The OIO Framework:

The EA Framework Designed for the Danish Public Sector.

The Public Sector has to take Charge of its IT Architecture

The public sector has had a sector wide view on IT investments (that includes investments in information systems and architecture) that they should focus on purchasing the cheapest and most relevant solution.

The cheapest solution has often led to that the solution has been developed with in a narrow scope. This has had an impact on the IT architecture since it has been optimized for the local department or unit. The result of this is in general not desirable since the government in 2003 articulated goals for that the architecture should be scalable and reusable.

The suppliers to the IT architecture are still in charge of developing components and implement the business logic. The public sector then have to demand a common set of standards to enhance interoperability.

The reason for the public sector should promote these demands are that the level of competition will become more intense which will be an advantage for the public sector.

The public sector has to realize that if it wants to be ahead of the suppliers and thereby gaining a competitive advantage then it should focus on developing its employees in the skills of Enterprise Architecture or IT Architecture Management.

According to John Goetze the reason for why the public sector (the ministry of Research and Science) chose to name the concept IT Architecture due to the secretary of Research and Science preferred the name “IT architecture” compared to the title “Enterprise Architecture”.

A common IT Architecture Framework

The framework focuses on coordination, a common set of methods, a common choice of methods, systems and principles, and common tools.

The common coordination deals with that the public sector should establish a committee that create the common IT architecture that public sector should mature and develop. The common frame of method is a common standard of processes, concepts and processes. The common choice of systems and principles deals with the public sector should deal with standards and infrastructure that should led to a reference profile and a Service Orientated Architecture.

The common set of tools deals with establishing common databases, libraries, contracts, description of processes, definition of data, software components including descriptions of infrastructure solutions.

Consequences

To promote the usage of IT and the be able to scale the systems across several departments, ministries, counties, communes and other public administrative sectors and institutions can make use of the stored data.

The public sector will experience that the costs for developing the IT architecture and the costs of the processes will also diminish over time.

However when the organizations within the public sector in one way or the other invests in a new information system then the specific organization has to apply specific controls and methods to ensure that the systems are designed and optimized for the specific processes (of course build the reference public reference profile).

The new repository and framework will give the public sector the benefits of organizational change and the understand of systems changes as well since they are build around the same systems and principles of management and Service Orientated Architecture. It is notable that the implementation of the IT architecture will be a hugh investment and the investment can result in big benefits and opportunities as well.

The Background for the OIO-framework

The reason and background for the development of the public IT architecture (and the OIO-framework) is to establish a foundation for Enterprise Architecture to ensure maturity in the common enterprise architecture to enhance and develop public services to citizens and customers.

The government has established a vision for what is known as digital governance & management. The vision is based on four goals (principles) that needs to be taken into consideration:

1) The digital governance & management has to empower the citizens and corporations to the network society.
2) The public sector has to work and communicate digitally.
3) The public sector has to provide coherent services and products to the citizens and the corporations.
4) The tasks in the public sector has to executed where the tasks can generate the largest benefits.

The above mentioned goals have to be translated into processes and these will be implementing over several years and with different development logic.

1) Goal two to four deals with that the IT architecture should better public support through higher quality in the IT foundation.
2) Support the development of innovative cross governance processes through greater coherence in the informations.
3) Achieve a more effective governance through larger efficiency in IT usage.
4) Gain access to rapid support of new or changed governance processes and organization changes through tested infrastructure solutions.
5) Give access to public information through open to citizens, corporations and public institutions and authorities.
6) Give sufficient protection of public information through secure solutions to manage and communicate data.
7) To create more successful IT solutions through larger predictability of the results of IT investments.
8) Give the public sector access to stabile IT systems with sufficient capacity.

Experiences that can be Crystalized from the OIO-framework

There are several other countries that have made an effort to implement IT architecture (Enterprise Architecture) and these countries have gained some experiences.

These experiences are as follows:

1) Commitment has to be on government level.

2) A cross government institutions and departments collaboration is needed.
3) Standardization of data structure and functional data interfaces has to be implemented.
4) Choice of technical standards are needed.
5) A common infrastructural platform has to be implemented.
6) Anchoring the knowledge and change through certifications and common shares of practice have to be implemented.

Guiding principles

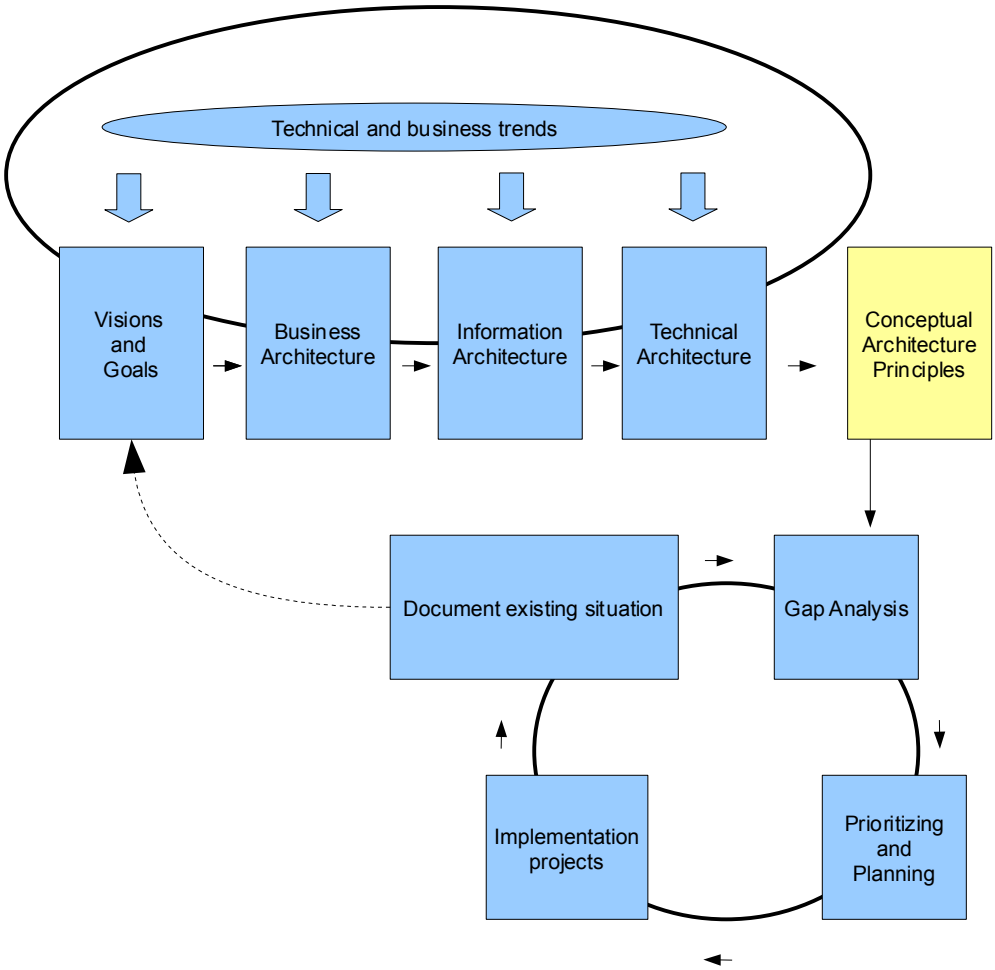
The OIO-framework emphasizes 10 principles that the Coherency Architect has to take into consideration when the government of one reason or the other implements a new IT architecture:

1) The Service Orientated Architecture is a paradigm of which the government has to invest its resources so a coherent digital governance can be applied.
2) The prospect is that the government will take an active role in the service orientated architecture.
3) The national common IT architecture has to be the lowest common standard that in the same time enables the ability to add to it (a kind of dogma architecture).
4) The IT architecture should reflect the vision of the business side and there should be a consensus regarding the choices the business side has committed itself to.
5) The national IT architecture should be applied in those cases where there is a business needs and business analysis should support the usage of the usage of the IT architecture.
6) Legacy systems shouldn't be scraped or for that matter be converted to run on the same platform. In the other hand none of the legacy systems should be spared in advance of the implementation.
7) The implementation should focus pragmatic assumptions and the implementation should be done in iterations.
8) The IT Architecture should be based on the lowest possible political foundation to ensure that those persons who know about the situation locally can take the proper responsibility and accountability for the situation and implementation.
9) Denmark is not the only country on this planet and therefore should the work with the architecture be coordinated with international players.
10) The work with the IT architecture and the standards should be published on a public website www.oio.dk.

The IT Architecture Process

The white book is based on two cycle processes that enriches each other while they are executing. The two processes are iterative which means that these have to be executed continuously.

Since the public sector is rather decentralized and therefore is the principles and concepts discussed in the white book based on the idea that these can be dragged down onto the various self-governing institutions and their contexts.



Drawing 1: Strategic Processes within the Framework

It is worth to mention that the upper circle is the strategic process and the lower circle is the implementation process.

1) Vision and goals describes the strategic business goals and that will be with a special focus on those that are related to Information Technology. It is a necessity to keep a dialog with the top management of the enterprise and the political side of the business is a necessity as well.
2) The Business Architecture describes those processes the IT system has to support both when it comes to functionality and procurement. This state is a result of an analysis and an optimization of existing work related processes.
3) The Information Architecture describes the business strategy and its demands to the organization of information. This contains both the high level description and low level technical description.
4) The Technical Architecture is based a common shared systemic description of the demands which can be categorized with the high level part of the systems and modules and the low level description of each of the modules.
5) The Conceptual Architecture Principles is a rule set that handles the initiation of the IT solutions so these are within the demands presented in the “Conceptual Architecture Principles and former mentioned architectures”.

Besides the strategical architecture process the practical implementation process will be executed.

1) Document the existing situation (AS – IS).
2) The Gap analysis deals with identifying the identifying what legacy systems that fit into the conceptual architecture principles.
3) Prioritization and planning. This phase deals with the planning the technical change that is needed to bring the "AS IS" to the desired state "TO BE".
4) Implementation projects deals with implementing the changes through a series of projects.

The Three Layer Model

The three layer model can be utilized and linked directly to the architecture model.

1) The user interface layer (3-layer) that is directly linked to API & Services and Presentation.
2) Business Logic Layer (3-layer) that is directly linked to application server, integration server and database sever.
3) Storage Layer (3-layer) that is linked directly to server hardware and operating system, data layer, and network.

When the public sector starts the redefinition of its "Enterprise Architecture" (IT Architecture) then it should focus on to break down the known barriers and not just enabling old government procedures or processes. This means that the old processes should be supported with new technology since they often just led to the same result as the old processes and these rarely enables the true potential of the technology.

Principles

The foundation of work with IT Architecture (Enterprise Architecture) is based on the principles developed by the chief architect and the EA team.

On the lowest level of principles we find the principles that are focused on a specific system where we in the highest level is based on the idea that the entire enterprise should align their decision making with.

The principles should be build upon:

1) Interoperability is a necessity to enable the usage of and recycle the data. However interoperability can also be viewed as a way to create coherence in new ways.
2) Security is a paradigm and an imperative. If the system is not based on the
3) Openness is based on the idea that the interfaces have to be open so the can ensure communication and interoperability among the systems components.
4) Flexibility is based on the idea that the system has to be build so it would be easy to modify to the system (enterprise architecture will be suited to its surroundings).
5) Scalability deals with how the system will be working when there is a greater demand for its features and usage.

Sources

Gotze et al, 2003, Hvidbog om IT-arkitektur, Copenhagen.