Paper

STREAM

A Successful and Pragmatic ‘Managed Diversity’ Enterprise Architecture Approach

By Jaap Schekkerman
STREAM (Speedy, Traceable, Result driven, Enterprise, Architecture, Management) a Successful and Pragmatic Enterprise Architecture Approach

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In the next three to five years, more organisations will aspire to support a blended approach to enterprise architecture (EA), according to Gartner, Inc. EA is positioned as a management planning discipline to support decision making of management about Business & IT. Gartner analysts predict that 95 per cent of organisations will support multiple approaches to EA by 2015.²

Nowadays, businesses are realising that there is no one way to support enterprise architecture. Decisions may be heavily influenced by a business context and the organisation’s business landscape, people and politics, future state vision and experience. Regardless of the approach, EA must facilitate change. The key is to create not the perfect or most elegant architecture for the moment, but the most adaptable architecture for the future.

Gartner has identified four basic approaches to EA - traditional, federated, middle out and managed diversity. The majority of organisations will, in reality, support a mixture of more than one of these approaches based on their business needs.

**Traditional** - In this approach, the EA team engages the organisation to facilitate the EA process, focused on prescriptive content that serves to guide project decision making consistent with the "master plan" embodied in the architecture. Most of the standard industry frameworks and processes support a traditional approach to EA which delivers very specific directives to projects on how to develop solutions that will meet business requirements, while reducing complexity in technology, information and business processes. This approach tends to work well in organisations where decision making is largely centralised and are relatively stable in terms of the pace of change. It does not work as well in organisations where decision-making and authority are distributed and where the pace of business change is high.

**Federated** - In large, complex organisations, decision making is often largely decentralised, with business units having considerable autonomy over the EA that is required to support the needs of their particular business unit. A federated architecture is focused on defining the core and common elements between business areas/units. This approach is well suited to distributed organisations and this is an approach that is often post-merger & acquisition or market consolidation to implement a more coordinated strategy. This approach is less effective in highly centralised organisations with a homogeneous business.

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Jaap Schekkerman is even so a Thought Leader in Business Technology Strategy & Enterprise Architecture at Logica Business Consulting.

² Gartner opinion about a blended approach in EA. [http://www.gartner.com/it/page.jsp?id=1358913](http://www.gartner.com/it/page.jsp?id=1358913), see also Gartner’s Hype Cycle Enterprise Architecture 2010 report.

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Middle-out - Middle-out architecture is an approach to EA whereby architects focus on managing the key dependencies among those parts of the organisation that have the biggest impact on the ability to change. A middle-out approach focuses on architecting interoperability by defining a small but rigidly enforced set of general, stable interface standards, while allowing complete autonomy of decision making for the specific technologies and products that are used within the solutions. This approach is highly suited for organisations and "business ecosystems," where the business units, partners, and suppliers are not under the direct control of a central EA team.

Managed diversity - Managed-diversity architecture is focused on defining choices or options. This EA approach is focused on balancing the need for a set of standards with the need for a diversity of solutions to increase innovation, business growth and competitive advantage in an agile way. EA teams can decide which solution best fits the business needs, rather than having a single standard imposed on them. The advantage of this approach is that it enables users and EA teams to select the right tool for the job, enabling innovation through diversity. The disadvantage of this approach is that users and EA teams must accept more responsibility for their choices.

The reality is that most organisations do not apply a single approach to EA in a pure form rather, they use a number of different approaches in different areas, resulting in a blended reality that truly meets the needs of their business.

With a blended approach to EA, organisations seek to determine the appropriate balance of enterprise architectural control and freedom by applying the appropriate EA approach.

If you have spoken to any Chief Enterprise Architect or a student of Enterprise Architecture, most would advise you to begin your Enterprise Architecture program with the Business which is a sound advice. The business needs of the organization should drive technical solutions. How could you possibly know what your Technical Architecture should be if you don't know what Business functions it should support? In other words, your Business Architecture should drive your Technical Architecture.

Here's a taste of reality. Most Enterprise Architecture Programs organisationally reside in the IT department. Many IT executives don't understand Enterprise Architecture, or if they do consider it to be purely Technical Architecture.

**STREAM the concept of a new Managed Diversity Enterprise Architecture approach**

So how do you create a pragmatic managed diversity Enterprise Architecture program driven by the business with these constraints?

Describing and selling an EA program to any organization is a challenge. Translating the "EA language" into your organization’s jargon will add credibility to your program. First, your organization’s knowledge workers will understand the program’s impact and value to their jobs. If they just shake their heads, but
don’t understand the message, your credibility as a Lead Enterprise Architect can be lost immediately.

This instantly labels the Lead Enterprise Architect as the book smart academic that can’t apply EA into real world scenarios.

So you need another approach like the successful STREAM (Speedy, Traceable, Result-driven, Enterprise, Architecture, Management) approach developed by the Institute For Enterprise Architecture Developments in cooperation with Logica Business Consulting that has proven its value in real world scenarios.

This STREAM approach is focused on balancing the need for a set of standards with the need for a diversity of solutions to increase innovation, business growth and competitive advantage and the need to deliver concrete added value in an agile way.

The characteristics of the STREAM approach are:

- The Results must be Traceable ... in order to add value: Start at the business side and make all choices and decisions traceable to the sources.
- The Process must be Pragmatic ... in order to add value: Focus only on those elements that directly contribute to the goals & objectives. Make a difference between EA thinking and EA doing.
- The trajectory must be Rapid ... in order to add value: Most STREAM EA transformation / rationalisation trajectories are delivering their results within a 4 to 5 months timeframe.
- The Process must be Productive ... in order to add value: STREAM EA transformation / rationalisation trajectories are delivering predefined type of results, related to the goals & objectives.
- The Results must be Relevant ... in order to add value: STREAM EA transformation / rationalisation / legacy trajectories are always starting at the business site and are delivering significant added value due to the focus to contribute to organisations strategic objectives & direction.

The STREAM phases are based on the managed diversity approach focused on balancing the need for a set of standards with the need for a diversity of solutions to increase innovation, business growth and competitive advantage in an agile way.

The next figure is showing the STREAM phases addressing the current situation of Business & IT (step 1 & 2), the future situation of Business & IT (step 3 & 4) and the transformation plan (step 5), taken in mind the more generic questions, Why are we doing this, Who needs to be involved, What do want to achieve, How could we create a solution, With What do we deliver the solution and When do we reach our goals.
Four critical Success Factors in the success of the STREAM approach

How to achieve real business value

**Business first!** Whether your goal is business and / or IT transformation, IT effectiveness, or just a better technical architecture, you’ll need to start with a business-only view of your business architecture. If not, you will struggle with getting business involvement and sponsorship, and just as importantly, you will struggle with your own understanding of the business.

If Enterprise Architects can’t convince business people that they do in fact understand their business, business leaders aren’t going to get excited about business architecture. This is basic sales, first understand the customer. To be sure, business cares about technology. In fact, they care about it quite a bit.

**Business leaders clearly understand how important technology is to their business success. What they are not so sure about is if IT understands their business.**

If the business was confident IT understood them well enough, then we wouldn’t be seeing all the issues resulting from business people engaging with technology vendors and making technology decisions without IT’s input. Instead, they would be saying: “IT knows what I need, go talk with them.”

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Concrete Results! Developing a good enterprise architecture program shouldn't require a dedicated full-time staff of specialists. A team led by a strong, focused and experienced manager / Lead Enterprise Architect can jump-start an EA trajectory by creating concrete deliverables that the business stakeholders can understand. (Hint: If your EA program's objectives can't be described in an elevator speech, have your team step back and simplify.)

An example of concrete results are the enterprise & domain models (e.g. business function model, system function model, etc.) made up of separated (sub)functions (e.g. business function, system function, etc.). The functions between different domain models interrelate to each other with controlled and specified interfaces between the different levels. The overview of the different domain models as shown in the next figure needs to be presented as a coherent set that deal with business architecture, information / data architecture, information systems architecture and technology infrastructure architecture and the related security levels.

These deliverables will become catalysts for meaningful discussions with your business counterparts using a common language. They'll provide the business with insights for determining which IT projects to fund, based on the business priorities. And you'll have a roadmap showing how you're going to get from where you are to where you want to be.

Collaboration & Communication! Enterprise Architects that don’t collaborate with their business counterparts when building business architecture are finding it difficult to connect with the business. I have been talking with a number of enterprise architects lately that are getting push back from the business. What is the business saying? "That’s
an IT thing." Why are they saying that? Most likely because it is an IT thing - an IT centric business architecture.

So, the success of your EA program will depend on your ability to communicate to your organization. You must be able to connect with your constituents on their level. You simply can't expect them to understand and learn EA immediately. While this would make your job easier, it's just not practical to expect your organization to change that quickly.

**The Roadmap!** Finally, you'll need to explain how you plan to help the business get from the current situation to the future situation. The best way to do that is to create a graphical road map. This is the final deliverable in the STREAM approach, and it's a critical component that will help ease senior management's insecurities about the path forward.

The roadmap should include deadlines for each part of the future situation, and it should show the organization's progress toward each goal. The roadmap should depict the phased implementation of projects so business people can review the timeline. If business executives don't agree with the timing in the roadmap, they can speak up and make adjustments.

The roadmap is a great asset that should be used to continually articulate the value of your EA program to senior management.

**What does this mean in practice? - TenneT SO Case**

Using a real-life example, I would like to show you how the STREAM Managed Diversity approach works and what it means for a concrete challenge for a business unit like TenneT System Operations (SO).

TenneT is the Transmission System Operator (TSO) of the Dutch national electricity high voltage grid. It is TenneT's job as a TSO to ensure the continuity and security of Dutch electricity supply, 24 hours per day, 365 days per year. TenneT has a number of Business Units that have a wide range of specific tasks and responsibilities. This emphasized the need for an approach that justifies these specific tasks and responsibilities within the broader context of goals as safety, security of supply and quality.

**Business Unit Asset Management**

Within TenneT, Asset Management is organised according to the Anglo-Saxon Asset Management model. In this model, the Asset Owner, the Asset Manager and the different Service Providers each have their own role.

**Business Unit Transport and Infra**

The employees of the business unit Transport and Infra (TI) ensure there is an infrastructure (stations, lines and cables) that market parties can use to transport electricity. TI manages and maintains the grid, creates the grid planning and advices on new constructions. TI also continuously monitors if changes in the grid are necessary.
Business Unit System and Operation

TenneT knows how much electricity is transported over the Dutch grid every day. Demand and supply always need to be in balance to maintain the correct frequency of 50 Hertz. The business unit System and Operation (SO) monitors this balance. When the balance is off, TenneT can correct this by utilising Regulating Reserve power. TenneT SO also houses the national and regional grid operation centre. From this centre, TenneT monitors the transport of electricity, day and night.

The challenge at TenneT System Operations

The primary tasks of the Business Unit System Operations (SO) of TenneT depend heavily on underlying information systems. The information provisioning is handled by a complex combination of applications and software services that enable TenneT SO to translate its functional tasks to IT functionality. The organisation and the management of the information provisioning is essential to ensure an efficient information provisioning that completely fulfils the needs of TenneT SO and the strategic goals of TenneT as a whole.

Throughout the years a variety of information systems have become part of the landscape, from (near) real-time process operation systems till ERP solutions. The needs on process operation systems are of a completely different order than the needs on, for example, ERP systems. Moreover, multiple dependencies have occurred over the years between different environments, and the end-to-end processes have become intertwined with systems of foreign TSOs in order to realise one European electricity market. Other partners like regulatory and monitoring organisations have become more demanding on the way that TenneT fulfils its tasks, processes and supporting IT.

All of this lead to the insight that rationalisation of the information systems landscape was necessary for the following reasons:

- Limit the risks by limiting complexity and increasing the ‘security of supply’ of TenneT while reducing cost by redesigning the landscape and improving the management and control of ICT;
- Increase flexibility by insight in the impact of changes for business and IT, and therefore being able to quickly adjust to changes (react on market changes and needs), as well as increasing the scalability through better insight in (joint) needs and support for different business functions.

Therefore TenneT SO requires a transition plan that maps the necessary steps to change the information systems landscape in time in order to create projects that facilitate this change. The rationalisation and transition plan is managed from the business (SO).

To handle the challenges TenneT SO is facing, TenneT SO required a pragmatic approach capable of answering TenneT SO’s issues and delivering concrete business results in a short time frame (4 to 5 months) with the support of the management of TenneT SO.
A project team has been set up with key business and IT players from TenneT, supplemented with 3 external experienced STREAM approach Enterprise Architects working part-time on this assignment.

Based on the STREAM Managed Diversity approach, it was decided up front which questions needed to be answered, which subject matter experts needed to be involved and which concrete results needed to be delivered given the tight deadlines and predefined budget, to offer a solution for the identified bottlenecks. The STREAM approach always starts at the business and researches the available IT support from a business point of view. For each step of the STREAM Enterprise Architecture approach, concrete activities have been determined as well as the required results to answer the identified questions, all following a fully standardized, structured way of working. Part of the STREAM approach is the creation of a communication plan to ensure that the intermediate and final results are supported and reviewed by all key stakeholders. Besides, information sessions have been organized to explain the analyses, findings and recommendations, all to ensure the results are bolted down in the organisation.

An important success of the STREAM approach is that it is aimed to finding specific concrete business & IT solutions for a specific situation, with respect to the TenneT’s common goals and tasks. All of it with a large responsibility of the whole project team. In a relatively short period, concrete and supported results have been achieved, like the developed Business Function model with views on the information systems landscape and information flows, the establishment of rationalisation criteria concerning this IT landscape, the establishment of the necessary architecture concepts for the future, and the creation of the transition plan that plots the necessary steps in the time. The STREAM approach has its foundation in making a big difference between architecture thinking and architecture doing. The enterprise architecture thinking (knowledge and experiences) is present at the external project members, the architecture doing is executed by the whole project team.

**Concluding**

The TenneT case is a good example of the STREAM managed diversity approach that is characterised as a no-nonsense, pragmatic EA approach in which a team lead by a number of experienced Enterprise Architects has created concrete and supported results. These results provide solutions for the challenges that TenneT SO is facing. They are a balance between the need for a set of common agreements and standards, and the need for a variety of solutions given the changing environment and international cooperation that TenneT needs to deal with.

Characteristics of the STREAM managed diversity approach as applied at TenneT and other organisations, are its traceability to the sources of information and its pragmatic approach with a strong focus on only those aspects that offer results to the tasks, goals and strategy of TenneT. The execution of the projects needs to be quick to keep the momentum, and the process needs to be productive based on predefined results and needs to ensure that all results are supported and validated by management.
About the author
Jaap Schekkerman (1953) is the founder & President of the Institute For Enterprise Architecture Developments and a lecturer at the Delft TopTech program of the Technical University Delft, The Netherlands. Besides that he is working for Logica Business Consulting as a Distinguished Management Consultant & Thought Leader Business Technology Strategy & Enterprise Architecture. Jaap Schekkerman is the author / co-author of more than 50 article and 12 books related to Enterprise Architecture Management.

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