

# Tutorial Roadmapping for Strategy Support

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## Abstract

Formulating and deploying a strategy requires a combination of vision and analysis. Roadmapping is a tool to explore and articulate future needs and trends for different dimensions, such as the market and customer context, the product portfolio, the technology, competences and supply chain, and processes. Roadmapping helps by relating these different dimensions in time, with a horizon of many years. We will discuss how to create and maintain roadmaps and give practical tips on the format.

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July 1, 2011  
status: draft  
version: 0.1



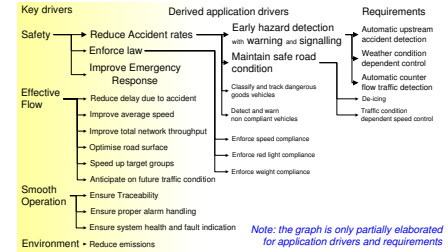
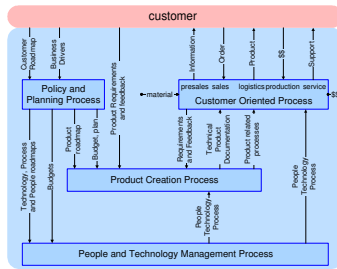
Embedded Systems  
INSTITUTE

Have you seen roadmaps in your organization?

What do you see in these roadmaps?

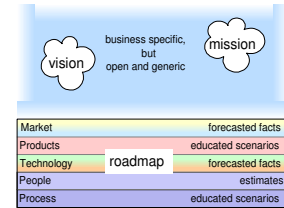
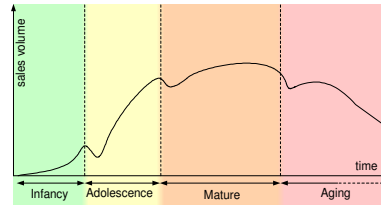
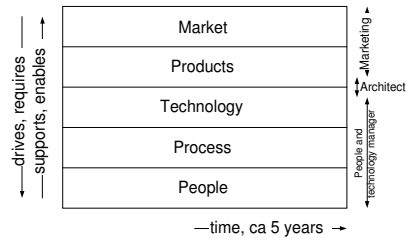
# Figure of Contents™

## 1. brainstorm roadmapping



## 2. Business Processes

## 3. Key Drivers



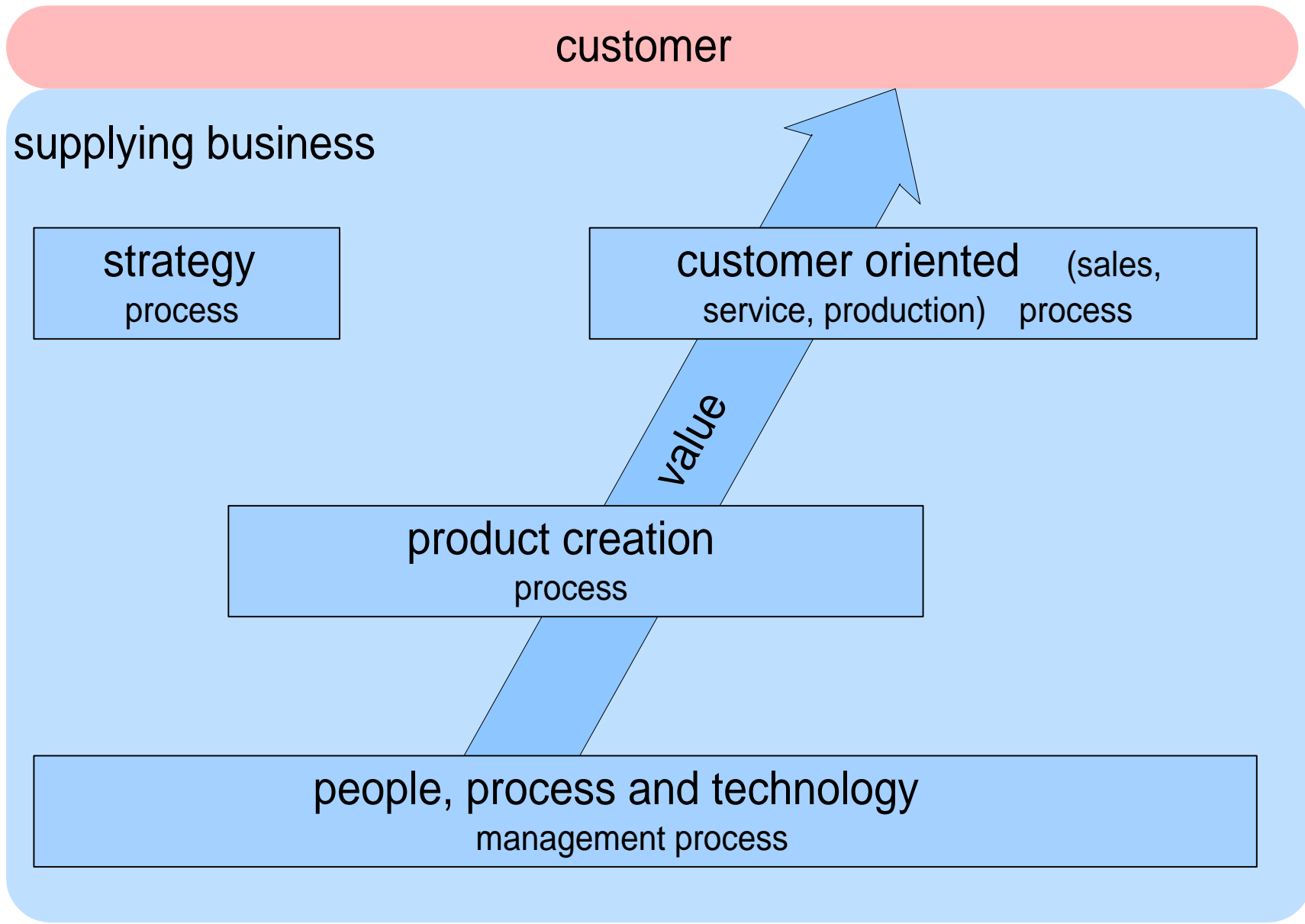
## 4. Roadmapping

## 5. Market Product Life Cycle

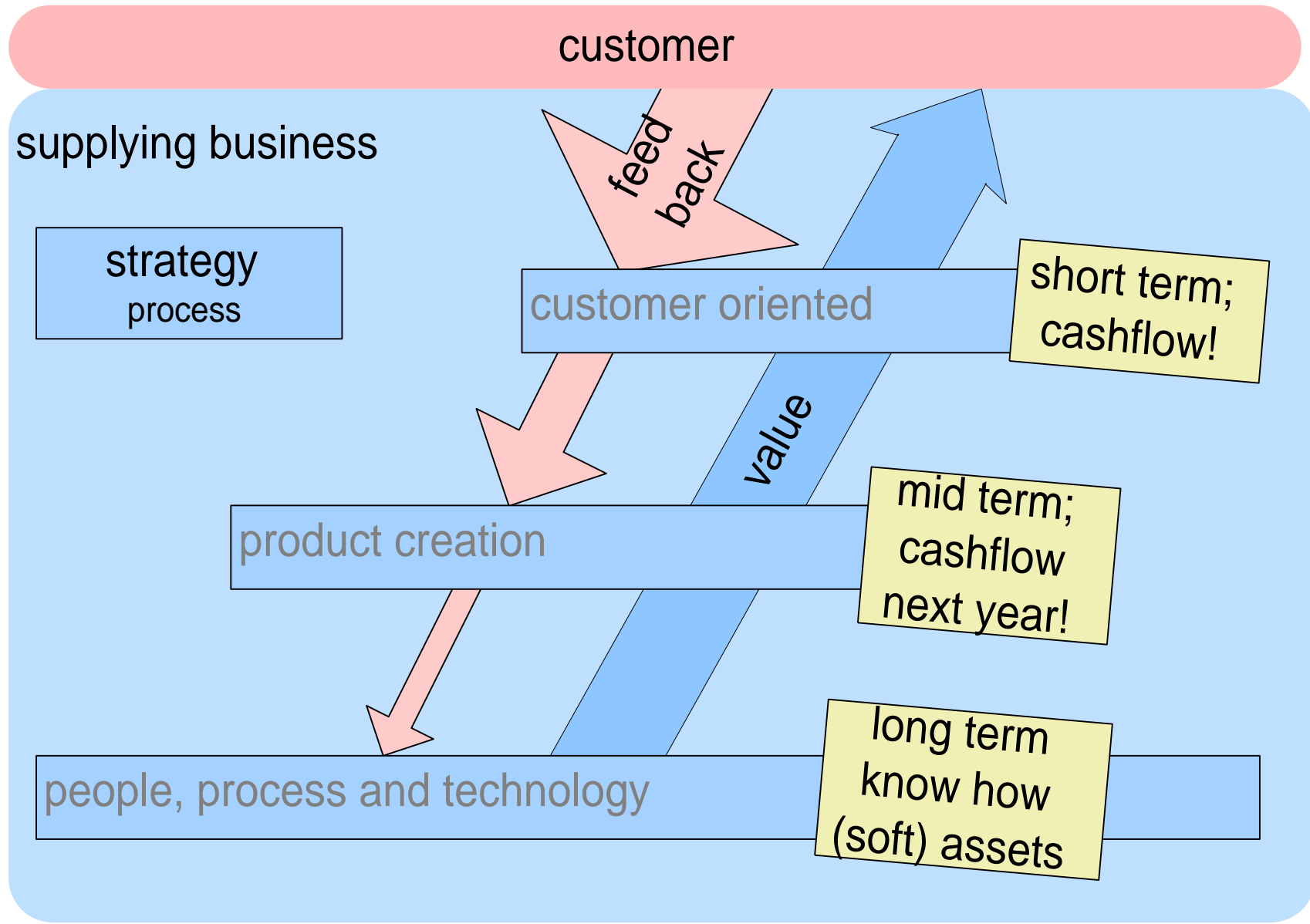
## 6. Strategy

## summary

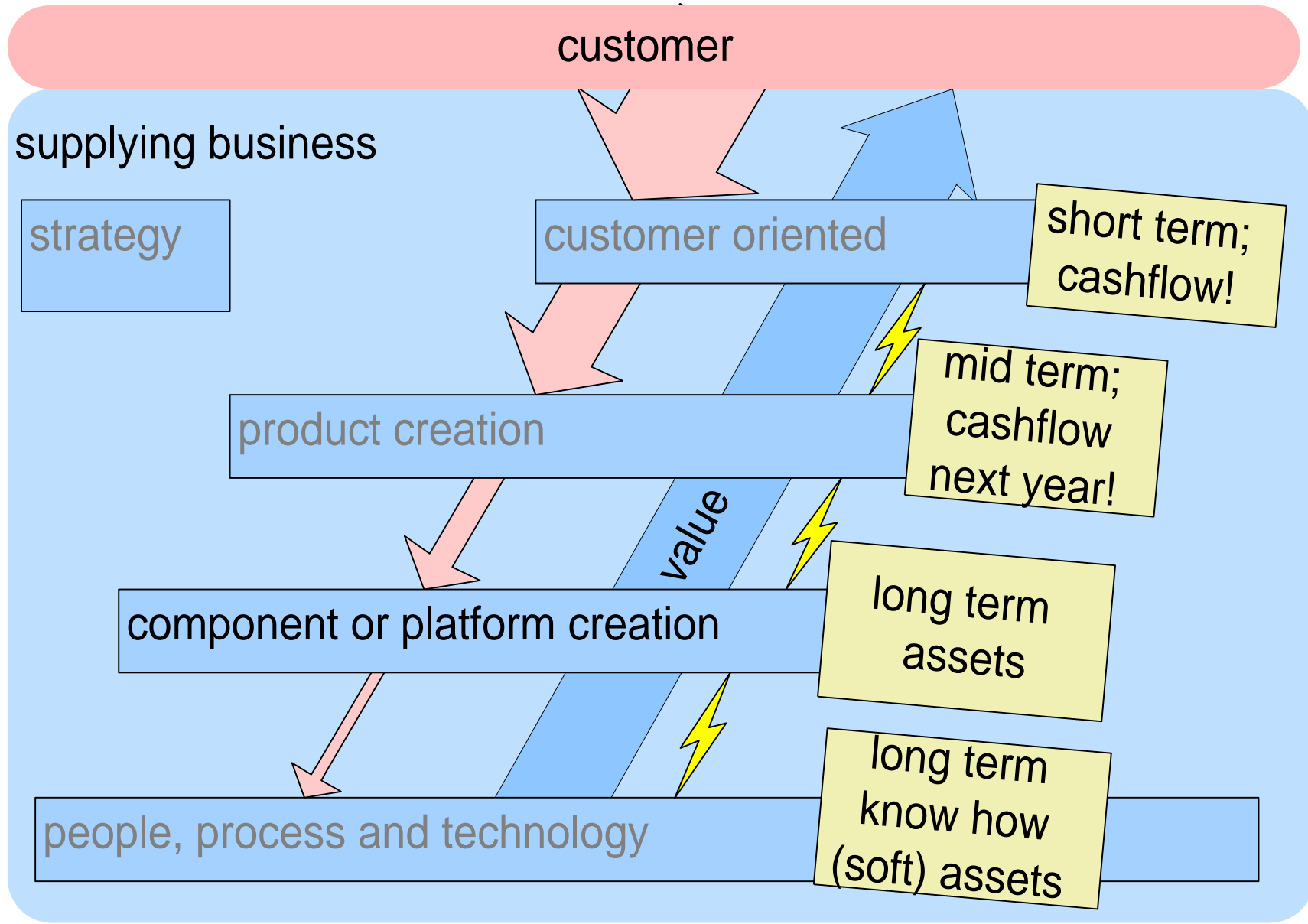
# Simplified process view



# Tension between processes



# Platform strategy adds one layer



# Key Drivers How To

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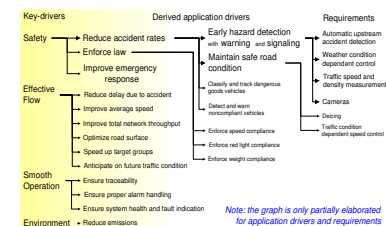
## Abstract

The notion of "business key drivers" is introduced and a method is described to link these key drivers to the product specification.

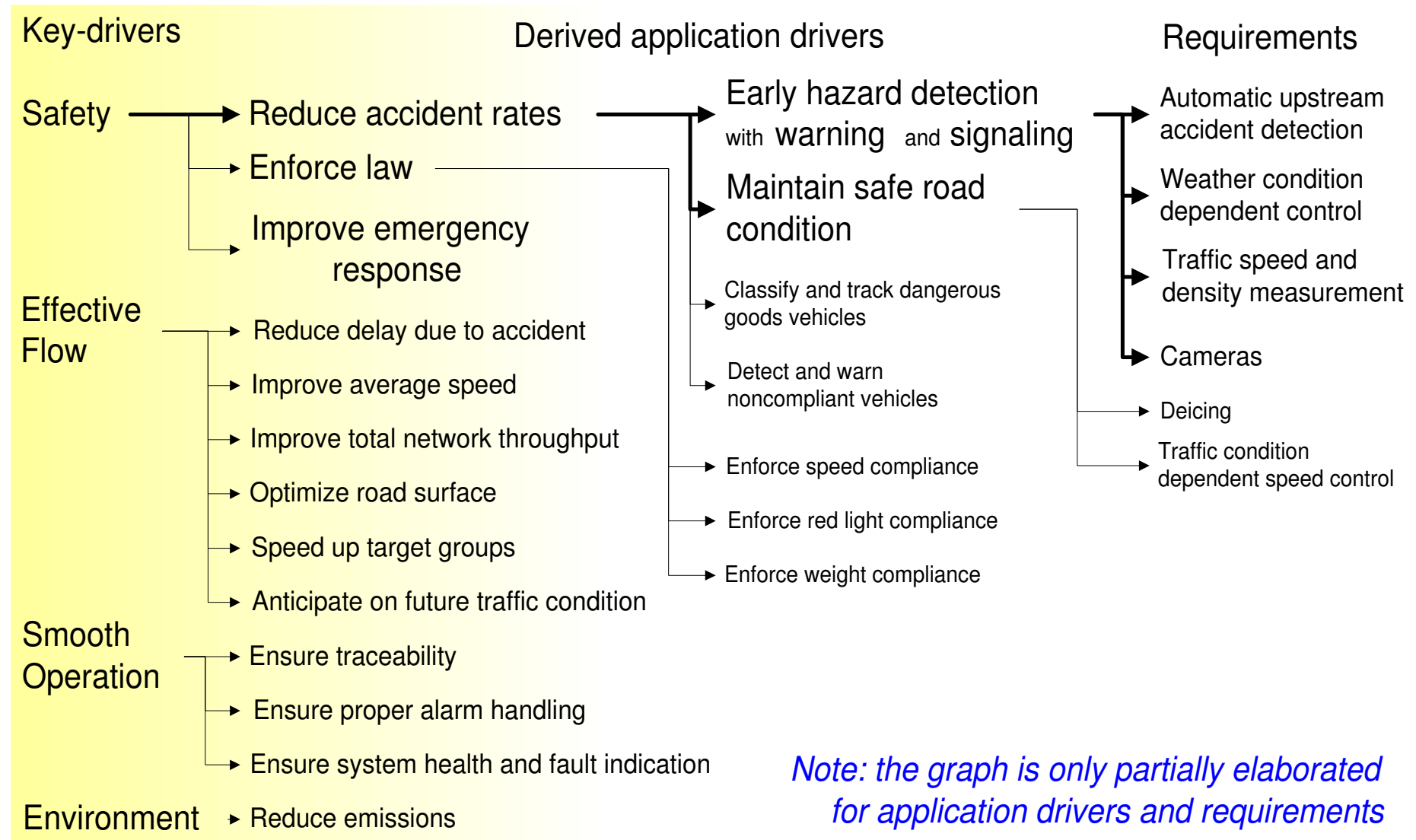
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# Example Motorway Management Analysis



# Method to create Key Driver Graph

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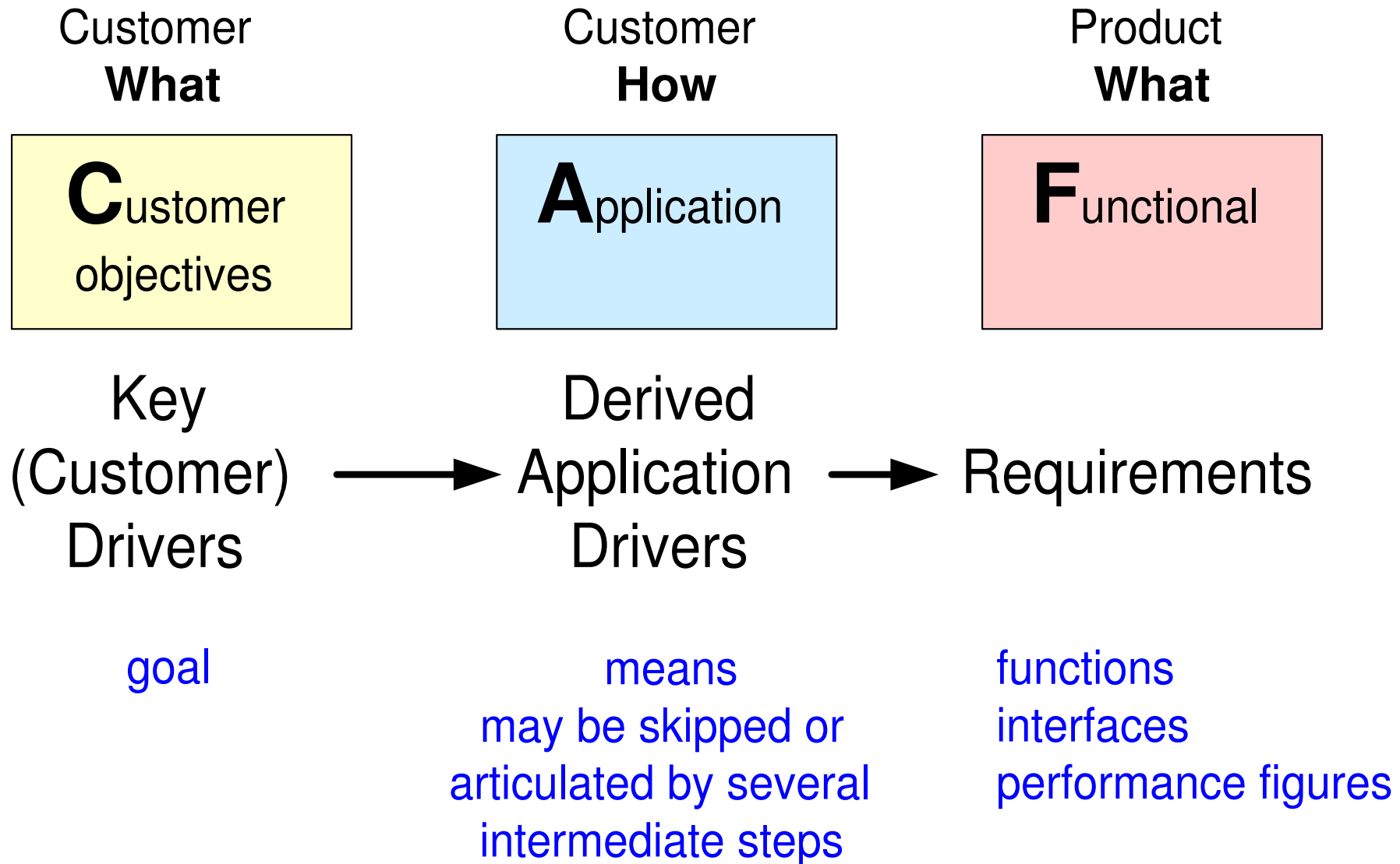
- Define the scope specific. in terms of stakeholder or market segments
- Acquire and analyze facts extract facts from the product specification and ask why questions about the specification of existing products .
- Build a graph of relations between drivers and requirements where requirements by means of brainstorming and discussions may have multiple drivers
- Obtain feedback discuss with customers , observe their reactions
- Iterate many times increased understanding often triggers the move of issues from driver to requirement or vice versa and rephrasing

# Recommendation for the Definition of Key Drivers

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- Limit the number of key-drivers minimal 3, maximal 6
- Don't leave out the obvious key-drivers for instance the well-known main function of the product
- Use short names, recognized by the customer.
- Use market-/customer- specific names, no generic names for instance replace “ ease of use ” by “minimal number of actions for experienced users ”, or “efficiency ” by “integral cost per patient ”
- Do not worry about the exact boundary between Customer Objective and Application create clear goal means relations

# Transformation of Key Drivers into Requirements



What are the key drivers of your customers?

Can you quantify these key drivers?

# Roadmapping

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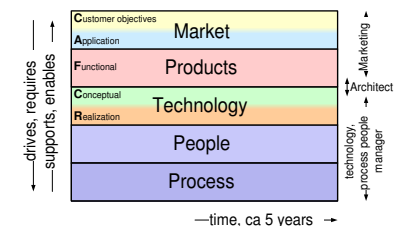
## Abstract

This article describes what a roadmap is, how to create and maintain a roadmap, the involvement of the stakeholders, and criteria for the structure of a roadmap.

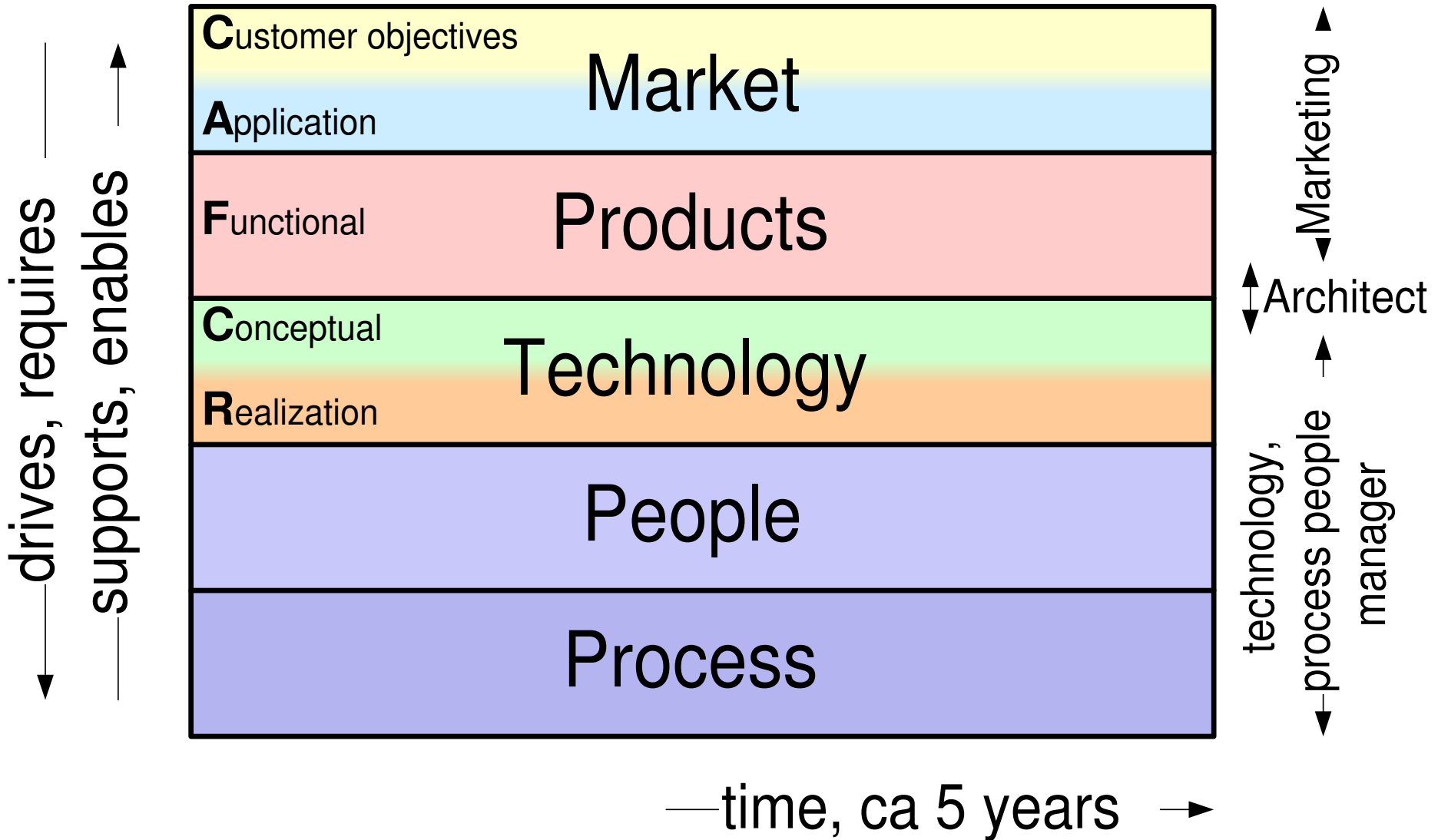
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July 1, 2011  
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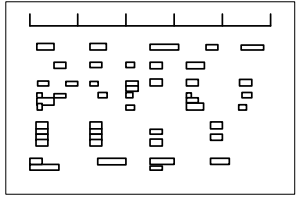


# The Roadmap Integrates Five Views



# Granularity of Roadmap Material

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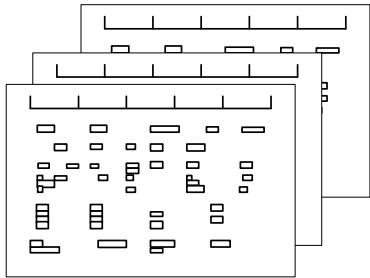


Top-level  
roadmap

Single page

Poster

part of many presentations

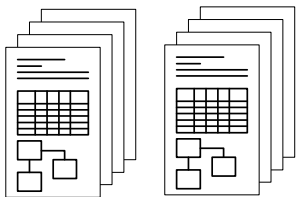


Supporting  
roadmaps

Single page  
per view  
or per driver

Poster

part of many presentations



Supporting  
reports

Document  
per relevant  
subject

# Problems that Occur without Roadmapping

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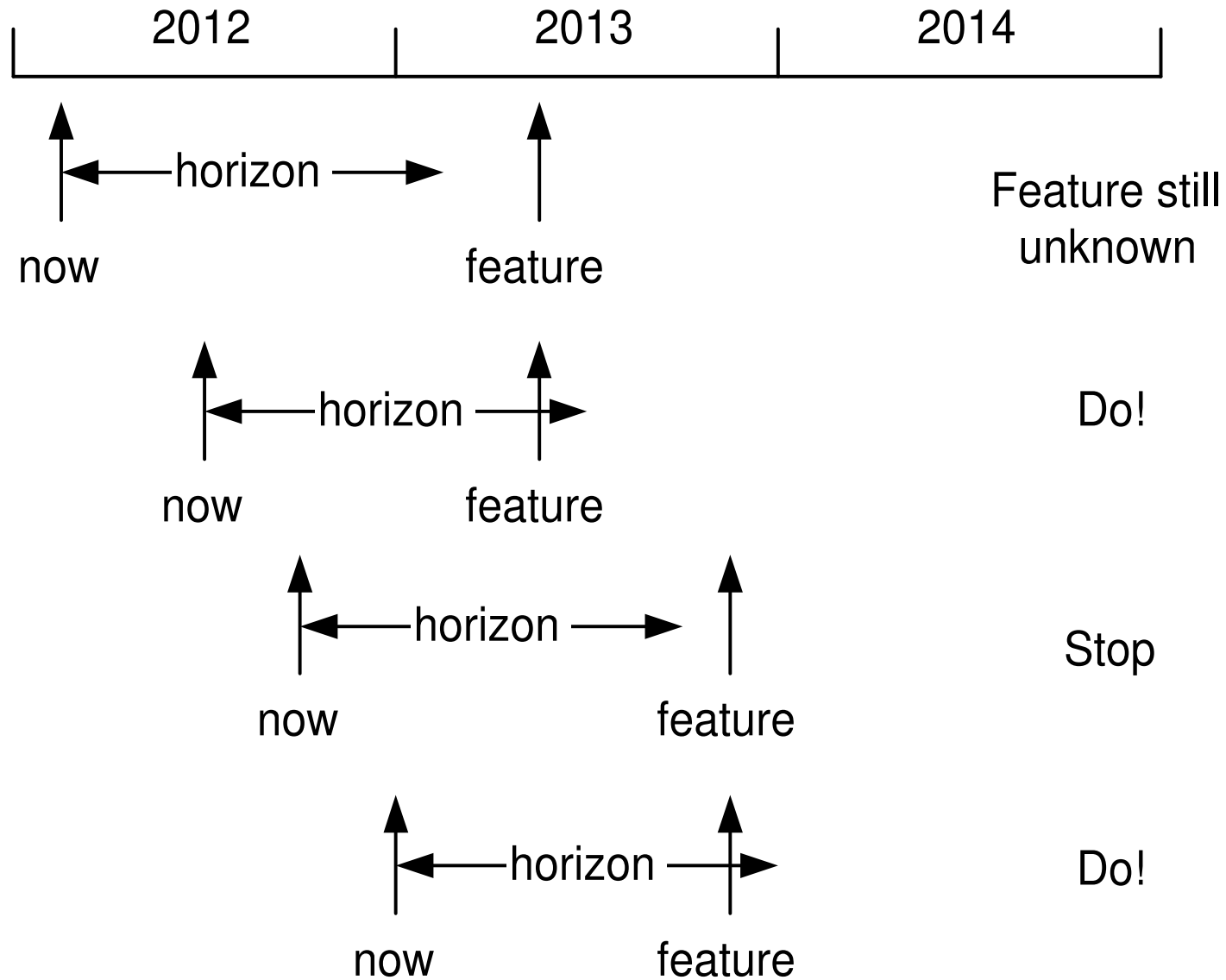
Frequent changes in product policy

Late start up of long lead activities, such as people recruitment and process change

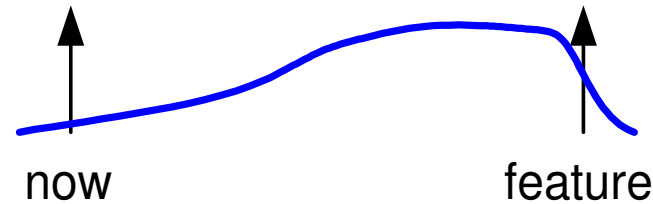
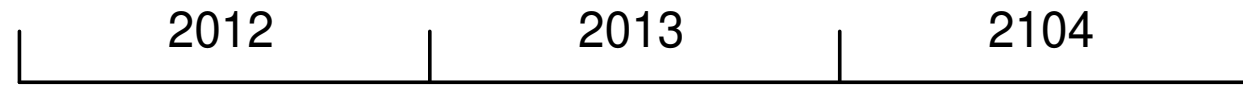
Diverging activities of teams

Missed market opportunities

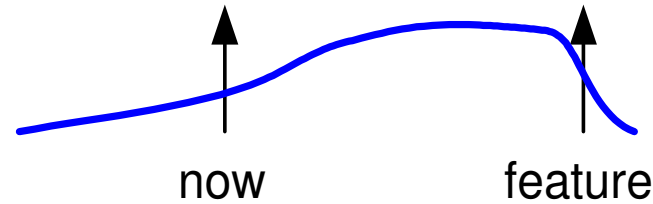
# Management with a Limited Horizon



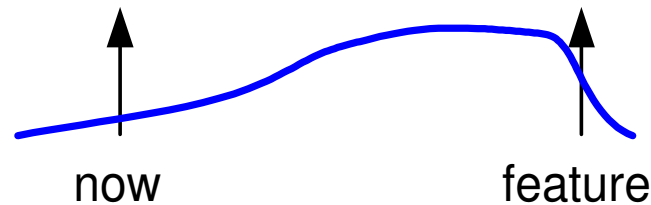
# Management with a Broader Time Perspective



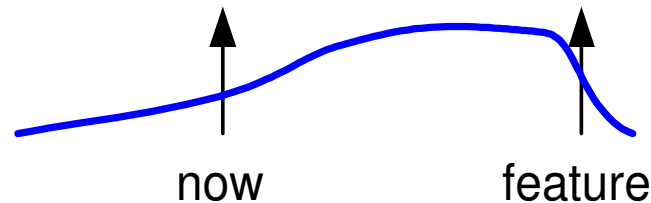
Preparation by  
0.5 person



Work with  
1.5 persons

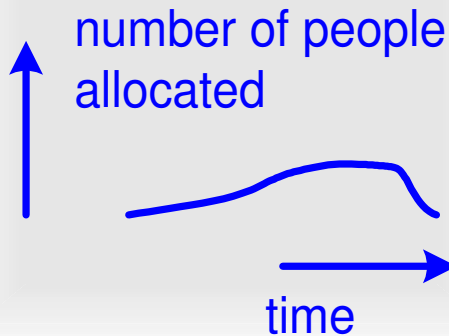


Continue with  
0.5 person

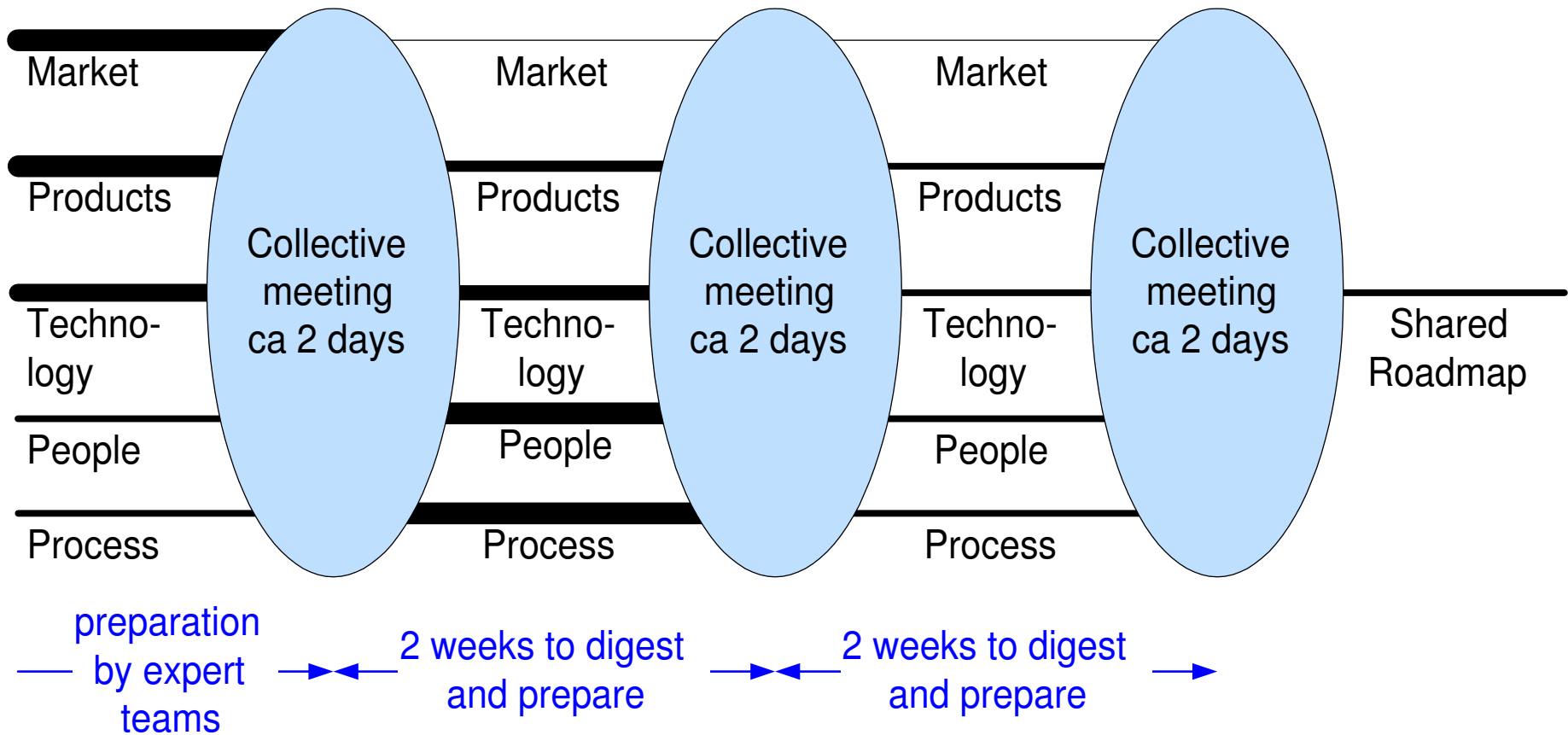


Work with  
1.5 persons

*legend*



# Creation or Update of Roadmap in Burst Mode



# Typical Stakeholders of a Roadmap

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business manager      overall enterprise responsible

marketing manager(s)

discipline or line managers

people, process, and technology manager(s)

operational manager(s)      project or program managers

architect(s)

# Target of the First Session

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Shared vision on market

First iteration of possible products as an answer to the market

Share technology status, as starting point for technology roadmap

Explore people and technology status, to identify main issues

# Target of the Second Session

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Obtaining a shared vision on the desired technology roadmap

Sharing the people and process issues required for the products defined in the first iteration

Analyzing a few scenarios for products, technologies, people, and process

# The Roadmap Update Visualized in Time

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**Market:** What is needed by the customers?

**Products:** How to package technologies into products to fulfill market needs?

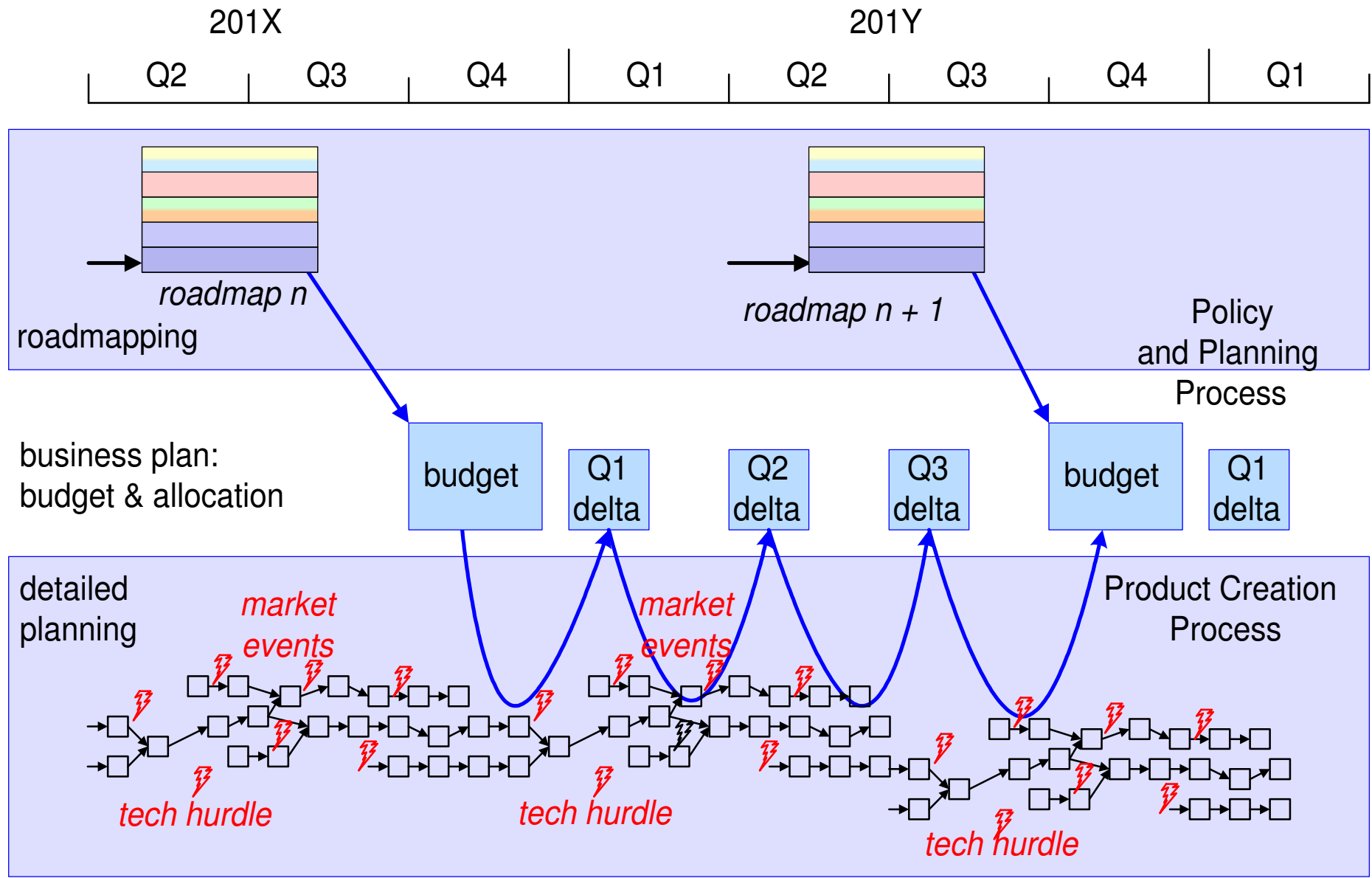
**Technology:** What technological trends are relevant? What technologies are needed?

**People:** What kind of and how many people are required to realize the products and technologies?

**Process:** What processes are required to let these people realize the products and technologies?

————time————→

# From Roadmap to Detailed Plans



# 3-Tier Approach

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	<i>horizon</i>	<i>update</i>	<i>scope</i>	<i>type</i>
roadmap	5 years	1 year	portfolio	vision
budget	1 year	3 months	program	commitment
detailed plan	1 mnth-1yr	1 day-1 mnth	program or activity	control means

Selection of most important or relevant issues

Key drivers as a means to structure the roadmap

Nothing is certain; ambiguity is normal

Use facts whenever possible

Don't panic in case of impossibilities

# Requirements for a Good Roadmap

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Recognizable issues for all stakeholders

Clear positioning in time; uncertainty can be visualized

The main events (enabling or constraining) must be present

Limited amount of information to maintain the overview

# Sources of Facts

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## Market analysis reports

number of customers, market size, competition, trends

## Installed base

change requests, problem reports, historical data

## Manufacturing (statistical process control)

statistical process control

## Suppliers (roadmaps, historical data)

roadmaps, historical data

## Internal reports (technology studies, simulations)

technology studies, simulations

# Causes for Overestimation

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Quantization effects of small activities (the amount of time is rounded to manweeks/months/years)

Uncertainty is translated into margins at every level (module, subsystem, system)

Counting activities twice (e.g., in technology development and in product development)

Quantization effects of persons/roles (full time project leader, architect, product manager, et cetera per product)

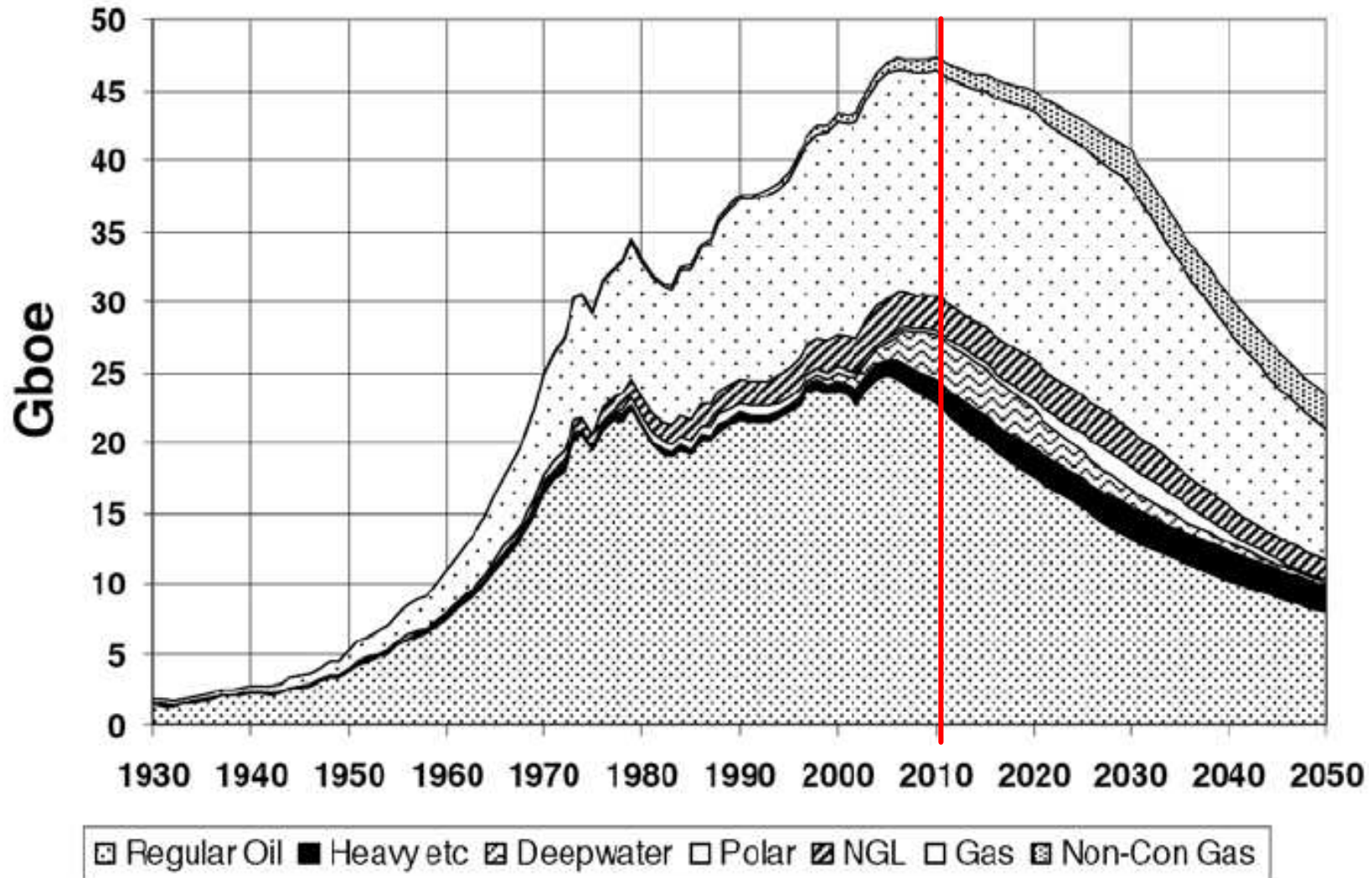
Lack of pragmatism (technical ambition is not too bad during the roadmap process, as long as it does not pre-empt a healthy decision)

Too many bells and whistles without business or customer value

# Oil and Gas Production Forecast

Figure 3: Oil & Gas production profile, 2008 case base

source ASPO 2008 <[www.aspo-spain.org/aspo7/files/Dossier\\_ASPO\\_VII.pdf](http://www.aspo-spain.org/aspo7/files/Dossier_ASPO_VII.pdf)>



# Brainstorm Trends Oil and Gas Production

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## *Brain storm*

### Trends in oil and gas production

social

demographic

regulatory

political

economical

geographic

ecological

technical

competing energy sources

other

# Market Product Life Cycle Consequences for Architecting

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## Abstract

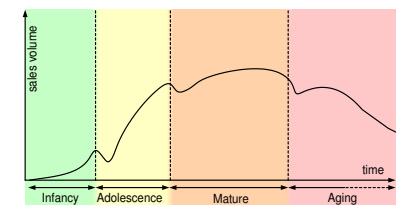
The lifecycle of a product category in the market determines many aspects of the architecting approach. The lifecycle consists typical of 4 phases: infancy, adolescence, mature and aging.

A discontinuity in market success is seen in the transition from one phase to the next phase. The explanation given is that the phases differ in characteristics and require different approaches. The right approach for one phase is sub optimal for the next phase. A set of characteristics per phase is given and the consequences for architecting are discussed.

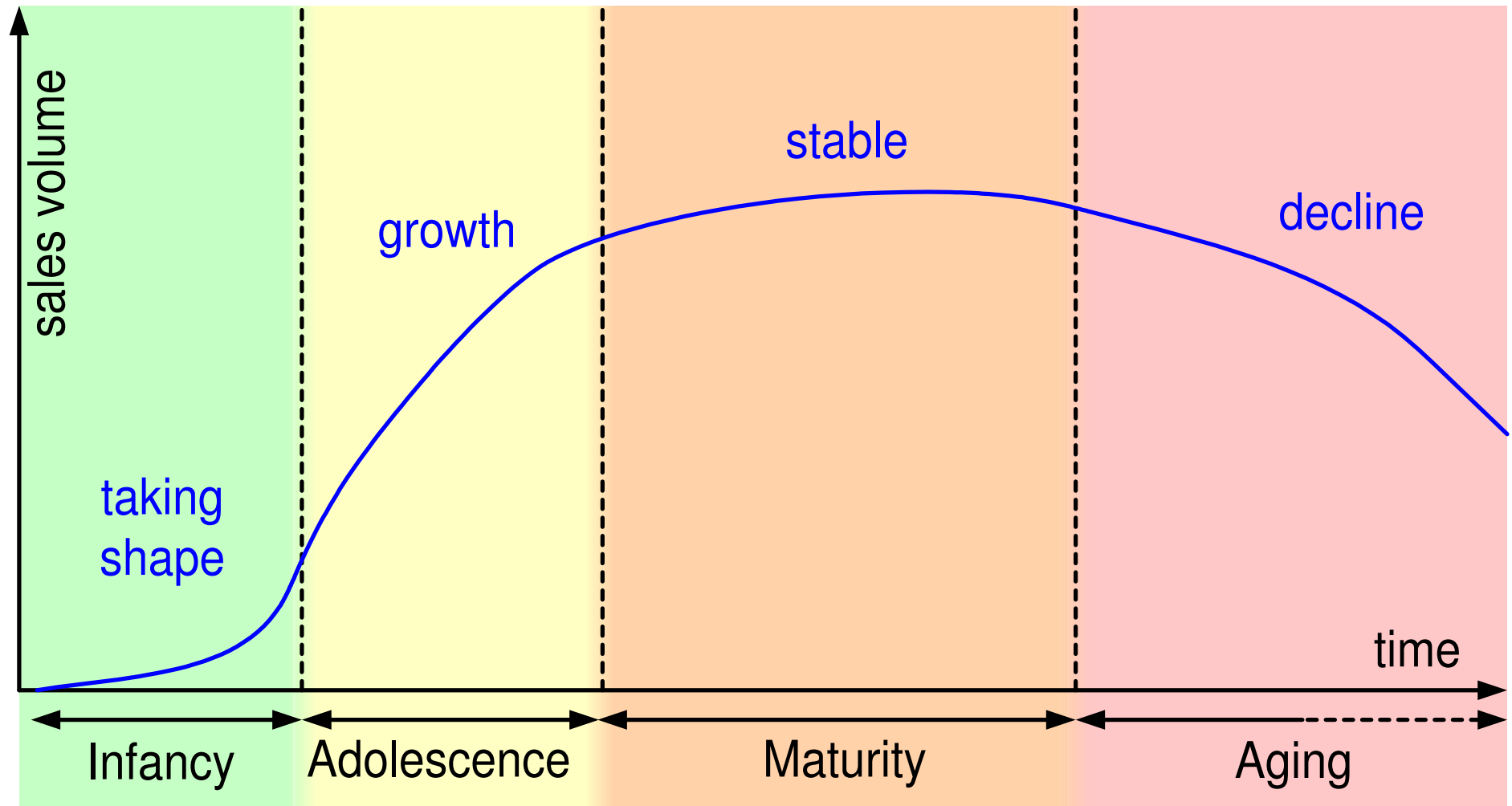
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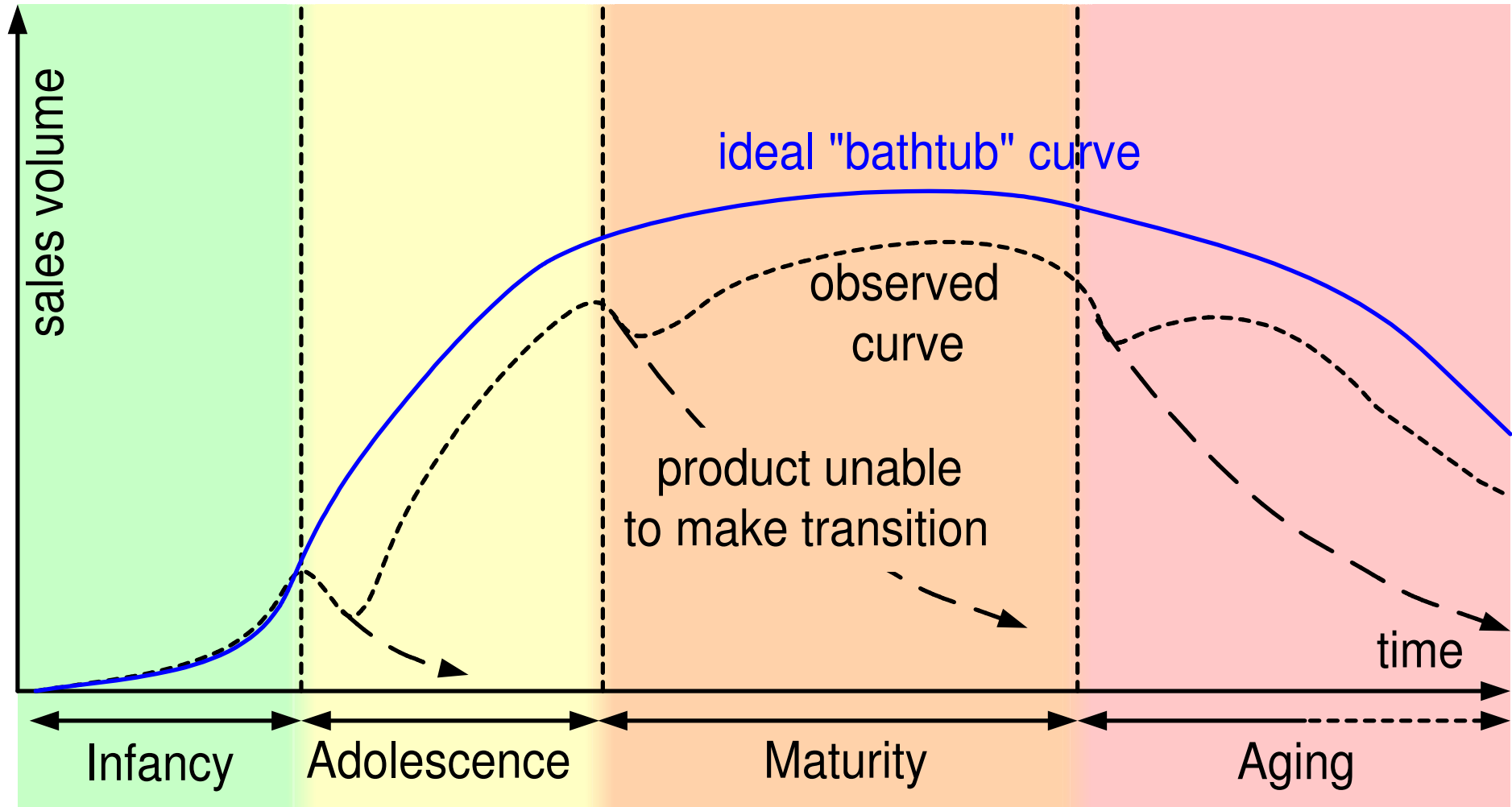
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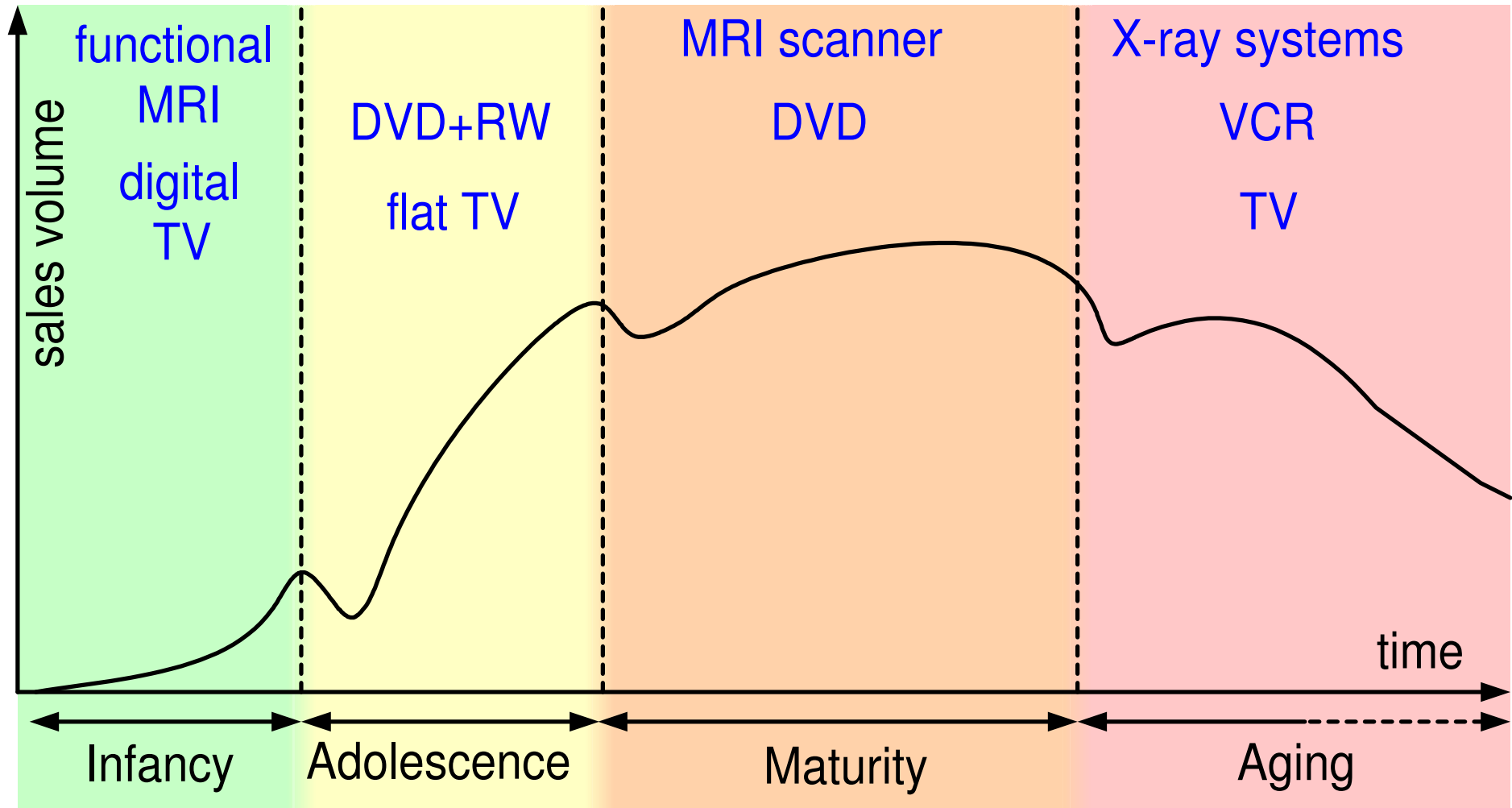
# Ideal Bathtub Curve



# Market Product Life Cycle Phases in Practice



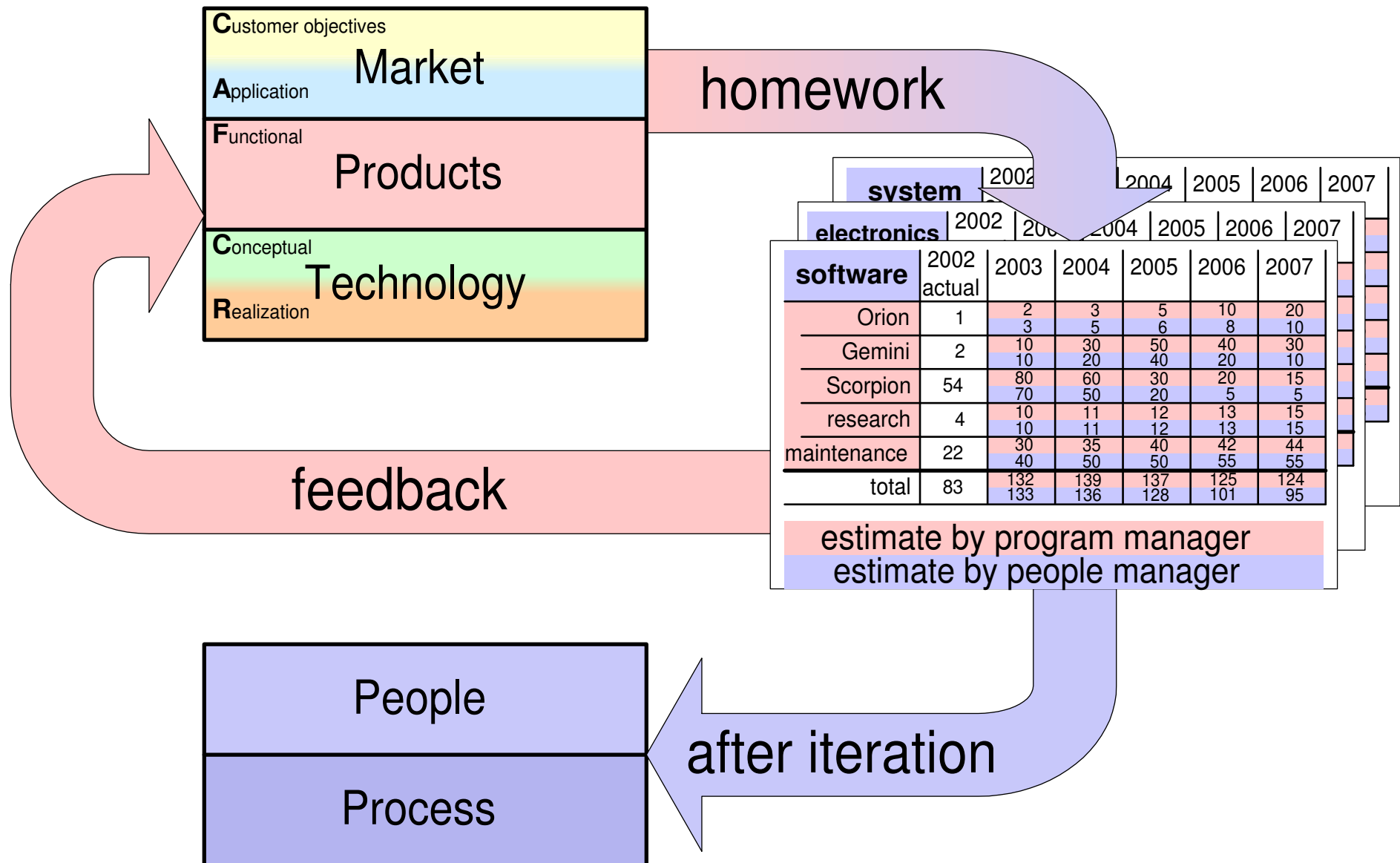
# Examples of Product Classes on the Curve



# Attributes per Phase

	Infancy	Adolescence	Mature	Ageing
Driving factor	Business vision		Stable business model	Harvesting of assets
Value from	Responsiveness	Features	Refinements / service	Refining existing assets
Requirements	Discovery	Select strategic	Prioritize	Low effort high value only
Dominant technical concerns	Feasibility	Scaling	Legacy Obsolescence	Lack of product knowledge Low effort for obsolete technologies
Type of people	Inventors & pioneers	Few inventors & pioneers "designers"	"Engineers"	"Maintainers"
Process	Chaotic		Bureaucratic	Budget driven
Dominant pattern	Overdimensioning	Conservative expansion	Midlife refactoring	UI gadgets

# From Market, Product, Technology to People, Process

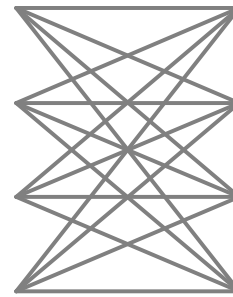


# From roadmap to planning

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roadmap

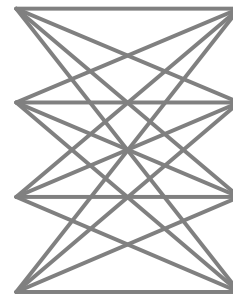
sharing  
understanding  
exploring  
positioning



vision/ambition  
opportunities  
broader context  
consequences

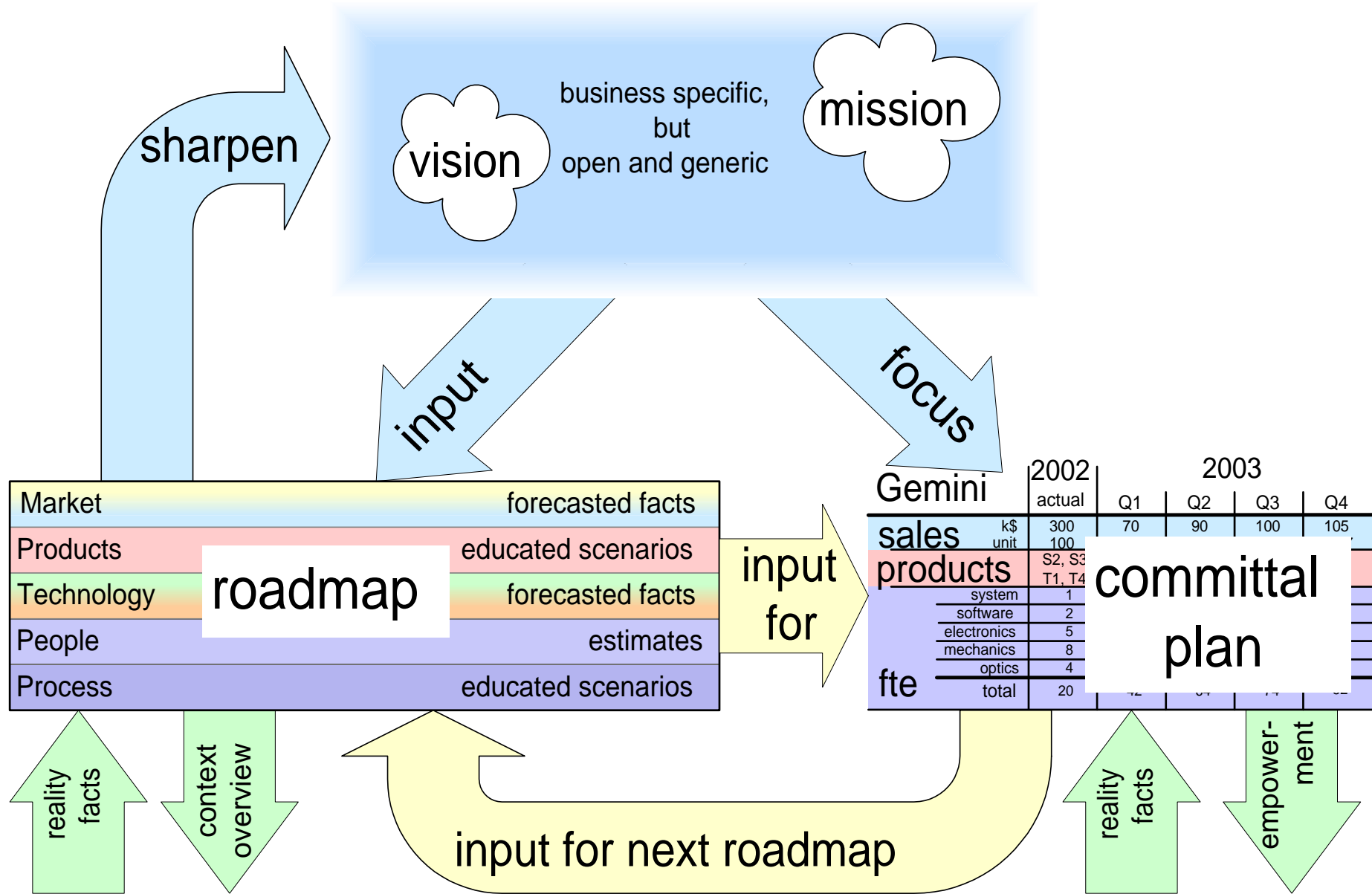
plan

allocate  
prepare  
commit  
empower



milestones  
sales  
products  
people/skills

# Summary of strategy process



# Summary of role in business

