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Architecture First

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CENTRALIZED ARCHITECTURE GROUPS: TO BE OR NOT TO BE

LESSONS FROM THE FIELD

OVERVIEW

While some IT executives are confidently forming enterprise architecture groups, others tell us they're disbanding such groups because they see no recognizable value or meaningful results. Both seek the processes and disciplines that reduce long-term costs and tilt IT budgets toward strategic spending rather than ongoing operations and maintenance. Yet, there appears to be an inherent paradox in the way the executives in these two camps go about accomplishing their mission.

X by 2's experience has shown that companies emphasizing architecture in enterprise application and integration initiatives experience reductions in the costs of initial system development, as well as the costs of extension, maintenance, and support over the long-term.

> *A Forrester Research study found that the typical North American enterprise devotes 70 percent of its IT spending to ongoing operations and maintenance.*

As fixed-costs rise and budgets decline, there's a real possibility that maintenance outlays could soon account for all IT spending. The importance of preventing this cannot be understated.

> *According to Cutter Consortium, you are missing strategic opportunities to leverage IT if you're not spending a third of your IT budget in some discretionary way..*

Still, the question remains: Why is it that some architecture groups flourish and positively influence the entire enterprise, while others flounder and ultimately deconstruct? Can the most challenging aspect of setting up enterprise architecture groups, measuring their output and the value of the output, be quantified?

What practices and processes have successful companies put in place? What methods and procedures have been overlooked or ignored by others? If the benefits of architecture are clear, why aren't architecture groups consistently created, fostered, and institutionalized as an organizational discipline?

In this paper, X by 2 clarifies what architecture is, the roles of architects, examines the four major challenges to architecture as an organizational discipline, and suggests workable options for development of an architecture competency.

THE IMPORTANCE OF ENTERPRISE-WIDE IT ARCHITECTURE

That the term *Architecture* is loosely used, poorly interpreted, widely discussed, and not always practiced is one element in the paradox of forming and disbanding architecture groups. *Architecture* is concerned with the structure of systems, the management of important elements, and the relationships between elements. Depending on whether we are talking about a single system or systems across the enterprise, the elements are different. In the context of any given application, a robust architecture influences the qualities of that application. In the context of the enterprise as a whole, architecture influences attributes in the aggregate such as quality, consistency, and costs of IT.

> *"As systems become larger and more complicated architecture assumes a more important role than has traditionally been the case. Exactly how organizations make use of architecture is an important indicator of their success in developing complex systems that meet their requirements in a cost efficient manner."*
>
> SEI, Carnegie Mellon

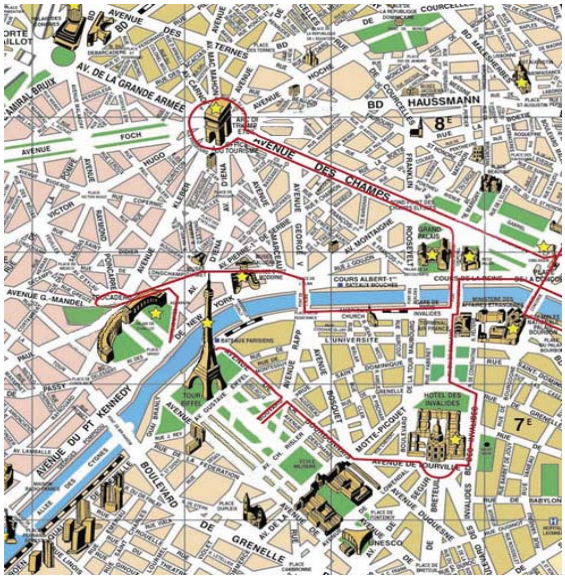
That architecture is both critical and relevant regardless of context is clarified by the following analogy: Imagine, for a moment, that your

company were a city such as Paris, or a structure such as the Golden Gate Bridge. The importance of the architecture to creating the city of Paris or the Golden Gate Bridge and sustaining them over the years is indisputable. In our view, the importance of enterprise architecture in the IT world – which functions in the same manner – is equally indisputable. Realizing the potential requires a clear understanding of the discipline, the right tone and culture, and above all, commitment to a long-term view.

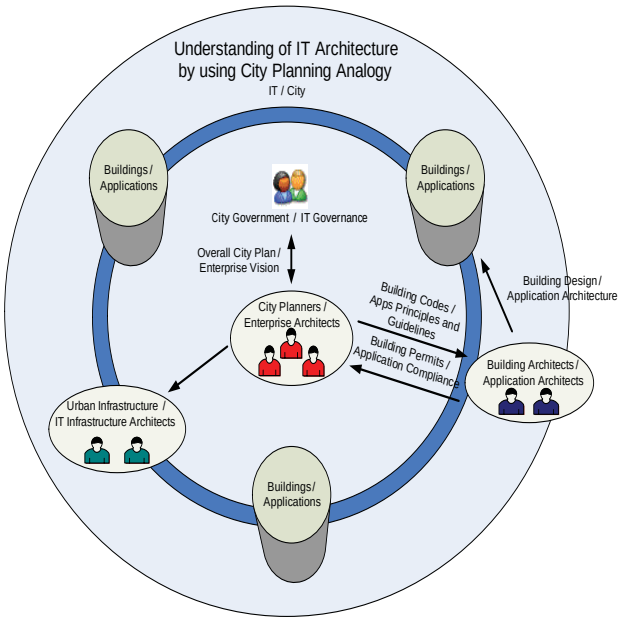
ISSUES AND CHALLENGES

Our experiences and observations have shown that there are four major challenges to the establishment and continuance of IT architecture and architecture groups as an organizational discipline:

1. Lack of clarity in definitions, roles, and responsibilities
2. Lack of pragmatism
3. Cultural and political inhibitors, such as lack of clout.
4. Inadequately qualified staff



LACK OF CLARITY IN DEFINITIONS, ROLES, AND RESPONSIBILITIES- Behind the "big picture" web of streets, structures and utilities that comprise a city like Paris – and the web of guidelines, applications and infrastructures of IT organizations – lies the skill and vision of architects engaged in diverse disciplines. When specific roles and overall intentions are not clearly defined, enterprise architects end up relegated to publishing standards and papers, and are kept at bay by the application and infrastructure architects dealing with immediate issues. They are rarely, in this instance, integrated into the daily processes. We believe that confusion over architectural roles and responsibilities is an additional facet of the paradox.



X by 2 classifies architects into three categories.

Enterprise Architects –equivalent to city planners who develop zoning guidelines, establish codes and standards for building development, and integrate them into the city systems such as electricity and water. Enterprise architects establish company-wide standards and guidelines for the operation and governance of IT environment, platforms, technologies, and methodologies. They are mainly concerned with the quality attributes, time to market, and costs of application efforts across the enterprise, looking at the big picture over the long-term, and applying a "For the Greater Good" approach to their strategies.

Application/Integration/Solution Architects –equivalent to building architects, who architect buildings adhering to the codes and standards established by city planners, while meeting the functional and aesthetic needs of the building owners and residents. Application/Integration/Solution architects adhere to enterprise guidelines and standards while architecting and developing specific applications meeting definitive business needs. They are mainly concerned with the quality attributes, time to market, and costs of the application at hand.

Technical/Infrastructure Architecture –equivalent to city infrastructure architects, who implement the infrastructure – the electrical grid, the water and sewer lines,

the freeways, highways, and roads – in accord with the blueprints developed by city planners. Technical/Infrastructure architects deal with designing and implementing factors of the physical environment such as the networks, firewalls, and server farms.

LACK OF PRAGMATISM- In many instances we find that the goals, ambitions, and views of enterprise architecture groups are not as practical and pragmatic as they should be. Exercises to map the entire enterprise, create global architecture blueprints, bring things to compliance, and govern the activities of groups supporting the business are kicked off with great fanfare, but result in "analysis-paralysis" and tend to die of their own weight. Likewise, strict adherence to purist principles and the search for an elusive perfection brings about similar outcomes. We've seen that architecture groups working with their stakeholders, developing solutions that meets 80% of the architectural "dos and don'ts," and judiciously allowing for exceptions, endear themselves to the constituents they serve. We've also seen situations in which architecture groups insist on imposing their commandments – almost to the detriment of the business – and alienate those from whom they need most support.

CULTURE AND POLITICAL INHIBITORS SUCH AS LACK OF CLOUT- Tension between centralized architecture groups and application groups frequently causes a dysfunctional cultural dynamic. When centralized architecture groups sit in a separate area, dish out their standards and guidelines like prescriptions, and only occasionally "visit" with the application development groups, the aspiring architects and smart technologists in the application groups have the psychological equivalent of an allergic reaction. They reject the folks that "come down from the mountain" and often ignore suggestions made by the enterprise architects that could or would create positive change. Ultimately, all camps – including management – are frustrated, and the groups are disbanded.

On the flip side, we've seen many instances in which the enterprise architecture groups have very little clout and are not taken seriously by the application development groups they are intended to serve. They are not granted enough literal or figurative "capital" to effectively persuade application development groups to embrace the principles and suggestions they put forth. Absent of any real authority and capital, they are left to simply evangelize about the "greater good." Middle management leadership of application development groups tasked with business needs and deadlines – and not engaged in consistent, in-the-trenches communication with the enterprise architects – don't readily buy into the "For the Greater Good" approach. Covert and passive resistance to the protocols and guidelines established by the enterprise architects creates tension and, more often than not, prompts disbandment of the groups.

INADEQUATELY QUALIFIED STAFF- There just aren't enough qualified and competent architects to begin with. Architecture skills and competencies are honed over many, many projects that leverage diverse technologies and strategies, things done right and lessons learned from successes and failures.

It is not uncommon to see people with a very narrow set of experiences promoted to 'architect' based solely on the number of years under their belt. In reality, a junior architect assigned to a diverse set of projects, environments, and technologies over five years time is generally a better architect than one with 15 years working exclusively in a single environment or a narrow set of technologies. Our clients frequently tell us that the "younger" X by 2 architects have had a marked impact on their projects, and on their "senior" in-house architects – and we are never surprised by the compliment.

WORKABLE OPTIONS

Are there ways then to establish, foster, and institutionalize architecture as a critical discipline? Should the architecture practice be "top down," or is it better to generate grassroots support? There is no categorical answer. Factors such as the size and sprawl of the organization, the position the organization occupies in its competitive landscape, and the mix of talent must be taken into consideration. However, there certainly are standard patterns to how such groups can be organized, the processes they follow, etc. From our own experience as well as that of others, X by 2 has found it possible to mold these patterns to specific client environments.

FOSTER BUY-IN- First and foremost, we have found that in order to avoid the political inhibitors, the CIO must understand, believe, and accept the link between architecture and quality, speed to market, and costs, then sell that understanding and belief to the middle management team. IT applications staff must also gain understanding and buy into the distinction between the various architecture disciplines, their roles, and their value in the overall structure.

CHANGE OF MINDSET- Enterprise Architects must embrace a show me versus tell me philosophy, get in the trenches to show tangible benefits and break down the "us versus them"

mentality. Instead of pushing down standards and guidelines, they must become directly involved, inform and educate. They must explain the benefits, field questions, solicit and incorporate feedback – much like Toyota and other automakers solicit feedback and suggestions on process and quality improvement from their assembly line workers. The dual task, then, for architects is in making believers of application development teams and accepting management's need to measure value. At the end of the day, enterprise and application architects must be measured on the delivery of working software, the ease of doing so, and the quality, time and costs associated with the delivery.

MEASURING VALUE- As we mentioned previously, precisely quantifying the value of the impact enterprise architecture groups have on IT, or precisely measuring the output of the groups, is rather difficult. That said, given that enterprise architecture is relevant, important and critical to the IT enterprise, certain techniques may be used to serve as measurements. These can include level of acceptance and embracing of ideas and guidelines developed by enterprise architecture groups by the application development groups that they serve. Heuristics may be developed and successes published or broadcast to foster support and buy-in. Along similar lines, short-term successes or failures of major initiatives in which enterprise architecture groups have played a key role may be used as a measure. External peer reviews or point of view of their work may be conducted. In situations where architectural elements or schemes advocated by enterprise architecture groups obviates redundant development or reinventing of the wheel, metrics may be assigned to the successes.

PROMOTE GRADUAL CHANGE- In the absence of a formal enterprise architecture group, solution architects from different projects or development groups can convene on a periodic basis to discuss "enterprise wide" concerns. As "wins" are had and communicated to rank and file as well as management, there may be more buy-in at all levels for the creation of formal structures. Even when formal structures are established, there can be a gradual shift in the mix of responsibilities. Some of X by 2's clients begin with an 80/20 mix in application/enterprise architecture, and move to a 20/80 mix over time. Others rotate architects between application and enterprise level responsibilities.

SUMMARY AND CONCLUSION

We observe, in our work and conversations with client IT leaders, architects, and application development groups, an intuitive sense of the benefits of emphasizing architecture at the application and enterprise level. We also see that in many organizations, architecture as a competency and discipline is in its infancy. CIOs and group heads are constantly working to identify and assign people with promise and potential from within the organization to architecture roles, and augment them with experience and mentoring from the outside. As a company that specializes in architecture, we have played that role for many of our clients, bringing a practical perspective born out of our own implementation work, and from engaging with client enterprise architecture groups. We are in constant dialog with enterprise architecture and application development groups among clients and prospective clients – constantly exchanging ideas, harvesting experiences from both sides of the table, identifying best practices, and noting pitfalls to avoid. We strive to enhance awareness and establish the value of architecture as a practical discipline, challenge and break down misconceptions, and help our clients develop and foster architecture competencies within their enterprises. Although architecture in the enterprise IT context is not as glamorous as Paris, as monumental as the Golden Gate Bridge, or as globally visible as the United States government, it is extremely critical to the business of the enterprise and, under the right set of conditions, will have its intended impact.

About the Authors

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ARCHITECTURE GOVERNANCE: WHO HOLDS THE REINS

ARCHITECTURE GOVERNANCE

IT Governance deals largely with what IT decisions are being made, who makes them, and how the decisions are monitored. Perhaps not surprisingly, it is a topic of conversation and area of interest for IT and business leaders, and those tasked with creating and operationalizing enterprise architecture groups. Architecture governance deals with what architecture decisions are made, which decisions are made locally by application development groups or centrally by the enterprise architecture function, and how the decisions are monitored. Architecture governance may also involve identifying touch points and protocols for interactions between enterprise architecture groups and other groups within the organization, establishing role definitions and standards for architects, and their credential requirements.

As a company that specializes in architecture, we have worked with enterprise architecture groups as consumers of the "rules of the game," and also to help define those rules. It is our point of view that prescriptive edicts are – more often than not – met with resistance, thought of as "ivory tower architecture," and rejected.

LEVERAGE PROVEN PATTERNS- We feel that one of the governance patterns that is modeled on the relationship between federal and state governments holds promise for the development and growth of architecture governance.
Federal government has its eye on the big picture and is fundamentally concerned with cohesion, consistency, and gaining efficiencies across the union. It undertakes broad programs relevant to all states. States, on the other hand, are closer to the local constituencies, and customize policy to the local environment. If we apply this pattern to the IT environment, enterprise architecture groups hold the federal role, and application groups, the state role.

Given the size, scale, and scope of the union – or the corporation – if federal government or enterprise architecture groups attempted to supervise all local activities, it would be buried under more bureaucracy and inefficiency than it already is. Likewise, if states or application groups were to govern totally independent of the federal/enterprise government, interstate/enterprise-wide programs would be more difficult to pull off, no benefits would accrue to the union or organization as a whole, and there could be a lack of consistency in the political and business environment that would negatively impact the whole.

How then is this problem solved in our governmental system? The federal legislature has developed policies and regulations regarding, for example, the safe transportation of petroleum, natural gas, and other hazardous materials. There is a minimum or core set of policies with which the states must comply, and other, more stringent or prescriptive policies and regulations that states adopt optionally. States must obtain annual certifications to show that their policies and actions comply with the core federal regulations. In addition, states are eligible for reimbursement of up to 50% of their pipeline safety expenses based on the extent to which they adopted the federal policies as well as the optional policies, and their performance and effectiveness. In other words, the federal government tells the state, "You must do at least this much. Anything further is at your discretion, but I will come back later and measure you."

Using this model, enterprise groups are challenged with developing company-wide policies, regulations and protocols. Application groups must comply, but have autonomy beyond that basic compliance. Our example shows how a combination of legal enforcement and monetary incentives can create an effective governance model without stifling the freedom and autonomy of local governments, and is the power we called "clout" in earlier sections of this article. We have observed that this blended approach is missing in many corporate structures. Enterprise architecture groups try to wield the stick without having appropriate "clout", application groups thumb their noses at those efforts, and the struggle ends in all too familiar outcomes. If, however, the balance of power in IT organizations were shifted to one following the Federal vs. State pattern, it would foster a practical beginning to the implementation of sustainable governance mechanisms.

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