Application Portfolio

Thinking Portfolio® Whitepaper

Application development and lifecycle roadmap
Dependency management
Compliance management
Dashboard reports
Easy integration with the REST API interface

Application Portfolio Whitepaper

Contents

Thinking Portfolio®

– the tool for strategic leadership

Thinking Portfolio® is your practical tool for management on the strategic level. The portfolio management model supports business-oriented planning, communication and decision-making based on the big picture.

The starting points for its development include international reference frameworks for portfolio management, like COBIT, ITIL/ISO20000, PRINCE2, ISO27001, PMBOK, the ABC project template and SAFe. Thinking Portfolio utilizes industry-independent definition models for business benefits and maturity.

By putting Thinking Portfolio into service, your organisation will get capacities for better and quicker decision-making, agile change management, business orientation and risk analysis.

The visual presentation of Thinking Portfolio and the browser-based user interface will facilitate its adoption. No technical courses or manuals are needed to use the system.

Thinking Portfolio has been developed utilizing the latest Web technologies. The browser-based user interface is intuitive and user-friendly. The technical solution enables the implementation of different applications for portfolio management.

This document will present the renewed application portfolio intended as a management tool for IT applications, systems and services.

Benefits of Thinking Portfolio®

Industry-independent	**Enhances knowledge-based management and decision-making**	**Adapts to the ways of working of each organisation**
With 40+ portfolio models that are intrinsically interconnectable	**Independent of the number of users – fixed price with unlimited users**	**Versatile reporting visually – already more than 800 report templates**
Enables the simultaneous use of multiple language versions	**Easy-to-adopt browser interface**	**Fast commissioning**

Portfolio management
— *data, processes, roles*

The use of portfolio management as a general management tool is something rather new. Its purpose is to increase consistency, efficiency and transparency in management and decision-making.

Why Portfolio Management?

Enhances the decision-making	Quantitative way of description resources	Tool for risk management

The management of large and multifaceted organisations is challenging because of the incoherence of customer requirements, problems with the flow of information and shortage of experts. The results are overlapping tasks, competing for the same resources, the timing and contents of which, largely unknown, have not been optimized in any way. The linkage of the strategy with the core functions is unclear.

Portfolio management is an operating model able to reduce the problems of fast-paced and multidimensional management. It creates a functional framework, streamlining at its best the preparation, the decision-making, the understanding and the easy implication (Fig. 1).

Portfolio management consists of data, processes and roles. The portfolios are a formal way of describing resources and projects serving to implement the organisational strategy.

Management portfolios are typically of three main types (Fig. 2):

1. An asset or resource portfolio contains, e.g., applications, customerships, services, competencies or processes gained by the organisation with development projects and investments.

2. A project portfolio contains initiatives waiting to be started, initiatives started and initiatives finalised, and projects related to them.

3. A development portfolio contains the descriptions of the development proposals, ideas and scenarios the organisation has planned for the future (in particular, development programs).

4. The portfolios are interconnected: The project portfolio receives reasoned proposals for projects from the development portfolio. A project portfolio generates assets. The obsolence or poor performance of any assets creates a need for development etc.

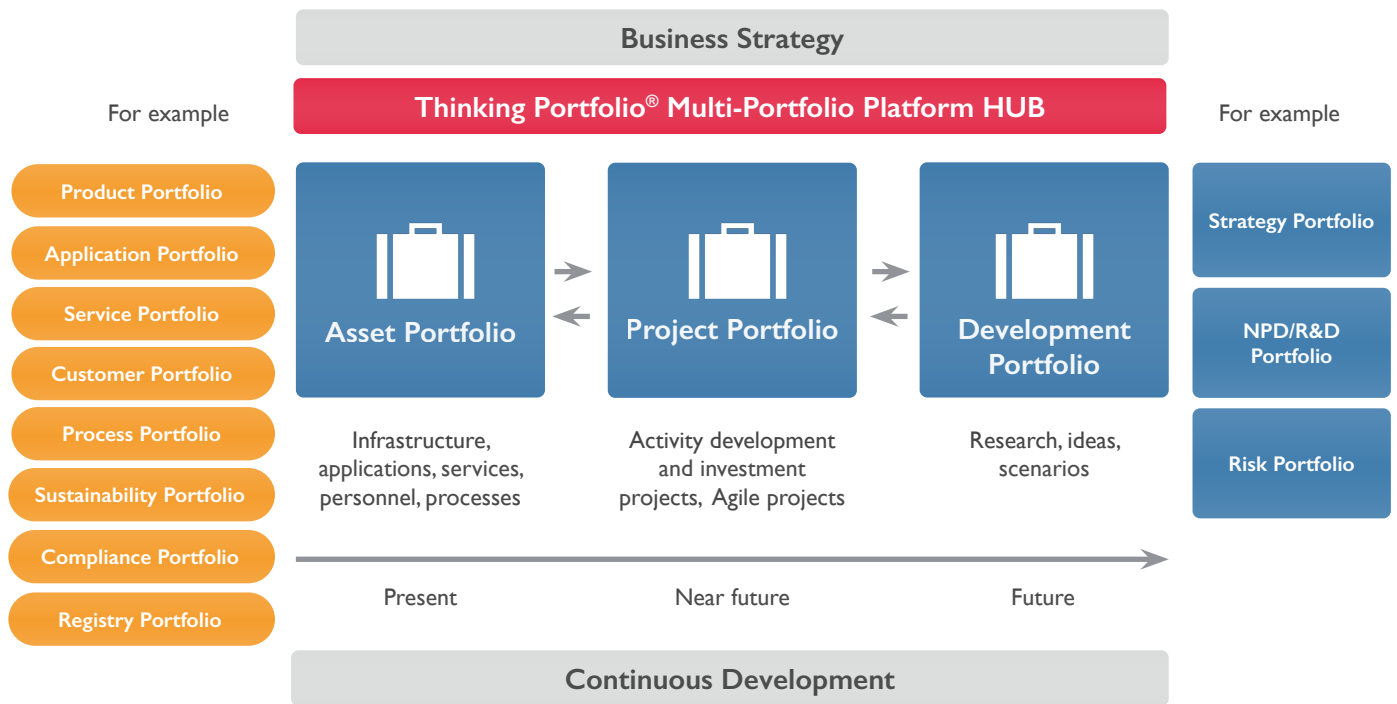Common business concept and management method
Process and framework
Tools

Business Strategy

Thinking Portfolio® Multi-Portfolio Platform HUB

For example

- Product Portfolio
- Application Portfolio
- Service Portfolio
- Customer Portfolio
- Process Portfolio
- Sustainability Portfolio
- Compliance Portfolio
- Registry Portfolio

Asset Portfolio → **Project Portfolio** → **Development Portfolio**

Infrastructure, applications, services, personnel, processes

Activity development and investment projects, Agile projects

Research, ideas, scenarios

Present — Near future — Future

For example

- Strategy Portfolio
- NPD/R&D Portfolio
- Risk Portfolio

Continuous Development

Figure 2. The strategic portfolios

The principle of portfolio management and prioritisation of things

In its simplest form, portfolio management is about how to manage and balance revenues, inputs and risks. The revenues can be cost control, increase in productivity, creation of new customerships or growth in turnover. Besides investments, inputs can be spending of money and time on project work, training, commissioning and maintenance work.

Project risks are various, and also actual assets are exposed to risks like the scalability of IT applications and systems with business growth or contraction.

Linking portfolios with strategy and architecture

Portfolios are linked into linked with the organisational strategy through criteria and classifications. The direction determines strategy success factors and key results, which it depicts as different criteria in the portfolios. Criteria evaluate any idea, project or application from the strategy onwards.

Inside the portfolios, it is important to identify the correspondence of any project or asset to the architecture in business, IT, application and technology. It may be possible that a new customer information system might be a good plus for the organisational strategy, but it might as well conflict with the existing application and technology architecture.

Portfolio management success factors

The commissioning of portfolio management can be a project of its own, but incorporating it into the everyday life of your organisation requires purposeful commitment and genuine exemplarity from the direction. Portfolio management must be integrated into the organisation's management, e.g. management teamwork.

The maturity level of the organisation matters in terms of the success of portfolio management. If management or project activities have significant shortcomings, portfolio management will remain incomplete without a sound foundation. Portfolios are of no use if the organisation lacks the ability to act and make decisions as required by them.

Portfolio management calls for support with work equipment. Here, the equipment is not the solution but only the support of a paradigm shift.

Thinking Portfolio® Multi-Portfolio Platform HUB means utilizing more than one portfolio for decision-making, management and communication.

Thinking Portfolio® HUB

– centralized user management and resource planning in core
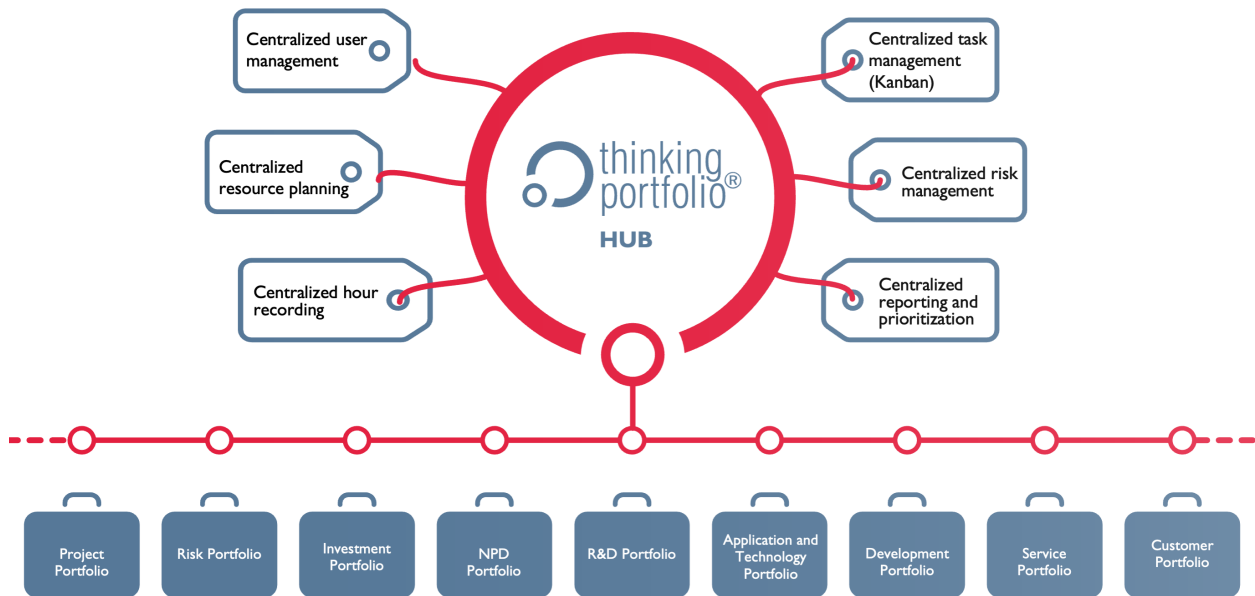
Benefits Multi-Portfolio Platform HUB

Enhances the deployment of multiple portfolios

+ One database, with data model of various portfolios linked together
+ Makes use of existing elements, like user management

Versatile reporting capabilities

+ Enables reporting across portfolio borders
+ Generates in-depth situational insight

More versatile user management

+ Description of capabilities
+ Load
+ Resourcing
+ Description of competences

Resource planning, resourcing approval

+ Overall resourcing for all portfolios
+ Resourcing transparency
+ Possibility to reserve a time window for line work
+ Time registrations in one place for all portfolios

Connected risk management between portfolios

+ Risk analyses of different portfolios
+ Risk evaluation across portfolio boundaries

User management of different portfolios under the same administrator

+ More efficient access control
+ For a user, an opportunity to supplement their knowledge

Task management enhances the effectiveness of monitoring

+ The user has better visibility on the tasks defined across portfolio boundaries

Multi-portfolio Platform HUB

Thinking Portfolio's new HUB platform allows for even closer interconnection of the data models of multiple portfolios, in one single database. At the core of Thinking Portfolio's HUB, implemented with the help of the resource portfolio, there is centralised user management, which can be parameterised in a considerably more versatile manner than before. The deployment and use of new portfolios will be more efficient as well. Thinking Portfolio HUB offers the following benefits:

+ Makes the user's competence transparent

+ Centralised and simple user management for multiple different portfolios

+ Centralised and easy visibility to resource management across different portfolios

+ Overall resourcing for all portfolios (projects, absences, holidays)

+ Support for performance appraisal and feedback discussion processes

+ Easier management of list values

+ E.g., a centralised Kanban dashboard, where tasks are placed from different available portfolios

+ Choice of language for a portfolio, e.g. Finnish, English, Swedish, German, Dutch

The HUB entity contains then the following functionalities:

+ User management of extended data model

+ Other enhancements to be executed as modifications (e.g. capability and competence maps, Dashboards, HRD meters)

Renewed user management

The new user management is based on Thinking Portfolio HUB platform. Previously, accessing the portfolio user management required a separate administration interface. For example, user IDs were edited through it. In the new platform, user information is easily available in its own portfolio, where the data is also managed.

New opportunities

When users are in their own portfolio, a more extensive portfolio model can be introduced. The data model can then be modified flexibly, as needed. For example, competence areas can be defined for users. The dashboards are fully parameterizable, as appropriate. For example:

+ Competence management: searching for a user based on competence area

+ Detailed contact information

+ Resourcing in one portfolio – other portfolios use the resourcing portfolio data

Administrator's perspective

+ User management is transferred from the current user management interface to its own user-friendly portfolio

User's perspective

+ Hour entries can also be made through one portfolio into other portfolios in the organisation

+ Centralisation of Kanban task management under personal "MyKanban" or "MyDashboard" – the user can easily find all their tasks defined in different portfolios in one place.

Figure 3 Dashboards of the renewed user management: user list, basic data, functionalities, access rights and competence map.
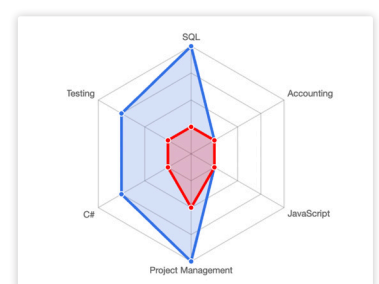
Dashboard

Dashboard offers a personal view into the most important reports to follow (Figure 4). In Dashboard tabs, separate report views can be created for different needs, and thus, for example, a project manager can create a ready view for the reports shown to the steering group and project team. With Dashboard, the administrator can create reporting views visible to everyone.

The management of dashboards is very versatile. The administrator can now publish a dashboard visible to everyone, and users can use it as a basis to modify a version that best meets their needs, visible only to them.

OnePager

OnePager (Figure 5) is a quick, visual aggregation of the key contents of the portfolio. This is a handy report, say, for steering group work.

Example Project

Figure 5. OnePager
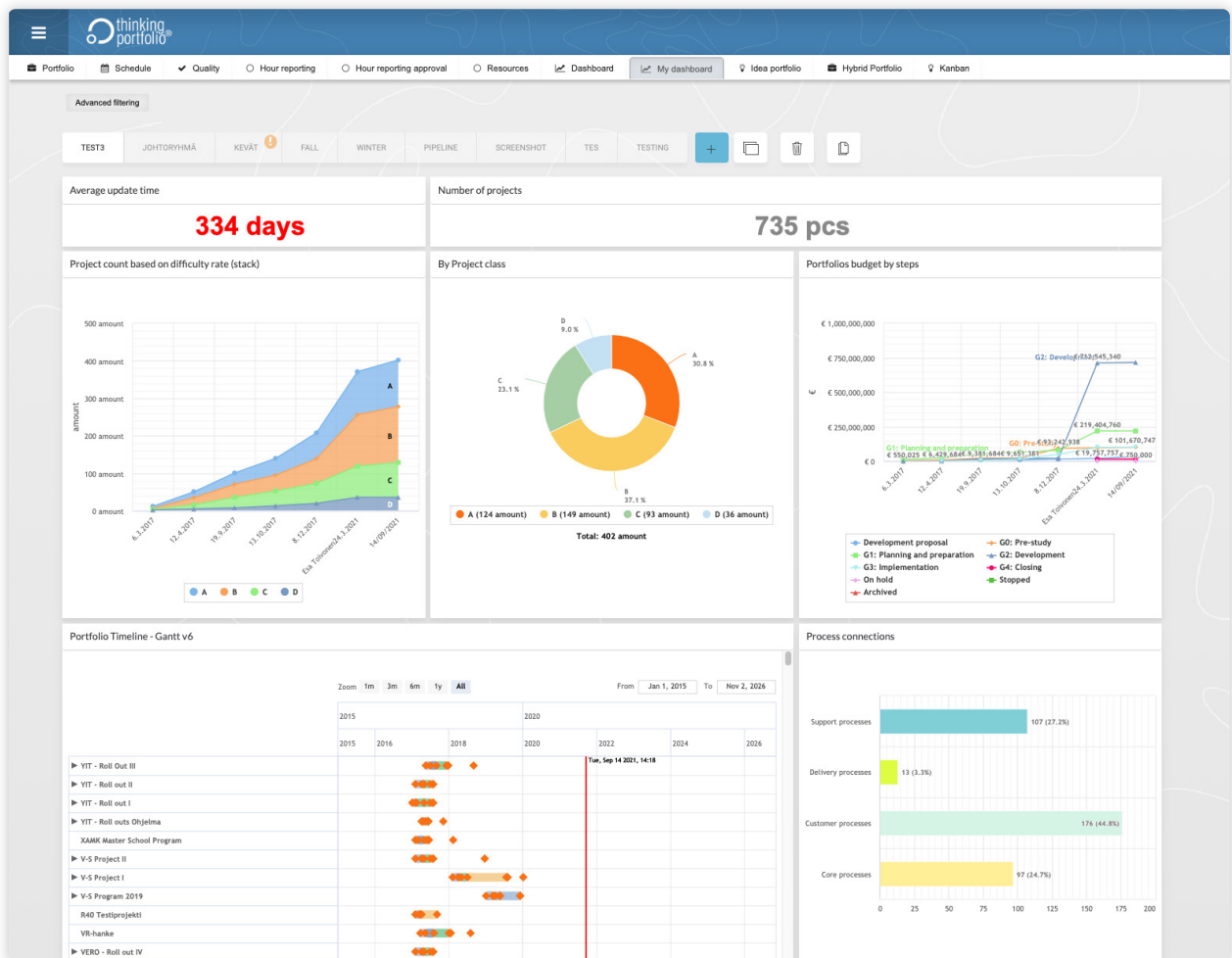
Figure 4. Dashboard

Key functionalities of Application Portfolio

The Application Portfolio is a management tool for the enterprise architecture comprising the applications and the technologies of your organisation. Thanks to the Application Portfolio, the application, data and technology architecture of the organisation can be valued

Thanks to its simple browser interface (Figure 6), it is a user-friendly tool with fast commissioning. It offers full transparency on the life cycle and the development needs of existing applications and on compliance requirements related to applications. It supports uniform and life cycle management of applications, systems and services. Thanks to the application and system portfolio, the organisation will get an insight into the situational picture and the developmental needs of its data protection concerns due to the GDPR.

The visual presentation makes it easier to observe the interdependencies of applications and their linkage with e.g. projects or services across portfolio boundaries.

Figure 6. Basic components of the Application Portfolio user interface

Navigation

Two-level menu structure
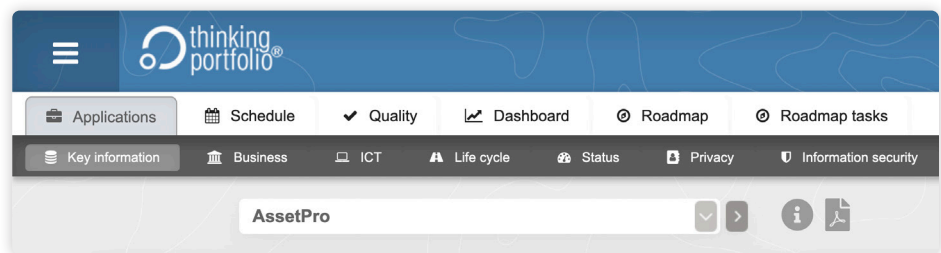
Filtering functionalities

Flexible filtering aspects
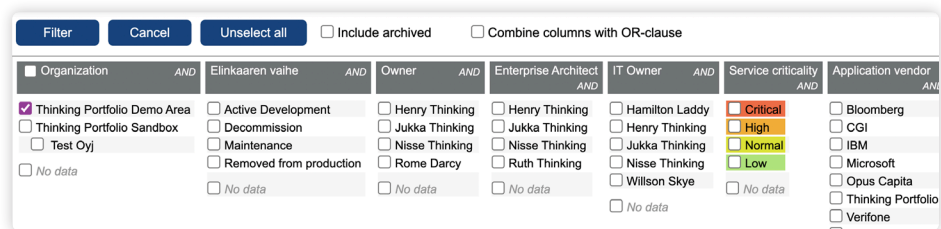
Application cards and panels

The application pages are composed of panels structuring the data from different points of view
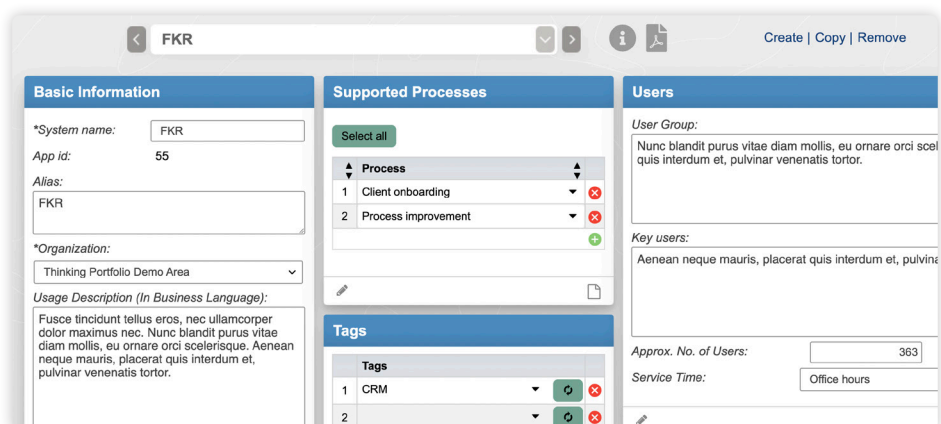
Thinking Portfolio®
– Main views of the Application Portfolio
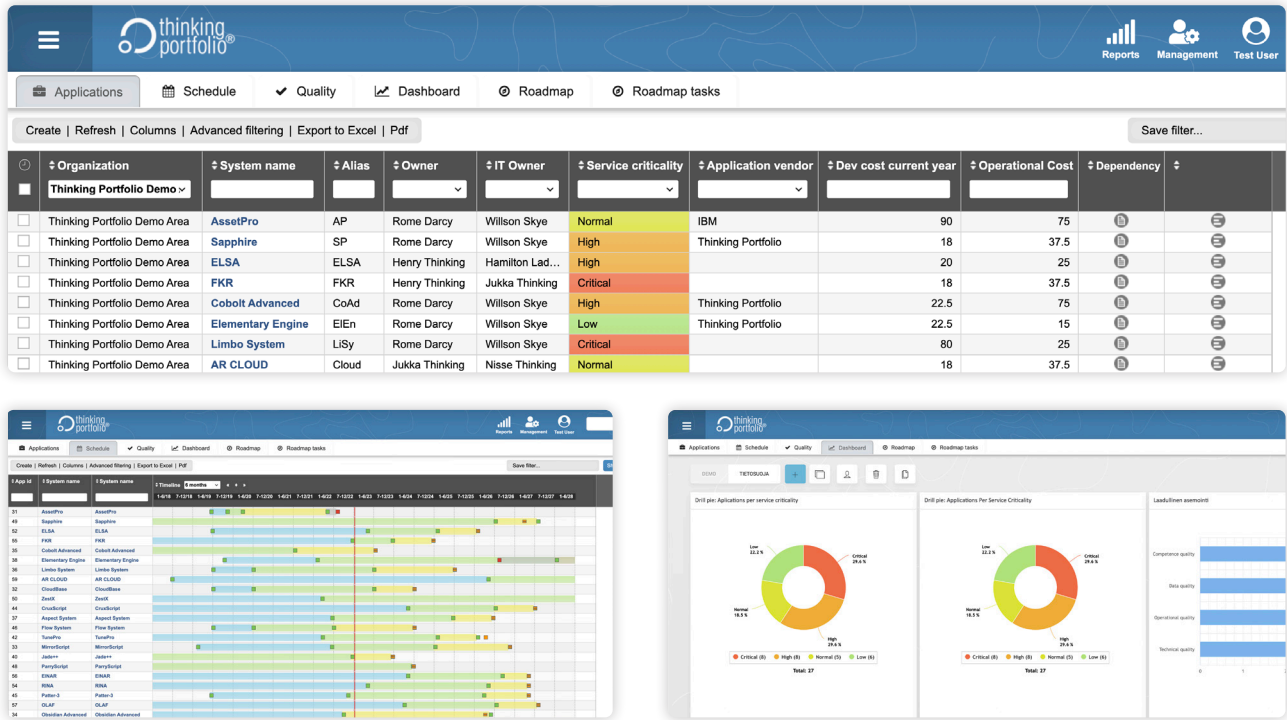
Figure 7. **Portfolio views: Application list, Schedule and Dashboard**

The Application List Overview

The Application List is an overview of the portfolio (Figure 7). It shows the applications the data of which the user has viewing or editing permission. At a glance, its colour-coded fields reveal the compliance requirements, ownership, life cycle stage, SLA category, priority or criticality of these applications.

The title line allows sorting or filtering of the list according to the criteria selected. The applications are ordered by criticality or by owner with one single click. The user is able to filter applications of their interest to appear, thanks to various concurrent criteria. The choices made remain valid even if the user quits the application temporarily.

Schedule

The Schedule view (Figure 7) visualises the important dates of application life cycles, including upgrades, licence validity and different audits.

Quality

The Quality view of Thinking Portfolio describes with colour codes the coverage and the timeliness of the data available from the applications, providing situational awareness based on the change due to the last information update.

Dashboard / My Dashboard

Dashboard is a quick and easy management view allowing the reporting of the big picture of the application portfolio. In My Dashboard, you can create important reports to follow-up. Dashboard views can be created on different tabs for each user group.

Task Kanban

This view brings together all the tasks included in a portfolio. They can be viewed either on the portfolio level or by application. The Kanban feature is great if you need to administer application development roadmaps or tasks in different life cycle stages.

Roadmap-Kanban

A clear and fast-read view of the roadmap stages and life cycle of different applications.

Application Pages
– *Examples of panels*
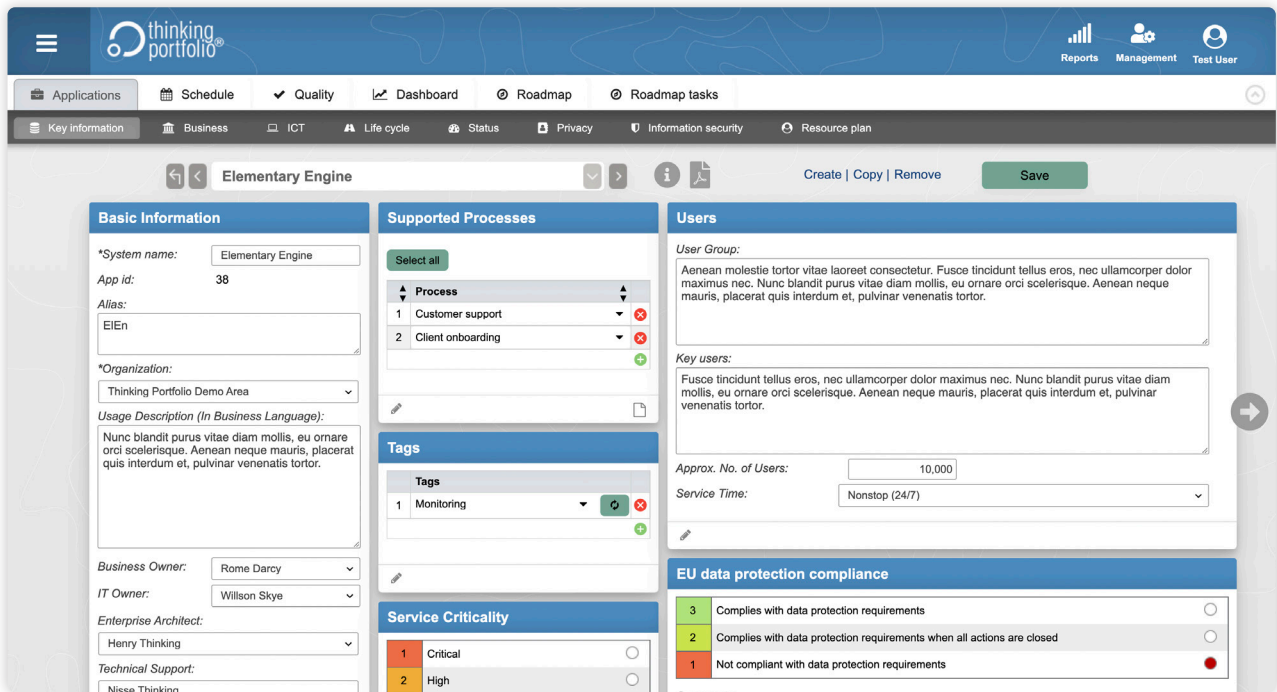
Figure 8. Application basic data

Each application- or service-specific information is maintained with a so-called application card (Figure 8). It is composed of tabs structuring the data from different points of view. The tabs contain panels grouping the information visually and logically.

Application Key information sheet

The Key information sheet tab describes the ownership and the users of the application and its linkage with the processes in the organisation. It is equally important to classify the criticality of the application for the service level and the compliance requirements.

Business positioning

The business positioning of an application determines its business significance. The positioning is based on a double dichotomy (Figure 9).

Advisor applications produce business value indirectly. They are not critical for business continuity. Their number and the costs generated by them must be minimized.

Business critical applications are operational necessities with topmost continuity and reliability.

Strategical applications are the ones to generate a competitive advantage for the company now and in the near future. They must be strengthened and developed further, in order to maintain the lead in competitivity.

Potential applications are possible future competitive edges, though not in large-scale use yet.

The functional quality of an application can be assessed with different criteria and scores.

Each application, system or technology has a life cycle, and its cost impacts are described on the Business tab.

The Life cycle costs (budget) panel (Figure 10) itemizes expense data from five years, with the possibility of extending the period. The financial information can be enriched with attachments.
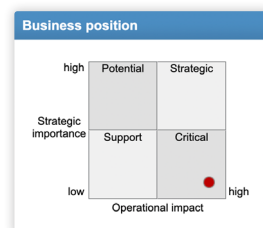
Figure 9. Business positioning

Figure 10. Life cycle costs

The relationship of the application to the enterprise architecture

The ICT tab consolidates the application architecture, the integration connections and the quality, inclusive of supplier information and contracts.

Today, few information systems are islands. The panel Connections of the application and their criticality (Figure 11) helps describing the interdependencies between a given application and other systems. This creates a dependency map allowing one to perceive the necessity of the application not only for the systems but also for any projects, service production or products.

The information describing this connection concerns, among other things, the internal or external nature of the associated system, the criticality of the connection and the transfer direction of the data at the connection.

Life cycle stage

The life cycle stages are also defined at the time of commissioning the application, system or technology. Different kinds of time-bound data are related to the application. For the recording of time data, there is a distinct panel called Life cycle stages (Figure 12). It allows the user to define different events, like version updates or performance appraisals conducted by the ICT management with the application owner. The dates and event descriptions are recorded in a day book (Figure 13).

As a part of the application life cycle, a development roadmap can be drawn up.

This information will help to perceive the need for change of the application or service. The panel designed to communicate this is called Need for change (Figure 14). It is composed of a double dichotomy with dimensions of Business value and Operational/Technical quality. The user assesses the actual status of the application from these points of view, and places the red indicator at the appropriate position. This estimate, simple in itself, will produce an interesting summary after receiving status reports for all applications.

Situational insight

The review of the application's efficiency and its functionalities will be made at agreed intervals and on the basis of decision criteria, including the traffic lights panel. The situational insight offers a fast indication to develop or update any application.

Data protection

In case the application use involves data under GDPR privacy protection, it is good to describe the related data separately and to attach any privacy concerns and the privacy policy statement. For more information on the processing of data protection in the portfolio environment is available in the chapter Data protection on page 13.

Security requirements

The information security tab can be equipped with questions related to security requirements, criticality classifications and information about the data location, data storage and risk factors. The determination of the risk level or risk analysis can cover the following six aspects:

+ Personal risks of use

+ ICT staff risks

+ Information risks

+ Technical risks

+ Supplier risks

+ Continuity risks

Resourcing

Resourcing makes transparent the line working hours necessary to administrate the life cycle of applications and systems, for the needs of updates, development, renewal of licences and conformity assessment.
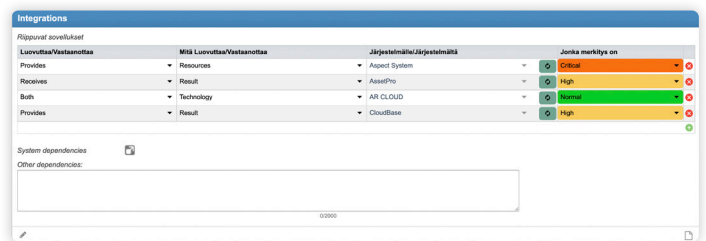

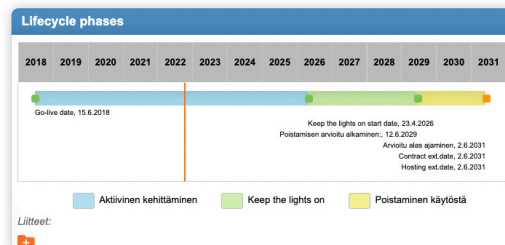Figure 11. **The connections of the application and their criticality**
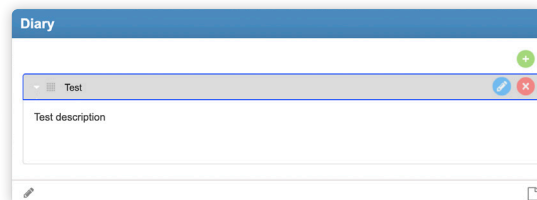

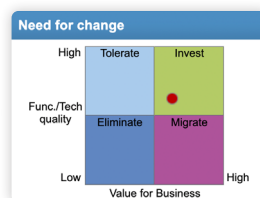Figure 12. **Life cycle stage**

Figure 13. **Day book**

Figure 14.

Need for change

Data protection integrated as good corporate culture thanks to portfolio management

Data protection is a common cause for the whole organisation. The direction is responsible for sufficient competence and understanding at all levels and ensures that the data protection activities are an integrated part of the working day or the good corporate culture. The data protection reform is bound to challenge us to improve our process.

Thanks to portfolio management, it is easy to implement the necessary practice on all organisational levels. Portfolio management brings a systematic and methodical approach to the management of personal information and supports the monitoring of the implementation (measuring data protection). Portfolio management can be concrete evidence for the auditor that the data protection risks are managed, identified and taken care of.

The principles of data protection, their guidance and their continuous reporting are an essential part of portfolio management guidance.

Data protection and the application portfolio

In the next few lines, we will present some elements that can be brought into the Thinking Portfolio® Application Portfolio and serve to lead the mass of data required for data protection.

The application portfolio designates a Data Protection Officer who is responsible for the lawfulness of the data security activities of the application (acquisition, active development, maintenance, archiving and abolishing) throughout its life cycle

1. The application portfolio can couple a group of applications under the same set of applications and facilitate their maintenance through one single view

2. The application card can contain a summary of the application data protection.

3. The conformity of the application can integrate its data protection

4. The life cycle Roadmap of the application can be equipped at certain intervals with checkpoints to add systematicity and methodicalness to personal data management

In the Application Portfolio panels, the "?" assistance will describe the principles of data protection, accepted by the direction at agreed intervals, and leading to privacy tracking reports for the follow-up.

Privacy criticality questions	
Will the processing involve sensitive personal data (in most cases, health-related data)?	Yes
Will the processing result in profiled, enriched or combined personal data?	Yes
Will the processing involve systematic monitoring of individuals, either technical or physical?	No
Will the processing involve advanced methods, such as location data processing or biometric authentication?	No
Will the processing specifically involve data concerning persons under 13 years of age?	No
Will real personal data be used in systems development testing?	Yes
Will the system be accessible from the public internet?	No
Will the processing involve cookies?	Yes
Has a DPIA already been performed on the system/process?	Yes

Personal data processing

Does the system process personal data?
Yes

System name

Service Criticality

1	Critical	●
2	High	○
3	Normal	○
4	Low	○

Most critical: Yes

Figure 15. Panels of the Application Portfolio related to the data protection

Data protection as a theme in the application portfolio
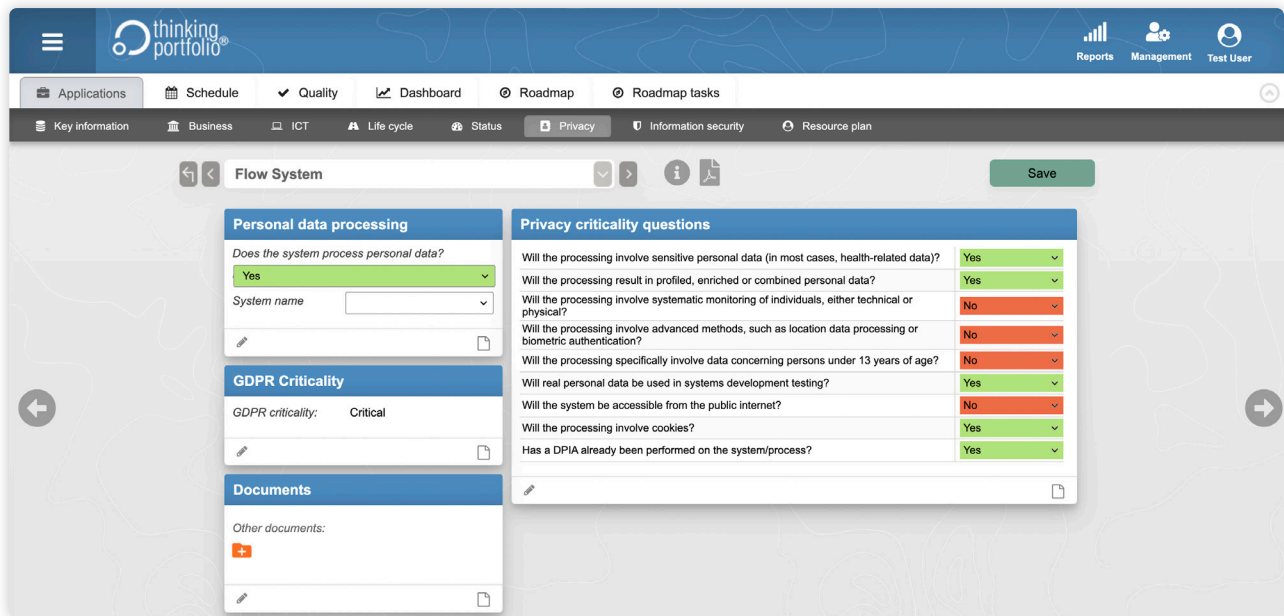
Figure 16. **Data protection tab**

Data protection

The Data protection tab (Figure 16) describes the processing of personal data in the application, the basic information on data protection, data protection specifications and links to the subtab reports, like data protection classification and privacy statement. You can filter the contents of the portfolio based on the information visible in the picklists in the fields of Personal data processing and Data protection specifications. You can pick up, e.g., all applications processing any personal data.

Data protection classification

The report Data protection classification is implemented as a subtab sheet, selectable from the Data protection tab. The report describes the interdependencies of the applications from the point of view of data protection. In the example, the figure (Figure 17) shows the application called Work shift planning, which is using data from the Human Resources application. This sheet would also describe any external data sources and the transfer of data into other internal applications. The report Data protection classification can also be saved in PDF format.

Figure 17. **Data protection classification**

More benefits for data protection management in the Multi-Portfolio Platform

Although the data protection requirements can be managed from the point of view of an application, the Multi-Portfolio Environment gives undeniable additional benefits through its project, service and risk portfolios. Portfolio management allows for limited individual access rights and roles, ensuring the implementation of data protection inside the

The application portfolio data model can incorporate a connection to the services necessary to demonstrate why personal data is worth processing inside the system. Furthermore, the application portfolio can be linked with the project portfolio, in order to estimate the data protection requirements brought about by the projects, also in advance, as it might be the case.

Data protection report

The statemen describes the status of the following data protection elements:

+ Rights of the individual

+ Purpose

+ Data storage, transfer and archiving

+ Data security and its administration

+ Consents given and their life cycle management

+ Other privacy requirements

Privacy policy statement

The portfolio can contain, under an appropriate tab, a customer-specific Privacy policy statement, from which a Privacy policy statement report can be created. It can be saved in the day book as a snapshot that can't be modified later.

On the service pack level, access rights can differ from those on a single service level, if the data controller wishes to use role-based cropping.

Figure 18. **Data protection report**

Figure 19. **Privacy policy statement**

Reporting

— examples of reports

The Thinking Portfolio reports sum up for the executive the actual state of things and the future of a portfolio.

From each application, the so-called OnePage application card can be printed (Figure 20). It contains in a single report all the information saved concerning the application.

The contents and the presentation of the reports depend on the purpose of use, and that is why we define every report customer-specifically.

Examples of other possible reports issued from the portfolio management include:

+ App Map (Figure 21)
+ Conformity (Figure 22)
+ Responsible persons and roles (Figure 23)
+ Action and System architecture Map (Figure 24)
+ Documentation listing (Figure 25)
+ Application Traffic Lights (Figure 26)
+ Panel Current state of Quality vs. Target (Figure 27)
+ Visual Dependency Wheel (Figure 28)
+ Life cycle stage, Cost and Criticality of the Selected systems (Figure 29)
+ Life cycle report of Systems with Annual cost structure in Line chart (Figure 30)
+ Life cycle Cost of Selected systems (Figure 31)
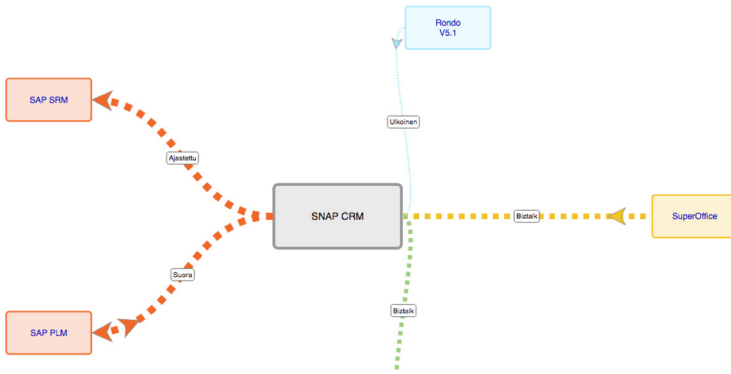+ Life cycle Cost Report (Figure 32)

Figure 20. System book

Figure 21. Application Dependency Map describing the connections of the selected Application, their types and criticality

Basware Travel	4	3	4
Cognos_Rap	3	2	3
Exchange_Email	3	3	3
Nieuwe applicatie			
Office 365	4	4	4
Opus Capita	4	4	3
Radiaani R5	3	3	1
Rondo V5.1	3	3	2
SAP	3	3	3
SAP PLM	2	1	2
SAP SRM	3	3	3

Figure 22. Conformity of selected Applications

Selected systems by persons

Hamilton Laddy	
IT Owner	ELSA
Henry Thinking	
Business Owner	ELSA
Business Owner	FKR
Business Owner	HINT
Business Owner	OLAF
Enterprise Architect	Ample
Enterprise Architect	AssetPro
Enterprise Architect	CloudBase
Enterprise Architect	Cobolt Advanced
Enterprise Architect	CruxScript
Enterprise Architect	Elementary Engine
Enterprise Architect	ELSA
Enterprise Architect	FKR
Enterprise Architect	Jade++
Enterprise Architect	Limbo System
Enterprise Architect	Mirage Pro

Figure 23. Responsible persons and Roles in different Applications

Figure 24. Action and System architecture Map

Figure 25. Documentation listing
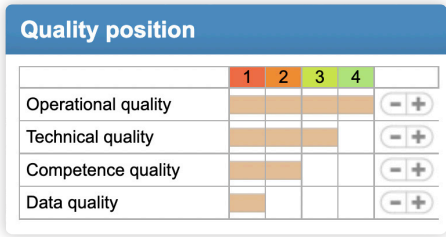

Figure 26. Panel Application Traffic Lights

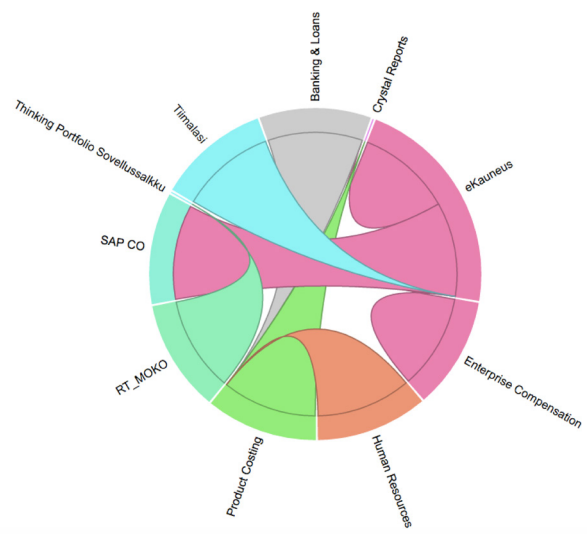Figure 27. *Panel Current state of Quality vs. Target*
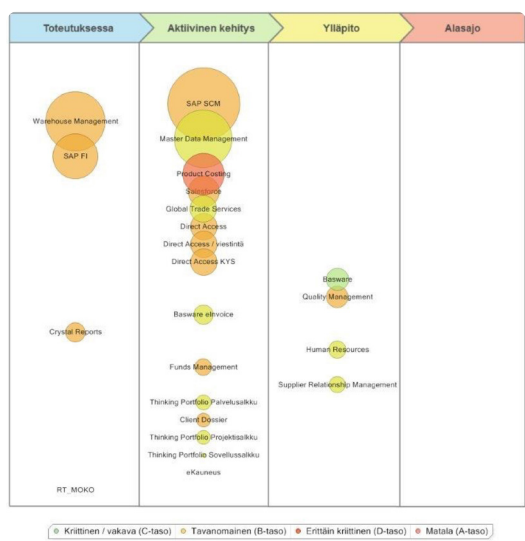

Figure 28. *Visual Dependency Wheel*

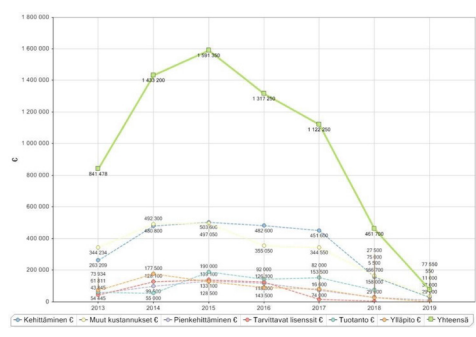Figure 29. *Life cycle stage, Cost and Criticality of the Selected systems*

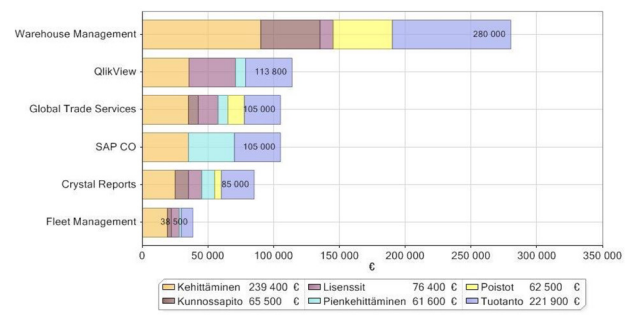Figure 30. *Life cycle report of Systems with Annual cost structure in Line chart*

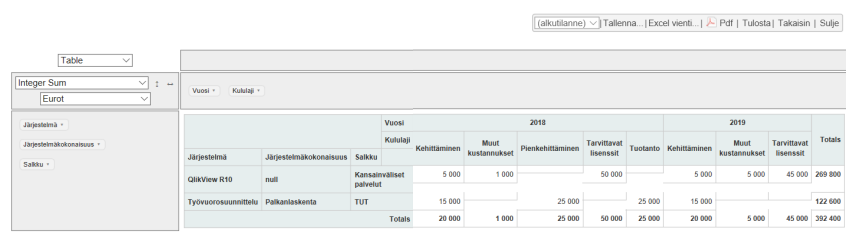Figure 31. *Life cycle Cost of Selected systems*

Figure 32. *Pivot report of Life cycle costs*

Adaptation
– Customer-specific data model

Adaptation

Thinking Portfolio will adapt to any customer-specific portfolio management processes and terminologies The user interface can contain the selected language, i.e. Finnish, English, Swedish, German, Dutch etc.

The database structure of Thinking Portfolio is conceptually independent and parameterizable. With a specific tool, the customer can update and edit different listing fields visible in the user interface (Figure 33).

Different portfolio models

The database solution of the application is very flexible. There is no need to modify the database structure due to customer-specific customization or the introduction of new panels.

Thanks to its structural concept, the customer-specific adaptation of a Proof of Concept project is very fast.
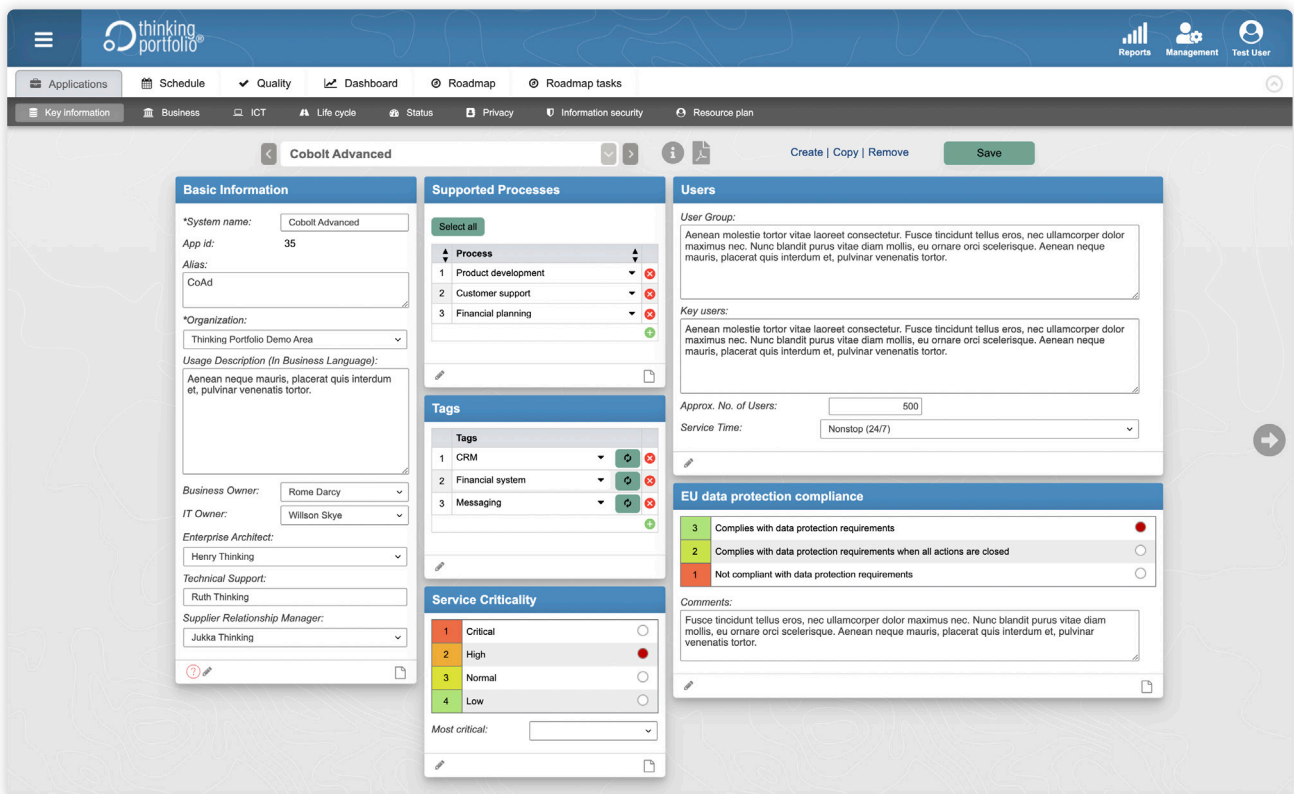
*Figure 33. **Editing and colouring the picklist values***

*Figure 34. **Example of a view from the Key Information tab***

Deployment and use

User interface

Thinking Portfolio is a fully responsive browser-based application, allowing its mobile use. It is compatible with the newest browsers.

User management

The access rights in Thinking Portfolio are defined role-based (Figure 35). Roles can include CIO, Data Architext, Application Owner, Technical Administrator, System Administrator, Viewer User etc. The role nomenclature will be customer-specific and can be maintained by the customer's Administrator.

Each Portfolio has one root user or more, with the largest access rights, e.g., App Startup permissions. The root user can be specified for the whole portfolio or the portfolio of a given business division.

After logging into the system, the user is allowed, according to their role, to only view and report certain data in the application, or edit the data.

User authentication

The application supports two ways of user authentication: Microsoft AD authentication and the in-app username + password authentication.

Federated single sign-on (ADFS / Azure AD)

The single sign-on is based on Microsoft Active Directory Federation Services (ADFS), and Thinking Portfolio also supports SAML 2.0 and Azure AD solutions

When the user arrives at the sign-on address defined for the company, the user is redirected to the company's own authentication service. After logging in with the organisation's username, the user will be redirected again to the Thinking Portfolio service. If the user is already in the company's own authentication service, there is no need to enter a username or password, the redirecting will be immediate (AD/SSO concept).

Traditional usernames and passwords can be used with external Internet users.

Connections to external systems

Thinking Portfolio can be equipped with connections to various external data systems, like PowerBI, Teams, Outlook, ServiceNow, Jira, SalesForce, SAP, M-Files, Slack etc.

The URLs entered in the application text fields and referring to documents are automatically transformed into hyperlinks, including when using Teams workspace to save documents.

The REST API interface is a new solution to create real-time integrations. The connections are described more in detail in the Thinking Portfolio Integration Whitepaper. We will be happy to tell you more about the implementations made and draw an appropriate solution for you.

Our cloud computing model

Thinking Portfolio offers portfolio management under a Private Cloud model. Our cloud data is always stored in Finland. There is no need for the customer to install any application components into their own environment, and the version available will always be the newest one.

We offer the service with a fixed-price monthly fee, with no user limitations.

Use and maintenance are browser-operable with an SSL-encrypted connection. It is possible to limit the use to certain IP addresses only.

Our service model includes support for the customer's Administrator.

Proof of Concept (PoC)

If required, we can carry out together a fast Proof of Concept project (PoC) for our customer. After a few work meetings, we will implement the application with customer-specific adaptations, and it will be usable on our server during the period agreed.

Figure 35. Role-based access control

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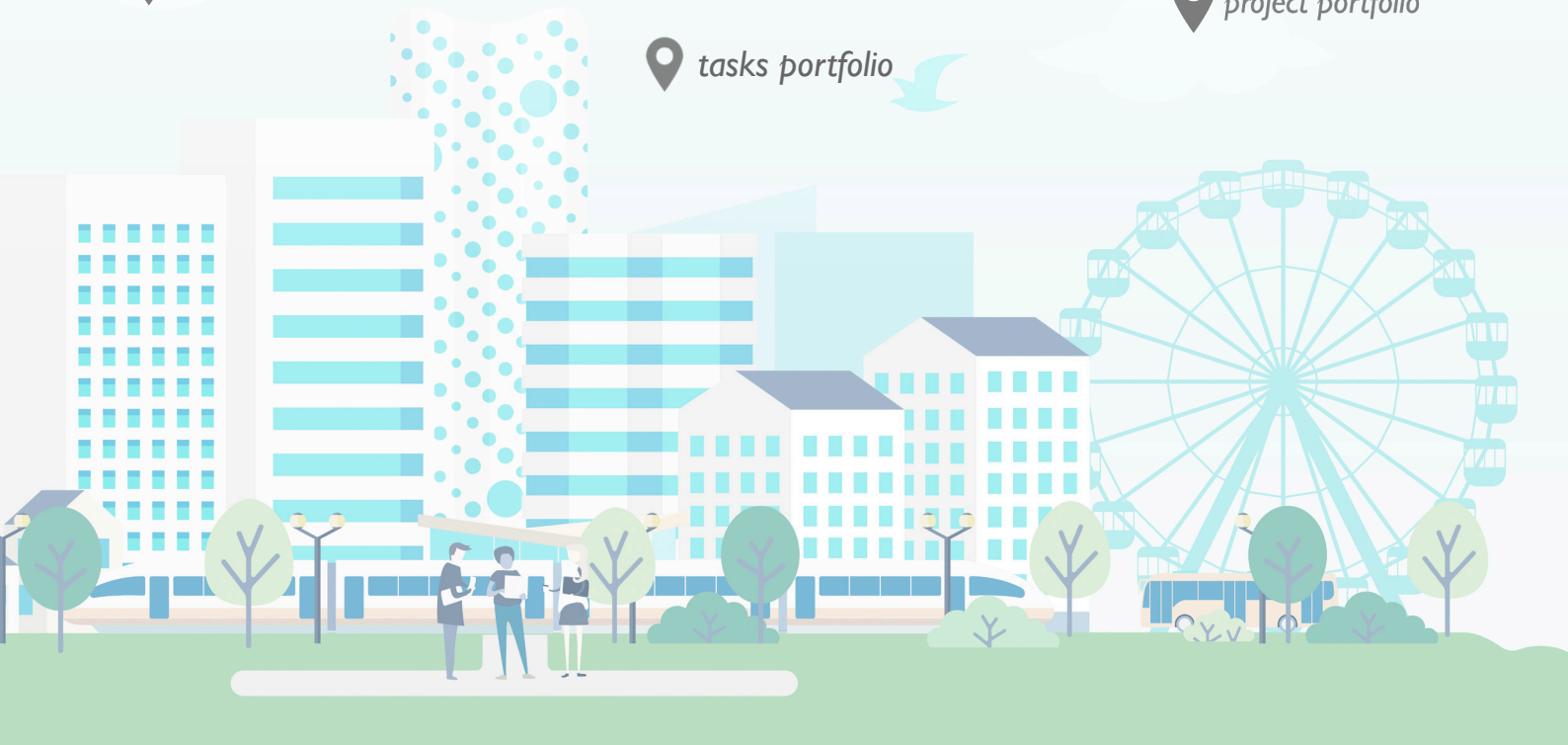
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