Knowledge Asset Road Maps

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Abstract

This paper describes how AIAI has used the ideas and techniques behind Technology Road Maps in order to provide a framework for developing Knowledge Asset Road Maps to support knowledge management initiatives. By carefully relating knowledge management actions upwards to business objectives and strategies, and downwards to specific knowledge assets, a co-ordinated picture of the various parts of an organisation's overall knowledge management programme can be visualized and justified. Knowledge Asset Road Maps used as a strategic planning tool, allow the gaps between an organisation's current know-how and future requirements to be identified, and informed investment decisions to close this gap to be made.

1 Introduction

AIAI has produced a framework for developing Knowledge Asset Road Maps to support strategic knowledge management initiatives. Road Maps have been used by AIAI with a number of commercial and government organisations as well as in support of pan-European research "clubs".

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Knowledge Asset Road Maps are mechanisms enabling organisations to visualise their critical knowledge assets, the relationships between these and the skills, technologies and competencies required to meet future market demands.

The goal of developing a Knowledge Asset Road Map is to increase an organisation's competitiveness by:

- enabling all sections of an organisation to appreciate the current and future critical knowledge assets and their linkages to business objectives;
- guiding strategic research, development, marketing and investment decisions.

This is achieved by:

- identifying current and future knowledge assets required to meet business objectives and placing them on a timeline;
- identifying critical actions and projects required to develop and maintain the assets in the context of the business objectives;
- specifying the relationship between the assets, actions, projects and business objectives of the organisation and the roles that each asset is expected to have in achieving the objectives.

A Knowledge Asset Road Map provides a co-ordinated picture of the various parts of an organisation's overall knowledge management programme such that the diverse and dispersed efforts can be seen as part of the whole and can be justified as such.

2 Background

Knowledge assets are the knowledge regarding markets, products, technologies and organisations, that a business owns or needs to own and which enable its business processes to add value and generate profits. Knowledge management is not only about managing these knowledge assets but managing the processes that act upon the assets. These processes include: developing knowledge; preserving knowledge; using knowledge; and sharing knowledge. Therefore, knowledge asset management involves the identification and analysis of available and required knowledge assets and knowledge asset related processes, and the subsequent planning and control of actions to develop both the assets and the processes so as to fulfil organisational objectives [Spe97].

Technology Road Maps are used internationally to identify and reach consensus on future technology requirements [Tat93,Zur97,Str98]. Technologies are selected on the basis of their potential contribution to marketplace competitiveness and their strategic applicability.

The various elements of a Technology Road Map are illustrated in figure 1, using terminology from [Tat93]. A Technology Road Map is split into a number of **Facets** which collect together major types of work within the programme. Facets appear as horizontal running bands in the Road Map itself. The particular facets required on a Road Map will depend on the purpose to which it will be put.

Within each facet there could be a number of **Threads** which are used to relate programme elements together in a communicable way. Threads may carry on for the whole programme duration if they are sufficiently important and it is suggested that strong threads are identified which do carry on in this way. However, threads could also be for a more limited duration during a specific phase of the programme. Threads can be a good mechanism to keep particular technical or organisational themes running through the programme. Threads appear as horizontal lines within a facet and will have annotations at the appropriate date for major programme elements that relate to the thread. **Ties** are used to show major connections between programme elements. They are shown on the Road Map as vertical or rightwards pointing diagonal lines showing the supporting relationship between the elements. Ties are one major way in which justifications, proposals and business cases for lower level activities can be better presented in terms of higher level objectives.

AIAI has used the ideas and techniques behind technology Road Maps in order to develop a framework for developing Knowledge Asset Road Maps to support knowledge management initiatives.

3 Approach

A Knowledge Asset Road Map is built by carefully relating knowledge management actions upwards to business objectives and strategy, and downwards to specific knowledge assets.

The first step in establishing a Road Map for a programme is to set up a number of Facets which will be helpful for the programme. Some examples of general facets are given below. In practice the facets need tailoring to the specific needs of the programme and may require further revision as the Road Map is developed.

1. business objectives and business drivers with threads such as:
    - more effective capture and use of business knowledge
    - more effective product innovation
    - a more efficient research process
    - objectives relating to new products or services
2. lead projects and knowledge management actions
    - the threads could relate the chosen projects to the major types of task or major challenges that the programme needs to address.
3. knowledge management enablers with threads relating to:
    - skill building
    - insertion of technology
    - use of external skills
4. knowledge related processes
5. knowledge assets

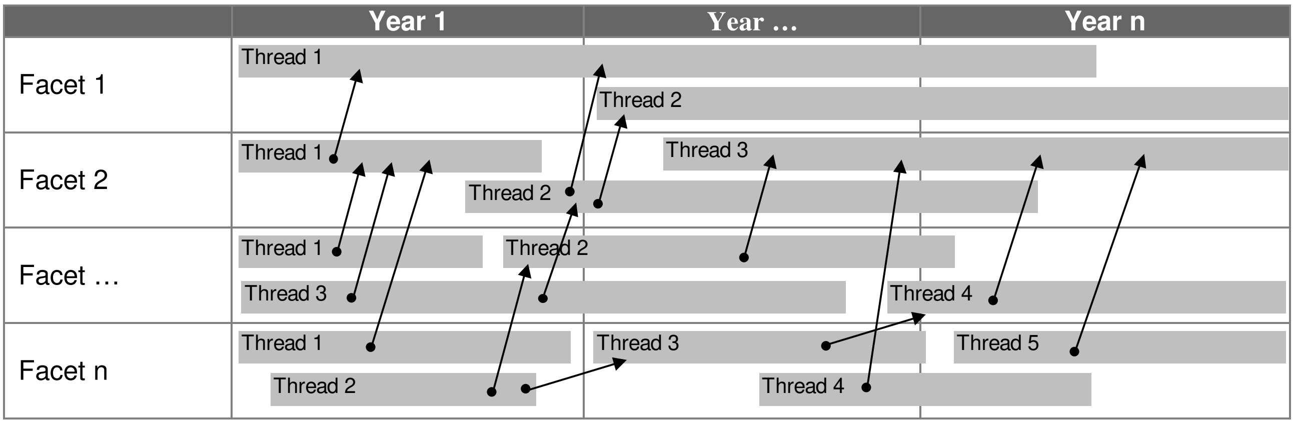


Figure 1: Elements of a Road Map

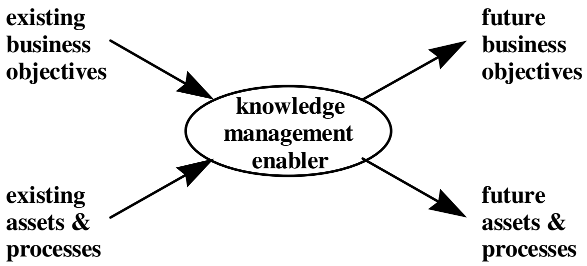
An example of a Knowledge Asset Road Map is shown in Figure 2.

The development approach needs to be tailored to the specific needs of the programme. An example of such an approach is:

1. Examine the strategic business plans and taking each business objective in turn.
2. Determine which knowledge assets and processes will have to be in place to support this objective. The knowledge assets need to be described in sufficient detail so that current knowledge assets can be evaluated and subsequently knowledge gaps can be addressed.
3. Analyse the status of the knowledge assets and processes.
4. Identify which knowledge management enablers (e.g. technologies, processes, organisational changes) are required to achieve the objective along with the time-scales for their insertion.
5. Add any necessary intermediate developments of assets, processes and technologies
6. Agree Knowledge Asset Road ties and linkages and sort out time-line dependencies.

Having established a Knowledge Asset Road Map it should be communicated as widely as possible within the organisation. Thereafter, any new knowledge management enabler entries on the Road Map could be justified in a number of ways. One reason might be that they are in support of, or allow reaching of, an objective or entry already on the Road Map. In general well justified knowledge management enabler Road Map entries would:

- relate to identified existing business objectives.
- open the opportunity for future business prospects.
- be based on current knowledge assets.
- lead to the development of future knowledge assets.



The process of developing the Road Map and the completed document provide a framework that allows:

- individual knowledge management actions to be defined and justified in terms of their contribution to overall objectives.
- setting of time-scales for development of new assets.
- identification of key assets that support many objectives.
- identification of opportunities to "pull through" new assets ready for exploitation.
- identification of opportunities for strategically competitive products and services that combine a set of assets unique to the organisation.

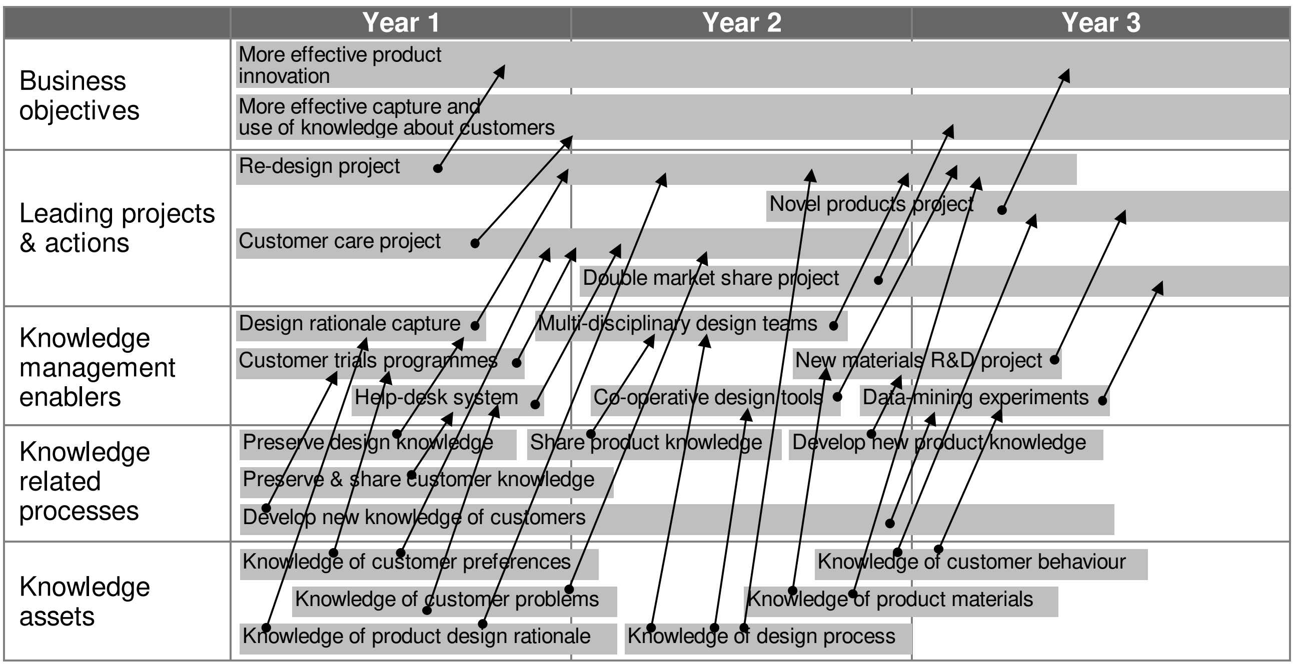


Figure 2: An Example of a Knowledge Asset Road Map

- identification of knowledge gaps that need to be filled.
- identification of critical paths from asset developments to meeting business objectives.
- more effective communication between participants and observers of the programme (e.g. users, researchers, technicians, managers and directors involved in the various aspects of the programme).
- management aids for those involved in carrying out the programme and measuring its progress.
- reduction of investment risk through better prioritisation of projects.
- sensible decisions to be taken on the opportunities for further exploiting the results of the programme.

The Road Map reflects the current state of the interrelationships between work in progress and proposed for the future and the overall milestones and aims of the programme. Hence it can serve as a framework for monitoring the progress of the programme against overall objectives.

Knowledge Asset Road Maps are evolutionary and as such need to be actively maintained and updated at Programme Reviews, when business objectives change, when there is a shift in knowledge asset focus and as new assets mature. An owner of the Road Map should be identified, for example, the organisation's Knowledge Manager and a process for maintaining and managing the Road Map should be defined to suit the organisational structure within the business and type and size of the knowledge management programme.

The Road Map is not an alternative to individual project plans and more detailed management aids to control the programme. It is a high level overall co-ordination and communication aid. As such, it cannot be expected to show all knowledge assets and relevant ties. Special versions of the Road Map can be developed for specific audiences or showing relevant facets, threads and ties for a specific purpose.

4 Conclusions

Knowledge Asset Road Maps can be used by organisations as a strategic planning tool to identify the gaps between their current know how and future requirements, and to make informed investment decisions to close this gap. They provide a global timetable of expected capabilities and results in terms of an organisation's objectives, its knowledge assets and the related actions required for achieving and preserving the assets. In addition they provide a framework for co-ordinating the activity within a knowledge management or other strategic programme, allowing the measurement of overall progress.

References

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