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IN THIS ISSUE

EDITOR'S WELCOME

by Darryl Carr, EAPJ Editor

Welcome to the July 2023 Edition of the Enterprise Architecture Professional Journal. We serve practicing and aspiring enterprise architects, as well as those who apply the holistic perspective of enterprise architecture to other disciplines. EAPJ informs their daily work and benefits their careers with content that is focused, concise, authoritative, practical and accessible.

We have two feature articles, in this edition, from three authors. These papers may be from opposite sides of the planet, but they are both focused on the future of the EA discipline, highlighting that practitioners the world over are thinking about how to continue to evolve what they do, to remain relevant to changing business environments.

The first article comes to us from Paul Taylor and Inji Wijegunaratne, participants in an industry engagement forum run by the University of Melbourne in Victoria, Australia. Entitled "Enterprise Architecture in the Digital Age", it highlights some historical perspectives on the evolution of the EA discipline, and speaks to how EA must continue to change to provide value in four very different contemporary business models.

The second feature article comes to us from the highly experienced Whynde Kuehn, co-founder of the Business Architecture Guild, expert in Digital Transformation, and author of the recent book Strategy to Reality. In this article, entitled "The Evolution of Business Architecture and the Opportunity for Enterprise Architecture", Whynde writes about the enormous benefits available to organizations from the appropriate application of both Business and Enterprise Architecture.

We also have a note from EAPJ Founder, Dr Steve Else, talking about his recent experience at Gartner events, and the apparent movement away from EA by the advisory giant. What does this mean for the positioning of Enterprise Architecture in organizations? I guess we will have to wait and see.

The team at EAPJ hope you enjoy reading this edition. Please contact me at editor@eapj.org with your questions, comments, ideas and submissions. As always, I look forward to hearing from you!

Darryl Carr

Editor, Enterprise Architecture Professional Journal

FOUNDER'S NOTE

by Dr. Steve Else, EAPJ Founder

Recent Gartner Events from an Enterprise Architecture Perspective

EAPJ had the great opportunity to cover 5 cutting-edge, post-Pandemic, live conferences so far this year. The purpose of this article is to briefly highlight the individual ones and to put the whole series into perspective in terms of the overall state of affairs with such events for professionals in the respective lines of business and IT.

The five events, in order of occurrence, were:

- Supply Chain Symposium
- CSO & Sales Leader Conference
- Application Innovation and Business Solutions Summit
- Security & Risk Management Summit
- Tech Growth and Innovation Summit

Gartner produces highly polished events in all aspects, from initial registration to the final hurrah, with delegates having the event proceedings and some continued access, post event, to the videos of most of the Gartner sessions (as distinguished from vendor sessions). The venues, ambiance, and overall event management has always been impressive (having covered such events for over 20 years), but the ones last year and this one have unveiled a major new enhancement of the conference experience for all involved: this is the plethora of support personnel taking positions all over the huge conference footprint to provide instant and cheerful directions – it is as if the information desk cloned itself a hundred times over to provide guidance even on the edge of the event venue. The environment and vibrancy of these events has led me to coin the phrase "Gartnerland" in an attempt to capture the overall experience, although it is a lot more than just entertainment.

It is easy to extrapolate from the titles of the above events who the target audiences are for each. From an Enterprise Architecture (EAs) perspective, no EAs have been targeted for any of these, nor for even the largest Gartner event yearly, The Gartner IT Symposium/Xpo. In addition, there is no longer an EA Summit, the last one being held in 2019 after several years in a row. Here is the list of targeted audiences for the IT Symposium/Xpo:

- CIOs
- CISOs
- Chief data officers and chief analytics officers
- Senior application leaders
- VPs of IT infrastructure and operations

From about 2005 until 2018, there were always EA vendors in the exhibit hall for the Gartner ITxpo, but you would be hard pressed to find one in 2023.

So what does the above signify vis-à-vis Gartner events and EA? Despite the central role mature EA could and should play in all the topic areas of the Gartner events, it is almost assumed that it remains a nebulous topic and one with too small of a target audience for Gartner to invest event resources in. As important of a role that EA could play in Digital Transformation, it is almost assumed that there are too few viable EA practices for Gartner to even cater too.

Nonetheless, EAPJ believes that there is an increasing role for AI-enabled EA to play across all the topic areas that Gartner highlights in its global events. But more success stories linked to EA's role and value will be needed to turn the tide.

With that in mind, we have some great material in this edition of the Journal. We hope you enjoy it.

Dr. Steve Else
Founder, Enterprise Architecture Professional Journal.

FEATURE ARTICLE

Enterprise Architecture in the Digital Age

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Introduction

The discipline of Enterprise Architecture (EA) emerged in the mid nineteen eighties as a means of controlling runaway technology complexity. In subsequent decades the industries and 'enterprises' that EA benefitted evolved under the relentless forces of change. Over this period, EA has consistently risen to new challenges. When the e-commerce movement of the 1990s drove an insatiable demand for online services and self-service, EA provided the framework to ensure legacy system re-architecting did not sacrifice security, reliability, and data integrity as a result of opening up previously vaulted core systems. As global public cloud services stabilised and progressively subsumed the enterprise's most business-critical IT services, including Financials, Enterprise Resource Planning, Supply Chain and Human Capital Management, EA contributed the technology risk management and transition approaches to structure this substantial change. When the mass-production of wireless-capable microcontrollers allowed the embedding of these smart devices as signal processors and data loggers into supply chains and every consumer device imaginable, EA offered proven enterprise-level patterns of connectivity and secure data movement to scale to unprecedented volumes and speeds. In these and many other cases EA has held firm as the preferred paradigm for the safe management of business technology complexity, adoption and change.

EA, however, has not kept pace to the same degree with the shifts brought about over the past two decades by the hugely significant amalgam of technological, business, societal and cultural changes broadly called 'the digital revolution'. Today, it is difficult to think of an aspect of business, social or community life that has not been at least touched by, if not radically transformed by 'digital' reinvention.

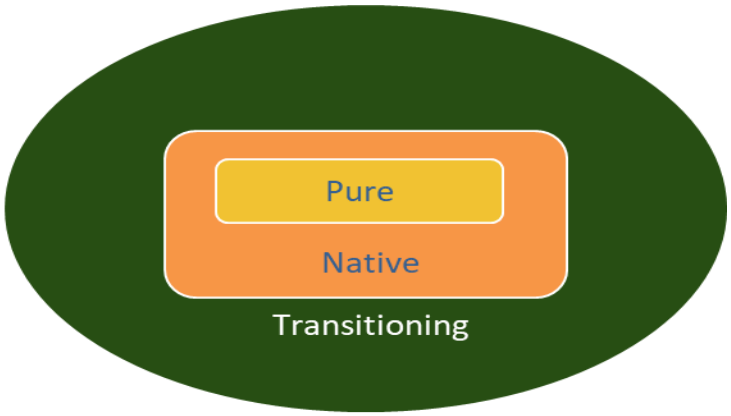
EA was conceived in an earlier historical period in which technology was one of many assets acquired and operated to improve administration, service delivery and operations. Moreover, the pace of change was relatively slow. By stark contrast, digital age technology provides the foundations for entirely new business models, redefines the foundations of established ones, and as will be argued, goes further to define entirely new services that can only make sense in the digital realm (examples from crowdsourcing to cryptocurrencies are plentiful and will be discussed later). New and revolutionary technologies enable rapid

delivery of new abilities and services, facilitating the speed and agility required of many enterprises to compete in an increasingly competitive economic milieu. In this time, no EA 'digital age' successor *du jour* has emerged, and it is still possible that traditional EA approaches, unchanged or unable to be incorporated into new digital models, will be rendered irrelevant. By way of illustration, it would be revealing to ask whether Google, Facebook and Amazon use and value established EA frameworks – Zachman, DoDAF (US Department of Defence Architecture Framework), or The Open Group Architectural Framework (TOGAF). Or whether they prefer to employ TOGAF-certified EAs. If there are any incongruities in these questions, any hints of cultures clashing, then we should understand what is going on, why traditional EA might not offer much to these ecosystem cloud giants, and what EA must do to adapt. EA may well be on the 'digital age' outer, looking in.

The challenge for EA hinges on relevance, to demonstrate adaptation once again – an ability to morph into new forms that serve enterprises to manage the multitude of forces arising from digitisation, as well as minding the economic health of pre-digital enterprises architected during and operating in the preceding pre-digital period. To further explore this challenge, a few definitions are required.

'Digital enterprise'

The task of assessing EA's role in today's 'digital enterprise' will be made easier with a working definition. Terms including digital, digitized, digitalisation and digital transformation are used frequently without definition, and in combination with the breadth of human endeavours covered by the term 'enterprise', the discourse can be left confused and ambiguous, risking a descent into opinions and argument.



'Digital enterprise' types:
Transitioning: Established businesses leveraging digital technologies to transform themselves
Native: Enterprises using digital platforms to operate their new business model (Google, AWS, Uber, AirBnB)
Pure: Enterprises that have emerged as a result of digital technologies (NFT, cryptocurrency exchanges, DAOs, Ransomware).

Figure 1'Digital enterprise' types.

Let's start with 'digital enterprise' which refers to a *type* of enterprise. The term is not meant to signify only that an enterprise uses digital technology. Today, digital technologies are assumed to be everywhere and to be underpinning everything, the equivalent fabric and infrastructure to organisations as water, power and networks are to houses, cities and regions. It is therefore the nature of the enterprise's products and services, value streams and operating models that are of relevance in this context.

A more useful approach is to consider the elements of the enterprise to which the term 'digital' applies. A business that makes, moves and/or sells a physical product (let's say books) that adopts online ordering may be described as moving to digital delivery. If the product is in electronic form (an e-book), the organisation could be seen as being 'more digital' than the traditional bookseller. If the owner closes the high street shop to concentrate on their online sales, it becomes a 'virtual' business regardless of the product's form. This is just a single case in point. In broad terms, most established businesses, from product and service companies to governments are in this category, which may be called '*transitioning*' to digital. They carry in many cases huge legacy assets and business process inertia which staunchly resist transformation, and so they digitize at the extremities, often with clumsy hand-offs to old-school practices and 'human APIs'. Their digital journey may never be fully realised, but benefit nonetheless from features such as online transactions, straight through processing, and self-service. Like a wrinkly caterpillar, they have begun their irresistible digital transformation journey that promises to re-birth them as a digital age butterfly. Not all end up looking beautiful.

The bookseller who closes their shop and adopts 'drop-shipping' fulfilment (a third party holds the stock and ships directly to the customer on their behalf) transitions to a more fully digital operating model, in which the only human presence needed is to ensure smooth operation and take the profits. And if the products being sold are digital, such as images, movies or audio, additional benefits arise (fulfilment is a button click rather than a shipment, for example). These kinds of enterprises typically digitize a long-standing physical asset provisioning and management service. Examples include printing, and the

virtualisation of physical servers in data centre racks. The business model and service remain unchanged, but the fulfilment replaces physical things and human effort with digital end-to-end processes. These enterprises may be thought of as '*natively digital*' because they are fully digital end-to-end but continue to operate in a market of tangible goods and services — transport, supply chain, retail, bookings, and service mediation.

A fascinating subset of digital products are those that have emerged directly *because of* digital technologies. Examples include Non-Fungible Token marketplaces and cryptocurrency exchanges. These products have no close predecessors in the tangible world and the associated marketplaces have no history to moderate expectations. They are cases of technologies literally creating new business opportunities arising from technology breakthroughs, or combinations thereof, and the new global digital cloud platforms. Such enterprises may be termed '*pure digital*'.

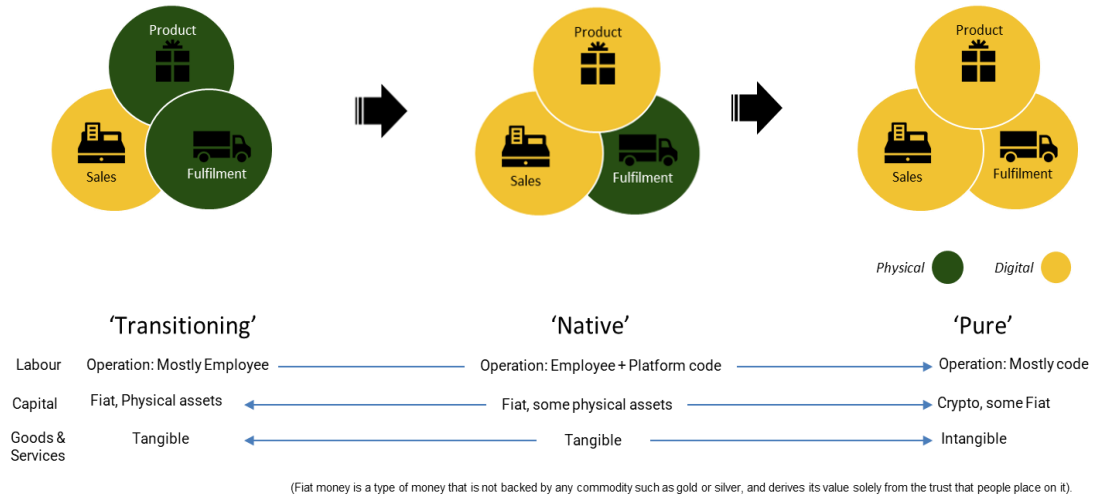


Figure 2 Three types of 'digital enterprise' on a continuum from 'digital at the edges' to 'digital throughout'.

Commonly used economic classifications of the inputs and outputs of production is a useful way of summarising the distinction between these types of digital enterprise (Figure 2). Fuller description of the economic implications of these digital models is beyond the scope of this piece, but the comparison serves to illustrate another dimension of the digital impact on organisations and markets.

Digital business and operating model distinctions

The discussion to this point has prioritised digital's impact on business operations as opposed to technology platforms and services. There are two trends to consider as a prelude to discussing business and operating models. First, as the enterprise moves from 'transitioning' to digital, more and more of its core functions are provisioned via digital technologies, and hence business operations rely more and more on the underpinning digital platform or platforms. Over time, the enterprise's value proposition and its business

and operating models increasingly become reliant on technology, moving these concerns into the province of the enterprise architect.

Second, organisations are progressively taking up cloud-based technology platforms for core-business hosting and application services, along with added value business services. In sum, the move to cloud is taking away a portion of traditional EA's scope. What's left are the business layer elements, typically EA models and views focussed on depicting business capabilities, business models and operating models. Representation of business models is popularly done using the Business Model Canvas[1] amongst some other options, supported by the Value Proposition Canvas[2]. Business motivation models, capabilities, value streams, services and other business layer concept are served by most existing EA frameworks and methods.

Business models and operating models are not the same. An enterprise's business model defines the '*what*' — those things the enterprise does to deliver value to customers, delivered as products or services. An operating model on the other hand defines the '*how*' — the ways in which the enterprise functions to implement its business model. The two come together in value chains, the sequences of activities that transform assets, products, data, or intellectual property into an offering to a customer base for which value is agreed and will be paid for.

For a given business model there may be many possible operating models, as demonstrated by organisational transformation, in which the old operating model is wholly or partially replaced with a more digitally transformed one while preserving or enhancing the enterprise's value through its products and services to its customers. The operating model is concerned with how the supply chain operates, how customer relations are maintained, new products and services are designed and priced, how fulfillment is done, revenue is collected, and how costs are contained, amongst other things — the key activities that allow the business to operate. Representing an enterprise's operating model has not always been considered a core EA responsibility, but 'digital' changes this because of the enterprise's increased reliance on digital technology for many aspects of operations.

[1] Osterwalder, Alexander, and Yves Pigneur. Business Model Generation. John Wiley & Sons, 2010.
[2] Osterwalder, A., Pigneur, Y., Papadakos, P., Bernarda, G., Papadakos, T., & Smith, A. (2014). Value proposition design. John Wiley & Sons.

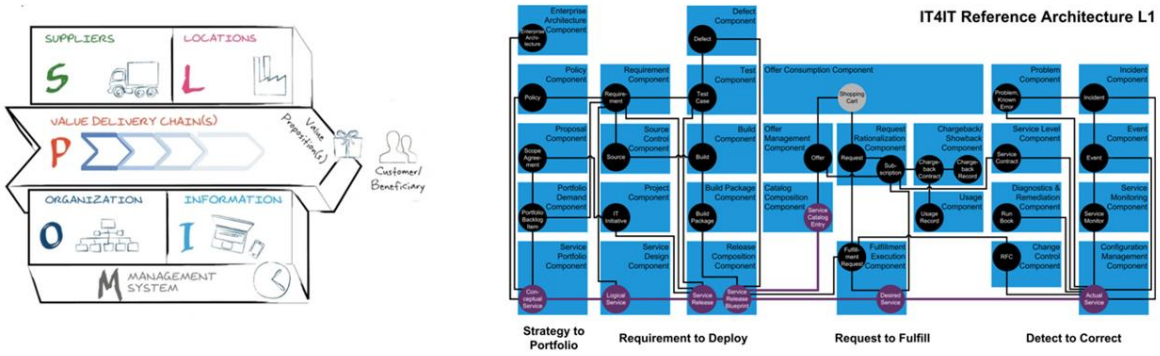


Figure 3 Operating model representations (Operating Model Canvas, Open Group's IT4IT Reference Architecture).

The Operating Model Canvas[3] is a table-top graphical aide for representing and simplifying an enterprise's operations, in terms of the organisation, information, suppliers, locations, and value delivery chains (value streams). It can be readily used to draw up any of an enterprise's potentially multiple business model implementations. A more engineering-oriented example of an operating model is the IT4IT Reference Architecture from The Open Group[4], which provides a 'best practice' digital design, development and operating framework, structured around four foundational value streams (Strategy to Portfolio, Requirement to Deploy, Request to Fulfill, Detect to Correct), and complete with master process and data entities. These two models provide a useful step-up for EA when faced with digital enterprise questions, although there is still limited evidence of the application of such approaches in EA's mainstream, and the nuts and bolts of how these tools work in EA practice is far from settled. Given this characterisation of digital enterprises, we can now examine the value of enterprise architecture practice.

EA and a traditional service enterprise (Health Insurer, 'transitioning')

Established service enterprises such as a health insurer are long-time beneficiaries of EA's ICT planning and technology management capabilities. Perhaps surprisingly, some of these businesses continue to operate on a foundation of century-old insurance brands, legacy process and data processing. Business changes are relatively infrequent and are mostly dictated by government regulation and public health market shifts, as well as rare public health shocks (such as a pandemic) or economic crises. Operating model redesign at a whole-of-enterprise level is uncommon.

Transitioning enterprises adopt 'digital' incrementally by using a continual process of IT project delivery under some form of ICT portfolio management, with a focus on upgrading and replacing aged IT assets and on improving or refining operations. Many essential

[3] Andrew Campbell, Mikel Gutierrez and Mark Lancelott. Operating Model Canvas. Van Haren Publishing, 2017.

[4] Open Group IT4IT™ Reference Architecture, Version 2.1. https://pubs.opengroup.org/it4it/refarch21/

business relationship functions such as the recruitment of partner Hospitals, Medical Specialists (doctors) and Allied Health Professionals are done by partner agencies with a significant residual manual component, as these arrangements do not change often. The supply chain of Specialist Appointments, Hospital Surgical Lists, and Allied Health appointments are handled by health services with payment integration to national insurers (Medicare in Australia) and private insurer gateways. Fulfilment consists of claims and settlements following surgical or allied health procedures performed by participating clinicians.

Most health insurers are early in their 'transitioning' to digital journey, starting at key customer touchpoints such as online marketing, applications and intake, forms and workflows for quotes, premium payments and claims, and customer portals to offload telephone and face to face customer service. Incremental digital adoption delivers correspondingly incremental benefits commensurate with the minimal disruption or disturbance to the operating model. In the worst cases, inefficient manual processes are digitized without any thought to reconsidering the value stream or redesigning the business process. In the old world of 'transitioning' businesses, EA continues to play the role it has done for decades — and while it stays put, its impact will erode under the inevitable imperialization of 'digital'.

EA and a global mediator platform (Uber, 'Native')

Uber is an oft-quoted and case-studied enterprise that re-shaped people and food transport across the world in a matter of a few short years. The operating model breakthrough hinged on running a taxi service without owning a single vehicle or license plate, and the design of a closed platform to control all aspects of the operation. What is not seen is the numerous lawsuits and extensive political lobbying (claimed interference by some) amongst national governments to create legislative space for an alternative crowdsourced transport service alongside existing taxi services — the fuller Uber story is told in numerous places[5].

Uber is a 'natively digital' enterprise, one that was conceived and operationalised with an operating model that fundamentally relied upon mature and digital technologies, including cloud, apps, and pervasive mobile devices. Despite that fact that Uber's core business has existed for centuries — the physical transport of people and goods using standard vehicles and 'loosely engaged' labour — Uber's operating model is so deeply dependent on a bundle of now ubiquitous technology capabilities that it could not have existed even ten years ago.

The efficiency of the digital operating model, and the formerly unachievable levels of control and compliance of the entire operation within a national jurisdiction was

[5] Australia a test case in Uber's bold global push, Jane Wardell, 5 Oct 2015, Reuters, https://www.reuters.com/article/us-uber-global-australia-idUSKCN0RZ0A920151005

unprecedented. Uber's software app and platform services allows the company to change and optimise any and every business rule, schedule, incentive and the terms and conditions for employees and riders more or less instantaneously, allowing for in-the-moment system tuning based on customer demand, supply of drivers, traffic and business density, events and competition. As such, it is an exemplar of the digital operating model. Its adaptability was further demonstrated during the early days and weeks of COVID-19 lockdowns around the Western world which saw a dramatic fall in people movement during numerous 'snap lockdowns'. As people traffic plummeted, Uber flexed to food deliveries from restaurants operating under COVID restrictions to households, supported by the company's lobbying of governments to allow the rideshare services to continue to operate.

The enterprise architecture of Uber, and other similarly 'digital native' businesses, may be described as a crowdsourced platform operating model. The breakthrough in Uber's conception was the realisation that citizen drivers could be incentivised into *driving their own cars*, thereby side-stepping asset ownership, asset depreciation, running costs, insurance, and wear and tear, a step that previously would have been considered unthinkable in a conventional transport operating model. The ultra-convenience provided to consumers by the Uber app, which served up vision of the nearby cars including the ability to see your driver as they approached, delivered a huge leap over existing taxi call apps and services at the time, and further gave the whole enterprise a cool factor with consumers that caught the old guard unaware and unable to respond.

Uber is just one of recent history's pre-eminent crowdsourcers. Uber is the world's largest taxi company that owns no vehicles. Facebook is the world's largest media company which creates no content. Alibaba, one of the world's largest retailers, holds no inventory. And AirBnB, the world's largest accommodation provider, owns no real estate. Each of these companies has had an irreversible and often destructive impact on the established industry or sector it disrupted. Each is an equally valid case study of a 'digitally native' enterprise, for which the value of enterprise architecture sits largely in the initial conceptualisation of the business model and the design of the digital operating model to match. These businesses have extended the reach of crowd sourcing from funding to novel areas of business operation. In the world of 'natively digital' businesses, traditional EA is on new territory.

EA and a new economy platform (NFT exchange, 'pure')

The discussion of enterprise types is not complete without reference to a subset of the 'digital natives' — those enterprises that employ fully digital operating models end-to-end, and in addition, operate with a product or service that is in and of itself digital. These 'pure digital' enterprises trade in commodities of the digital age, such as cryptocurrencies and Non-Fungible Tokens. In all cases, the product is a comparatively recent digital invention and depends fundamentally on digital advances for its existence. In a 'pure digital'

enterprise the operating model is fully digital and can operate without human intervention other than to monitor, tune, correct from exceptional situations, and take profits.

Decentralised crypto exchanges ('DEX') on the Blockchain exemplify the 'pure' digital enterprise. Fully decentralised, they remove control and regulation from a central authority and instead are set to run under predetermined parameters that are generally agreed by participants. Operations are predictable to a large degree but cannot be controlled in any conventional fashion. The value proposition is fixed by the platform and may be immediate and irrefutable, such as transactions on a distributed leger, subject to collective validation. The enterprise architecture of a 'pure' digital business entity is in another class to the other organisation types which continue to depend upon physical assets and/or human timeframes for service and value realisation. As with the 'natively digital' enterprises, the architecture is determined ahead of launch, is irrevocably tied to the value proposition and the digital means of operation and may turn out to be difficult to change under the application of conventional EA practice, not even in the *a priori* design phase.

Another familiar example, one of a more sinister intent, is ransomware, in which a software trojan is used to infect a host's systems to extort a ransom. The entire ransomware operation is purely digital end to end and turns the advantages of pure digital enterprises to criminal purposes. As with other pure digital operations, the only known defence is entirely within the digital realm — that is, to strengthen digital security measures. Once the trojan has penetrated the digital system boundary it can be almost impossible to control it or limit its potential for damage.

Deconstruction of value chains

From Porter[6] forward, much has been written about how organisations structure around value chains to deliver products efficiently and at scale. It is this end-to-end value chain integration that traditional organisations have relied upon for decades, that digital ecosystems effectively disrupt. In addition to the earlier examples, enterprise use-cases such as Blockchain provide a striking example of how loosely coupled ecosystems of cooperating partners are woven together by a common platform. Blockchain supplies a platform to which ecosystem stakeholders agree to delegate trust. This underpins a variety of innovative solutions — supply chains, chains of custody, provenance, power generation and sharing grids, along with others yet to be operationalised. In characterising digital ecosystems, Omar Valdez-De-Leon's summary articulates the key differences as follows:

> *'An ecosystem is more than a set of partnerships. Since it is a network of loose contributors who interact closely to create mutual value, there is necessarily an atmosphere of interdependency among partners in the ecosystem. This means that all*

[6] https://en.wikipedia.org/wiki/Value_chain

partners share the same interest and that individual partners will only be successful if the ecosystem succeeds. As such, business and operating models need to be adapted to the new paradigm[7].'

The deconstruction of value streams from tightly integrated internal end-to-end processes to loose-coupled platform-based distributed collaborations brings us back to the earlier discussion of business and operating models. The opportunity for EAs is to work with value propositions, service design, supplier-consumer negotiation and contracting, using operating model representations to architect distributed value realisation out of partner cooperation in ecosystem environments. While this may be possible using some existing EA frameworks and methods, this kind of EA capability and practice is in its infancy.

EA tools for working in 'Digital enterprises'

In this paper, we argue that the discipline of EA must gravitate upwards, re-focussing on the enterprise's business model and operating models as enterprises transition to digital. Figure 4 attempts to represent the digital era modelling techniques across the spread of digital enterprises. Underpinning all the techniques is the platform architecture, which represents the shared platforms upon which the loose-coupled enterprise hosts its capabilities as digital services. The historical EA frameworks (on the left) address 'the enterprise technology stack' from technology to applications and data, then business, in a co-dependent layer cake. Digital era EA models (some hints appear towards the right) address the business-shaping effects of successively more disruptive technology-driven forces on business and operating models, through to public cloud architectures.

EA for the 'pure' digital enterprise will be most effective when it is able to generate new business model variants, simulate, test, prove and disprove assumptions, iron out value propositions, drive out a working consensus amongst stakeholder parties, and achieve a balance between all these competing and cooperating forces to an equilibrium of sorts. The process is essentially one of business model innovation with a fair dollop of Design Thinking[8] and agile strategy thrown in.

[7] 'How to Develop a Digital Ecosystem' by Omar Valdez-De-Leon. Technology Innovation Management Review, August 2019 (Vol 9 Issue 8).

[8] 'Design Thinking' by Tim Brown. Harvard Business Review, June 2008. https://readings.design/PDF/Tim%20Brown,%20Design%20Thinking.pdf

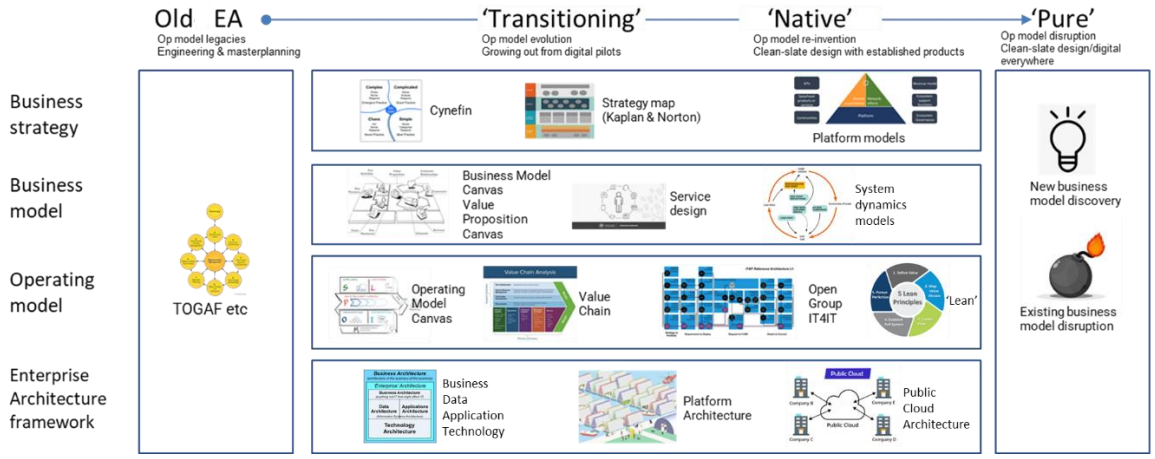


Figure 4 Enterprise Architecture tools and techniques for working with digital enterprises.

EA's digital opportunity

The opportunity for EA to lead business design is not exactly new. In fact, it found expression in some of the leading EA frameworks and methods dating back to the earliest period of enterprise architecture. Zachman, for example, talked of enterprise architecture *'representing the functioning enterprise'* and *'engineering and manufacturing the enterprise'*, both phrases addressing enterprise structural concerns at the highest level rather than information systems or technologies. The history of enterprise architecture, however, reveals that information technologists adopted the frameworks as an information technology structuring tool, and for reasons perhaps lost to history, the reach and promise of enterprise design was never fully adopted, or realised.

In the years that followed, enterprise architecture frameworks and methods became irrevocably embedded in IT/IS methodology, and as a result, were constrained by the accepted role of IT and IS at the time, that of an internal service to the organisation. As such, enterprise architecture got locked away in the IT department and its potential for organisational impact was severely constrained. Confined to the realm of IT, enterprise architecture was to follow rather than lead the business. Now, in the digital age, EA's shackles to internal IT service provision have fallen off. To conclude, we argue that:

- The commoditisation of infrastructure and components of business functionality in the cloud (in the form of IaaS, Paas, and SaaS services) have supplanted a significant portion of EA's traditional value — as a consequence, it is now imperative for EA practitioners to move from technology to business concerns, becoming indispensable business and enterprise designers in the process;
- It is useful to think of today's enterprises as being one of three types — traditional enterprises are 'transitioning' to digital, 'natively digital' enterprises are wholly dependent on digital platforms to run their operations in ways that far exceed traditional computerised operations, and 'pure' digital enterprises depend on digital technologies for every aspect of their business, operating model, and offering;

- The maturing of distributed, loosely coupled collaborative ecosystems, underpinned by public cloud platforms, is replacing end to end process-based value streams — this in turn shifts EA's focus towards the upper reaches of the traditional enterprise stack, to business and operating model concerns;
- 'Native' and 'pure' digital enterprises demonstrate that digital technology is no longer only a means of realising the chosen operating model, but is fundamental to the business and operating model, or *is* the business and operating model.

After four decades, digitisation has re-charged the original vision of the founders of enterprise architecture. For natively and pure digital enterprises, the reach of EA encompasses the entire enterprise, starting with business strategy, through modelling the business and its operation, to platforms and code (in fact the operating model is increasingly reified in code). Admittedly this may be a high ambition for EA practitioners, particularly those who have made a career out of IS/IT EA practice. But the field of digital enterprises is still young, and with some insight and an ounce of courage, our EA ancestor's original vision and intentions for the discipline may yet be realised.

Acknowledgment

During the 'pandemic period' from early 2020 to late 2022, The University of Melbourne hosted a University-Industry Forum on Enterprise Architecture for academics, students and industry participants to explore contemporary and pressing themes of EA research and practice. The sessions were public (both in-person and online) and covered EA operating models and maturity, EA soft skills, and EA frameworks and methods. Each of the three topic groups addressed current concerns and a recurring theme was the impact of digitisation and digital transformation. This paper builds on themes that emerged from these sessions. The authors would like to acknowledge the founding members of the University-Industry EA Forum: Dr Rod Dilnut, Dr Sherah Kurnia, Stuart Webb, Johan Hall, and Frank Ozzimo. Additional input was appreciated from Darryl Carr and Andreas Drechsler. We would also like to thank the many participants who attended and contributed ideas and experiences.

About the Authors

Paul Taylor, PhD

Paul is a practicing enterprise architect and writer with an enduring curiosity about sociotechnical systems in society, and how successful enterprises create value for people and humankind in an environment of unprecedented complexity and dynamism. Using Enterprise Architecture as a means of understanding people-centred technology-enabled systems, Paul reflects on paradigms, methodology, and pragmatic action to operationalise achievable plans and design viable interventions. 'EA in the Digital Age' is a current theme

that articulates the challenges and opportunities the discipline of Enterprise Architecture faces as a result of the digitalization of nearly every aspect of our existence.

Inji Wijegunaratne, PhD

After a long career in IT and enterprise architecture practice, Inji walked away from the 9:00 to 5:00 treadmill in 2019, and currently advises two fledgeling outfits, one in Blockchain and the other in transport and logistics. How enterprises and indeed ecosystems work is a particular interest of Inji's, especially with the increasing prevalence of all things digital in corporate, social, and personal life - blurring any hard distinctions connoted by terms such as "information systems", and his current work using the principles and 'big picture' skills garnered in traditional enterprise architecture practice in areas such as business organisation, modelling and strategy illustrates the potential that the discipline holds for the future.

FEATURE ARTICLE

The Evolution of Business Architecture and the Opportunity for Enterprise Architecture

By Whynde Kuehn

Business Architecture Has Evolved and Come Into Its Own

The discipline of business architecture has truly come into its own. It has expanded, evolved, formalized, and gained new business relevance, especially as a key enabler for effective, end-to-end strategy to execution. With business architecture as the tip of the spear, this gives *all* of enterprise architecture new clarity, strength, and strategic purpose.

Formalization has allowed for a shift in focus to *leveraging business architecture for value* versus defining and redefining what it is and how to model it again and again. A steadily increasing number of organizations are investing in business architecture across six continents, in every sector and every major industry. The upward trend of business architecture adoption is likely due to the growing pace of change and increasing awareness of the discipline's unique ability to help solve key business challenges that require a holistic view. This includes topics such as business and digital transformation, strategy execution, customer experience, business structural changes (e.g., M&A), business ecosystem design, business and technology simplification and efficiency, and more.

Business Architecture Advancements

The Business Architecture Guild® (the not-for-profit business architecture industry association) and its members have driven significant formalization efforts worldwide. A few key advancements are highlighted here.

First, the Guild has concretely defined the domains included within business architecture and how those domains connect to other disciplines (in many cases working together with experts from related disciplines). The corresponding metamodel is going through the process of becoming a formal, adopted standard within the Object Management Group (OMG). This is already expanding the market of available tools and service providers who are aligned to a common understanding. Various efforts are also underway to align these business architecture perspectives with other frameworks, notably TOGAF® (which began aligning to the Guild metamodel with version 9.2).

In addition, an extensive business architecture body of knowledge (the BIZBOK® Guide) has been created with a Certified Business Architect® (CBA®) certification and accredited training provider program (Guild Accredited Training Partner® (GATP®)) based upon it. Furthermore, a set of business architecture reference models have been created for various industries and government, which are greatly reducing the time it takes organizations to establish their business architecture baseline (including capability maps and value streams) and begin using it to deliver value.

There is still much work ahead. However, the challenges are clear and with continued adoption, expansion, and maturation, business architecture (and all of enterprise architecture) can provide the critical foundation necessary for organizations to grow, transform, and succeed.

Business Architecture as a Strategic Business Discipline

The contemporary practice of business architecture crosses, and bridges, two worlds: on one side strategic management and on the other side the enterprise architecture discipline. As shown in Figure 1, business architecture plays a role in the middle as a part of both. This evolution of business architecture helps to explain why people sometimes understand business architecture in different ways. We simply look at the world through slightly different lenses depending on our experiences and education.

The role of business architecture and business architects in strategic management is to provide the missing framework and role needed to translate strategy cohesively and align it to execution. They provide an integrative framework and role to transcend silos, and offer additional insights for holistic decision-making. On the other hand, the role of business architecture and business architects within the enterprise architecture discipline is as the tip of the spear for usage scenarios relevant within an enterprise architecture context, often more closely related to technology. For example, business architecture provides the business direction, language, context, and lens that can be leveraged for business and technology alignment, application portfolio management, cloud decision making, and other scenarios.

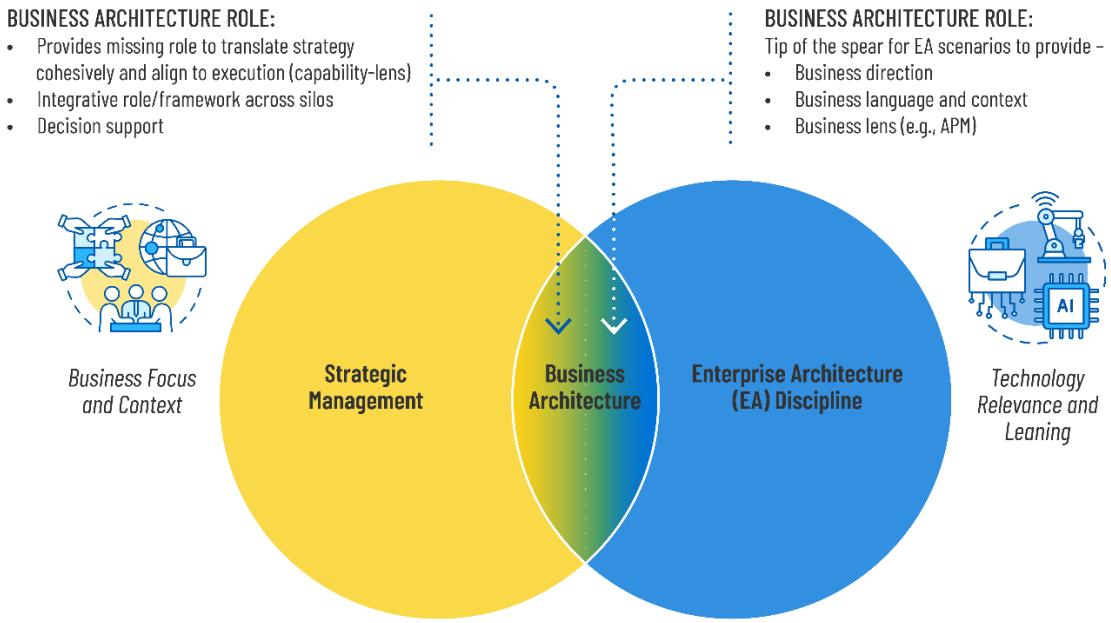


Figure 1: Business Architecture Bridges Worlds

Six Things You Need to Know About Business Architecture

Here are six key takeaways that summarize the most recent thinking and practice around the discipline of business architecture.

(1) Business Architecture is Comprised of Ten Domains, With Value Streams and Capabilities at the Center

Business architecture is comprised of ten domains which represent different business perspectives within an organization. As shown in Figure 2, these include capabilities, value streams, information, organization (business units), strategies, metrics, stakeholders, products, policies, and initiatives. Business architecture domains can and should also be cross-mapped to domains within other disciplines as well. For example, capabilities and value streams may be cross-mapped to customer journeys, processes, software applications and services, and requirements.

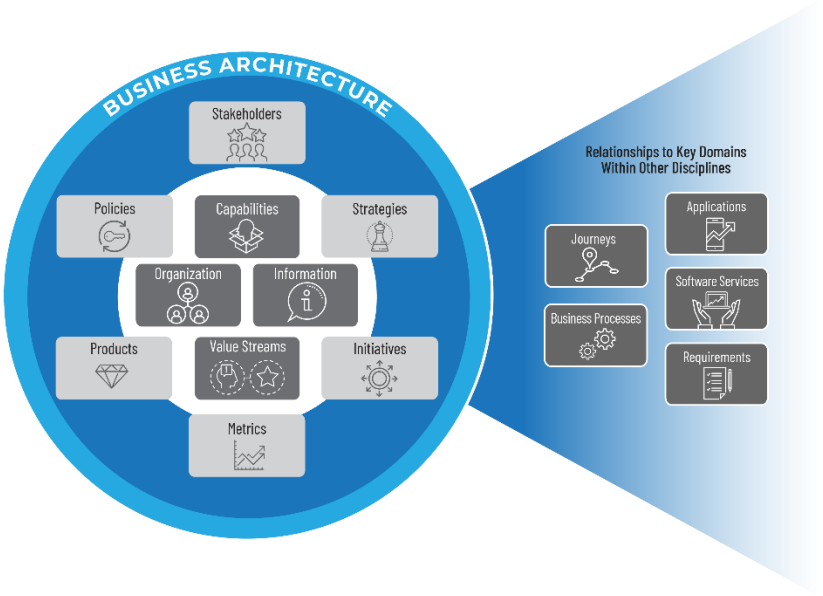


Figure 2: Business Architecture Domains and Key Relationships

The scope of what business architecture is (and is not) is now clearly defined, and it goes far beyond just capabilities to include nine other domains. This concept is perhaps one of the most misunderstood and misaligned because the definition of domains included within business architecture can differ across individuals, organizations, and methodologies. For example, some consider business architecture to be primarily comprised of capabilities and processes (and sometimes business functions). However, leveraging the full ten domains of business architecture provides a much more comprehensive view of an organization, with the flexibility and breadth to support much broader usage across the business.

Additionally, while capabilities are the hub of a business architecture and connect to everything else, they work together with value streams. Capabilities cross-mapped to value stream stages forms the foundation of an organization's business architecture that can be leveraged for countless business usage scenarios. Both capabilities and value streams serve as reusable business building blocks for framing change and designing modular organizations and business ecosystems that are both streamlined and agile.

(2) The Scope of a Business Architecture is an Organization and Its Ecosystem.

Business architecture makes the greatest difference when it is practiced as an *enterprise* discipline, not as a toolbox of available techniques. Organizations have plenty of fragmented views and techniques today – business architecture is an opportunity to do things differently. It unites people around *one* shared mental model, unified across business units, products, and geographies.

As a result, the scope of a business architecture should represent the entire scope of what an organization does and the ecosystem in which it operates (unless it is a conglomerate or other situation warranting separate business architectures). Additionally, a business architecture is:

- Entirely business-focused, business-driven, and business-owned
- High-level in detail
- A reusable knowledgebase from which blueprints and views can be generated (not a set of standalone, one-time artifacts)

(3) The Why of Business Architecture is What Matters

While the process of creating a business architecture reveals new insights and ah-ha moments for those involved, ultimately an organization's business architecture is a means to an end. The first step for any business architecture team is to define the value proposition and intended usage of business architecture for *their* organization. This will guide all decision-making from the most relevant business architecture domains to capture, to the right business architects to hire, to the highest priority engagements to take on.

Like a Swiss army knife, business architecture offers a variety of value propositions. However, those value propositions can be categorized within a few common themes:

- Facilitating effective strategy to execution (described further in (4) below)
- Improving and evolving (or initially creating) the design of organizations and business ecosystems
- Informing decision-making with a holistic view

Delivering business value is the reason that architecture exists – and it is also the number one critical success factor for business architecture teams.

(4) Business Architecture is a Key Enabler of End-to-End Strategy to Execution

Business architecture is a bridge between strategy and execution, critical for business transformation and organizational agility. This is being increasingly recognized by organizations, industry associations, academic institutions, and even mainstream business literature.

As shown in Figure 3, business architecture plays a role throughout the entire path from strategy to execution, though it is most focused upfront (along with enterprise architecture) to inform and translate strategies and other business direction into an aligned, cohesive set of actions execution across people, processes, and technology. Business architecture also

provides the end-to-end traceability that aligns strategies, architecture, investments, initiatives, and outcomes on an ongoing basis.

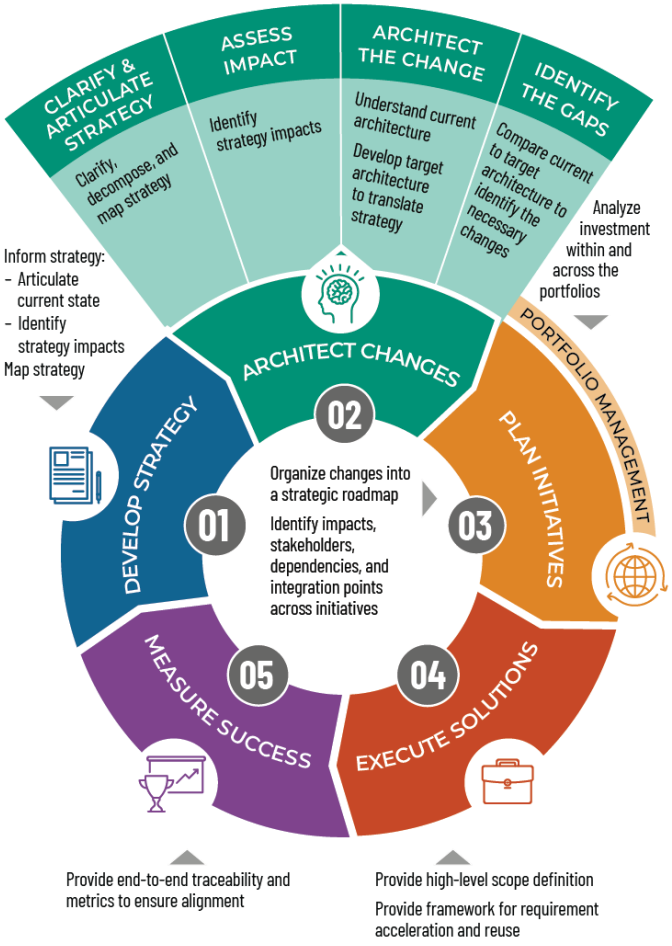


Figure 3: The Role of Business Architecture from Strategy to Execution

This positioning is helping business architecture to increasingly resonate with an executive and business audience – and draws the rest of the enterprise architecture team further upstream into a more strategic context and into the right conversations.

(5) Business Architecture Works in an Ecosystem of Partners

Business architecture is not a silver bullet. It takes an entire ecosystem of teams working together for an organization to deliver on its promise to customers or constituents, support its operations, execute strategy, and transform when necessary.

An organization's business architecture can and should be used by anyone to inform decision-making, not just the architects. In fact, one of the key indicators of business architecture maturity within an organization is how integrated it is with other functions,

disciplines, and organizational processes for strategy, planning, transformation, innovation, solution development, risk management, procurement, compliance, mergers and acquisitions, and many others. To truly succeed, any approach must be interdisciplinary.

Figure 4 shows an example of the importance of close interdisciplinary collaboration. It approximates the involvement of different teams working together from strategy to execution.

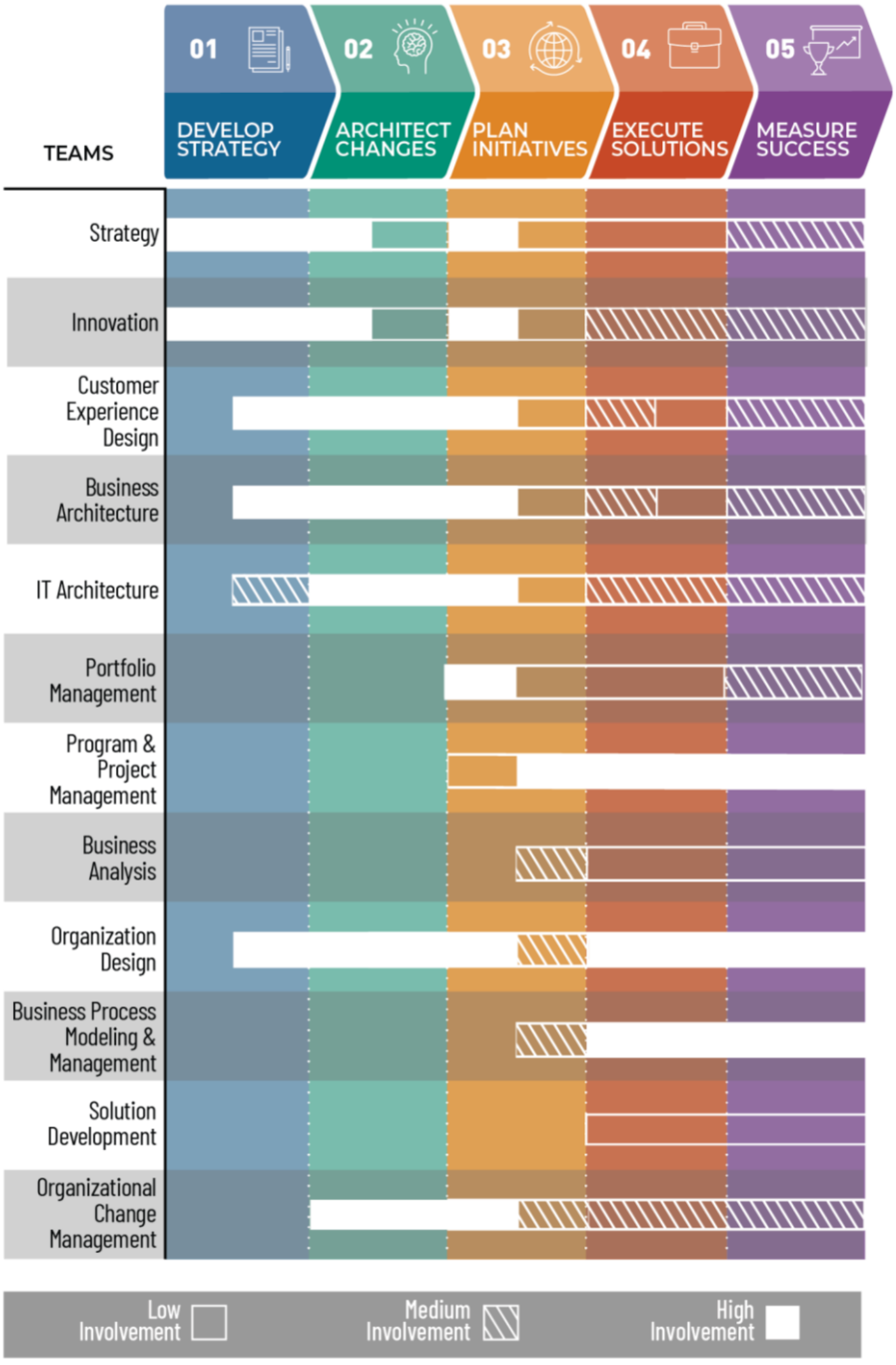


Figure 4: Team Involvement from Strategy to Execution

(6) ***We Know How to Build Strategic Business Architecture Practices That Succeed***

Based on the experiences and approaches that have been proven out for decades now across an extensive array of organizations worldwide, a set of tried-and-true critical success factors have emerged. Most importantly, successful business architecture teams are business-oriented and value-focused in everything they do. Other factors include:

- **Repeatable Value Delivery** – Define a clear value proposition for business architecture in the organization, deliver it through repeatable services, communicate success and build advocates – and build the business architecture knowledgebase and practice *just enough, just in tim*e.
- **Strong Partnerships** – Build strong partnerships with other roles and teams and position as an internal service provider to the organization.
- **Executive Sponsorship** – Obtain visible, committed executive level sponsorship as high in the organization as possible, as soon as possible. Sponsorship is the rocket fuel for a business architecture practice, especially if the first two critical success factors have been met.
- **Strategic Positioning** – Position business architects for success. This includes ensuring they can work on strategic scenarios, across silos, and at the right level of authority. Business architecture teams are increasingly reporting to business leaders to help enable this positioning.
- **Ubiquitous Business Architecture** – Make business architecture for everybody to instill a holistic mindset and accelerate adoption and usage.

What It Means for Enterprise Architecture

As we collectively navigate some of the most massive shifts in history, the role of enterprise architecture and enterprise architects has never been more important. Architects help leaders to make holistic, informed decisions, and architects ensure that our organizations and societies are designed to deliver value and operate with agility, sustainability, and transparency – especially in a globally connected and increasingly digital world.

Still, it is important that enterprise architecture as a discipline continues to adapt in order to best serve organizations, stay relevant, and deliver the most important business outcomes.

Business Architecture is a Gateway to Leveraging Enterprise Architecture Strategically

When business architecture is treated as a strategic business discipline, and positioned upfront in the strategy execution life cycle, this also brings the entire discipline of enterprise architecture into a new strategic context and relevance. Enterprise architecture can help to address a recognized business gap that integrates well with business technology strategy. This strategic positioning also ensures that the enterprise architecture perspective can inform business decision-making early on, when it is most impactful.

A value-oriented, strategically positioned business architecture practice undoubtedly leads the way for *business outcome-driven enterprise architecture*, helping to renew architecture's focus on value and business relevance versus models and governance. A business architecture practice can also increase organizational readiness and appreciation for enterprise architecture by introducing new mindsets and creating a basic understanding of architectural thinking across the business.

Moving Into Action

Here are a few steps that enterprise architecture practitioners and teams can take to fully leverage business architecture as it has evolved today for the greatest benefit of their organizations and careers.

Rediscover Business Architecture

Explore the six takeaways described earlier to discover the additional depth and nuance behind each, both from a theory perspective as well as how it works for organizations in practice. Additionally, *all* architects need a working knowledge of their own organization's business architecture. Consider refreshing on the business architecture for your organization if it has been a while, with an eye to how it aligns with the most current evolutions described in takeaways (1) and (2).

Build a Strategic Business Architecture Practice

Assess the business architecture practice within your organization, whatever form it may currently be in (e.g., part of the enterprise architecture team, operating as a separate team or function, etc.). Ask some key questions in the context of takeaways (3), (4), (5), and (6). For example:

- Does the business architecture practice have a clearly defined, strategic value proposition?
- Does the team deliver relevant and valuable business outcomes regularly?
- Is business architecture leveraged early in the cycle of formulating strategies and business direction?
- Is there a specialized business architect role and are practitioners sufficiently prepared to work in a strategic role?
- Does the practice have business sponsorship?
- Is the practice tightly integrated with enterprise architecture and other key partners such as the strategy, transformation, strategic planning, and design teams?

Create a Cohesive Enterprise Architecture Practice

Close partnership between *all* architects is critical (e.g., enterprise architects, business architects, application architects, data architects, technical architects, solution architects).

Regardless of organizational structure and dynamics, the most successful enterprise architecture teams are united around value proposition and architecture services, engagement model and playbook, practice direction, metamodel, and competency model.

Assess the integration between the architecture disciplines within your organization as well as how the architect roles work together. Take steps to create one cohesive enterprise architecture team, coalesced around the architecture vision and value proposition, the architecture knowledgebase, a common foundation of competencies across all architect roles, and most importantly how architects work together to deliver value.

Level Up Your Relevance

Business at high speed with increasing uncertainty, along with the new forces and opportunities that digital brings, urges reflection on how enterprise architecture can continue to be most relevant to our organizations and societies into the future. This applies for the discipline overall, but also for individual enterprise architecture practitioners as they are planning for their careers and desired impact.

While the enterprise architecture knowledgebase is of course foundational and essential to practicing the discipline, consider that the model building is primarily a means to an end. With reference models increasingly accelerating the process (at least for business architecture) – coupled with technological advances – architecture and architects can and should focus on delivering business value and insights with architecture.

With this shift, architects can concentrate on their roles as valuable advisors, business and technology designers, change agents, and leaders. This requires increased strategic and relational competencies as well as communication and emotional intelligence competencies. It also requires foundational knowledge of related teams and disciplines and how they work together cohesively to translate business direction and ideas into action.

Conclusion

In closing, these are exciting times. The role of enterprise architecture and the talents of enterprise architects have never been more relevant or necessary, not just to enable and influence, but to *lead* our organizations and societies through transformation and continually create a world that we all want to live in. The evolution and formalization of business architecture can help bring new value and strategic leverage to the entire discipline of enterprise architecture. This will not only help us to best serve our organizations, but to reimagine an enterprise architect role that is even more rewarding, at the forefront of change and business impact.

About the Author

Whynde Kuehn is recognized globally as a highly sought-after pioneer and thought leader in business architecture, with a distinguished track record of creating successful strategic business architecture teams worldwide. She has worked with an extensive array of organizations to build their capacity for end-to-end strategy execution, including Fortune 500 and global enterprises, governmental and non-profit organizations, social enterprises, startups, and cross-sector initiatives.

Whynde is the creator of Biz Arch Mastery, a dedicated online platform and community that helps professionals master the art and science of business architecture. She is a Fellow with the Institute for Digital Transformation and a member of the Fast Company Executive Board. She is also co-founder, vice president, and academic chair of the Business Architecture Guild, a not-for-profit business architecture association that has helped advance and formalize the discipline across the globe.

Whynde is an adjunct professor within the Penn State Smeal College of Business in the Executive Education program. She is author of the book *Strategy to Reality* and chair of the Women In Architecture (WIA) global initiative.

CALL FOR SUBMISSIONS

by Darryl Carr, EAPJ Editor

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