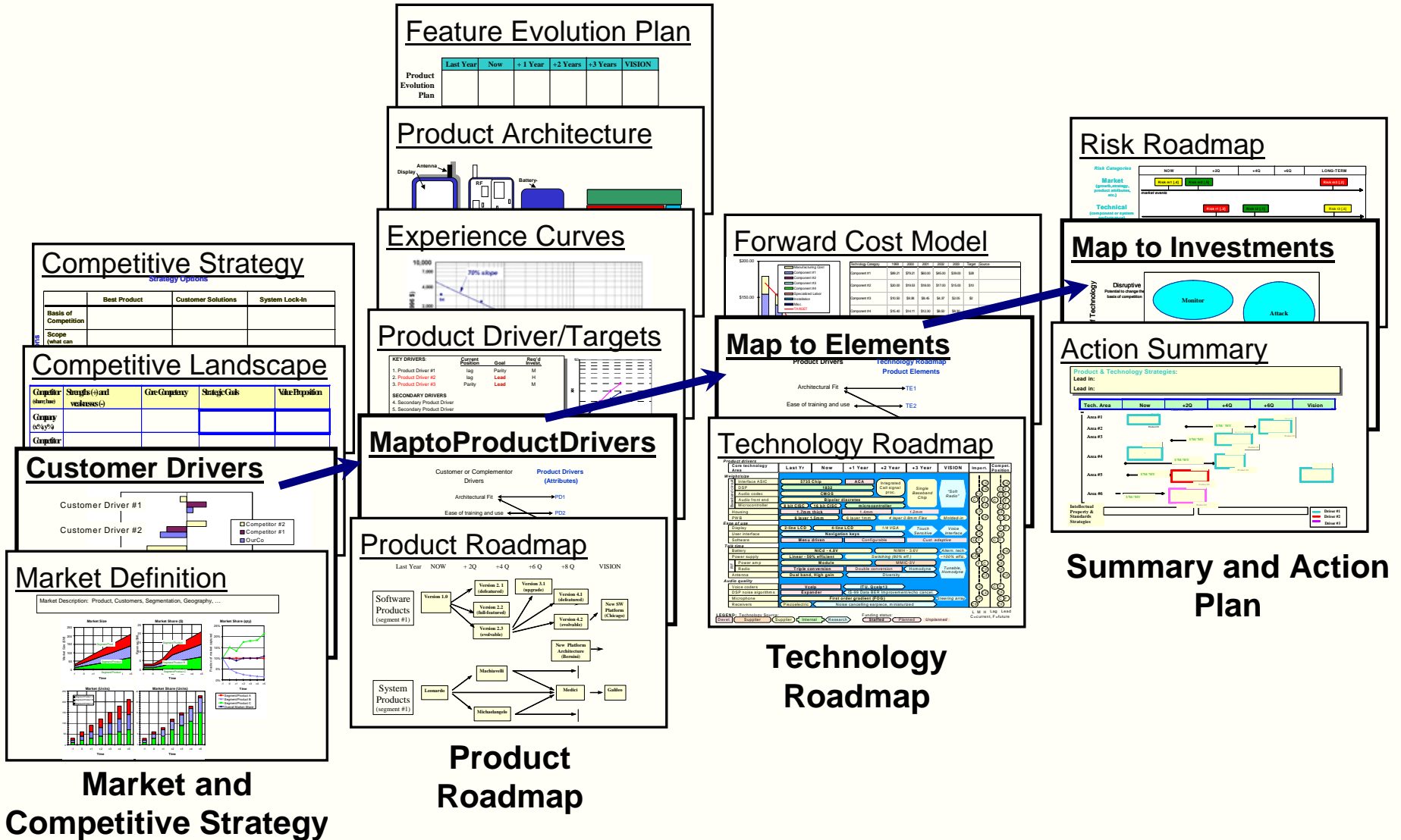
Coordinate Execution

Set and Monitor Direction, Coordinate Execution, Portfolio Management

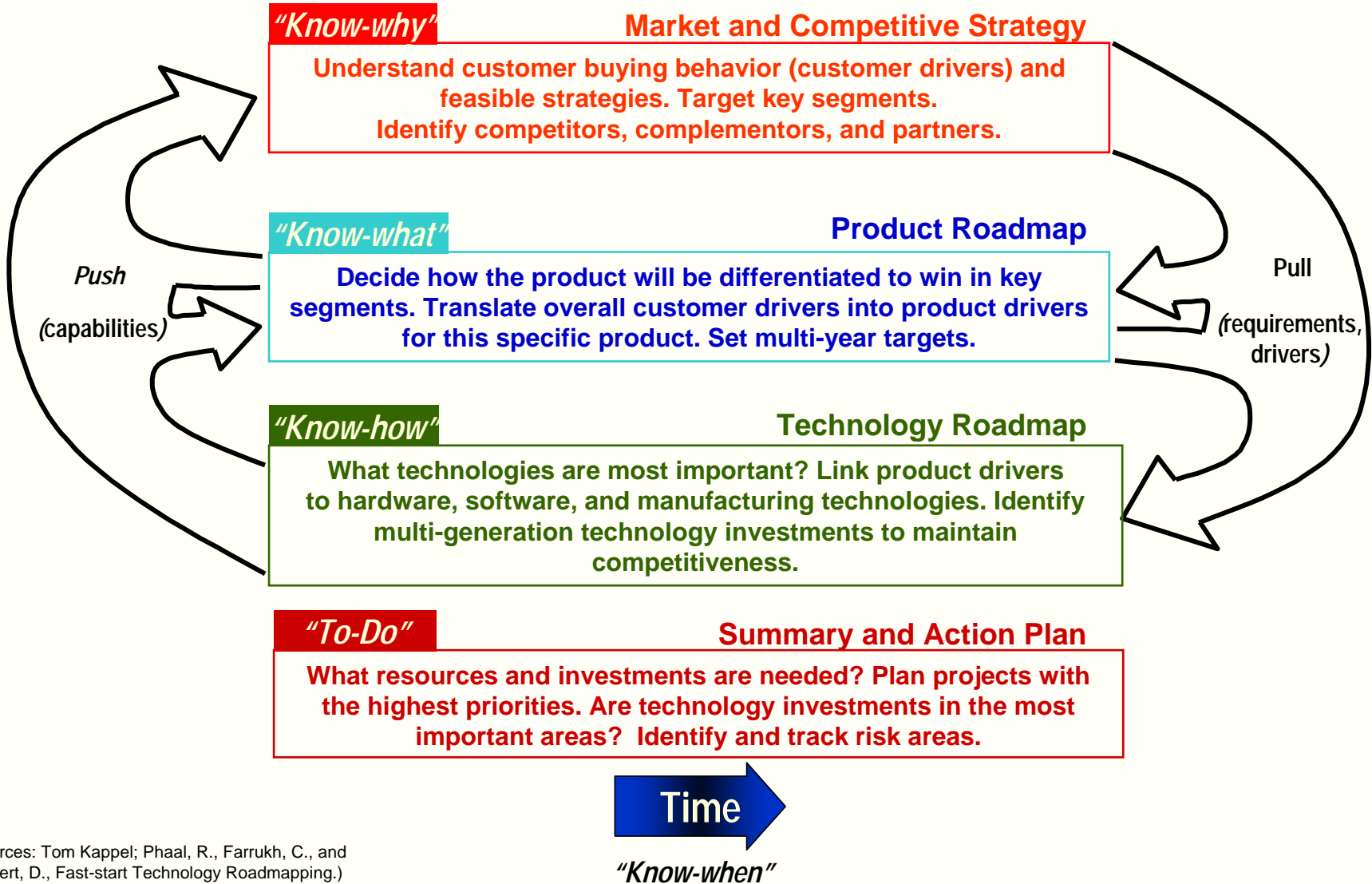


Product-Technology Roadmap

A Business Planning Tool



Roadmap Planning Steps



(Sources: Tom Kappel; Phaal, R., Farrukh, C., and Probert, D., Fast-start Technology Roadmapping.)

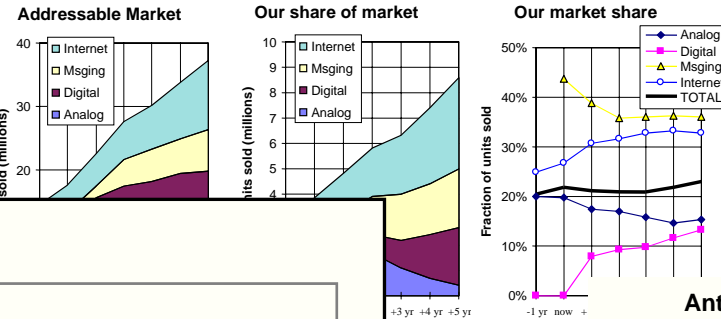
1. Market and Competitive Strategy:

Wireless Handset Example

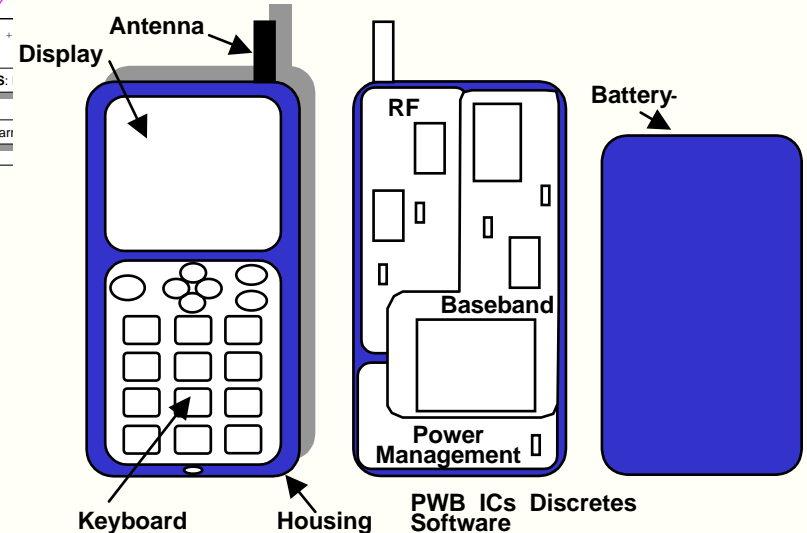
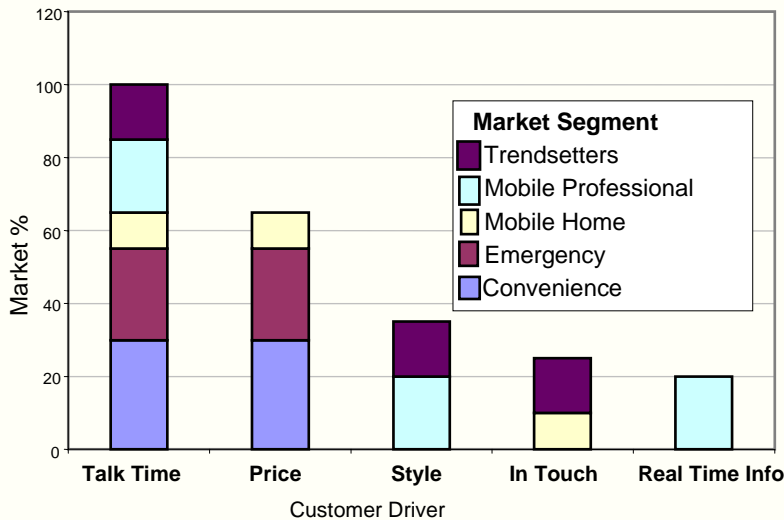
Competitive Landscape

Competitor (Market share annual %; cumulative share %)	Strengths (+) and Weaknesses (-), Competitive Advantages	Core Competencies Partnerships, Alliances	Strategic Direction: business goals/targets, value proposition
OurCo (20%; 10%)	+ Intellectual property + RF design <i>Product.com, Manufacturing cost</i>	DSPs and algorithms Speech recognition	First to market with CDMA Low-cost GSM phone Mass market (retail outlets) Low size and weight Personalized terminal
		Strategy	Countermeasures
		Global wireless leadership Defend market share Continue quality program	Move market to be style/feature based
		Increase US capacity Fast follow new technol. #2 in everything	Move to outsourced manufacturing. Partner with chipset suppliers
		Make CDMA dominant Control standard	Bring new internet features to market early

Market Share and Growth



Customer Drivers



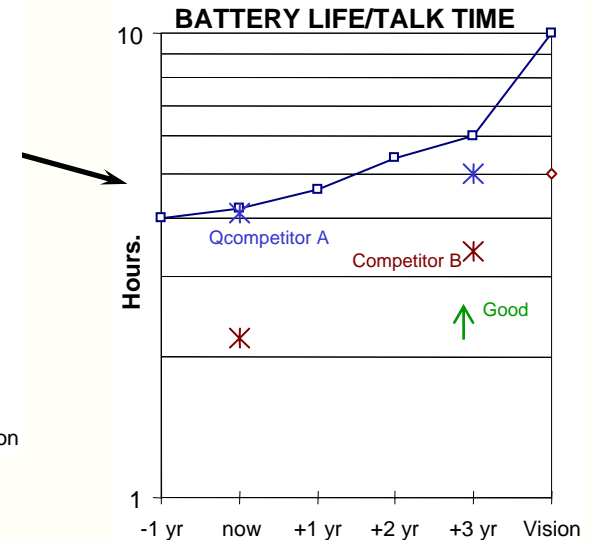
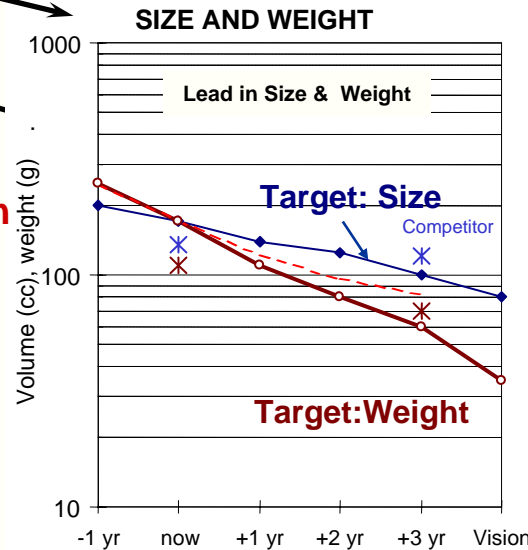
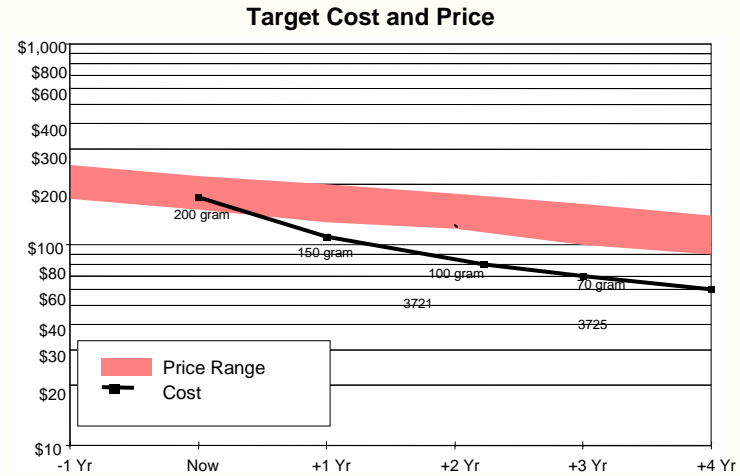
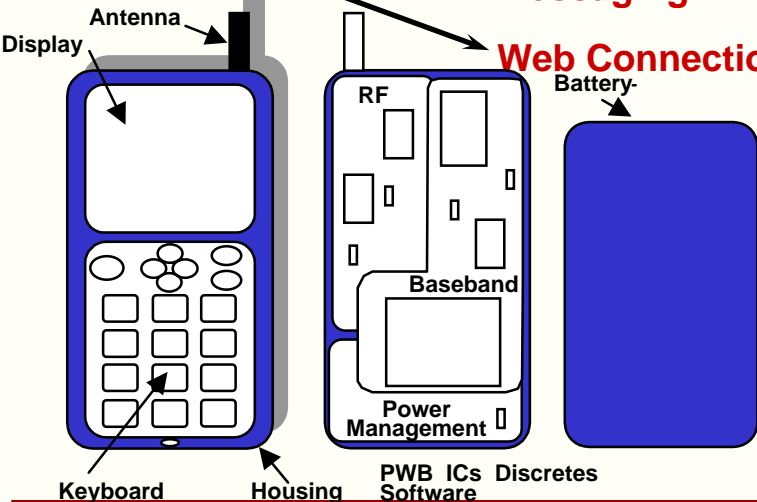
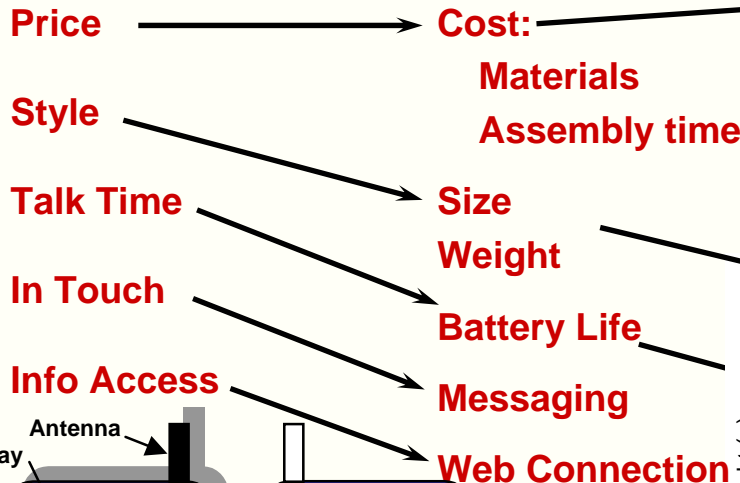
2. Product Roadmap:

Product Drivers link Customer Needs to Technologies and Targets

Wireless Handset Example

Customer Drivers

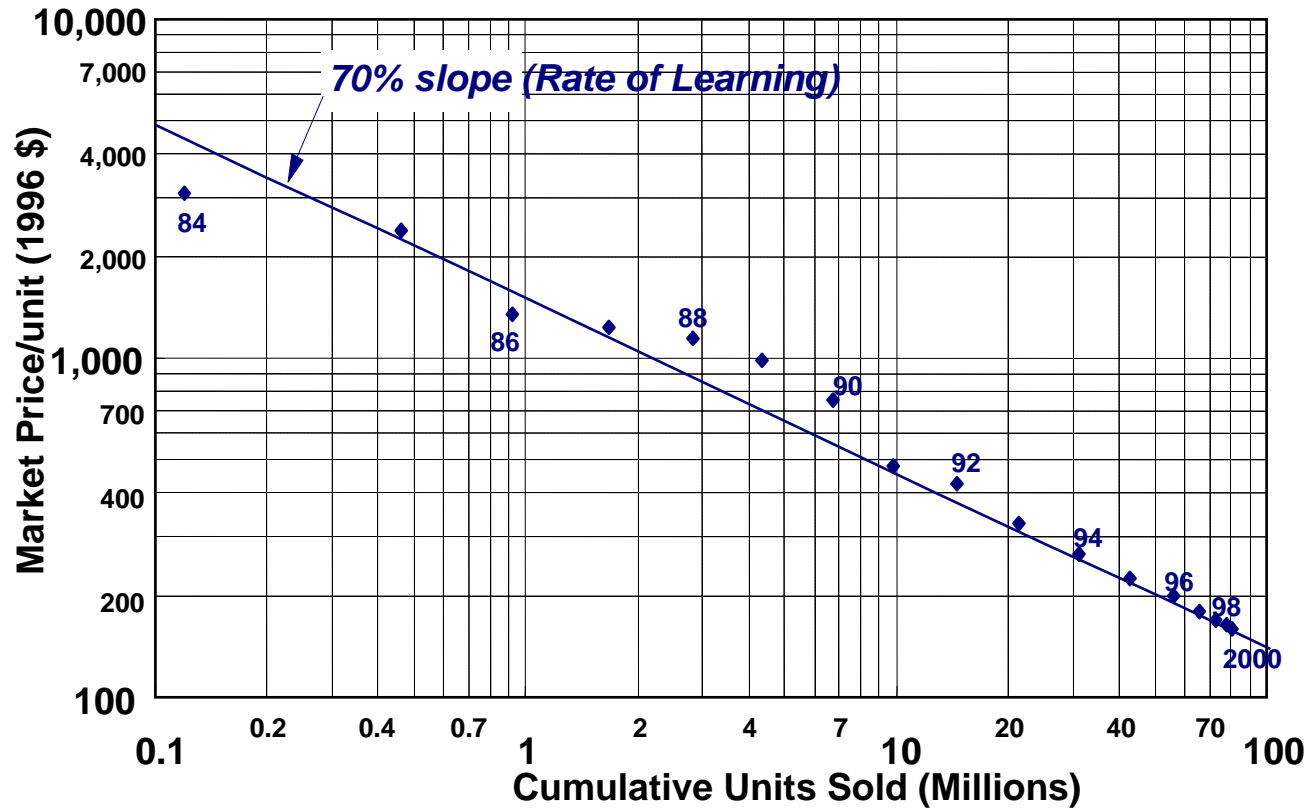
Product Drivers



Using the Past to Forecast the Future

Experience Curves Capture Many Drivers

WIRELESS HANDSET PRICE



Culture: group, corporate, professional, and industry behaviors

Supply: technology that differentiates or disrupts, product platforms, product realization methods, production

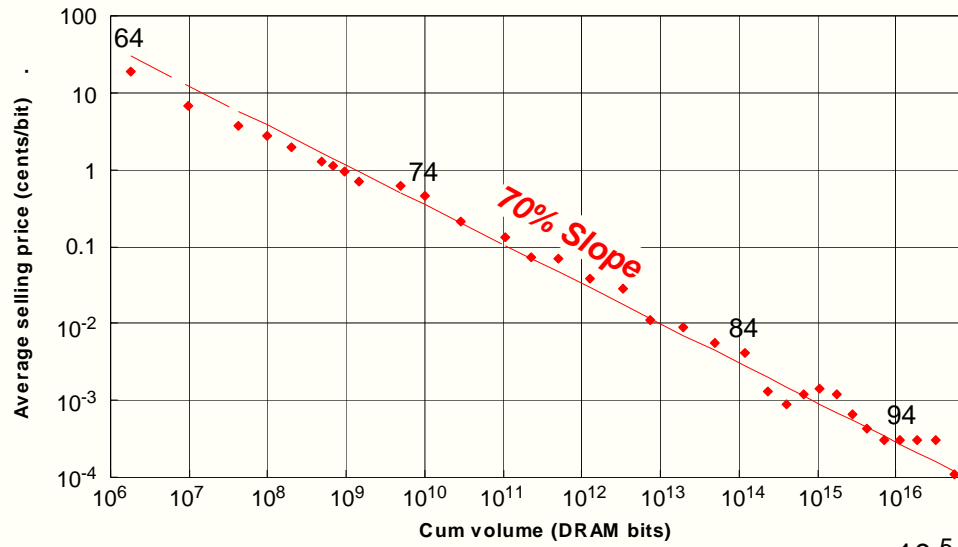
Demand: marketplace, elasticity, competition level, regulatory climate, market learning potential

Operating Environment: system architecture, complex requirements, standards

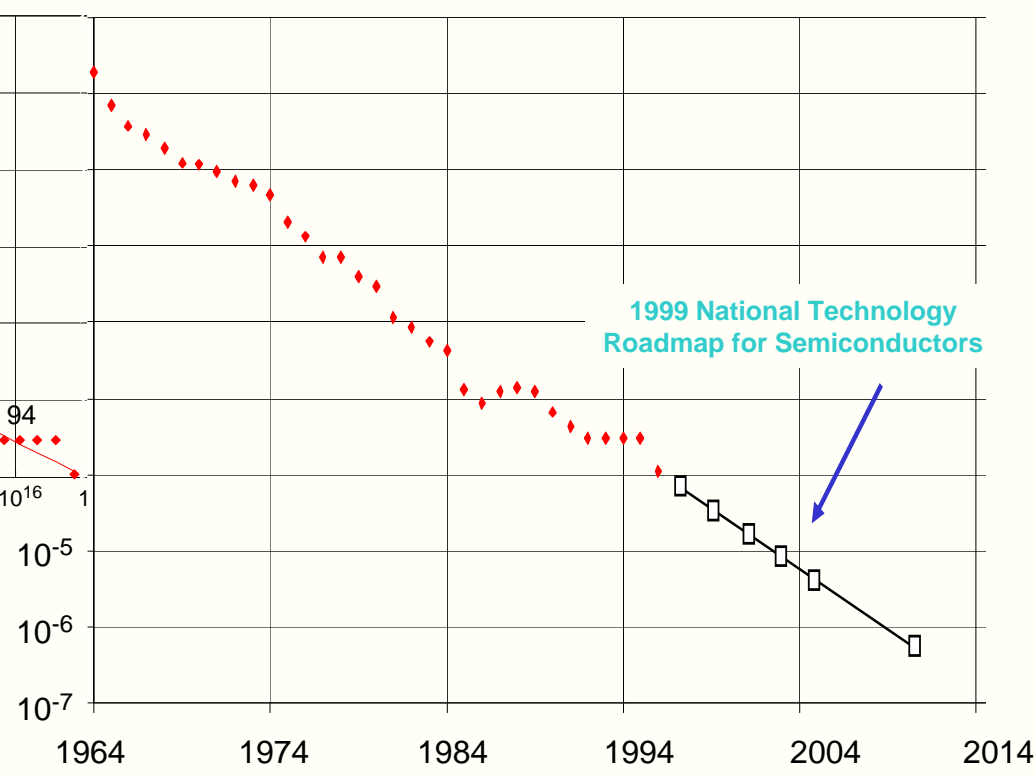
Using Experience:

Example – Semiconductor Memory (DRAM)

Experience Curve

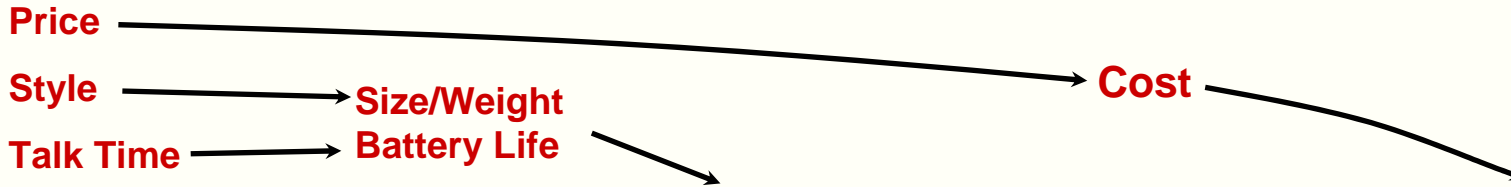


Learning Curve

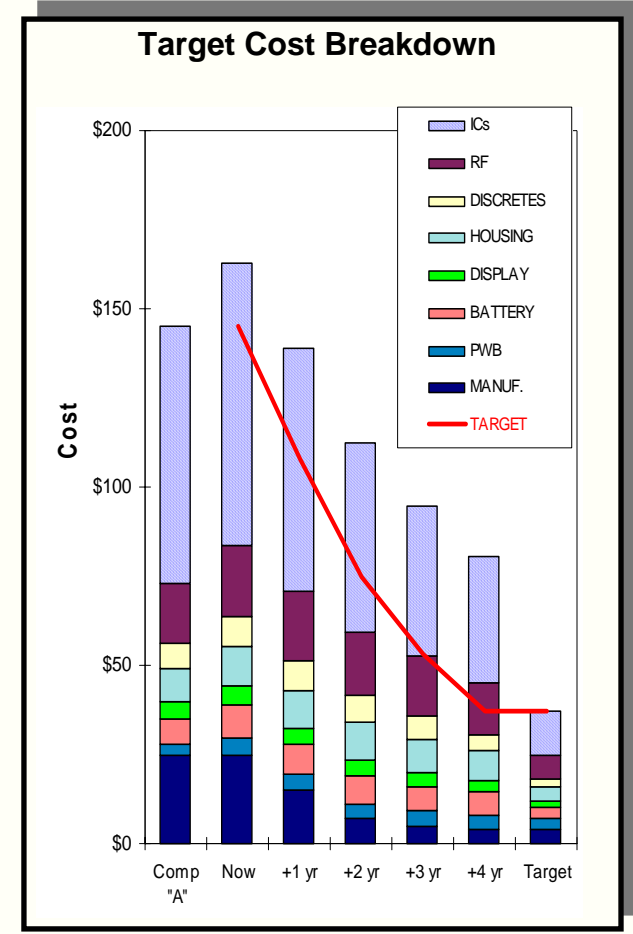


- The technology driver for all electronic industries
- Repeated, significant changes in product and technology: 4 bit --> 4 Megabit/chip -->
- “Moore’s Law” coordinates the many players in industry

3. Technology Roadmap: Organized by Drivers

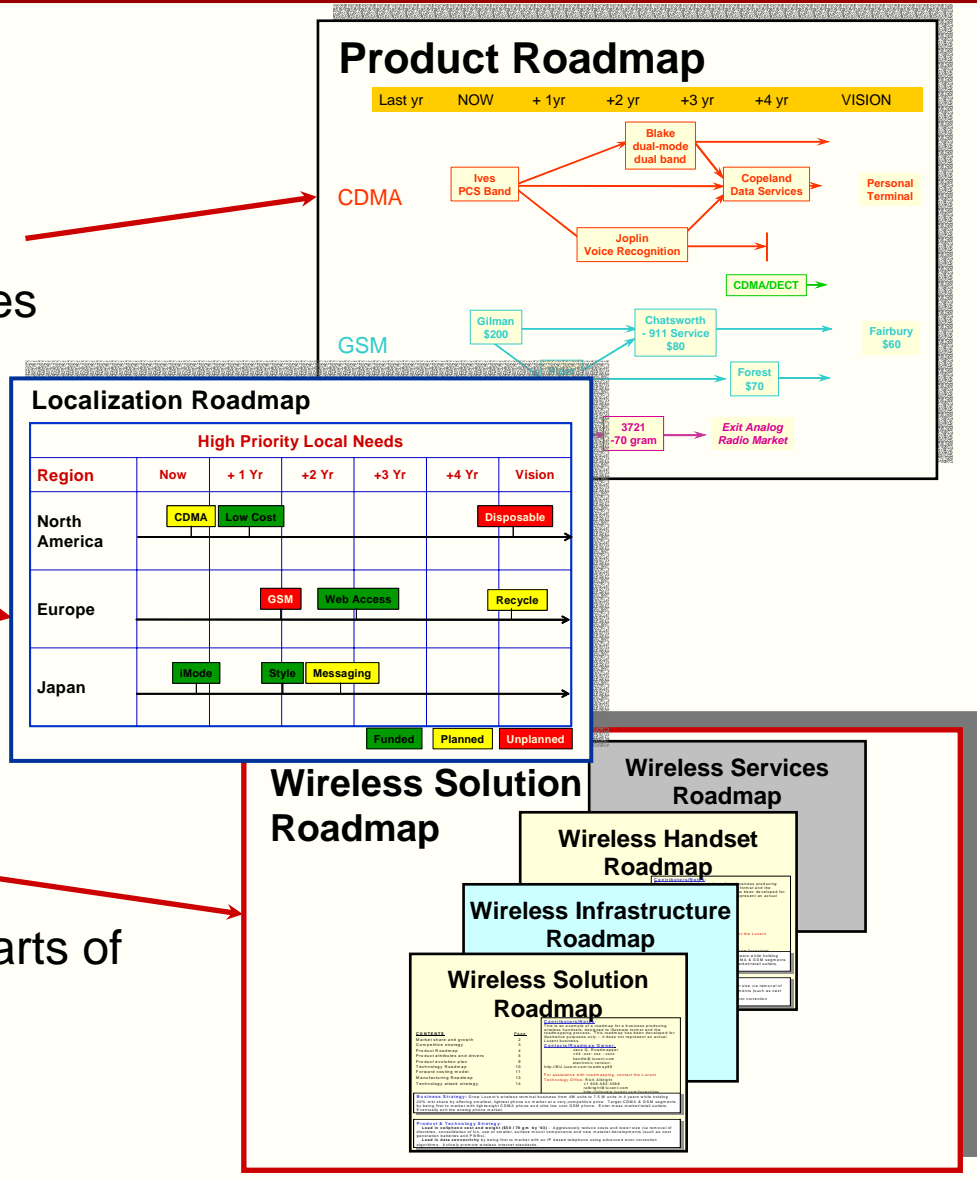


Technology Roadmap								
Product drivers	Last Yr	Now	+1 Year	+2 Year	+3 Year	VISION	Import.	Compet. Position
Core technology Area								
Weight/size								
Interface ASIC	5735 Chip	ACA				Single Baseband Chip		
DSP	1832							
Audio codec	CMOS							
Audio front end	Bipolar discretes							
Microcontroller	8 bit CISC	16 bit CISC	microcontroller					
Housing	1.7mm thick	1.4mm	1.2mm					
PWB	6 layer 1.5mm	6 layer 1mm	4 layer 0.8mm Flex	Molded-in				
Ease of use								
Display	2-line LCD	4-line LCD	1/4 VGA	Touch Sensitive	Voice Interface			
User interface	Navigation keys							
Software	Menu driven	Configurable	Cust. adaptive					
Talktime								
Battery	NiCd - 4.8V	NiMH - 3.6V	Altern. tech.					
Power supply	Linear - 50% efficient	Switching (80% eff.)	~100% eff.					
RF								
Power amp	Module	MMIC-3V						
Radio	Triple conversion	Double conversion	Homodyne	Tunable, Homodyne				
Antenna	Dual band, High gain	Diversity						
Audio quality								
Voice coders	Vcelp	ITU, Qcelp13						
DSP noise algorithms	Expander	IS-99 Data BER Improvement/echo cancel.						
Microphone	First order gradient (FOG)		Steering array					
Receivers	Piezoelectric	Noise cancelling earpiece, miniaturized						



Platform Roadmaps

- System
 - Product Line
 - Multiple market segments
 - Alternative needs/technologies
- Localization
 - Geographic needs
 - Cultural adaptation
 - National regulations
- Solution/Offer
 - Roadmap of Roadmaps
 - Coordinate subsystems as parts of customized offers/solution.



Some Learnings from Roadmapping Experience

- **On Roadmaps**
 - **Product-Technology Roadmaps.**
 - **Linked (strategy to product to technology) roadmaps, not parallel marketing and technology roadmaps -- with increasing emphasis on the front end to understand segments and strategy.**
 - **Focus on the 2 - 3 most important drivers, technologies and investments/actions.**
 - **Roadmap of Roadmaps. Extend to joint roadmaps with customers and suppliers**

- **On Roadmapping**
 - **The product manager (with P&L) owns and drives.**
 - **A strong leader makes or breaks.**
 - **Cross functional team.**
 - **A facilitator is important.**
 - **Use the roadmap to guide the journey.**
 - **Renewing the roadmap: Buy 'em lunch!**

MATI (Management of Accelerated Technology Innovation) Is developing Roadmapping Best Practices.
<http://mati.ncms.org>

Why Roadmap?

- Roadmapping is just **good planning**, with a heavy dose of technology (not just an afterthought).
- Roadmaps **link** business strategy and market data with product and technology decisions using a series of simple charts.
- Roadmaps reveal **gaps** in product and technology plans.
- Roadmaps **prioritize** investments based on drivers.
- Roadmapping helps set better **targets**: more competitive and more realistic.
- Sharing roadmaps allows **strategic** use of technology across product lines.
- Roadmapping **communicates** business, technology and product plans to team members, management, customers and suppliers.
- Roadmaps provide a **guide** to the team, allowing the team to recognize and act on events that require a change in direction.

Roadmaps and Roadmapping

Summary:

Discipline & Focus

Learning & Communications