An Approach to Business Architecture

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Summary

This paper discusses the definition and the scope of business architecture, its position and role in a business, and Inspired’s perspective on these, as well as capabilities for delivering comprehensive and competent business architecture. Differences from conventional practice include high awareness of the context in which the organisation operates, inclusion of many drivers and motivations, design of future business operating models and the use of an underlying and integrative meta model which allows distributed, collaborative, rapid architecture work to be carried out in an holistic and effective way. Overlap and integration with adjacent disciplines of strategy and programme management receive attention. Method tailoring is covered and supporting tools and training are also addressed.

Scope of Business Architecture

The term business architecture has been much abused in popular use and recent literature. Within IT-oriented Enterprise Architecture methods, such as The Open Group Architecture Framework (TOGAF®), Cap Gemini’s Integrated Architecture Framework (IAF) and others, it has come to mean “the business stuff that IT needs to know about in order to do Enterprise IT Architecture”. This normally includes, for example, organisation structure, business processes, business goals and business information requirements. It may include stakeholders, roles, responsibilities and capabilities. These methods, and the approach of the Business Architecture Guild, have also embraced the concepts of value chains and supporting capabilities. There is usually extremely little coverage of anything of a soft nature, e.g. culture, ethos... or of issues in the context of the enterprise, such as competitors, industry trends, technology trends, legislation, external threats, customers and markets, etc. Also absent is coverage of products and services offered, channels through which we reach our markets and financial issues, constraints and opportunities. The business operating model, engagement with partners, integration in an eco-system and innovation in organisation design are often not addressed.

Our definition of business architecture is much broader. We see it as:
The design of a desirable future state of the enterprise, including the components, relationships and arrangement of these to sustainably achieve business goals within its evolving context

Looked at in this way, business architecture is not about providing IT with inputs to the “Enterprise Architecture” method or process - it really is about designing the future of the business. It thus overlaps with strategy. Traditional strategy practices, though, are often blinkered - e.g. most business planning approaches focus primarily on financial aspects, products and marketing.

We believe that all important dimensions need to be considered in an holistic and integrated way, with Business Architecture informing all other architectures and driving the primary change within the organisation. It is a two way street, though, and business architecture also needs to be influenced by context, available technologies, product and service possibilities and exciting new organisational forms and business models.

**Figure 1 - Business Architecture position and role**

The diagram illustrates the positioning and role of business architecture. The three main columns reflect definition of strategy and direction (planning and defining the desired business); making the changes through strategic change programmes; and running the operational business. Business architecture generates the strategic change dimensions and programmes which feed horizontally into the business change initiatives. It also provides the context for and informs enterprise IT Architecture, Organisation Design, Product and Service development, etc.

**Difficulties with a “method” for business architecture**

Industry is beloved of “best practice” or cook book approaches that try to endow practitioners (often without the requisite personal experience) with competence in carrying out architecture development or planning. This can work to a degree where the goal is to enhance communication
between disparate stakeholders and to provide a *lingua franca* and a safety net, ensuring that at least the basics are considered. It is a fraught approach when dealing with something of the scale of business architecture - there are so many dimensions that form part of a comprehensive future business design and so many different starting points / competencies / maturity levels as well as a plethora of goals in undertaking business architecture work, that it is almost impossible to have “a” business architecture method.

**Techniques and Deliverables**

Our view is that we need a variety of techniques and deliverables to assist us in doing business architecture work. From the available techniques and deliverables, we will then select those that are useful and achievable in the given situation.

There are many perspectives that we need to consider, including:

- **Motivation**: Why we need to change. Vision, Mission, Drivers, Goals, Objectives, Threats, Opportunities
- **Customers**: Who do we serve? What are their needs and expectations? What is their experience of interacting with us/journey? How are these evolving?
- **Products and Services**: What do we deliver / produce / offer / provide to our clients?
- **Brand**: What is our Brand? What do we stand for? How valuable and trusted is it? How can it be enhanced? Do we need to create new Brand(s)?
- **Channels**: How do we reach our Clients and Markets? Particularly import as products become virtual / digital and delivery automated
- **Business Partners, Suppliers and Collaboration**: Who do we work with to achieve our results? What are the respective expectations and responsibilities? What is exchanged?
- **Legal**: What are the legal constraints and requirements under which we operate?
- **Risk and Governance**: What Risks do we face? What Governance models are we required to implement? What reporting do we have to do? What are the requirements around security, privacy, transparency?
- **Social**: What is our role in society? How do we contribute? What are the trends that affect our future? Who are the communities we serve?
- **Resources**: What is available? What are the future scenarios for Resource types and availability?
- **Business Operating Model**: How should we be structured to best achieve our objectives in the longer term? What has become possible socially, technologically and legally?
- **Technology**: What do we use and what will be available? How can we exploit technology to our advantage?
- **Ethical**: What are our beliefs and principles about how we should operate? What will be sustainable for us, society and the environment in the long term?
- **Organisation Model**: What is the best structure for the Organisation, its components and its relationships to partners and other stakeholders? What skills do we need for our planned future and how will we retain, create or acquire them? How do we remain a great place to work?
- **Timing and Events**: What are the key cycles we need to be aware of? What are the events that
require us to respond and who are the relevant Stakeholders concerned? What role do they play? What do they contribute and expect?

- **Information**: What information do we need for operations; for performance monitoring and improvement; for strategic decision making? What will move from physical to digital, from physical to virtual?
- **Scenarios**: How are things likely to pan out? What will an appropriate strategy be in each scenario? Are there things that we can do that play well in all scenarios?
- **Planning Horizon**: What time period are we planning for? What interim capability delivery points will we target? In fast moving, low capital industries, this might be measured in months, while in mature capital industries (e.g. resources and energy) it may be decades.

Any particular business architecture / strategic planning exercise or project may involve any combination of subsets of the above. There are also competing approaches to business strategy, including the more conventional views (e.g. Porter) and more recent and different views (e.g. Blue Ocean Strategy, Exponential). A key challenge is to perform the required analysis in each area of concern, but also to integrate the analyses and results into a coherent whole. The analysis may take place at different points in time and under different projects. A powerful way to achieve this integration is to have a common underlying conceptual model and associated agreed terminology.

**Role of a Unifying Meta Model**

A model is a representation (usually simplified in some way) that shows essential characteristics of something in the real world (or which we want to create in the real world). Thus a model might show that we sell product “Telephone System” to the client segment “Small Business Owners” in the geographical market “Western Europe”.

![Figure 2 - A model](image)

A meta model abstracts a model up a level so that we identify the concepts involved and their relationships, rather than the specific objects or items in the model. For the above model, the meta model would include the concepts: Product, Client Segment and Geographic Market and the relationships: Product *is sold to* Client Segment; Product *is sold in* Geographic Market. We might include the concept Sale related to Product, Client Segment and Geographic Market.
The meta model thus captures the *kinds of things* that we are interested in, the *legal relationships* between them, and the *properties* we want to record or know about for each. E.g. for Client Segment, we might want to know the *population* and *average age*; for the Product, we might want to know the *average price in Euros* and the *months since product introduction*.

An agreed meta model is a great way to achieve integration between various perspectives. Product managers could populate the Product details and relate products to Geographic Markets where they are sold. The Regional Managers could define the Geographic Markets and provide their characteristics. The Marketing people could populate the Client Segments and relate them to Products they buy, etc.

The key here is to agree the meta model. We can then populate the contents of models conforming to the meta model at any time, starting anywhere, as and when we have the information or it is useful to perform the analysis. With an agreed meta model, we also have a shared vocabulary, so that when we refer to things within the different specialisations, we are talking about the same things with a shared understanding. This is sometimes called a business ontology.

Ideally, the meta model and the models should be held in a repository, where they can be captured, validated, maintained, analysed, shared and reused in further analysis work. Reuse is facilitated by having the common meta model and trying to relate existing things before creating new ones. E.g. If I define a new Product, I can simply relate it to all the existing Client Segments to which it should appeal. If there are new Client Segments being targeted, I could add these too.

**Models, Model Types and Representations**

We have seen how a shared meta model supports coordination, reuse and sharing. We also have to consider the best representation or form of presentation for different stakeholders and target audiences. A Chief Financial Officer is used to dealing with figures, spreadsheets and graphs. This might be the best representation to use for models he/she will deal with. A Business Intelligence officer might relate best to graphical conceptual data models and rich data visualisations. A Process Owner might want to see process flow diagrams. A CEO might want to see a report of how the complement of different staff types will change over time. A Programme Manager might want to see a milestone chart of key delivery points in several streams of activity. My personal doctoral research over the last five or so years has been focussed on designing effective visual languages for modelling and communication with diverse stakeholder groups.

The key thing is to consider the content (what the role requires the person to see, know or visualise); the orientation or most comfortable representation (e.g. list, report, spreadsheet, matrix,
Maturity Analysis and Focussing Effort

Before expending a lot of effort on architecture work, we should do two things:

- Determine what the goal of the work will be (this may be broad and represent the full design of the desired future enterprise = the mandate of the whole business architecture function; or more narrow, e.g. supporting a major business initiative, digital transformation or similar)
- Determine the level of maturity and capability with respect to enterprise architecture and business architecture present within the organisation

The latter is best done with an industry maturity model. There is one from the US Dept of Defense for Enterprise Architecture (also adopted within TOGAF). There is another for assessing the maturity w.r.t. business architecture from the Business Architecture Guild. The former is a good model and we recommend it. The latter is better than nothing (and there are currently no other accepted models) but is highly oriented towards the Guild’s own perspective on the scope of business architecture and the approach to business architecture contained in the BA Guild Body of Knowledge (BABOK). We feel that the coverage of this is lacking in several dimensions. It is our intent to develop our own more comprehensive assessment of business architecture maturity.

We support the automation of maturity models and their assessment in our Enterprise Value Architect (EVA) enterprise modelling platform. Both of the models mentioned are supported (as well as various others). Please contact us if you would like to access these.

The assessment using the models will highlight areas where the organisation is already competent and may have sufficient analysis and supporting artefacts and other areas where attention is required. Obviously the latter should be the focus of ensuing business architecture work.

Dynamic Methods Using the Method Model

Many years ago, we developed a method management model (M³) which supports the modelling, management, deployment and evolution of methods and techniques within organisations. This has dimensions of Products/Deliverables (what should be produced); Projects/Tasks (what work is needed to produce the required outputs) and Resources (roles/people, skills, tools, other resources) required to produce the results. Each of these facets has a decomposition:

- **Projects** break down to tasks (as you would have for a project work breakdown structure)
- **Products** break down to deliverables from which they are compiled
- **Resources** break down to categories and finally actual resources to be allocated
- The three facets are also inter-related:
  - Products are related to the Tasks required to produce them
  - Tasks are related to the Resources required to perform them
  - Tasks are related to skills and applicable techniques
The method model is implemented at two levels:

- The first level is concerned with kinds of Projects, kinds of Deliverables, kinds of Tasks, kinds of Resources, etc. (so it is effectively a meta model)

- The second level is concerned with actual Projects, Deliverables, Tasks, Resources, etc. as they will be applied in an actual project. (so it is effectively a model). There are multiple instances at this level, each containing the relevant content for a given Project.

In the Product and Task facets there are also dependencies. For Products this relates Products to those which are required as inputs for their production. For Tasks, it relates them to those required as prerequisites before the given task can be performed. This is often derived from the Product dependencies.

So why bother with all of this? Well, earlier we said it is almost impossible to have “a” Business Architecture method, and that the approach would have to be tailored for each situation. The above models provide support (even automated!) for such tailoring. By selecting the Products that we need from a given initiative, we can automatically determine:

- What sub- and input products are required
- What tasks, subtasks and prerequisite tasks are required to produce the above
- What resources are required to perform the tasks above
- What techniques and skills are useful or required in performing the tasks

Thus, we can effectively generate a tailored project plan for each situation. Doing this against a consistent method model and meta model will ensure that any time we do the same thing we achieve consistency. Also, by having the shared meta model underpinning the analysis work and deliverables we ensure that we get maximum reuse and that we can integrate all the results across whatever dimensions. Indexing by role and retrieving related products, tasks and techniques, we can effectively provide each practitioner with a tailored method for themselves. This greatly reduces the burden of any one person having to understand all the different dimensions, models, techniques, etc.
Use of Industry Models

A great deal of work has been invested in various industries/domains to develop reference models germane to their specific domain. These include:

- FrameworX in the telecommunications industry, which provides process, data, service and functional models
- ARTS data and process models in the retail industry
- Insurance Application Architecture (IAA) from IBM which addresses the assurance / insurance industry
- HL7 process and data models in the health care industry
- The BIAN service model in the banking industry
- Etc.

The use of these models as a starting point, as a safety checklist or to spur conceptual thinking in development of business architectures can result in higher quality models and substantial resource and time savings. The models can be preloaded into the unifying meta model and serve as a “straw man” for the organisation’s own models. Additionally, conforming to these models at all organisational interface points can greatly facilitate agility and flexibility in how we collaborate with partners. Further, using recognised models where suitable can ease the adoption of industry solutions (e.g. ERP or Telecommunications Billing) based upon these models thereby enhancing integration in business systems and operations.

Support for Implementation

Ideally, the meta model, the models and the methods information should be managed in a shared and secure repository supporting collaboration by all concerned parties. Inspired has provided such an environment, known as Enterprise Value Architect (EVA) for many years. It is a software as a service (SaaS/cloud) based, meta model driven repository providing web browser, graphical modelling and programmatic interfaces to support all of the above concepts.

Similar results could be achieved with other toolsets, provided that a shared comprehensive meta model is implementable in the tool(s) and that the method adaptation can be supported by suitable customisation and tool APIs.

We provide our integrated meta model and methods management model as part of our toolset. It is also available in an industry standard form (XML and XML schemas) as a separate product to assist implementation in other toolsets and environments.

Meta Model

Since Business Architecture is typically pursued by fairly mature and advanced organisations which are also likely to have some Enterprise Architecture activity, often driven out of Information Technology, we have tried to accommodate the industry leading standards into our models, so that we have maximum congruence with industry understanding of the concepts, use consistent terminology, and can leverage existing training and skills to best effect.

The dominant EA method in use today is The Open Group Architecture Framework (TOGAF®), currently at release 9.2. The leading standard for architectural model representation in graphical
form is Archimate, also from the Open Group, now at Release 3.2. These are not comprehensive for our purposes, but there is a large overlap in concepts.

In the 2011-2 timeframe, to leverage industry knowledge and common understanding, we took Archimate as a core, since it had the better defined meta model compared to TOGAF®. We cleaned up a few confusing concepts there, then analysed what was missing to fully support TOGAF®. We added the concepts that would be required. Next we looked at our own comprehensive EA, Business Architecture, Methods Management and Capability Management models which we had built over the preceding two decades. We added the concepts necessary to fully support our concept of Business Architecture as defined above and those necessary to manage methods, integrate with programme management and manage architecture capability.

Figure 5 - Development of the meta model, 2012

This activity led to a comprehensive model for enterprise architecture, with a business architecture subset. These models were implemented at three levels:

- As rich pictures for ease of explaining them to executives, managers and architects
- As conceptual models to explain them in more detail to architects and to facilitate integration with other disciplines
- As fully attributed and realised models in our EVA tooling and repository to support practitioners with advanced tooling

The Rich Picture level for Business Architecture is shown below.
Thus, what we had was a fully integrated, consistent, comprehensive meta model covering all the necessary concepts and relationships to address:

- Business Architecture
- Enterprise Architecture (including Process, Applications, Information, Technology)
- Requirements Management
- Programme Management
- Methods Management
- Risk Management

These models were used in practice with our clients (across many industries and geographies,) our tooling and underpinning our training and techniques for many years. They provided a very rich and robust base for many business and enterprise architecture efforts.

Working with clients, we added other dimensions, including:

- Detailed support for Application Portfolio Management
- Enterprise Risk Management
- Better support for Programme Management and management of artefacts / deliverables
- Improved Process Modelling
- Definition of Business Model Canvasses (and other canvasses)

We also progressively incorporated insights gained and ideas from ongoing academic research into meta models, modelling techniques and languages and support for various visualisation methods.
By 2018/9 we had reached a point where the “body of knowledge” in the industry and in our own work had grown substantially. We decided to do another model revision and integration. This time we cast the net wider and scanned prominent business architecture and EA methods in reasonably wide use. We also used the latest versions of the core methods, which had evolved substantially. This is represented in the diagram below.

The result was what we now refer to as the Holistic Architecture Language (HAL). This covers context, business, application, information, change, security and technology dimensions. The top level graphic for this is shown below.

Just as the earlier models underpinned our consulting, training, research, tooling and implementation before, so HAL is supporting all our current activities.
Over the past two decades, we have adopted, defined and evolved powerful techniques and deliverables to support the various analyses required in support of Business Architecture. These have been mapped to our meta model described above and defined in model types and representations supported in our tooling. The techniques and deliverables are taught in a comprehensive five day intensive course developed in 2011/2, widely taught since, and regularly revised and evolved. During 2020/1 we have developed and released the Business Architecture Masterclass which is an online programme running over 15 weeks and incorporates our latest thinking and techniques for senior practitioners. Feedback on the pilot and the first full run through has been very positive.

Techniques and deliverables include:

- Business Operating Models
- Stakeholder Value Contribution
- Maturity Analysis
- SWOT
- Motivation: Drivers, Goals, Objectives
- Vision Development
- PEST(LE)/STEEPLED analysis (Environmental factors and drivers)
Skills

Real business architecture requires a broad range of skills and abilities. These include:

- **Strong conceptual abilities**
  to understand the wide range of concepts involved, their relationship and the impacts of change across the business

- **Modelling ability** (especially abstraction)
  General ability to model and abstract using various techniques including decomposition, abstraction, synthesis, analysis, gap analysis, etc.

- **Soft skills** (communication, facilitation, empathy)
  These are required to engage with senior executives and other stakeholders, to lead facilitated planning sessions and reach consensus, to communicate ideas and to understand competing perspectives

- **Domain knowledge**
  of the industry in which the organisation operates is essential. This is both to understand the real issues, industry trends and to have credibility with senior business executives

- **Experience**
  There is no substitute for experience. It is very doubtful that youngsters, on their own, prepared
only with theoretical knowledge would perform well at the subtle and complex task of business architecture. Of course, as part of a team with a few grey-beards they bring new perspectives, innovation, enthusiasm and energy, which are also invaluable.

We have recently developed a Business Architect Competency Survey which allows business architects or aspirant business architects to assess their current level of knowledge, experience, skill and other relevant attributes. You can take the survey here.

Training

We have a number of training courses which support the approach we have described and the development of the necessary skills. Courses typically include principle based training (which delegates can adapt to specific methods, tools and techniques) as well as rich case studies and practical assignments performed in teams. These include:

- **Techniques and Deliverables of Business Architecture**
  Our comprehensive and intensive five day course for business architects. Introduced in 2011 and continuously enhanced

- **Business Architecture Masterclass**
  Our flagship 15 week programme for senior business architects - the most comprehensive programme available anywhere

- **Practical TOGAF® Certification Courses**
  A three day Foundation level course and a five day TOGAF® full certification course accredited by the Open Group. We have trained hundreds of students successfully since 2007

- **Executive Introduction to Enterprise Architecture**
  A one day introduction for senior managers, CxO and board level executives.

- **Facilitators Kiln**
  A three day intensive course in facilitation skills, Joint Application Planning and Joint Application Development techniques

We can also tailor training to specific organisational needs, given that there are sufficient students to justify the effort.

Training is offered online to a global audience. Onsite training is available by arrangement and subject to relevant health protocols.

Consulting Services

Inspired offers a range of consultancy services relevant to Business Architecture and Enterprise Architecture.

These include:

- **Maturity Assessment** - using maturity models to rapidly determine the areas where the organisation should focus to improve capability and delivery and to guide effort over time

- **Architecture Capability Development** - where we work with organisations to establish the organisation structures, governance processes, methods and techniques that an organisation will employ and the skills and resources that they will need to create or sustain a credible and valuable architecture capability

- **Architecture Method Adaptation and Implementation** - putting in place and tuning the
methods and techniques to suit the organisational goals, requirements, culture, maturity and capability

- **Architecture Development** - defining goals, collecting data, performing analysis, defining scenarios, defining future architectures, building business cases, creating change programmes

- **Architecture Review/Quality Assurance** - reviewing work of internal architects or that done by major suppliers. Ensuring that all relevant aspects have been properly considered and that the quality of analysis and results is good

- **Architecture Due Diligence** - When organisations are considering take overs, mergers or major outsourcing, looking at all relevant aspects to identify road blocks and risks and to advise on whether to proceed. If the decision is to proceed, identifying risks and coming up with strategies to minimise these and facilitate rapid solid progress

- **Major Business Initiative Support** - defining goals and scope, establishing and designing project, enhancing skills, performing requirements analysis, creating RFI s and RFPs, analysing vendor responses, establishing change programmes

These are representative examples, but assignments are defined to match the situation, the client and the other parameters of each unique situation.

**Tools**

EVA is our comprehensive, collaborative meta model driven knowledge management and modelling environment. Available for in house installation or as a SaaS solution. EVA allows management and secure sharing of all information mentioned in this paper. It is fully meta model driven and the meta model and visual representations are user customisable at runtime without programming. This makes it a highly flexible tool to meet the needs of business and other architects. It has the ability to define an infinite number of model types and corresponding graphical notations to suit your needs or to conform to industry standards. In addition, it supports instant distributed working, report generation, sharing data via portals and even website generation for distribution of knowledge without access to the tool.
See a detailed brochure [here](#), EVA comes preconfigured with our comprehensive meta models and methods management capabilities as discussed in this paper.

EVA supports creation of artefacts in many formats, suitable to all required business architecture deliverables, models and stakeholders. These include:

- Reports
• Matrices (2 and 3 concepts) and with inferencing
• Heat Maps
• Nested Box Diagrams
• A variety of Charts (Bar, Radar, Sunburst…)
• Hierarchical Diagrams
• Graphical Models (Capability, Value Chain, Process, Services, Data, Dependencies…)
• Milestone Charts and Programme Maps
• Migration Maps
• Gap Analyses
• Composte Documents
• Advanced Visualisations (via Roassal and D3)

Other Toolset Enrichment

We also work with clients to implement these ideas in other toolsets and to assist you in selecting suitable tools where required. This is facilitated by available meta models and our knowledge of tooling in general. We are familiar with domain specific modelling concepts and have used advanced tools, such as MetaEdit+ to create visual languages for specific modelling purposes.

Tooling Integration

We work with clients, using the APIs in our toolset or other offerings, to create a productive and integrated tool environment which supports the workflow of architects and related disciplines. Contact us for more information.

Quick Start (Accelerate Workshop)

An approach which combines the advantages of training and consulting, while eliminating some of the drawbacks of each, is detailed below:
• We have an in-depth no cost or obligation discussion with you regarding your organisation, current status, aspirations and specific goals for strategy/business architecture
• We conduct a maturity assessment to determine where you already have competence and where gaps exist that would impede your progress
• We structure training to address the identified gaps and pertinent to the goals and aspirations
• We plan and conduct a facilitated training and modelling workshop which includes key stakeholders and architects in your organisation. This will be led by one of our highly experienced and knowledgable consultants
• During the workshop, we teach the relevant techniques, then immediately apply them, together with you, on your specific problems
• The workshop finishes with your staff fully informed of how to tackle the kinds of problems that are relevant to you and highly engaged by their participation in the workshop. Communication between executives, architects, analysts and project staff is often much improved. As an
organisation, you have a set of core deliverables done by your own staff and highly skilled external resource(s)

- We can provide an ongoing guidance and quality assurance resource. Your staff can cost effectively tackle work, consult us if they need advice, and get our feedback and quality assurance when the work is nearly done.

This approach saves training which is not relevant, ensures a high degree of ownership by internal resources and accelerates delivery of benefits within the organisation.
References and Further Information

You can contact the writer at: mcleod@iafrica.com

You can find Graham’s blog at: http://grahammcleod.typepad.com/[change to website]

Inspired can be found at: http://www.inspired.org

A presentation on “Business Architecture Transforms Business” to the Open Group conference at Cannes, France in April 2012

A presentation including the M$^3$ Method Model


More information on Exponential Organisations here: exponential-organizations-book

An earlier paper on the Inspired EA Frameworks

More information on Domain Specific Modelling and MetaEdit+