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.
The Roadmap Integrates Five Views

- Customer objectives
- Application
- Functional
- Conceptual
- Realization

Time, ca 5 years

Marketing

Architect

Technology

People

Process

Market

Products
Granularity of Roadmap Material

- **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

- 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

2012 2013 2014

now horizon feature

Feature still unknown

Do!
Stop
Do!
Management with a Broader Time Perspective

<table>
<thead>
<tr>
<th>Year</th>
<th>Now</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2104</td>
<td></td>
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</tbody>
</table>

**Legend**
- **Number of People Allocated**
- **Time**

- Preparation by 0.5 person
- Work with 1.5 persons
- Continue with 0.5 person
- Work with 1.5 persons
Creation or Update of Roadmap in Burst Mode

1. Market
2. Products
3. Technology
4. People
5. Process

Collective meeting ca 2 days

Preparation by expert teams

2 weeks to digest and prepare

Shared Roadmap
Typical Stakeholders of a Roadmap

- 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

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

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

<table>
<thead>
<tr>
<th><strong>Market:</strong></th>
<th>What is needed by the customers?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Products:</strong></td>
<td>How to package technologies into products to fulfill market needs?</td>
</tr>
<tr>
<td><strong>Technology:</strong></td>
<td>What technological trends are relevant? What technologies are needed?</td>
</tr>
<tr>
<td><strong>People:</strong></td>
<td>What kind of and how many people are required to realize the products and technologies?</td>
</tr>
<tr>
<td><strong>Process:</strong></td>
<td>What processes are required to let these people realize the products and technologies?</td>
</tr>
</tbody>
</table>
From Roadmap to Detailed Plans

201X

Q2 | Q3 | Q4
roadmap n
roadmapping

201Y

Q1 | Q2 | Q3 | Q4
roadmap n + 1

Policy and Planning Process

budget

Q1 delta

Q2 delta

Q3 delta

budget

Q1 delta

business plan:
budget & allocation

detailed planning

market events

tech hurdle

Product Creation Process

market events

tech hurdle

tech hurdle

tech hurdle
## 3-Tier Approach

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

- 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

- 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

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