



Appendix A – Management Practices Detail Assessment

Management Practices

The steering committee selected 16 agencies to participate in the management practices assessment. Each agency was instructed to perform a **self-assessment** of where they felt IT management practices fit. 11 of the 16 agencies participated.

Our assessment reviewed 15 different aspects of IT management:

- 1. Corporate Control of IT**—At what level is IT considered an integral part of developing business strategy and plans. What level of sponsorship exists for IT initiatives.
- 2. Role of IT function**—How the role of IT is seen as an agent for change or as the keeper of IT strategy. How high a role IT plays in business planning and decision making.
- 3. IT Strategies, Plans and Policies**—How well the IT strategy is integrated with the overall business strategy of the state and of agencies. How well infrastructure investment decisions are understood by the governing organization. Whether the plan includes a balanced portfolio of IT initiatives (i.e. some innovative high risk and some low risk). The level of adherence to standards.
- 4. Financial and Performance Management of IT**—How well IT performance measurements are conducted and linked into personal objectives.
- 5. Project Management**—Whether projects are viewed as business projects with IT components. Whether projects have objectives that are linked to business strategy. What level of management, sponsorship and control of programs, projects, and sub-projects exist. Whether change management concepts are understood and employed. Level of project management skill development.
- 6. Procurement**—How well procurement roles and relationships are defined and understood.
- 7. IT Human Resource Management**—How well HR plans are linked into business plans. How well IT has the skills and experience to support business plans. How well skill competencies are defined and analyzed. Degree of importance of business and management training compared to technical training. Level of career development planning.
- 8. Application Development Management**—How well development activities are managed and monitored. Level of automation of the application development process. Whether application development methodologies exist and are adhered to.
- 9. Maintenance / Change Control**—Level of control of the overall resource devoted to maintenance. How well resource allocation is estimated and methods utilized.
- 10. Data Center Management**—Whether service level strategies are in place. Whether services are benchmarked against the marketplace. How well Data Center performance measures are linked to IT strategy. The effectiveness of methods used for funding and charging infrastructure costs.

11. Network Management— Whether service level strategies are in place. Whether services are benchmarked against the marketplace. How well network performance measures are linked to IT strategy. The effectiveness of methods used for funding and charging infrastructure costs.

12. End-User Computing Management—How involved the management of end-user computing is. How well processes are defined for software acquisition. How virus security and connection to other networks are audited. How appropriately data is owned and shared. The level of investment made in infrastructure supporting end-user computing.

13. Relationship Management—How well relationships are managed and valued between IT and its customers. How well account management roles are defined and understood.

14. Information Management—The degree key information assets are defined and the existence of policies for exploiting and protecting these assets.

15. Benefits Management—The degree full investment appraisal is undertaken for projects. Whether benefits management is the responsibility of the business or of IT.

The results of the assessment are presented on two distinct charts:

1. Agency Management Practice Capability
2. Agency Capability / Effectiveness Matrix

The following is a brief instruction on how to interpret the charts.

Chart 1 - Agency Management Practice Capability:

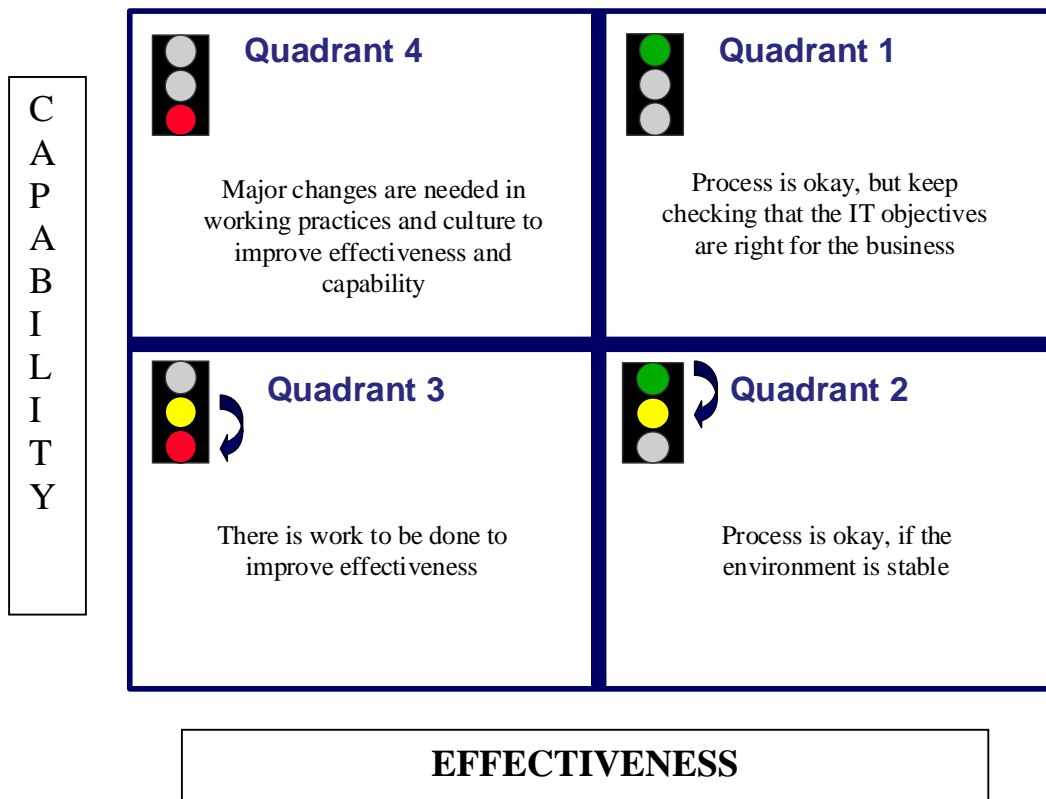
The first chart is a spider diagram that shows each agency's management practice capability. For each of the 16 practice areas, there were 5 separate levels of management characteristics. From these characteristics, the IT Director was asked to select the number (from 1 to 5) that more closely matched how they are currently managing IT. Level 5 was considered "best-class". The results were plotted on a spider diagram. Level 4 or higher is typical of IT management organizations that are more mature. Level 3 is considered average. Level 2 or lower is characteristic of less mature IT management organizations.

Chart 2 - Agency Management Practice Capability / Effectiveness:

The second chart is a matrix that shows to what extent the process is and could contribute to the agency’s objectives. Each IT Director was asked to select how the “current” and “potential” practices contribute to the objectives of their agency. The effectiveness was determined based on the following scale:

1. No contribution
2. Little contribution
3. Some value or contribution
4. Significant value or contribution
5. High alignment with objectives

It is important to note that this matrix does not show all 32 points since some may overlap. The values in the matrix are plotted with the use of a scatter diagram. The “Y” coordinate is the capability of the practice that was measured in chart one. The “X” coordinate is the effectiveness:



Below are some general guidelines on interpreting the matrix. Each quadrant of the matrix has the following characteristics:

Quadrant 1: Process okay, but keep checking that the IT objectives are right for the business

Key characteristics: Optimized systems, Established & maintained practices, Clear organization authorities, Well-integrated technologies, Supportive administration systems

Quadrant 2: Process is okay, if the environment is stable

Key characteristics: Informal but effective project management, Old technology still doing a good job, Informal, well -integrated organizational structures, Business needs supported by low grade technology

Quadrant 3: There is work to be done to improve effectiveness

Key characteristics: Bureaucratic systems, Old Organization practices, Shelfware technology, Constrictive quality control, Inappropriate HR systems, Old IT Objectives, Administrative approach to Project management

Quadrant 4: Major changes in working practices and culture to improve effectiveness and capability




Key characteristics: No IT Objectives, Weak, missing or unused procedures, Ineffective management, Ill defined responsibilities, Poor acquisition and use of resources

We used the following guidelines to note any exceptions:




- Capability was ranked a 2 or lower **-or-** Current effectiveness was ranked a 2 or lower
- Difference between the “current” and “potential” effectiveness is 2 or more

In interpreting the information that follows, it is important to note that this was a **self-assessment** performed by each selected agency. This was not an assessment performed by KPMG or another other means.

Analyzing each of the agency responses, we noted those practices that were exemplary and those needing attention:

IT Practice Maturity	 World-Class Process	 Stable Process, but Needs Review	 Ineffective Process, Needs Attention
GaNet	All except human resource management, data center management, network management, and benefits management	N/A	N/A
DOAS	Corporate control of IT, Role of IT function, network management, End-user computing management	Project management, procurement, human resource management, data center management, maintenance/change control, relationship management, information management	N/A
DHR	N/A	IT strategies, plans and policies, human resource management, benefits management	Corporate control of IT, Role of IT function
DOT	Corporate control of IT	Financial and performance management, maintenance/change control, data center management, network management	Benefits management
DNR	N/A	Financial and performance management, project management, procurement, data center management, network management	Human resource management, Maintenance / Change control
GBI	N/A	Financial and performance management, project management, network management	N/A
GMS*	N/A	N/A	N/A

* = No significant IT personnel

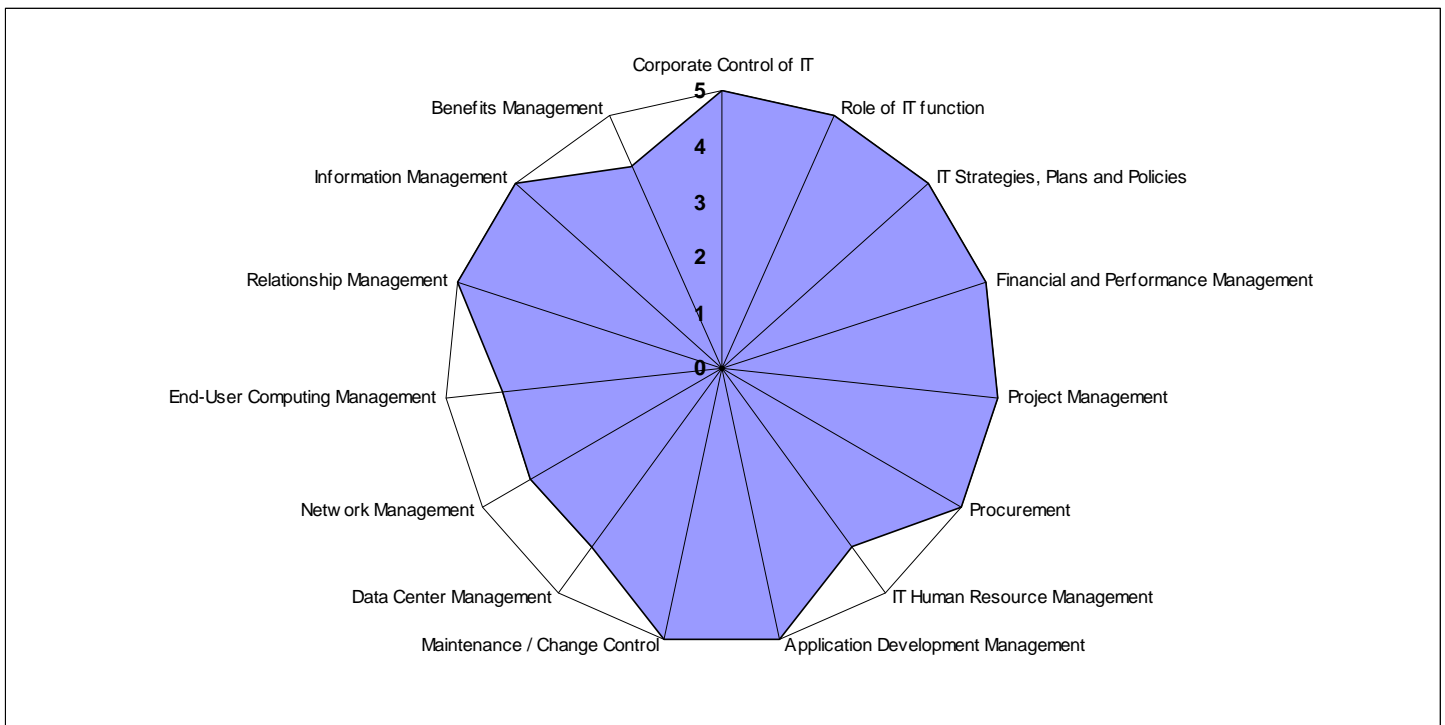
IT Practice Maturity	 World-Class Process	 Stable Process, but Needs Review	 Ineffective Process, Needs Attention
DOR	N/A	Procurement, relationship management, data center management, network management	N/A
DTAE	N/A	N/A	N/A
DOE	End-user computing management	IT strategies, plans and policies	Human resource management
GDC	Corporate control of IT, human resource management, maintenance/change control, network management, end-user computing management	Financial and performance management, data center management	N/A

The following charts are a detailed summary of the results obtained. The charts are organized by agency. Chart 1 shows capability while chart 2 shows effectiveness. On chart 2 blue diamonds denote “current” effectiveness, red squares denote “potential” effectiveness. Like values overlap and do not show up as multiples in the matrix.

GANET – GEORGIA NET AUTHORITY

GeorgiaNet ranked themselves as world-class in 70% of the management practice areas. Although the IT organization is small, it is managed very well with clear and distinct direction and roles. Human resource management, data center management, network management, end-user computing management and benefits management are also working well, but not considered world class.

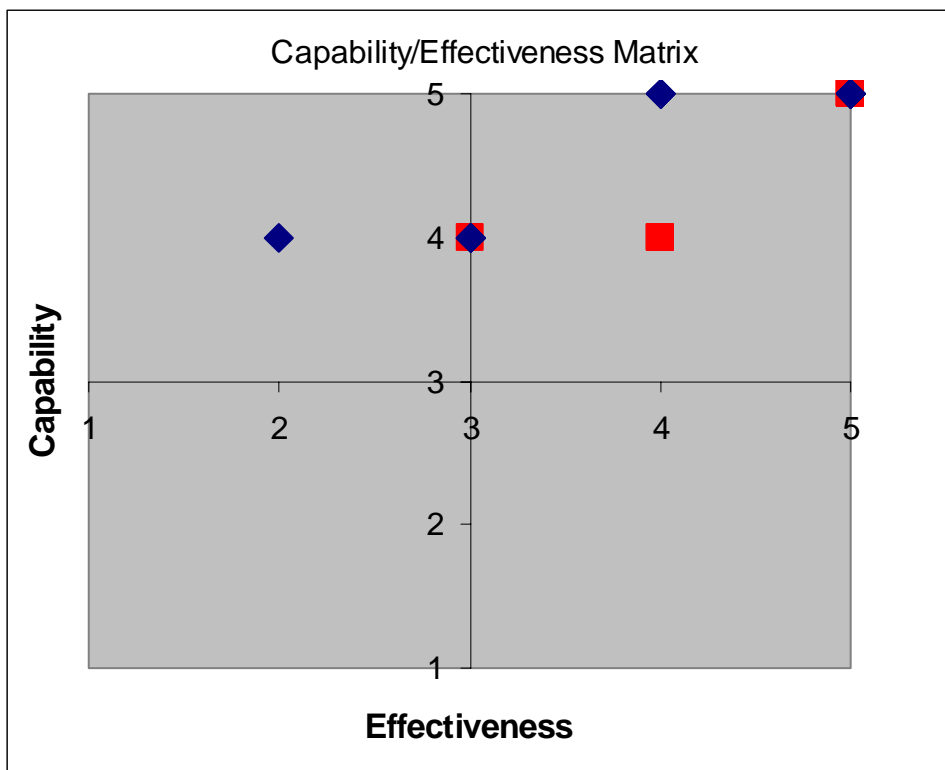
Management Practices Capability



GANET – GEORGIA NET AUTHORITY

End-user computing management fell in quadrant 4 which shows that although very capable, the process does not contribute highly to the objectives of the authority. Options could be to:

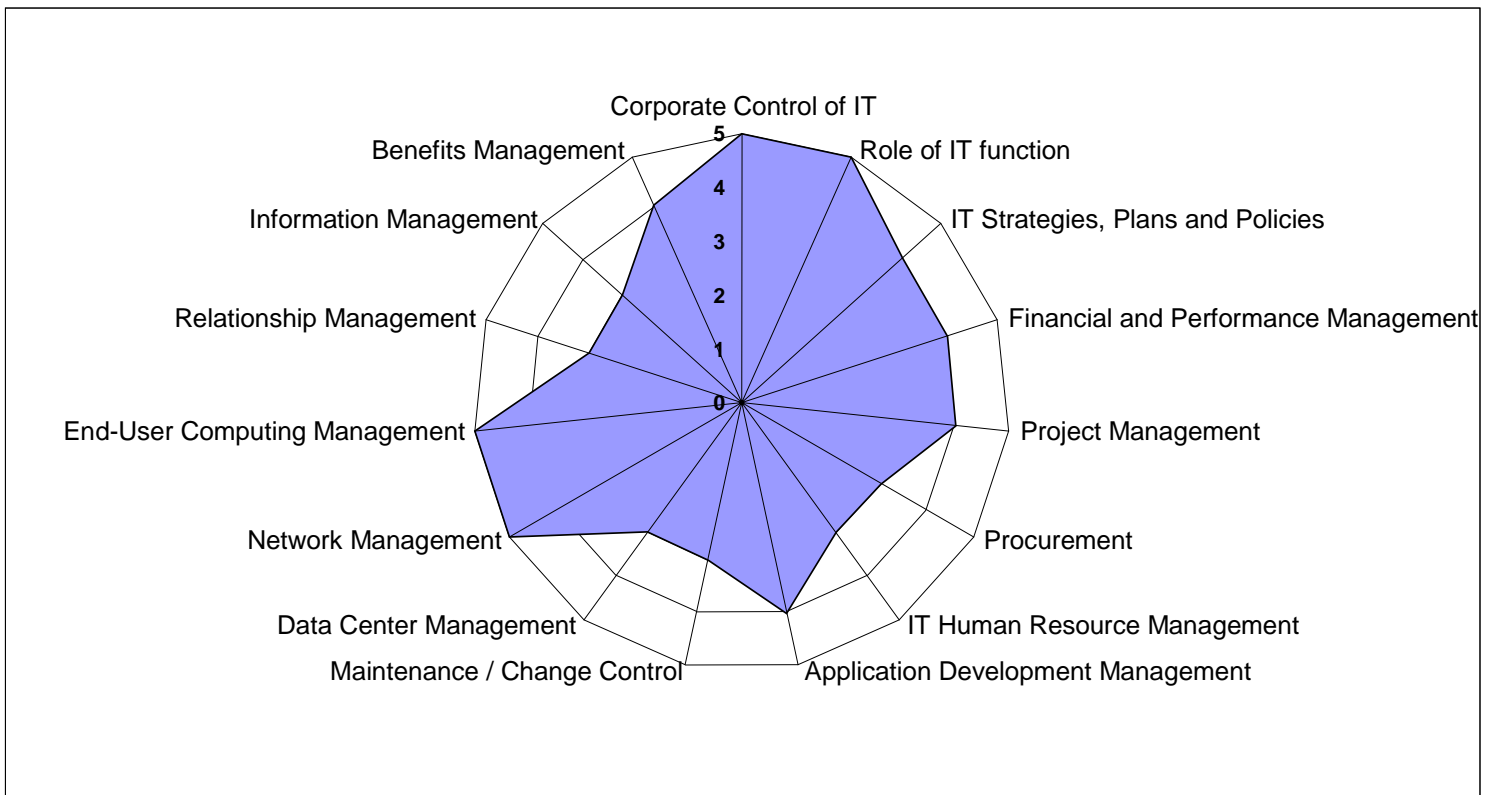
- Enhance the capability to make it contribute more to the agency objectives
- Remove the capability, or
- Re-deploy the responsibility or capability to somewhere else in the state



DOAS – DEPARTMENT OF ADMINISTRATIVE SERVICES

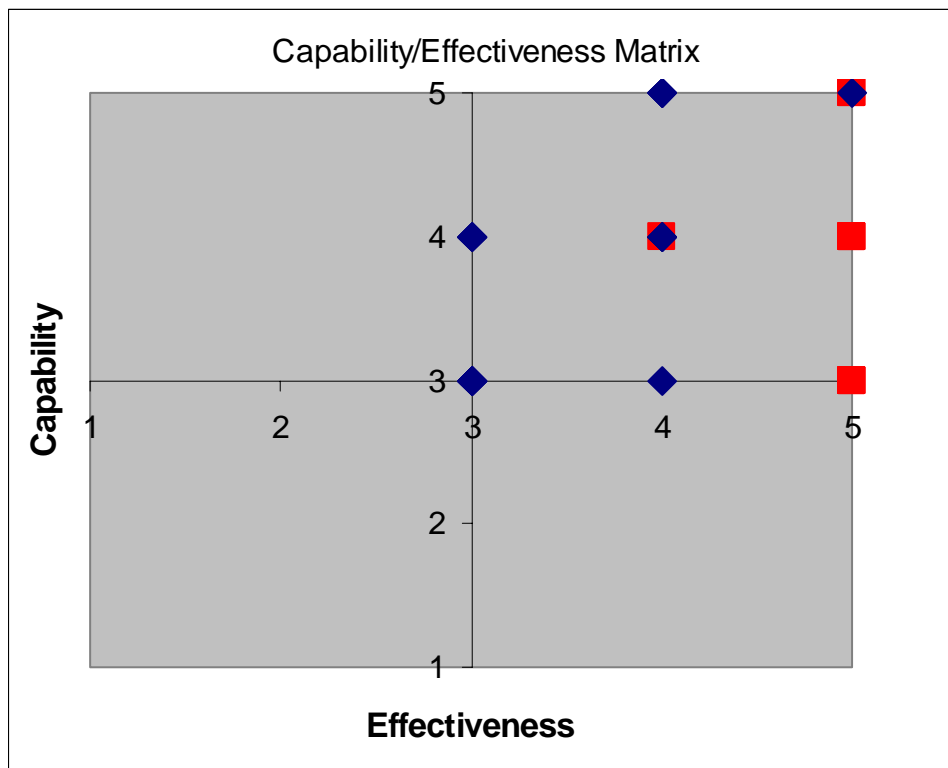
DOAS ranked themselves as world-class in 25% of the management practice areas. These areas were in network management, end-user computing management, and overall control of IT. Processes that are highly capable, but could be more effective were IT strategy and planning, financial and performance management, project management, security and business continuity planning, application development management and benefits management. DOAS saw improvement opportunities in procurement, human resource management, maintenance/change control, data center management, relationship (customer) management, and information management.

Management Practices Capability



DOAS – DEPARTMENT OF ADMINISTRATIVE SERVICES

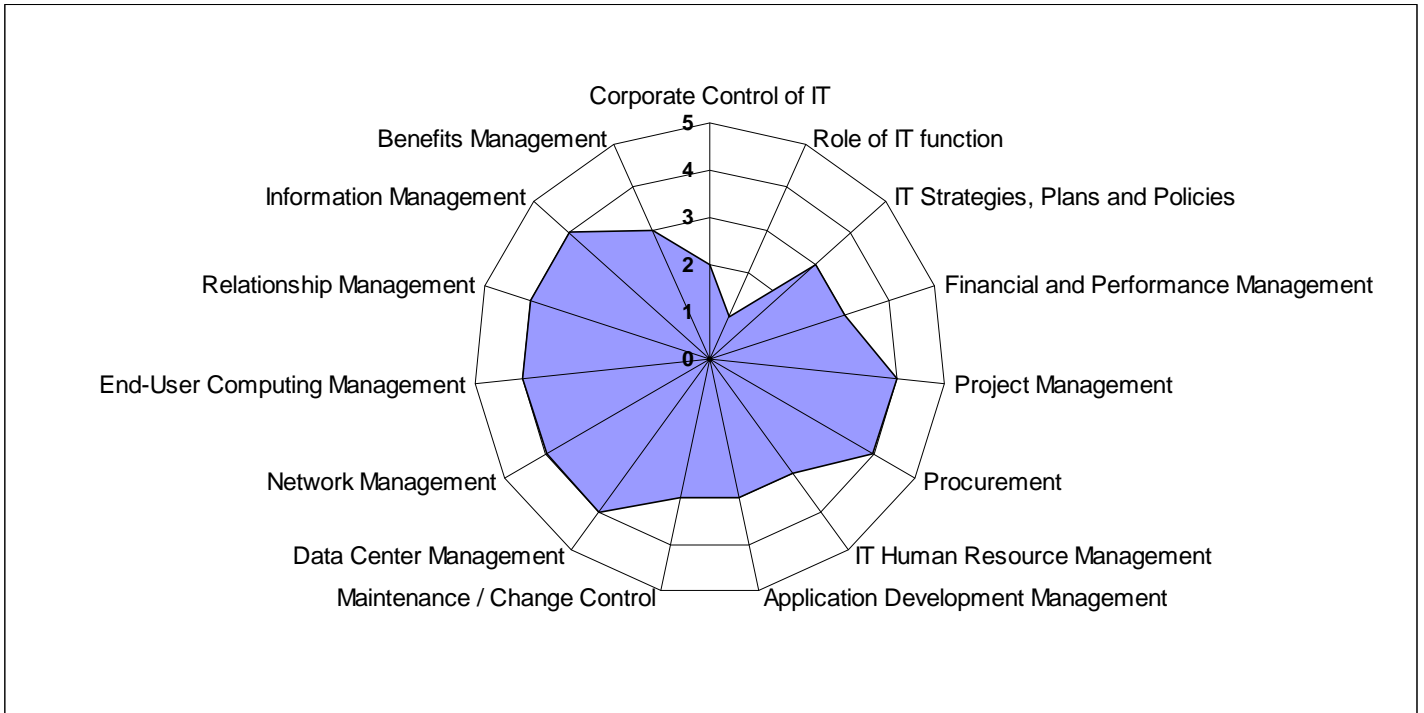
DOAS ranked themselves as effective in all categories. Each management practice areas contributes well to the objectives of the agency.



DHR – DEPARTMENT OF HUMAN RESOURCES

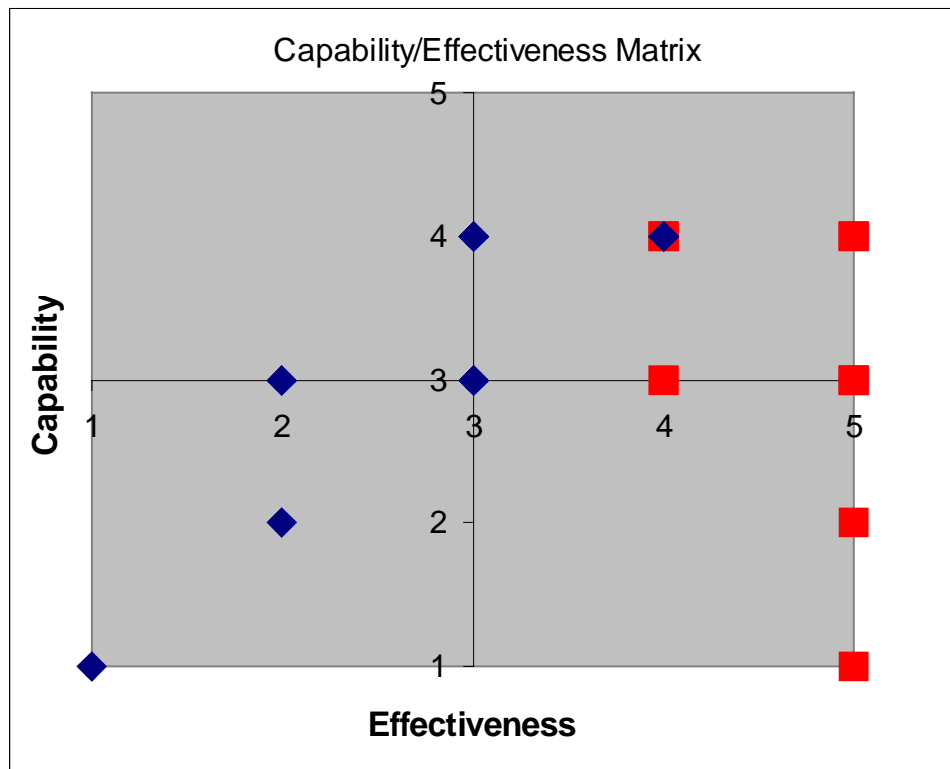
Although not world class, DHR ranked themselves showing strong practices in the areas of project management, procurement, security and business continuity planning, data center management (within DHR), network management, end-user computing management, relationship management, and information management. DHR expressed major concern about the “Agency” control of IT and the role of the IT function as an agent for change. Much of this is due to the absence of an office of IT reporting directly to the commissioner.

Management Practices Capability



DHR – DEPARTMENT OF HUMAN RESOURCES

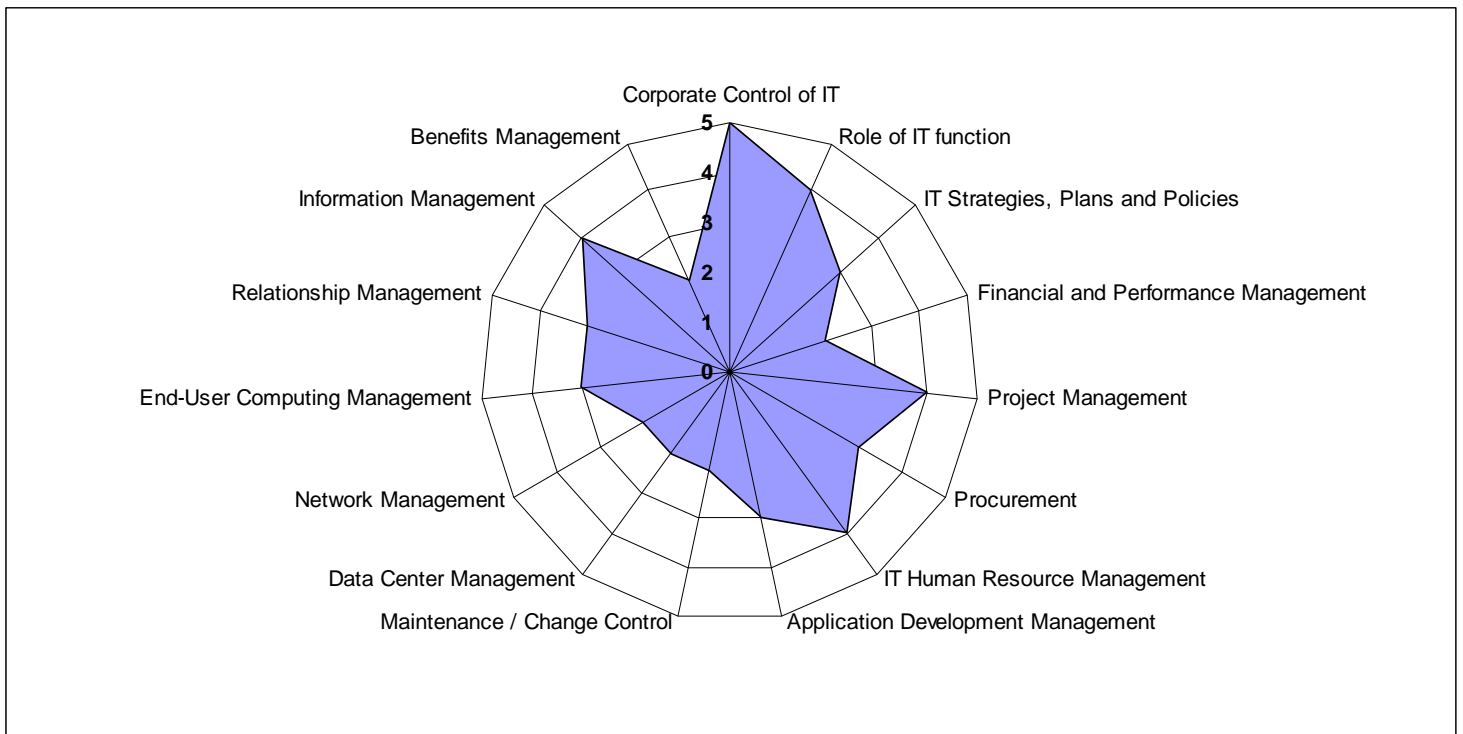
DHR noted that corporate control of IT, the role of IT, and IT strategies, plans and policies need senior management involvement and support of it. Until this is done, these areas will not be viewed as critical to the objectives of the agency. The way IT skills and personnel are being developed may need some attention as well.



DOT – DEPARTMENT OF TRANSPORTATION

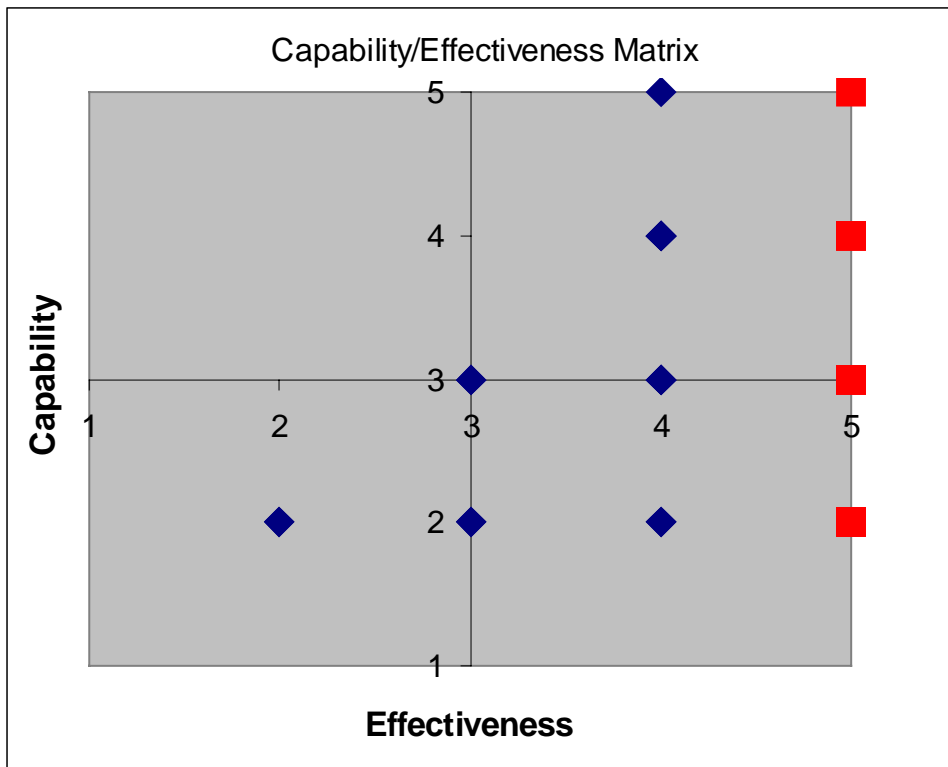
DOT ranked themselves world class in Corporate Control of IT. DOT also ranked high in the role of IT function, project management, human resource management, and information management. DOT has initiated plans to address deficiencies in the areas of financial and performance management, security and business continuity planning, maintenance/change control, data center management, and network management.

Management Practices Capability



DOT – DEPARTMENT OF TRANSPORTATION

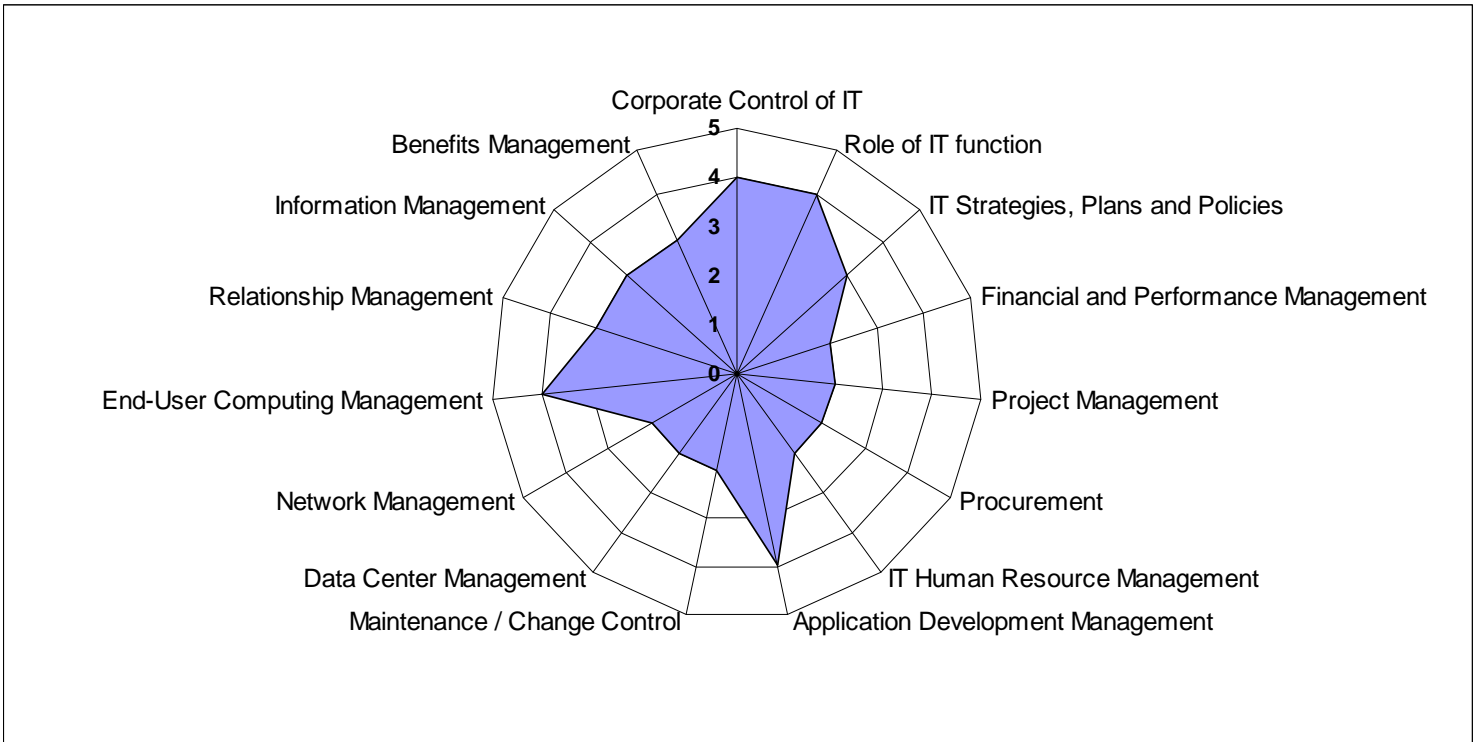
DOT does not view “benefits management” as critical to agency objectives. As part of the DOR IT reorganization, they need to develop the expertise and skill necessary within the organization to develop useful cost/benefit studies that include risk assessment. DOT has initiated plans to address the ineffectiveness in security and business continuity planning as well.



DNR – DEPARTMENT OF NATURAL RESOURCES

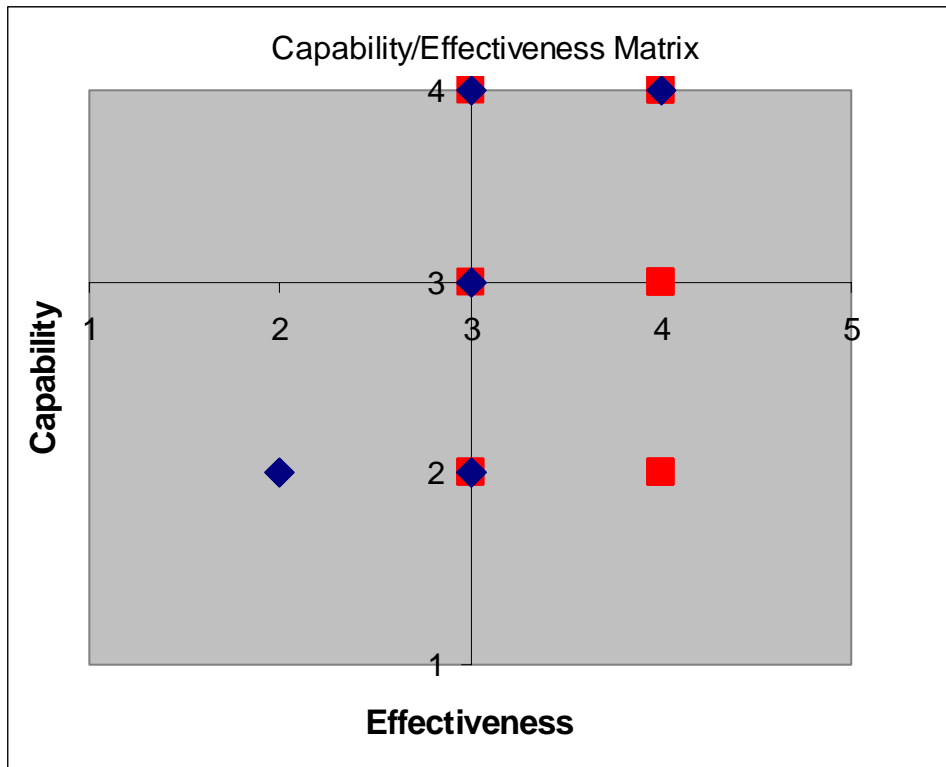
DNR ranked themselves high in the areas of application development management and end-user computing management. DNR showed low capabilities in the areas of financial and performance management, project management, procurement, maintenance/change control, data center management, and network management. One area where DNR needs significant improvement is in the human resource management and maintenance/change control area.

Management Practices Capability



DNR – DEPARTMENT OF NATURAL RESOURCES

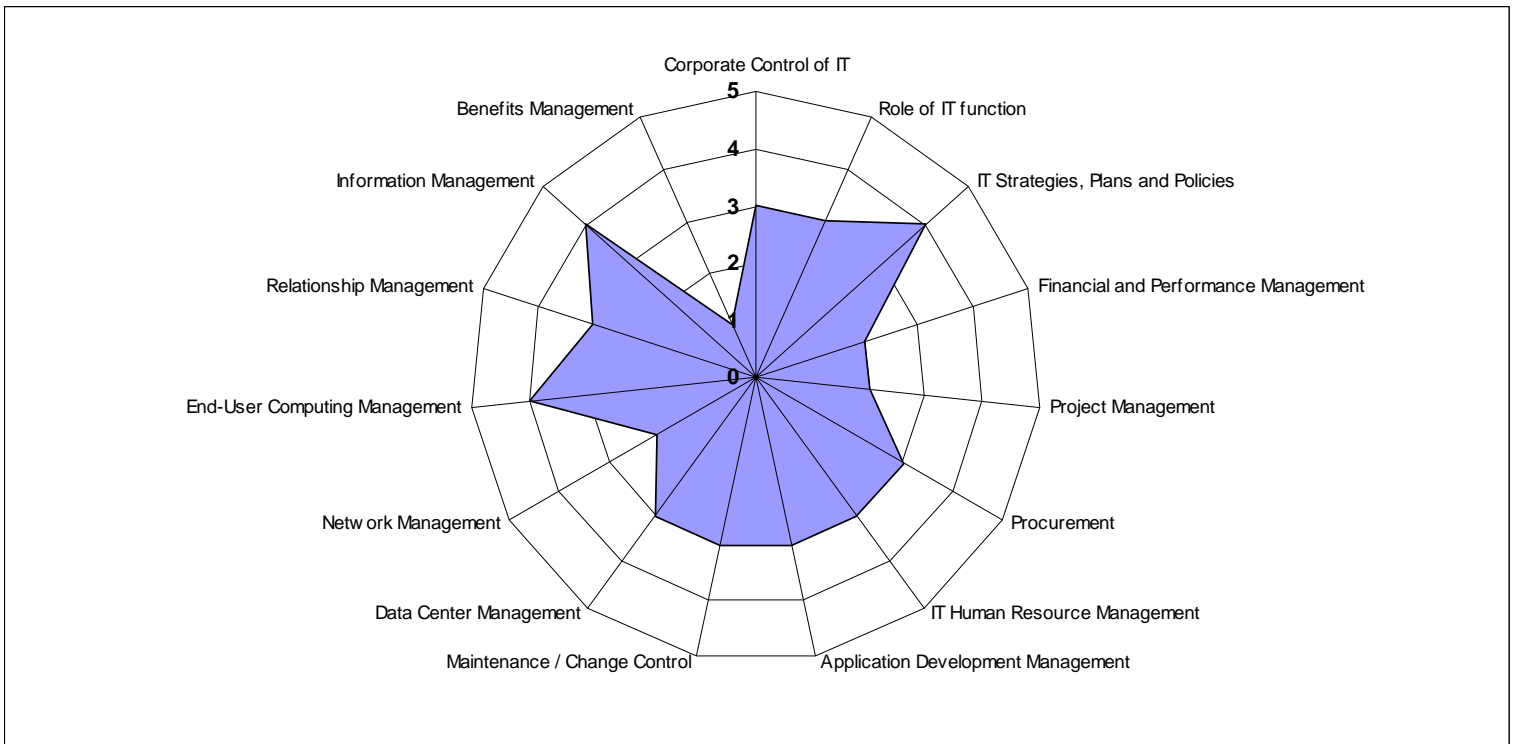
Although capability may show that their practices are less mature, DNR has assessed that they run an effective shop since their environment has remained stable.



GBI – GEORGIA BUREAU OF INVESTIGATION

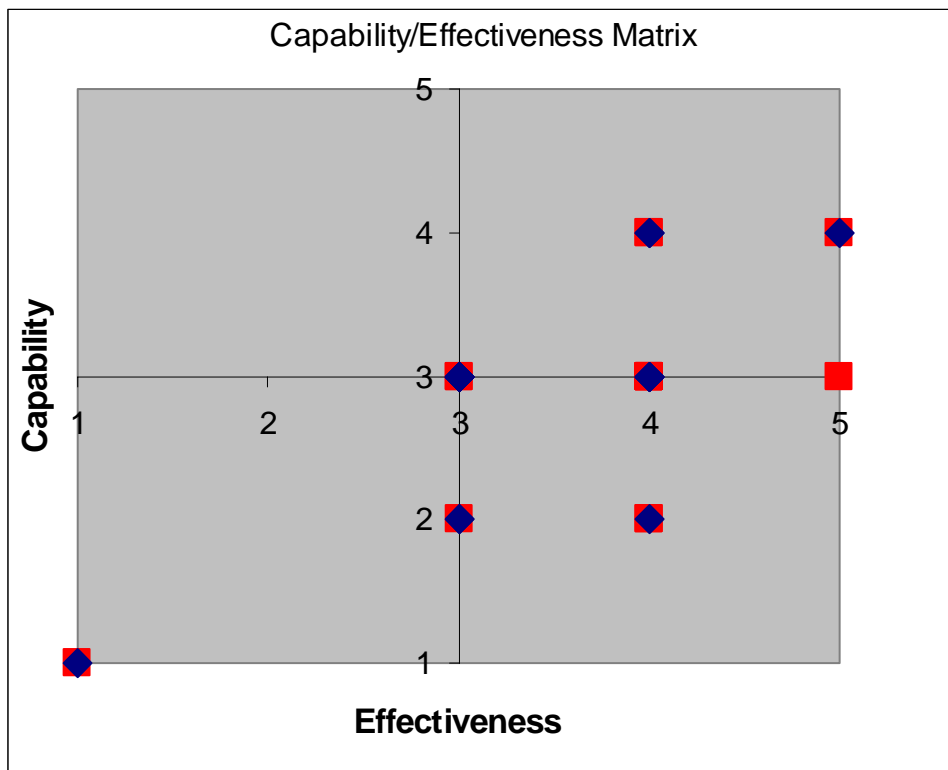
GBI ranked themselves high in the areas of IT strategies, plans and policies, end-user computing management and information management. Moderate capability but effective processes are procurement, security and business continuity planning, human resource management, application development management, maintenance/change control, data center management, and relationship management. GBI should focus on improving financial and performance management, project management, network management.

Management Practices Capability



GBI – GEORGIA BUREAU OF INVESTIGATION

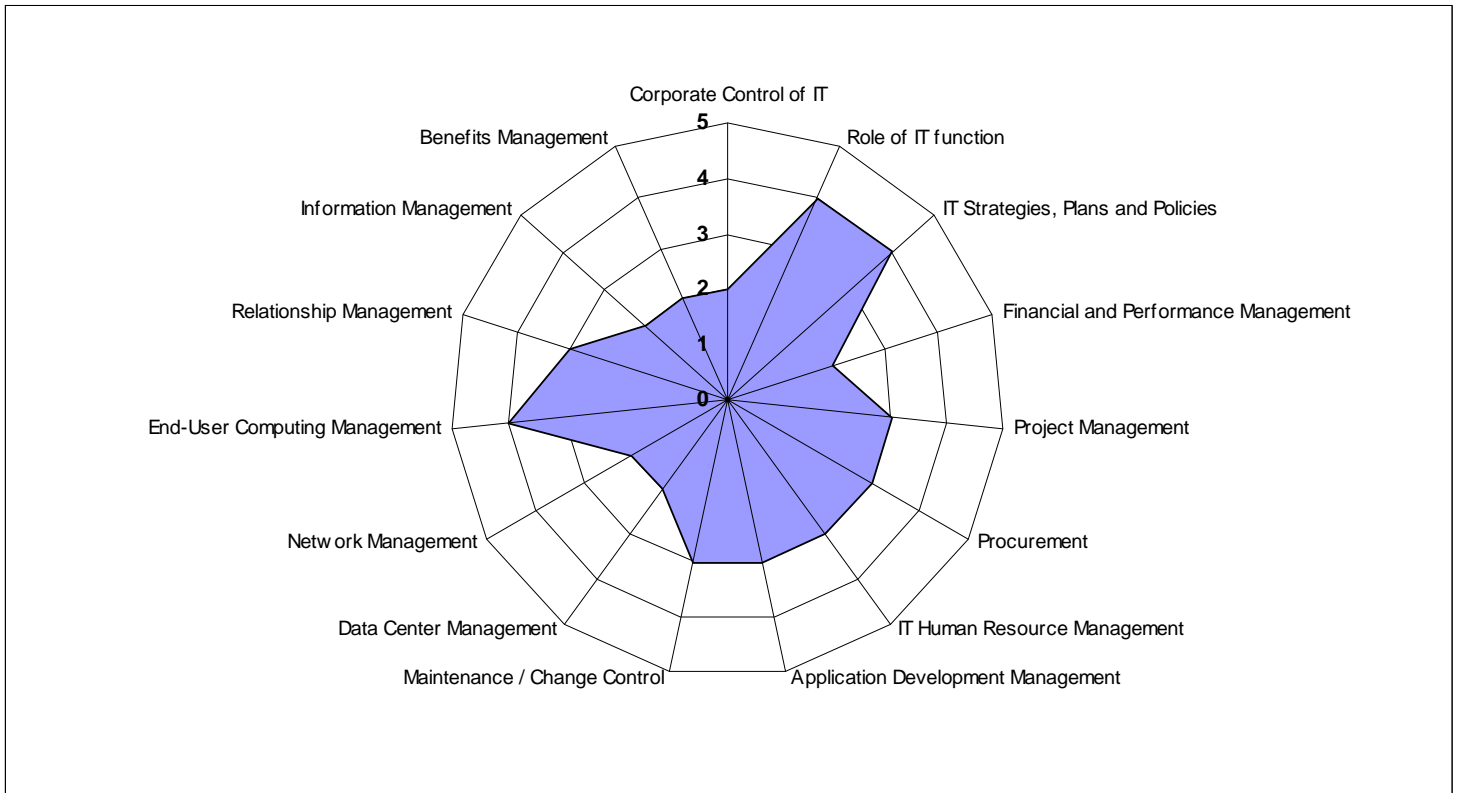
GBI assessed “benefits management” as very low in effectiveness. Since most projects are mandated by law, no cost benefit analysis of projects occur.



GMS - GEORGIA MERIT SYSTEM

GMS ranked themselves high in the areas of role of IT, IT strategy, plans and policies, and end-user computing management. GMS has a very small IT function, but expressed some deficiencies in the areas of financial and performance management, project management, procurement, human resource management, security and business continuity planning, application development management, data center management, network management, relationship management, information management, and benefits management.

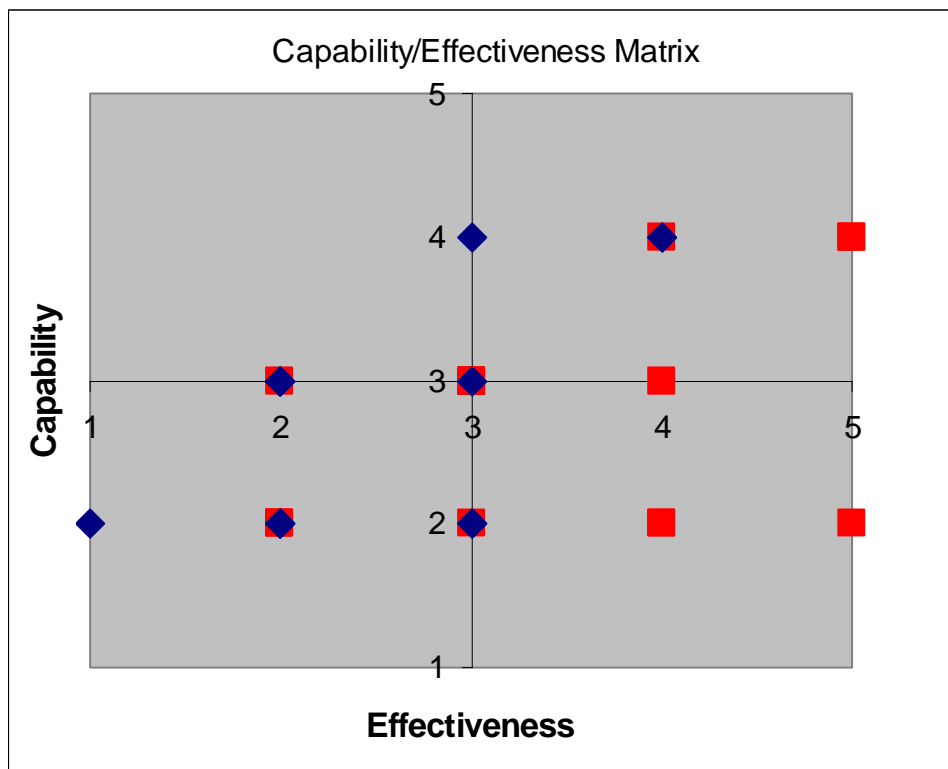
Management Practices Capability



GMS - GEORGIA MERIT SYSTEM

GMS has no significant IT staff. Most processes will remain effective if the IT environment remains stable. GMS saw little value in the following processes:

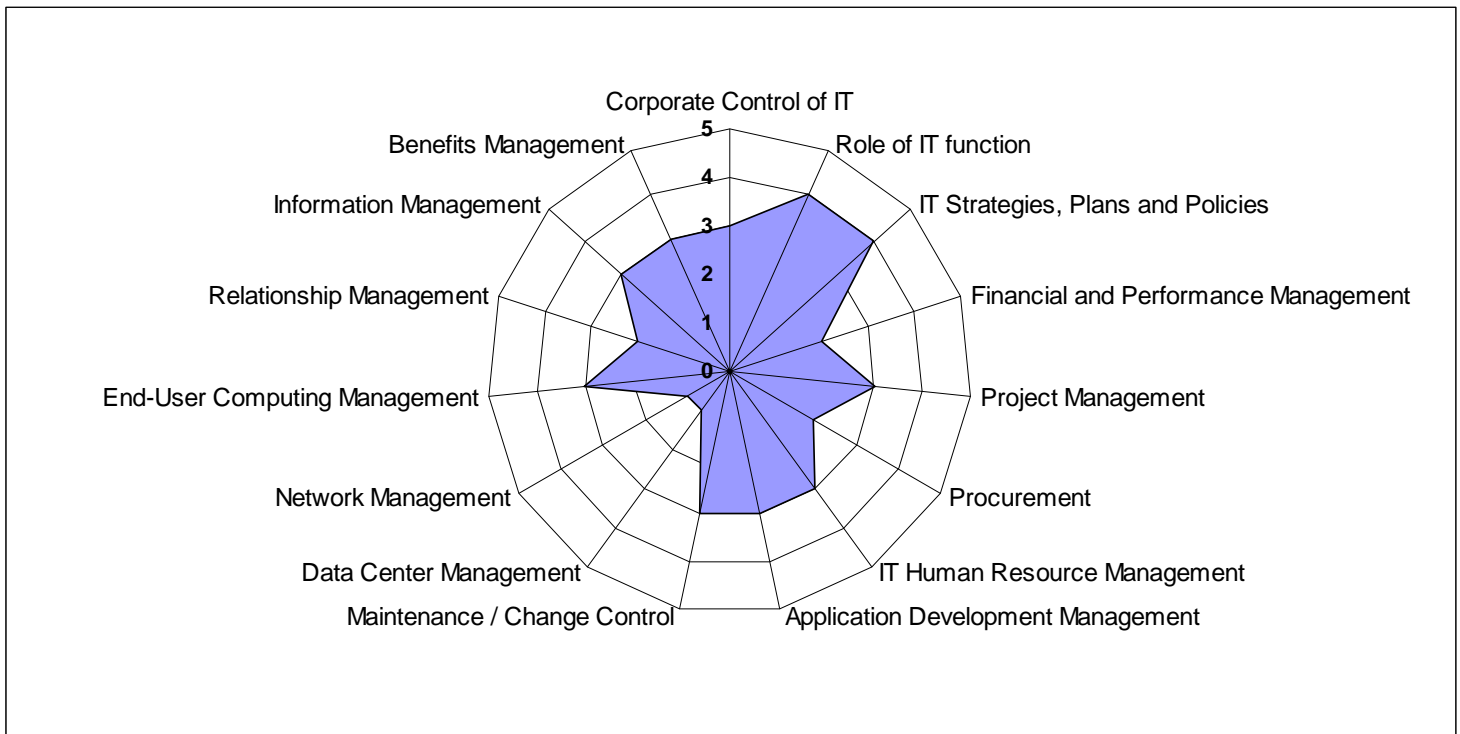
- Security and Business Continuity Planning
- Network Management
- Relationship Management
- Benefits Management



DOR – DEPARTMENT OF REVENUE

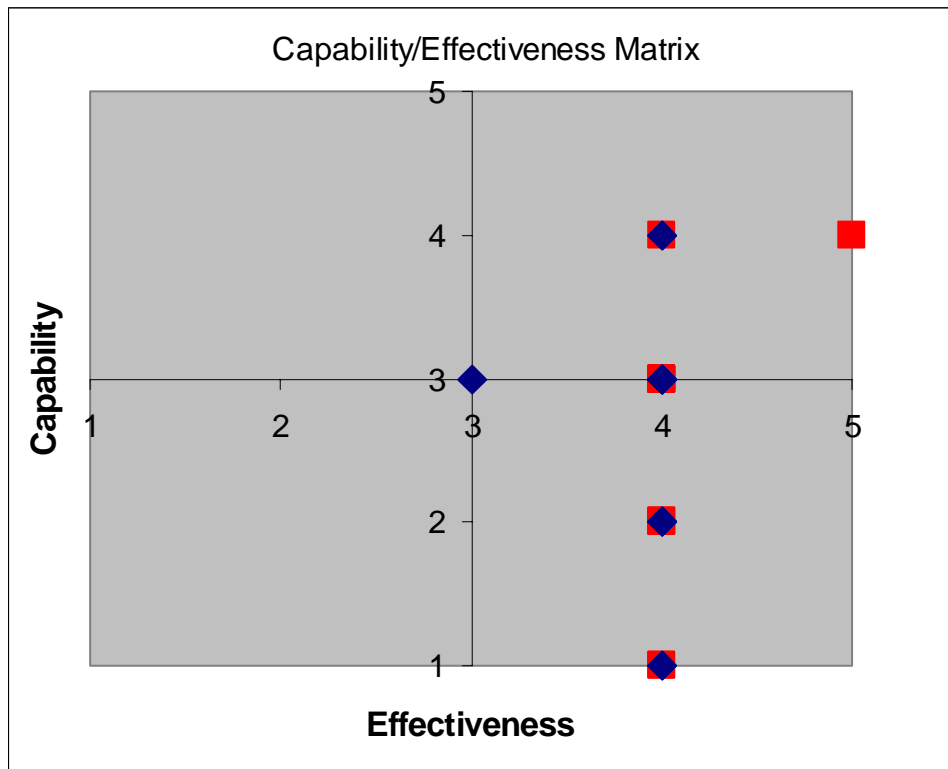
DOR ranked themselves high in the role of IT, IT strategies and plans and policies. Other processes ranked low to medium capability, but have significant value on the agency objectives: financial and performance management, procurement, security and business continuity planning, human resource management, application development management, maintenance/change control, end-user computing management, information management, and benefits management. Where DOR showed opportunities for improvement was in the areas of procurement and relationship management. Less mature practices occur in the data center management and network management areas.

Management Practices Capability



DOR – DEPARTMENT OF REVENUE

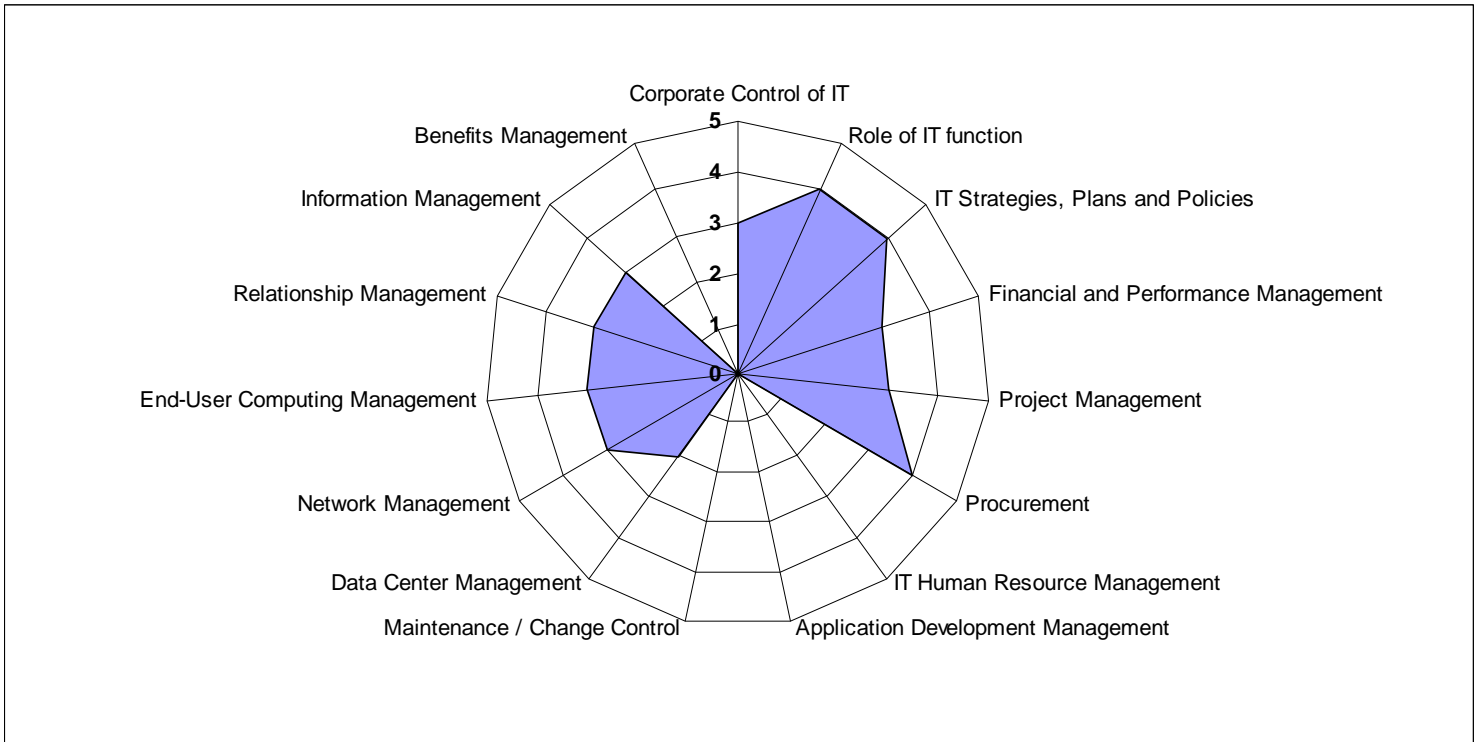
DOR ranked all processes as effective. Once again, DOR showed opportunities for improvement in the areas of procurement and relationship management. Although effective, less mature practices occur in the data center management and network management areas. DOR will sustain its effectiveness if their IT environment stays stable.



DTAE – DEPARTMENT OF TECHNICAL AND ADULT EDUCATION

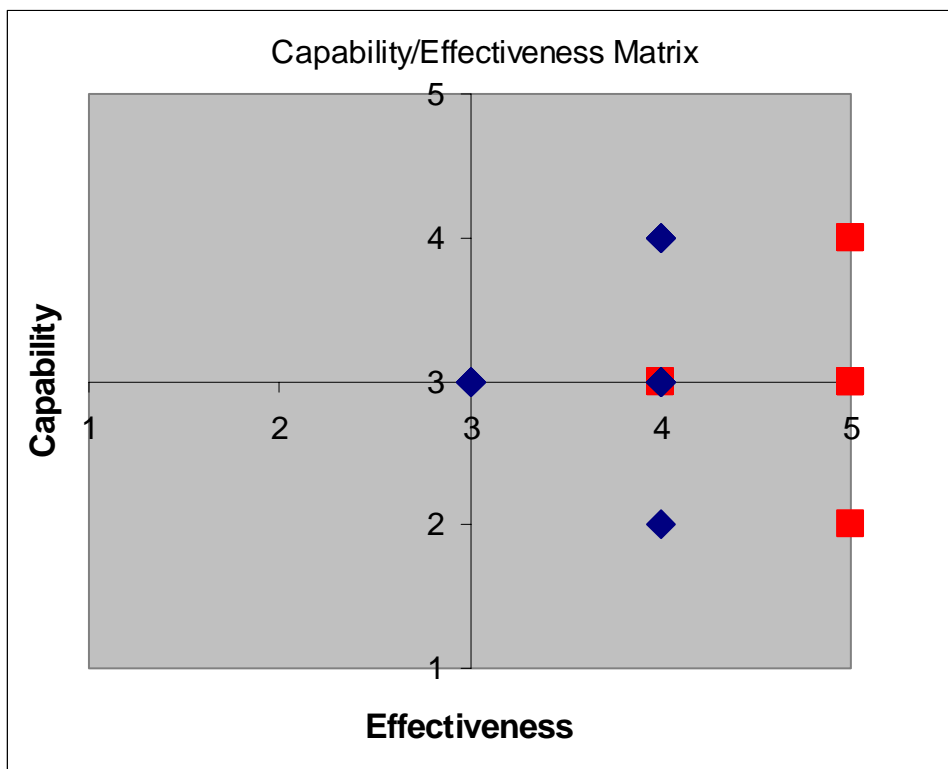
DTAE ranked themselves high in the areas of role of IT, IT strategies, plans and policies, and procurement. Other processes ranked medium capability but were effective: financial and performance management, project management, security and business continuity planning, network management, end-user computing management, relationship management, and information management. DTAE does not perform IT human resource management, application development management, maintenance/change control, and benefits management.

Management Practices Capability



DTAE – DEPARTMENT OF TECHNICAL AND ADULT EDUCATION

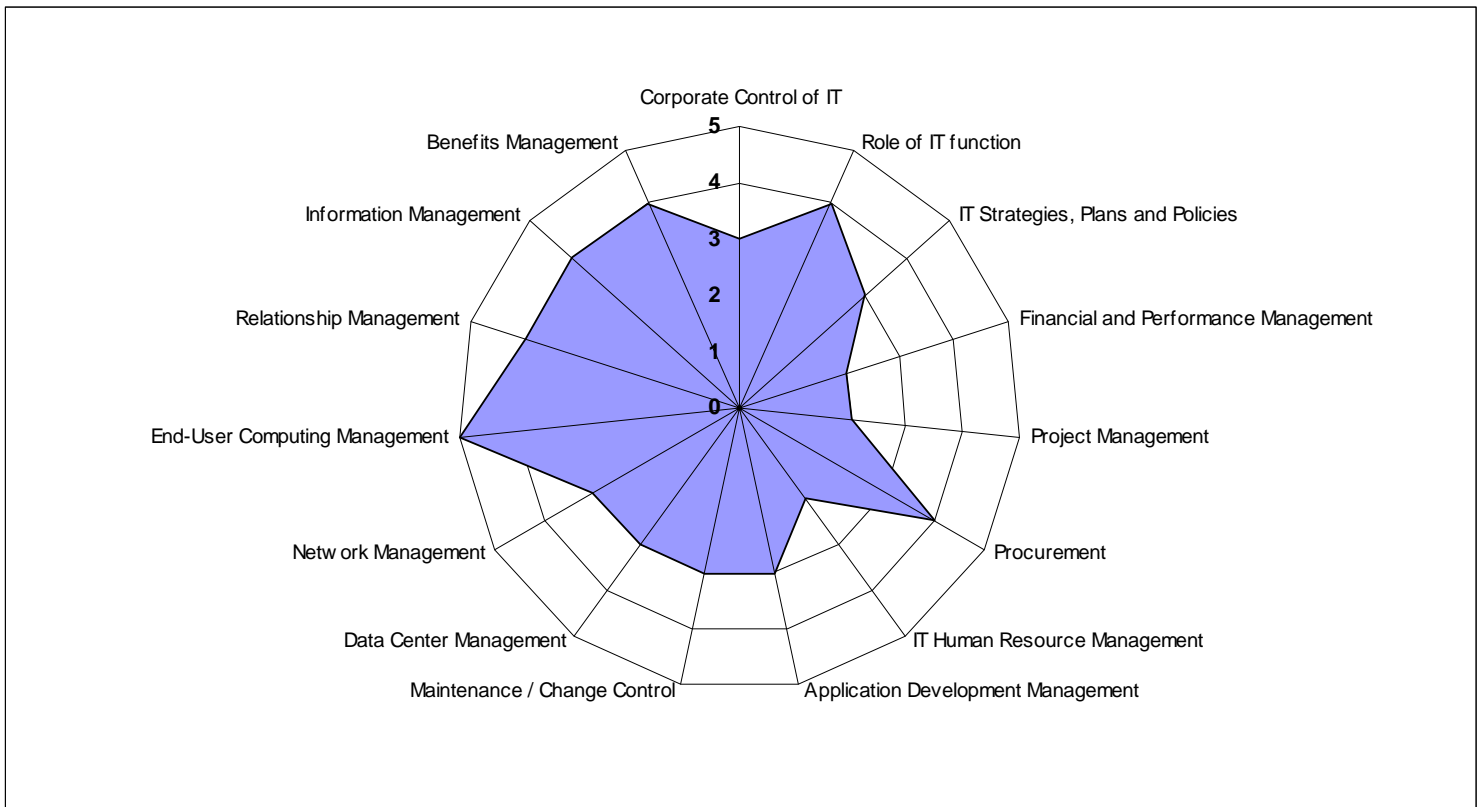
DTAE ranked all IT management practices as effective. DTAE does not perform IT human resource management, application development management, maintenance/change control, and benefits management. If DTAE’s environment stays stable, their processes will remain effective.



DOE – DEPARTMENT OF EDUCATION

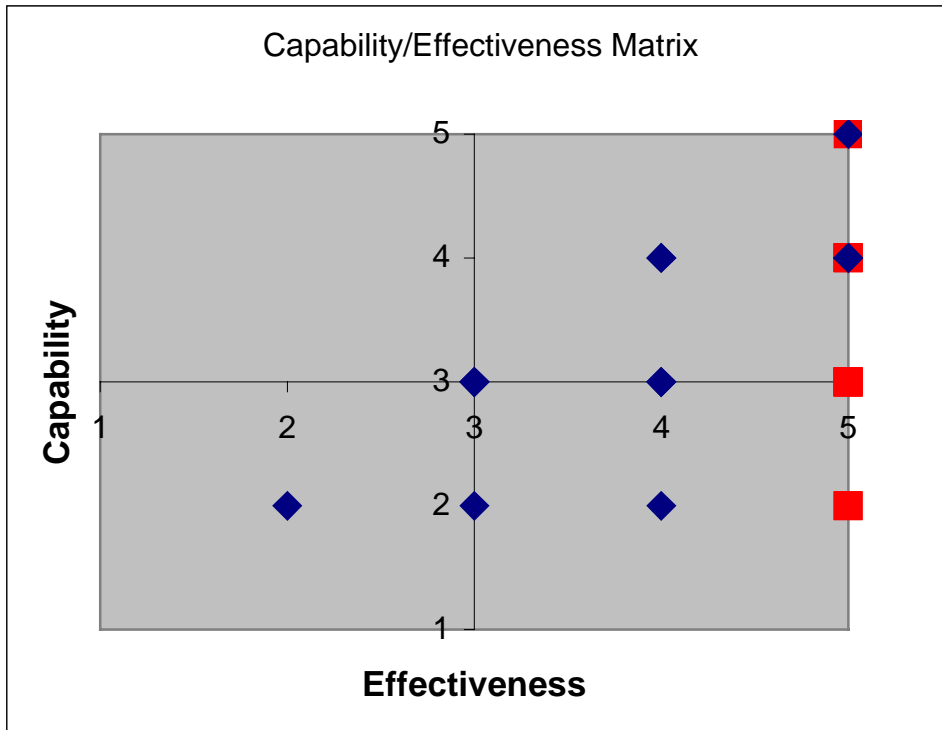
DOE ranked themselves world-class in end-user computing management. Other processes that were ranked high were the role of IT function, procurement, relationship management, information management, and benefits management. Issue areas are IT strategies, plans and policies and human resource management.

Management Practices Capability



DOE – DEPARTMENT OF EDUCATION

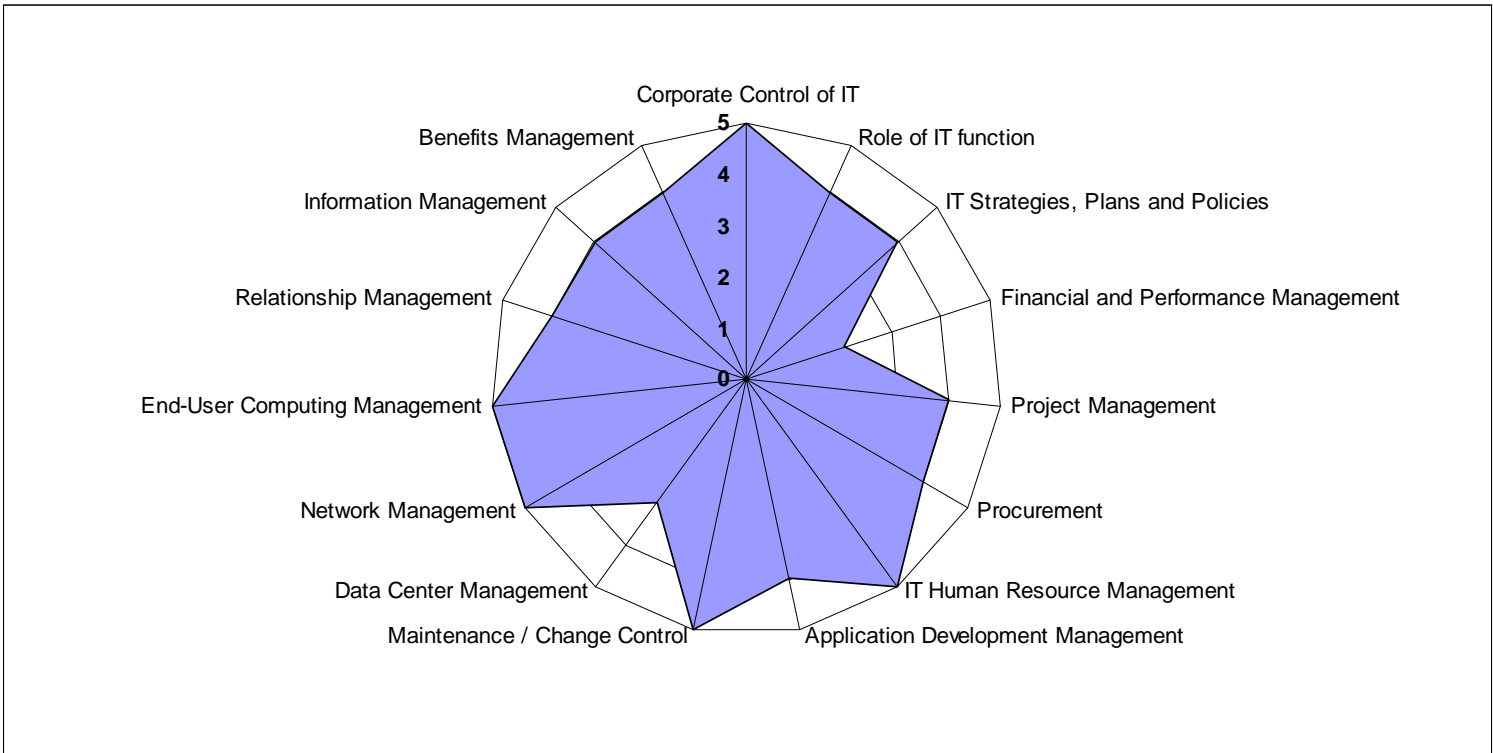
DOE ranked their relationship management practices as very effective. DOE ranked human resource management as ineffective. DOE Technology recognizes the need for staff training to maintain and retain qualified and skilled staff, but has not had necessary funds budgeted to do so.



GDC – GEORGIA DEPARTMENT OF CORRECTIONS

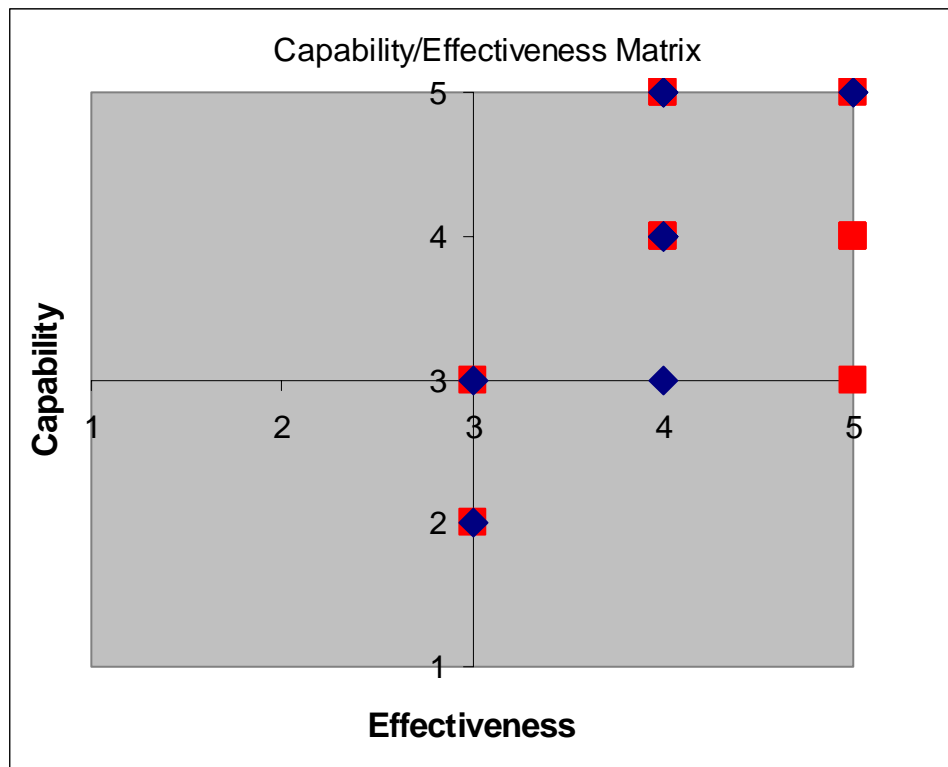
GDC ranked themselves world-class in corporate control of IT, human resource management, maintenance/change control, network management, and end-user computing management. Also ranked high in role of IT function, IT strategies, plans and policies, project management, procurement, application development management, relationship management, information management, and benefits management. Some improvement is needed in financial and performance management, security and business continuity, and data center management.

Management Practices Capability



GDC – GEORGIA DEPARTMENT OF CORRECTIONS

GDC ranked their processes as highly effective overall. GDC should pay attention to financial and performance management, security and business continuity, and data center management to make sure that these processes continue to remain effective.



1. OVERALL CONTROL AND STRATEGY

World-Class IT

Aspect 1: Corporate control of IT
Applies to the state or agency as a whole

IT Management Processes

Capability	Check stage which most closely matches the descriptions below	↓
1. No formal control of Information Technology (IT) across the organization.		
2. IT management performed at a low level in the organization. Control is directed towards approving expenditures, setting technical standards and staffing.		
3. An IT Steering committee or group exists which consists of senior managers but may not represent all key function/business units. They set policies and review the technical strategy on a regular basis. Some feasibility studies are commissioned by the committee.		
4. An IT Steering group exists which consists of senior representatives from all the key areas who jointly exhibit 'ownership' of IT. Well defined policies exist and mechanisms to ensure compliance. They ensure linkage between the business strategy and IT Strategy and set priorities accordingly.		
5. IT is considered an integral part of developing business strategy and plans. There is strong Board sponsorship of IT initiatives including management education in IT.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement

1. OVERALL CONTROL AND STRATEGY

World-Class IT

Aspect 2: Role of IT function

Applies to the state or agency as a whole

IT Management Processes

Capability	Check stage which most closely matches the descriptions below	↓
1. There is no one at an executive management level responsible for IT. IT is predominantly technology led.		
2. A person at an executive management level is responsible for coordinating disparate IT activities but this may not be a full time job.		
3. A full time IT executive exists and has management control over the IT function. The role is primarily that of managing the delivery of IT products and services. Little open or regular dialogue takes place with top management or the Board (or equivalent).		
4. The IT executive is a senior manager or Director and has a dual role of delivery management and of promoting the use of IT in the organization to achieve business benefits. The IT function becomes business focused.		
5. The role of IT is seen as a business change agent or as the keeper of the IT Strategy and participates at the highest level in business planning and decision making. The role of IT delivery management may be split from the other roles (or even outsourced). A CIO may exist.		

Effectiveness

To what extent **does and could** this process contribute to the organization's objectives/do-wells ?

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution		
4. Significant value or contribution	<input type="text"/>	<input type="text"/>
5. High alignment with objectives		

Findings

Recommendations for Improvement

1. OVERALL CONTROL AND STRATEGY

World-Class IT

Aspect 3: IT Strategies, plans and policies

Applies to the state or agency as a whole

IT Management Processes

Capability	Check stage which most closely matches the descriptions below	↓
1. No strategy, plan, standards or policies exist.		
2. A short term plan exists which mostly covers hardware acquisition and main software development projects requested. There may be some loose policies on technology standards. No enforcement or monitoring.		
3. A strategy exists which covers more than one year and includes business demands for new/improved systems, infrastructure strategy and IT organizational and resourcing implications. Preferred standards for PC hardware and software. There is no documented link to the business strategy. A business group will have approved the strategy but were not actively involved in its development.		
4. As above except that there is a clear link to the business strategy and business groups were actively involved in its development. Standards for interfacing systems, internal and external (such as e-mail or EDI), evolve. Full enforcement and/or compliance monitoring in effect.		
5. As above but the IT Strategy is integrated with (and may have influenced) the business/tactical strategy. Infrastructure investment decisions are understood by the Board. The plan includes a balanced portfolio of IT initiatives (i.e. some innovative high risk and some low risk). There is a high degree of compliance with standards. IT career progression plans are developed jointly with the business.		

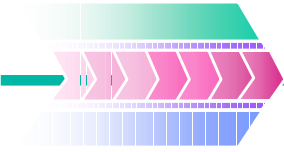
Effectiveness

*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

1. OVERALL CONTROL AND STRATEGY

Aspect 4: IT Financial/Performance management
Applies where there is significant IT activity

IT Management Processes

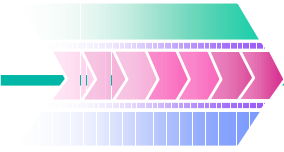
Capability	Check stage which most closely matches the descriptions below	↓
1. No performance measures or targets/objectives set beyond overall costs.		
2. Budgets and some objectives set for IT. Some performance measures being set but they are mainly project based (such as effort and timescale vs. plan).		
3. IT expense allocation may be introduced. Service levels set for some activities. More sophisticated reporting of the performance of the project portfolio. Time sheets being used in some areas. Focus on efficiency measures.		
4. Quality metrics are being put in place as well as internal service cost reduction targets. Charging (not annual allocation) is done for most IT Delivery Services. Customer satisfaction is measured. Monthly reporting of IT performance to the business. Benchmarking carried out.		
5. Depends on type of IT activity. Central IT Delivery Function : Profit, business growth and customer satisfaction perhaps within a balanced scorecard type measurement approach linked into personal objectives. Corporate IT Function (non-delivery) : Architecture conformance. Innovation measures. Extent business maximize IT opportunities. Level of business understanding of IT. Change achieved. Consultancy income per head. Business Unit IT Function : Business benefits from IT.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

IT Management Processes

Aspect 5: Project management
Applies in each agency

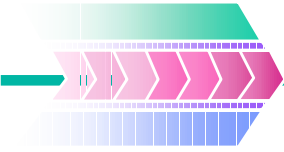
Capability	Check stage which most closely matches the descriptions below	↓
1. No formal project organization or definition. No senior management involvement or formal authorization.		
2. Project Manager is appointed and recognized (usually from IT). Some senior management involvement from the business. A simple project plan with major milestones, effort and cost recorded. Regular progress meetings. Changes dealt with informally but some standards emerging.		
3. Project team consists of mixed Business and IT people. Project manager reports to a project steering committee. Business sponsor nominated but is not involved. Project Management standards exist. Plan is updated regularly and frequently. Change requests dealt with formally.		
4. Project is business led and reports to a high level project steering committee. Sponsor is actively involved. Project office concept exists. Risk assessments carried out and contingency plans exist. Change management concepts being introduced. Project Management skills are identified and used to select project managers. Deliverables based planning.		
5. Project is business project with IT component and objectives linked to business strategy. Larger projects broken down into sub-projects. Regular and frequent reporting to high level steering committee usually chaired by Board Member. Program management of a series of projects may exist. Change management concepts understood and applied by all. Active plans to develop project management skills throughout the organization.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

Aspect 6: Procurement
Applies where significant IT services are bought

IT Management Processes

Capability	Check stage which most closely matches the descriptions below	↓
1. Informal, personal contacts with suppliers. Standard supplier contracts may exist or none at all. Procurement dealt with as a series of transactions. Requirements not defined.		
2. Irregular meetings with supplier to review progress/performance. Some aspects of ownership of physical or intellectual property unclear. A number of suppliers exist and disputes exist as to who is responsible for sorting out problems. Requirements informally defined in task or technology terms.		
3. Where appropriate, customized contracts exist and ownership aspects are clear. Regular meetings with some supplier(s) to review performance which is defined in service level agreements. Roles mostly well defined. Requirements formally defined but not linked explicitly to business benefits.		
4. Roles and responsibilities are clear. Service level agreements are regularly reviewed and measured. Cost and strategy information is shared. Relationships exist with suppliers at several levels and of different types (e.g. social events). The term partnership is starting to be used. Requirements defined in service and result terms, linked to business benefits.		
5. Relationships are managed on a portfolio basis. Where appropriate, some real strategic partnerships exist where decisions in one organization are influenced by the other, there is an understanding of the mutual benefits, trust exists, knowledge sharing takes place and complementary competencies exist.		

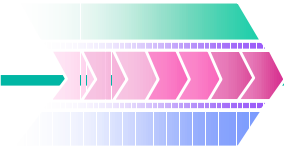
Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution		
4. Significant value or contribution	<input type="text"/>	<input type="text"/>
5. High alignment with objectives		

Findings

Recommendations for Improvement

2. DELIVERY MANAGEMENT



World-Class IT

Aspect 7: IT human resource management
Applies where significant IT personnel exist

IT Management Processes

Capability	Check stage which most closely matches the descriptions below	↓
1. No resource plan. No job specifications. Very informal appraisals and no personal objectives set. No formal training plan.		
2. Overall short term resource plan which ignores competencies. Some job specifications appearing. Technical training is carried out and has a budget. Appraisals (where carried out) do not cover a training and development plan. Some recognition of good performance. Cultural differences between IT personnel and the rest of the business.		
3. HR plan is produced annually. Job specifications exist for all staff. Technical training is planned and carried out but little business or management training. Formal appraisals take place and personal objectives are set but not effectively monitored.		
4. HR plan regularly monitored and maintained and may include competencies needed. Business and management training becoming as important as technical training. Project appraisals take place in addition to annual appraisals. A salary structure exists which rewards high performers and other motivating factors are recognized. Business and IS culture reasonably well aligned.		
5. HR plan linked into business plans and IT has the skills and experience to support this. Competencies defined and skills analyzed. Training emphasis is on personal and business skills (such as improving customer service). High motivation, performance fully recognized and clear career development plans exist		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement

2. DELIVERY MANAGEMENT

World-Class IT

Aspect 8: Application development management
Applies where significant development activity exists

IT Management Processes

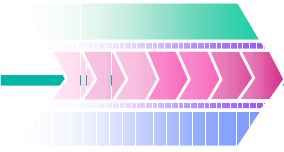
Capability	Check stage which most closely matches the descriptions below	↓
1. No management, programmers talk to users and code.		
2. Development management exists and is concerned with allocating resources to projects, tools, techniques and coding standards. The development life cycle is based on previous experience. Some informal standards exist. Disparate tools used for design and coding.		
3. Well defined systems development life cycle. Standards in place but may be several and not complete coverage. Performance measures focused on progress rather than process. Timesheets being used. Estimating procedures exist based on historical performance. QA/QC procedures exist. Tools used to support the process and hold the documentation.		
4. Applications development productivity is measured. Procedures aimed at improving business involvement and 'ownership' particularly at the specification and testing stages. Performance measures being established. Resource pools and utilization measures may be introduced. Defect/error levels are monitored.		
5. As above plus applications portfolio management (monitoring applications throughout the life-cycle, lifetime costing, etc.) with business application owners. Automation of all the development process. A flexible lifecycle is tailored to each project. Integrated tools are in use. Applications development managed as part of the systems life cycle management process.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution	<input type="text"/>	<input type="text"/>
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

Aspect 9: Maintenance/Change control
Applies where significant maintenance activity exists

IT Management Processes

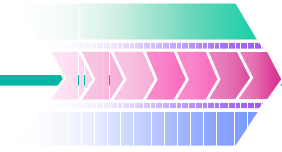
Capability	Check stage which most closely matches the descriptions below	↓
1. No definition of maintenance. Reactive approach with no process for prioritization.		
2. Predominantly corrective maintenance. Some prioritization attempted. No control of the overall resource devoted to maintenance. Poor documentation.		
3. Clear assignment of maintenance responsibility. Formal definition of maintenance. Documentation patchy. Packaging into releases. Backlog is managed and plans made for amount of maintenance resource available. Planning and time tracking used to control the work.		
4. Maintenance activity is fully integrated with development and the systems life cycle. Documentation is complete. Users have strong input into resource allocation. Productivity measurement is in place. Measures of unplanned work are put in place. Full impact life cycle analysis of changes done before initiation.		
5. Maintenance activity is controlled by users and executed either by them or by a development team which covers maintenance and new developments. Maintenance and development use the same advanced toolset and standards. Resource allocation is estimated from the application demographics and is part of the applications portfolio management process.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

IT Management Processes

Aspect 10: Data center management
Applies to each main Data Center

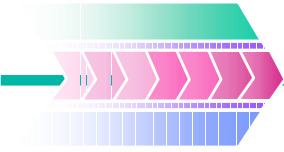
Capability	Check stage which most closely matches the descriptions below	↓
1. Technology performance and configuration only altered when service is unacceptable. No performance measures beyond overall costs. May be several activities with no overall management or co-ordination.		
2. IT budget set and controlled by the IT unit. Downtime and availability are monitored. Resource use recorded and projected. Configuration and performance controlled against supplier's threshold rules. Schedules, timetables and operational instructions are defined. Message desk passes users on to experts.		
3. Documented technical standards. Service levels set for some activities (eg availability, response times). Budget set on the basis of services required by users. Demand for resources from new systems reflected in configuration upgrade plans. Change procedures documented. Supplier service levels are monitored. Helpdesk answers 50% of calls received.		
4. A customer focus is evident and their satisfaction is monitored. Charging based on technology and staff resources used. Users choose level of resource usage on a business basis. Rules established to satisfy agreed service levels. Work with development teams to ensure systems conform to operability standards. Benchmarking takes place. Helpdesk answers 85% of calls received.		
5. Service level strategy established and services supported are benchmarked against the marketplace. Balanced set of performance measures linked to the IT strategy. Infrastructure costs funded corporately. Charges based on business units (eg costs per payslip). Focus on reducing costs and further automation (lights out operations). Some operations responsibilities are dispersed into the business or outsourced..		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

Aspect 11: Network Management
Applies to each main network operation

IT Management Processes

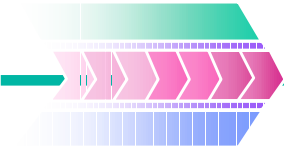
Capability	Check stage which most closely matches the descriptions below	↓
1. Network configuration only altered when service is unacceptable. No performance measures beyond overall costs. May be several activities with no overall management or co-ordination.		
2. Network budget is set and controlled by the IT unit. Downtime and availability are monitored. Volumes are recorded and projected. Configuration and performance controlled against supplier's threshold rules. Message desk passes users on to experts.		
3. Documented technical standards. Service levels set for some activities (eg availability, response times). Budget set on the basis of services required by users. Demand for capacity from new systems reflected in network upgrade plans. Change procedures documented. Supplier service levels are monitored. Helpdesk answers/solves 50% of calls received. Several automated tools in place.		
4. Charging based on transaction volumes. Ability to target charges to individual users to assist users in managing demand. Rules established to satisfy agreed service levels. Work with the datacenter and development teams to ensure systems conform to operability standards. Benchmarking takes place. Helpdesk answers/solves 85% of calls received. End to end network monitoring takes place.		
5. Service level strategy established and services supported are benchmarked against the marketplace. Balanced set of performance measures linked to the IT strategy. Infrastructure costs funded corporately. Focus on reducing costs and automation. Some responsibilities are dispersed into the business or outsourced. Network capacity modeling takes place.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

2. DELIVERY MANAGEMENT

IT Management Processes

Aspect 12: End-user computing management

Applies where significant end user computing occurs

Capability	Check stage which most closely matches the descriptions below	↓
1. No coordination of end-user computing (EUC) or responsibilities assigned. A limited number of end-users are doing their own thing.		
2. Typically word processing, spreadsheets or technical use is spreading and quite a lot of re-keying of data occurs. Back up of data is sporadic. Responsibilities between IT and the business are unclear. Some standardization of software is attempted.		
3. Typically local area networks develop and some limited use of e-mail. Responsibilities between IT and the business become clearer but some users are doing their own thing. Standards set for hardware and software and ad hoc support provided for users. The business starts to become aware of the need to manage end-user computing. Limited information security and business continuity planning exist.		
4. Typically more extensive use made of e-mail and security is good. A separate help desk function exists and customer surveys are conducted. Some data can be down/up-loaded into company systems. The cost and performance of EUC is measured and managed. Clear responsibilities agreed between the business and IT.		
5. Very active management of EUC by the business. Well defined processes for software acquisition, security against viruses and connection to other networks which are subject to regular audit. Data is shared appropriately and is clearly the responsibility of the business. Senior management understand the need for an infrastructure to support EUC and make appropriate investment in it.		

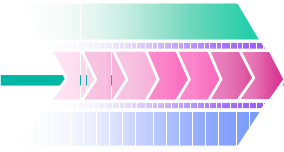
Effectiveness

To what extent **does and could** this process contribute to the organization's objectives/do-wells ?

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

3. CUSTOMER INTERFACE

Aspect 13: Relationship management
Applies where significant IT systems exist

IT Management Processes

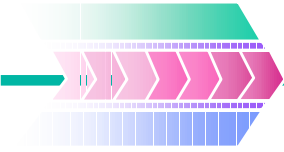
Capability	Check stage which most closely matches the descriptions below	↓
1. No attempt to manage relationships with the business. Some personal contacts exist.		
2. Some business analysts and/or IT managers have functional areas assigned to them to develop relationships and business understanding.		
3. Some account management roles start to appear but seen as only there for high level problem resolution. They may be invited to occasional executive team meetings by their customers. No formal selection procedures for account managers are in place. Some grey areas and/or differences of view about the role and responsibilities.		
4. Well established account management roles. Selection processes for account managers are formalized and involves the business and IT. Regular attendees at the customers executive team meetings. Both sides feel that representation is appropriate. Most relationships are regarded as good. Measurement of the relationship may start to take place. Customer satisfaction measures are used.		
5. The role of account manager is closely defined and highly valued. Account managers are part of the business management team and involved with strategy and planning. There is movement between IT and the business. Depending on the organizational arrangements, the role may split into two : an account manager for IT who is responsible for IT business growth and an IT coordinator in the business who is responsible for getting business benefit from IT.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

3. CUSTOMER INTERFACE

Aspect 14: Information management
Applies to each agency business unit

IT Management Processes

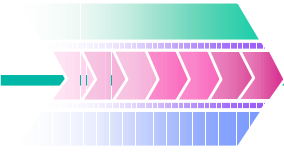
Capability	Check stage which most closely matches the descriptions below	↓
1. No concept of information management beyond technical management of computerized databases.		
2. Database administration appears as a role. Data accuracy, currency and compatibility is a problem identified by users. Computerized data is seen as 'owned' by IT.		
3. Data models start to be developed. Duplication of computerized data is recognized by IT and it is taking steps to reduce it. Facilities exist for the business to access relevant computerized data. Information security is an issue being addressed.		
4. The business is actively involved in managing information and ensuring consistent definitions, minimum duplication and appropriate access. Computerized data is seen as 'owned' by the business. IT fully supports these initiatives. Intellectual Property Rights are starting to be considered.		
5. The Board or Top Management identify the key information assets in the organization and ensure policies are set for exploiting and protecting these assets and having appropriate access. Internal audit may have a role in ensuring compliance with an information management policy. Information management is part of every managers role.		

Effectiveness
*To what extent **does and could** this process contribute to the organization's objectives/do-wells ?*

1. No contribution	Currently	Potentially
2. Little contribution		
3. Some value or contribution		
4. Significant value or contribution	<input type="text"/>	<input type="text"/>
5. High alignment with objectives		

Findings

Recommendations for Improvement



World-Class IT

3. CUSTOMER INTERFACE

IT Management Processes

Aspect 15: Benefits management

Applies to each agency business unit (state may set policy)

Capability	Check stage which most closely matches the descriptions below	↓
1. No cost benefit analysis of projects.		
2. Costs are assessed against unquantifiable benefits but excludes risks. No standard process applying to all IT investments.		
3. Cost benefit analysis undertaken for most projects which may include an evaluation of technical risk. Some follow up post-implementation to see if benefits achieved but sporadic.		
4. Full investment appraisal undertaken for major projects, a simpler system may exist for small projects/enhancements/hardware purchases. Business risk and contribution to business objectives considered. Post-implementation reviews undertaken on major projects and some one-off exercises to look at mid and end life benefits.		
5. As above except that coverage is more complete and there may be a common process across all business projects (whether IT is involved or not). Benefits management is clearly the responsibility of the business not IT.		

Effectiveness

To what extent **does and could** this process contribute to the organization's objectives/do-wells ?

	Currently	Potentially
1. No contribution		
2. Little contribution		
3. Some value or contribution	<input type="text"/>	<input type="text"/>
4. Significant value or contribution		
5. High alignment with objectives		

Findings

Recommendations for Improvement



Appendix C – Sample Communications Plan

Appendix C—Sample Communication Plan

Audience	Objective	Communication Vehicles	Frequency	Responsible
Governor	To develop an on-going commitment to IT Initiative being implemented by the state	One-on-one meetings	Weekly	President
		Newsletters*	Monthly	HR Director
		Management meetings	As required	President
Governor	To create awareness and commitment for action to address issues and concerns associated with the IT Initiatives	Project update meeting	Weekly	Project Office
		Communication meeting	Bi-weekly	Change Management Role
		Newletters	Monthly	HR Director
		One-on-one meetings	As required	Anyone with issue to discuss

*To be implemented by HR

Appendix C—Sample Communication Plan

Comments
Project progress update
Exchange of information related to project
Status, budgetary issues, etc.
Discuss communication related issues

**Sample Communication Plan
(Internal Communications)**

Audience	Objective	Communication Vehicles	Frequency	Responsible
Steering Committee	To create active sponsors with a strong commitment to IT Initiatives and a clear understanding of the goals and strategies required to improve Customer Satisfaction as a business.	Developmental workshops	Ongoing — as required	Agency
		Steering Team meetings	Weekly	Project Office
		Newsletters*	Monthly	HR Director
		Voicemail/E-mail	As required	Project Office
Project Leaders	To create a knowledgeable, committed group that is dedicated to implementing changes to improve Customer's overall business performance.	Orientation	Once	Project Sponsor
		Developmental workshops	Ongoing — as required	Agency
		Steering Team meetings	Weekly	Project Office
		Periodic meetings	As required	Any project team leader with issues to discuss
		Newsletters*	Monthly	HR Director
		Voicemail/E-mail	As required	Project Office
Agency Members, Team Members	To create support for the project objectives, schedule, and anticipated costs and benefits through the active solicitation of improvement ideas.	Orientation	Once	Project Office
		Project Team Meetings	As required	Process Owner and Coordinator
		Steering Team meeting	Weekly	Project Office

**Sample Communication Plan
(Internal Communications)**

		Newsletters*	Monthly	HR Director
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*To be implemented by HR

Sample Communication Plan (Internal Communications)

Comments
Visioning Session, Facilitation Training, Change Mgmt., Technology Briefings
Attendance open
Ad hoc communications for project related topics
Visioning Session, Facilitation Training, Change Mgmt., Technology Briefings
Attendance as required
Project Actions/Issues
Ad hoc communications for project related topics
Meetings/conference calls as required to update team
Attendance as required

**Sample Communication Plan
(Internal Communications)**



**Sample Communication Plan
(External Communication)**

Audience	Objective	Communication Vehicles	Frequency	Responsible
State Employees	To inform and create support for the project objectives, schedule, and anticipated costs and benefits through the active solicitation of improvement ideas.	Kick-off agency visits	Once	Governor/Agency Heads and others as required
		Follow-up kick-off announcement letter	Once	Governor/HR Director
		Agency Visitation Teams*	As required	Project Office/HR Director
		Newsletters*	Monthly	HR Director
		General Employee Meetings*	Monthly	HR Director/Agency Head
		Governor Visits*	Twice a year	Governor/HR Director
		Email Mailbox	As required	Project Office
Customers and Suppliers	To create an awareness of the project objectives and increase willingness to support improvement efforts.	Customer and Supplier Newsletters*	As required	Project Leaders/ HR Director
		One-on-one meetings	As required	As required
Implementation Partner (If applicable)	To increase the implementation partner's ability to deliver value and satisfaction to state	Partner Status Meetings	Weekly	Change Management Role
		Steering Team meetings	Weekly	Project Office
		Facilitator integration meetings	As required	Any facilitator with an issue

*To be implemented by HR

**Sample Communication Plan
(External Communication)**

Comments
Teams to discussion company/project issues
Forum at each house to provide info. on key business issues
Forum to increase visibility and encourage employee interaction
Available to all employees
Engagement Manager
Meetings to ensure that the methodology is being executed consistently



kpmg

Appendix D

Appendix D – Customer Satisfaction of Telecommunications

Customer Service

Telephone Services

There were ten categories of questions covering Local Telephone Services. They include:

Products/Services/Features

Although there is improvement in this category when comparing 1999 over 1998, there was only about a 50 percent favorable rating for the areas that cover cost effectiveness, reliability, and use of up-to-date technology.

Design and Installation

This category covers ease of requesting service, fit of system to needs, timeliness of installation, accuracy of installation and training. Within all of these areas there was slight improvement from 1998 to 1999 with the exception of *accuracy of installation*. This area showed a 7 percent drop in its favorable rating, although it has the highest favorable rating in the category, 57 percent. All other categories measured between a 40 percent and 50 percent favorable rating.

Maintenance & Repair

This category covered three areas, ease of reporting trouble, timeliness of repair, and effectiveness of repairs. These three areas experienced a 10 percent to 16 percent decline in their favorable rating from 1998 to 1999.

GIST Long Distance Service

This category covered two areas, cost effectiveness and calling card usefulness. Although both registered a 65 percent favorable rating, they were both down from 1998 by 5 percent to 8 percent.

800 Inbound Service

Effectiveness and reliability scored in the 66 percent and 75 percent during 1998. Scores for these criteria were down to 56 percent and 65 percent respectively in 1999.

Voice Mail

Features and installation scored at a 60 percent favorable rating. Problem resolution scored at 50 percent.

Telephone Business Practices

User satisfaction with DOAS business practices for Telephone Service had overall poor results, particularly in the areas of status and ongoing communication.

Billing

Both billing accuracy and timeliness of bills scored less than 50 percent favorable user satisfaction.

Staff

Staff competency and customer service attitude scored in the 60 percent bracket. These were the highest scored in the Telephone group.

Overall DOAS Telephone Service

Overall, telephone service received poor scores in the 1999 customer satisfaction survey. Service experience rated at 57 percent down from the 63 percent in 1998. Many areas had a 50 percent or less favorable rating. Many scores actually dropped from the prior year. The lowest scores were in billing, installation, maintenance and repair.

Procurement Support for Hardware and Software Technical Services

This survey group covered procurement items having to do with access to pricing, tracking and status updates, timeliness and accuracy of deliveries. It also covered procurement business practices related to flexibility, customer service, problem resolution, and status communications.

The scores for this group were consistently low, each area scored less than 40 percent favorable. For a customer service organization, these are particularly poor scores. The effectiveness of problem resolution and status communication scored 38 percent and 31 percent respectively.

Data Network Services

Data network services included the following five criteria:

- Product/Services Features – covered areas relating to network response time, reliability, cost effectiveness and use of up-to-date technology. The scores for this area were all about 40 percent, not very favorable.
- Design & Installation – covered areas such as ease of requesting services, fit of system to needs, timeliness and accuracy of installation. Each of these areas scored between 35 percent and 39 percent.

- Maintenance and Repair – covered ease of trouble reporting, and timeliness and effectiveness of repairs. These scored less than 45 percent favorable.
- Business Practices — covered areas relating to flexibility, timeliness of resolution, effectiveness of resolution, status updates and billing services. These areas scored between 34 percent and 38 percent. Very poor results.
- Staff Competency and Customer Service Attitudes — They scored at 48 percent favorable, the highest scoring areas in the Data Network group.

There were two additional questions in the Data Network Group including:

- Awareness of the transition of Data Network Services to an enterprise network management model. Only 14 percent of respondents were familiar with this capability.
- Improvement in the network services over the previous model. This criteria received a 63 percent favorable rating.

Overall, results in the Data Network Services area were particularly poor. Poor results are not only reflected the type of services offered but also in the lack of quality in the delivery of these services.

Paging & Video Services

Paging services scored above 60 percent favorable in availability, coverage and cost-effectiveness. Video services scored above 50 percent for the video service features offered, but scored below 50 percent for installation, maintenance and repair.

IT New Initiatives

There were three questions on the survey in this group. Results are as follows:

- 49 percent favored agencies having authority to manage and maintain their own telephone sets.
- 45 percent were favorable toward of the creation of a Technology Strategies group to evaluate new and emerging technologies.
- 44 percent had a favorable response towards the support received for Y2K.

Purchasing Service

There was a 60 percent favorable score in the handling of purchase requests. There was also about 60 percent favorable score for the Invitation to Bid process. The RFP process received the highest score at

67 percent favorable. Documentation and training on the purchasing process scored between 55 percent and 63 percent.

Appendix E – Centrex / PBX Technology

The Trouble with Centrex/PBX Technology

There appears to be at least one situation where enterprise users will want to stop using Centrex and PBX, but for reasons that are not intuitively obvious or entirely logical to telecom managers.

Consider the typical environment. Today's Centrex and PBX-based systems likely are run by a telecom department or manager that is separate from any user organization. Telecom is part of the IT department, and locally may be part of the Agency's administrative services department.

Particularly when telecom is part of administrative services, the department's goal has been to keep the organization's phone bill down. This mentality makes it hard to consider innovative –albeit unproven, from a business standpoint – telephony applications. It also means the telecom department may not be responsive to user requests for new services that add to telecom costs.

This situation is made even more difficult because of the fact that virtually all intelligence resides in the Centrex/PBX Switch. Most Centrex and PBX switches are the antithesis of “open;” they are vendor-proprietary monolithic systems. Consequently, additional features and functions typically require software that can be written only by the switch vendor, limiting customer choice and increasing costs. Even where Computer-Telephony interfaces are available and software can run on computers external to the Centrex/PBX, the environment is complex and vendor-specific.

Contrast this situation with new client/server TOIP phone systems in a converged environment. Many call-control servers run on standard Unix or Windows NT computing platforms, where TOIP vendors can encourage third-parties to develop new telephony applications. Increased use of IP-related industry-standard call-control protocols (e.g., SIP, H.323, H.248, MGCP, etc.) also will make these systems more “open.” Partnerships among equipment vendors and software suppliers are already occurring, giving users a wider range of features and functions.

Transition Challenges

Barriers must be eliminated before most large enterprises will seriously consider installing Ethernet phones and TOIP systems to replace their Centrex and PBX phones. These barriers include:

- **High reliability/availability:** The data network must provide redundancy and fault-tolerance to a “five nines” (99.999 %) availability level, which is the standard for most voice systems. Among other things, this may force inclusion of UPS power protection for the entire LAN infrastructure.
- **Voice quality:** Ethernet phones must deliver the same quality as the Centrex/PBX. The TOIP system will need to meet stringent technical requirements to manage delay and echo. This will depend upon the codecs used (G.711, G.729, etc.) and the amount of compressions, but will also be tied to the transport network’s quality of service (QOS). Unlike today’s environment, where all voice is toll quality, in a converged world, voice quality will become a new variable, and it will be linked to the level of cost savings desired: Someone wanting to maximize savings would opt for “best-effort” voice service, and an intermediate level – “business-quality” – would be good enough for intra-enterprise communications.
- **Network quality of service (QOS):** The data network must deliver the appropriate QOS, minimizing dropped packets and reducing latency and jitter. Enterprises must ensure that voice QOS remains adequate once “bandwidth-hogging” data applications are on the network.
- **Desktop telephone power:** Today’s phones obtain reliable DC power from the PBX, but what about Ethernet phones on the LAN? AC adapters and battery backup (in the event of power failure) are inconvenient to provide for each phone. Vendors are only beginning to introduce Ethernet switches that can deliver power to the desktop and standards have not yet been developed.
- **Feature/functionality:** Typically Ethernet-based IP phone systems provide about 100 features, while most PBXs offer 400-500. Enterprises will have to decide which are “must-have,” which are “nice to have” and which don’t matter.
- **Distance limitation:** Enterprises must cope with the 100-meter distance limit of Ethernet over twisted-pair. In many sites, phone extensions are routinely more than 100 meters from the phone closet.
- **Legacy voice investment:** Organizations need asset protection for their existing phone sets, fax machines and conference speakerphones, many of which require analog lines. There must be a way for these devices to work with the new IP-based phone system and LAN-attached devices.
- **Management:** Systems must be developed to manage the new IP-based voice systems, which are client/server based. This includes moves, adds and changes, as well as troubleshooting.

An Analogy

If Centrex/PBXs are analogous to mainframe systems, and converged TOIP systems can be compared to PCs, the reason for user willingness to abandon their legacy Centrex/PBX service becomes more obvious.

Because IP networks are inherently “dumb,” with intelligence residing at the edge, users have traditionally been able to create new services and add value to the network by themselves. All they had to do is add servers and workstations to the edge with few changes to the network infrastructure.

A similar situation applies to TOIP applications. Rather than waiting on telecom Centrex and PBX switch vendors to add functionality to Centrex/PBX switches, a department or LAN administrator can add telecom application servers at the edge of the data network; Voice becomes just another type of application riding on the data network. This bypasses both corporate telecom and the new product life cycle of five years from Centrex/PBX switch vendors. Also, control of voice communications and many telecom applications moves from the “inflexible” enterprise telecom department to the users of the data network.

A similar situation took place 20 years ago when users reduced use of the mainframe in favor of their own applications running on PCs. In both situations, there is no reason why most applications could not be hosted on larger, centralized systems; such an approach could even be less costly (especially when considering labor costs). Yet many users prefer a more-complex, harder-to-manage system with distributed intelligence.

The benefit with the distributed approach is primarily measured management control. Users can more readily deploy their own applications, reducing dependence on a central authority or resource. A converged system puts the users in charge, permitting them to more rapidly deploy innovative applications in response to their emerging business requirements. Consequently, despite all the logical reasons why Centrex/PBXs seem better, many users are expected to gravitate to TOIP systems. Network managers must be prepared to re-architect their data infrastructures to accommodate such systems.

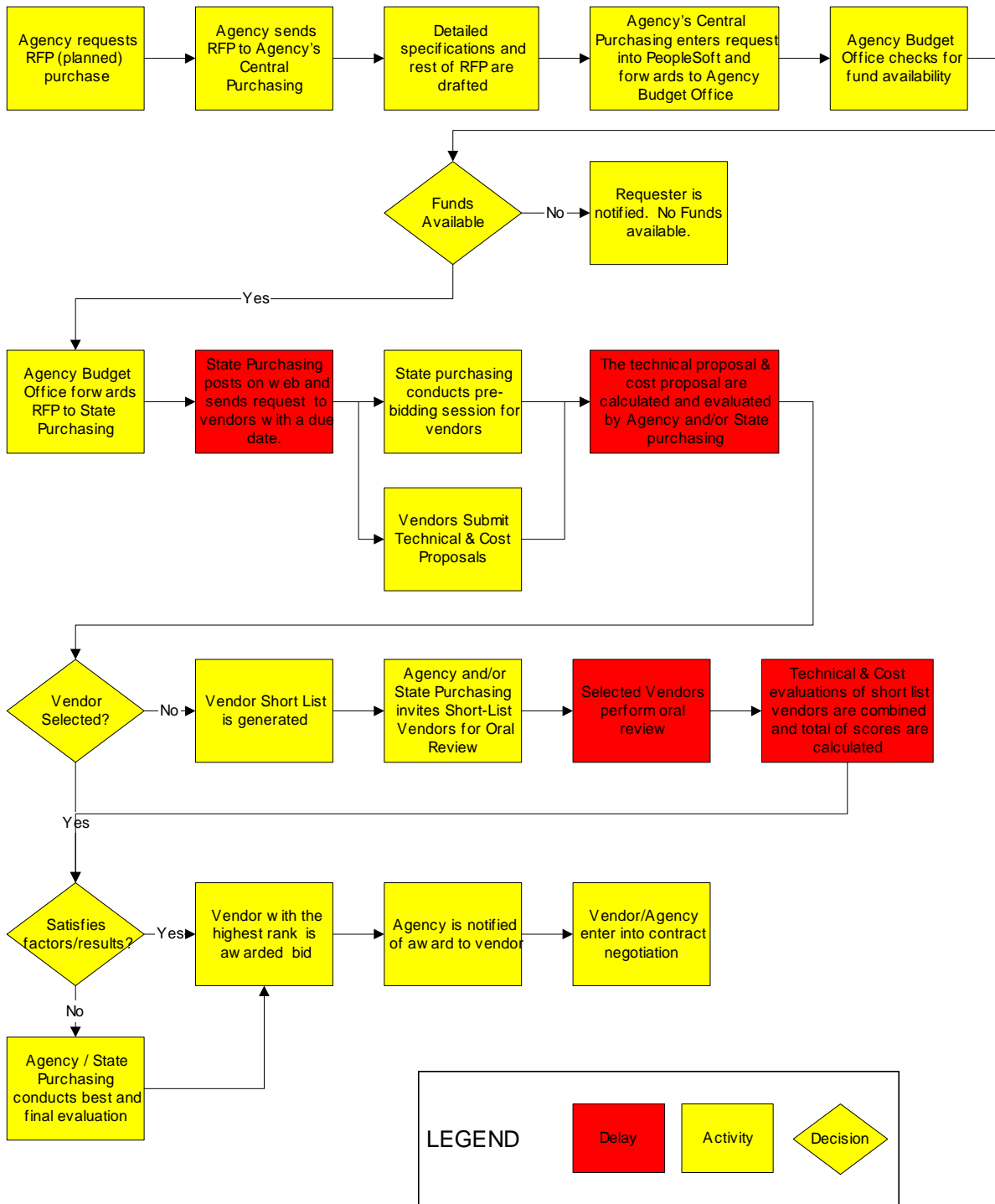
Appendix F – Service Order Flow Examples

Telephone Line Service Order Flow – Analog vs. ISDN

	<u>Analog</u>	<u>ISDN</u>
1) End user at GT fills out telecom request & faxes to GT Telecom group (Mike & Keith).	X	X
2) End user at GT fills out layout sheet to accompany request.		X
3) Mike or Keith review the request to make sure that all Information needed is on the form.	X	X
4) GT (Mike or Keith faxes request to DOAS (Jackie, Tammy or Nichole)).	X	X
5) DOAS verifies request is correct, writes the request as a firm order(s), types order(s) into the COCOA system & assigns a due date after coordinating with the Technician's schedule. If order is not correct or complete, DOAS notifies GT and holds the order until GT provides DOAS with the needed information.	X	X
6) DOAS must do a physical check at site(s) to verify if a "B" channel is available & the circuit ID before order can be sent to BellSouth.		X
7) DOAS faxes to GT the order confirmation, due date, order number & copy of the DOAS technician's order (physical work) if required.	X	X
8) DOAS faxes order(s) to BellSouth (if BS work required).	X	X
9) DOAS fills out a separate form if Voice Mail is being requested & faxes to VM coordinator within DOAS.	X	X
10) DOAS faxes copies of the BellSouth order, DOAS order & physical work order to the DOAS lead technician at GT.	X	X
11) DOAS inputs any feature requests via DECAS. (For features that DOAS cannot input an order is sent to BellSouth.) Cortelco ISDN sets cannot be programmed by DECAS.	X	X
12) DOAS techs must re-label ISDN buttons for feature changes.		X
13) After the order is completed, DOAS enters any changes onto the COCOA order & closes out the order prior to end of the Month for billing.	X	X
14) ISDN orders require changes to three (3) different accounts.		X
15) DOAS files completed paper copies & stores a min. of 1 FY.	X	X

Appendix G – RFP Process Flow

State of Georgia Request For Proposal (RFP) Process Flow



The RFP procurement method is used by the State to acquire goods and services when the State is unable to determine the preferred solution in advance. RFPs are distributed to a pre-established list of vendors set up with State Purchasing and posted on the web.

Due to the complex nature of this procurement method, the normal procurement lead-time is extended 90 days and is generally not used for purchases with a value less than \$100,000.

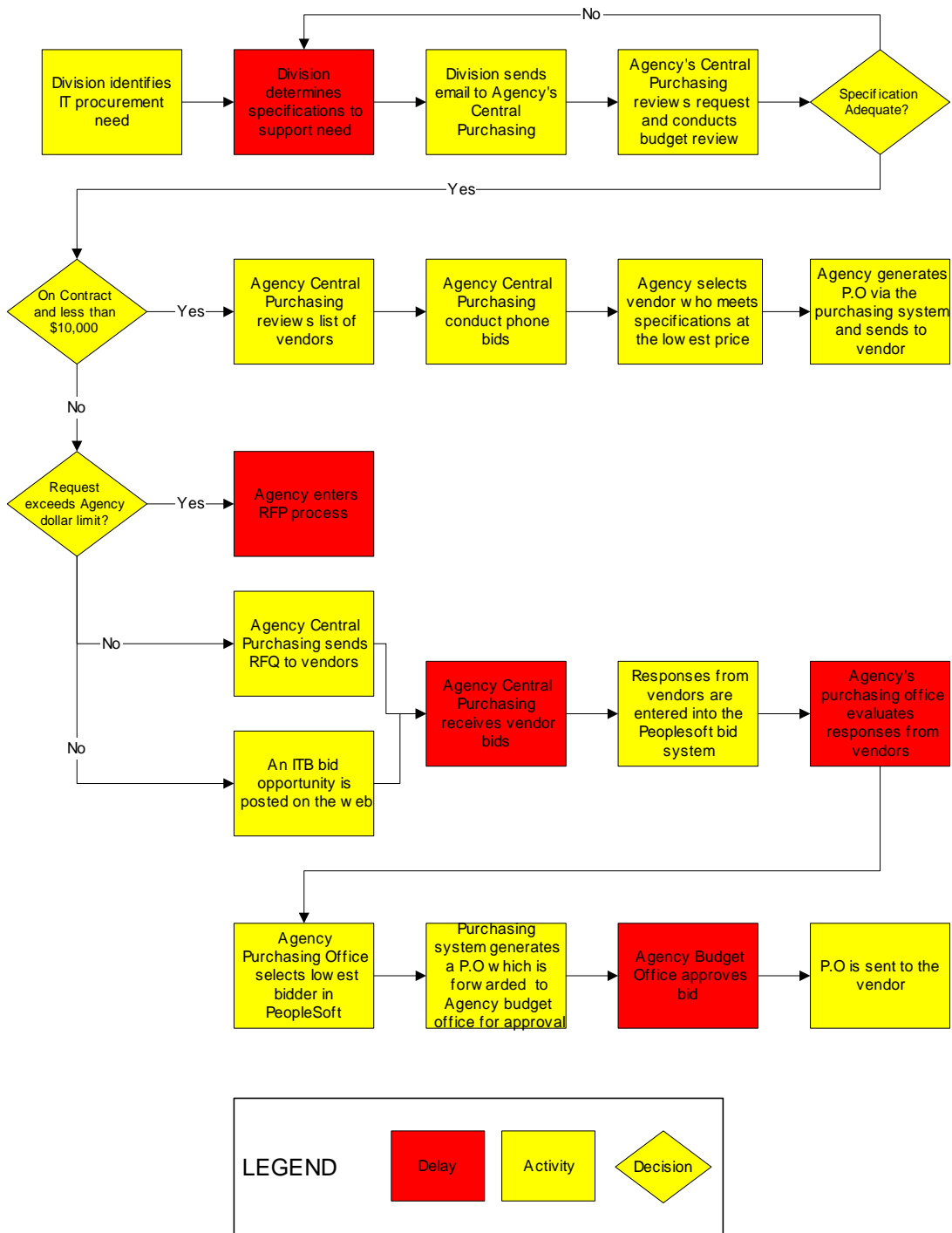
RFPs emphasize quality over dollars in the purchase of very high dollar, complex technology and services. The best value RFP represents the combination of quality and price that are most advantageous to the State of Georgia.

The current RFP procurement method presently consists of three steps:

1. The State assesses its technology needs and creates an RFP that suggests a technical solution
2. The vendors submit responses to the RFP based on the technical solution it requests. To avoid the appearance of impropriety and to ensure fairness, the original specifications must be changed for all parties, however communication between the vendor and the state is limited
3. The State reviews the proposals and chooses to award the contract to a vendor

Appendix H – ITB (RFQ) / RFQC Process Flows

State of Georgia Invitation to Bid (ITB) Process Flow (Current)



ITBs, also known as RFQs and RFIs are used for the following purposes:

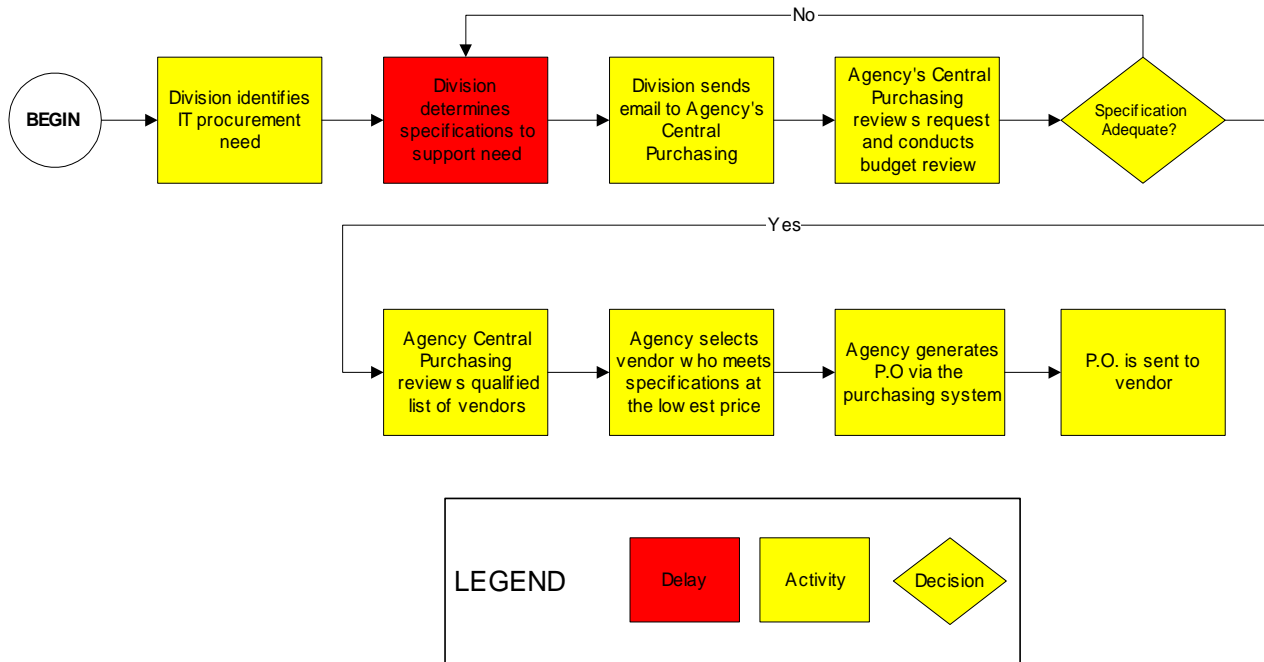
- Procuring items between \$10,000 and the agency limit (typically \$100,000)
- Gathering information to build an initial list of requirements
- Gathering information quickly, once the requirements have been identified
- Identifying a list of suppliers, and filtering out unqualified suppliers early in the process
- ITBs are widely distributed instruments to obtain the required information

Contrary to an RFP, an ITB is an information-gathering tool and does not provide the depth of information necessary to make a well-informed vendor decision. ITBs emphasize dollars over quality in the purchase of common technology items and services. The best cost ITB does not guarantee the best quality is being purchased.

The ITB procurement method consists of the following major steps:

1. The Division within the agency determines their technology needs and specifications. Agency checks to see if item to be purchased is on an agency or statewide contract and is over \$10,000
2. If purchase is over \$10,000, and less than the specified agency limit, an RFQ is sent to vendors and a bid opportunity is posted on the Web
3. Vendors submit responses via telephone or fax
4. The Agency evaluates the responses based on price and compliance with specifications
5. The vendor that offers the lowest bid and meets outlined specifications is selected
6. A Purchase Order is generated and forwarded to the budget office for approval
7. Following approval from the budget office, the agency generates a Purchase Order and sends to selected vendor
8. The vendor receives Purchase Order and delivers purchased item

**State of Georgia
Request for Qualified Contract (RFQC) Process Flow
(Proposed)**



The proposed RFQC process separates the process of gathering information from procurement of the item. By establishing processes to gather and build qualified vendor contracts in advance, agencies are in a position to spend more time evaluating solutions versus selecting a qualified vendor. It also eliminates the need to solicit responses from vendors not already on contract. This is different from the statewide contract approach because it would involve contracts both at the statewide level and the agency specific level.

In contrast to the ITB process, the RFQC process would eliminate steps 2 through 4 of the current ITB process and add them to a new one time annual process:

1. The agency performs a needs assessment to identify general sets of specifications
2. The agency solicits bids for contracts by qualified vendors based on the needs assessment
3. Vendors submit responses via telephone or fax
4. The Agency evaluates the responses based on price and compliance with specifications
5. The Agency builds a pre-qualification list of vendors for future reference
6. When the RFQ process is initiated, buyers select from the pre-qualified list

When an agency subsequently requests a product through the RFQC process, they simply select from the pre-qualified list of vendors which shortens the procurement cycle.

Appendix I – Cost Benefit Analysis Guidelines

QUALITATIVE ASPECTS - SELECTING THE TECHNICAL AND OPERATIONAL CRITERIA

Make a decision on the operational criteria guiding the IT investment. This may include things like functionality, risk and technical issues.

Functionality Issues - It is important the IT investment does what the State requires and in the parameters of the service levels established. Functional categories include:

- **Meet System Requirements** - This category primarily looks at the system requirements.
- **Service Level Impact** - The potential impact on customer (end user) service levels is assessed for each scenario. ‘Soft’ measures such as responsiveness to the customer as well as technical measures such as end-to-end system availability and response times should be considered.
- **System Availability** – Areas for consideration should include:
 - Meeting end user requirements
 - Application development focus (on-time development)
- **Maximize Human Resources Utilization** - Areas for consideration should include:
 - Required skill sets to support the investment
 - Required skill sets for future directions
- **Additional Impacts** – Consolidation and/or standardization of technologies enables the attainment of a critical mass of highly skilled operations and technical support personnel required to maintain and achieve superior service levels. Consider both the training of both functional and technical personnel.

Risk Issues – Risk accompanies any major change to an organization, especially technological change. Technology projects bear a risk in the transition itself, in the technical risk of going from the known to the unknown, in the ability to recover from unintended consequences and the risk of dealing with new vendors.

- **Transition Risk** - The risk in migrating from the current operating environment to the future environment is called transition risk. Factors include:
 - Degree of change between the “As-Is” and the “To-Be”
 - User Impact
 - Length of transition period
 - Agencies affected
 - Available staff
- **Technical Risk** - The technical risk criteria assesses the exposure of the IT investment to risk factors. There is a technical risk when an organization uses new and unfamiliar hardware and

software. There is also a technical risk in moving towards or away from industry trends and directions. An organization must look at the risk of being able to provide adequate levels of competent technical support and retaining within the organization the skills of the systems in use. There is also a risk associated with the degree of technology maturity of a particular platform or software skill.

- **Minimize Recovery Risk** - This criterion refers to the ability of the IT organization to resume service after a disruption by executing a recovery plan.
- **Vendor/Contractor Risk** - The health of a vendor/contractor's business and strength of its vision are vital to reducing support and technology risks. Factors to consider are in the area of market position, financial stability, service and support, vision, implementation factors.

Technical – The technical issues of operating platforms, computing architecture, tools and user interface should be evaluated against the following two criteria:

- **Strategic Direction** - This criteria evaluates the consistency between an IT investment and the strategic directions of the State (e.g. centralized governance, centralized networks, open systems, interoperability, standards, etc). The IT investment should be examined against its consistency with the strategic direction of the State. Factors to consider are the degree to which the IT investment will improve or reduce compliance with published open standards, create shareable resources, enable the adoption of selected state technologies, and enable earlier adoption of new technology.
- **Maximize Sustainability** - These criteria assess the degree to which an IT investment places the State in a position for long term success. Factors to be considered include:
 - Platforms - servers, server databases, client operating systems
 - Client/Server - support for different client/server computing styles
 - Tools - product development, application configuration
 - Ease of interface- percent GUI, percent Web browser enabled

QUANTITATIVE ASPECTS – QUANTIFYING THE FISCAL IMPACT

Summarize the future cost and benefits of the IT investment. Estimate the initial costs of hardware, software, integration, communication, maintenance, and training, and other operating costs. Also estimate the ongoing operational costs of the investment. The costs should include:

- **Hardware** includes the cost of hardware required to run the selected system such as desktops and data center infrastructure
- **Software** includes costs of any system software and utilities, software licenses, bolt-on packages and core upgrade costs
- **Implementation Services** includes costs associated with the software's implementation, such as consulting services
- **Communication** costs include upgrades and acquisition of local area and wide area bandwidth and equipment

- **Maintenance Support** includes the cost of upgrades and ongoing system support
- **Training** of users of new systems/technology and support staff of new hardware/software
- **Other Operating Costs** include costs of ongoing operations and processing costs
- **Process Improvement Costs** are estimates of the known costs and benefits from improvements in process and management practices in the agency

Summarize the total fiscal impact, including both the required IT investment and estimated benefits over a five-year period.

Based on the five-year estimated fiscal impacts, calculate the length of time the investment will need to payback the original investment, the net present value of the future cash flows, and the inherent internal rate of return over a five year period.

A sample cost benefit analysis spreadsheet follows.

Appendix I – Cost Benefit Analysis Sample Spreadsheet

Attached is a sample cost-benefit (c/b) analysis spreadsheet. The following guidelines apply:

- Cost for foundation costs (infrastructure) should be separated and not allocated to specific projects. Foundation costs should be developed once all of the individual c/b analyses have been completed.
- The time frame for the analysis is 3-5 years
- Only fill out the "cost benefit detail" worksheet for each project, the summary worksheet should be used for the cumulative effect of all projects
- Cost and benefits should be broken out on a quarterly basis for the initial project phase/plateau. Subsequent plateaus can be on a yearly basis
- Use the explanation section to provide description of item, as required
- Use the comments section to provide details on justification for savings/cost summary and assumptions
- Delineate and provide notation to denote true savings vs. opportunity savings
- Delineate and provide notation about costs that are variable due to growth, expansion, etc. (i.e., if a cost is variable by amount of sales, cases, etc. annotate and document assumptions)
- If you are looking at several options (i.e., lease, purchase, outsourcing, etc.), create a separate cost benefit detail worksheet. Unless a decision is reached before the Cost/Benefit meeting, both options will need to be presented.
- Create separate sheet for explanation of any qualitative costs/benefits (see qualben.ppt template for format)
- Tax implications and cost of interest should be calculated at the top level and should not be included in individual c/b analysis
- Consultant and outside contractor fees should be included in the Labor Cost section
- If implementation of the project requires project team members to relocate, this cost should be included in c/b analysis. Additional detail should be provided to help estimate relocation costs.
- If implementation of the project results in a decrease in headcount, severance package costs should also be included in the c/b analysis. Additional detail should be provided to help estimate severance package costs.

Cost/Benefit Analysis Detail

Item #	Category	Sub-Category	Quantity	Item Cost	Total Cost	Explanation	Comments
<u>Project 1 Quantified Costs:</u>							
<i>Labor Costs</i>							
1	Separation Assistance*	One-time Costs					
2	Implementation Support	One-time Costs					
	Agency Name						
	Consultants/Contractors						
					One Time Labor Costs	\$0.0	
3	Employee Salaries	On-going Costs					
4	Other Costs	On-going Costs					
					On-going Labor Costs	\$0.0	
<i>Technology Costs</i>							
5	Mainframe / Server	Hardware					
6	Workstations / Clients	Hardware					
7	Network Equipment	Hardware				Routers, communication servers, etc.	
8	Printers, Scanners, etc	Hardware					
9	Other	Hardware					
					Hardware Costs	\$0.0	
10	Off the Shelf Package (COTS)	Software					
11	Off the Shelf Package (COTS)	Software					
12	Modifications	Software Support and Maintenance					
13	Software Technical Support	Software Support and Maintenance				Vendor provided support	Assumes cost per call basis for fees
14	Software Maintenance	Software Support and Maintenance					
15	Software Conversion Support	Software Support and Maintenance					
					Software and Software Support	\$0.0	
<i>Training Costs</i>							
16	Training for XXXXX	One-time Costs					
17	Training for XXXX	One-time Costs					
					One Time Labor Costs	\$0.0	
					Project 1 Quantified Costs	\$0.0	

Cost/Benefit Analysis Detail

Item #	Category	Sub-Category	Quantity	Item Cost	Total Cost	Explanation	Comments
		Project 2 Quantified Benefits			\$0.0		
		Project 2 Net Difference			\$0.0		
	<u>Other Costs:</u>						
	<i>Foundation Costs</i>						
1							
2							
3							
4							
5							
6							
7							
8							
9							
		Foundation Costs			\$0.0		

Distribution of Costs and Benefits

Item #	Summary	Fiscal Year 199X				Fiscal Year 199X				199X	199X	Total \$
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr			
	<u>Project 1 Quantified Costs</u>											
	<i>Labor Costs</i>											
1												\$0.0
2												\$0.0
3												\$0.0
4												\$0.0
5												\$0.0
												\$0.0
	<i>Technology Costs</i>											
	Hardware/Hardware Related Costs:											
6												\$0.0
7												\$0.0
8												\$0.0
9												\$0.0
												\$0.0
	Software/Software Related Costs											
10												\$0.0
11												\$0.0
12												\$0.0
13												\$0.0
												\$0.0
	<i>Training Costs</i>											
15												\$0.0
16												\$0.0
17												\$0.0
												\$0.0
Total Project One Quantified Costs												\$0.0

Distribution of Costs and Benefits

Item #	Summary	Fiscal Year 199X				Fiscal Year 199X				199X	199X	Total \$
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr			
	<u>Project 1 Quantified Benefits</u>											
	<i>Labor Benefits</i>											
1												\$0.0
2												\$0.0
3												\$0.0
4												\$0.0
												<u>\$0.0</u>
	<i>Non-Labor Benefits</i>											
5												
6												\$0.0
7												\$0.0
8												\$0.0
9												\$0.0
												<u>\$0.0</u>
<u>Total Project One Quantified Benefits</u>											<u>\$0.0</u>	

Cost/Benefit Analysis Summary

	Fiscal Year 199X				Fiscal Year 199X				199X	199X	Total \$
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr			
Project 1: Quantified Costs:											
Project 1: Quantified Benefits:											
Net Difference:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
											Total Project
											\$0.0
Project 2: Quantified Costs											
Project 2: Quantified Benefits:											
Net Difference:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
											Total Project
											\$0.0
Foundation Costs:											
Foundation Costs:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
											Total Foundat
											\$0.0
Total Costs:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Benefits:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Difference:	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
											Total Net Difference
											\$0.0
Net Present Value (NPV)*	\$0.0										
Internal Rate of Return (IRR)**											

*Net Present Value (NPV) -- Today's value of a series of future payments and incomes given a specific discount (interest) rate. The larger the NPV, the better.

**Internal Rate of Return (IRR) -- The interest rate received when the NPV for a series of payments and income breaks-even (i.e., NPV = 0).

Distribution of Costs and Benefits

Fiscal Year 2000					Fiscal Year 2001				2002	2003	2004		
Item #	Summary	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr				
PMgt	Project Planning/Management												
	<u>Quantified Costs:</u>												
	<i>Labor Costs</i>												
1	Design & Implementation Assistance												
	Consultant(s) - Project 1	\$72,000	\$72,000	\$36,000	\$36,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$216,000.0
	Consultant(s) - IT Infrastructure					\$25,000							\$25,000
													Project Planning & Management Quantified Costs
													\$241,000
**	TOTAL Project Planning Costs	\$72,000	\$72,000	\$36,000	\$36,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$241,000
IT	<u>Foundation/Hardware Infrastructure Quantified Costs</u>												
	<i>Labor Costs</i>												
1	Implementation Support												
2	Consultants	\$16,875	\$35,625	\$71,250	\$18,750								\$142,500.0
	Consultants - Network			\$24,000									\$24,000.0
3	Consultant-Project Coordinator			\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000				\$36,000.0
4	Additional Technician								\$2,917	\$35,000	\$35,000	\$35,000	\$107,916.7
5	Additional Help Desk	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$30,000	\$30,000	\$30,000	\$150,000.0
6	Additional Programmers (2)	\$4,500	\$13,500	\$13,500	\$13,500	\$13,500	\$13,500	\$27,000	\$27,000	\$108,000	\$108,000	\$108,000	\$450,000.0
													\$910,417
	<i>Technology Costs</i>												
7	Super Server						\$250,000	\$125,000					\$375,000.0
8	Medium Server			\$50,000			\$200,000	\$200,000					\$450,000.0
9	Small Server			\$30,000									\$30,000.0
10	Workstations			\$26,500									\$26,500.0
11	Network/Comm Equipment			\$15,000			\$35,000	\$35,000					\$85,000.0
12	Voice Mail/Telephone System	\$150,000											\$150,000.0
13	Hardware Maintenance							\$13,333	\$20,000	\$80,000	\$80,000	\$80,000	\$273,333.3
													\$1,389,833
	<i>On-Going Technology Costs</i>												
14	Communications							\$6,000	\$15,000	\$120,000	\$120,000	\$120,000	\$381,000.0
													\$381,000
	<i>Software Costs</i>												
15	Order Entry			\$197,000									\$197,000.0
16	Inventory			\$100,000									\$100,000.0
17	Purchasing			\$125,000									\$125,000.0
18	A/R			\$100,000									\$100,000.0
19	G/L							\$125,000					\$125,000.0
20	A/P							\$100,000					\$100,000.0
21	Payroll							\$35,000					\$35,000.0
22	Fixed Assets							\$58,000					\$58,000.0
23	Help Desk												\$0.0
24	HRIS-Benefits, Personnel Management, T & E							\$100,000					\$100,000.0

Distribution of Costs and Benefits

Fiscal Year 2000					Fiscal Year 2001					2002	2003	2004	
Item #	Summary	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	2002	2003	2004	
PMgt	Project Planning/Management												
	<u>Quantified Costs:</u>												
	<i>Labor Costs</i>												
1	Design & Implementation Assistance Consultant(s) - Project 1	\$72,000	\$72,000	\$36,000	\$36,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$216,000.0
	Consultant(s) - IT Infrastructure					\$25,000							\$25,000
													Project Planning & Management Quantified Costs
**	TOTAL Project Planning Costs	\$72,000	\$72,000	\$36,000	\$36,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$241,000
25	Software Maintenance			\$8,333	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$100,000	\$100,000	\$100,000	\$433,333.3
													\$1,373,333
	<i>Training Costs</i>												
26	Training for MIS Staff			\$100,000									\$100,000.0
27	User Training-Office Automation		\$16,875			\$16,875							\$33,750.0
28	System Selection/Project Mgmt Training												\$0.0
													\$133,750
													Total Foundation Hardware/Infrastructure Quantified Costs
**	Total IT Foundation Costs	\$178,875	\$73,500	\$874,083	\$70,750	\$68,875	\$537,000	\$862,833	\$103,417	\$473,000	\$473,000	\$473,000	\$4,188,333.3
	<i>Foundation Hardware/Infrastructure Quantified Benefits</i>												
	<i>Non-Labor Benefits</i>												
29	Communication Costs							\$4,200	\$10,500	\$84,000	\$84,000	\$84,000	\$266,700.0
30	Hardware maintenance									\$39,000	\$39,000	\$39,000	\$117,000.0
31	Software maintenance									\$75,000	\$75,000	\$75,000	\$225,000.0
													\$608,700
													Total Foundation Hardware/Infrastructure Quantified Benefits
***	Total IT Foundation Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$4,200	\$10,500	\$198,000	\$198,000	\$198,000	\$608,700.0
**	Total Costs	\$401,079	\$244,704	\$1,009,287	\$205,954	\$214,079	\$636,204	\$962,037	\$202,621	\$890,816	\$890,816	\$890,816	\$6,548,413
***	Total Benefits	\$0	\$1,250,000	\$1,200,000	\$1,100,000	\$0	\$100,000	\$112,600	\$531,500	\$1,230,000	\$1,230,000	\$1,230,000	\$7,984,100



Appendix J – Sample Service Level Agreement

SCHEDULE 4.1

SERVICE LEVELS AND SERVICE CREDITS

4.1 GENERAL

In performing the Services to be provided hereunder, Supplier will: (1) perform all services in a professional and workmanlike manner and in accordance with the professional or technical standards applicable to such services; and (2) use individuals of suitable training and skill. Supplier agrees that its performance of the Services to be provided hereunder will meet or exceed each of the applicable Service Levels. In providing the Service Level commitment described in this Schedule 4.1 Service Levels and Service Credits, Supplier agrees that an integral component of this Agreement is that Supplier warrants that it shall provide Customer with the same or better service as that which is being provided by the in-house information systems function prior to the Commencement Date.

Moreover, Customer acknowledges that it is, prior to the Commencement Date, measuring service level performance and generating a weekly and monthly reporting package associated with the key Minimum Service Level Standards described herein and summarized in Table 4.1 below.

Table 4.1 Minimum Service Level Standards

Service Description	Minimum Service Level Standard	Related Reference
Disaster Recovery (specific by platform)	Recovery within timeframe specified by Customer's current plan as specified in Schedule 3, paragraph 3.8	Table 4.2, Paragraph 4.3.1
On-Line Availability		Paragraph 4.3.2, Table 4.8 and: Table 4.3
Mainframe On-Line Availability	not >1 interruption within the specified service window as cited in Table 4.8	
HP/MPE On-Line Availability	not >2 interruptions within the specified service window as cited in Table 4.8	Table 4.4
HP/UX On-Line Availability	not >1 interruption within the specified service window as cited in Table 4.8	Table 4.5
DEC VAX On-Line Availability	not >1 interruption within the specified service window as cited in Table 4.8	Table 4.6
On-Line Recovery Time	not >150 minutes to recover from failure per incident	Paragraph 4.3.2 & Table 4.7
On-Line Scheduled Availability	not >150 cumulative minutes unavailable per platform during 3 month rolling period	Paragraph 4.3.2 & Table 4.9
Report Production	not >200 reports completing after 4:45 am	Paragraph 4.3.3 & Table 4.10
Average Internal Response Time (Mainframe & HP/MPE only)	Missing by not >126% the Defined Service Level Objective for average response time per Table 4.11	Paragraph 4.3.4, Table 4.11, Table 4.12

Accordingly, Supplier will utilize this same measurement and reporting mechanism until, by mutual agreement of Supplier and Customer, this measurement process is merged with the standard Supplier service level measurement and reporting methodology. Service level performance objectives and corresponding Service Credits to be met by Supplier under this Agreement are fully described in this Schedule.

In defining the Service Levels described in this Schedule, both parties acknowledge that the intent of this Agreement is that the Supplier will provide the Customer with data center processing services which meet or exceed that service provided by Customer prior to the Commencement Date. Moreover, both parties agree that the Supplier and Customer will work together to improve this service throughout the term of this Agreement. Accordingly, all Service Level objectives are based upon Service Levels achieved by Customer prior to the Commencement Date. During the first ninety (90) days after the Commencement Date, both parties agree to validate all Service Levels and will modify them appropriately (and reconcile any previously granted Service Credits accordingly) if it becomes evident that specific Service Levels were not being achieved by the Customer prior to the Commencement Date. The initial 90 day evaluation period will include actual quarter and year end processing or mutually acceptable surrogates for both.

Customer and Supplier both acknowledge that Service Level Standards can include measures of performance not directly related to hardware and software performance. Such measures include, but are not limited to the following:

- (1) Time to mount tape
- (2) Time to add/change/delete users
- (3) Turnaround time on help desk incidents
- (4) Turnaround on user originated reruns

Such dimensions of service are deemed to be acceptable by the Customer in its existing in-house processing environment prior to the Commencement Date and therefore have not been measured and reported. At Customer's option, during any time over the life of the Agreement, this Schedule 4.1 may be amended, by mutual negotiation with Supplier, to formally include such measures, subject to the similar Service Credit structure as described in this Schedule.

4.2 SERVICE LEVEL COMPLIANCE

4.2.1 Service Level Corrective Actions. Each time Supplier fails to meet a Service Level, Supplier shall: (i) promptly investigate the root cause(s) of the failure and deliver to Customer a written report identifying such root cause(s); (ii) use its best efforts to correct the problem and to begin meeting such Service Level as soon as practicable; and (iii) advise Customer of the status of such corrective efforts.

4.2.2 Service Credits. Based on reports generated by Supplier, Customer will track on an ongoing basis, the Service Credits to be assessed against Supplier for Supplier's failure to comply with the established Minimum Service Level Standards in Table 4.1. If at the time the Service Credit is assessed, Customer owes moneys to Supplier, Customer will receive an immediate credit against moneys due to Supplier and will be entitled to the Service Credit amount. The credit will be applied to the next invoice issued by Supplier to the Customer after the Service Credit is determined. Customer reserves the right to pursue any other rights or remedies permitted under the terms of this Agreement in addition to the Service Credits. To support Supplier's audit obligations under this Agreement, Supplier shall maintain a complete, clear,

accurate record of the information required to assess, calculate and track Service Credits. The process for establishing and assessing Service Credits is described later in this Schedule

- 4.2.3 Unacceptable Service.** The tables contained in this Service Level Schedule indicate levels of decreasing performance relative to various service areas. In many cases, the decreasing performance is expressed in terms such as “Numbers of occurrences in 3 month rolling period”, in other cases it is expressed in increasing severity of missed Service Levels such as a number of minutes or hours late or to recover, numbers of reports, numbers of minutes unavailable, or average internal response times in seconds. In all cases there is a point indicated in the table at which the service level has degraded to a point considered to be Unacceptable Service by the Customer - that is, in a condition where the service is so degraded that it requires special attention beyond the assessment of Service Credits. An Unacceptable Service condition triggers an evaluation process as set forth in Section 4.2.4 (Evaluation of Unacceptable Service) of this Schedule.
- 4.2.4 Evaluation of Unacceptable Service.** As soon as possible, but no later than three (3) business days following the occurrence of any incidence of Unacceptable Service, Customer and Supplier will conduct an evaluation of the cause (pursuant to Supplier investigation as described in Section 4.2.1) and potential actions by Supplier to prevent future occurrences of the subject Unacceptable Service. If said condition is determined by the mutual agreement of Customer and Supplier to have been caused by one random or catastrophic event or some other event beyond the reasonable control of the Supplier, the Unacceptable Service will be excused. Any Service Credit due to Customer as a result of said Unacceptable Service will be payable by Supplier. If, however, in the sole reasonable judgement of Customer, the Unacceptable Service is the result of a progressively degrading situation or has resulted in substantial business interruption, Customer shall have the right to exercise “Termination for Cause” as described in Section 17.1 of the Agreement.

4.3 SERVICE CREDIT PROCEDURE

Supplier performance will be measured and tracked by Supplier, and the results presented to the Customer’s Project Executive and the Steering Committee on a monthly basis.

For the term of this Agreement, Supplier will operate in compliance with the Minimum Service Level Standards set forth in Table 4.1. In the event that any individual Minimum Service Level is not achieved in any particular calendar month, Supplier will be subject to the applicable Service Credits, as described in the following Section. If Customer, in its reasonable judgment, determines that the failure to meet such Minimum Service Levels was beyond Supplier’s control, then there will be no associated Service Credit. An example is an instance where Customer application software malfunctions causing a system outage which adversely impacts system availability. Minimum Service Level standards may be revised by the parties in writing from time to time as mutually agreed upon.

In the event of an incident of Unacceptable Service in any specified Service Level, the maximum Service Credit allowable for a violation of said Service Level will apply.

- 4.3.1 Disaster Recovery.** In the event that Supplier declares a disaster situation, in accordance with terms specified in Paragraph 3.8 of Schedule 3.1, all Service Credits will be excused until such time as the Supplier has restored all systems to full working order. In the event Supplier does not restore all Supplier systems to full working order within the agreed upon timeframe, the following Service Credits will be assessed.

Table 4.2

Systems Recovered	Service Credit Assessed
within timeframe	none
0-12 hours late	\$20,000
12-24 hours late	\$30,000
24-36 hours late	\$40,000
36-48 hours late	\$50,000
More than 48 hours late	Unacceptable Service

4.3.2 On-Line Processing Availability. For the purpose of assessing Service Credits associated with on-line processing availability, supplier will use a three month rolling measurement window (i.e. Supplier will consider any on-line availability service level incidents in the current month, along with the previous two months). An on-line processing availability service level incident is defined as any situation directly related to data center environmental and infrastructure support, hardware failures, operating system software failures or operations errors and other conditions under Supplier control (excluding only Customer errors and omissions, or failures of applications used by Customer) which result in the failure of one or more on-line systems on any individual processing platform that causes the service windows as defined by scheduled availability window per application per region in Table 4.8 to not be met. If there are no on-line processing availability service level incidents in the current month, then there will be no corresponding Service Credits assessed.

On-line availability service level incidents do not include failures of on-line systems which are a direct result of application program or data errors which adversely impact the systems environment (e.g., CICS storage violations, program abends, runaway programs, etc.). Customer acknowledges that these have been experienced prior to the Commencement Date and Service Credits will not be applicable to these incidents. Supplier, however, agrees that it will provide its best efforts to reduce and isolate such problems, wherever possible, so as to maximize the availability and performance of all Customer systems.

Table 4.3 Mainframe On-line Availability

Number of Window Interruptions in 3 month rolling period	Service Credit Assessed
1	none
2	\$10,000
3	\$25,000
4	\$40,000
More than 4	Unacceptable Service

Table 4.4 HP/MPE On-line Availability

Number of Window Interruptions in 3 month rolling period	Service Credit Assessed
1-2	none
3	\$5,000
4	\$10,000
5	\$20,000
More than 5	Unacceptable Service

Table 4.5 HP/UX On-line Availability

Number of Window Interruptions in 3 month rolling period	Service Credit Assessed
1	none
2	\$5,000
3	\$15,000
4	\$20,000
5	\$25,000
More than 5	Unacceptable Service

Table 4.6 DEC/VAX On-line Availability

Number of Window Interruptions in 3 month rolling period	Service Credit Assessed
1	none
2	\$5,000
3	\$15,000
4	\$20,000
More than 4	Unacceptable Service

If a single event results in a Service Level performance incident across 2 or more on-line systems or processing platforms it shall be measured as only 1 service level incident.

In addition to Service Credits assessed for any on-line system availability Service Level incident, the following Service Credits will be assessed, based on the recovery time associated with any failure, as described above.

Table 4.7 On-line Recovery Time

Time to recover from failure per incident	Service Credit Assessed
0-150 min	none
151-240 min	\$7,500
241-430 min	\$15,000
431-720 min	\$22,500
721-960 min	\$30,000
961-1,440 min	\$37,500
More than 1,440 min	Unacceptable Service

Even if a failure or Service Level incident was caused by a situation which was beyond the reasonable control of the Supplier, the recovery time measurement will still apply. In this case, however, the time period as measured in the above table will be determined from the point in time in which the Supplier was reasonably expected to have corrected the situation.

Even if there are no Service Level incidents which result in the failure of an on-line system, all systems are expected to be available as scheduled. If any on-line system is unavailable during its scheduled availability window as defined in Table 4.8, except as caused by a Service Level incident, in which case the previous Service Credit process will apply, and Service Credits will be assessed according to Table 4.9.

Table 4.8 On-line System Availability Windows

ON LINE APPLICATION AVAILABILITY REQUIREMENTS - MVS/Mainframe

	APPLICATION	Region	Availability On-Line	Days/Week	O/S
1	AMAPS - Manufacturing	CICSP05	4:00AM-6:00 PM PST	6	MVS
2	CONTROL - Print Rep'g	CTLD	0:00AM -12:00 PM PST	6	MVS
3	MSA - Finance/GL	CICSP02	4:00AM-6:00 PM PST	6	MVS
4	- HR, Pers	CICSP02	as above, by extension	6	MVS
5	- A/P, A/R ...	CICSP02	as above, by extension	6	MVS
6	- Other	CICSP02	as above, by extension	6	MVS
7	CARES - Sales/Orders	CICSP01	4:00AM-6:00 PM PST	6	MVS
8	- WICS	CICSP01	as above, by extension	6	MVS
9	- Explain...others	CICSP01	as above, by extension	6	MVS
10	NETSPY	NETSPY	0:00AM -12:00 PM PST	6	MVS
11	TSO	TSO	0:00AM -12:00 PM PST	6	MVS
12	GENTRAN	CICSP00	4:00AM-6:00 PM PST	6	MVS
13	ANY INCREMENTAL APPLICATION, Unless mutually agreed otherwise	CICSXX	4:00AM-6:00 PM PST	7	MVS

ON LINE APPLICATION AVAILABILITY REQUIREMENTS - VMS*

	APPLICATION	Region	Availability On-Line	Days/Week	O/S
	Production Machine				
1	TDMS	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
2	SQIS	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
3	VAMP	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
4	TIDS	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
5	ANY INCREMENTAL APPLICATION, Unless mutually agreed otherwise	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
	Admin/Net Machine				
	MAIL & DNS	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
	DNS	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
	OTHER	VMS/CLU	0:00AM -12:00 PM PST	7	VMS
	*except for scheduled downtime as mutually agreed to				

ON LINE APPLICATION AVAILABILITY REQUIREMENTS - HP3000/987 MPE

	APPLICATION	Region	Availability On-Line	Days/Week	O/S
1	CSS Customer Diagnostics	MPE	4:00AM -2:00 AM PST	7	MPE
2	CFF AMAPS	MPE	5:00AM- 6:00 PM PST	5	MPE
3	CIDIA	MPE	5:00AM- 6:00 PM PST	5	MPE
4	BIM	MPE	5:00AM- 6:00 PM PST	5	MPE
5	BIC	MPE	5:00AM- 6:00 PM PST	5	MPE
6	ANY INCREMENTAL APPLICATION, Unless mutually agreed otherwise	MPE	4:00AM -2:00 AM PST	7	MPE

ON LINE APPLICATION AVAILABILITY REQUIREMENTS - HP9000/30 Unix ORACLE

	APPLICATION	Region	Availability On-Line	Days/Week	O/S
1	CORE	Oracle	5:00AM- 6:00 PM PST	5	Unix
2	PROFILES	Oracle	5:00AM- 6:00 PM PST	5	Unix
3	Invoice/Image History Ret'l	Oracle	5:00AM- 6:00 PM PST	5	Unix
4	HR	Oracle	5:00AM- 6:00 PM PST	5	Unix
5	ANY INCREMENTAL APPLICATION, Unless mutually agreed otherwise		5:00AM- 6:00 PM PST	5	Unix

Table 4.9 On-line Scheduled Availability

Cumulative minutes unavailable per processing platform over 3 month rolling period	Service Credit Assessed
0-150 min	none
151-240 min	\$7,500
241-430 min	\$15,000
431-720 min	\$22,500
721-960 min	\$30,000
961-1,440 min	\$35,000
More than 1,440 min	Unacceptable Service

If the cumulative unavailability for all on-line systems on any individual processing platform during the current month is less than 60 minutes, there will be no corresponding Service Credits assessed for On-Line Scheduled Availability.

- 4.3.3 *Print Services.*** Service Credits associated with production report generation will be based upon the percentage of reports in the current month which are delivered “late”, where “late” is defined as those overnight production reports which are scheduled to be written to the JES spool by 4:45 a.m. and do not make this deadline.

Table 4.10 Reports Completed

Number of reports completing after 4:45 a.m.	Service Credit Assessed
0-200	none
201-400	\$1,000
401-600	\$2,000
601-800	\$4,000
801-1,000	\$8,000
1,001-1,500	\$15,000
1,501-2,000	\$20,000
2,001-3,000	\$25,000
More than 3,000	Unacceptable Service

- 4.3.4 *On-Line System Performance.*** Where possible, on-line system performance will be measured and Service Credits assessed if on-line transaction response time in the current month, as measured within the host processor (i.e. excluding network transit time) falls below the Minimum Service Level Standards, as described below.

Table 4.11 Mainframe/HP/MPE Service Level Objective - for each on-line system

Region	Average Response Time	Application
CICSP00	1.0 sec	Gentran
CICSP01	0.8 sec	Cares, WICS
CICSP02	0.5 sec	MSA
CICSP05	0.5 sec	AMAPS
Control-D	1.2 sec	All
TSO	0.5 sec	All
HP/MPE	0.5 sec	All

Table 4.12 Mainframe/HP/MPE Service Credit Assessment - for each on-line system

Average Internal Response Time	Service Credit Assessed
less than 125%	none
125% - 150%	\$5,000
151% - 200%	\$15,000
201% - 300%	\$25,000
Greater than 300%	Unacceptable Service

HP/UX tools to monitor HP/UX on-line performance are not currently in place. Customer has agreed to acquire a measurement tool in the future. When the appropriate tools are in place a Service Credit process, similar to the HP/MPE environment will be mutually developed and agreed upon.

VAX/VMS tools to monitor VAX/VMS on-line performance are not currently in place. Customer has agreed to acquire a measurement tool in the future. When the appropriate tools are in place a Service Credit process, similar to the HP/MPE environment will be mutually developed and agreed upon.

4.3.5 Suppliers Maximum Monthly Liability: Supplier’s maximum monthly liability for Service Credits set forth in this Section, will not exceed 15.0% of fees paid by Customer in any such month.