

**The Right**  
~~New~~ Roadmapping:  
Technologies at the Right Time

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# Key Points

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- **Roadmaps and Roadmapping**

Plan for the right features, at the right costs, using the right technologies, at the right time.

- **Product-Technology Roadmaps**

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

Help coordinate across product lines and functions.

Make clear communication with customers and suppliers.

- **Technology adoption with roadmaps**

Coordinate across product lines and functions for sharing of technologies and collaboration in developing and adopting new technologies.

# Roadmaps and Roadmapping

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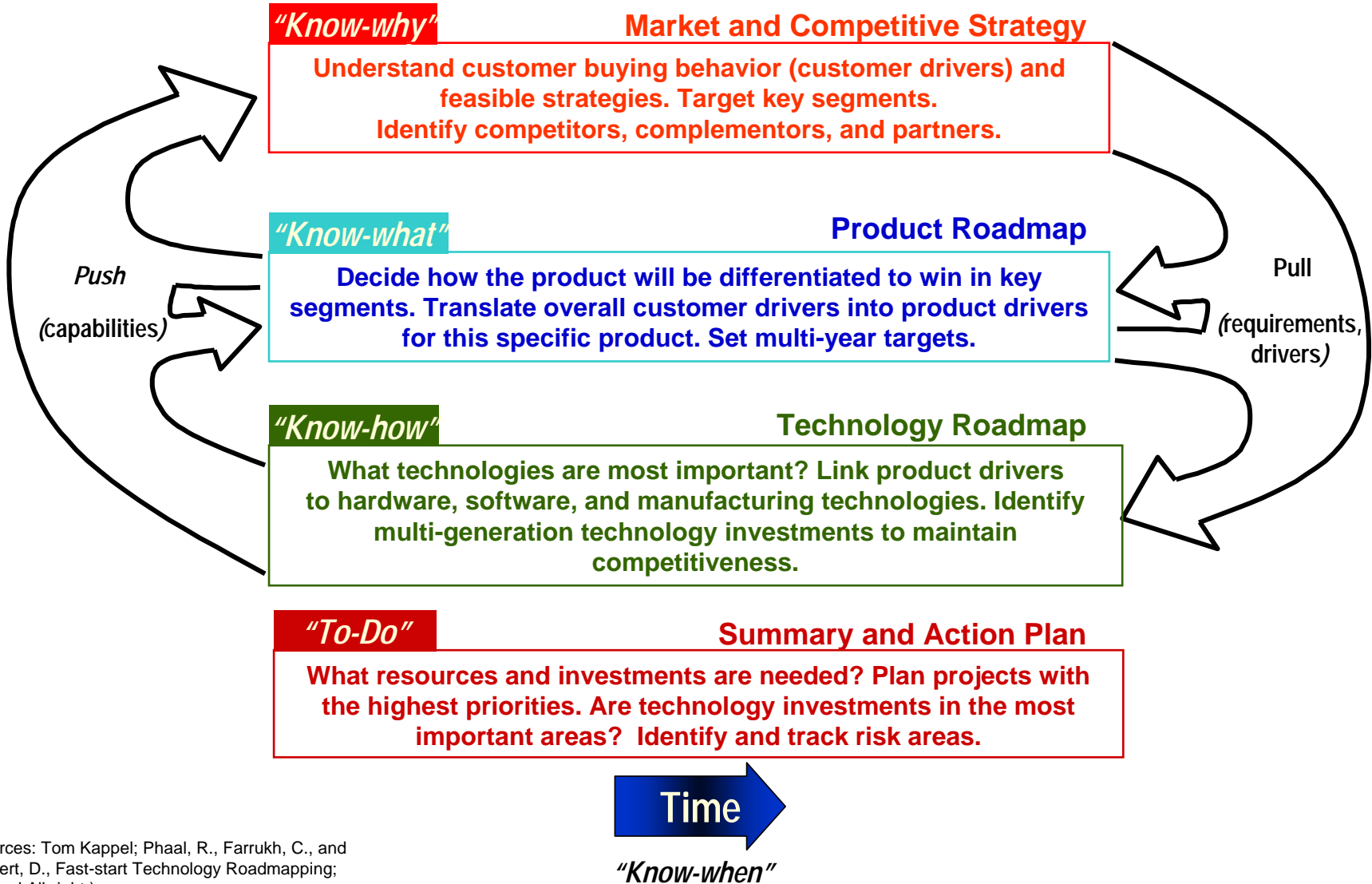
## A Roadmap

- 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.

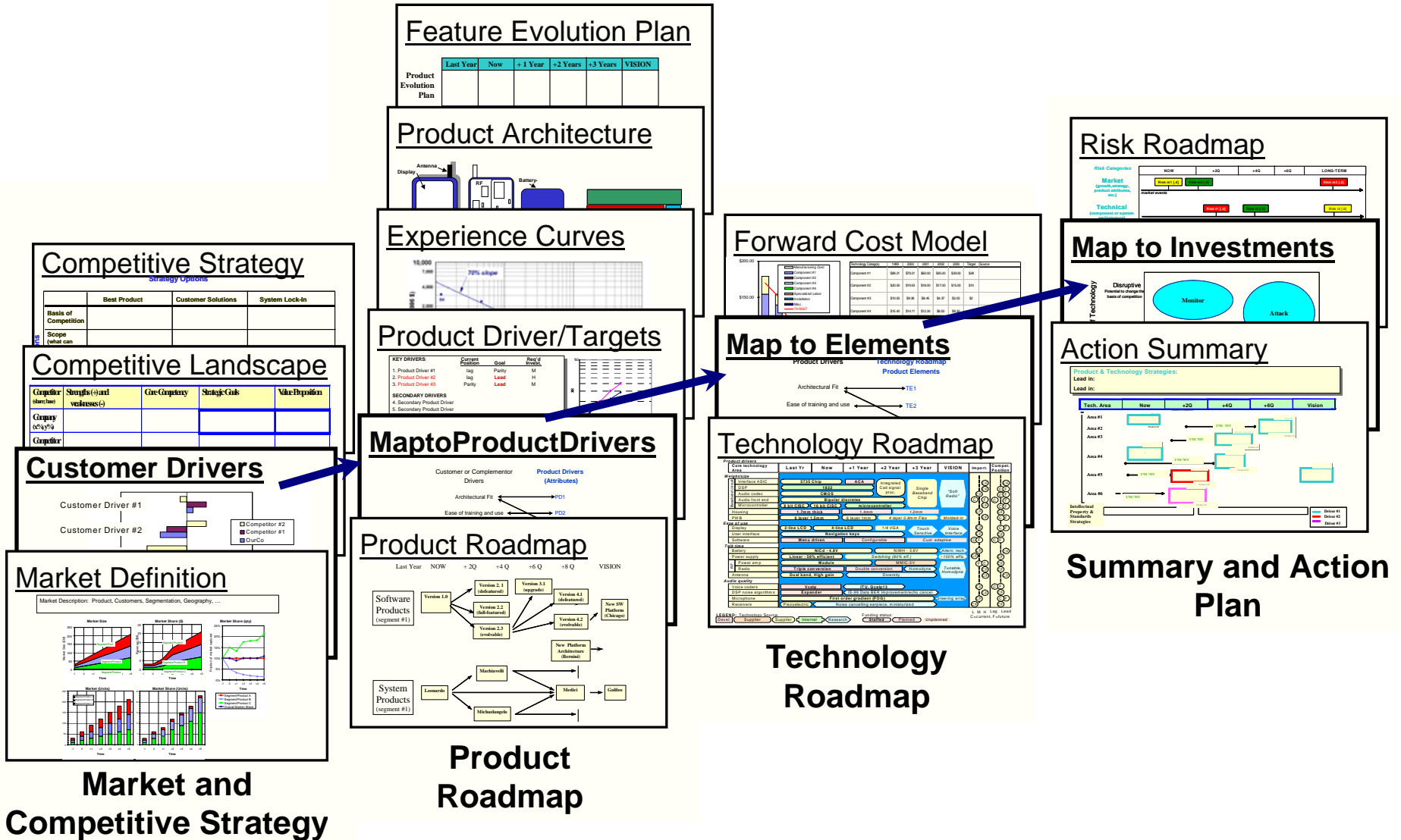
# Roadmap Planning in Four Steps



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

# Product-Technology Roadmap

## A Business Planning Tool



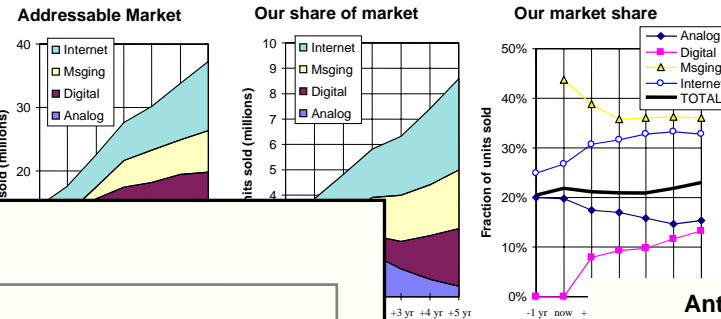
# 1. Market and Competitive Strategy:

## Wireless Handset Example

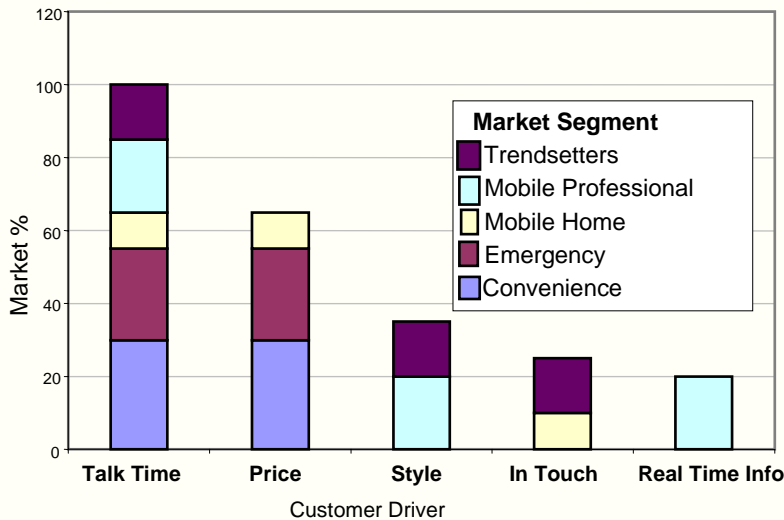
### Competitive Landscape

Competitor (Market share annual %; cumulative share %)	Strengths (+) and Weaknesses (-), Competitive Advantages	Core Competencies Partnerships, Alliances	Strategic Direction: business goals/targets, value proposition
<b>OurCo</b> (20%; 10%)	+ Intellectual property + RF design <i>Product.com, Manufacturing.com</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
		<b>Strategy</b>	<b>Countermeasures</b>
		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

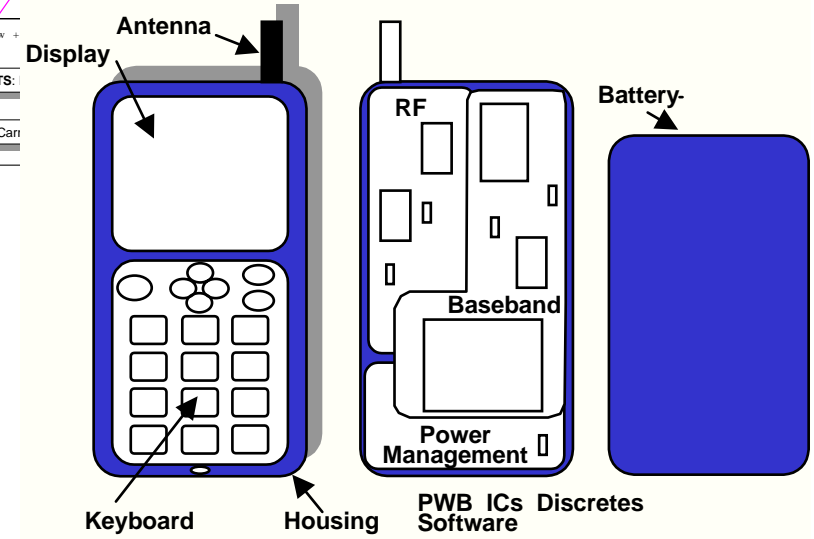
### Market Share and Growth



### Customer Drivers



TARGET GROWTH SEGMENTS:  
KEY/TARGET CUSTOMERS: Carr



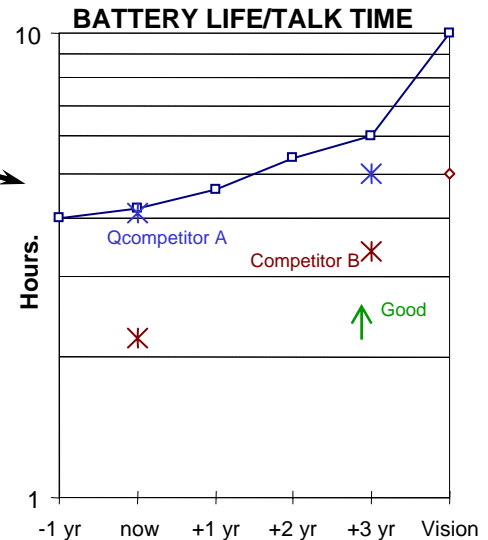
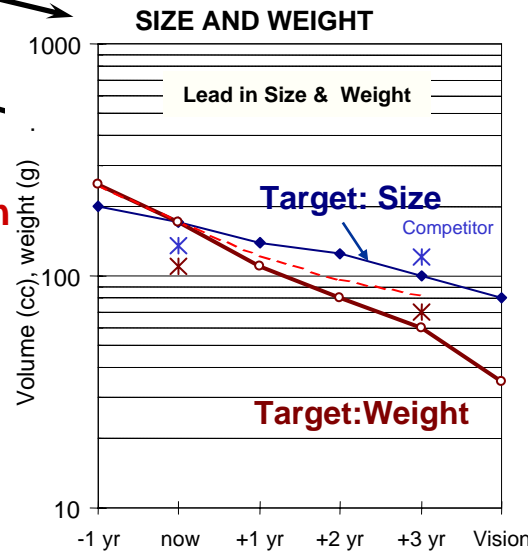
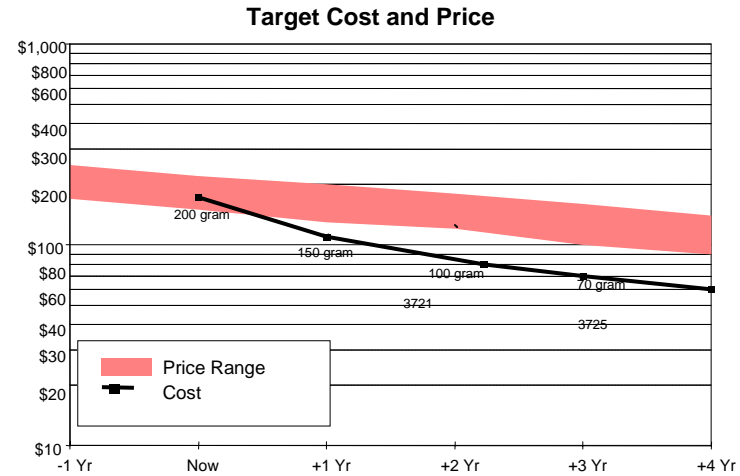
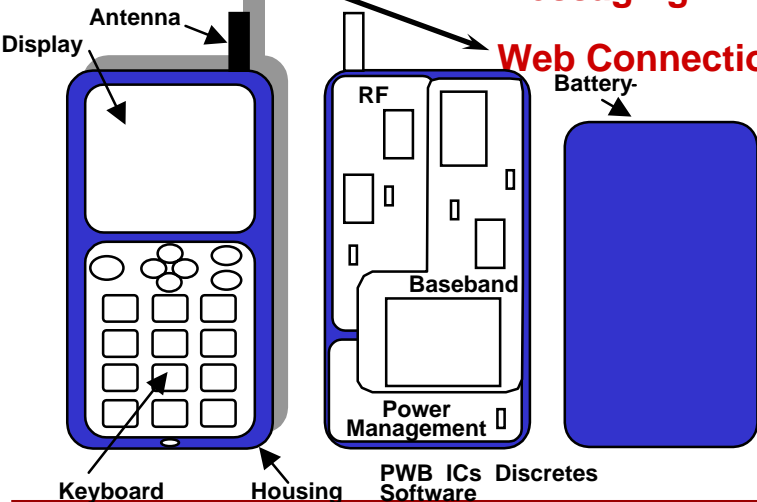
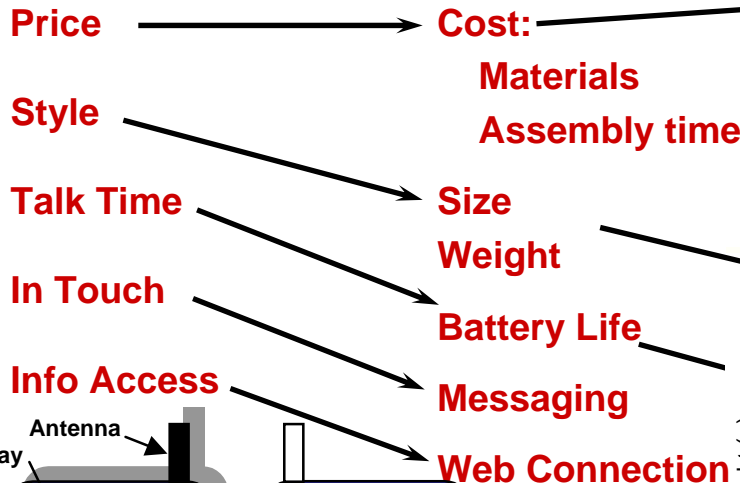
# 2. Product Roadmap:

Product Drivers link Customer Needs to Technologies and Targets

## Wireless Handset Example

### Customer Drivers

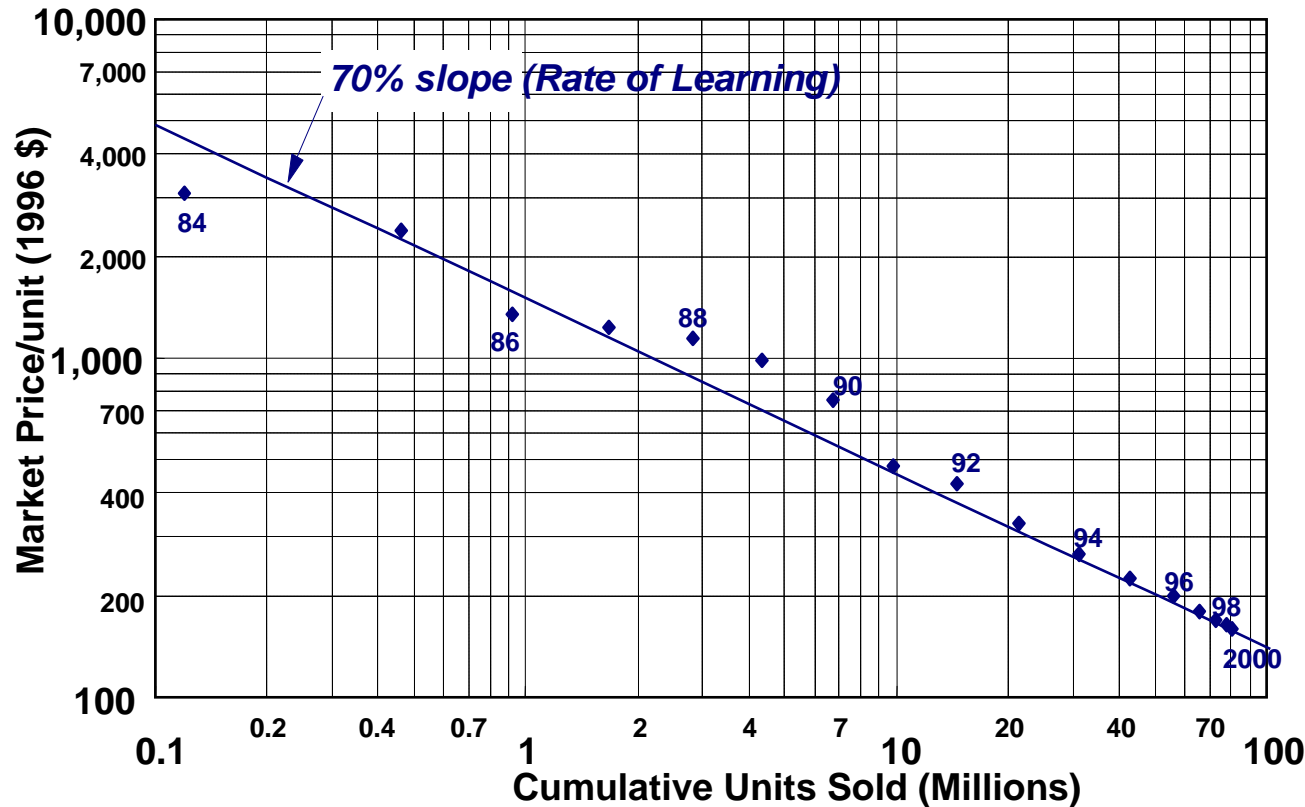
### Product Drivers



# Using the Past to Forecast the Future

## Experience Curves Capture Many Drivers

### WIRELESS HANDSET PRICE



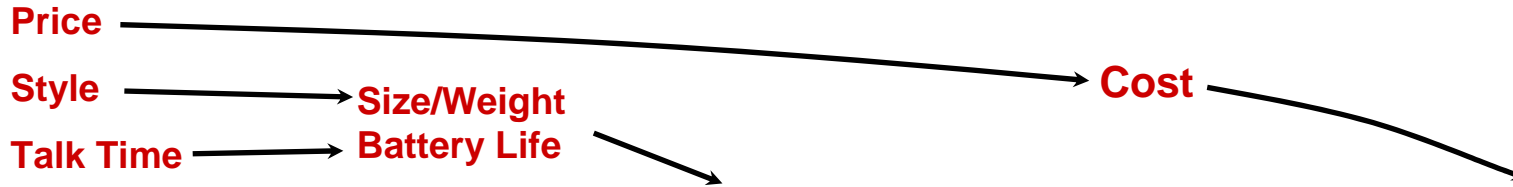
**Culture:** group, corporate, professional, and industry behaviors

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

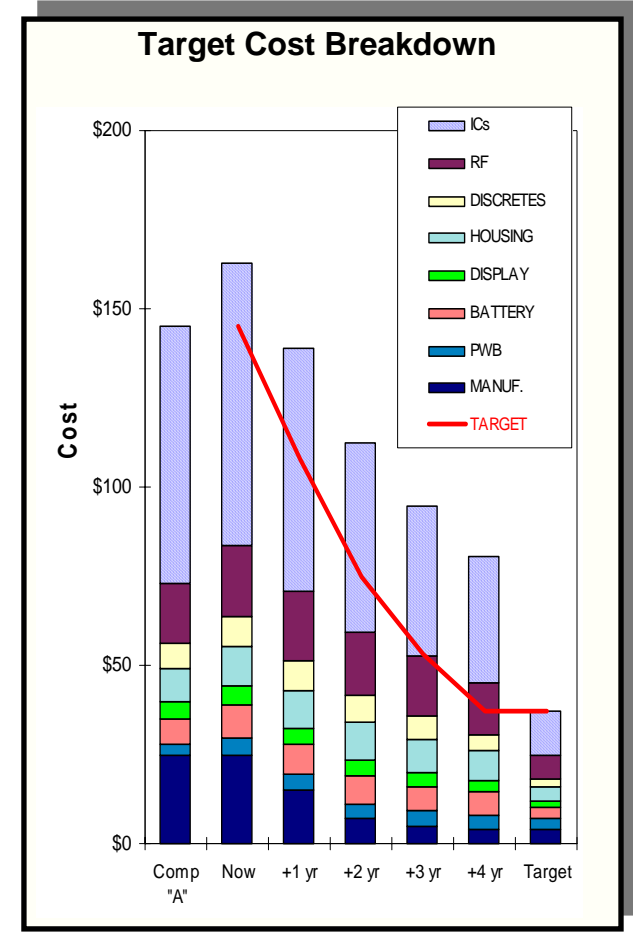
**Demand:** marketplace, elasticity, competition level, regulatory climate, market learning potential

**Operating Environment:** system architecture, complex requirements, standards

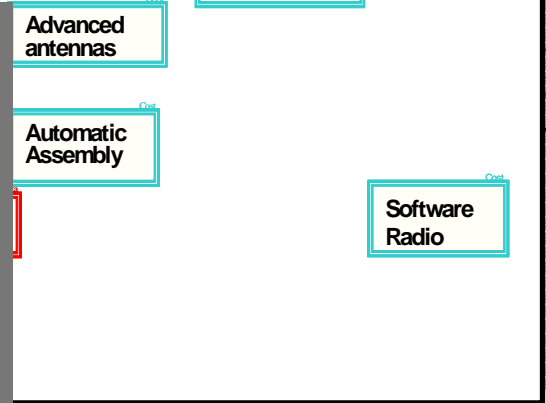
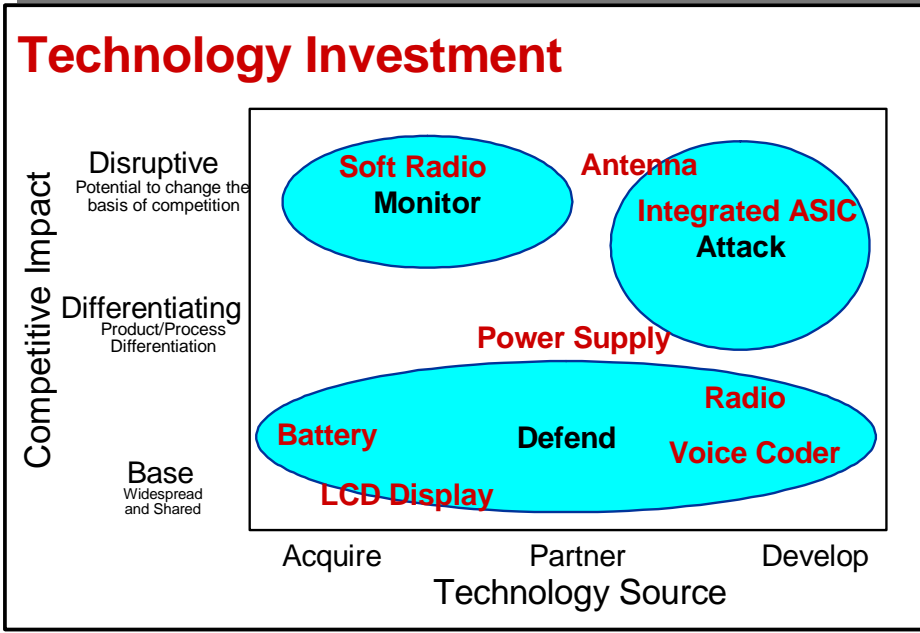
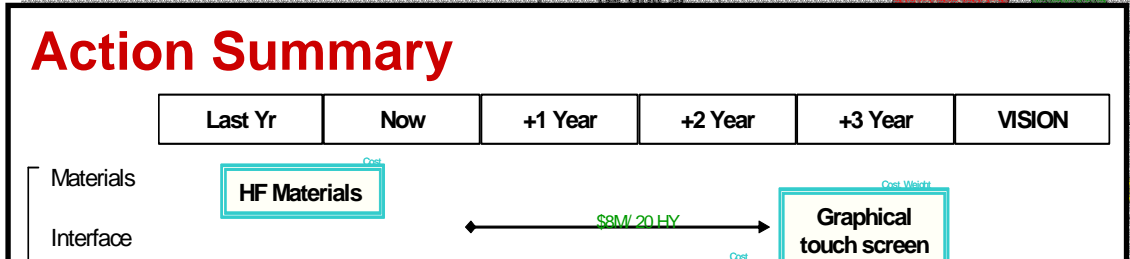
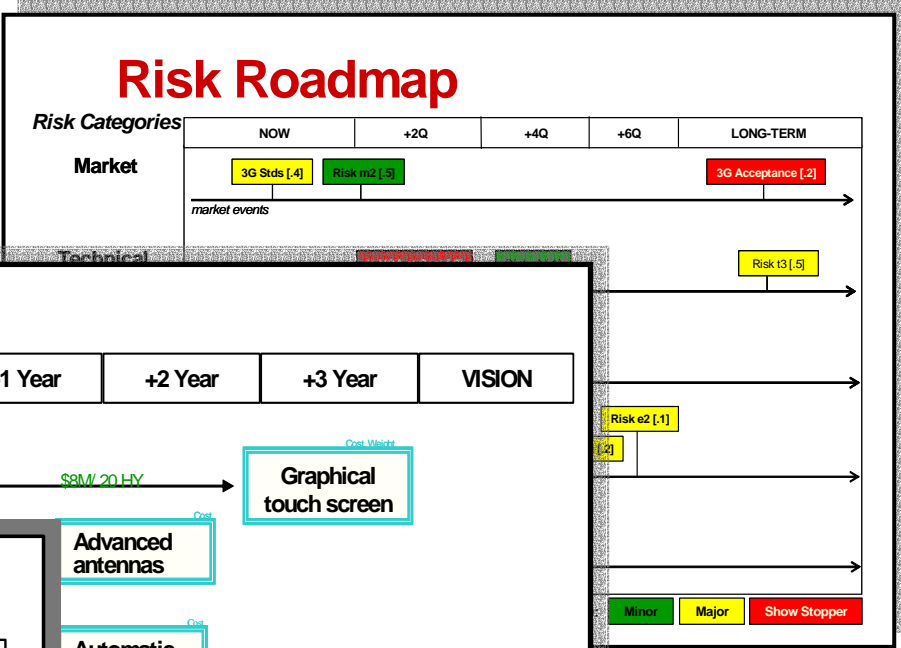
# 3. Technology Roadmap: Organized by Drivers



Technology Roadmap							
Product drivers	Last Yr	Now	+1 Year	+2 Year	+3 Year	VISION	Import.
<b>Core technology Area</b>							
<b>Weight/size</b>							
Interface ASIC	5735 Chip	ACA				Single Baseband Chip "Soft Radio"	
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			
<b>Ease of use</b>							
Display	2-line LCD	4-line LCD	1/4 VGA	Touch Sensitive	Voice Interface		
User interface	Navigation keys						
Software	Menu driven	Configurable	Cust. adaptive				
<b>Talktime</b>							
Battery	NiCd - 4.8V	NiMH - 3.6V	Altern. tech.				
Power supply	Linear - 50% efficient	Switching (80% eff.)	~100% eff.				
<b>RF</b>							
Power amp	Module	MMIC-3V					
Radio	Triple conversion	Double conversion	Homodyne	Tunable, Homodyne			
Antenna	Dual band, High gain	Diversity					
<b>Audio quality</b>							
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					

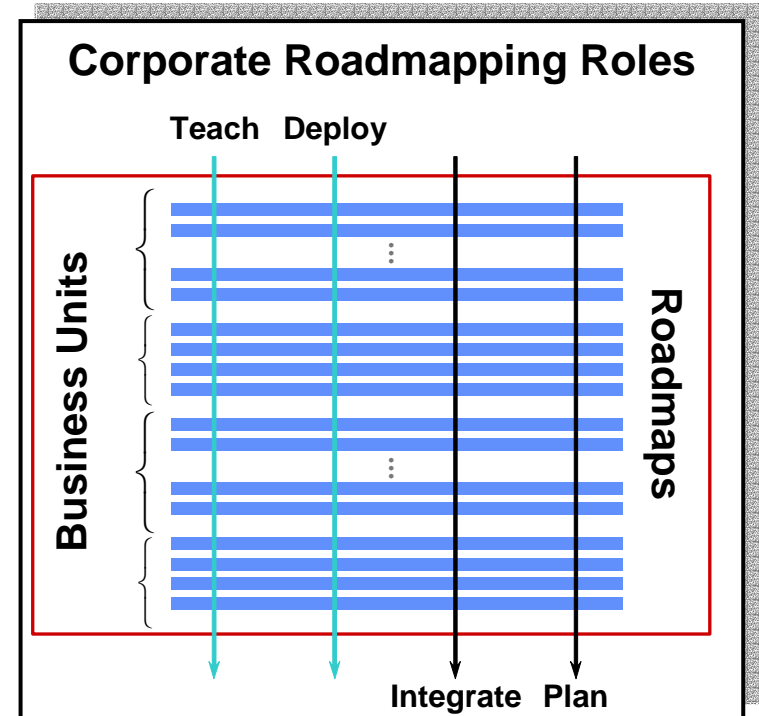


# Action Plan: Adopting New Technologies



# Using and Deploying Roadmaps

- Risk Roadmaps
  - Track plan-changing events
- Technology Collaboration and Reuse
  - Cross Roadmap Reviews
  - Technology database
- Vertical Application
  - Manufacturing capabilities
  - Components and subsystems
  - Coordinate with suppliers
  - Align with customers
- Roadmapping metrics
  - For an individual roadmap:  
avoid common failure modes.
  - For deployment in a corporation:  
the % complete trap.
  - Corporate value creation:  
with growth, cost reduction, efficiency, timing.
- Portfolio Management
  - Integrate/align product and technology portfolios



# Why Roadmap?

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- 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.

# Summary:

**Discipline & Focus**

**Learning &  
Communications**

# To Learn More:



<http://mati.ncms.org>

**The Albright Strategy Group**  
Roadmaps and Roadmapping  
Technology Futures  
Strategy

[www.albrightstrategy.com](http://www.albrightstrategy.com)



**Product-Technology Workshops**

(1 day case-based training)

New York: October 30, 2002

Boston: December 5, 2002

Chicago: March 6, 2003

[www.sequentlearning.com](http://www.sequentlearning.com)