Part 2: Implementing Business Information Management using DID

8. Creating Information System Strategy

8.1. Information System Strategy

If it is not clear by now, let's make things crystalline; BIMC (that's you, the practitioner) will need to be closely involved with creation of the Information System Strategy (IS strategy). When the BIM Board/ ISSC (IS Steering Committee) mandates an Information Strategy it should be obvious that the enterprise will be needing BIM good practices, and therefore DID, or something similar to draw up the strategy. It is highly likely that you, the BIMC, is needed to support the BIM Board/ ISSC and coordinate the creation of the strategy and most likely, carry out the actual writing. .

The Information Systems strategy covers ALL aspects of IT, not just the technology. An IS strategic planning exercise typically comprises five phases, all of which to a greater or lesser extent require BIM input depending on data strategy, digital transformation, or just getting information properly managed. They are:

1. scoping study
2. strategy study
3. strategy definition
4. implementation planning
5. monitoring, tuning and review.

We use the DID guidance to create the information system strategy.

8.2 Scoping and studying strategy

The study defines the breadth of the strategic planning exercise and identifies any issues which must be addressed before the strategy study can start. The study identifies how many strategies the organization needs; yes, there may be more than one needed. A business transformation, a data, a knowledge, an IT even a relocation strategy.

The strategy study takes account of existing business reports, strategies, policies and business plans. From these the planning team derives a series of business objectives and priorities. Current business operations are usually modelled in some detail, including details of the data/information requirements. This activity should involve the IT Services Departments and provides insight into how IT can be best utilized. A detailed appraisal of current application services and costs is also included.

From this analysis, a series of options or scenarios are identified. These are then evaluated in terms of the potential costs and benefits to the business. Business Objectives and Business Priorities documents are produced during this phase. These documents are of particular importance for subsequent planning and management purposes. The documents detail what the goals are and provide a weighted priority for each objective.

We will now explain the five steps for applying the DID model in the strategy study:

1. Step 1. Understand the issue at hand: you can use table 8.1 to give you an idea of the types of key topics in each domain and using the perspectives to gain insight. Keep in mind what we mentioned earlier that you need to distinguish between green and brown or (more likely) hybrid situations and consider how your thoughts correspond to the Drivers.

Plan	DO	Check	Act
1.1 Business Governance	2.1 Business Strategy	3.1 Business Improvement	4.1 Business Operation
• Responsibilities and policy making • Business change governance and P3O • Standardization policies • Knowledge management	• Enterprise vision for BIM • Business architecture • Agenda of strategic themes • Portfolio of Improvements	• Business requirements • Description of information service offerings • Testing • Training and documentation	• User support • Service-desk • Communication and training • Authorization
1.2 Data Governance	2.2 Data Strategy	3.2 Data Improvement	4.2 Data Operation
• Data exchange policies and contracts • Data governance committee • Master data management policies • Identity and access policies	• Information/data architecture • Information service lifecycle • Key Performance Indicator (KPI) models • Master Data Management (MDM) and models	• Data requirements • Enterprise data environment • The cost of information quality • Automated and non-automated information	• Master data management • Implementation quality plans • Data quality • Operating the data environment
1.3 Service Governance	2.3 Service Strategy	3.3 Service Improvement	4.3 Service Operation
• External executive relationships • Sourcing policy • Service portfolio policies • Service Integration	• Service portfolio management • Sourcing strategy • Service architecture • Service Integration	• Build a service organization • Service requirements • Assembly • Service validation	• Service support procedures • Service measurement • Service monitoring • Operational supplier management
1.4 Technology governance	2.4 Technology Strategy	3.4 Technology Improvement	4.4Technology Operation
• Technology policies • Guidance on technology related topics • Shared technology • Technology driving change	• Importance of the technology strategy • Technology integration • Information technology infrastructure • Joint procurement	• Deployment • Non-functional requirements • Testing • Technology watch	• Availability • Partner and supply chain liaison • Suppliers • Incident management

Table 8.1: Topics within the DID framework[21]

[21] Remember the summary on the DID guidance at the beginning of the book. Within the DID model one can find the PDCA cycle on different levels, just like Matryoshka dolls. Mini PDCA cycles exist everywhere On a different level processes in each domain also should be improved using the same approach.

Step 2. Ensure comprehensive understanding of the business drivers in relation to the business information/data drivers. Take a look at figure 8.1 to gain an idea of where the actions lie in the context of the DID model. Let's assume that you are unfortunate and that your enterprise simply wants to transform every manual process that has existed since 1776 and build a digital world. That is your Mission; and now you must identify every possible capability that you will need in order to fulfil that Mission. Hopefully 'burning witches' is no longer a service that comes under **'Need'**, or at least if it does, no one other than the odd misogynist or evangelical actually attributes **'Value'**.

Every service that is Needed and Valued needs to be documented in detail, data sources, how the data is processed, what the outcomes of the processing are, who does the processing, the storage, legal and security issues (now you need to consider Governance and Policy as well), and you need to know what needs to be done to identify new services, replace existing services or simply improve services that can continue to exist in their present form.

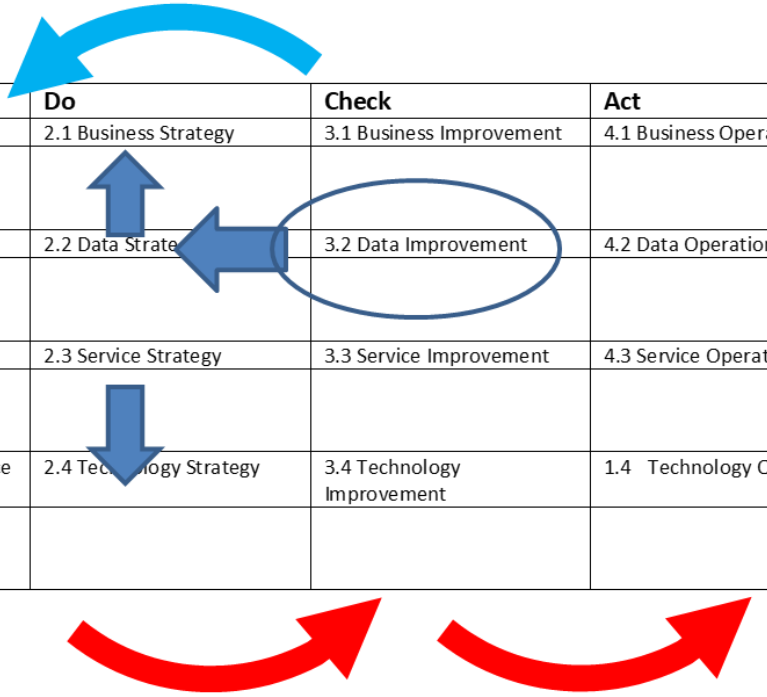
Step 3. Understand the perspectives from which you should approach the issues. Again, look at table 8.1. and look at figure 8.1, using the DID model.

Figure 8.1 Using the DID model

Using table 8.1, an issue belonging to **'3.2, Data Improvement'** principally will be examined from an information/data perspective; but make sure you consider business (need and value), service (new, replaced, 'as-is' or improved) and technology (do we need new/other tech?).

The more observant among readers will have noticed that we follow the PDCA cycle; this is not accidental. Placing guidance in the widely accepted Deming cycle for continuous improvement makes more sense than attempting to create some fatuous and useless model for improvement that improves precisely nothing that is already in existence.

Table 8.2 Using the DID model and start with 3.2 Data improvement



Plan	Do	Check	Act
1.1 Business Governance	2.1 Business Strategy	3.1 Business Improvement	4.1 Business Operation
1.2 Data Governance	2.2 Data Strate	3.2 Data Improvement	4.2 Data Operation
1.3 Service Governance	2.3 Service Strategy	3.3 Service Improvement	4.3 Service Operation
1.4 Technology governance	2.4 Tec ogy Strategy	3.4 Technology Improvement	1.4 Technology Operation

Step 4. Find your issue on the model—ideally one that does actually impact your enterprise) and start following counterclockwise (or, depending on the vagaries of your enterprise and where you were, by necessity, compelled to begin your assessment, clockwise) to PLAN-DO-CHECK-ACT the several strands to analyze the issues and understand the changes to be made. See table 8.2.

Figure 8.2: Analyze strategy domain

Step 5. Following the analysis, examine how the drivers are impacted (Figure 8.2) and identify where additional capabilities or investment is necessary.

To a large extent, that follows the steps taken by well-educated business/systems analysts, i.e., those that look at data and information. The emphasis for BIMC is on the data and how it is needed and used; sadly, that emphasis has been overlooked for many years.

Case study BIMC and IT network infrastructure

Introduction

IT enables enterprises to globalize their operations and achieve domestic and foreign revenues and profits by the coordination of similar value chain activities (such as procurement or production in LOB) across different geographic locations. These activities impact the management of business information to make decisions related to the activities and the management of knowledge and resources necessary to perform the activities. Overall, they impact utilization of capabilities across the enterprise and will impact the framing of board decisions about information and data.

Information management decisions at board level can have consequences for IT deep in their operation. And *vice versa*, choices made at the basic level of IT operations can limit or strengthen strategic decisions made at board level.

An effective network infrastructure enables enterprises to utilize global and local systems to communicate knowledge through different levels of the enterprise and provides an infrastructure to share, distribute and absorb knowledge across geographic and functional boundaries, to coordinate activities and develop strategic opportunities.

The issues

A multi-national enterprise with several subsidiaries, maintained connectivity through a single network provider. Since they operated in many countries, these subsidiaries had to reconcile different services from different service providers. To facilitate reconciliation, the multi-national had outsourced the entire global WAN to a single large carrier, that was then required to patch together the most cost-effective offerings from regional providers. Cost savings and a belief that information security would be improved were basic governance principles that brought the enterprise to their choice to outsource.

Contract renewal
Imminent expiry of existing contracts caused the Purchasing department and IT contract management to decide that because of technology changes and price decreases in the market, it was necessary and worthwhile to initiate a new tender. IT network infrastructure being incredibly sexy and entertaining, meant that no one in the business areas had any interest in looking at the tender specifications; IT and Purchasing therefore took charge of the tender process and engaged architects from different subsidiaries to assist with contacting the market and requesting expressions of interest and preparation of information that would form the ITT (Invitation to Tender).Over coffee with one of the involved architects an information manager from centralized BIMC became aware of the activities, while discussing an unrelated subject.

BIMC
At the same as the ITT BIMC (central and local) were working together with the different LOB (and of course the IT department) to formulate a new data strategy for the next five years, involving the use of new technology platforms together with business analytics and artificial intelligence. These innovations were not an issue and were not considered a risk to the enterprise business model. BIMC teams were also aware of another development within the enterprise which was intended to lead to new business opportunities and would significantly influence the enterprise business model.

BIMC took responsibility for central oversight of the new technology platform, the data strategy, new business development and coordination of the networks refresh and created a program plan that treated each of the projects both individually and collectively to ensure coherence.

The decision was taken because the Internet is untrusted WAN transport, using it as part of a corporate backbone requires significant planning to secure dynamic connectivity. In many cases, retail and financial institutions have deployed separate networks with local internet exits to offload certain traffic, such as guest Wi-Fi. This is done to preserve bandwidth for the corporate branch and also to segment guest traffic for security and compliance reasons. Pending legal decisions and recent experiences with data leaks that had drawn attention to privacy and cybersecurity at board level and without BIMC attention, would have threatened the focus on improvement and innovation.

Improvement
Tendering for significant technology upgrades without knowledge of new business developments could hurt the enterprise in the short and long term. Hence, it became essential for BIMC to make sure that the data vision and strategy was in place before the

tender process would start. BIMC escalated the results of their investigations and the CIO intervened, paused the tender and agreed the program plan. Priority was set to make sure the data vision and strategy was formulated. The strategy would frame the structuring and choices made by IT about IT network infrastructure allowing contract management and the purchasing department to progress their work. And of course, governance was improved by the board becoming aware of the issues and making sure policy existed to cover future technology planning.

8.3 Strategy definition

During the strategy definition phase, the options chosen are developed into an outline portfolio of work. Estimates are made of the resources required and the business benefits that will be the result. This includes an evaluation of how the existing infrastructure will migrate to meet the new requirements.
Management and technical policies are formalized and documented at this time. However, additional work may be required subsequently before policies are finalized.

8.3.1 Using the capabilities

A practitioner will use DID to execute and govern planning and development of strategic information services and data needs, strategize portfolio needs and plans, decide on development and programming methods and prevent a framework Armageddon[22].
To achieve this, you must analyze your current environment, use the drivers to identify what you need to transform and use strategic processes to provide context for business service design based on data needs.

The IS Strategy Plan should provide clear direction on the services IT will supply to meet the needs of the business for the foreseeable future. The plan considers the business conditions and IS conditions and how these will shape the business demands for information systems. Current and future business conditions are considered in terms of how they may affect the business requirements for IS. This means quantifying the likelihood of changes in business priorities and methods of working in the enterprise. Similarly, financial and other resource constraints must be defined. Much of this information is available from the business strategy plans. However, the implications for IS need careful evaluation.

Current IS conditions, including existing plans, require careful consideration. An understanding of the current position provides valuable information on the constraints placed on existing and future strategies.

The planning process produces options for future IS strategies. These options must be examined to identify the business and the IS implications of each scenario considered.

[22] See figure 3.2

From these analyses, organizations can reach decisions as to what is expected from the IT Directorate during the planned period. With final management agreement the planning team can convert the decisions into an outline plan for progressing any agreed strategies. Many important decisions are made as a result of the IS strategy study. It is important to document the basis for these decisions and to make this information available to managers and planners responsible for subsequently implementing the plan. The role of tactical planning is to determine how the IT Directorate will supply the systems and services to meet the business demands identified by the strategy study.

As we mentioned, enterprise capabilities differ from industry sector to sector and must be identified in plans and documented. Supporting generic information/data capabilities can then be placed in context. You must now be very specific about the requirements of your enterprise. The enterprise strategy must be consulted and strategic issues identified.

8.4 Implementation planning and monitoring

The decisions and supporting documentation from strategic planning are passed to the tactical planning teams who are responsible for developing programs into detailed implementation project proposals.
A plan must be drawn up for the required work program. This plan must take into account lead times for procurement, resource limitations and interdependencies. Individual project profiles will take account of resources, funding and benefits. In the DID framework you will roll forward again going from the Strategy domain, to the Improvement domain into the Operations domain as shown in figure 8.3.

Figure 8.3 Implementation planning and monitoring

A proposed program of work must be produced, based on a realistic assessment of what is possible given the current priorities and constraints. Where conflicts arise between business priorities and the program order, the reasons for these must be highlighted to senior management. Where possible these should be accompanied by ideas for overcoming such problems and their impact on the budget and timescales.

8.4.1. Monitoring, tuning and review

This is a continuing activity whose objectives are to ensure that the strategy delivers the expected business benefits.
This can be considered as both an Improvement activity (in the sense that where data needs are not being met, you can initiate activities to fix the problem before it impacts business) and an Operation activity because problems might not be spotted until services are being used in anger.

8.4.2 IT infrastructure planning

Business and technology are in a constant state of change. The rate of technological advancement in the computer and telecommunications industries is ridiculous for hardware. For software this is not the case, in fact the better the hardware the better bad software still runs on it. This rapidly changes the investment options available and poses difficulties for the IS strategy planner. By choosing inappropriate technologies for hardware, software and

network services in the long term the IT Services Planner could significantly constrain the enterprise growth, and technologies may be difficult to change. The choices materially influence how we use data; the practitioner needs to be aware of technology, developments and potential for use. Think about AI for example; the potential for loss is as large as the potential for gain. You can and should influence selections though you are not responsible for procurement.

IS strategy planning must address the IT needs of the organization for the strategic planning period. This is an important consideration for the business.
The ideal situation is where the application systems and supporting data can be supported on a wide range of technology without significant change or dependence on specific systems.

Infrastructure planning transforms the program, or programs that emerge from the strategic planning exercise, to add new or to enhance existing IT services in support of changing business needs, into a set of projects. The process makes a more detailed assessment of the actual resources available and current constraints and risks. The emphasis is on what will be delivered and the infrastructure changes necessary to support these deliverables.

The limitations on resources must be resolved during tactical planning. These limitations may be due to current commitments, such as maintaining existing services and existing development projects, or financial constraints.
Final arbitration of what is to be achieved will be decided by the business priorities and data needs established during strategic planning.

8.5 What we do in the shadows

Not just a great movie, but a good description for BIMC. At every stage in the strategy formulation, if you are not involved in ensuring that the right information is being made available at the right time to ensure your enterprise will prosper or your government department will properly serve the citizen, who is?

If you know the answer and responsibilities are defined, documented and clear, then everything will be wonderful. Though let’s be realistic, much of the detailed nuances and improvements do exist in the shadows where most people have either forgotten to pay attention or simply assumed someone else (anyone else) is responsible.

Having covered the issues of good foundations, execution and the myriad capabilities you would hope to find in the enterprise, we can now consider how BIMC should work. If you think that having wall to wall planning bodies and resources devoted to implementing back-breaking processes is what is needed, think again. Many activities will in the modern world be managed through intranets and internets and it is likely that many roles and responsibilities for capabilities will be vested in only a select few. That creates two problems; you are going to be busy and you will need to convince the wider world that they need BIM.