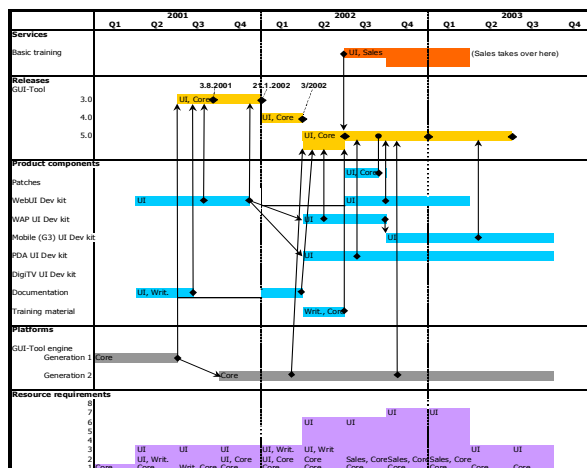




Long-term Planning of Development Efforts by Roadmapping – a Model and Experiences from Small Software Companies

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The Purpose of This Paper

- ❑ Present a visualization for planning and communicating
 - ❖ Release contents, timing and roles
 - ❖ Keeping in mind the software components' life cycles and the whole product
- ❑ Present our experiences from applying the model in three small software companies



Agenda

- ❑ Introduction
- ❑ Product roadmapping and SW product development
- ❑ A model for product roadmapping
- ❑ Experiences
- ❑ Conclusion and future work

- ❑ Questions and Comments



Success Factors in Software Business from an Engineering Perspective

- ❑ Capability to invent new solutions and realise them as software
- ❑ Delivering the releases with
 - ❖ The right amount of features and quality
 - ❖ Within an open market window
- ❑ For the latter, it is crucial to manage the *contents*, *timing* and *roles* of future releases together with the *product architecture*



Specifically... release

□ Contents

- ❖ Linking product features to business requirements and market opportunities
- ❖ Which features to include in which release?

□ Timing

- ❖ Identifying and exploiting a window of opportunity
- ❖ Making trade-offs between functionality, quality and time-to-market based on assessing the product against its competitors.

□ Roles

- ❖ Intended business implications for the company
- ❖ The type of the release (major, minor, patch etc.)
- ❖ The planned audience for the release

□ Components' lives and the whole product perspective

- ❖ Success often involves evolving both the individual products and the technologies they are based on at the same time
- ❖ What is it that you sell (...more than compiled chunks of code)?



What is Roadmapping?

- ❑ A popular metaphor for planning and portraying
 - ❖ Use of scientific and technological resources and elements, and
 - ❖ their structural relationships
 - ❖ ...over a period of time. [Kostoff & Schaller, 2001]
- ❑ The process of roadmapping identifies, evaluates and selects strategic alternatives for achieving desired objectives [Kostoff & Schaller, 2001]
- ❑ The resulting roadmaps summarise and communicate the results of key business decisions [DeGregorio, 2000]
- ❑ Specifically, product roadmapping?
 - ❖ "Disciplined, focused, multiyear approach to product planning", with the roadmap's implementability viewed as important as its strategic value [Kostoff & Schaller, 2001].

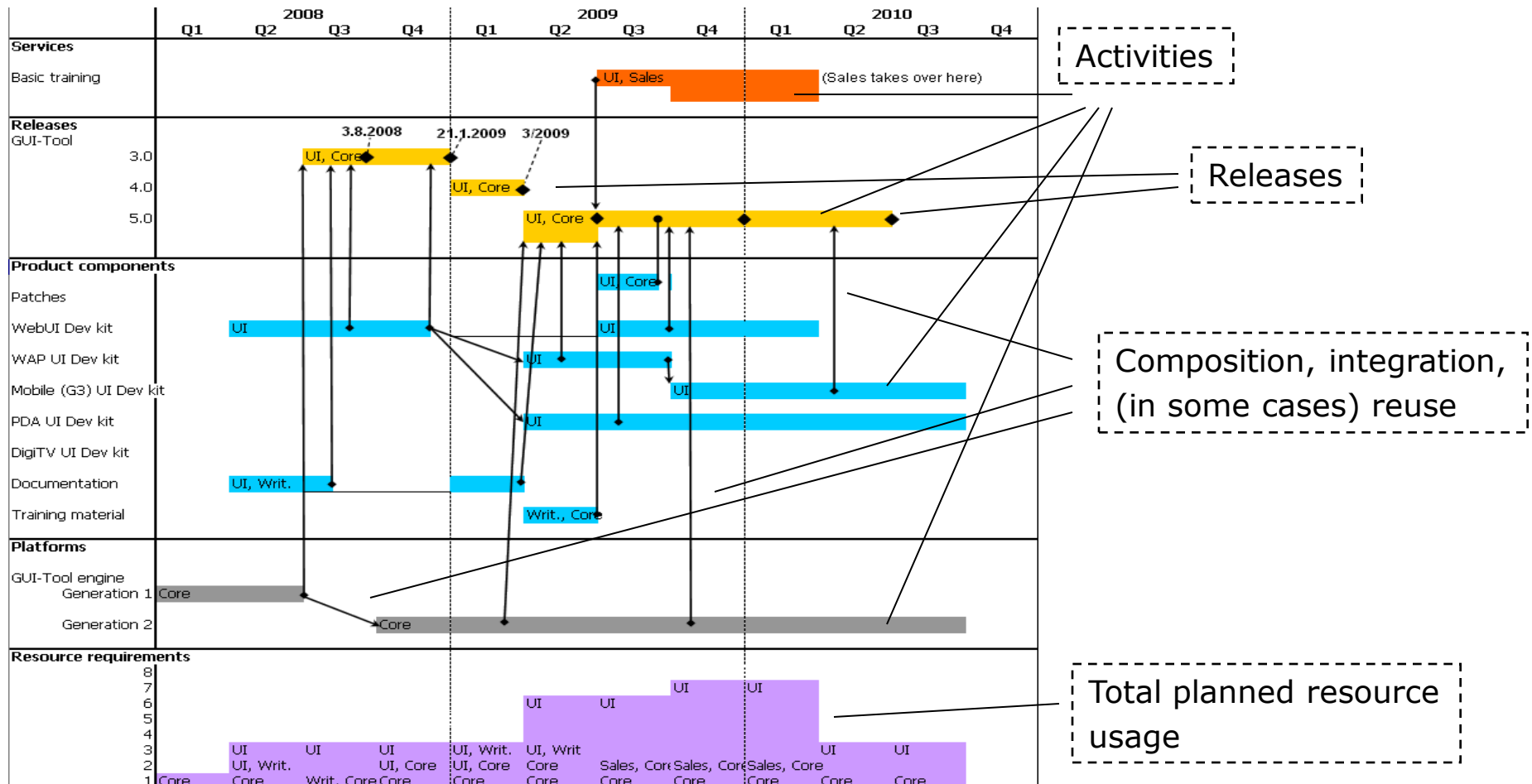


Our Model for Product Roadmapping

- ❑ A **product roadmap visualization**, and a **process outline** for creating and updating such roadmaps
- ❑ The visualisation aims to communicate the plans intuitively but forces a degree of accuracy through the use of formal notation
- ❑ The aim of the process is to provide a checklist for what to take into consideration when conducting long-term planning

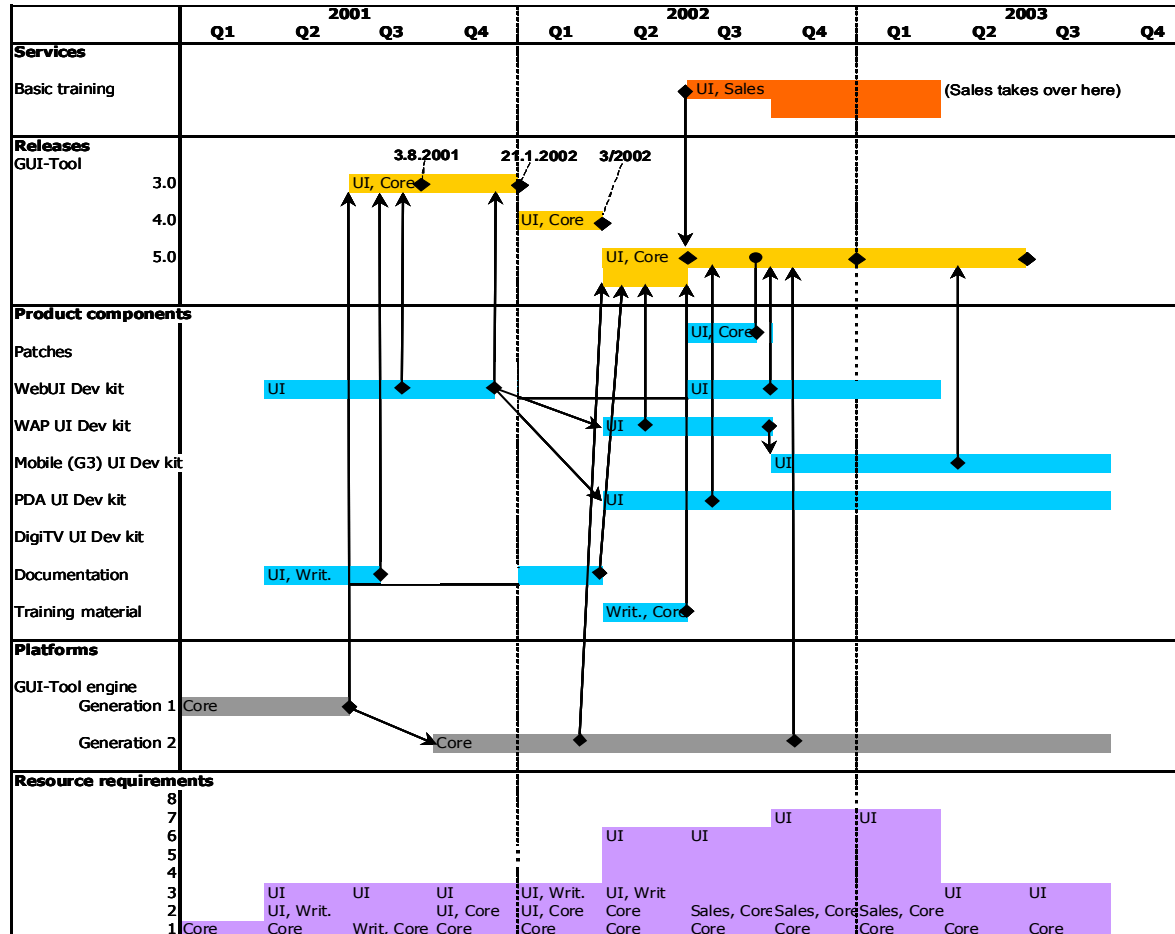


The Roadmap Visualisation - Elements





Roadmap Visualisation - Layers

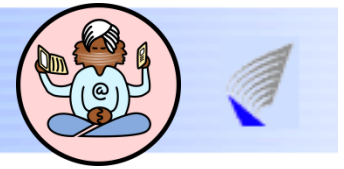


Services requiring attention from product development

Release schedules for the product(s)

Composition and development schedules of individual releases

Changes to the underlying technology



Visualisation Elements Explained (1/2)

Product release

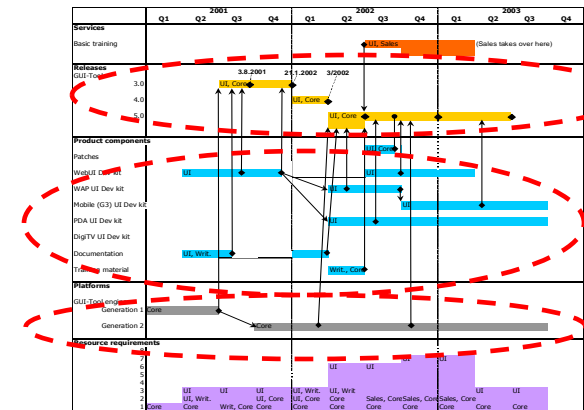
- ❖ Consists of integrating the related product components and platform(s), doing system testing and error correction, as well as performing other product release activities
- ❖ Three kinds of possible releases in the notation
 - Major, minor and patches

- Product component

- ❖ Business requirements translated as software
 - Relatively independent (groups of) features
- ❖ Documentation depicted as product components when necessary
 - Usually defined 'software' as well [Sommerville, 2001]

- Product platform

- ❖ Core software asset(s) on top of which the product is built and expanded on
- ❖ May be generic enough to be used in other products as well



Visualisation Elements Explained (2/2)

Services

- ❖ Classified and dealt with based on the kind of attention they need from product development

➤ Product accessories

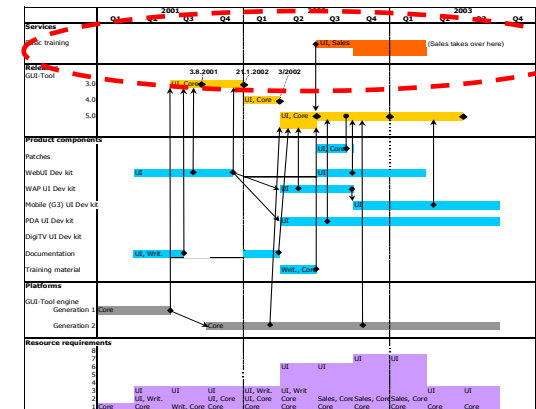
- A one-time effort requiring product development resources to fulfil a need common to many customers
- Typically developed for a specific customer, but are to be included as part of the standard offering
- Depicted as product components

➤ Customer-specific development services

- Depicted on the service layer
- Outcome is limited to the customer receiving the service (installation, systems integration)

- Services that do not appear to require attention from product development

- Not included in the product roadmap





Process Outline for Product Roadmapping

- 1) Define strategic mission and vision
 - ❖ Clarify and communicate what business the company is in
- 2) Scan the environment
 - ❖ Choose position and focus, assess the realism of the product vision and examine what technologies should be used
- 3) Revise and distil the product vision as product roadmaps
 - ❖ Establish release cycle, objectives for releases and allocate resources. Record decision rationale with business requirements
- 4) Estimate product life cycle and evaluate the mix of development efforts planned
 - ❖ Check sanity. Assess whether the planned development is parallel to the product vision
- ❑ The steps in the process should be performed periodically (quarterly to twice a year) to adjust the roadmap to new information and changing market situations
 - ❖ Smaller updates necessary to ensure the roadmaps always hold current information (once per 2 weeks to bimonthly)



Model developed and applied in co-operation with three small software companies

❑ ToolCo (14 employees)

- ❖ Applications and software development tools for Internet-, intranet- and extranet environments
- ❖ Most of the application experiences come from this case

❑ TeamCo (~40)

- ❖ Solutions that facilitating group interaction for mobile operators, service providers and enterprises

❑ MobAppsCo (~40)

- ❖ Mobile business solutions and professional services for mobile operators and enterprises.



Roadmapping at ToolCo

- ❑ Goal: Planning the productization of ToolCo's internal toolkit for rapid creation of browser-enabled user interfaces
- ❑ Roadmapping was conducted over a period of three months
 - ❖ Planning the release cycle
 - ❖ Schedules for the major releases and their contents,
 - ❖ Considering what whole-product issues needed to be taken into account along the way
- ❑ Mainly carried out by the CEO
- ❑ Required about one man-month of effort
- ❑ Outcome (as stated by the CEO)
 - ❖ A clearer understanding of what had to be achieved in order to launch the product,
 - ❖ Understanding the schedule and timing implications of sales, marketing and other aspects not directly related to development

Lessons from ToolCo

- ❑ Visualisation found helpful
 - ❖ Development plans of the product, its parts and planned resource allocation over time in one picture
 - ❖ These issues had previously been found difficult to express and communicate
- ❑ Several adjustments based on feedback
 - ❖ Introduction of the service layer
 - ❖ Explicit resource types
 - ❖ Simplifying the notation for minor releases and release composition
- ❑ “Difficult, but important”:
 - ❖ Estimating the life cycles and financial implications of products, components and platforms
 - ❖ Identifying and analysing the competition
- ❑ Product roadmapping seemed to help in bridging the gap between management, marketing and software development
 - ❖ Concretises and communicates the plans so that they can be acted on – or refuted – when necessary



Lessons from all of the cases

- ❑ Personnel tend to have have a wide range of responsibilities
 - ❖ Architecting, installing the system, systems integration, consulting, sales
 - ❖ Unclear priorities caused by lack of long-range planning
 - Overbooking of resources is common
 - Some important activities do not receive enough attention
- ❑ Important to account for services in the product roadmap
 - ❖ Helps make resource allocation trade-offs between product development and providing services
- ❑ A common conceptual view of the product may be lacking even when the development organisation is small
- ❑ Planning the issues depicted by the visualization is important – using this specific visualization is not



Future Work

- ❑ More empirical experience of how small companies (should) conduct long-term planning
 - ❖ Because a sense of urgency is always present when dealing with small companies, 'long term planning' may not be the keyword of choice
- ❑ Companies are on the lookout for (free) tools to replace spreadsheets as the project mgmt tool
 - ❖ A back door for getting more experiences?
- ❑ Implementing the roadmapping visualization into Agilefant
 - ❖ "The Finnish Ferrari of backlog management for the price of a Linux"





Questions and Comments!

More info:

Agilefant

www.agilefant.org

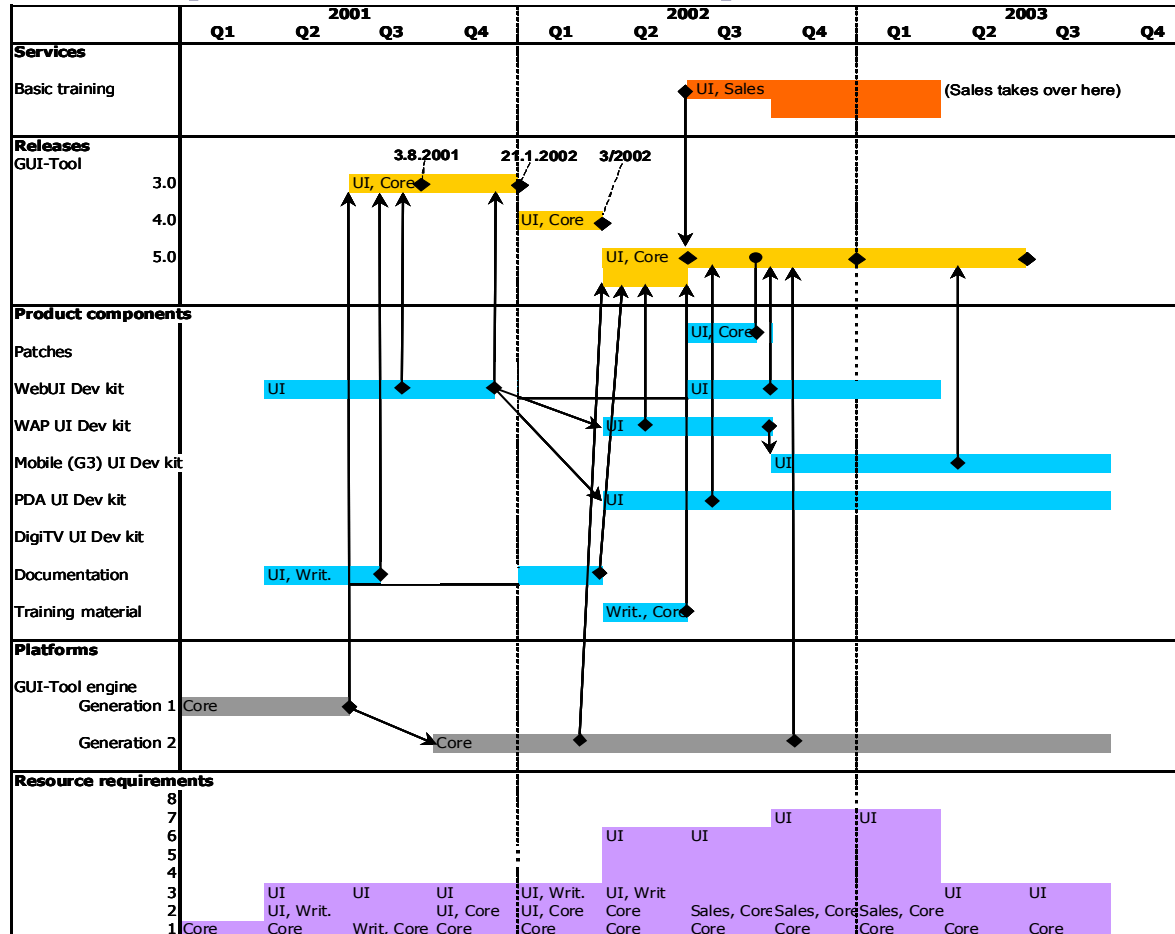
The ATMAN Research Project

(www.agilefant.org/atmanblog)





Roadmap Visualisation Layers



Services requiring attention from product development

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Roadmap Visualisation Elements

