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**

**Market**

**Products**

**Technology**

**People**

**Process**

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**Marketing**

**Architect**

**Technology, process people manager**

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**Time, ca 5 years**

**Roadmapping**

version: 2.0
March 6, 2013
RSProadmapStructure
## Granularity of Roadmap Material

<table>
<thead>
<tr>
<th></th>
<th>Top-level roadmap</th>
<th>Supporting roadmaps</th>
<th>Supporting reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single page</td>
<td>Poster</td>
<td>Single page</td>
<td>Document</td>
</tr>
<tr>
<td></td>
<td></td>
<td>per view</td>
<td>per relevant subject</td>
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<td></td>
<td></td>
<td>or per driver</td>
<td>subject</td>
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<td></td>
<td></td>
<td>Poster</td>
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<tr>
<td></td>
<td></td>
<td>part of many</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>presentations</td>
<td></td>
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</tbody>
</table>

Roadmapping

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ROADdeliverables
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 |

Feature still unknown

Do!

Stop

Do!
Management with a Broader Time Perspective

- **2012**: Now -> Feature
- **2013**: Now -> Feature
- **2104**: Now -> Feature

**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

- Market
- Products
- Technology
- People
- Process

Collective meeting ca 2 days

Shared Roadmap

preparation by expert teams

2 weeks to digest and prepare

2 weeks to digest and prepare

Roadmapping version: 2.0
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ROADbursts
Typical Stakeholders of a Roadmap

<table>
<thead>
<tr>
<th>role</th>
<th>description</th>
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<tbody>
<tr>
<td>business manager</td>
<td>overall enterprise responsible</td>
</tr>
<tr>
<td>marketing manager(s)</td>
<td>discipline or line managers</td>
</tr>
<tr>
<td>people, process, and technology manager(s)</td>
<td></td>
</tr>
<tr>
<td>operational manager(s)</td>
<td>project or program managers</td>
</tr>
<tr>
<td>architect(s)</td>
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</tbody>
</table>
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

| **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? |

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Roadmapping
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From Roadmap to Detailed Plans

Roadmapping
201X
Q2 | Q3 | Q4 | Q1
201Y
Q2 | Q3 | Q4 | Q1

roadmap n
roadmapping
roadmap n + 1
Policy and Planning Process

budget
Q1 delta
Q2 delta
Q3 delta
Q1 delta

market events
detailed planning

tech hurdle

tech hurdle

tech hurdle

business plan:
budget & allocation

Product Creation Process

Roadmapping version: 2.0
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ROADbudgetPlan

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## 3-Tier Approach

<table>
<thead>
<tr>
<th></th>
<th>horizon</th>
<th>update</th>
<th>scope</th>
<th>type</th>
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<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>

Roadmapping
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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