

Critical Characteristics of Enterprise Architects Influencing Stakeholder Engagement Effectiveness

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Keywords: Enterprise Architect, Enterprise Architecture (EA), EA Capability, Stakeholder Engagement, Business-IT Alignment (BITA).

Abstract: Enterprise architecture (EA) aims to enhance business performance through effective IT deployment. Aligning business strategy with IT requires artefacts for business operations and decision-making. Engagement between enterprise architects and stakeholders is crucial for success, yet the characteristics of successful architects have been understudied. This paper explores these characteristics using resource- and capacity-based theories. It seeks to identify traits that influence engagement effectiveness and presents a theoretical model. The study involved two phases: a literature review creating a descriptive model and an in-depth case study with 17 interviews to refine it. The research identifies 11 generic engagement factors and five potentially specific to the studied organization. The resulting model, focusing on the banking industry, is the first to highlight the traits of effective enterprise architects. Further empirical research is needed to validate and calibrate these factors across various contexts, industries, and economic environments.

1 INTRODUCTION

Enterprise architecture (EA) is an organisational practice designed to enhance business performance by strategically planning and implementing information technology (IT). This is achieved by utilising artefacts that depict an organisation from a unified business and IT perspective (Kurnia et al., 2021). EA offers substantial advantages to organisations striving for continuous improvement in business outcomes and is regarded as a vital element in deploying IT resources (Kotusev, 2020; Land et al., 2008). Furthermore, resource- and capability-based views posit that organisational resources, including human capital, significantly contribute to business performance (Barney, 1991; Leiblein, 2011).

Research has shown a positive relationship between the degree of business and IT alignment (BITA) and positive business financial and

organisational results (Chau, 2020; Luftman et al., 2017; Gerow et al., 2014; Yayla and Hu, 2012; Chan et al., 2006). Several benefits have been identified from robust BITAs, such as increased agility (Tallon and Pinsonneault, 2011) and improved financial performance (Gerow et al., 2014), which contribute to overall organisational success (Luftman et al., 2017; Gerow et al., 2014; Yayla and Hu, 2012; Chan et al., 2006). Notably, Kappelman et al. (2021) highlighted BITA as the second most critical IT management issue from 2009 to 2020.

The rapidly evolving competitive business landscape, driven by digitisation, underscores the importance of close BITA within organisations (Li et al., 2016). As a result, many organisations have implemented EA practices to enhance this alignment. Achieving such alignment and consequently improving business outcomes necessitates organisational capabilities to bridge business-IT

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communication gaps and deploy IT infrastructure that supports business objectives (Chau, 2020). Drawing from resource- and capability-based theories (Leiblein, 2011; Barney, 1991), we argue that enterprise architects represent unique resources that significantly enhance organisational capabilities. These resources are difficult to replicate when EA practices are integrated into the organisational framework as the effectiveness of interactions between enterprise architects and business and IT stakeholders relies on the enterprise architect's ability to communicate proficiently with both groups.

While previous studies have acknowledged the significance of engagement in effective EA practice and the difficulties in achieving it (Nayeem et al., 2023; Al-Kharusi et al., 2021; Kurnia et al., 2021), there is a lack of understanding regarding the specific individual characteristics exhibited by successful enterprise architects. Exploring these characteristics is crucial for advancing the current literature and comprehending this essential aspect of EA practice. Consequently, this study investigates characteristics of enterprise architects that foster effective stakeholder engagement, positioning these architects as unique and valuable resources that enhance IT enablement capability. The paper addresses the questions, (1) What are the critical characteristics to be the curator of enterprise architecture of an organization? (2) How these characteristics influence stakeholder engagement effectiveness to enhance an organisation's EA capability?"

This paper reviews the current literature in order to identify and synthesise the critical characteristics of effective enterprise architects. The goal is to create a descriptive model for effective stakeholder engagement, with the aim of enhancing an organisation's Enterprise Architecture (EA) capability. The paper will then discuss the findings within the context of current EA literature and conclude by outlining the theoretical and practical contributions of the study, as well as suggesting potential directions for future research.

2 BACKGROUND

The rapid advancement of digitisation in today's competitive business environment has amplified the need for tighter BITA within organisations (Li et al., 2016). EA has become a critical practice in achieving this alignment, yet the effectiveness of EA largely depends on the engagement between enterprise architects and stakeholders. Prior research indicates that successfully identifying IT systems and

infrastructure requirements hinges on the interactive communication and collaboration between these parties (Kurnia et al., 2021; Kurnia et al., 2020). This engagement bridges IT-business communication gap, which is crucial for deploying IT infrastructure supporting business goals (Chau, 2020). Despite the recognised importance of engagement in EA practice, there remains a lack of understanding about the specific individual characteristics enterprise architects exhibit, reflecting the organisation's EA capability in practice.

Hitherto, there is a lack of specific information in existing literature on the characteristics displayed by enterprise architects to enhance engagement effectiveness. This gap in research is significant because a lack of engagement is seen as a major obstacle to achieving BITA (Kurnia et al., 2021; Banaeianjahromi and Smolander, 2019; Schmidt and Buxmann, 2011; Ambler, 2010; van der Raadt et al., 2010; Ross, 2006). While some recent studies have touched on engagement from a broader perspective, there is a clear need for more specific discussion on the characteristics needed. Karpovsky (2015) highlighted that very little is known about what organisational actors actually do, and Al-Kharusi et al. (2021) noted a scarcity of studies uncovering the factors dominating the engagement between enterprise architects and stakeholders. Kurnia et al. (2020) have identified critical roles performed, but they do not provide insight into the characteristics at play when performing these roles. Furthermore, research remains silent on the specific characteristics displayed by enterprise architects that influence engagement effectiveness. The existing literature emphasises the need to acquire a wide range of skills in technical, business, social, managerial, and political fields (Al-Kharusi et al., 2021; Ullrich et al., 2021; Ylinen and Pekkola, 2020). However, it does not explicitly identify the individual characteristics that come into play when applying these skills in practice, which can potentially influence engagement. Besides, while some authors have highlighted the challenges in engagement between enterprise architects and stakeholders, they offer minimal advice on the causes or how to overcome these problems (Seppänen, 2018; Lohe and Legner, 2014; Lucke et al., 2012).

This study aims to address the current knowledge gaps by identifying the interpersonal characteristics of influential enterprise architects. It seeks to enhance our understanding of how these traits contribute to successful stakeholder engagement and the achievement of business-IT alignment (BITA) to elevate the organisation's Enterprise Architecture

(EA). This research will not only fill a critical gap in EA literature but also provide practical insights that can improve the selection and development of enterprise architects as the organisational resources underpinning this unique capability. It will offer a theoretical model that synthesises the characteristics of effective enterprise architects.

3 LITERATURE REVIEW

We conducted a detailed review of the literature and analysed the themes to identify the characteristics of enterprise architects and their effectiveness in engaging stakeholders to enhance enterprise architecture capability. Our research involved a comprehensive literature search using combinations of keywords – 'enterprise architecture', 'engagement', 'characteristics', 'competency', 'personality traits', 'habits', 'behaviour', 'alignment', 'business', 'enablers', and 'blockers' – in publications from 2010 onwards. We carefully selected and reviewed peer-reviewed English publications, including conference proceedings, journal papers, and book chapters, excluding non-English articles, duplicates, and brief papers. We thoroughly examined titles and abstracts to select relevant submissions. To maintain quality and avoid errors, we conducted the analysis in a random order. Out of 174 articles reviewed, we shortlisted 24 papers specifically focused on enterprise architects, stakeholder management, and organisational EA.

3.1 Synthesis of the Characteristics

We summarised the important points relevant to our research questions and identified ten characteristics of enterprise architects that support effective stakeholder engagement, as outlined in Table 1. These characteristics impact the interpersonal interactions and communication significantly, which in turn greatly influence the effectiveness of engagement between business and IT stakeholders. Our literature review also shows that several authors have proposed models for categorising engagement (Al-Kharusi et al., 2021; Banaeianjahromi and Smolander, 2019; Levy, 2014). Drawing from Strauss (1998), we found that most models' category labels were informed by frameworks proposed by Levy (2014), who suggested that psychological and behavioural aspects and beliefs are primary motivators for promoting user participation in enterprise architecture. Our analysis of these models led us to propose an improved categorisation

framework, grouping these characteristics into three categories: practice, behavioural, and psychological. Table 1 presents the literature synthesis of characteristics of enterprise architects affecting stakeholder engagement. The discussions of the critical characteristics that influence stakeholder engagement effectiveness are as follows.

3.2 Discussions of the Characteristics

3.2.1 Practice-Related Characteristics

Business understanding, risk awareness, and depth of technical knowledge—are identified as practice-related characteristics of enterprise architects, grounded primarily on resource-based theory (RBT) and capability-based theory (CBT). RBT underscores the importance of valuable resources, such as knowledge of business operations, the ability to manage risks, and technical expertise and knowledge that contribute to an organisation's competitive advantage (Barney, 1991). Building on RBT, CBT emphasises the processes and routines that deploy these resources effectively (Teece et al., 1997). Understanding business operations, effective risk management processes, updating technical knowledge, and applying frameworks are capabilities that enable the enhancement of overall EA practice. Aligned with RBT and CBT, Shang and Seddon (2002) emphasised managerial capabilities as essential for effective resource allocation, operational monitoring, and strategic decision-making.

Business Understanding: EA practices are shaped by the operational structures of businesses and their comprehension of business policies and the political environment. Enterprise architects are responsible for prioritising planning decisions related to business transformation, meeting stakeholder needs, designing solutions, and engaging with service providers (Nakakawa et al., 2021). Successfully translating business strategies into IT infrastructure requires a deep understanding of the business environment, which helps in building trust with stakeholders (Kappelman et al., 2021; Kempegowda and Chaczko, 2018; Chau, 2020). The perceived ability of an enterprise architect to understand the business operating environment will impact the level of trust stakeholders have in the advice provided by the enterprise architect (Chau, 2020).

Risk Awareness: Recognising and managing risks is critical for business leadership. An enterprise architect's ability to identify risks in current and proposed solutions significantly impacts stakeholder perceptions of EA value. The Open Group (2018)

Table 1: Synthesis of critical characteristics of successful enterprise architects.

Articles	Practice			Behavioural					Psychological	
	Business Understanding	Risk Awareness	Depth of technical knowledge	Broad communication skills	Team Engagement	Leadership Ability	Embracement of Change	Role Enforcement	Comfort with Complexity	Emotional Intelligence
Al-Kharusi et al., 2021				x			x			
Banaeianjahromi & Smolander, 2019										
Breithaupt et al., 2021		x						x		x
Chuang & Loggerenberg, 2010	x			x	x	x				
Drews et al. 2017			x					x		
Du et al., 2019									x	x
Gerster et al., 2021									x	
Hansen et al., 2011				x						
Kappelman et al., 2021	x									
Kempegowda & Chaczko, 2018	x	x	x				x	x		
Kurnia et al. 2021		x					x	x		x
Lamanna & Kurnia, 2022								x	x	
Matke et al., 2019					x	x				
Marth et al., 2018			x	x			x			
Mapingire et al., 2018			x		x	x	x			
Mocker & Boochever, 2020								x	x	
Nakakawa et al., 2010	x									
Preez et al., 2018			x				x			x
Rouhani et al., 2013									x	
Steghuis & Proper, 2008			x							
Strano & Rehmani, 2007				x			x		x	x
Uludağ et al. 2019			x	x						
Ullrich et al., 2021							x		x	
Ylinen & Pekkola, 2020		x			x	x		x		

highlights risk as central to EA development, with risk assessment addressing threats from change mismanagement (Breithaupt et al., 2021). It is recognised that proactive prediction, assessment, and mitigation of risks are critical for preventing crises (Kurnia et al., 2021; Ylinen and Pekkola, 2020; Kempegowda and Chaczko, 2018).

Depth of Technical Knowledge: It is crucial for enterprise architects to keep their technical knowledge up to date (Drews et al., 2017). Information technology knowledge is a critical component of an effective EA practice. Mastering frameworks such as TOGAF and the Zachman Framework requires substantial technical expertise (Kempegowda and Chaczko, 2018; Marth et al., 2018; Preez et al., 2018). Stakeholders' trust in the technical proficiency of enterprise architects is essential for effective BITA.

3.2.2 Behavioural Characteristics

The behavioural traits and beliefs of enterprise architects are crucial for effective stakeholder engagement (Levy, 2014). Our thematic analysis identified five behavioural characteristics of enterprise architects to drive effective stakeholder engagement, as summarised below. They are grounded in behavioural theories such as transformational leadership theory (TRT), along with RBT and CBT. According to TRT, enterprise architects can create and communicate a compelling vision for the future of EA in the organisation, inspire

and motivate stakeholders to embrace and support EA initiatives, encourage innovative thinking and problem-solving in EA practices, and provide mentorship and support to team members involved in EA projects (Bass and Avolio, 1994; Bass, 1985; Burns, 1978).

Broad Communication Skills: Effective communication is key component of transformational leadership, involving the motivation and inspiration of stakeholders (Bass and Avolio, 1994). Communication skills are valuable assets (Barney, 1991), and effective communication processes are capabilities (Teece et al., 1997) that can significantly boost an organisation's competitive advantage. Research shows that many EA challenges are non-technical and involve engaging stakeholders in the EA implementation process as a significant hurdle (Uludağ et al., 2019; Chuang and Loggerenberg, 2010). Improving internal communication with staff and other involved parties can help alleviate these issues (Banaeianjahromi and Smolander, 2019; Marth et al., 2018; Strano, 2007). Also, lack of communication is a significant barrier to Business-IT alignment (BITA) and EA deployment (Hansen et al., 2011).

Team Engagement: Enterprise architects need to work closely with teams to provide expert advice, advocate for EA initiatives, and garner support (Mapingire et al., 2018). It's important for them to encourage collaboration among teams and provide guidance and mentorship to ensure that all stakeholders feel involved in the change process

(Mattke et al., 2019; Mapingire et al., 2018). The ability to engage with teams effectively is a valuable skill set (Barney, 1991), and the processes involved in engagement are crucial capabilities (Teece et al., 1997) for leveraging EA expertise to influence business stakeholders.

Leadership Ability: Enterprise architects often require formal authority despite the implied leadership authority (Kotusev et al., 2023). Effective enterprise architects must eradicate negative perceptions about EA and effectively resolve stakeholder conflicts. Their leadership skills, motivation, and active engagement in the change process are essential for fostering trust and influencing stakeholder decision-making (Ylinen and Pekkola, 2020).

Embracement of Change: Enterprise architects are considered “change agents,” who advocate for and manage organisational change (Al-Kharusi et al., 2021; Ullrich et al., 2021; Kempegowda and Chaczko, 2018; Marth et al., 2018; Preez et al., 2018; Strano, 2007). Their role involves promoting change opportunities and ensuring that stakeholders understand the necessity of change. Navigating and leading change is vital for effective engagement (Mapingire et al., 2018).

Role Enforcement: Enterprise architects are responsible for the stewardship of policies, guidelines, and standards as governance instruments (Kempegowda and Chaczko, 2018; Kurnia et al., 2021). This governance role can be perceived negatively by stakeholders, impacting engagement effectiveness. Therefore, enterprise architects must avoid behaviours that foster negative perceptions and hinder collaboration (Lamanna and Kurnia, 2022; Ylinen and Pekkola, 2020).

3.2.3 Psychological Characteristics

Psychological factors play a pivotal role in stakeholder engagement, significantly influencing interpersonal interactions (Levy, 2014). Comfort Theory (Kolcaba, 2003) underscores that comfort can influence how individuals cope with complex and stressful situations (Lin et al., 2023), and stepping outside one's comfort zone is crucial in developing resilience, adaptability, and self-efficacy (Page, 2020). Emotional intelligence has a significant positive impact on psychological well-being (Carmeli et al., 2009) and affects how well leaders perform in the workplace (Goleman, 1995). Al-Kharusi et al. (2021) emphasised that personal preferences and beliefs are fundamental motivators for participating in EA activities. Understanding and leveraging these

psychological factors can significantly enhance the effectiveness of stakeholder engagement in EA, eventually improving organisational outcomes. The following two psychological characteristics have been identified in our analysis.

Comfort with Complexity: Organisations increasingly rely on complex business systems and technical infrastructures in the modern landscape. These involve multiple stakeholders with diverse interests in business, IT, strategic visions, and capabilities. Digital transformation further amplifies this complexity. Gerster et al. (2021) emphasised that effective EA necessitates a holistic perspective to align IT and business needs, addressing complexities at multiple levels. Enterprise architects are at the forefront of navigating this complexity when designing and implementing EA solutions. With limited time and resources, they must adopt a broad outlook to manage the complexities of legacy systems and IT infrastructure. Successfully designing and delivering the necessary IT infrastructure requires understanding current and future complexities. An ability to work within this complex environment and engage with diverse stakeholder views and expectations is crucial for integrity and engagement.

Emotional Intelligence: Emotional intelligence is the ability, capacity, or skill to perceive, assess, and manage one's own emotions and those of others in a group context. The literature recognises it as a key factor in interpersonal and social relationships. According to Goleman (1995), successful leadership, which involves emotional intelligence, is highly correlated with human performance and psychological makeup. The role of the enterprise architect as a change agent, linking business and IT stakeholders, requires a high level of emotional intelligence, self-awareness and social awareness to build trust, exert influence, and engage stakeholders (Breithaupt et al., 2021; Du et al., 2019; Preez et al., 2018; Strano, 2007).

4 CONCEPTUAL MODEL

Our literature review identifies ten critical characteristics of enterprise architects that impact stakeholder engagement effectiveness to enhance an organisation's EA capability. These characteristics are presented in the proposed conceptual model of effective enterprise architects in Figure 1. As depicted in Figure 1, we conjecture that:

P1: The extent of practice-related characteristics of an enterprise architect influences organisation's EA capability.

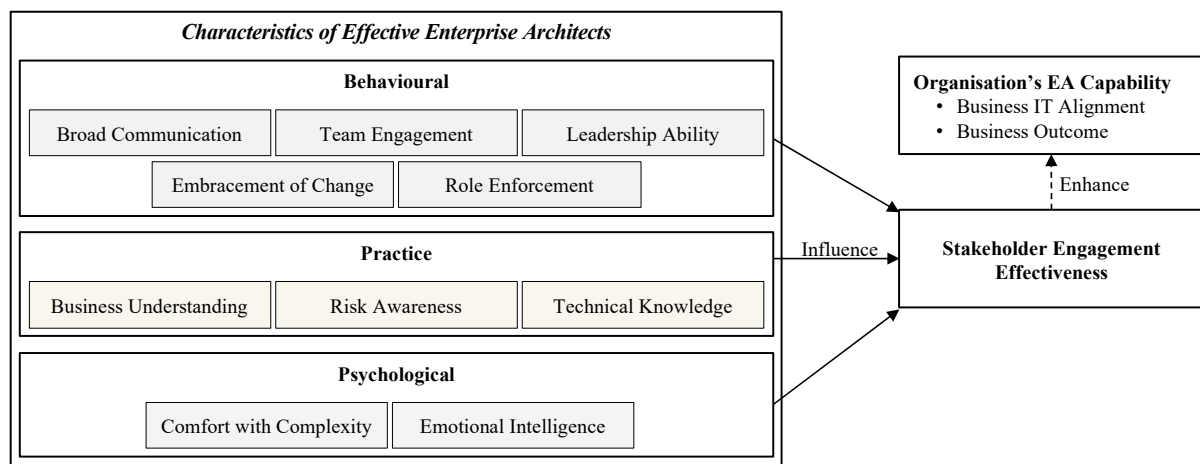


Figure 1: Conceptual model of enterprise architects' critical characteristics.

P2: The extent of behaviour-related characteristics of an enterprise architect influences organisation's EA capability.

P3: The extent of psychological characteristics of an enterprise architect influences organisation's EA capability.

Identifying and understanding the ten critical characteristics of enterprise architects that affect stakeholder engagement effectiveness has important implications for theory and research. Further theoretical advancements can be made by exploring how these characteristics, which include practical, behavioural, and psychological dimensions, impact EA capability and its influence on BITA (Business-IT Alignment). This understanding can enhance existing EA frameworks and theories by integrating a nuanced understanding of how individual traits and professional competencies drive stakeholder trust and engagement. From a research perspective, this could lead to the development of targeted strategies for training and development programs, and improve the effectiveness of EA practices by addressing practice-related, behavioural, and psychological factors. Additionally, this research can lead to the creation of robust measurement tools to assess the influence of these characteristics on EA outcomes, paving the way for evidence-based improvements in organisational EA practices.

Furthermore, the research proposals provide a basis for future studies to validate the connections between these traits and engagement effectiveness, contributing to a more thorough model of EA success factors. The ongoing research will investigate the importance of each trait in EA engagement through empirical studies, aiming to confirm the theoretical framework and evaluate these traits of enterprise architects in influencing stakeholder engagement

effectiveness to improve EA capability. We plan to use a case-study approach that integrates primary data from structured interviews, site visits, and direct observations, along with secondary data from organisational documents. Finally, this research effort aims to create a tool to measure EA capability, helping organisations develop targeted training programs and strategies for recruiting and cultivating EA resources.

5 CONCLUSIONS

The current body of work highlights the important interaction between enterprise architects and business stakeholders. However, there is a lack of understanding regarding the specific characteristics displayed by successful enterprise architects. This research aims to pinpoint and comprehend these distinctive individual characteristics that affect the effectiveness of engagement in enterprise architects. Our extensive literature review has identified ten crucial characteristics linked to enterprise architects that influence engagement effectiveness. These characteristics fall into three main categories: practice, behavioural, and psychological. These findings have guided our conceptual framework and laid the groundwork for further empirical investigation. This study contributes to the literature by deepening our understanding of the critical characteristics of enterprise architects. The proposed descriptive model represents a novel conceptualisation of individual characteristics in EA practice, positioning enterprise architects as distinct organisational resources.

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