ASL, second generation application management

During the last few years much was published about and practical experience was gained with a process wise set-up of application management organizations. This experience and a theoretical study of several other models led to a new framework called ASL, the Application Services Library, which consists of a framework and a library of best practices in the field of application management. In the framework attention is not only paid to operational and tactical processes, but to strategic considerations as well. In this paper the new framework is introduced and the relationship with for instance a framework for functional application management is described.

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INTRODUCTION

Most businesses are now to some extent critically dependent on their application systems to support their business processes and provide pertinent management information in order to facilitate executive decisions. Organisations make significant investments in application systems. Formerly the emphasis of management attention went to the initial *development*. During the last six years or so application management, the continued maintenance of the applications, gained more attention. Indeed software maintenance is the most important contributory factor to system life-cycle costs. Maintenance and support of an application can amount to between 50% - 67% of the overall life-cycle costs. Continual maintenance and evolution of existing applications is a wise investment and is necessary to ensure that existing systems continue to meet the needs of the business and function dependably. For many years maintenance was perceived as a problem area; however, competent management can now ensure that the maintenance and evolutive processes are efficient, effective and provide value for money. Furthermore the awareness has grown, that innovation of applications and innovation of application management organizations will be the key to the success of information intensive organizations.

The growing attention for application management has resulted in various publications and the development of a number of models for application management. Lessons learned from a number of implementations of the R2C process model [Meijer], the study of other application management models [Hinley] and the consequences of the present developments led to a new framework and a library of best practices, the Application Services Library (ASL). Some lessons learned are outlined, the new model is introduced and the relationship with other models (like the model for functional application management) is described.

ANALYSIS OF R2C AND OTHER MODELS

The ASL model is based on a five years experience with R2C on one hand and on a theoretical study of other models for application management on the other.

Term	Description
Application management	The contracted responsibility for the management and execution of all activities related to the maintenance and evolution of existing applications, within well defined service levels.
Enhancement	The result of a request for change in functional or non-functional requirements that were not specified originally for the existing application system.
Maintenance	The coordinated activities that enable an existing system to be sustained, operated and used, according to agreed rules and procedures.
Operation	The technical operating of an application in for instance a computer center during the use of the system
Renovation	Considerable changes made to an existing application in order to extend its life cycle

Experience with R2C

Performance
The maintenance and enhancement processes on operational and tactical level perform well. They give good support in implementing an application management organization.
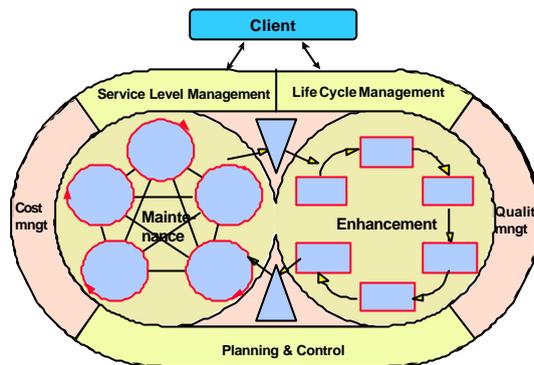
Fig 1 R2C model

Distinction between maintenance and enhancement
Making a concrete distinction between continuous maintenance processes and enhancement / renovation (the left hand and the right hand cluster respectively on operational level) has been an important eye opener and has made it possible to optimize organizations. The maintenance activities, the continuous activities that are aimed at an optimal and faultless use of the application, usually do not comprise the biggest part of the application management activities. In many organizations they get little attention. However, they are of vital importance for user satisfaction. By distinguishing them from the project wise enhancement activities, they get the attention they deserve.

Coordinating management of maintenance and enhancement
The coordinating character of the management processes, the integral steering on maintenance and enhancement, has been proven to be of major importance. When changes had to be made to applications the every day maintenance activities got too little attention. The ability to maintain and run the enhanced application got too little attention as well. There was not enough emphasis on the fact that applications are made to be used. This led to (new versions of) applications that were 'thrown across a wall', with the accompanying frustration for technical management.

The service team principle
A business manager is responsible for business, an ICT manager for ICT service. Both business and ICT service are isolated concepts, with a lack of consciously shared values. Therein lies a significant cause of coordination problems. The solution speaks for itself. By determining the importance of an application in consultation, it is made clear to both worlds what has to be done by the application manager and what returns can be expected by the application owner. One way of reducing coordination problems between functional management, application management and technical management is to organize mutual responsibility more clearly. This is achieved by making one body responsible for the overall information provision per client. This body, the service team, bears responsibility for steering the entire life cycle of the information provision. The team thus builds a bridge between the client organization and the automation specialists. An unequivocal platform is created for the client.
The service team functions initially as a partner of the client organization. The primary contact point for the service team is the functional management. The service team is responsible for the overall quality (technical and functional quality)of the information provision to a client, defines the desired service and supervises it. The service team coordinates mutual agreements, checks whether they are complied with and reports on this to the client organization. This is how the team manages the overall information provision: the development, the innovation, the usage and the operation. As a result the business manager can concentrate on his primary business.

Service level agreements
A professional client-supplier relationship requires that business managers can steer their ICT service providers, especially regarding output. Services and products are then laid down in a Service Level Agreement (SLA).

An SLA defines the obligations and responsibilities of both the supplier and the purchaser of the services. The starting point is that the current and future needs of the client are met as well as possible at a realistic price. An SLA contains guarantees regarding the service, but also sets criteria against which the quality of the service can be measured. The service team sets the criteria in consultation with the business manager. This is done as much as possible in units that the business manager (and the end user)can recognize and steer. Service levels for maintenance and enhancement, for instance, contain requirements regarding the availability of applications, the accessibility of the service desk, the response times for certain functions and the speed at which incidents are resolved. ICT services are thus made clear, measurable, verifiable and steerable by a service level agreement. Agreements are also laid down concerning the way in which the client organization and the ICT service provider work together. These more operational agreements and procedures structure the collaboration and determine the quality of the service to an important extent. The agreements relate to various areas, such as the submission and settlement of change proposals and/or incidents and the checking and acceptance of products. Reports and evaluations enhance the ability to steer processes.

A glimpse of the future
Anticipating developments in good time insures the continuity of the support and precludes the need for divestment. The process Life Cycle Management was defined to support this vision. The last few years have proven that application live far longer than expected during the development. Issues like Y2K and Euro clearly show this. Replacement of existing applications by newly built substitutes requires years. During their life cycle the applications define the possibilities of the business process. The need to have a long term view during enhancement has only decreased. An annual renewal plan is drawn up on this basis. This serves to provide a continuous, systematically managed renewal of the entire ICT infrastructure. The quality and continuity of the information provision are thus guaranteed.

Weaknesses
Although Life Cycle Management already was described a couple of years ago in practice it has mainly been used on tactical level. The concept was regarded as valuable, however.
Up to now, attention for the renewal of the own ICT-organization did not get much attention in application management. Improvement of services took place within a defined scope. But the scope itself was hardly ever renovated. Clients considered service delivery to be rigid, service levels seemed to be used as an argument to prove that the wishes of a client could not be met. Usually, there is little attention for cooperation, outsourcing and commercial considerations.

This leads to an organization that acts professionally, and rigid. This was experienced as well during the implementations of R2C. The organizations act more professional but have difficulties with structural change. The motivation for the new framework is: not only doing the things good, but keep on doing the good things.

Other models

David Hinley [Hinley] has made a study of other models for application management and their strengths and weaknesses. The examined models are:
• Software Maintenance Management (SWM) (Hinley & Bennett, Centre for Software Maintenance, 1992);
• The Capability Maturity Model (CMM) applied to Maintenance (SEI-Carnegie Mellon);
• Maintenance Assistant Capability for Software (MACS), Esprit II Project (No. 2570);
• European Platform for Software Maintenance (EPSOM), Eureka Software Factory;
• Reverse Engineering into CASE Technology (RECAST), CCTA and CSM and LBMS Ltd;
• Software Life-cycle Support (ITIL Publication);
• Application Management Environments and Support (AMES), Esprit: Intecs Sistemi Spa, Matra Marconi Space, Valation Teknillinen Tutkimuskeskus (VTT), and the CSM;
• Foster's 7-model (British Telecom);
• R2C (PinkRoccade);
and some less well known models like Boehm et cetera.

The conclusion was that application management still gets relatively little attention in the scientific world. It confirmed that all models have more or less the same weaknesses and strengths.

The study pointed out that the models concerning maintenance and enhancement of applications know an evolution. At first the models were especially concerned with application development; subsequently they were concerned with technical (infrastructure) management and mainly derived from ITIL.

Furthermore it became clear that it will be essential to bring future frameworks and methodologies into the Public Domain. New developments like chain automation, outsourcing, ERP and ASP make an open application management infrastructure more important.

In the study the following challenges for future models have been defined:
- Evolution of the applications portfolio is facilitated when the applications managers' have visibility of the business; this can best be achieved through mutual trust and cooperation, and hence a new framework must support the development of a mature relationship between the client and the service provider in terms of a strong partnership.
- In establishing, such partnerships applications managers need to transcend standard IS service management metrics and track performance and client satisfaction in such a way that there is visibility and accountability in the management of software assets.
- The framework library has demonstrated that there are a number of de facto standards, e.g. ITIL for Service Management, SEI-CMM for software process assessment etc. Application management can benefit from a more holistic approach which not only considers the process, people, and technology, but also orthogonal views of strategic, tactical and operational issues.
- The model should be sufficiently flexible to be used in all application management scenarios, and to deal with the diverse and complex problems in providing an application service.
- The proposed framework must provide a traceable pathway in which changes to individual applications and the evolution of the application portfolio may be managed successfully.
- For many organizations, ICT is not considered a core skill or competency, although it may in fact be critically dependent upon IS for a number of its business processes. This presents one of a number of opportunities for ICT service organizations to meet the changes in their client's organizational structure, by recognizing the potential demands placed upon them to not only maintain the applications systems which are critical to the client's business, but to work more closely in partnership with the clients organization to provide a higher level of quality service in relation to applications support, evolutionary change and re-development.
- To 'win' business in the application services market, it is necessary to have a clear and consistent strategy which minimizes both customer and supplier risk. An application management strategy is required which can be presented to the client and which demonstrates that the applications which are critical to the business are being managed like any other business asset.
- The framework needs to be sufficiently robust to deal with legacy applications in all environments in terms of renewal, replacement, and retirement. Previous attempts have focused on either particular software environments, or have been hindered by the lack of tool support.
- The application management framework must clearly focus on the provision of an application service as a value-added activity. Service provider and customer risks need to be recognized and are effectively managed through timely assessment and mitigation. The reliance and cooperation necessary between the various roles should be made explicit, in order that the relationships between the various disciplines and application management can be defined.

The experiences with older frameworks and the challenges outlined above led to the framework that is described in the next paragraph

THE NEW FRAMEWORK

Basic principles
Some of the basic elements for the new framework are a number of strengths of the R2C model:
- service team;
- controllable service by means of service level agreements and insight in costs;
- a forward looking vision on applications by evolutive changes;
- integral management on maintenance and enhancement / renovation.

For a wide use the framework had to meet a couple of conditions:
- the presence of a number of best practices;
- independence of suppliers by means of bringing the framework into the Public Domain;
- a vast knowledge network and knowledge organization in which experiences in the field of application management can be easily shared.

This paper does not pay attention to the latter aspects. However, they have been filled in in practice.

The framework
The framework for application management, is derived from the principles and ideas presented earlier. The purpose of the management framework is to be able to describe application management in its depth as well as its breadth, i.e. so that the reader can appreciate the activity domains and the aspects which are of interest to the reader or require management attention. It may also be used to facilitate awareness and understanding. The framework supports three perspectives (levels of management), i.e. strategic, tactical, and technical (or operational). A second criterion for the several clusters in the framework implies the distinction whether a process is supporting a service function or an application function.

Application management is defined as: the contracted responsibility for the management and execution of all activities related to the maintenance and evolution of existing applications, within well defined service levels. In other words: the management of the maintenance, the enhancement and the renovation of applications in a business-economically sound manner. The key principle here is to support the business processes using information systems for the life cycle of the business processes.

Two essential viewpoints can be distinguished here:
The first is the perspective of *'supporting the business processes using information systems'*. This means keeping the applications up and running and making sure that they support an organization's day-to-day activities. In practical terms, this involves providing a continuous service by making firm agreements about the service level and restoring the agreed service level as soon as possible if deviations are established; creating a high level of accessibility for questions and remarks of clients about the service; preventing disruptions and facilitating new services by responding as an ICT service provider in good time. The focus is therefore on service, the service that is supplied and which (together with infrastructure management) facilitates the use of applications. In cost terms this generally amounts to 10 -20% of the overall costs of application management.

	Service view	Application view
Goal	Provide optimal services to users	Provide optimal applications
Focus	User organization	Business process of user organization
Most important knowledge	Knowledge of the users and their organization	Knowledge of the market and the process of the user organization
Important terms	Service, up time, ……	Market terms like assurance product, invoice et cetera
Renewal	Which developments are seen in the branch of the clients; which technology; which future services	In what direction moves the market of the client; what are the implications for his business process and the supporting applications

The second viewpoint is *'the life cycle of the business processes'*. Organizations evolve, environments and markets change. To continue functioning optimally, the supporting information systems have to grow with the organization. This involves enhancing the applications to the current and future technical and functional requirements. The application related processes generally account for the majority of the costs of application management.

We can distinguish operational, tactical and strategic processes in these two areas. This results in the framework depicted below.
Figure X illustrates the ASL framework. The circles and the rectangle in the middle each represent a cluster of processes. Three levels are distinguished: operational, tactical and strategic.

The operational level recognizes two clusters of processes:
'maintenance' of applications: processes that ensure the optimum availability of the applications currently being used to support the business process with a minimum of resources and disruption in the operation.
'enhancement/renovation' of applications: processes that adapt applications to new wishes and requirements in response to changes to the organization and its environment. The necessary adjustments are made to the software, the data model and the documentation.
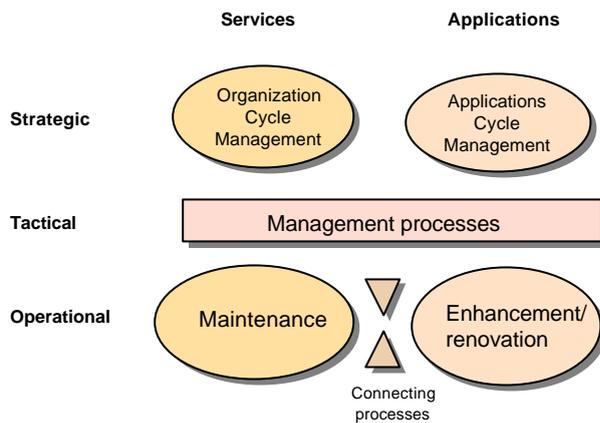
Fig … ASL framework

The steerin*g tactical level* comprises the overall management processes. These processes provide for the collective steering of the operational processes for 'services' on the one hand and 'applications' on the other. Both the strategic and the operational level supply the management processes. The future and day-to-day reality are thus secured in these processes.

The directive *strategic level* also distinguishes two clusters of processes, based on the subdivision into 'service angle' and 'application angle'. In these days of making services and service providers more flexible, the service provider of today (for both operational services and systems enhancement) is not necessarily forever the service provider. There are countless reasons why these tasks could also be performed by another service provider. Competition between service providers regarding the services being supplied is increasing. Separating the two angles makes it possible to make an individual choice for each area.

The clusters of processes at strategic level are:
Organization Cycle Management (OCM): processes that are aimed at developing a future vision of the ICT service organization and translating that vision into a policy for its renewal.
Applications Cycle Management (ACM): processes that serve to shape a long-term strategy for the various applications that fit within the entirety of an organization's information provision in relation to the organization's long-term policy.

MORE DETAILED DESCRIPTION OF THE FRAMEWORK

This paragraph discusses the processes per cluster.

Maintenance processes at operational level
At the operational level, the following areas of attention can be identified for managing information systems:
- the *identification and maintenance* of various objects (e. g. application, interface between two applications, component, database, etc.)of service;
- the *availability* and the *quality* of these objects
- the deployment of the right *capacities and assets*, the right resources and the right quantities that are required for the service
- the *questions, wishes and defects* concerning the objects or the agreed service.

These areas of attention can be traced back to the definitions of the maintenance processes:
- *Incident management* is the process that provides for the settlement of incidents or service calls. In this context, a service call is a question, a wish, a disruption, etc. , concerning the existing application(s). Incident management provides a service desk process, for example. The service desk provides contact with the functional managers and/or end users. The service desk also provides users with information about the implications of (changes in)the ICT service. In the incident management process the service calls are taken, registered and the actions are set in motion to settle them. The settlement is also monitored. Making structural analyses of the registered service calls provides insight into the desired improvement activities.

- *Configuration management* covers the processes concerned with the registration, storing and maintenance of information about (versions of)configuration components that are being used, such as software and documentation.
- *Availability management* concerns the processes that provide, monitor and guarantee the availability of services and ICT components.
- *Capacity management* provides for the optimum deployment of resources, i. e. right time, right place, right quantity and at a realistic price.
- *Continuity management* relates to the range of measures needed to guarantee the continuity of the service, e.g. in the event of a calamity, for which fallback facilities and back-ups have to be arranged, or prevention of fraud.

Enhancement/renovation processes at operational level
The enhancement and/or renovation of ICT objects such as software, documentation and design take place in a project-based manner within the framework of a renewal scenario. In general terms, the following activities are carried:
- *impact analysis*: the activities for conditioning and charting the implications of a change proposal;
- *design*: further information analysis and design;
- *realization*: the realization and/or assembly of the changed objects;
- *testing*: the testing of the changed objects with the following end result: completed products for acceptance, acceptance tests and discharge from the client;
- *implementation*: the introduction of the changed objects focusing on conversion, training, instruction and migration, followed by discharge from the client.

Before the actual realization is started much attention is paid to the project definition and initiation: setting down the project, process and product requirements, schedule, budget and project organization.
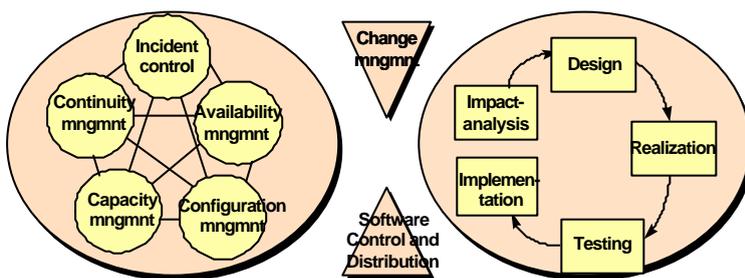

Fig .. The operational processes

Connecting processes between 'maintenance' and 'enhancement/renovation'
The following processes are distinguished at operational level as connections between the maintenance cycle on the one hand and the enhancement/renovation cycle on the other:
- *change management* relates to the process that determines which requests for change are introduced in a 'release'. In consultation with the client, and validated by impact analysis, this process results in an agreement on the alterations that will be made, on the scheduling, costs and completion dates. In actual fact, change management forms the incoming channel to enhancement and renovation.
- *software control and distribution* covers the processes involved with the control and distribution of software objects and additional objects (such as documentation)during development and testing and during the transfer to operation. Control means: a safe working method that must limit the risks of unauthorized use, unauthorized change or deletion. This process can be described as the outgoing channel: adapted ICT components are transferred to operation and use.
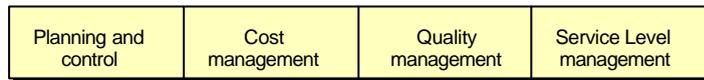
The management processes at tactical level
The management processes at tactical level comprise the following areas of attention:
- *time*: delivery time, required capacity and effort
- *money*: finances involved in the entirety of the service provision
- the *quality* of the services provided and the monitoring method
- the *agreements* with clients and suppliers.

The results from the other process clusters provide input for the management processes. Integral planning and management are thus made possible, both for releases of the applications and the services. The situation

that this creates also secures the strategy at the shop floor and translates the experiences from maintenance and enhancement back to higher levels. These processes have a monitoring and foreseeing angle. Identifying possible risks and taking appropriate measures (parts of risk management)form an integral part of the management processes.

| Planning and control	Cost management	Quality management	Service Level management

Fig ….. The tactical processes

The four areas of attention mentioned are reflected in the defined management processes:

- *Planning and Control*: the management of time and capacity relating to all activities that are involved in maintenance, enhancement and renovation of applications. The simultaneous steering of the project based renewal activities and the continuous maintenance activities -often performed by the same department and people -is one of the major challenges of application management.
- *Cost management*: the processes concerned with the managing and charging of ICT costs. Cost management yields business-economic data so that an optimum balance can be found between price and quality. Good cost control, and possibly returns control, from an integral angle, highlight the financial implications of the various choices. The best choice is made in consultation with the client(s).
- *Quality management*: occupied with the quality of the application management processes, the products, the service and the organization. Testing the products, actively monitoring the application management processes and experiences of maintenance and renovation provide insight into the bottlenecks and, accordingly, into the structural improvement options. The organization-wide standards, new requirements and future developments also form input for this process. The quality of the resources deployed (including auxiliary equipment and personnel)also come under quality management.
- *Service level management*: comprises the activities that specify in more detail the desired services and lay down and monitor the desired service level. The purpose of service level management is therefore to make the service level transparent, and to control and account for it.

Applications Cycle Management processes (ACM) at strategic level
In the present hectic time on the market and in organizations is hard to gain a clear understanding into the desired ICT-support on long term (10 years). Therefore, there is little sense in the design of a complete blueprint for the ICT-structure. The emphasis should be on a stepwise growth path from the existing situation to a new situation, which will probably be changed after a couple of years on its turn. The scope of the ACM, Applications Cycle Management, processes that are defined in ASL is the next 3-5 years. They can lead tot improvement activities on a comparable or even longer term.

ACM concentrates on the future of the information provision, on the life cycle of the objects in the information provision. This takes place at two levels: at the level of 'the application' and at the level of 'the complete application portfolio' that supports a business process. ACM calls for trend watching in the areas of technology, the business processes within the client organization and the environment of the client organization -in other words the entire process chain.
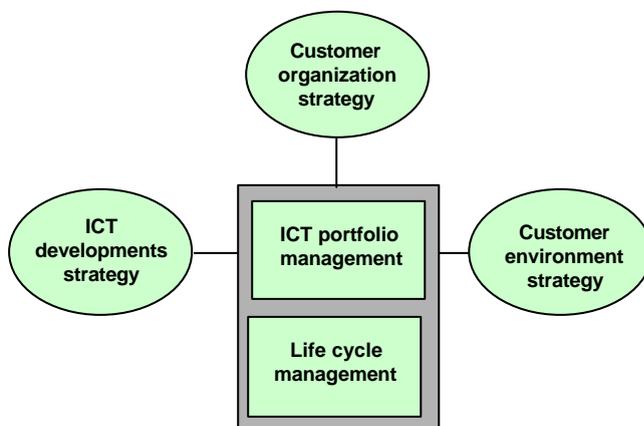
Fig …. Strategic processes within Applications Cycle Management

The ACM processes are:

- *ICT portfolio management*: charting the significance and the performance of the various existing applications for the organizations, translating the company policy into the various objects and setting out a strategy for the future of the objects in the ICT portfolio. In many client organizations this process forms part of information management or information planning.
- *Life cycle management*: matching the existing options of and the future requirements for one or more applications that support a business process. A strategy is then drawn up in order to meet the future requirements. This process is deeper, more substantive and -in comparison with the previous process - more sharply focused on the specific business process.
- *ICT developments strategy* examines which ICT developments could be of interest to the client organization and its information provision. Application development technology, but also new infrastructures such as networking and audio/visual, could create possibilities that have an impact on the applications.
- *Customer environment strategy* provides an image of process chain developments and the resulting requirements and opportunities for the applications and information provision of the client organization. Organizations function as a link in a chain of organizations. This creates a strong mutual connection between the applications. The possibilities of the organization's own information provision determine the place and position of the organization in these chain processes.
- *Customer organization strategy* charts the developments within the client organization as well as the obstacles, the impact on the applications and the ways of responding to them.

Organization Cycle Management processes (OCM) at strategic level
These processes concern the life cycle of the services provided by the internal and external ICT service provider(s)and the adjustment of how the ICT service is organized. The relationship between the ICT service providers and the client organization is not a constant factor: consider outsourcing, privatization and Application Service Providing (ASP). These developments have a significant impact on the client organization, but also of course on the way in which the ICT service is organized. In this cluster the strategy is defined:
- Which services does the ICT service provider wish to provide in the future?
- What does the ICT service provider have to do to continue to guarantee the desired service level in the long term?
- What does the ICT service provider have to do to operate successfully on the market (how to keep it or replace it)?

The following processes are distinguished here*:*
- *Account definition*: determines the image, strategy, organizational form for the realization of the approach to the desired markets
- *Market definition*: determines the market segments on which the services will be provided in the future on the basis of an analysis of the market, supply chain and client developments.
- *Service delivery definition*: charts the service that the market wants and that the ICT service provider can supply using his skills, and translates it into policy and strategy.
- *Skills definition*: determines skills, knowledge and expertise called for by the future service of the organization.
- *Technology definition*: determines the (development)tools, technology and methods that the organization wants to use to realize the future service.
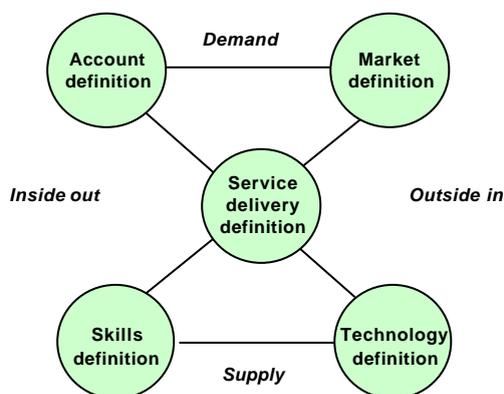

**Fig …. Strategic processes within Organization Cycle Management**

It all relates to demand, supply and delivery. The top is occupied with the demand from the market and the clients, and the bottom indicates which technologies and services are feasible and could be delivered. The delivery is the final result, in which the service profile that will be desired in due course is defined on the basis of demand, supply and resources present.

RELATIONS(HIPS?) TO MODELS FOR TECHNICAL AND FUNCTIONAL MANAGEMENT

The distinction that was made between the service provider and the renovator of an application can be made as well in other forms of management, namely technical management and functional management. Processes like incident management, continuity management et cetera can be also recognized in functional management [Deurloo, Van Outvorst]. The content of these processes differ of course, the goals are comparable, however.

Other processes can be identified that depend strongly on the type of management. In functional management it concerns among other things the business processes. In functional management knowledge of the business process and the user organization are most important, since functional management translates the developments herein to requirements and wishes for the information provision and applications.

The relationship between the various models can be outlined easily (see figure …).
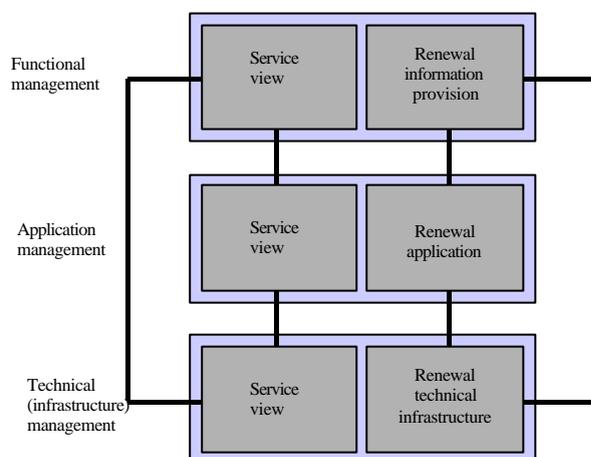
Fig …. Relations between models on operational level

The cooperation between the continuous operational processes of functional management and application management is intensive. The same accounts for the cooperation with technical (infrastructure) management. For instance: the help desk within functional management has a firm relation with the help desks within application and technical management. The same accounts for processes like availability management.
In office automation a strong link between functional management and technical management can be recognized. Also the processes concerned with enhancement and renovation have a strong mutual relation.

Also on tactical and strategic level these relations are present. Especially the link between the process cluster Applications Cycle Management in application management and a similar process cluster called Information Provision Cycle Management in functional management is very strong, as is the cooperation in Service Level Management. This is depicted in figure ……. In which the upper layer depicts a perspective view on application management, the lower layer on functional management. The stronger links are symbolically represented by the intensively black lines.
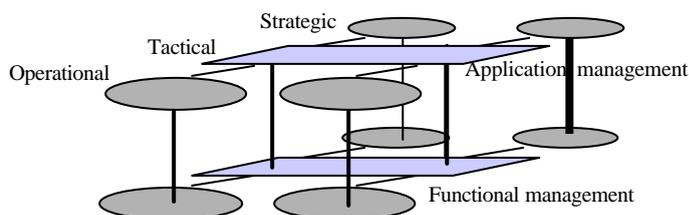
Fig …. Relations between functional management and application management

A relation to the ITIL processes for technical infrastructure management can be easily defined, since the (mainly operational) processes in ASL that are recognized in ITIL as well are based on these ITIL processes. A detailed description of the differences between ITIL and ASL has been made.

CONCLUSIONS

The application management framework highlights a number of requirements in order to provide a professional applications service. It also provides three perspectives which are aimed broadly at strategic, tactical, and technical management.

To summarize the ASL-framework, it is proposed that to provide a high quality professional applications service it is necessary to:
- manage applications in portfolio terms, i.e. recognize that applications are a business asset that can justify financial support in order to sustain their value;
- identify and assess the risks of maintenance and assure that customer benefits are realized;
- have a valid maintenance strategy for the maintenance and renewal of legacy systems, with the purpose of extending the useful life of existing applications, in a cost effective and timely manner;
- ensure that IT infrastructure management requirements are incorporated during the design and development stages of applications and that maintainability and other quality attributes are considered throughout the applications life.

The ASL-framework has addressed also challenges for application management, like:
- the development of mature relationships between client and service provider;
- visibility and accountability for the management of software assets;
- closing the gap between development, enhancement and operation of applications;
- meeting business needs through the timely recognition of potential demands to be placed on applications in support of business processes by means of the defined strategic processes.

These processes will become more and more important in a period in which e-commerce, outsourcing, ERP, middle ware and many other products come to market.

The framework offers much support in implementing an application management organization. It can be used very well in connection with models for technical management (ITIL) and functional management (FMM?).

The framework overcomes some of the limitations recognized for former models like R2C, including: scalability, the lack of strategic direction and visibility of business plans, and benefits realization. The first reactions to the framework are very positive. In cooperation with several organizations the framework is developed to more detail and founded with best practices.

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