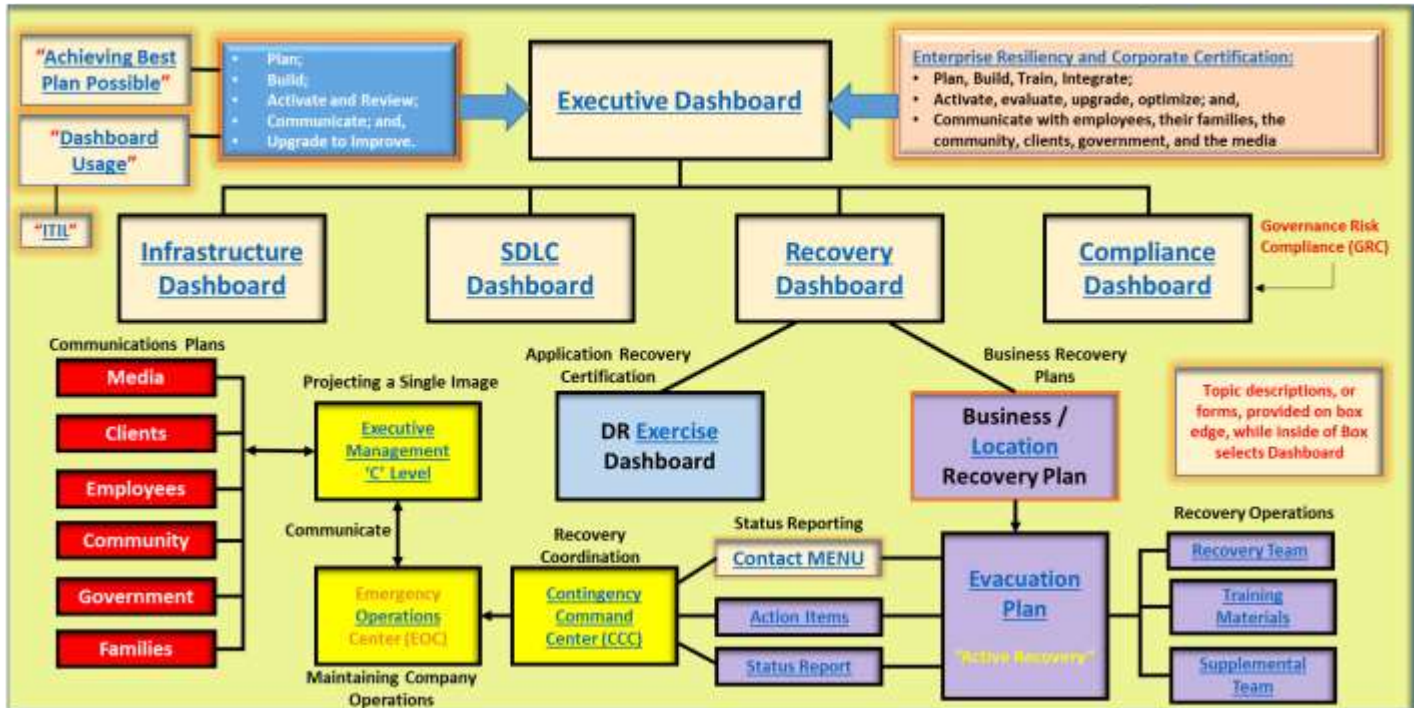


# Management Dashboards

Introducing a new approach to Dashboards that can provide you with the information you need to achieve business goals on-time and within budget, in a much more efficient manner than is accomplished today.

## Dashboard Structural Overview

[Thomas Bronack info](#)



In today's world of Global Projects, in which companies are trying to provide a controlled Information Technology Environment, while achieving a 100% Green LEED's (Leadership in Energy and Environmental Design) certification, it is becoming increasingly more important to insure that your staff is utilizing the most current and accurate information possible and that project goals, timeframes, and budgets are understood and optimized.

Too often you'll find people using out-of-date information, which leads to confusion, chaos, and project slippage. This is particularly true for projects that cross continents, countries, cultures, languages, and time zones. The Management Dashboard system that I am introducing will help you overcome those obstacles and make it easier for personnel to instantly access the most current and accurate documents they need to accomplish their assigned tasks.

Have you ever found it difficult to locate the right document? Does it take you forever to find the document amongst the many libraries that you have, and when you do locate the document are you sure it is the right document and not out-of-date? The approach I have employed uses your existing data and simply provides a Dashboard front-end that can control document releases, only allowing the latest release to be displayed or worked on. This approach works for both Forms contained in databases, and flat files used for: Manuals; Standards and Procedures; PowerPoint Presentations; Excel Files; and all MS Office types of documents; along with adobe documents; and, even Project Plans.

The Dashboard can be accessed from anywhere and at any time, so you do not have to rely on Conference Calls and Remote Meetings to view data or obtain status updates. If you find yourself worried in the middle of the night about the status of a project, and it's affecting your sleep, you can simply log-on and view the current status. You can even Drill-Down to the person performing the task and be connected directly to that person so you can have a discussion, provide additional information, or provide guidance or expert assistance that would allow the person to complete their work and get the project back on schedule.

This tool provides training materials, project descriptions, Statements of Work (SOW), Forms, and Flow Charts. Project Plans can be provided to allow people to see what they are currently responsible for and to determine the other tasks they must complete. Resource charges can be accumulated as Purchase Orders (PO's) associated with the time and the resources used to complete work. The PO's can be accumulated against a Work Order (WO) so that a charge-back system can be created to bill for work performed. This Charge-Back System can be used to judge the expenses and time associated with future work of a similar nature, so that more accurate cost and time projections can be made.

A Work-Flow Management System, combined with a Personnel Training System can be used to log, track, analyze, and report on activity so that you can make improvements based on past experience, thereby allowing you to optimize the skill-set of your staff and the duration of projects and real-time activities. These savings and improved morale will result in reduced costs, a happier staff that will be reflected to clients and co-workers, better retention, and a client base that receives excellent attention. Those clients will become better references and would be more likely to recommend your services to other people in their field. This tool is a valuable aid to your Project Management Office (PMO).

Through this process, the company will be better equipped to implement, maintain, test, assure quality, and perform production activities. The ability to recover from unexpected problems and disaster events will be enhanced, and your company's ability to adhere to Service Contracts and Compliance Requirements will be greatly improved.

Through the use of the Dashboard System, your company's reputation will be improved and your bottom line increased.

The Dashboard System can be obtained through a License Agreement, which will include all product materials and, training, and my time as a consultant to assist your company implement the product and achieve its rewards.

If you believe that a product like this would help your company achieve its goals better, while using existing data, then please contact me at:

Thomas Bronack

Email: [bronackt@dcag.com](mailto:bronackt@dcag.com)

Phone: (917) 673-6992

A video presentation, or on-line demonstration, of the Dashboard System can be obtained upon request, so that you will better understand its flexibility and how you can benefit from its usage.

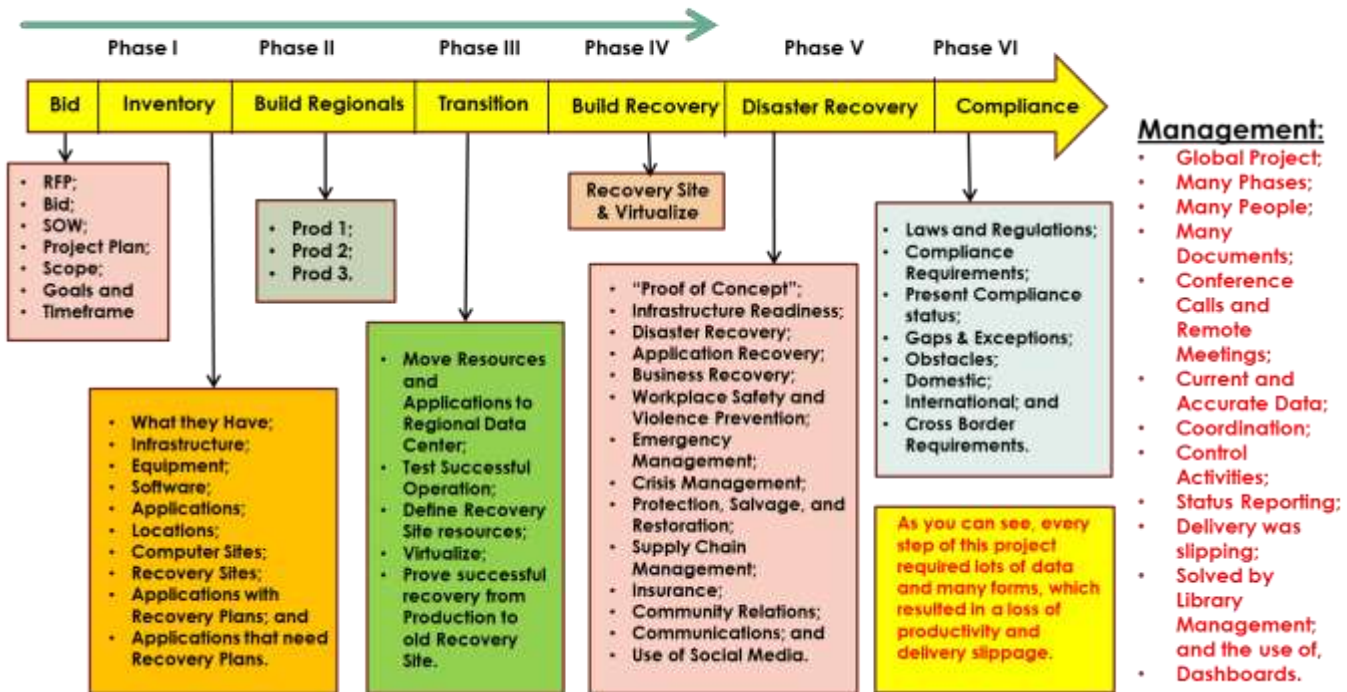
Thank You,

Thomas Bronack

# Why I created the Executive Dashboard System

This project was similar to other projects I worked on and had similar project management and communications problems that affected productivity that needed to be addressed.

## My Last Project was world-wide and extensive



My last project was similar to many projects that may have been performed in the past, are currently active, or are being planned for future implementation. These projects may cross Continents, Countries, Cultures, Languages, and Time Zones, all of which result in work instructions and status meetings being conducted through Conference Calls and Remote Meetings where screen displays and presentations could be utilized. Unfortunately, the control of current and accurate documentation may be lacking and can lead to misinformation, confusion, and sometimes chaos – all of which may result in project slippage and increased expenses.

The many Project Phases within these projects may include:

1. Respond to Request for Proposal (**RFP**) with a **Bid** and then a **Project Plan** detailing time frames, deliverables, resources, and costs associated with achieving the goals stated in the RFP.
2. Conduct an **Inventory** of existing locations, the applications and clients serviced, the communications required to support client contracts and personnel needs, and the costs associated with vendor contracts for facilities and services provided. From this Inventory a **Configuration Management** can be created for all locations presently outside of the client's direct control. Since our overall goal was to develop a Global Resource Inventory and Configuration Management System, it was important to establish a format for the collection of resource information that could be combined into an Enterprise-Wide Repository.

3. From the Inventory and Growth Projections, we next calculated the size of the **Production Sites** needed to support current and future operations, but under the direct control of the client. In this project we constructed Production Sites to support Europe, Asia / Pacific, and the Americas.
4. Our next step was to **Transition** the original equipment from the current locations to the designated Production Site for the client office or Business Unit. This was simply picking up the old equipment, moving it to the new Production Site and connecting it.
5. Once the equipment was transitions and connected it had to be **tested to verify** that the services originally provided to the client were indeed being provided in the same or better manner than before.
6. When Testing was completed, we could **eliminate unnecessary vendor contracts** and reap a savings.
7. At this point we could begin construction of an internal **Recovery Site** to support production sites and the applications residing at the specific Production Site. The Inventory we created from the Production Site inventories was used to calculate the size of the recovery facility and to order the “**Available Pool of Resources**” we believed necessary to support the production sites should a Disaster Event occur. The Recovery Site Available Pool of Resources would be drawn from to create a “**Dedicated Pool of Recovery Resources**” to support Application Recovery Certification and Information Technology Recovery Operations. Resources would be drawn from the Pool of Resources and assigned to the application, or IT Facility, going through recovery verification. These resources would be Allocated and Dedicated to the Application or IT Facility to support Recovery Management demands going forward.
8. The equipment and facilities at the Production and Recovery Sites were then converted to a VMware, Cisco, EMC (**VCE**), environment that supported **Virtual Operations**, so that the latest technologies could be utilized to reduce footprints and infrastructure costs, while allowing for a more rapid and less burdensome recovery operation. This **Transformed** environment had to be tested to certify recovery operations and laid the foundation for the company to move towards **VBLOCK** and **VPLEX** virtual computing going forward. This new technology would allow the company to place smaller VBLOCK machines at office locations and connect them to very large VBLOCK machines at the Production or Recovery Site. VPLEX would be used to support data synchronization through Recovery Point Application (RPA) from EMC in a **Metro LAN** (up to approximately 200 km) and **GEO LAN** world-wide configuration as needed. The use of the **VBLOCK /VPLEX combination** would be able to support **High Availability (HA) and Continuous Available (CA) applications** (sometimes referred to as “**Active - Active**”) as business and regulatory requirements dictated. The VBLOCK configuration consists of Network (Cisco), Memory (EMC), and Processing (VMware) and is considered a complete computing configuration, which is designed by Pre-Sales Engineers, constructed at the VCE Factory, delivered within 30 days of order, and installed at the client site in 1 to 2 days with testing and training provided on-site to the client team.
9. A “**Proof of Concept**” was performed to validate that recovery operations could support each of the Production Data Centers should a disaster event occur, so sample applications were selected from each production site for recovery testing. This recovery testing included: Connectivity; Security; and Functionality for applications. DR Exercise Booklets had to be created and personnel trained in order to succeed in this project goal. All information needed to prepare the Recovery Site Infrastructure was defined and provided to Recovery Site personnel long before the Recovery Test was scheduled so that they could allocate resources and synchronize data between the Production and Recovery Site in support of Application Recovery Certification being performed during the Proof of Concept test. A six step process was defined and followed in support of Recovery Management, which included:

- a. **DR Planning Session** in which management and technical personnel selected applications, IT Facilities, or Business Locations for Recovery Testing, and then set scope, objectives, and goals, defined success / failure conditions, and finally planned the recovery test (A Meeting Agenda was created to supplement this meeting).
  - b. A **Recovery Site Infrastructure** Form was create to provide Recovery Site personnel with the information they needed to draw resources from the Available Pool and assign them to the Dedicated Pool of Recovery Resources and to Synchronize Data between the Production and Recovery Sites. A final Back-up Tape was delivered to the Recovery Site and restored to the Virtual Tape Library and used to synchronize the Recovery Point Applications in the Production and Recovery Sites going forward. From that point on, backup data from the Production Site was reduced through Data Deduplication utilized by the Virtual Tape Library and through automated the RPA's data synchronization process.
  - c. A **Pre-Stage** form was created to supply the Recovery Site team with the specific information related to the Application Recovery Certification test, so that they could set-up the recovery site to support the planned recovery test for the selected application(s).
  - d. The **Actual DR Test** was performed when the application was connected to the recovery facility and the Production IP Addresses switched to the Recovery IP Addresses. The Application Recovery Team used their "**Production Job Run Book**" to test the application because it looked exactly the same in Recovery as it did in Production. The transition from Production to Recovery was transparent to the end users.
  - e. **Post-Test** activities were conducted after the Recovery Testing was completed and consisted of: gathering Actual Times and Estimated Times for Recovery Steps; listing any Encountered Problems; and, assembling any Comments provided by personnel associated with the recovery test. This information was then assembled into a Report and Presentation to be delivered at the **Post Mortem Meeting** where management and technical personnel would review recovery operations and make **recommendations for improvement**. Selected recommendations were added to the Recovery Process and recovery operations monitored to record any improvements. Through this process of Test, Review, Improve we were able to produce the **Best Recovery Plan possible** for our environment.
10. Our next project phase was responsible for implementing **Recovery Management** throughout the Enterprise (which is sometimes referred to as **Enterprise Resiliency**). During this phase we developed a **Global Application Catalog** from a Configuration Management Data Base (CMDB) tool and appended personnel and criticality information to the records (which an automated tool could not extract). We also sub-divided the Global Application Catalog into **Configuration Management Catalogs** associated with each physical location (this information was used to support Business Impact Analysis (BIA) functions). We then developed supportive documentation and guidelines to help personnel select applications for certification and to perform Enterprise Resiliency operations.
11. The last major phase of the project was **Compliance Management** (sometimes referred to as **Corporate Certification**), in which we had to define all of the laws we had to adhere to, both domestically and internationally, and create an "**Audit Universe**" describing our compliance responsibilities. This process developed a Technology Risk Management and Audit Compliance process, where: Gaps; Exceptions; and Obstacles were identified and repaired so that a "**Letter of Attestation**" could be supplied to the Regulator's by Executive Management stating that the company is in compliance.

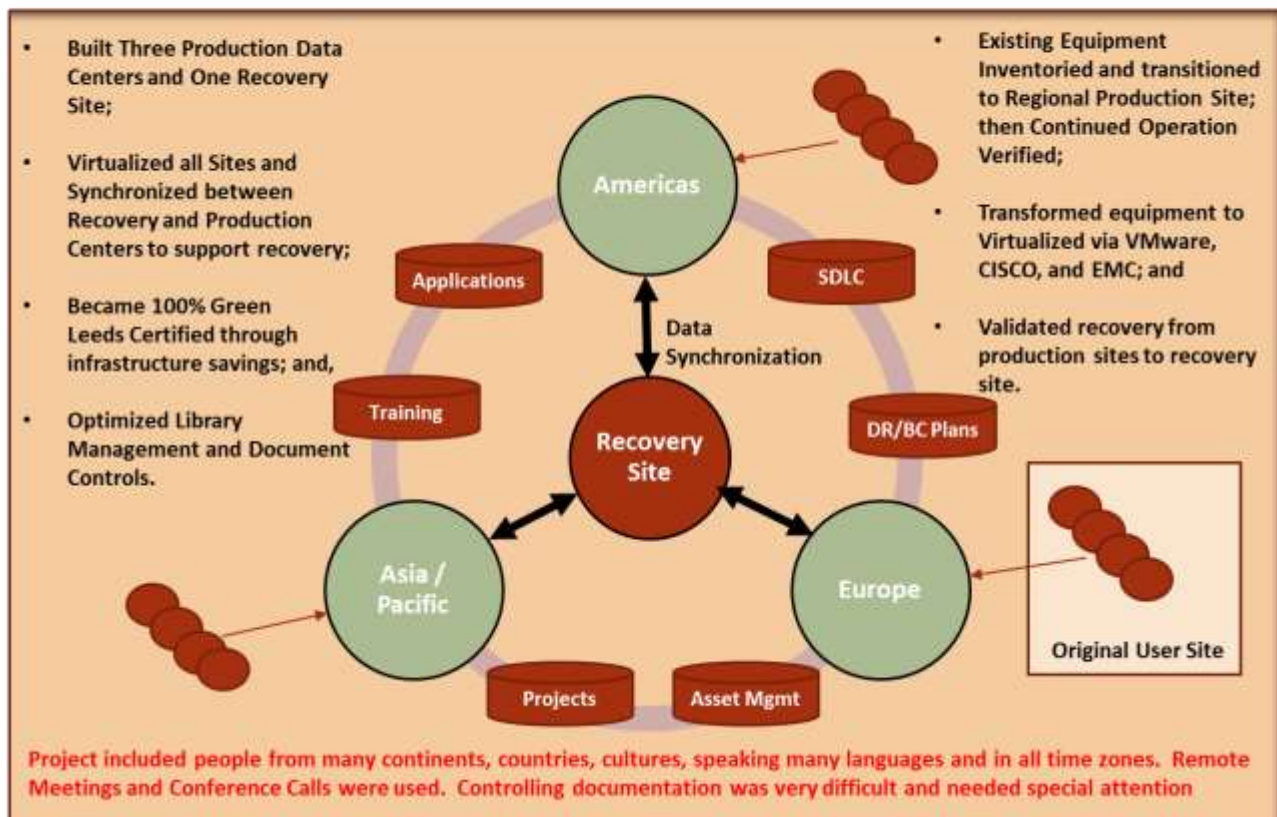
12. As an ending to this project, we integrated an **Automated Personnel Productivity System** that allowed new activities to be entered (Strategic, Tactical, and Operational) so that personnel skill and work load levels could be examined. As new skills were required, or workloads became too high for assigned resources, then requirements went into the **Automated Recruitment System** for broadcast to recruiting organizations, or internal personnel were scheduled for training through the **Automated Training System** to prepare them for future work assignments. Once the work task was required, the **Automated Work Flow Management System** was activated (see Personnel Productivity System). Work tasks were prioritized and due dates established so that work could be sorted by due date and priority and placed on the individual assigned to the work task in most important order from top to bottom. The individual would come to work, go to their “**Work To-Do List**” screen and select the top item, then complete the task and submit it to the **Work Router** for assignment to the next individual needed to respond to the work request until completed. This information was logged, tracked, analyzed, and reported on so that **Work Flow Improvements** could be made based on factual data.
13. A **Support Organization** was created to respond to encountered problems and incidents. When changes had to be made in order to repair a problem, then a Change Request was created and submitted to the **Change Management System** for processing. As part of this effort, we created “**Command Centers**” for Network, Operations, Incident, Help Desk, Contingency Command, and connected them to the **Emergency Operations Center**.
14. Finally, we had to develop a **Schedule of Activities** that would maintain our enterprise in a ready state that was capable of supporting production and recovery operations going forward. This included periodic Audits and Recovery Testing.
15. When completed, the entire process was **integrated within the Everyday Functions** performed by personnel to insure that documentation, safeguards, and compliance was always maintained in a current and accurate fashion through **Version and Release Management**.

As you can see, this was a complicated and long-term project that required many people, many documents, procedures, status reporting, and management control. We eventually found that creating a Repository of Information that was Front-Ended by a Dashboard was the only way to achieve this task. That is why I finalized the Executive Dashboard System and added sub-dashboards for Infrastructure, Systems Development Life Cycle, Recovery Management, and Compliance.

A different perspective of the project and its goals is shown below.

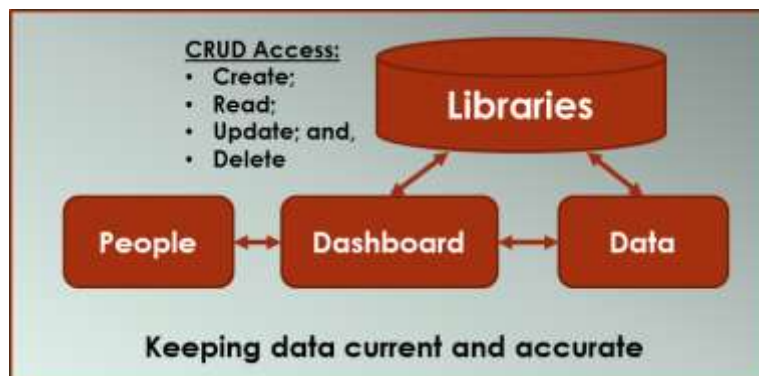


## World-Wide Coverage for production and recovery



How the Dashboard System initially started was through a simple interface between a Repository of Information and the general User Community. Its purpose was to provide quick access to current and accurate information so that personnel would know what was expected of them to achieve our combined goals, as described in the Statement of Work and Project Plans.

A picture of how the initial Dashboard was used to interface between personnel and documentation is shown below.



Project information was contained in a Library (Repository) with a Dashboard front-end that selected the most current document via a Link and presented the information to the requestor who could read or update the document (if authorized). Upon return, the old document was stored in an archive and the new document saved with the same name as the original document to protect links and eliminate interruptions.

# Other Sub-Dashboards

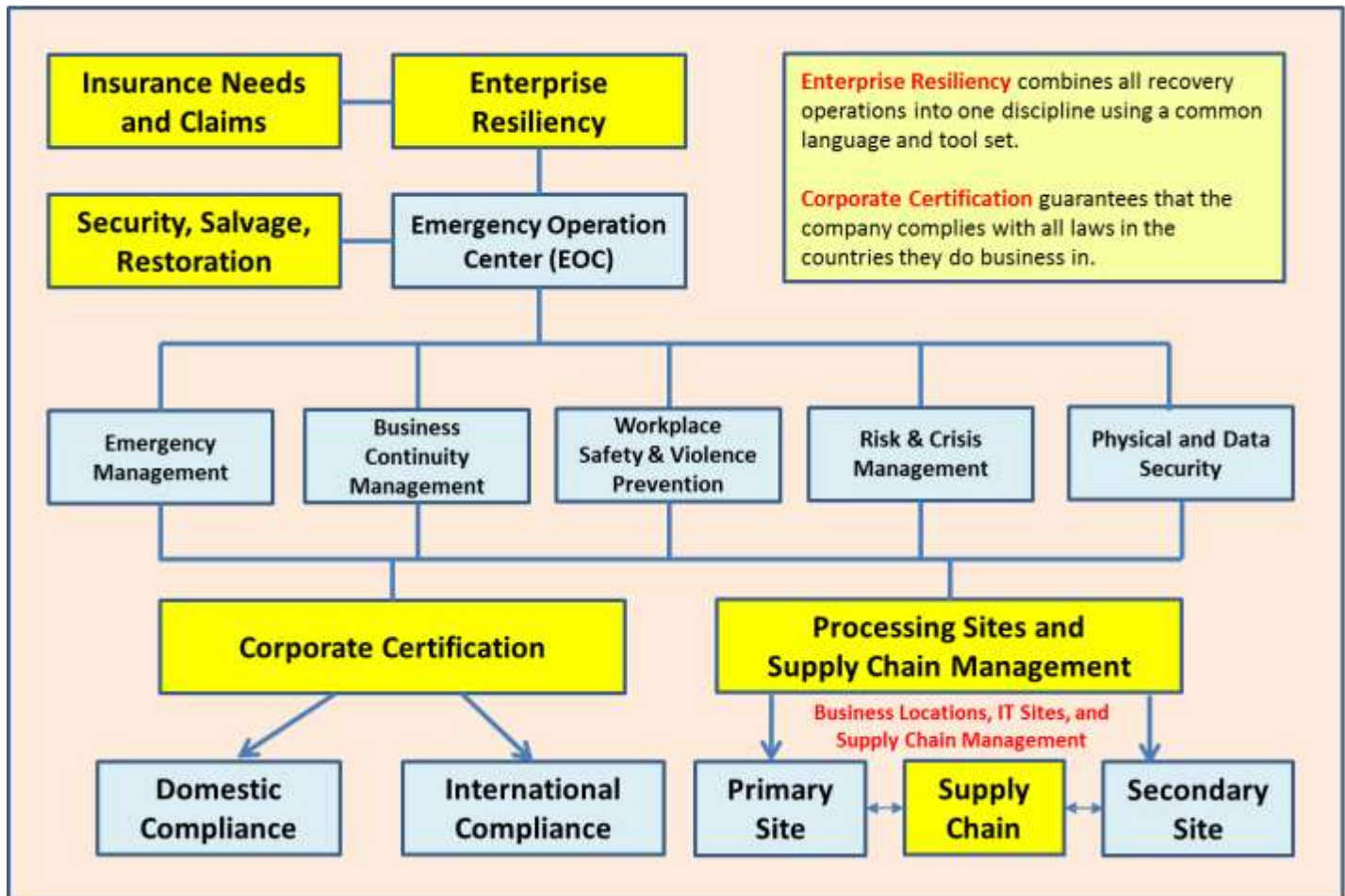
## Executive Dashboard

Management Dashboard for achieving Enterprise Resiliency and Corporate Certification, with Recovery Management Planning and Activation included.												
Completed		In Process			Pending			Dashboard Description		Dashboards		
Phase I - Management Guidelines and Goals												
Documents to be produced in Phase I						Training Materials						
1	2	3	4	5	6	7	8	9	10	11	12	13
<a href="#">Executive Committee Formulation</a>	<a href="#">Formulate Steering Committee</a>	<a href="#">Perform a Needs Analysis to Define Goals &amp; Objectives, then Prioritize</a>	<a href="#">Create a Business Plan and Gain Executive Management Approval</a>	Receive Approval & Funding for Development and Maintenance	Obtain Strong Current and Future Management Support	Have Management create a Project Initiation Letter stating their Strong Support	Define Stakeholders and Participants, then review Scope, Objectives, and Goals	<a href="#">Create Recovery Teams, Define Responsibilities, and Assign Personnel</a>	<a href="#">Develop a Project Plan in MS Project</a>	Define Reporting Audience, Criteria, Report Format, and Schedule	Create and Deliver Desired Reports as Scheduled	Receive Management Feed-Back Comments and Instructions
Phase II - Risk Management Goals and Objectives												
Documents to be produced in Phase II						Training Materials						
<a href="#">Define all Compliance Laws and Regulatory Needs for Countries you do Business In</a>	Define Audit Controls and Monitoring Methods, then build into plan	Define Supply Chain Management Needs	Define SLA / SLR / RTO and KPI Service Contract Requirements	Perform Risk Assessment and report on uncovered Gaps & Exceptions	Report on Obstacles that Impede Recovery Operations	Calculate Impacts and Repair Costs	Define Insurance Costs to Repair Reported Flaws	Provide Management with Report and Presentation on Findings	Obtain Management approval for repairs, controls, and insurance	Mitigate / Mediate, or Obtain Insurance to cover flaws	Create a Letter of Attestation Creation Process for Management	Repeat Process on a Periodic Basis
Phase III - Business Impact Analysis												
Documents to be produced in Phase III						Training Materials						
Define Locations and / or Business Units that need a BIA	Define Applications, by Priority (CA, HA, Non-Critical)	Create Business Recovery Plan for Locations and Business Units	Create Disaster Recovery Plan for Information Technology	Perform Workplace Safety and Violence Prevention Review	Perform Physical Security and Site Access Controls	RTO / RPO / RTC and PKI and Vital Records Management	Rate Ability to Achieve Goals, using Quantitative or Qualitative Methods	Define Gaps & Exceptions against Compliance Laws and Regulations	Define Obstacles that Impede Processing Operations	Define Impact of Gaps, Exceptions, and Obstacles and their Repair Costs	Define Insurance Costs and Select Insurance Plan that best meets needs	Gain Management Approval to Mitigate / Mediate / Insure
Phase IV - Automated Tool Selection (Locate, Review, Select, Implement, and Train)												
Documents to be produced in Phase IV						Training Materials						
Decide upon using an Automated Risk Assessment Tool	Define Automated Tool Selection Criteria	Audit and Controls Tool	Business Impact Analysis (BIA) Tool	Business Continuity Planning Tool	Disaster Recovery Planning Tool	Define Application Recovery Certification Tool	Select Vendors to Demonstrate Their Tools	Select Best Tool that meets needs	Obtain & Implement Tools	Train Staff on Tools	Incorporate Tools into Recovery Planning Process	Adhere to Version & Release Management
Phase V - Create Recovery Plans												
Documents to be produced in Phase V						Training Materials						
<a href="#">Business and Location Recovery Plan</a>	Protection, Salvage & Restoration Plan	<a href="#">DR Exercise Booklet</a>	<a href="#">DR Planning Management Dashboard</a>	Crisis Management Plan	Establish a Recovery Plan Repository	Connect Recovery Plans to Command Centers	Define Contingency Manager	Define Recovery Team Members	Define Initiation and Recovery Team Tasks	Create Recovery Plan and Monitor Status	Report on Recovery Plan Status to CCC and EOC	Create Management "Letter of Attestation"
Phase VI - Initiate Recovery Plan when Disaster Event Occurs												
Documents to be produced in Phase VI						Training Materials						
Help Desk Identifies Disaster Event or a Disaster Event is reported to Help Desk	Help Desk Notifies Contingency Recovery Plan Coordinator	Contingency Coordinator Declares Disaster and Initiates Plan	Team is Called and Recovery Tasks Performed	Failing Site Protection, Salvage, and Restoration is Initiated	<a href="#">Disaster Site is Evacuated, as needed</a>	Recovery Personnel are Transferred to Recovery Site	Recovery Operations are Initiated and Conducted for Life of Disaster	Failing Site is Salvaged and Restored	Personnel Return to Original Site and Resume Production	Post Mortem is Conducted and Improvements Identified	Improvements are Incorporated in Future Recovery Plans	Recovery Steps are added to Testing Process and Periodically Repeated
Phase VII - Community Relations, Communications, and Administration												
Documents to be produced in Phase VII						Training Materials						
Notify First Responders, Community, and Government Agencies of Disaster Event as needed	Coordinate with Clients, other Building Park Residents, Personnel, and Families	Coordinate with Government (OSHA, OEM, City, etc.)	Notify Supply Chain Management to make Deliveries to Recovery Site	Establish Financial and Personnel Considerations during Recovery	Manage Contingency Command Center (CCC) and Emergency Operations Center (EOC)	Respond to Encountered Problems and Update Status	Communicate Disaster Event Status to Community and Media	Manage Recovery Process from Start to Finish	Declare Disaster Event is Over and Production is Resumed	Manage Post Mortem and Plan Enhancements	Ensure Recovery Planning is Integrated	Ensure Documentation, Training, and Awareness is current



The Executive Dashboard is used to support implementing Enterprise Resiliency and Corporate Certification and contains seven phase each with 13 steps (for a total of 91 steps).

## Enterprise Resiliency and Corporate Certification

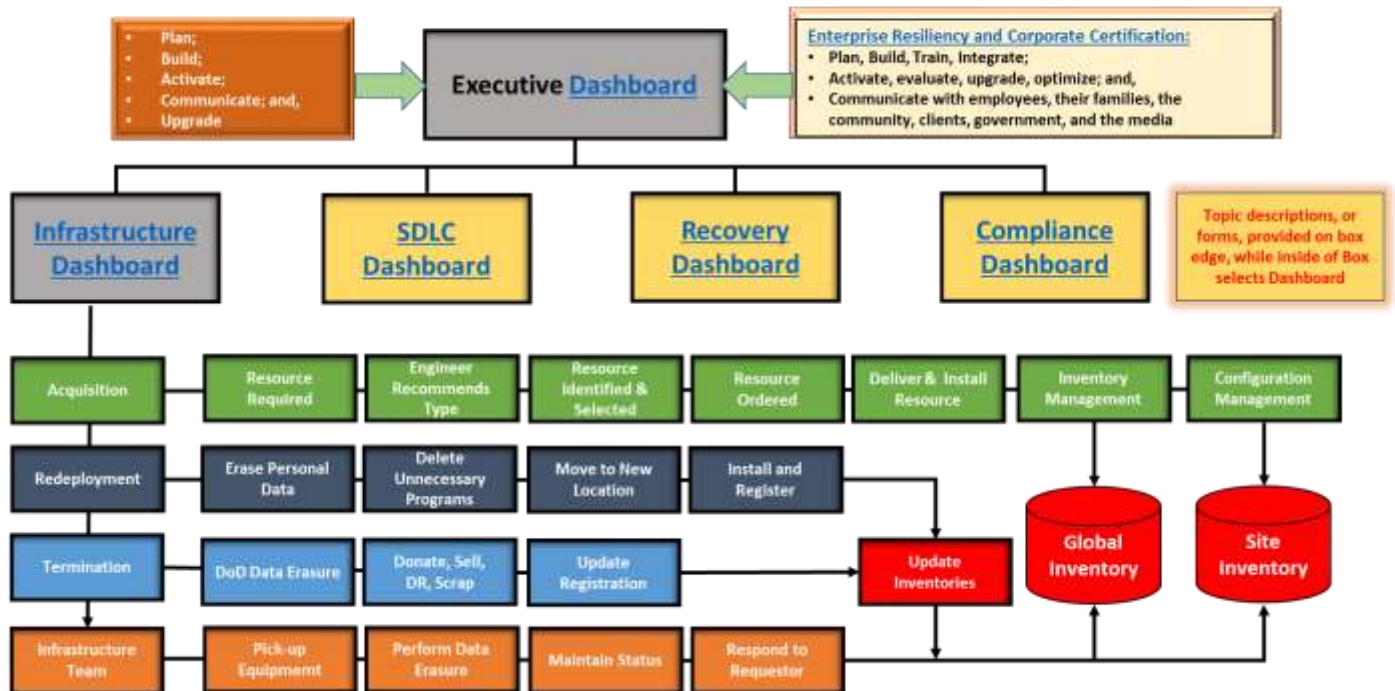


Enterprise Resiliency combines all of the DR functions under one umbrella department using a common set of tools and a common language. It is designed to optimize communications and performance amongst the various recovery groups to better respond to disaster events and to foster a wider knowledge base amongst DR practitioners.

Corporate Certification is responsible for insuring that your company complies with all of the rules and regulations of the countries where you conduct business.

Combining the two disciplines will insure that your company has developed a safeguarded and compliant environment that is best suited to protect your business and company reputation, while complying with all of the regulatory requirements where your company conducts business.

## Infrastructure Dashboard Outline



We first performed an **Equipment Inventory** of all of the client locations, then built the production data centers and **transitioned** their equipment to the new production sites and tested the environment to verify it still operated successfully. We were then able to **eliminate outside contracts** with vendors and service providers.

Our next phase required us to virtualize the equipment and eliminate old equipment that the virtualized environment replaced (another savings to the client). In this process we were able to achieve Green LEED's 100% certification.

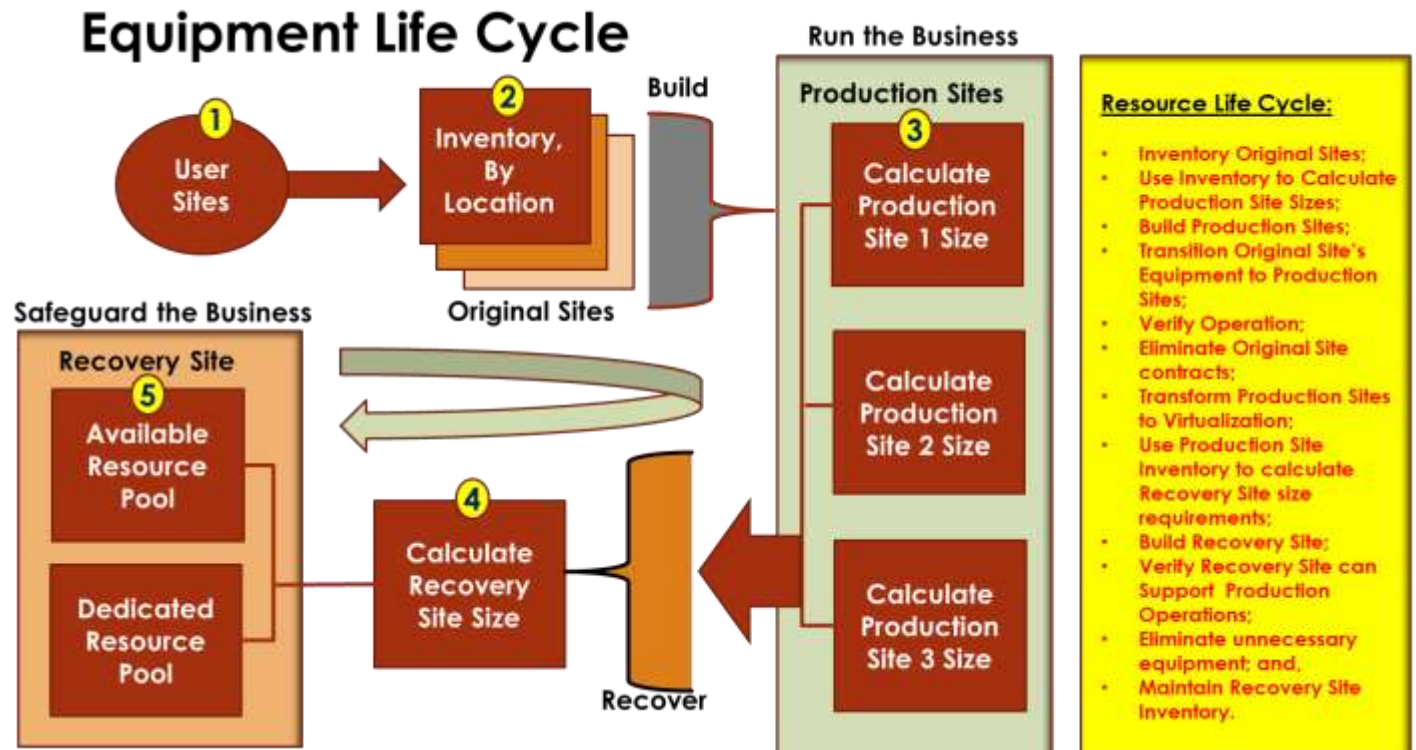
Next we built an internal recovery site and connected it to the production sites and validated that we could recovery Production applications at the internal recovery site. We implemented an "**Application Recovery Certification**" process, an **IT Recovery process**, and finally a **Business Recovery process**.

Finally, we accomplished **Enterprise Resiliency** (Recovery Management) and **Corporate Certification** (Compliance Management).

During this process we built a **Global Application Catalog** by applying the **Configuration Management Data Base** (CMDB) product (part of ITIL v3 family of products) and then appended ownership, criticality, support, and other information not attainable through an extraction tool like CMDB. Finally, we sub-divided the Global Catalog into **Configuration Catalogs** associated with locations, which supported some of our Business Impact Analysis (BIA) requirements.

At the end of this project, the company was totally prepared to meet recovery requirements associated with regulatory practices and client service contracts throughout the world.

An overview of the Equipment Life Cycle associated with this project is shown below.

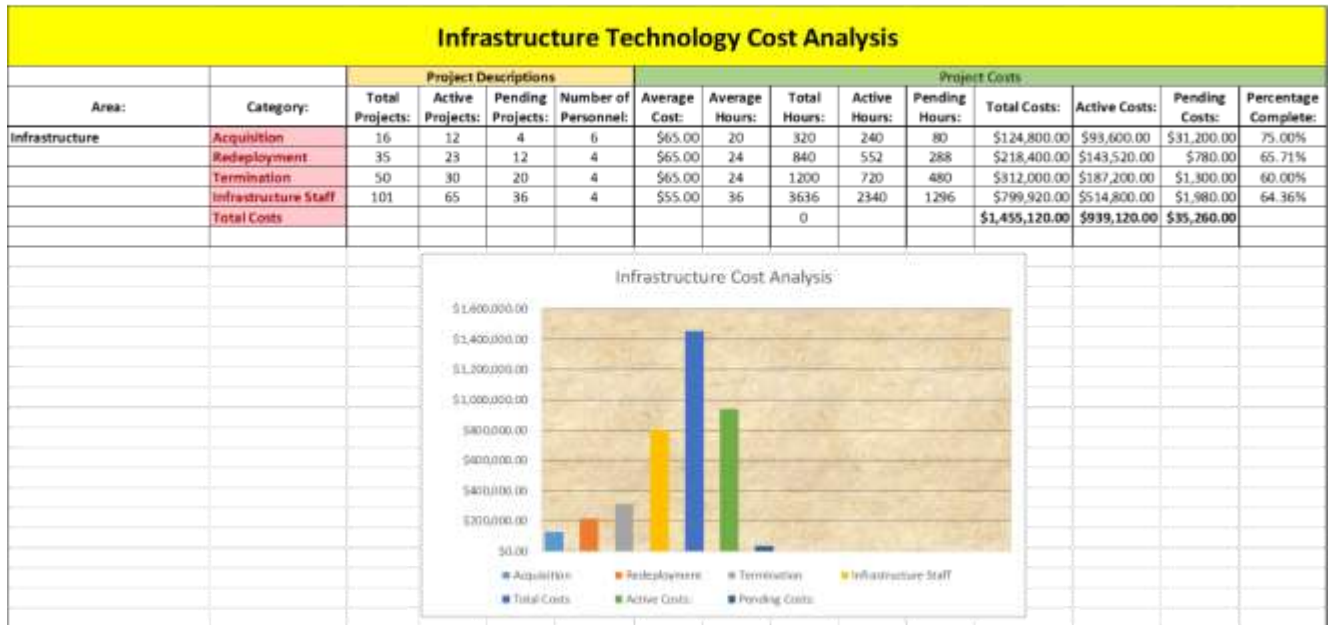


As the project progressed we were able to identify metrics that could be used for management reporting in a normal Dashboard manner. These metrics were based on:

1. Number of active projects, per category of responsibility:
  - a. Asset Acquisition;
  - b. Asset Redeployment;
  - c. Asset Termination; and,
  - d. The use of Infrastructure personnel to assist in these tasks.
2. Project Descriptions were created and broken into units that were Completed, Active, or Pending to determine:
  - a. How much was already spent;
  - b. How much was currently being spent; and,
  - c. How much was yet to be spent.
3. We then defined personnel costs and the average duration associated with their work functions, which allowed us to calculate:
  - a. Average Costs;
  - b. Average Hours per task;
  - c. Total Hours for tasks (Completed, Active, and Pending);
  - d. Total Costs;
  - e. Active Costs;
  - f. Pending Costs; and,
  - g. Percentage Complete.
4. This information was then charted into the presentation shown below.

# Infrastructure Management and Cost Analysis

## Infrastructure Management Expense Chart



Having these metrics available to management proved to be an excellent manner to communicate project status and costs to management and they appreciated having it available to them.

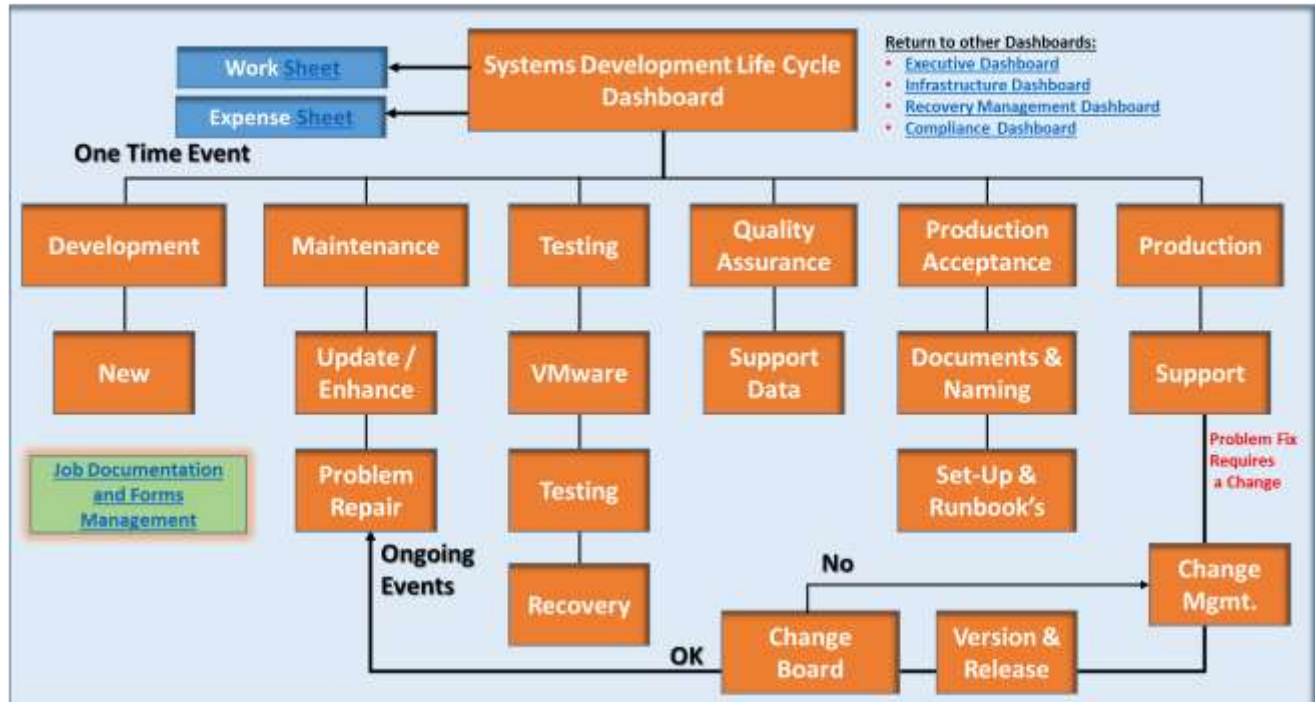
As the project went on, we discovered that we could create similar reports for the **Systems Development Life Cycle (SDLC)**, **Recovery Management**, and **Risk Management**, and **Compliance Management** – which just made the use of the Management Dashboard System that much more powerful and helpful in achieving our goals while providing management with the information they needed.

An additional benefit was received by the **Project Management Office (PMO)** who were better able to record, track, and complete projects, while defining costs and areas for improvement in efficiency that reduced costs and reduced project durations.



# Systems Development Dashboard

## SDLC Dashboard Structure and Overview



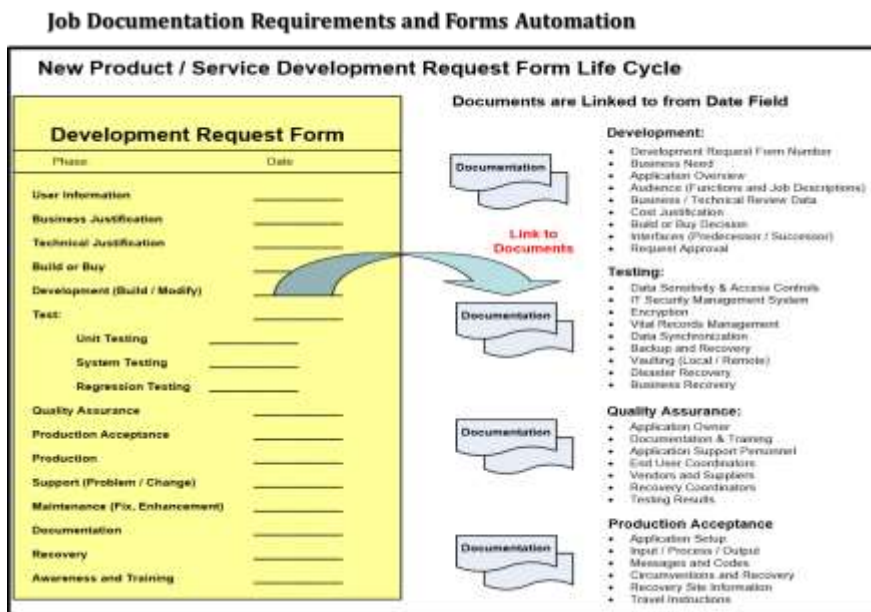
A Systems Development Life Cycle (SDLC) dashboard was created and connected to the Executive Dashboard for rapid access. It is used to illustrate the steps required to develop and maintain applications within the Enterprise Environment.

The steps used to create applications, and the information required by the Requester, was submitted in a "Work Order (WO)" to the Applications Department. The Work Order was then broken down into "Purchase Orders (POs)" for processing throughout the SDLC to show what actions were performed, their duration and resources used, and the cost per activity. From this information, it was possible to generate a **Charge-Back System** comprised of Work Orders and their associated Purchase Orders. Charges were then submitted to Accounting and the Requester.

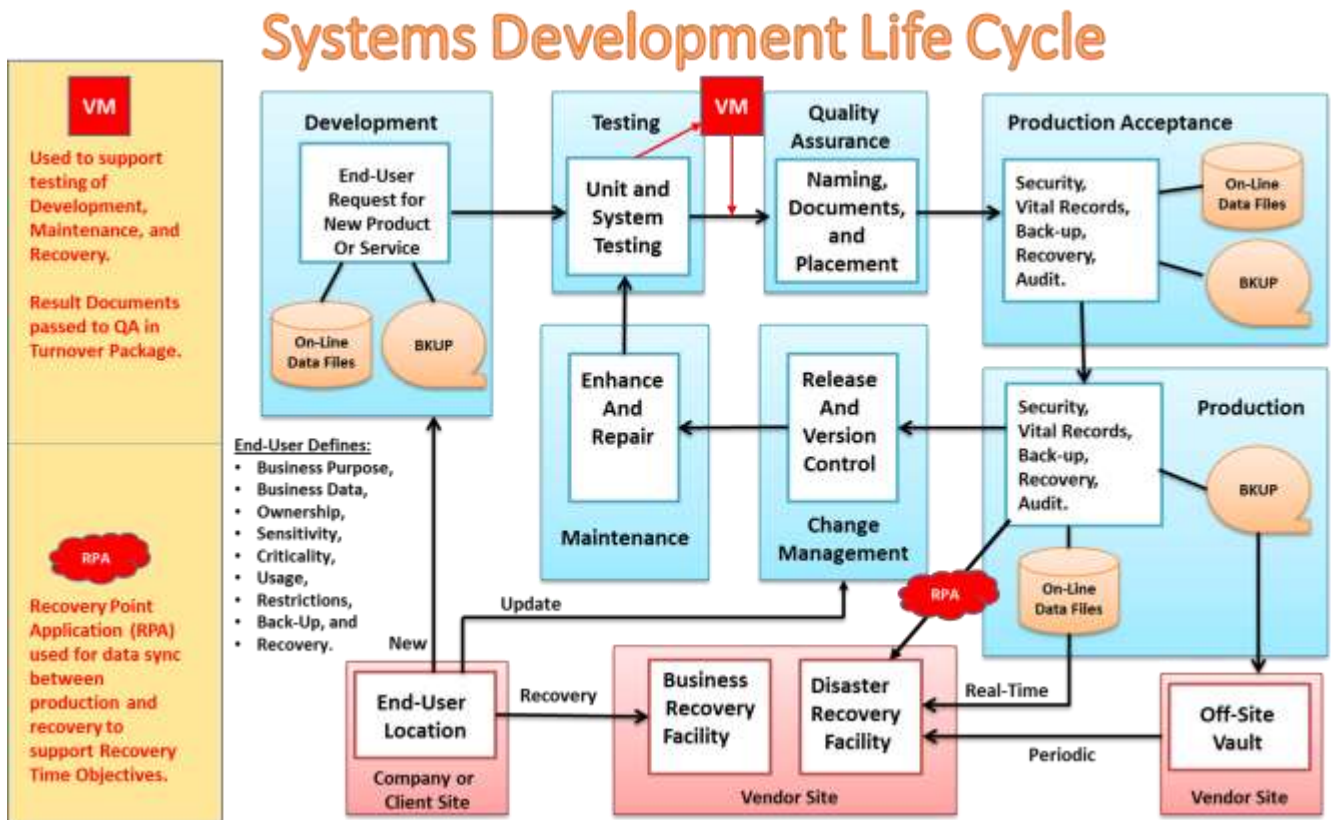
Throughout the SDLC, it was necessary to provide forms to drive work activities and documents to describe accomplishments. These documents were associated with specific SDLC steps and placed within a table of documents for every step completed. In order to better monitor SDLC activity and gain an understanding of activities performed, it was necessary to create **Sub-Menus** for SDLC phases and a **Master Menu** for the entire project. Through this mechanism, it was possible to track SDLC activity through the Dashboard System as shown below.



# Job Documentation associated with the SDLC



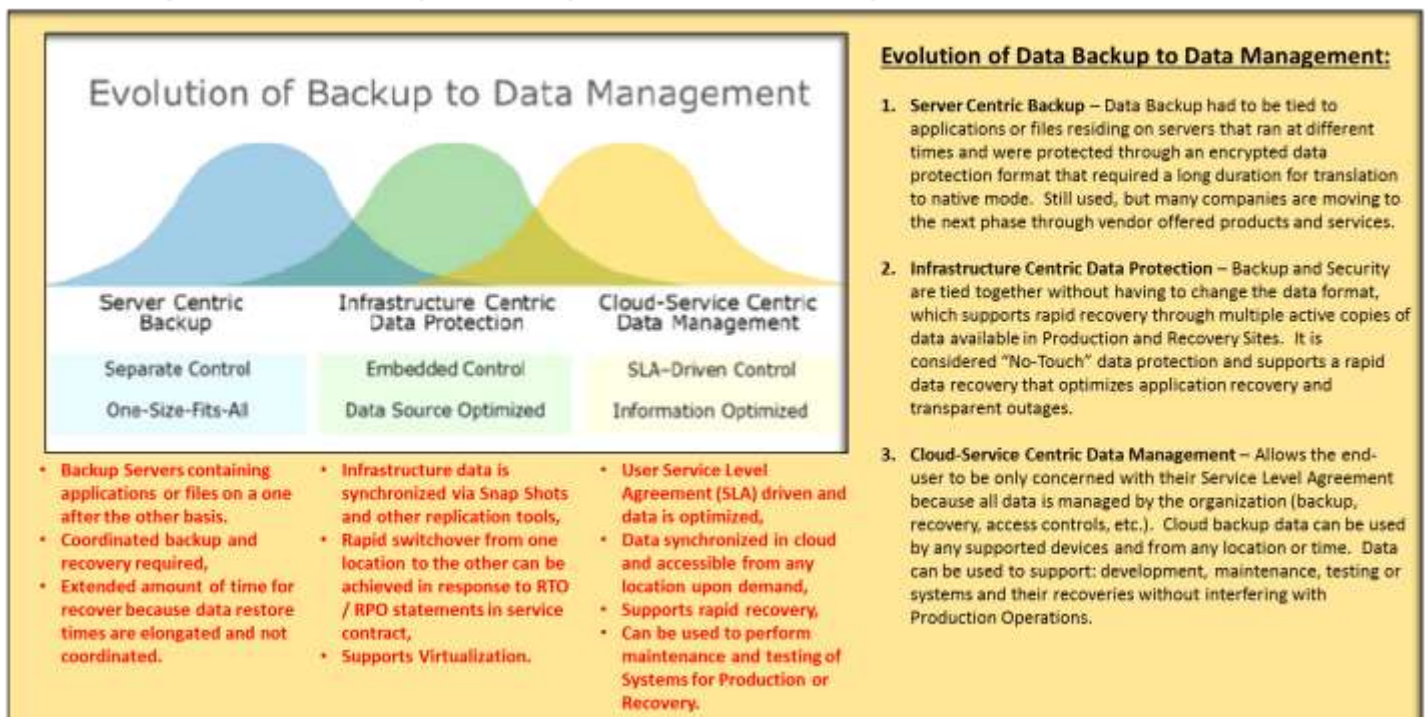
The SDLC Documentation Menus are shown above and another, more complete description of the SDLC shown below.



# Evolution from Data Backup to Data Management

New developments in Information Technology have occurred in rapid succession since the days of Tape Backup and Restoration, as is shown in the below chart. We are presently in the “Server Centric Backup” phase, but moving forward to the “Infrastructure Centric Data Protection” phase and finally the “Cloud-Service Centric Data Management” phase. These phases are better described in the below illustration.

## EMC Storage Division CTO Stephen Manly discussed data backup trends (video available in Training Materials)



It is obvious that a shift in thinking has been introduced into the data protection and management discipline that has been brought upon us through the rapid growth of data and the need for quicker recovery times to the point where we may someday be required to support 100% uptime. The techniques discussed above will aid us achieve that goal.

As our society grows more dependent on computing for our business and personal lives, it will become more evident that protecting data to support our needs is essential to a continued society. Recovery Operations will have to follow the demand curve and the approach discussed above is the path chosen by EMC and other major storage providers.

The use of VM for the testing phase within the SDLC and the RPA to maintain data synchronization between the Production and Recovery environments are examples of Infrastructure Centric Data Protection. Using a Cloud based data repository would move this SDLC towards a Cloud-Services Centric Data Management environment. We’re almost there and moving closer every day. Fear and logistics are our enemy.

## The Job Accounting and Charge-Back System used for the SDLC is shown below.

### Information Accounting and Charge-Back System Concept

By utilizing Work Order (WO) and Purchase Order (PO) concepts, it is possible to track and bill clients for their use of Information Technology services associated with development and maintenance services. This concept is presented below:

User Name: _____	User Division: _____	User Identifier _____
Work Order #: _____	Date: _____	For: _____

<b>Purchase Order Phases:</b>	
PO for: Development, or Maintenance	Cost: \$ _____
PO for: Testing	Cost: \$ _____
PO for: Quality Assurance	Cost: \$ _____
PO for: Production Acceptance	Cost: \$ _____
PO for: Production (on-going)	Cost: \$ _____
PO for: Vital Records Management	Cost: \$ _____
PO for: Asset Management (Acquisition, Redeployment, Termination)	Cost: \$ _____
PO for: Inventory and Configuration Management	Cost: \$ _____
PO for: Information and Security Management	Cost: \$ _____
PO for: Safe Workplace Violence Prevention	Cost: \$ _____
PO for: Recovery Management	Cost: \$ _____
PO for: Documentation and Training	Cost: \$ _____
PO for: Support and Problem Management	Cost: \$ _____
PO for: Change Management	Cost: \$ _____
PO for: Version and Release Management	Cost: \$ _____
Total Cost: \$ _____	

Bill can be generated via Forms Management, Time Accounting, or Flat Cost for Services. This system can be used to predict costs for future projects and help control expenses and personnel time management.

The **Charge-Back System** related Purchase Orders (PO's) to Work Orders (WO's) submitted by a Requestor asking for specific types of work to be accomplished. As the work progressed through its Life Cycle PO's were completed and associated with the Requestor WO Number. Once the Work Order was completed and accepted by the Requester the Total Cost was calculated and submitted to Accounting for Posting to the General Ledger System as an Account Receivable to Information Technology and an Account Payable to the Requester's Department.

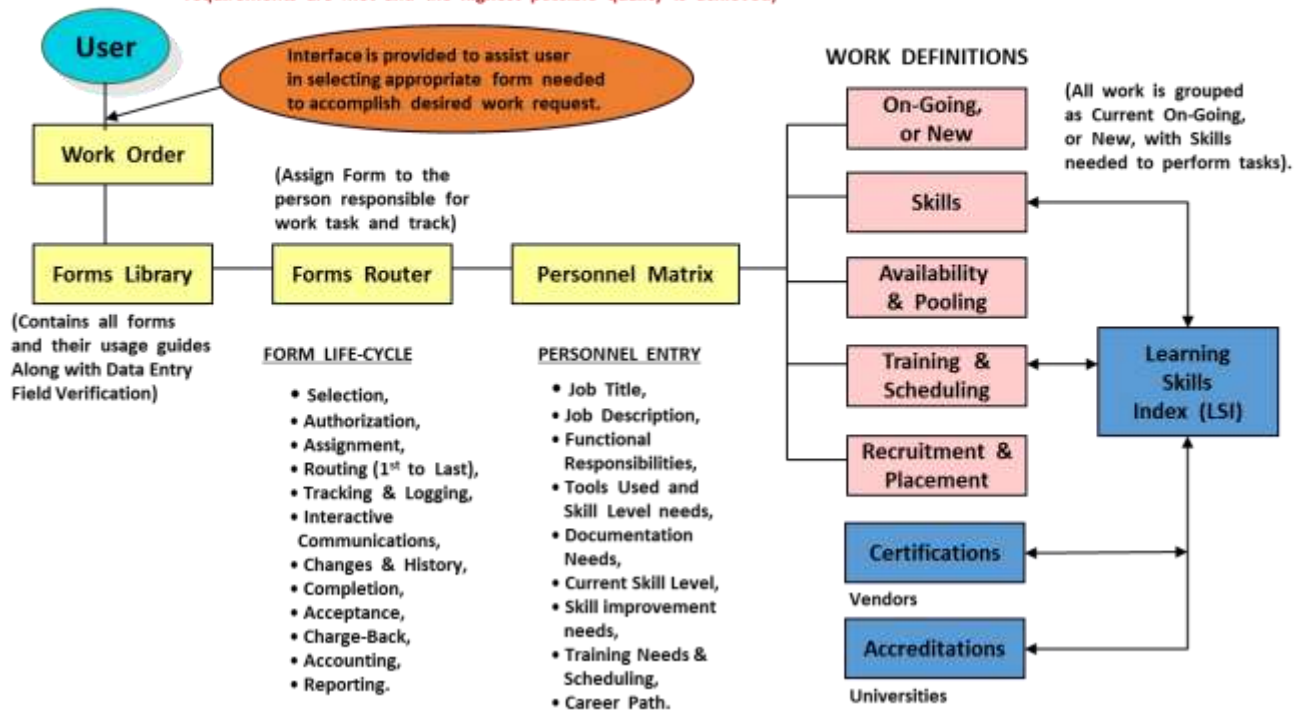
This system allowed the Information Technology Department to better become a "**Profit Center**" and not a "Cost Center".



# Forms Management and Control System

## Forms Management and Control System

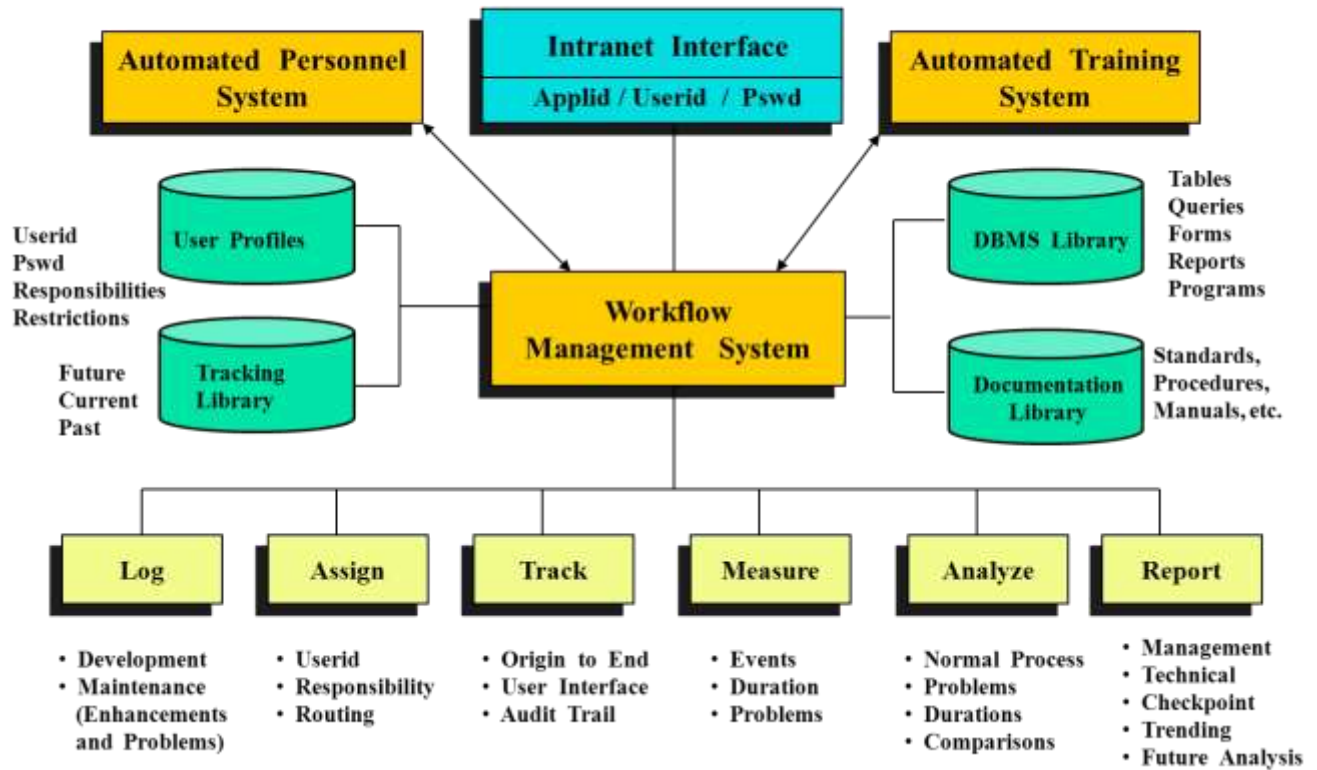
(Responsible for assigning work tasks to the right person at every project phase, while ensuring that skill requirements are met and the highest possible quality is achieved)



This system will guide you in selecting the right form to use when requesting work to be performed, then provide you with help and data entry validation to insure you have **completed the form correctly**. Once completed, the **Forms Router** will log the work request, authorize it, and assign it to the individuals designated to accomplish the work (from first person to last). Work will be assigned on a “**To-Do List**” in due date and priority order, so the individual simply takes the top item from the list and completes their work, returning it to the Forms Router for assignment to the next step in its processing schedule. At the end of the work, the Requestor is notified and they approve the work. Should personnel require training in order to complete the work, the **Automated Training System** will schedule them for training in time to adhere to project / work schedules. Vendor Certifications and University Accreditations are added to the personnel profile and efforts are made to help personnel achieve their **desired career paths** during this process.

# Automated Personnel System, with Work Flow Management

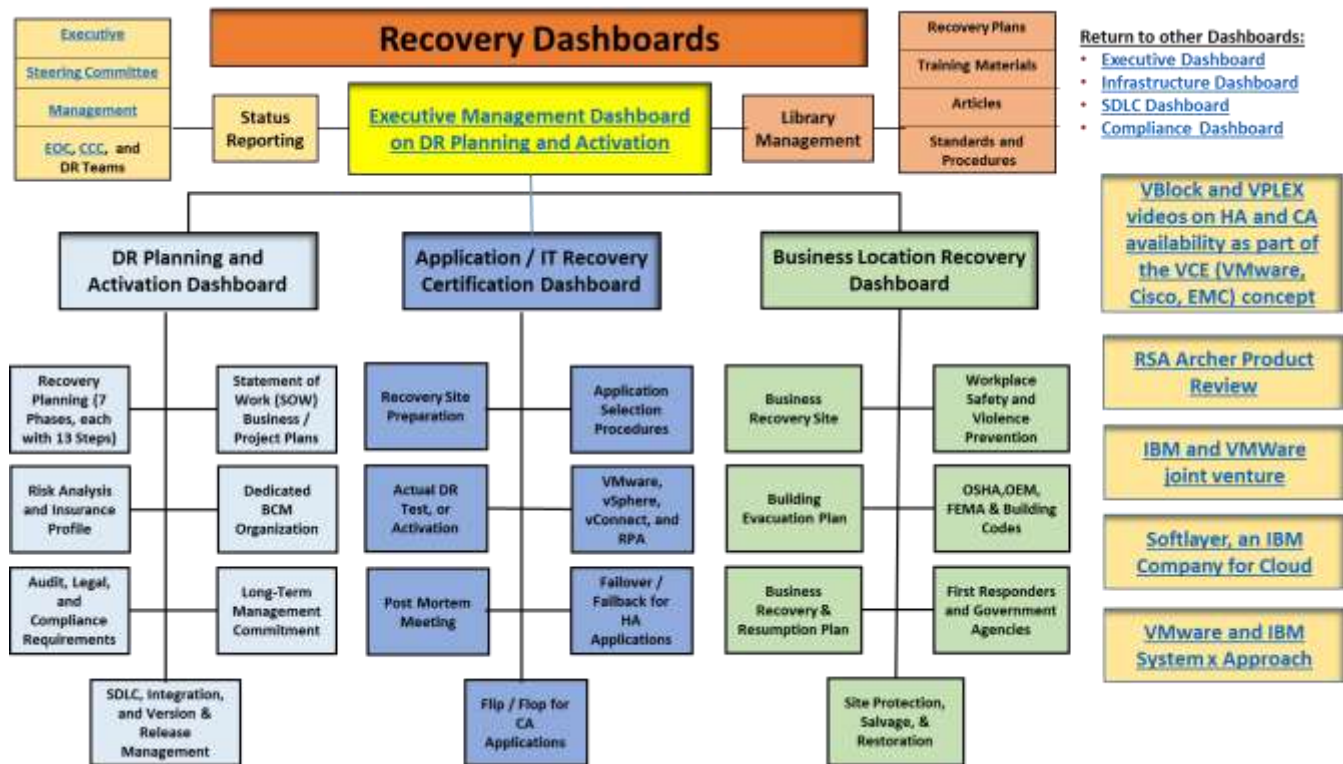
## Personnel and Work Flow Management



The **Workflow Management System** is designed to process work through the enterprise from, inception to completion, so that work-flow can be optimized. Access to the system is via a front end that can be accessed from anywhere and at any time, with interfaces to the **Automated Personnel** and **Automated Training Systems**. User Profiles and a Work Tracking Library are included along with a Data Base of Forms and a Library of Flat Files. User Work Requests (WO's) are Logged and the work item is Assigned and Tracked for the individuals who are responsible for performing the actions associated with the request from first to last action (Purchase Orders or PO's are used to monitor time and resource usage for charge-back). Measurements are stored and analyzed to determine the Life-Cycle and Time Frames associated with work items. Finally, a reporting mechanism is used to report on Work-Flow so that improvements can be made to **optimize how work flows** through your organization.



# Recovery Management Dashboard



The Recovery Management Dashboard is sub-divided into three areas, which are:

1. **Disaster Recovery Planning and Activation** – where planning sessions are conducted to select applications, IT Environments, and Business Locations for Recovery Testing.
2. **Application Recovery Certification** – which includes Recovery Certification for Applications and IT Locations.
3. **Business Location Recovery** – for Business Sites and Business Units, and includes Evacuation Plans, Business Recovery Site occupation and return instructions, Security, Salvage, and Restoration Activities, Vendor Management, and many other activities used to relocate a business operation to a recovery facility and maintain production throughout an Emergency or Disaster Event.

This Dashboard will link you to sub-dashboards for each of the categories listed above. Once there, the sub-dashboard will provide you with training materials, recovery manuals, and instructions to follow in order to recover the failing function.

**Disaster Recovery and Business Recovery Sites** are accessible through the Dashboard, so that you will know where they are and the procedures associated with Disaster Declaration and personnel transportation to the recovery facilities.

An example of the Recovery Management Dashboard is provided below.

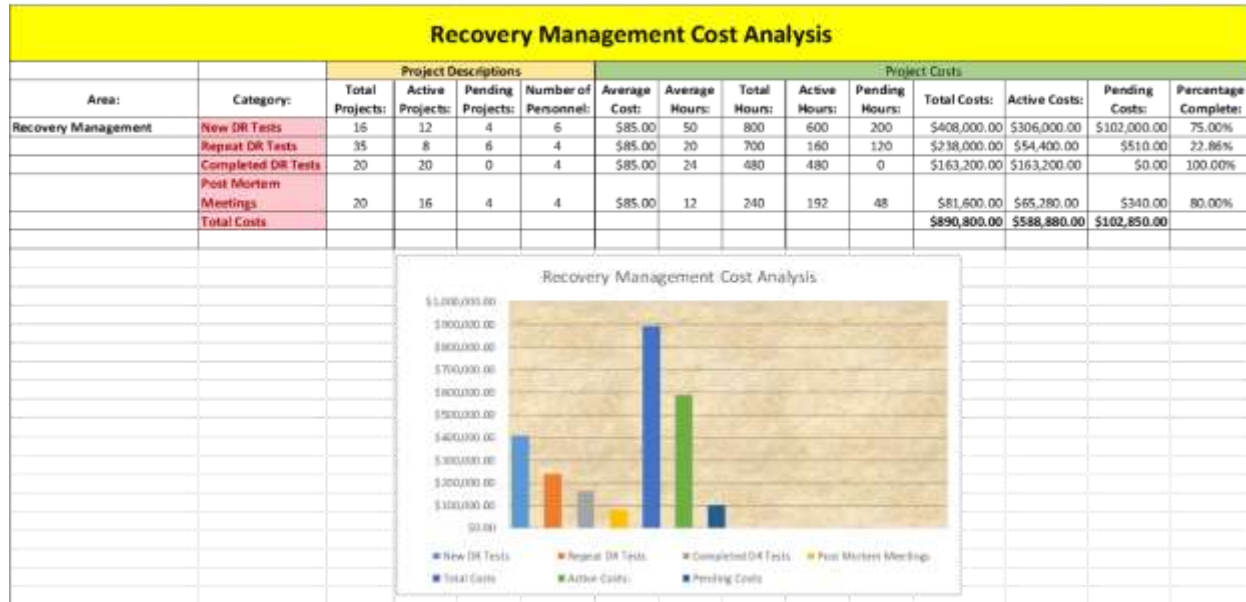
# Disaster Recovery Management Dashboard

Disaster Recovery Planning Management Dashboard						
Statements of Work	<a href="#">Project Overview</a>	<a href="#">SOW - End of Transformation Phase</a>	<a href="#">SOW - Implementing Enterprise Resiliency and Corporate Certification</a>	<a href="#">SOW - Selecting Applications for Recovery Certification</a>	<a href="#">ISO 22301 International DR Standard Glossary</a>	<a href="#">ISO 23301 - 2012 ISO International Standard on BCM</a>
Training Materials	<a href="#">Initial Training Course</a>	<a href="#">DR Planning Guide</a>	<a href="#">Data Center Infrastructure Optimization</a>	<a href="#">Five Ways to Improve Business Recovery with vSphere and VMware</a>	<a href="#">EMC Recovery Point Overview Presentation</a>	<a href="#">EMC Business Continuity and Disaster Recovery Solutions</a>
	<a href="#">Recovery Management Executive Dashboard</a>	<a href="#">Optimizing the IT and Business Environment through Dashboards</a>	<a href="#">How IBM can help you develop Mobile Applications</a>			
Presentations	<a href="#">Executive Presentation on Enterprise Resiliency and Corporate Certification</a>	<a href="#">Proof of Concept</a>	<a href="#">Introduction to Virtualization</a>	<a href="#">VMware - vSphere, vCenter, and SRM Prep and setup presentation</a>	<a href="#">VMware - vSphere, vCenter, and SRM Recovery and Migration uses</a>	<a href="#">vSphere 5 overview</a>
	<a href="#">vCenter - SRM for DR</a>	<a href="#">Application Migration Guidelines</a>	<a href="#">Asset Management</a>	<a href="#">Personnel Productivity System</a>	<a href="#">Technology Risk Management</a>	<a href="#">Workplace Safety and Violence Prevention</a>
	<a href="#">Recovery Management Executive Dashboard</a>	<a href="#">Tape Vaulting and Encryption</a>				
DR Exercise Booklets	<a href="#">DR Exercise Booklet Template</a>	<a href="#">Proof of Concept DR Exercise Booklet</a>	<a href="#">Hyperion DR Exercise Booklet</a>	<a href="#">Quintiq DR Exercise Booklet</a>	<a href="#">Business Continuity Plan Overview</a>	
Supportive Materials	<a href="#">Escalation List and Organization Chart</a>	<a href="#">Contact List</a>	<a href="#">Global Application Catalogue</a>	<a href="#">MS Project Plan</a>	<a href="#">DR Status Meeting Action Tracker</a>	<a href="#">Weekly DR Status Report</a>
DR Phases	1. Recovery Site Infrastructure Readiness	2. DR Planning Sessions	3. DR Pre-Test Phase	4. DR Application Actual Test	5. DR Post-Test Activities	6. Post Mortem Meeting and report on Lessons Learned.
Phase Documents	<a href="#">Pre-Staging Document</a>	<a href="#">Planning Meeting Agenda</a>	<a href="#">Pre-Test Activities</a>	<a href="#">Actual Test Activities Sheet</a>	<a href="#">Post Test Activities</a>	Post Mortem Meeting
	<a href="#">Application Inventory Form</a>	<a href="#">Attendees</a>	<a href="#">Pre-Test Activities Work Sheet</a>	<a href="#">Actual Test Work Sheet</a>	<a href="#">Post Test Work Sheet</a>	Recommendations for improvement
	<a href="#">Application Profile</a>	<a href="#">DR Planning Guidelines</a>	<a href="#">Recovery Vendors List</a>	<a href="#">Software Contract Right to use product for DR Test / Event</a>	<a href="#">Post Test Master Work Sheet</a>	Escalation Matrix
Additional Forms	<a href="#">Infrastructure Readiness</a>	<a href="#">Action Items Tracking Form</a>	<a href="#">Supply Chain Vendors</a>	<a href="#">Supplemental Personnel Matrix</a>		
	<a href="#">Contact List</a>	<a href="#">Contingency Command Center Personnel</a>	<a href="#">Emergency Operations Center Personnel</a>	<a href="#">Steering Committee Personnel</a>	<a href="#">Executive Management</a>	<a href="#">Recovery Team Members</a>
	<a href="#">DR Teams and Members</a>	<a href="#">Inventory and Status Report</a>	<a href="#">Required Activities and Work Sheets</a>	<a href="#">Application Sign-Off Sheet</a>		<a href="#">Recovery Activities Status Log</a>

There are many links contained within this Dashboard that will provide the user with Statements of Work, Training Materials, Presentations, Exercise Booklets, and the Forms used to complete Exercise Booklets for IT, Business, and Application Recovery Certification.

# Metrics found through this Dashboard Approach

## Recovery Management Expense Chart



Again, we were able to define metrics associated with Recovery Management that proved helpful to management and are shown above.

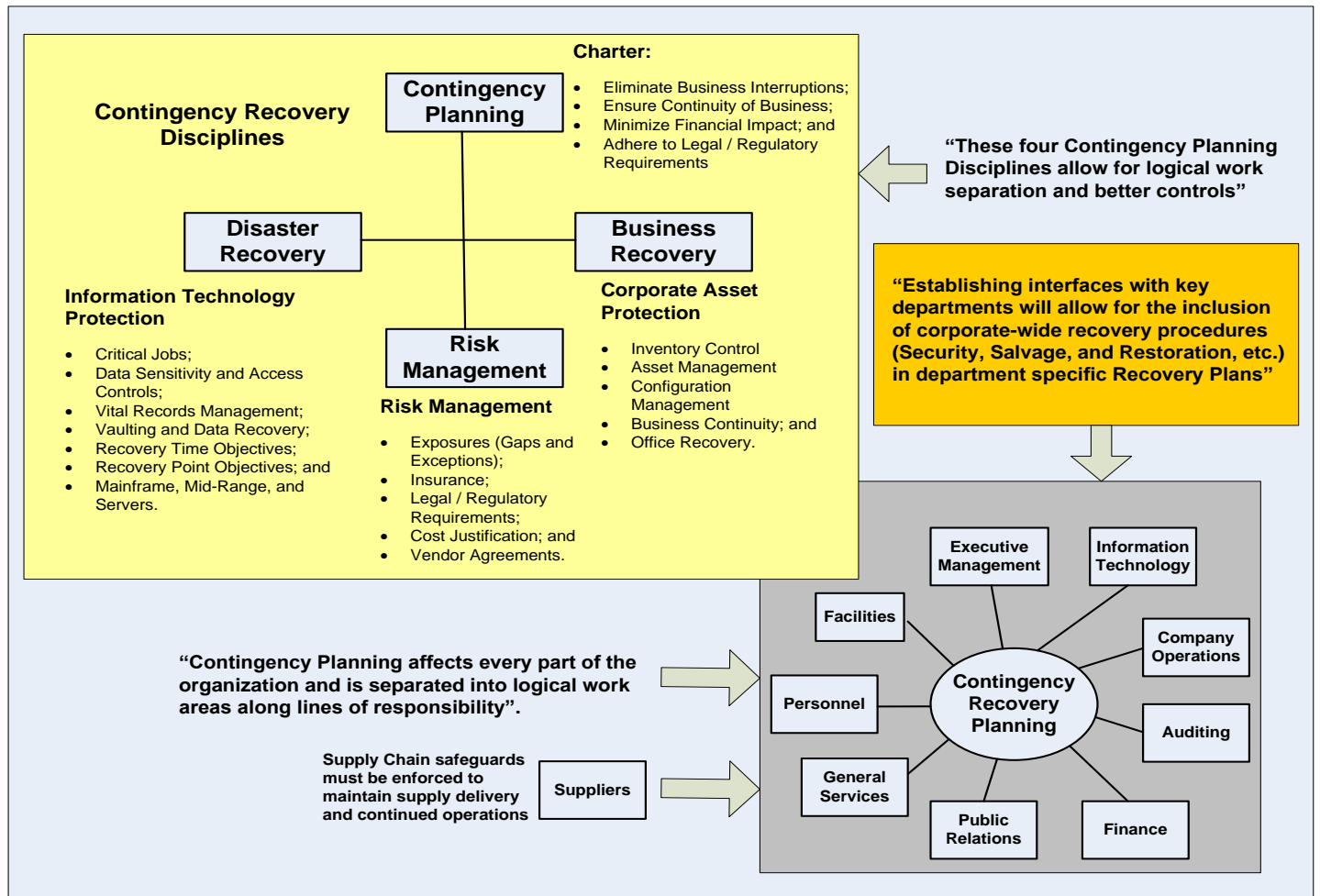
To gain full use of this approach to metrics, additional screens should be added below this screen so that you can drill down to each individual task being performed and discuss activities with the person actually performing the work. You can also better see the extent of activity being performed through examining the number of completed, active, and pending tasks presented in this manner.

For example, you could click on “New DR Test” and see what is in the pipeline for Recovery Certification and what the schedule of events is, thereby receiving a high level overview of work to be accomplished in the near term. Repeat DR Tests would provide you with a schedule of recovery testing based on criteria and time frame. Completed DR tests would indicate your recovery certification process and Post Tests and Post Mortem Meetings would show how your company is benefiting from recovery certifications.

Recommendations from Post Mortem Meetings and Recovery Testing Improvements will demonstrate how your company is mastering protecting the business environment and adhering to compliance regulations. Your ability to sign off on “Letters of Attestation” will be enhanced and the company reputation greatly improved.

# Business Continuity Management Principals

## Business Continuity Management Disciplines and Integration

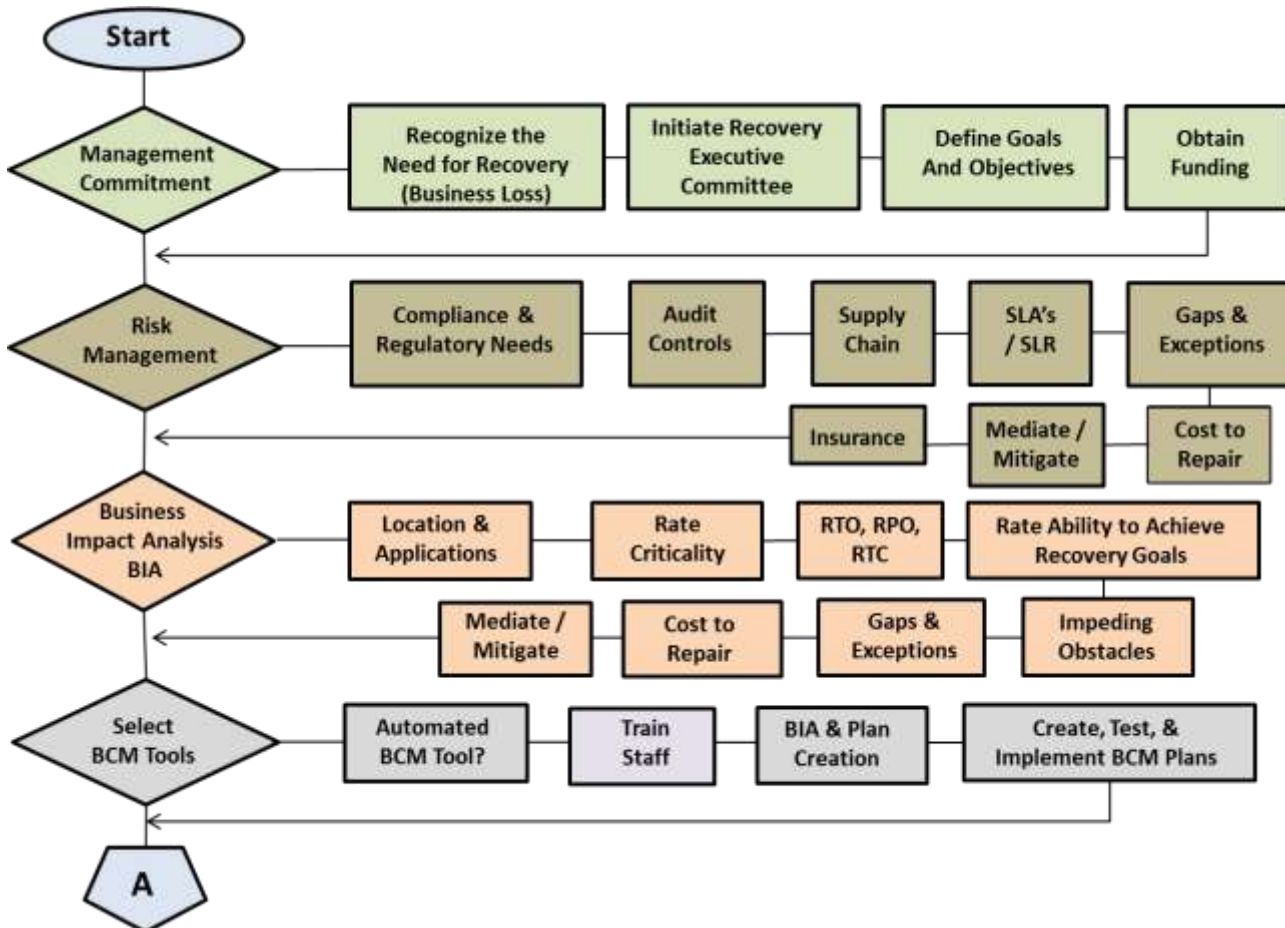


The Charter and general recovery management disciplines are illustrated above. Executive Management is responsible for maintaining the Charter Goals and Objectives, while: Information Technology is concerned about Disaster Recovery; Business Units are responsible for the Business Impact Analysis (BIA), and Business Recovery; and the Audit, Risk Management, and Legal Departments are responsible for Risk, Compliance, Insurance, and general business guidelines to insure adherence to compliance regulations both domestically and world-wide as necessary.

The many disciplines involved with planning and enacting recovery plans are shown in the “Contingency Recovery Planning” circle of influence, so that you can better understand the extent of this endeavor.

# Creating Business Recovery Plans

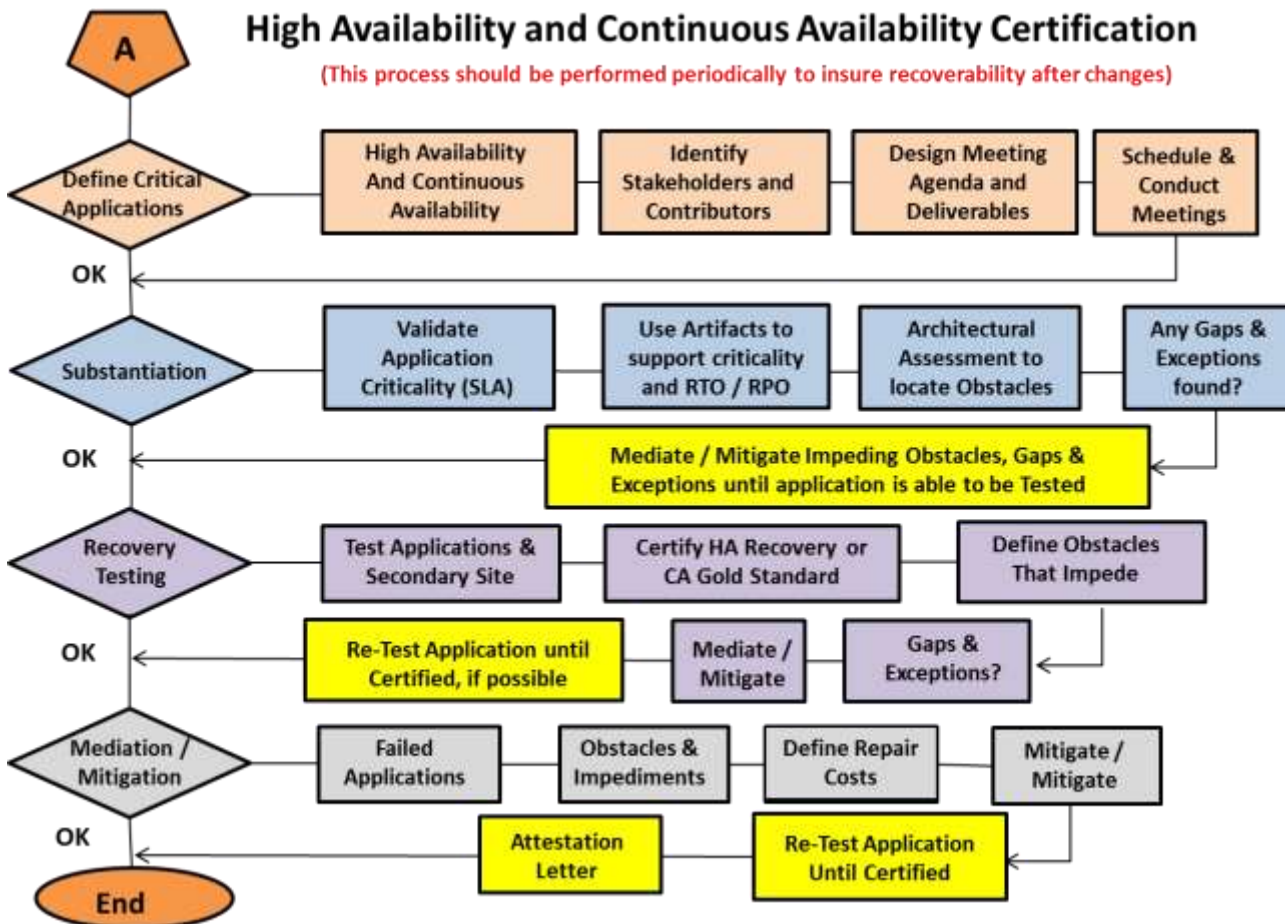
The process associated with creating a Business Recovery Plan is described over the next two pages and the testing / certification process right afterward. Stakeholders, participants, and recovery teams will be formed within this project and reporting schedules defined.



As with any large project, management approval and commitment is required before project initiation. Once started, the first step of Recovery Planning is to perform a Risk Assessment to define any Gaps, Exceptions, or Obstacles that may impede the development of recovery plans. After the Risk Assessment is conducted a Business Impact Analysis (BIA) is performed for locations and Business Units to define their specific Recovery Requirements



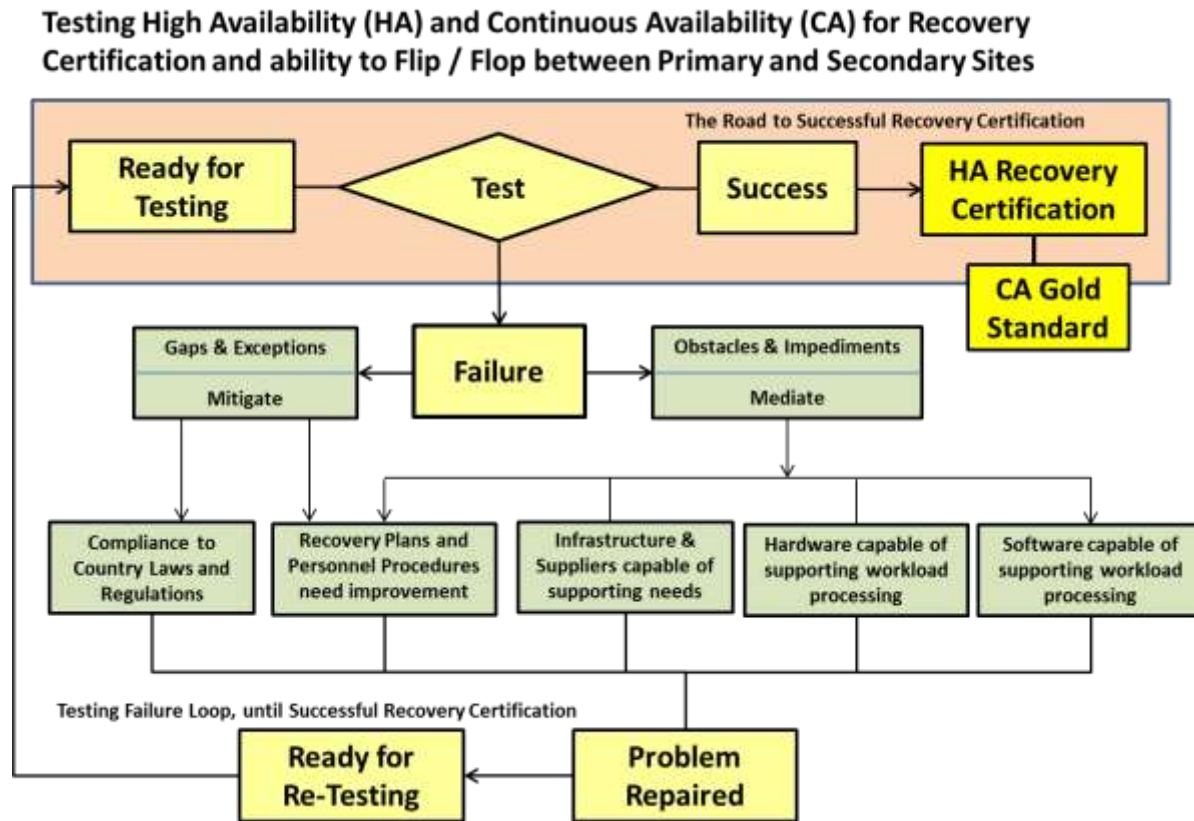
# Application Certification Process



Identifying applications for Recovery Certification is usually based on criticality and recovery time requirements, but compliance is an important consideration as well. The above diagram illustrates how you can:

- select critical applications for Recovery Certification;
- substantiate their criticality through supporting artifacts;
- perform an architectural and engineering review of the recovery location to insure its ability to support production requirements associated with the selected application(s);
- Perform Recovery Pre-Test, Test, and Post-Test activities for the selected applications;
- Mediate / Mitigate any encountered problems and re-test until Recovery Certification is Achieved;
- Conduct a Post Mortem Meeting to review the results from the Recovery Certification; and,
- Implement any suggestions for improvement in the recovery process or associated procedures.

# Testing Applications for Recovery Certification



Goals and procedures for application Recovery Certification are shown above. When an Application is “Ready for Recovery Certification” it is submitted to a Recovery Test as defined in the DR Exercise Booklet.

**Continuous Availability (CA)** applications must pass a Flip / Flop recovery test in order to be both Recovery Certified and to reach the “Gold Standard” in recovery testing in support of the management directive of “Zero Downtime” for CA applications.

**High Availability (HA)** applications must adhere to “Failover / Failback” recovery testing to become Recovery Certified and capable of recovering within 2 – 72 hours as defined in the DR Exercise Booklet for the application.

If problems arise during Recovery Certification, the DR Test will be placed on hold, the problem repaired, and the DR Test continued until Recovery Certification is achieved.

## Improving Efficiency and your Success Rate

A “**Plan – Act – Implement – Review**” process has proven successful in the past and a similar approach has been integrated within this Dashboard Management System as well. It is applied to each of the four sections of the Management Dashboard System, including: Infrastructure (to acquire, redeploy, or terminate resources); Systems Development Life Cycle (to develop or maintain applications and IT environments); Recovery Management (to safeguard resources and continue the business in adherence to Recovery Time Objectives); and Risk and Compliance (to adhere to all laws and regulations in the countries where business is conducted).

We have improved on this efficiency by adding some additional steps that make our **efficiency diagram** look like this: **Develop – Plan – Build – Test – Review – Utilize – Analyze – Review – Improve – Maintain**. This continuous loop will insure that you develop and maintain the best product possible. Through this process your company will achieve the best possible plan through an evolutionary approach that is specifically tailored to your company culture and requirements.

The **continuous improvement loop** technique is also applied to the areas contained within the Management Dashboard System including Infrastructure, SDLC, Recovery Management, and Risk and Compliance Management areas. Through this continuous improvement practice, it will be possible to achieve the best operations possible that both safeguards your environment but also adhered to the laws and regulations your company is obligated to obey world-wide.

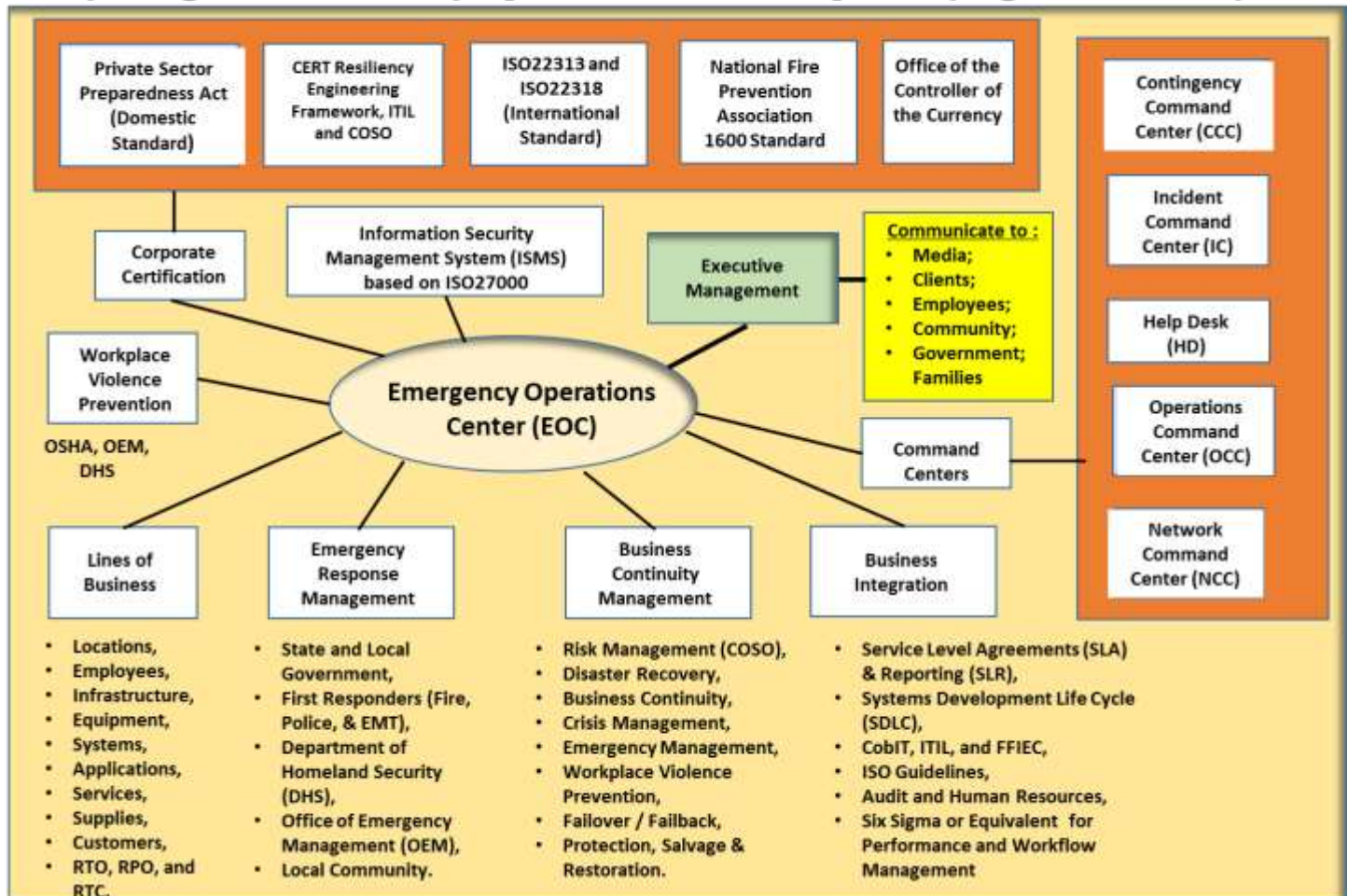
The **Enterprise Resilience** discipline will combine recovery operations under the control of one department having overall responsibility for developing the best practices possible for detecting, preventing, and responding to disaster events, wheatear they are an act of nature or man-made.

The **Corporate Certification** discipline will be satisfied through the Risk and Compliance actions performed to guaranty adherence to Laws and Regulations world-wide that apply to the company and its ability to continue to supply operations in the countries where they presently conduct business.



# Emergency Operations Center

## Fully Integrated Resiliency Operations and Disciplines (Logical End Goal)

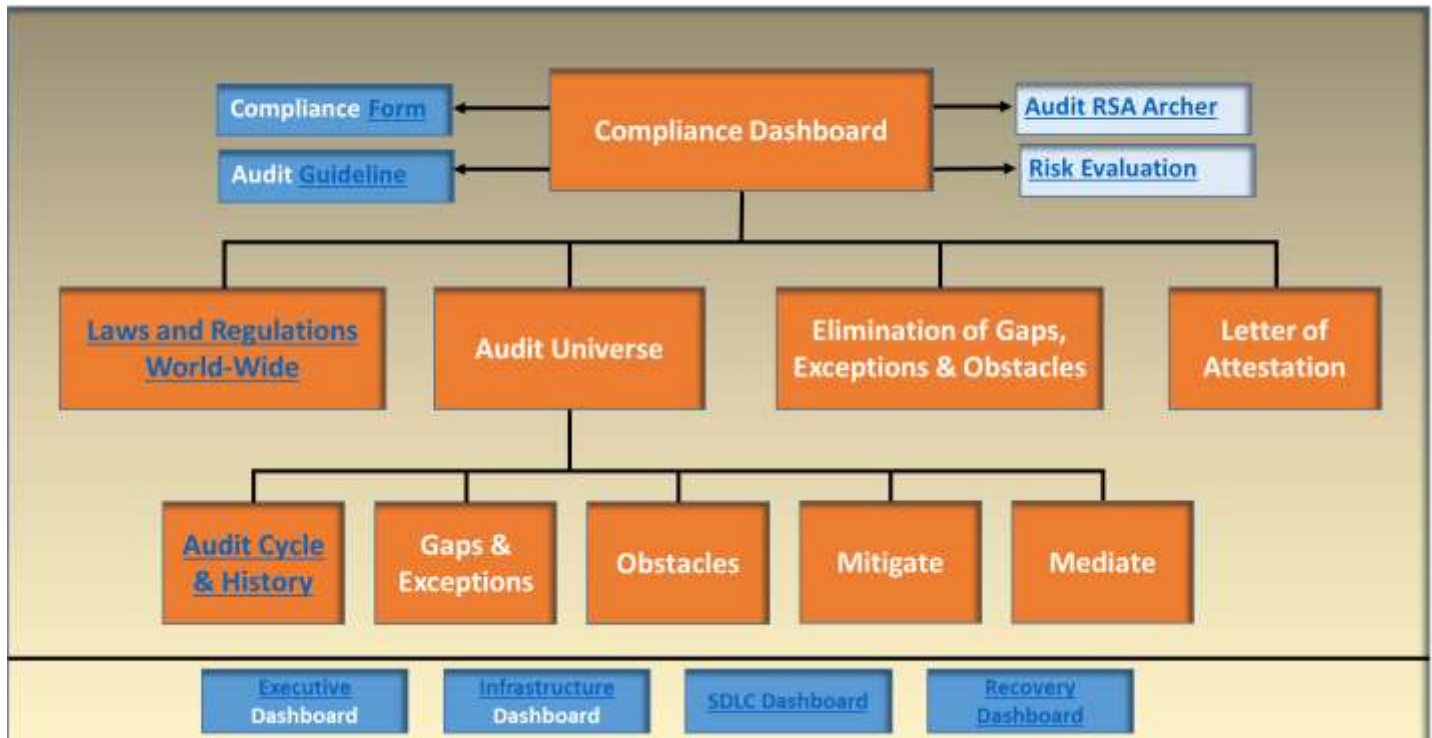


The End Goal of recovery planning is the implementation of an Emergency Operations Center (EOC) where all recovery and business units report on the occurrence and status of disaster events, incidents, or problems, that disrupt normal business operations. The EOC is chartered to continue business operations under all circumstances to the best of their abilities. The EOC will communicate internally with all business units and support organizations to gather status and provide instructions. The EOC will then report to executive management, who will provide a single image to the outside world when reporting on status and events resulting from the business interruption.



# Compliance Management Dashboard

## Compliance Dashboard Overview and Structure



The Compliance Dashboard provides a look into the actions performed by the Audit and Legal departments to safeguard the Enterprise from violation of the laws and regulations that they have to adhere to, both domestically and internationally. These actions are demonstrated in the Spreadsheet provided below.

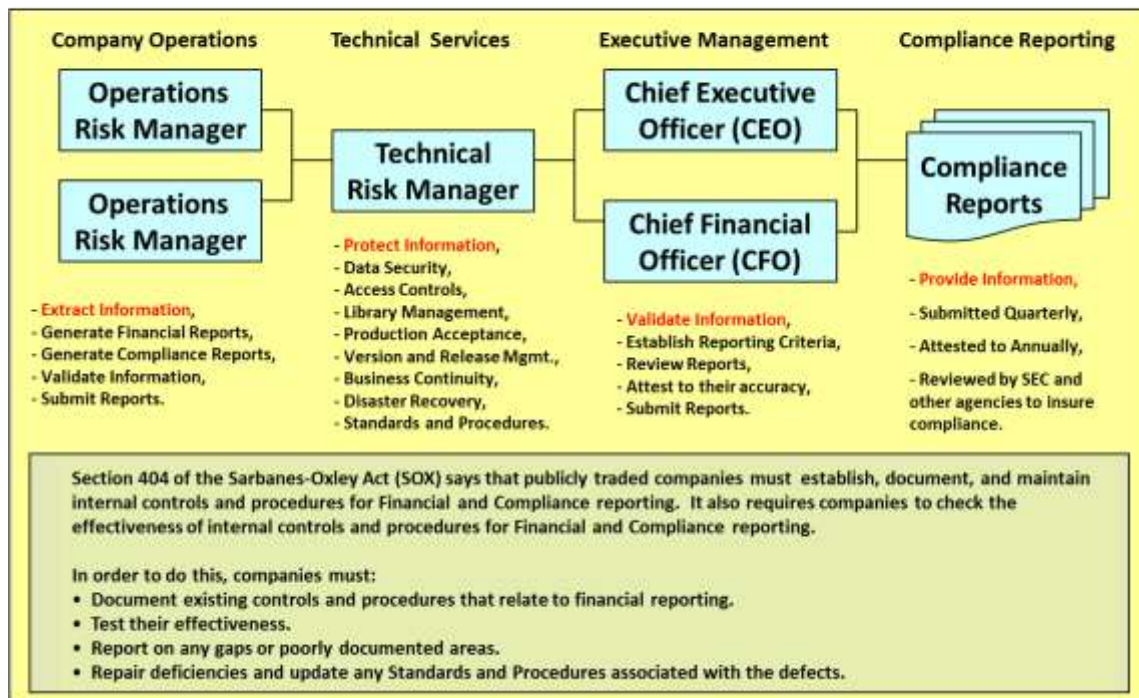
Compliance Management Project Activities Status Display							
Laws and Regulations:	Include in Audit Universe	Assigned to:	Group:	Start Date:	End Date:	Activity Description:	Encountered Problems:
Sarbanes Oxley		<a href="#">Thomas Bronack</a>				Review Law and Regulation to see if it applies to company	Gaps, Exceptions, or Obstacles.
HIPAA						Develop "Audit Universe" for company	
Patriot Act						Establish Audit Procedures	
Graham Leach Bliley						Perform Audit and List Gaps, Exceptions, and Obstacles	
						Mitigate Gaps and Exceptions	
						Mediate Obstacles	
						Re-perform Audit to insure problems have been repaired	
						Create Management Report on Findings	
						Create Management Presentation of Findings	
						Generate "Letter of Attestation"	
						Develop Audit Cycle	
						Conduct Audits as per developed Cycle	



A mechanism was also developed to guide how the Enterprise would respond to Compliance Requirements, so that a “Letter of Attestation” could be generated to validate that the Enterprise was in Compliance with all required Laws and Regulations. An example of this mechanism is shown below.

## Compliance Reporting

### How Compliance reporting is accomplished



Achieving the goals laid out in the Management Dashboard System is something every company wants to accomplish, but it is sometimes harder than expected and people may lose confidence in their ability to achieve the goals discussed above. The benefits to this approach outweigh the difficulties though and you should strive to achieve them, especially if you integrate this process within the everyday functions performed by your staff. Once that is achieved, your company will always be safeguarded against disaster, problem, or incident events, while always in compliance.

I hope you enjoyed this White Paper and have gained from it. Should you have any questions or comments, please direct them to me at:

Thomas Bronack

Email: [bronackt@dcag.com](mailto:bronackt@dcag.com)

Phone: (917) 673-6992

Thank you.

## Thomas Bronack

Certified Business Continuity Professional from the Disaster Recovery Institute International (DRII)

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Tom Bronack is a senior Information Technology contributor specializing in Enterprise Resiliency and Corporate Certification which includes the combining of all recovery management disciplines under one department (with a common glossary of terms and set of tools) and establishing Risk and Compliance adherence to all of the required laws and regulations of countries where the client company conducts business. Mr. Bronack has also assisted in the implementation of Multi-Data Center environments that have crossed continents, countries, cultures, languages, and time zones. Tom started his career at IBM in the NYC Banking Office where he was trained on Mainframe Computer hardware and software systems and provided support to all of the major banks and financial organizations in lower Manhattan. Tom has designed, implemented, supported, consolidated, and terminated data centers for clients since leaving IBM.

One of his projects required the insourcing of a distributed Information Technology enterprise, that had been supported through vendor contracts and outsourced environments, so that the client could better control their IT Resources and implement a leading edge, Green 100% Certified environment. This typical project included: conducting an Inventory of existing resources at all outsourced environments (created a Global Inventory Data Base); building three regional production data centers (Asia, Europe, Americas); Transitioning the original equipment to the production sites and verifying that operations were maintained in the same, or better, manner as before; Virtualizing the three production sites and building a Recovery Data Center; verifying that the production sites could be recovered at the recovery site within the Recovery Time Objectives contained in client contracts; implementing a new and improved Systems Development Life Cycle (SDLC); and integrating all updated functions and responsibilities within the everyday duties performed by the staff so that all production, compliance, and recovery operations were constantly maintained in a current and accurate state.

Tom is a Certified Business Continuity Professional (CBCP) from Disaster Recovery Institute International and has been a member of the Board of Directors for the Association of Contingency Planners (NYC Metro Chapter) for over three years.

Mr. Bronack also developed a Management Dashboard System that covers: Infrastructure, SDLC, Recovery Management, and Risk and Compliance Management. This system provides current and accurate information to project members so that systems and applications can be introduced to the production environment safely and in compliance with all regulations and standards. The Management Dashboard System allows access from any place at any time to check on status and can be used to drill down to the person performing the current work for discussion or assistance.

Mr. Bronack is currently under contract with the Disaster Recovery Institute International (DRII) to develop an Information Technology Disaster Recovery course covering Physical, Virtual, Cloud, and Co-Location facilities with a section on Virtual Desktop Infrastructure (VDI) to support desktop security, mobile devices, and BYOD uses. The course will be delivered in a two-day classroom or Computer Based Training (CBT) method.

Contact Tom should you be interested in his services or would like to arrange for a demonstration of the Management Dashboard System.