

Thoughts

A Capco white paper

Successful IT infrastructure – it's all in the planning and the architecting and the design

On the journey from where the business is today to effective IT infrastructure support of where you need it to be tomorrow, there is often a minefield of misunderstandings and misalignments. This is exacerbated by common commercial situations, especially merger, where multiple sets of conflicting issues can come into play.



CAPCO

FORMING THE FUTURE OF FINANCE

Successful IT infrastructure – it’s all in the planning (and the architecting and the design)

By Maurizio Bradlaw, Olivier De Decker, Stephen O’Sullivan, and Mark Reeves, Partners

On the journey from where the business is today to effective IT infrastructure support of where you need it to be tomorrow, there is often a minefield of misunderstandings and misalignments. This is exacerbated by common commercial situations, especially merger, where multiple sets of conflicting issues can come into play. The answer begins with an accurate, agreed and actionable map through the maze.

Executive summary

IT Infrastructure - Do more with less and do it better

There is growing pressure on CIOs to reduce their costs while supporting operational improvements or business consolidation (trading desk and product consolidation, entity consolidation, Post Merger Integration - PMI). At the same time, developments within the IT infrastructure must be aligned with the institution’s business vision – the prime driver for change.

“Grow as you go” rather than forward planning has been the reality

Experience confirms that identifying exactly how the existing architecture should achieve full alignment with business needs is more easily said than done. The internal “technology landscape” will typically have developed (or more likely just expanded) over some considerable time. It will comprise multiple applications which provide the same basic functionality within discrete business-line silos. (A recurrent theme in designing a joint business and IT strategy is the lack of a common understanding of how business functions are linked to the underlying technology platform.)

These “grow as you go” architectures are costly to maintain and difficult to change, owing to the complex links and interdependencies between components. In PMI contexts especially, misalignment and redundancy within newly-merged entities’ architectures can have an immediate negative impact, as the promise of Day 1 gives way to the realization that hoped-for synergies remain out of reach.

For a successful tomorrow, define where you are today

The successful solution journey needs to start with a comprehensive assessment of the current architecture. Use this as the basis for a new target architecture, facilitating operational efficiency and progress towards the strategic objectives highlighted in the business vision.

Forward-thinking institutions contemplating M&A activity will do well to pre-assess the current state architecture landscapes of the merging entities. This will yield rapid insight into areas where synergies can be made and misleading assumptions can be avoided. For example, merger benefits are all too often identified by looking at the cost of running an application and stating this as the benefit to be derived – without taking account of the costs of archiving and decommissioning.

Spend sufficient time on analysis to produce meaningful results

To be optimally effective, the initial assessment and analysis clearly need to be completed as efficiently as possible. However, speed is not everything. The length of the engagement needs to be weighed against the results it produces in terms of rationalization (reducing the “applications stack”) and identifying opportunities for cost-effective archiving and decommissioning.

Equally, a process which does not produce both a defined target architecture and a practical and reliable roadmap for implementation will leave the job half-done.

IT infrastructure - so many questions

Getting it right with IT Infrastructure is a multi-dimensional challenge

The reality of today's global financial services environment creates a constant rolling stress test for IT infrastructure. The challenges are many and varied. The responses typically have to be developed in a context that lacks a clear view of the current state. And they have to be fit for purpose not just for today but for the evolving demands of the future. The future flexibility of IT systems (to accommodate likely change) is a crucial attribute to assess when defining target state.

Rationalize to reduce cost

Volumes and revenue in many firms are shifting dramatically across products and locations. These moves create demand to rationalize IT infrastructure in order to reduce transactional costs in some areas, while accommodating new products or market-entry strategies in others.

With budgets still constrained, CIOs must avoid "regret spend" in redundant or limited-life applications. Logically segregating architecture in accordance with business components makes it easier to isolate areas of change. It also allows institutions to more clearly define areas where they want to invest.

Market-driven and regulatory change results in mandatory spend. Firms will look to IT management to find ways to minimize the cost of change. Unless they systematically rationalize applications to eliminate duplication, their project portfolios will impact repeatedly upon the same application

IT infrastructure – so many questions

- "How can we create a clear, accessible and easily maintainable view of our systems architecture?"
- "What do our systems do? Where are they, and who uses them?"
- "How can we create a simpler, more cost effective and more flexible system architecture that will support our strategic goals?"
- "How can we derive synergies by grouping similar business functions into common central systems?"
- "How can we integrate the best applications from the legacy IT architectures into a single integrated architecture within a limited budget and without disrupting day-to-day business?"
- "Where are the quick wins that will realize rapid cost savings and risk reduction?"
- "How can we complete the transition from old to new platforms in a safe, secure and reliable way, without losing access to un-migrated historical data and essential audit trails?"
- "Which A&D tasks do we need to prioritize based on planned migrations and resource availability?"
- "How can we provide cost-effective central support for a global business without losing local autonomy?"
- "How can we address the challenges of 24x7 global IT operations?"

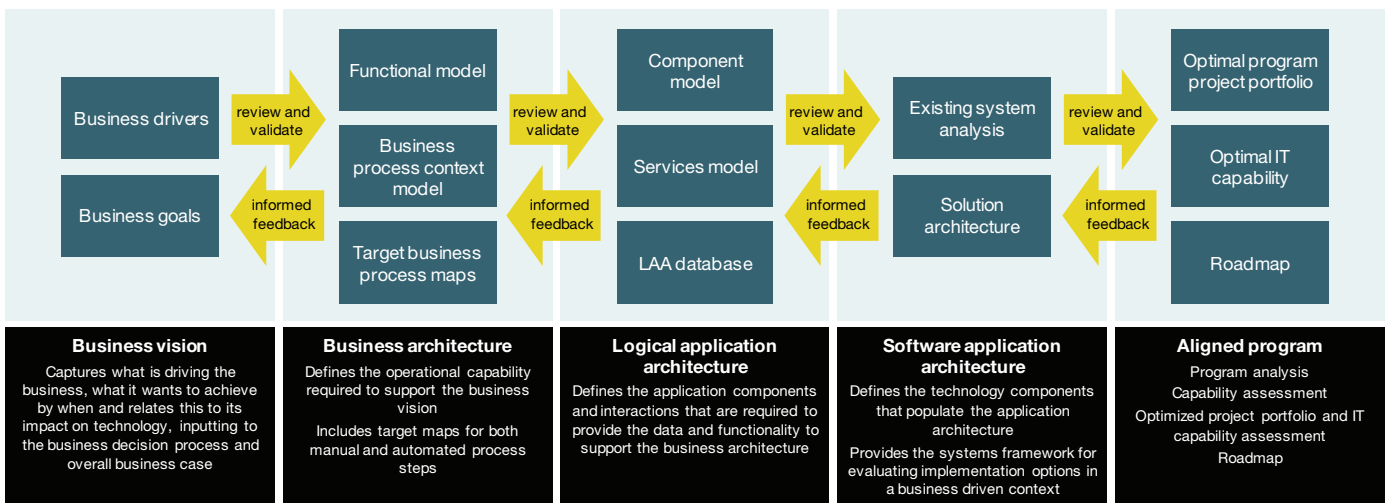


Figure 1. Architect, design and plan – Our approach

components. This results in more costly development budgets and longer implementation timelines than would otherwise be the case.

The architecture must be aligned with the vision

Architectural alignment with the business vision is therefore key. But it is an often overlooked reality that to make alignment with business vision achievable, the vision itself must be fully understood. This needs to be more than a high level picture. There needs to be clarity of detail in terms of goals, timescales, business imperatives and key success metrics. Equally, business leaders need to understand how their choices impact upon the cost and agility of the IT platform. Often, the **de facto** separate parts of the same organization lack the common language and framework necessary to allow business and IT to develop a joint vision.

And the vision must be accessible and actionable

The business vision therefore needs to be translated into an easily accessible form, rather than existing only in business leaders' heads or in confidential strategy documents. A clear statement of business vision provides the optimum basis for effective solution architecture design and for ensuring that the resulting architecture is completely "fit for purpose".

Legacy architectures which have grown up over time become complex to manage and difficult to change. Complex links and interactions make these hard to eliminate other than through high-risk, high-budget "big bang" projects.

At the same time, there is little appetite for projects that are seen to have only technical benefit. A clearly understood and documented, logical architecture allows groups of business services to be migrated

progressively to a more agile infrastructure, delivering business-led projects alongside technical architecture "re-factoring".

Architect Design Plan - ADP - step-by-step

What is ADP?

ADP is a methodology, toolset and suite of blueprint patterns used to deliver architecture models and delivery plans (see figure 1 on page 4).

Applying ADP involves two major phases:

- **IT Architecture** – deriving the functional, logical application and software architecture models.
- **Road-mapping** – developing a roadmap of the key change projects, iteratively adjusting plans and architecture based upon results and priorities.

IT architecture

Defining the **IT Architecture** has to start with the **Business Vision** – capturing the factors that are really driving the business, what it wants to achieve by when, and relating the commercial framework and timescales to their impact on technology, inputting to the business decision process and the overall business case.

IT Architecture analysis helps to identify the impact of IT on the business model (strategic business priorities) and to clarify IT critical success factors.

Key stage - Current state assessment

Questions

- “How can we create a clear, accessible and easily maintainable view of our systems architecture?”
- “What do our systems do? Where are they, and who uses them?”

Situation

- Business complains about inflexible systems and slow speed of change
- No clear understanding of impact on IT of regulatory or business changes
- IT changes often slowed by lack of clear systems ownership
- Need to allocate IT costs to business units
- New business or IT manager needs to quickly become familiar with complex architecture

Complications

- No central list of systems; current architecture documentation is out of date or incomplete
- Key man dependency - knowledge of system interactions and dependencies held in heads of key IT resources
- Not clear which business units are using which platforms
- Applications used by multiple asset classes or business units

Answer

- Use ADP tools and techniques to analyze existing architecture
- (Use Capco Architecture Explorer as a central repository of systems, business functions, owners and interdependencies)
- Implement process to maintain and extend architecture repository

From this, the **Business Architecture** is identified – creating a business-centric view by defining the operational capability required to support the business vision. This includes target maps for both manual and automated process steps.

The **Logical Application Architecture** can then be defined – mapping the application components and interactions which are required to provide the data and the functionality to support the Business Architecture. This exercise typically reveals both fragmentation and duplication.

The **Software Application Architecture** then defines the technology components which are needed to populate the application architecture. This provides the systems framework for evaluating implementation options in a business-driven context.

Road-mapping

The road-mapping process follows on from definition of the target architecture. It initially provides a clear view of the key steps - **Work Packages** - on the journey to successful IT infrastructure change.

Work Packages – are in effect a developed list of the main projects and/or sub-projects required to realize the change vision. These may include current - ‘in-flight’ - projects, originating from earlier project initiatives and having a degree of impact on the delivery of the Business vision.

Once the work packages are clearly understood and logged, a **Roadmap** is created. Within the Roadmap process, the benefits, costs and timescales of each work package are assessed. Dependencies are accommodated and an overall Roadmap is developed.

The Roadmap focuses on base-lining a set of project building blocks. It clearly documents their constituent parts in terms of resource requirements, duration, benefit profiles and cost.

These project building blocks are then used to create planning scenarios, each with a different potential focus.

One set of scenarios could be:

- Equal spend across project lifetime (e.g., £4m per year over 3 years)
- Strengthen platform first, introduce new product-related projects later
- Quick break-even with no spending constraints

These scenarios produce different dashboards and resourcing profiles, which allow Senior Management to see Internal Return Rate - IRR, Net Present Value - NPV, total cost, spend year-by-year, etc., for the overall portfolio, thus allowing informed comparison of the different options for the way forward.

Tooling

We have developed proprietary tools - **Architecture Explorer** and the **Roadmap Program Planning Tool** - to represent the Architecture Landscape and the Roadmap. These tools are available to our clients post-engagement and are described briefly below:

Architecture Explorer – all of the components of the architecture are captured in the Architecture Explorer tool to allow the construction of a multi-layered model, detailing key inter-relationships between components of the model.

Key stage - Architecture rationalization

Questions

- “How can we create a simpler, more cost effective and more flexible system architecture that will support our strategic goals?”
- “How can we derive synergies by grouping similar business functions into common central systems?”

Situation

- Business believes IT is inflexible and slow to respond
- Need to reduce IT support and development costs
- Need rapid IT response to changing business or regulatory environment
- Short term tactical fixes are delaying achievement of strategic business goals
- Duplication of functionality in different systems

Complications

- Legacy systems are difficult to enhance and expensive to support
- IT is dependent on key resources to support legacy systems
- Legacy systems are deeply embedded in architecture, with many links to and from other platforms
- Geographic and cultural differences have led to localized business units and IT teams

Answer

- Analyze existing architecture using ADP tools and techniques
- Identify applications that can be retired, replaced or simplified
- Identify functional gaps where current systems may need to be upgraded
- Define rationalization projects and create an architecture rationalization roadmap

Key stage - Post-merger integration

Questions

- “How can we integrate the best applications from the legacy IT architectures into a single integrated architecture within a limited budget and without disrupting day-to-day business?”
- “Where are the quick wins that will realize rapid cost savings and risk reduction?”

Situation

- Merged business does not want to carry two sets of IT costs and use two sets of systems
- Merged business units want to operate on a single common infrastructure
- Business wants to merge IT architectures to realize benefits of scale
- Business wants to combine “best of breed” platforms from two different stacks
- Business needs to demonstrate that promised cost savings are being delivered

Complication

- Merged business inherits two legacy IT architectures with functional redundancy
- Duplication of business functions on incompatible platforms
- Legal/regulatory requirements to merge client data, pricing sources etc.
- Different cultures, different organizational structures and different IT standards
- Post-merger instability leads to loss of key resources and knowledge

Answer

- Analyze existing architectures using ADP tools and techniques
- Define a target architecture that combines “best of breed” platforms
- Build business case to secure funding for transition and migration projects
- Mobilize transition and migration projects

Roadmap Program Planning Tool – allows “what if” analysis, assessing alternative implementation scenarios to ensure that the roadmap is optimized for business priority and delivery constraints.

So why apply ADP? Cooperation, collaboration, flexibility and future-proofing

ADP allows business stakeholders and IT management to work together to jointly develop the target state IT architecture and delivery plans. The flexibility of the tools used in scenario analysis means that the team can review priorities and see how different business and budget decisions impact upon the implementation roadmap business case. The resulting plans and target state models provide not only a vision of the target architecture, but also the tools to adjust this vision as circumstances inevitably change.

The process leaves IT and business leaders with a set of artifacts that help identify the impact of changes in business drivers on the technology roadmap. In this way, impact on plans can be understood and accommodated when business conditions or key assumptions change.

ADP in action

In our direct and successful experience supporting clients, ADP has been proven to work in a range of financial services environments – these include retail and corporate banking, investment banking, and asset management. At typical - and crucial - key

stages, ADP helps provide a way through the maze to optimal and sustainable IT infrastructure change.

Summary - The methodology supports the people (not vice versa)

Methodology, tooling and templates are a critical part of ADP. But methodology alone doesn't deliver successful projects – people do. Look for an ADP partner who can offer seasoned professionals, preferably financial services sector specialists. They should be determined to work with you to deliver tangible, sustainable results, quickly. After all, success is about seeing theory through into practice.

Differentiation is also key, since no two businesses and no two situations will ever be identical. Use workshops and review sessions to develop “straw man” models so that time is spent understanding what is unique about your business, rather than documenting standard functions and requirements. One size never fits all!

The destination is important - So is the journey

Finally, bear in mind that the ADP journey can be as productive and informative as the end destination is useful. One of the key benefits of ADP (in addition to the final outputs) lies in the process itself.

Many firms find that the interaction generated between their business and technology staff and

Key stage - Archiving and decommissioning

Questions

- “How can we complete the transition from old to new platforms in a safe, secure and reliable way, without losing access to un-migrated historical data and essential audit trails?”
- “Which A&D tasks do we need to prioritize based on planned migrations and resource availability?”

Situation

- Business concerned about business risk of moving off legacy platforms
- Legacy platforms retained to support historical enquiries
- Retaining legacy databases means running expensive hardware
- Benefits of new platforms not being realized

Complications

- No clear ownership of data on legacy platform
- It is not cost-effective to migrate all data from old platforms to new platforms
- Replacement application may not exist for some retired business units
- Businesses have no incentive to define A&D requirements for retired systems
- Expertise in legacy systems may be lost before they can be decommissioned

Answer

- Use ADP tools and techniques to develop archiving and decommissioning plan
- Forward planning to define standard archiving solutions
- Archive unmigrated data to off-line storage systems
- Agree SLAs for access to archived data, to address business users' concerns, internal audit queries and compliance requests

management leads to closer ties and greater understanding. This in turn leads to an enduring improvement in the business/IT partnership, as well as the creation of a sustainable framework in which to identify how technology can most effectively support the achievement of your business vision. So ADP doesn't simply help to deliver an aligned and optimized IT infrastructure, it contributes to creating a more coherent and cooperative culture for the people who will be using the technology.

Key stage - Global operating model / internationalization

Questions

- “How can we provide cost-effective central support for a global business without losing local autonomy?”
- “How can we address the challenges of 24x7 global IT operations?”

Situation

- Different offices running different and incompatible architectures
- Poor response from central IT has led to local development and sourcing
- Difficult to integrate new acquisitions into central MI infrastructure
- Duplication of functionality in different locations
- Local offices developing own solutions to common business problems

Complications

- Business models and reporting lines are different in different locations
- Local tax, regulatory and reporting requirements can be complex
- Many financial products have local variations
- Few package vendors offer truly global support
- Time zone challenges – addressing problems of 24x7 IT ops and support

Answer

- Use ADP tools and techniques to develop a global architecture model with regional and local variations
- Highlight candidate systems and business functions for regional hubs
- Implement regional hubs to centralize operations, treasury and MI business units



Maurizio Bradlaw is co-lead for Capco's Capital Markets domain for Europe. He has extensive experience in delivering business and technology solutions to investment and corporate sectors of universal banks, as well as to market infrastructure

players. Maurizio excels at acquiring and delivering projects with expertise that covers strategy definition, operational transformation, through to IT realization. He combines solid front to back office and risk management knowledge with excellent technical and managerial skills. He has some twenty years' experience in the Financial Services industry, and has worked for sell-side, buy-side, corporate and in management consulting.

maurizio.bradlaw@capco.com



Stephen O'Sullivan is a Capco Partner with responsibility for business transformation and strategy. He has 16 years experience in Financial Services, having worked closely with the majority of the global investment banks during his career to date. Prior to

joining Capco, Stephen was a Partner in Accenture's UK Capital Markets practice, where he also had oversight of the UK risk and finance business. During this time, he helped clients successfully adapt to new regulatory regimes such as Basel II and MiFID; to design, build and operate new business models to gain competitive advantage; and to successfully merge operations following acquisition. Stephen's current area of focus is business transformation.

stephen.osullivan@capco.com



Olivier De Decker is a Partner in Capco's Paris office. Olivier specializes in aligning business, operations and IT in the context of large transformation programs. He combines extensive experience in defining business & functional architectures as

well as in delivering large-scale projects. Olivier has over 15 years of experience in the Financial Services industry, both in professional services and in the banking sector.

olivier.dedecker@capco.com



Mark Reeves is a Capco Partner and has almost 20 years experience in the implementation of change across the banking sector. He has worked for leading players in industry and in consulting at Board level. Mark has a proven understanding of analyzing

and identifying primary markets for the development of successful sales and marketing strategies, coupled with experience providing advice and assistance around the strategic visioning, process redesign, application architecture, build and implementation of integration and efficiency enhancement initiatives and technologies – leading to significant cost savings and an increase in profits.

mark.reeves@capco.com

Thanks also to Kaajal Parekh for significant insight and analysis in preparing this document.

About Capco

Capco, a global business and technology consultancy dedicated solely to the financial services industry. We work in this sector only. We recognize and understand the opportunities and the challenges our clients face. We apply focus, insight and determination to consulting, technology and transformation. We overcome complexity. We remove obstacles. We help our clients realize their potential for increasing success. The value we create, the insights we contribute and the skills of our people mean we are more than consultants. We are a true participant in the industry. Together with our clients we are forming the future of finance. We serve our clients from offices in leading financial centers across North America and Europe.

Worldwide offices

Amsterdam • Antwerp • Bangalore • Chicago • Frankfurt • Geneva • London
New York • Paris • San Francisco • Toronto • Washington DC • Zürich

To learn more, contact us at +1 212 284 8600 (+44 20 7426 1500 from outside the United States or Canada),
or visit our website at CAPCO.COM.