

Dynamic Enterprise Architecture

Towards a new perception of architecture

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Continually changing market conditions dictate that organizations must react swiftly to stay in business. They therefore recognise the need to exploit their IT (Information Technology) facilities more effectively and efficiently. In achieving this goal, high hopes were pinned on the use of enterprise architecture. The practical benefits of architecture have, however, proved disappointing: architects are regarded as a restraining influence who hamper progress, and architecture is associated with piles of paper with little or no practical use. The main reason for this, is that the architects, and subsequently the architecture which they design, are too isolated from the day-to-day reality of conducting a business. Developing enterprise architecture is one thing, using it is another. Enterprise architecture needs to change, and the time is ripe for a new way of looking at architecture: the Dynamic Enterprise Architecture.

IT is a business process

IT plays an ever-growing role in our daily lives and for many organizations, IT is of crucial importance in reaching business objectives. In the pioneer days of IT, it was used to support and often replace the repetitive manual functions and processes within an organization. IT today enables completely new business models to be designed and this brings with it a complete range of new functions and services. IT plays such an important part in most organizations, that IT has become an integral part of the business process.

Using Architecture to improve use of IT

Having established that IT has migrated to the core of the business process, it becomes evident that a more effective and efficient use of IT is crucial to an organization, and that the negative effects of incorrect or frivolous use will be immediately experienced. At the same time, optimal use of IT puts a huge strain on our organizational skills. Whereas several years ago new developments could take place in relative isolation, current developments such as multi-channelling, integrated customer information and flexible insourcing and outsourcing demands that all aspects of a business are fully examined and managed as a coherent whole, throughout the entire organization. Architecture is a vital instrument in ensuring this coherence, and without it, managing such changes becomes well nigh impossible.

Architecture is '*the complete and consistent set of rules and models, which will guide the design and implementation of processes, organizational structures, information flows and the technical infrastructure within an organization*'. Working within an architectural framework means that the separate components will be explicitly designed to fit into, and become part of, the organization, keeping in mind the overall consistency and the necessary balance between business, information and technical aspects.

New demands

Architecture is by no means a new phenomenon. At the onset of enterprise architecture, business needs evolved quite slowly (by today's standards), and architects were able to design a detailed blueprint for the future, as well as a long-term plan to implement the blueprint. Their philosophy was 'We are building the future'. This approach has, as we have seen, become obsolete. The changing role of IT in business and the rapid changes in the demands of the marketplace have placed new constraints on architectural concepts. By the time a blueprint is completed, the world has changed and with it a company's business goals. As a result, the long-term implementation plan loses its value. The challenge which organizations are facing, and which architecture also has to meet, is

to *bend with the future* as this future unfolds. In meeting this challenge, the role of architecture must evolve from 'shaping the future' to 'managing today's developments'. Architecture must develop into an instrument whose prime purpose is to manage and synchronize the continuous flow of IT developments being initiated by changing business needs. Architecture needs to develop a pragmatic approach to this new role. This approach should not only be directed at achieving coherence - the classic architectural approach - but also at achieving *agility* - the new dimension in architecture.

The mismatch with real life

A real life case

A team of architects has been given the task to develop an enterprise architecture. The architects set about their business and several months later they produce an impressive architectural document describing the road ahead for the necessary information systems. IT management is happy, commends the architects with a job well done and gives the 'go ahead'. Presentations are given and the document is widely distributed.

Subsequently, everyone resumes his or her normal activities. Marketing and sales don't mind as long as they are not hampered in buying their favourite software packages. Projects must respect deadlines and will stick to the architecture as long as these deadlines are not impeded. Project managers are unanimous in their approval of the benefits of architecture: very advantageous, should have had this years ago, but in their current project regrettably it is just not applicable because The architects proclaim that *this* is not allowed since it does not fit the architecture and *that* must be developed differently or we will all regret it terribly in several months' time. And by the way: *that project* has to wait for the implementation of a message broker because the integration policy has not yet been formulated.

Within a very short time span, the architects have a reputation of professional decelerators. At best they will be seen as well meaning, but a bit lost and out of touch with reality. Meanwhile the impressive architecture has been reduced to a pile of paper without any practical use.

The key problem described above is the mismatch between architecture and everyday practice. Everyone recognizes the importance of architecture, and yet they do not, can not or will not conform to the rules and guidelines of architecture. These rules and guidelines have been developed at a level of abstraction which surpasses the challenges of an individual project. The architect has aimed at the ideal situation and did not consider - at least not enough - the complex reality of today's problems. On top of that, new architectural guidelines often involve a new way of working. Getting used to these changes takes time, and time is at a premium in projects which must, of course, respect their deadlines. The end result is that everyone continues to work in the way they always have done.

What is needed is a different approach to architecture. It is no longer acceptable to produce a thick pile of architectural documents and proclaim that from now on, everyone has to stick to the rules. Architecture should not be developed out of an ivory tower, but as a consequence of the real life needs of an organization.

A new perception of architecture

This new approach to architecture is built around three basic principles:

- Architecture is not a goal in itself, but should support the objectives of the business;
- Architecture can be developed incrementally;
- Non-compliance to the architecture is justifiable in certain circumstances.

Developing architecture is a facilitating process which never stops, and as such is comparable with strategy and human resource policy. Moreover, it must not be an autonomous process with a set delivery date, and we have to forget architecture as a product which will be complete at a certain moment. Architecture development must be embedded in the organizational change processes and the real deliverable of architecture will then be not the final document, but the increased adaptability and flexibility of the organizational change processes. Architecture and business change processes will have a common goal, and the benefits of architecture will be greater if the context, purpose and use of the architecture are made obvious to everyone from the onset. In a nutshell, no more architecture for architecture's sake.

This leads to the second principle: it is quite feasible to develop enterprise architecture incrementally. There is no real necessity to produce a complete document in one go. Architecture consists of several *levels*, consisting of general principles, more specific rules and guidelines, and finally detailed models. Architecture can also influence several *domains*, for example: processes, organizational structure, information, applications and technical infrastructure. Using this multi-tiered approach, it becomes possible to assign priorities to the architecture development effort: developing those aspects which the organization really needs as a first priority, and the other aspects at a later date or perhaps developing them in a rough outline. Architecture development synchronized with organizational development. This is what we call the 'just-enough, just-in-time' principle, or 'need-driven architecture development'.

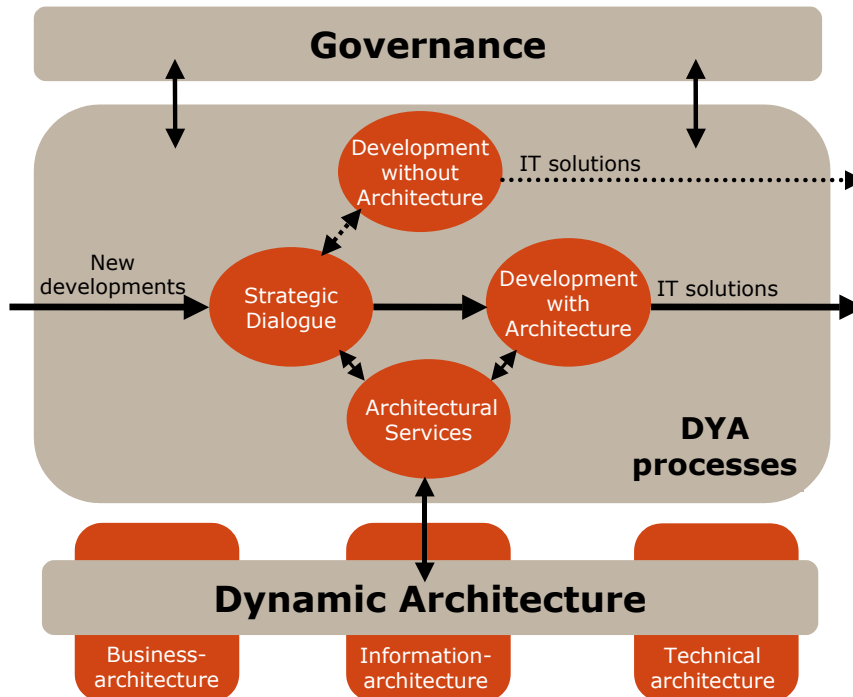
The third principle of a new approach to architecture is the understanding that there may be occasions in which non-compliance to the architecture is justified. The architect's horizon is not only the needs and wants of today, but also those of the (near) future. He must also consider developments elsewhere in the organization. Sometimes the time available to produce a result is so short, that all that matters is 'here and now'. A solution is needed immediately, and the business accepts that it is a dispensable solution with a life span of 4 months. These situations have occurred in the past and will continue to occur in the future. Diverging from the architecture does not constitute a mortal sin. Architects should acknowledge that these deviations can occur and should be able to provide answers to this type of situation. The answer can be found in a mechanism to manage and control the deviations from the architecture and to minimize the negative consequences. This can be done by defining two separate development scenarios which can be used by a project: one within the architectural framework and one outside the architectural framework. In the latter case, the project plan should include measures for migrating to the architectural framework at a later stage.

DYA®

These three principles (architecture facilitates change processes, just-enough and just-in-time architecture and permissible deviations from the architecture) are the basis of the DYA® concept, where DYA is an acronym for Dynamic Architecture.

The DYA® concept is built around a model which will facilitate organisations in designing and improving their architectural processes. The model contains four main processes which should be implemented in order to derive the full benefit of enterprise architecture:

- Strategic Dialogue, in which business objectives are established and elaborated as business cases;
- Development with Architecture, in which structural solutions are implemented;
- Development without Architecture, in which the throw-away solutions are implemented;
- Architectural Services, supporting the other three processes with principles, guidelines and models.



DYA® goes one step further and provides several practical instruments which can be put into practice straight away:

- The project start architecture, designed to bridge the gap between architecture and a project;
- The architecture framework, designed to enable incremental architecture development and at the same time ensuring that an overview and coherence is preserved;

Business objectives								
	Business architecture			Information architecture		Technical architecture		
	Prod/service	Process	Organization	Data	Application	Middleware	Platform	Network
General principles								
Policy lines								
Models								

- The management letter, designed to ensure that deviations from the architecture migrate to compliance with the architecture within an acceptable time frame.

Using the DYA® model as a guideline and the DYA® instruments to assist implementation, organisations are finally able to make their enterprise architecture work.

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