

White Paper

February 2005

Planning for Value

Artemis Solutions for IT
Management

Written by: Tim Jennings

Published February 2005
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About Butler Group

Butler Group is the premier European provider of Information Technology research, analysis, and advice. Founded in 1990 by Martin Butler, the Company is respected throughout the business world for the impartiality and incisiveness of its research and opinion. Butler Group provides a comprehensive portfolio of Research, Events, and Subscription Services, catering for the specialised needs of all levels of executive, from IT professionals to senior managers and board directors.

► IT MEASUREMENT, PLANNING, AND CONTROL

The Issues For many Chief Information Officers (CIOs) a dichotomy exists between the role that is now demanded for IT within their organisation, and the reality of their IT operations.

IT is rapidly maturing as a discipline, and as with any other business function, its executives are required to demonstrate its value to the organisation, to keep its costs under firm control, to maintain the effective running of its operations, and to ensure that any potential risk to the organisation is assessed and minimised.

The focus of the CIO is therefore turning away from the detail of technology such as server availability, network performance, and application functionality, towards more strategic issues such as IT budgeting and investment planning, governance, service quality and availability, IT risk management, and offshore development.

...there is still a distinct and substantial separation between the business, financial, and technology views of the IT department.

However, in contrast with other business functions, there has been a distinct lack of both tools and methodologies to assist in adopting this strategic view (represented in

Figure 1). The dichotomy for CIOs is therefore that whilst they are keen to move their IT departments up the organisational value chain, and to increase their own contribution to the business, there is still a distinct and substantial separation between the business, financial, and technology views of the IT department.

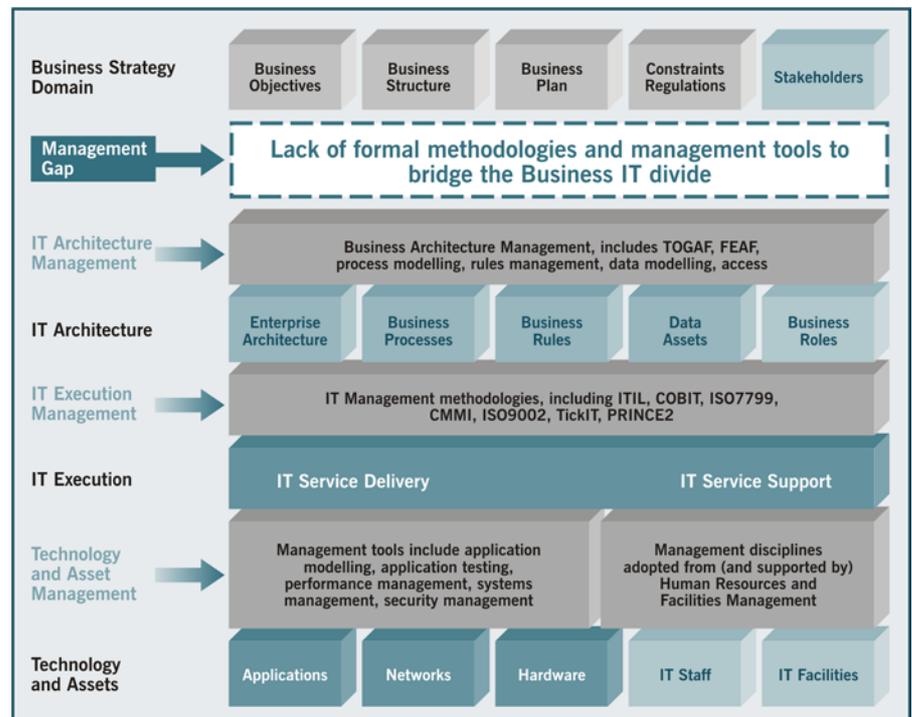


Figure 1: The IT and Business Management Environment

Given the dependency of modern business on IT, it may seem unnecessary to assert that when deployed astutely, IT makes a significant contribution to both the efficiency and the competitive position of an organisation, but for many business leaders the use of IT has been a double-edged sword.

They recognise the potential of IT systems in many areas, but believe that this potential comes with a lack of rigour in measurement, and with a substantial risk of failure. It is therefore no surprise that IT investment is treated with a large degree of scepticism, and that the CIO is often relegated to the role of technology caretaker.

The Process It is evident that realising value from IT requires the same degree of planning, visibility, measurement, and control of investment that would be applied in any other business area, be it product research, asset management, business infrastructure, or corporate development. Board-level executives are now seeking to have these same disciplines applied to the IT function, but it is clear

...realising value from IT requires the same degree of planning, visibility, measurement, and control of investment that would be applied in any other business area...

that this will require a substantial cultural change, and real progress in bridging the divide between business and IT perspectives.

Butler Group believes that deploying an IT investment planning and control system, and adopting a

formal methodology to manage the associated processes, is the single most effective step that an organisation can take to improve the accuracy and validity of its IT investment strategy.

The Artemis Solution In this White Paper, we explain how an IT investment planning and control system such as Artemis IT Management Solution (Artemis ITM), supports the strategic requirements of the CIO in IT planning, IT budgeting, IT governance, risk management, enterprise architecture programmes, IT service management, software quality, and interfacing with offshore development.

► STRATEGIC PLANNING

The Issues For many organisations, the IT investment cycle has been severely hampered by the lack of any formal strategic approach. The result is that project and asset investments are often prioritised according to the available resource, rather than taking into account the business goals of the organisation. Factors such as immediate demand, internal politics, or even the personal agenda of the individual also contribute to sub-optimal project decision making.

For many organisations, the IT investment cycle has been severely hampered by the lack of any formal strategic approach.

The consequences of planning failures are several and compound: as the short-term outlook changes, ongoing projects are highly

susceptible to time and cost overruns; new projects that might offer greater benefits cannot be started; and the quality of support and maintenance work is blighted by resource conflicts.

Even where some formal planning does take place, it is often done using an inflexible spreadsheet or bespoke database application which whilst listing potential projects, provides no visibility into the availability of resource or the current workload.

The Process Effective strategic planning must take into account the aggregate demand on the IT function, including new projects, maintenance and upgrades, IT operations, and support. This must be factored to the total resource available and the current programme of work.

The process begins with formal portfolio management, which allows the impartial consideration of all IT investment initiatives within the context of corporate strategic objectives.

Collecting project information into a structured portfolio provides a single source of information that then forms the basis for assessing the relative benefits, risks, and payback of projects, prioritising initiatives and gaining investment approval, and understanding, allocating, and optimising the available resource.

It is important to note that there is no such thing as an optimum portfolio, because this cannot be a static process. As the goals, requirements, and environment of the organisation change, the IT project portfolio must also be updated to reflect this. It is clearly necessary to strike a balance between this dynamic approach and the need for forward

As the goals, requirements, and environment of the organisation change, the IT project portfolio must also be updated to reflect this.

stability, and Butler Group therefore recommends that the portfolio should be recalculated and reviewed on a quarterly basis.

The Artemis Solution

Artemis ITM provides a comprehensive approach to IT strategic planning that helps organisations to rapidly capture existing IT projects, assets, and to digitise existing processes. Its IT initiative management and IT portfolio management capabilities work together to capture all forms of IT demand, including strategic projects, work requests, upgrades, and ongoing support, and to allow the organisation to rank and prioritise the investment and resource that is allocated to this demand.

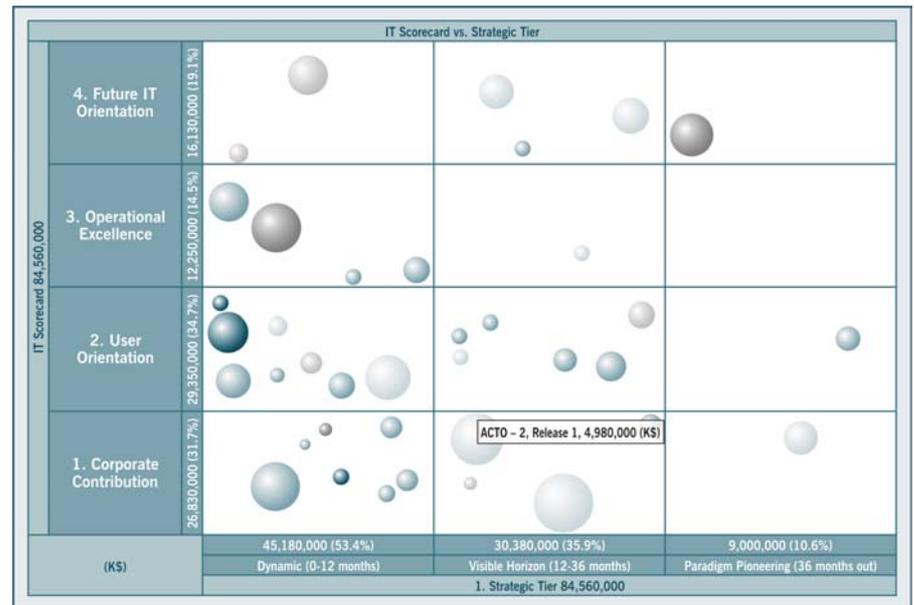


Figure 2: A Balanced Scorecard for the IT Function

Artemis addresses strategic planning by linking business goals to the IT portfolio, and to its delivery. This ensures that the execution of IT initiatives is fully tracked, and the resulting benefits linked back to the strategic objectives. By fully integrating a top-down strategy perspective with a bottom-up execution perspective, Artemis delivers a fully streamlined process.

A particular strength of the Artemis solution is its ability to provide multiple analyses of the IT portfolio, including graphical views, showing factors such as project risk and reward, technology impact, and business value. It also allows 'what-if' simulations on the portfolio to help the organisation visualise the effects of differing levels of resource and capital investment, and can support the use of a balanced scorecard as an IT management methodology (an example of which is shown in Figure 2).

► IT BUDGETING

The Issues Setting the IT budget is in too many cases a basically unstructured exercise, with a lack of recognised methodology, and no link to the strategic goals of the organisation. The outcome is often a proposed budget that bears very little relationship to business requirements and value. The extensive use of a spreadsheet as the primary budgeting tool exacerbates the situation and encourages the approach of merely applying a percentage change to the previous year's analysis.

Butler Group research has shown that over 60% of budget proposals have no project-related breakdown, and at best are only split by department or by technology category. This lack of fitness for purpose has two profound consequences. Firstly, the IT function loses its commitment to the budget, and perceives it as a hindrance rather than as a useful management tool. Secondly, the board becomes frustrated by the lack of forward visibility and is forced into a cautious approach to avoid budget overruns.

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At an operational level, there is a lack of sophistication in the review of cumulative expenditure against budget (which is often static), and it

is often difficult to make adjustments to project funding part way through the budget cycle, or to understand the impact of change. There is also scant attention given to the capacity of the IT function to deliver the initiatives that are budgeted for, again creating a mismatch between strategy, portfolio, and execution.

The Process Effective IT budgeting must relate the available funds to the expected returns, and should take into account not only the investment and resource requirements of all IT initiatives on a project by project basis, but also the capacity of the organisation to undertake that work. This process can be described as performance-based budgeting.

In large organisations, where funding from IT projects may come from different business units, and be sponsored by different project or programme offices, it is essential to be able to collect budget cost and resource data from all these constituents, and compose it into cross-departmental and cross-functional views.

Once basic assumptions are defined, the initial step is to construct a model of the desired budget to meet the strategic objectives. This can then be married to the total capacity of the IT function so that the preliminary budget can then be scaled accordingly (a process that can be iterative if fine tuning is required). Both business and IT functions should approve the agreed budget, which can then be viewed from any desired perspective, including by business unit, by project, or by strategic goal.

The Artemis Solution Artemis ITM offers a highly customisable, guided process for constructing a performance-based budget, which can be as simple or as sophisticated as required, to fit the needs of the organisation. The required budget can be built up on a project and asset basis, and then funds can be allocated from different departments or other funding sources.

The proposed portfolio can then be scaled to reflect the budget available, and go through an arbitration phase prior to final publication. The budget plan can then be transformed into an IT operational plan, and achievement and expenditure against budget can be reviewed on a continuous basis, with budgets being dynamically reallocated if required, to meet changing priorities. Artemis ITM also maintains a perspective over the life of multi-year projects, so that any changes are reflected into future periods.

The considerable benefit to the organisation of this methodology is that it can now align its IT investments to the expected return, and provide visibility into the IT budget in business terms. Combined with the flexibility of the solution, this is the key to making the link between strategy and execution.

► IT GOVERNANCE

The Issues Whilst many IT functions now have a clearer understanding of the need for IT governance, the concept is poorly defined, and it is often difficult for CIOs and IT Managers to know where to start. The consequence is that governance often becomes purely a policing function, focusing on control and cost efficiency, without any focus on the management of value and the alignment of IT initiatives with business strategy.

Initiatives such as COBIT (see following section) provide a checklist of areas that should be covered, but are less strong on process, and are therefore not an out-of-the-box answer to the IT governance problem. Other approaches take a top down-view of governance, focusing on decision-making processes and accountability, but fail to link this viewpoint to the execution of IT operations and initiatives.

Butler Group believes that IT governance must focus on issues of integrity, risk, compliance, performance, cost, and value, rather than purely on the management of hardware, software, and systems. Adopting this wider perspective requires full commitment and sponsorship from the senior management of the organisation, but often this is lacking due to poor communication and understanding at this level. The elements of IT governance are shown in Figure 3.

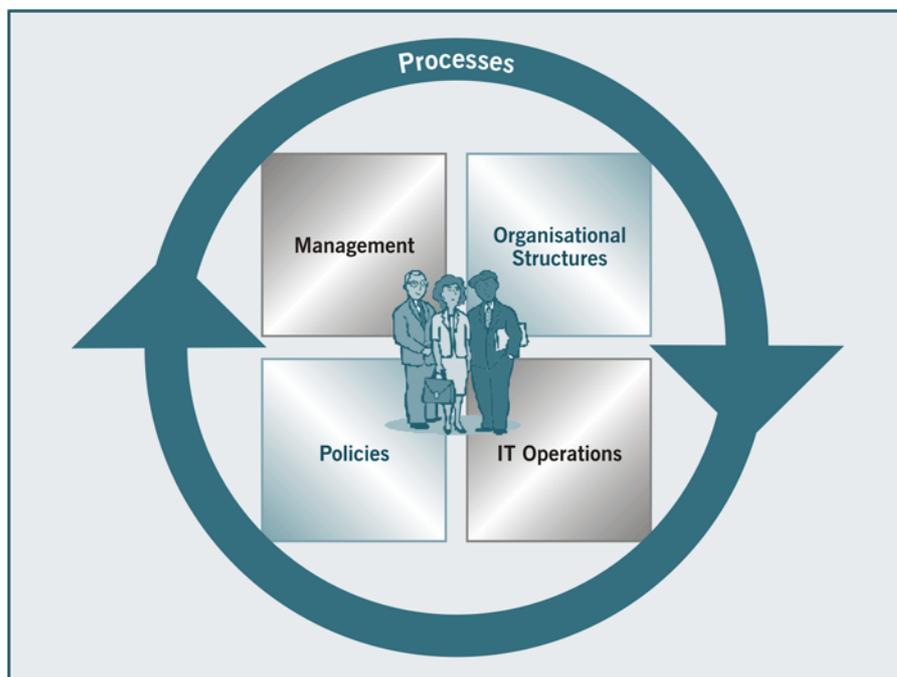


Figure 3: Elements of IT Governance

All too often, there is nothing that links the IT governance process with the creation of business value. It therefore becomes simply a tool for managing the IT department, rather than a framework to assist the business to get value from its IT investments.

The Process The IT governance process should assist the organisation to ensure that its IT department is successfully executing on the strategic IT plan, providing visibility into both current and future performance. It must provide metrics as a basis for performance management and process improvement, and provide early warning of IT project risk. A strong IT governance programme will involve both business and IT functions working in partnership, to establish clear responsibilities for IT decision making, the processes that will be employed to implement these

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decisions, and the metrics and reporting procedures that will be used to provide feedback on both current performance, and forecast progress towards the agreed objectives.

IT governance forms a cycle, which once mature, forms a closed loop feedback system between strategic planning and budgeting, and execution and delivery control. As changes occur in strategic priorities, these should be reflected in operational plans, whilst changes in programme, project, and resource status should allow a reassessment of the strategic plan.

The Artemis Solution Artemis ITM helps to bridge the gap between the strategic and operational views of the IT department, by mapping strategic IT objectives into operational plans and providing strong programme and project management. It links together the disciplines of IT strategic planning, IT portfolio management, IT budgeting, IT operational planning, and performance measurement, into a seamless process that forms the backbone of sound IT governance.

By supporting the measurement of IT project performance and benefits, it helps to communicate the status of the portfolio to all stakeholders including senior management, in a meaningful business context, enabling them to evaluate progress, and to dynamically adjust the project priorities to optimise the attainment of objectives, and the use of resources.

Artemis supports a common approach to IT investments by business and IT functions, which we believe is the single biggest challenge of IT governance. It introduces a clear process, supported by formal metrics, to the communication of IT strategy and objectives, which demonstrates the planned, actual, and forecast value that the IT function is creating for the organisation.

► COBIT

The Issues Control and security of enterprise information, and the IT systems used to process it, should form an inherent part of any organisation's management procedures, particularly in terms of assessing and mitigating any potential risk that might ensue. Of late, governments and industry bodies have drafted a wide range of legislation and regulations that relate to information, and compliance with these has become a major issue, particularly for large organisations.

Control Objectives for Information and Related Technology (COBIT™) is a reference framework for IT governance and information control and security, issued by an industry body, the IT Governance Institute. It comprises a process model and 34 high-level control objectives, spanning all areas of IT management.

Whilst we recognise that COBIT is a useful framework for IT governance, it is important to understand that it does not of itself provide a complete solution, and must be used in conjunction with other elements, including effective portfolio management, and programme and project management, as well as the degree of cultural adaptation that is typically required to achieve strong IT governance.

The Process The COBIT process model considers the IT function to consist of four domains – planning and organisation, acquisition and implementation, delivery and support, and monitoring. The process model takes the organisation’s objectives as its input, and forms a feedback loop that draws upon the available IT resources. Within each domain, there are high-level control objectives that can be further sub-divided into detailed tasks. The framework draws on existing best practices in many areas of IT management.

COBIT also identifies key goals for IT governance, and provides examples of Key Performance Indicators (KPIs) that can be used to monitor progress. IT organisations implementing COBIT often start from the bottom up, as the most detailed level deals in familiar concepts, some of which will already be addressed by management controls. More difficult is to define the organisational structures and processes that will be used to determine IT decision making within the organisation, and it is here that the lack of a methodology for tying business objectives to IT initiatives, and gaining visibility into available resource, can hamper efforts.

The Artemis Solution Artemis ITM supports the relevant parts of the COBIT framework, and also complements it by providing the resource visibility that is a crucial part of planning and executing IT initiatives. In the Planning and Organisation domain, Artemis fully addresses control objectives PO1 – Define a Strategic IT Plan, PO5 – Manage the IT Investment, and strongly supports most of the other objectives, including risk assessment, human resource management, project management, and the communication of objectives.

In the Acquisition and Implementation domain, Artemis supports the acquisition and maintenance of IT assets, and the development of procedures, whilst in the Delivery and Support domain, Artemis fully addresses control objective DS6 – Identify and Allocate Costs, in addition to providing the metrics that support many of the other service delivery objectives. Finally, in the Monitoring domain, Artemis provides clear visibility into all aspects of IT initiatives, which make the subsequent audit of processes and controls significantly easier and less costly to achieve.

► RISK MANAGEMENT

The Issues The continuing occurrence of high-profile IT project failures underlines the potentially serious consequences that such failures can have, not only on the organisation’s IT systems, but also on the business initiatives that depend on them. Recurring themes in these situations include poor project initiation and alignment with business objectives, a lack of ongoing project assessment, and resource shortages and conflicts.

Risk must be addressed at all levels of the IT function: an assessment must be made both of the overall risk that is represented by the IT portfolio, and also of the risk associated with individual initiatives and projects. Clearly, making these assessments depends on the availability of high quality information and metrics, but in many cases organisations find that either they lack this basic data, or are unable to achieve visibility into the interdependencies between projects. This situation is exacerbated because as the status and priority of projects change, the associated risk is not re-evaluated.

The Process The assessment and management of risk is a fundamental capability for any organisation. With an increased reliance on information systems, IT- related risk is now a significant element of this process. The overall responsibility for reviewing this risk must reside with the board of directors, which in larger organisations will take advice from a risk advisory committee.

As with all sources of risk, IT risk should be subject to a formal risk assessment exercise, which compares both the probability of project failure, and the consequences for the organisation should such failure ensue. Figure 4 shows an example of a risk assessment matrix. This process must be dynamic, ensuring that each risk is assigned to an owner and reviewed on a regular basis.

Possibility of Failure	Unlikely	Moderate	Significant
Impact on Business			
Insignificant	Low	Low	Medium
Minor	Low	Medium	Medium
Moderate	Medium	Medium	High
Major	Medium	High	High
Catastrophic	High	High	High

Figure 4: A Project Risk Assessment Matrix

Best practice is therefore to provide a formal framework for assessing IT projects, which allows an objective measurement of all factors that contribute to the overall risk, including financial, business, and technical issues. Collating low-level data from individual projects allows a very accurate and dynamic picture of potential risk to be presented. Many organisations now use a gateway review process to ensure that a project must pass a series of checks at each stage of its lifecycle, before further resource and funds are committed.

At the detailed project level, the key is early warning of potential risk, and this can be successfully enabled by setting thresholds for time, cost, and progress metrics that are used to trigger alerts to the individuals responsible, when they go beyond the stipulated boundaries.

...the mitigation of risk requires responsibility to be assigned to specific teams or individuals who are empowered to resolve relevant issues...

Once potential problems have been identified, the mitigation of risk

requires responsibility to be assigned to specific teams or individuals who are empowered to resolve relevant issues, and who use detailed project information to recommend remedial action.

The Artemis Solution

Artemis ITM is a powerful tool for gauging IT project risk. It provides a methodology for formal project initiation, which is configurable to capture any aspects of risk that an organisation believes to be significant. Most importantly, it facilitates an ongoing cross-functional view of all IT initiatives, so that risk can be considered on a continuous basis, rather than solely at the beginning of a project, as is often the case. These features assist an organisation to gauge the overall risks of its project portfolio.

Artemis provides information on detailed project risk, through the collection of project metrics, and the ability for users to subscribe to alerts on individual projects. It also helps users to collaborate and exchange information on potential risk issues, and can support gateway reviews and other project management methodologies. Artemis also helps managers to document risk issues, assign follow-up actions to individuals, and track the progress of their resolution.

► ENTERPRISE ARCHITECTURE

The Issues Enterprise Architecture (EA) is the discipline of defining an overall set of architectural goals, logical configurations, and detailed technical standards that guide the progressive development of the IT infrastructure.

The primary benefits of an EA program are providing a stable yet flexible platform for deploying business applications, helping to consolidate the number of technologies and suppliers that must be supported, easing the problems of integrating disparate technologies, supporting the integrity of IT systems, and acting as an aid to mapping business objectives onto a technical infrastructure.

Without an EA perspective, organisations tend to suffer from tactical IT purchasing, a dislocation between business requirements and IT deliverables, outdated and inflexible infrastructure, conflicts between IT suppliers, and potential exposure to failures of regulatory compliance.

A clear indication of the impact of an architectural view comes during the planning and initiation of new IT projects.

A clear indication of the impact of an architectural view comes during the planning and initiation of new IT projects. A strong EA programme

offers significant reductions in deployment times, more predictable project costs, and economies of scale from standardisation; the contrasting story without EA, is a struggle to carry out infrastructure upgrades, integration work, and complex data modelling, just to get a project off the ground.

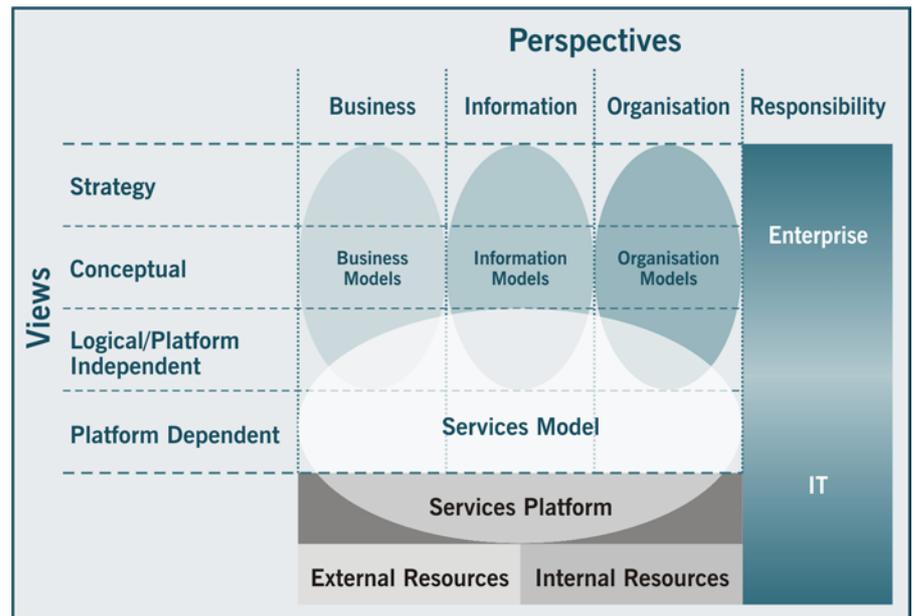


Figure 5: The Butler Group Enterprise Architecture Model

The Process Several models and methodologies for EA have been developed, derived from both private and public sectors. Some of the better known models include the Zachman Framework, Federal Enterprise Architecture Framework (FEAF), and The Open Group Architecture Framework (TOGAF). These describe both a structure for the architecture, and a process for its implementation.

It is important to understand that an EA programme goes beyond a pure technology dimension, also focusing on business, process, and data models, and the Butler Group EA model, shown in Figure 5, endorses the need to link the business strategy perspective to conceptual, logical and physical models.

EA must always be an evolutionary process. It involves a definition of the desired target architecture, the discovery and identification of the current architecture, and a plan to engineer the transformation between them. This must be allied to a programme of education that supports the cultural change required for successful implementation. Conformity to a technical architecture is clearly an important aspect, but one that often proves difficult to uphold. Communication of the business reasons and benefits for adhering to the defined architecture is therefore essential.

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Every IT initiative should be assessed for its impact on the Enterprise Architecture programme. The resulting view may be negative

(for example a project that prolongs a legacy system) or positive (for instance a project that justifies investment in an important component of the target architecture). However, it is often difficult for organisations to understand the overall impact of the current project portfolio on the EA programme. By providing an analysis across all initiatives, a portfolio management solution can quickly show whether progress towards the desired architecture is on track.

The Artemis Solution

Artemis ITM fulfils one of the key objectives of an EA programme, to enable stronger communication and alignment between business and IT functions, by providing a dynamic methodology for evaluating, planning, and controlling IT investments. Artemis ITM can ensure that every IT initiative is measured in terms of its conformity to the overall EA programme, through its inbuilt methodologies for project scoring and justification. A dashboard can then be used to help senior managers visualise the EA implications of the current portfolio.

Artemis also helps to plan specific initiatives that are necessary for the EA programme. By providing a broad view of IT investments, it is easier to justify the architectural foundation work that is required, and to secure budget from all those areas that will ultimately benefit.

► IT SERVICE MANAGEMENT

The Issues

The Information Technology Infrastructure Library (ITIL), developed by the UK Government’s CCTA body in the late 1980s, and now managed by the Office of Government Commerce (OGC), defines a best practice framework for the management and delivery of IT services.

IT Service Support	IT Service Delivery
Configuration Management	Service Level Management
Incident Management	Capacity Management
Problem Management	Continuity Management
Change Management	Availability Management
Release Management	IT Financial Management

Figure 6: ITIL Processes

In many organisations, close attention is often paid to new IT initiatives, at the expense of what is often described as ‘keep-the-lights-on’ work: ongoing operations and maintenance. With up to 80% of IT budgets being spent on this latter area, it is clear that controlling costs and improving efficiency must focus on this area.

One of the common problems with planning IT operational work is that precise requirements and priorities are difficult to predict: there are often significant peaks and troughs in demand associated with business cycles or the introduction of new systems; issues may require immediate priority action to keep critical business systems up and running; and there may be periodic requirements for additional specialists in particular disciplines. Because of this unpredictability, it is particularly challenging to integrate operational and maintenance work into the overall IT portfolio, with the consequence that the resource available for new initiatives is often estimated conservatively to provide additional leeway.

Adopting a formal, process-driven methodology to IT services has proved highly beneficial for many organisations.

Adopting a formal, process-driven methodology to IT services has proved highly beneficial for many organisations. In a recent survey by itSMF, 70% of companies using ITIL reported that they had derived tangible and measurable benefits from the programme.

The Process

ITIL covers IT service support processes for configuration management, incident management, problem management, change management, and release management, and IT service delivery processes for service level management, capacity management, continuity management, availability management, and IT financial management. These are shown in Figure 6.

ITIL provides a framework for IT service management that includes process templates, the definition of roles and activities within the IT function, and the communication between them. A common way to begin ITIL implementation is to map out these existing elements within the IT function, and to create a plan for evolving to this way of working. The standardised ITIL guides contains process flows, models, and best practice that can be customised to the requirements of the individual organisation. As with EA, ITIL requires a degree of cultural change and education, but Butler Group has found that many IT staff welcome its introduction, because it provides a clearer definition of their roles and responsibilities, and improved organisation of their work processes.

One of the common outcomes of this approach to IT service management, is the establishment of Service Level Agreements (SLAs) for the IT function, used internally and sometimes also externally to monitor its performance across a range of indicators. Once this is in place, it provides an excellent benchmark for subsequent service quality improvement initiatives.

For IT service delivery, it is necessary to define and capture the metrics that gauge the performance of both internal and third-party services.

For IT service delivery, it is necessary to define and capture the metrics that gauge the performance of both internal and third-party services. In Capacity Management, a broad view of all operational and project requirements is the foundation for optimising the IT infrastructure.

The Artemis Solution

Artemis ITM is focused principally on IT service delivery aspects, and its major role within an ITIL programme is to provide the IT Financial Management capability, which is one of the five core processes in this area. Artemis addresses all aspects of financial management, including planning IT investments, defining the IT budget, optimising the allocation of resources, and reporting on the progress of both new initiatives and maintenance work. Because financial and portfolio information can easily be viewed from multiple business and IT perspectives, Artemis facilitates communication and collaboration on IT initiatives and operations throughout the organisation.

Artemis supports the Capacity Management process by collecting information on the infrastructure requirements of IT projects, and helping managers plan their current and future IT capacity. ITM can also support the Service Level Management process by providing visibility into the departmental consumption of IT services, helping to establish priorities, and forecasting future demand. It can also help to provide the information required to determine the chargeback of IT services to business units where this model has been established.

► SOFTWARE DEVELOPMENT CAPABILITY

The Issues The Software Capability Maturity Model (CMM), was defined by Carnegie Mellon University's Software Engineering Institute to help the IT organisation to assess and improve the quality of its software development processes. The model identifies five levels, shown in Figure 7, which indicate increasing levels of process maturity. In 2000, CMM was incorporated into a new initiative, the CMM Integration project (CMMI), which whilst still using these five levels, applies them to a broader set of software and IT-related disciplines, including systems engineering, product development, and software acquisition.

CMM Level	Description
Level 5 – Optimising	Metrics are used to drive continuous quality improvement, which is built into processes.
Level 4 – Managed	Metrics are used to measure and manage the quality of software development processes.
Level 3 – Defined	Activities are formally documented and staff are able to follow these standard processes.
Level 2 – Repeatable	Some processes exist and are repeatable, but depend on the experience of individuals.
Level 1 – Initial	Work done in an ad hoc basis with little in the way of formal processes.

Figure 7: Capability Maturity Model Levels

Application development continues to evolve to meet demands for greater complexity, lower cost, and shorter time to market, whilst at the same time, new pressures such as compliance and internal governance have put an increased emphasis on the management of the whole application development lifecycle. New applications must also be aligned to the objectives and constraints of the business as a whole, but typically the development process has often proceeded in an isolated manner, with little in the way of formal management methodologies.

Application development continues to evolve to meet demands for greater complexity, lower cost, and shorter time to market...

In addition to the perennial problems of time and cost overruns, some of the indications of poor management of the application development process include insufficient business requirements capture, lack of testing, complex and costly application maintenance, inadequate documentation, and shifting project scope. These factors result in the delivery of poor quality software which does not meet the needs of the business, and a situation where the development function has gained little retained experience that can be applied to future projects.

The Process For each level, CMM defines specific processes that should be targeted for improvement, and progression to the next level. The majority of organisations operate at Levels 1-3, with only a small percentage of organisations worldwide being certified for Levels 4 and 5. Skipping levels is counter-productive since each level forms a necessary step for the next level, and having achieved recognition for a level without having invested in the infrastructure and staff training to sustain it may easily result in slipping back, particularly under fire situations.

In the early stages of implementation, much of the focus is on putting in place strong programme and project management disciplines, and providing a framework to document the related processes. This then provides the basis for the process quality improvement that lies at the heart of CMM. Progressing through the successive maturity levels requires standardisation and institutionalisation of these processes.

One theme running throughout the CMM levels is the visibility of the project to higher management, so that the higher the level the greater the visibility that is available to management not directly “working at the coalface”. CMM is not a paper-based exercise, it is concerned with instituting a culture change in

The benefits of adopting the CMM methodology include a reduction in software defects, reduced cycle times and predictability in project delivery...

management control focused on quality, and this requires bringing on board staff throughout the organisation: the higher the level, the greater the spread of the culture upwards through the management

layers, as well as across departments that impinge on the project. The benefits of adopting the CMM methodology include a reduction in software defects, reduced cycle times and predictability in project delivery, and an overall reduction in software development costs.

The Artemis Solution Artemis ITM aids CMM implementation by providing the framework for measuring IT projects, aligning these initiatives with business objectives, ensuring that the capacity exists to fulfil each project, and providing a clearly defined and objective approach to project and programme decision-making. From a portfolio perspective, Artemis therefore helps the organisation to optimise the use of its resources, and provides the higher level visibility, issue management and resolution, and management control, that characterises the higher CMM levels.

In addition, Artemis also provides the detailed metrics to guide each individual project, over the whole of the lifecycle. It can help organisations to break larger initiatives down into more manageable sub-projects, whilst still maintaining overall visibility, and supports gateway reviews and other project milestones, which can in turn be used to notify senior managers of any potential issues.

As organisations achieve process improvements, Artemis can provide the full portfolio view and metrics that allow more advanced planning, and selection of the project mix that will deliver the greatest value to the organisation. The very fact of introducing an investment planning and control solution helps to consolidate best practice processes, and make them repeatable, but Artemis is particularly well suited to helping organisations move up the successive CMM levels by supporting process improvement, communication, and optimisation, with the goal of achieving a coveted level 5 certification.

► OFFSHORING

The Issues Pressures on development budgets, and the ready availability of skills and lower cost base offered by regions such as India, South East Asia, and Eastern Europe, have led to a significant rise in the use of offshore software development services. (Figure 8 shows the rapid growth in the Indian IT services market). Recent research shows that over 60% of FTSE-100 companies in the UK, and similar proportions in other European countries, have now turned to offshore providers for at least some of their software development work.

Year	IT Services (US\$ Billions)	Business Process Outsourcing (US\$ Billions)
2000 – 01	5.1	0.9
2001 – 02	6.2	1.5
2002 – 03	7.4	2.4
2003 – 04 (Forecast)	8.4	3.6

Figure 8: The Indian IT Software and Services Exports Market (Source: NASSCOM)

However, whilst outsourcing may offer potential cost advantages, it also presents significant risks and challenges, not least of which is integrating two teams from very different environments. Control of the development process, particularly in terms of timescales and software quality, is being vested in a third party, and unless particular attention is paid then overall project visibility and control will suffer.

Additionally, making the choice of which projects to send offshore is far from simple. Whilst it may seem evident that relatively self-contained projects will be easier to divest, this is likely to have a limited impact on the overall workload of the IT function, where integration with existing applications, system upgrades, and maintenance, play a major role. There is also a concern that passing leading edge projects to a third party may stifle the innovation capability of your own organisation. Faced with these choices, enterprises must apply a formal method of evaluating candidates for offshoring.

The Process Butler Group therefore recommends that evaluation of potential offshore partners should be carried out very thoroughly, paying attention to issues such as economic climate, robustness of infrastructure, management structures, quality procedures, and financial stability. Once a suitable partner has been selected, a detailed contract should be drawn up that identifies the responsibilities of each party, project timescales, quality standards, and financial details, plus the detailed metrics that will form the Service Level

Agreement (SLA), and provisions for termination of the contract.

If an offshore development team is to make an effective contribution of value to the organisation, the management of that service must be fully integrated into the IT planning function.

Offshore providers are of course acutely aware of the need to integrate their service as closely as possible with the customer's own IT function, often deploying local

project managers to manage the interface between the two. However, in Butler Group's opinion, liaising at the project level is only part of the requirement. If an offshore development team is to make an effective contribution of value to the organisation, the management of that service must be fully integrated into the IT planning function.

Effective communication is a prerequisite for successful offshore projects. However, with many providers being located in different time zones, the ability to collaborate electronically has an important role, and must extend to the high level visibility of the project, as well as to the basic project management disciplines. When assessing the economic benefits of offshoring, it is important to take into account all aspects of the service, and to make a judgement on a project-by-project basis as to the most effective mode of delivery.

The Artemis Solution

The portfolio management capabilities of Artemis ITM assist the process of selecting projects for offshoring: an organisation can establish the resource, skills, quality, risk, and other criteria that it will apply to the decision, and view the IT portfolio within this context. By capturing the relevant parameters of an IT initiative, it becomes easier to make an objective judgement as to whether the project can be delivered at lower cost, within a faster timeframe, or at reduced risk, by an offshore provider. Artemis' graphical portfolio views are ideal to help visualise candidates for offshoring.

Once the decision has been taken, it is essential that an offshore project remains part of the portfolio. Artemis' solution allows offshore project managers controlled access to the system through a browser-based interface, to input the required information that will be used to include those projects within the overall IT portfolio view and management process. This provides the metrics that are required to monitor SLAs, project timescales, and project progress. Artemis also helps to build a bridge between geographically dispersed teams, enabling project management collaboration, document management, project notifications, and Web-based time reporting.

► CONTACT DETAILS

Artemis International Solutions Corporation

4041 MacArthur Blvd. Suite 401
Newport Beach
California 92660
USA

Tel: +1 (800) 477 6648
Fax: +1 (949) 660 6501

E-mail: info@us.aisc.com

www.aisc.com

Artemis international Ltd.

Regus House
268 Bath Road
Slough
Berkshire, SL1 4DX
UK

Tel: +44 (0)1753 727100
Fax: +44 (0)1753 727099

E-mail: info@uk.aisc.com

Butler Group

Europa House, 184 Ferensway, Hull, East Yorkshire, HU1 3UT, UK

Tel: +44 (0)1482 586149 Fax: +44 (0)1482 323577

www.butlergroup.com