STORM
(Strategic Technology and Operational Risk Management)

Innovative Approach for Organizational Integrated Risk Management Approach

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Agenda
Background to the Need

• Critical facility emergency events and incidents are managerial, not technical

• Mission and objective statement as much as other, must include quantitative objectives that are stated in a clear way

• Basic building block is the capability to accurately evaluate the unit's effectiveness along with the efficiency of its resource usage

• The main challenge is to integrated the overall risks in the ‘spider net’ and to understand their true impact
<table>
<thead>
<tr>
<th></th>
<th>Known</th>
<th>Unknown</th>
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<tbody>
<tr>
<td>Known</td>
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<td>Known</td>
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</tbody>
</table>
A Complex Effects-based Environment
Military Combat Services Support Challenges in the Battlefield

Center of Gravity ?
Work Assumptions

- Decisions are managerial, not technical
- Objective statement as much as other, must include quantitative objectives that are stated in a clear way
- Basic building block is the capability to accurately evaluate the unit's effectiveness along with the efficiency of its resource usage
Typical Lifecycle Description
Conceptual Case Study
Background

A key to organizational wisdom is

• judgement and decision making,
• Which requires an understanding of the complexity of a situation, but also requires the ability to make sense and simplify a situation or event so that appropriate and effective action can be taken.
• Three important drivers for the development of organizational wisdom are
  • Experience
  • Passion to learn, and
  • Culture.
• Processes for acquiring organizational wisdom such as transformational leadership, organizational culture and knowledge transfer are also part of our focus and will be discussed.
The Challenge Statement

Organizations that need to establish business relationships with other businesses face major challenges including:

The need for creating a win-win-situation
The effort to align business processes and link up information systems across company borders

Organizations do not know how to efficiently use interoperability from the business perspective to identify the fundamental artifacts that are related to business interoperability.
Common Failures - 1

Organizational Crisis are predominantly managerial, not technical.

- Lack of defining business objectives in quantitative terms and structure
- Inadequate definition of 'Good Enough' level
- Inability to differentiate different business objectives and success factors for the different domains and lifecycle phases
- Inadequate resource usage and adjustment to Plan and Objectives
- Failure to identify and manage risks
- Poor or mismanaged service / operational requirements
- Uncontrolled baselines, no configuration management
- Misunderstood business / operational needs and objectives
Common Failures - 2

- Poor contractor acquisition or management
- Lack of skills, capability and training
- Poor planning and tracking
  - Value Stream
  - Equipment
  - Resources
  - Finance
- Poor / misuse of data and measurements
- Inability to estimate accurately
- No quality assurance / control
- Poor communications
Main Areas and Response for Risk Management Improvements

Figure 1. Main Reasons to Invest in Operational Risk Measurement and Management

- Improving performance
- Reducing operational losses
- Increasing accountability and improving governance
- Protecting against loss of reputation
- Meeting Sarbanes Oxley requirements
- Optimizing the allocation of capital
- Combating the threat of business disruption, including terrorism
- Meeting Basel II regulatory requirements

The Operational Need

- Management capability level from both professional and knowledge level
- Performance and reporting norms
- Self management and self discipline maintaining personal professional and knowledge capabilities
- Individual and team discipline
- Cooperation and knowledge and resource sharing
- Appropriate visibility of information, data and capabilities
- Quality of readiness and preparedness for performing mission
The Operational Need

- Centralized resource management and appropriate utilization and usage of it
- Multidimensional management (future planning, unit strategy, short term objectives, the immediate objectives)
- Initiating, developing and implementation management of new tactics and technologies
- Balanced planning and deploying new tactics improvements and new technologies in a measured way that will quantify the improvement vs. expectations
- Information, data and communication security
The Operational Need

Each person working in the implementation organization will need to do the following:

- Access the response doctrine descriptions
- Understand all the response doctrines at a top level
- Understand in detail the response doctrines that he or she performs

In addition, managers must do the following:

- Understand all the response doctrines at a top level
- Understand the leadership response doctrines change management in detail
- Understand how to lead the unit using the new response doctrines
- Access historical measurement data for all response doctrines versions performance
- Support implementation of new response doctrines in their own surroundings
- Remove roadblocks to implementation
The Operational Need

Many of these challenges were addressed on an ad-hoc basis, usually with specialized solutions or technologies that were limited to functional areas of the operational scenario or a unit that is currently in the frontline at a given time.
A Complex Effects-based Environment
Military Combat Services Support Challenges in the Battlefield

Center of Gravity?
# Main Failures and its Related Cost

<table>
<thead>
<tr>
<th>Date</th>
<th>Type of Firm</th>
<th>Loss (in USD)</th>
<th>Brief Description of Allegation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov -85</td>
<td>Bank</td>
<td>4 million</td>
<td>Computer problems with Fed payment connection</td>
</tr>
<tr>
<td>Feb-93</td>
<td>Corporate</td>
<td>1.04 billion</td>
<td>Unauthorized futures trading</td>
</tr>
<tr>
<td>Apr-94</td>
<td>Brokerage Firm</td>
<td>350 million</td>
<td>False profits reported for two years</td>
</tr>
<tr>
<td>Sept-95</td>
<td>Bank</td>
<td>1.1 billion</td>
<td>30,000 unauthorized trades over 11 years</td>
</tr>
<tr>
<td>Feb-96</td>
<td>Bank</td>
<td>1.3 billion</td>
<td>Losses from NIKKEI futures hidden in 88888 account</td>
</tr>
<tr>
<td>Jun-96</td>
<td>Bank</td>
<td>1.8 billion</td>
<td>Unauthorized copper trading – futures, etc.</td>
</tr>
<tr>
<td>Aug-96</td>
<td>Fund</td>
<td>19.3 million</td>
<td>Deal allocations delayed for personal profit</td>
</tr>
<tr>
<td>Sep96</td>
<td>Bank</td>
<td>750 million</td>
<td>Dummy companies used to avoid compliance</td>
</tr>
<tr>
<td>Mar-97a</td>
<td>Bank</td>
<td>130 million</td>
<td>Option volatilities used to inflate prices</td>
</tr>
<tr>
<td>Mar-97b</td>
<td>Bank</td>
<td>100 million</td>
<td>Funds transfer to personal account</td>
</tr>
</tbody>
</table>

*Table 1: Example financial losses attributed to operational risk*
### Example of Multiple Linear Regression

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Operational Losses</th>
<th>Amount of Losses</th>
<th>Overtime in Hours</th>
<th>Number of Transactions</th>
<th>Number of System Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>84</td>
<td>1,600,000</td>
<td>80</td>
<td>1230</td>
<td>41</td>
</tr>
<tr>
<td>February</td>
<td>93</td>
<td>1,893,452</td>
<td>110</td>
<td>1280</td>
<td>43</td>
</tr>
<tr>
<td>March</td>
<td>68</td>
<td>1,356,318</td>
<td>50</td>
<td>812</td>
<td>35</td>
</tr>
<tr>
<td>April</td>
<td>110</td>
<td>2,321,725</td>
<td>160</td>
<td>1523</td>
<td>62</td>
</tr>
<tr>
<td>May</td>
<td>49</td>
<td>1,000,987</td>
<td>14</td>
<td>710</td>
<td>18</td>
</tr>
<tr>
<td>June</td>
<td>151</td>
<td>2,300,012</td>
<td>218</td>
<td>1510</td>
<td>83</td>
</tr>
</tbody>
</table>
Main Failures and its Related Cost

Table 1. Major North American Power Outages 1965 -2003

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>MW loss</th>
<th>People Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast Blackout</td>
<td>Nov. 9, 1965</td>
<td>20,000 MW</td>
<td>30 million</td>
</tr>
<tr>
<td>New York City Blackout</td>
<td>July 13, 1977</td>
<td>6,000 MW</td>
<td>9 Million</td>
</tr>
<tr>
<td>West Coast Blackout</td>
<td>Dec. 22, 1982</td>
<td>12,350 MW</td>
<td>5 million</td>
</tr>
<tr>
<td>West Coast Blackout</td>
<td>July 2-3, 1996</td>
<td>11,850 MW</td>
<td>2 million</td>
</tr>
<tr>
<td>West Coast Blackout</td>
<td>Aug. 10, 1996</td>
<td>28,000 MW</td>
<td>7.5 million</td>
</tr>
<tr>
<td>Upper Midwest Blackout</td>
<td>June 25, 1998: 950MW</td>
<td>152,000</td>
<td></td>
</tr>
<tr>
<td>NE and Canada Blackout</td>
<td>Aug. 14, 2003</td>
<td>61,800 MW</td>
<td>50 million</td>
</tr>
</tbody>
</table>

Main Failures and its Related Cost

- Distribution of Fund Failures
  - Investment Risk Only: 38%
  - Operational Risk Only: 50%
  - Multiple Risks: 8%
  - Business Risk Only: 8%

- Breakdown of Fund Failures by Operational Issue
  - Misappropriation of Funds: 7%
  - Misrepresentation of Investments: 10%
  - Unauthorized Trading: 5%
  - Inadequate Resources: 7%
  - Other: 14%
  - Combination of Operational Issues: 49%

- Distribution of Failed Funds with Operational Issues
  - Funds with Operational Issues: 54%
  - Funds without Operational Issues: 46%

- Distribution of Fund Failures
  - Investment Risk Only: 33%
  - Operational Risk Only: 50%
  - Multiple Risks: 9%
  - Business Risk Only: 6%
<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Risk Type</th>
<th>Activity or Event</th>
<th>Examples</th>
<th>Mitigation</th>
<th>Frequency &amp; Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>Internal</td>
<td>Unauthorized Activity</td>
<td>Rogue Trading</td>
<td>Partially insured</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of skilled personnel</td>
<td>High employee turnover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People</td>
<td>External</td>
<td>Fraud</td>
<td>Theft</td>
<td>Partially insured</td>
<td>Green</td>
</tr>
<tr>
<td>Systems</td>
<td>Internal</td>
<td>Model Risk</td>
<td>Model/Methodology error</td>
<td>Technical risk audit</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mark-to-model error</td>
<td>Improve quality of models/people</td>
<td></td>
</tr>
<tr>
<td>Systems</td>
<td>External</td>
<td>Technology Risk</td>
<td>Telecommunication failure</td>
<td>Contingency planning</td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blackouts</td>
<td>Insurance</td>
<td></td>
</tr>
<tr>
<td>Processes</td>
<td>Internal</td>
<td>Transaction Risk</td>
<td>Execution error</td>
<td>Improve processes</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Settlement error</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Documentation/contract risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset</td>
<td>Internal</td>
<td>Physical asset risk</td>
<td>Pipeline Rupture</td>
<td>Partially insured</td>
<td>Red</td>
</tr>
<tr>
<td>damage</td>
<td></td>
<td></td>
<td>Production loss</td>
<td>Contingency planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unexpected plant outage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset</td>
<td>External</td>
<td>Physical asset risk</td>
<td>Uninsured or irrecoverable loss or damage to</td>
<td>Insurance</td>
<td>Yellow</td>
</tr>
<tr>
<td>damage</td>
<td></td>
<td></td>
<td>assets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Challenge

This situation where the organization is running

- separate process improvements on different parts of the system / product lifecycle
- With partial overall view in interactions and handshakes between these groups is introducing inefficient usage of
  - resources,
  - expensive maintenance of duplicate infrastructures
  - and Organizational Sets of Standards Processes as well as assets,

- May result in less quality and impacting the competitive edge with their global counterparts.
The Approach to the Solution

Concept

- Best practices in the model focus on activities for providing quality services to the customer and end users.
- To identify improvement targets in main lifecycle areas such as operations, information, governance, people and organizational structure, portfolios, project execution, and finance.
- Select processes that are critical to the system success such as stakeholder management, technical interfaces and integration.
The Approach to the Solution

Concept

- Build an action plan composed from the following main steps
  - Organizational map
  - Functional team and groups size and role in the lifecycle
  - Full lifecycle map
  - Setting improvement targets
  - Gap analysis
- Suggesting to the senior management to address the lifecycle and process (as a whole) as a complex of crossing services and to add additional content to the lifecycle map (as a layer) and content in the guideline that will define the different interactions as services
The Conceptual Solution

- Building on contingency theory, it outlines a comprehensive framework suggesting a fit between the level of Mission interoperability and environmental as well as internal contingencies.
- Moving from the current environment of basic process and way of thinking toward a more controlled and measured process to reduce the overwhelming amount of information that build decisions.
The Conceptual Solution

- We have found that Maturity Models and practices combined with some other industry standards and methods as a new integrated approach can be used as tools to leverage procedures to support the Critical Facility and the Critical Facility Mission objectives and capability, readiness and preparedness to achieve Mission improvement and excellence.

- It is the premise of this presentation to give you brief idea on the model concept and context. It will provide you the basic information regarding the value added by using it and how to appropriate to do it while implementing and defining it to your own Mission context.
The Conceptual Solution - 1

- Building on contingency theory, it outlines a comprehensive framework suggesting a fit between the level of business interoperability and environmental as well as internal contingencies.

- Moving from the current environment of basic processes and way of thinking toward a more controlled and measured set of processes to reduce the overwhelming amount of information that is now required to build decisions.
We have found that Maturity Models and practices combined with some other industry standards and methods as a new integrated approach can be used as tools to leverage procedures to support the organization and the organizational business objectives and capability, readiness and preparedness to achieve business improvement and excellence.

- It is the premise of this presentation to provide a brief idea on the model concept and context.
  - This presentation will provide you the basic information regarding the value added by using the model and how to appropriately interpret the model while implementing and defining it to your own business context.
The Four Main Entities and Their Role

- **Facility**
  - Provide the ‘hard and physical’ working environments and infrastructure

- **Technology**
  - Provide the ‘soft and intangible’ working environments and infrastructure and tools

- **Process**
  - Provide the working procedures and instructions, which assume to guide in the most effective way how to use the facilities and technology to achieve the business objectives by the people

- **People**
  - Provide the individuals that build the teams within the organizational units and groups, that perform the tasks and activities described in the process
The Organization Managed Layers – Facility

- **Business Vision and Goals**
- **Business Objectives and Targets**

- Facilities
  - Energy
  - Water
  - Communication
  - Infrastructure
  - Air-condition

- **Products**
- **Services**

- Organizational Perception
The Organization Managed Layers – Technology

<table>
<thead>
<tr>
<th>‘Physical’ Technology</th>
<th>‘Soft’ Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Equipment</td>
<td>Security Equipment</td>
</tr>
<tr>
<td>Maintenance Equipment</td>
<td>Manufacturing Equipment</td>
</tr>
<tr>
<td>Development Tools</td>
<td>Administrative Equipment</td>
</tr>
<tr>
<td>Desktop / Laptop</td>
<td>Access System</td>
</tr>
<tr>
<td>Servers</td>
<td>Phones</td>
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<table>
<thead>
<tr>
<th>Dashboards</th>
<th>Support Application</th>
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</thead>
<tbody>
<tr>
<td>Maintenance Environments</td>
<td>Manufacturing Environments</td>
</tr>
<tr>
<td>Administrative Applications</td>
<td>Development Environments</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Information</td>
</tr>
<tr>
<td>Intellectual Property</td>
<td>Patents</td>
</tr>
</tbody>
</table>
The Organization Managed Layers – Processes (as illustration only)

<table>
<thead>
<tr>
<th>Administrative (Corporate ‘wise’)</th>
<th>Business / Delivery (Product ‘wise’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Environments</td>
<td>Acquisition / Procurement</td>
</tr>
<tr>
<td>Safety</td>
<td>Support</td>
</tr>
<tr>
<td>Ethics</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Environmental</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Development</td>
</tr>
<tr>
<td>Security</td>
<td>Managerial (Portfolio)</td>
</tr>
<tr>
<td>Legal</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Finances</td>
<td>Managerial (Program)</td>
</tr>
<tr>
<td>Administrative (Corporate ‘wise’)</td>
<td>Intellectual Property</td>
</tr>
<tr>
<td></td>
<td>Managerial (Project)</td>
</tr>
</tbody>
</table>

(as illustration only)
The Organization Managed
Layers – People  (as illustration only)
Model Conceptual Structure and Elements

- IRMA-S
- IRMA-B
- IRMA-MF
- IRMA-AM
- IRMA-CF
- STORM - BOK
- Unique Tool Box

Dashboards and Infrastructure
Measurements Collection And Supporting Technologies
Standards Compliance Map
Processes Infrastructure And Core Components
Foundational Processes
Leading Indexes

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Method Content  (Model Wise)

LSPI - Light Security Performance Index – this approach is a light version of the full model that allow a unit / organization to evaluate its security procedures against known and unknown threats by using a numerical scale to compare variables (the unit performed practices) with reference constants (the LSP Index items), the objectives of LSP is to give the unit general idea on gaps in its USP (Unit Standard Procedures)

- MDSPI/MSPI - Managing Defined Security Performance Index/ Managing Security Performance Index - this approach is a higher level and more advanced method to the LSP version. This index is built on the LSP gap mapping and adding additional layer. This additional layer allow the unit / organization to evaluate its security procedures not just against known and unknown threats like LSP, but also adding the organizational view that all units using the same procedures by using a numerical scale to compare variables (mapping all units performed practices) with reference constants (the MDSPI/ MSPI Index items), the objectives of MDSPI/ MSPI is to give the unit general idea on gaps in its USPI (Unit Standard Procedures Implementation)

- SSPI - Statistical Security Performance Index - this approach is a higher level and more advanced method to the MDSPI/ MSPI version. This index is setting the foundation to understand the unit / organization practice performance by understanding the statistical behavior of it. The objectives of SSPI is to give the unit general idea on gaps in its UOPPB (Unit and Organizational Practice Performance Behavior)
Method Content  (Model Wise)

- **IRMA-CF** - Integrated Risk Management Approach Core Foundation, is the basic model that is the mandatory Body Of Knowledge (BOK) to all other models
- **IRMA-B** - Integrated Risk Management Approach for Business, this is a preset and preconfigured model that address the needs the common industry companies
- **IRMA-S** - Integrated Risk Management Approach Security, this is a preset and preconfigured model that address the needs the security industry and agencies (e.g. secured facilities, police, fire fighters)
IRMA-CF - Integrated Risk Management Approach Critical Facility, this is a preset and preconfigured model that addresses the needs of critical facilities (e.g. power plants, ports, airports).

IRMA-AM - Integrated Risk Management Approach Area Management, this is a preset and preconfigured model that addresses the needs for managing an area (geographic or defined as critical area (e.g. disaster zones, government offices)).

- IRMA-OMR - Integrated Risk Management Approach Operational Mission Readiness, this is a preset and preconfigured model that addresses the needs for mission performance readiness and capability alignment.
Method Content  (Model Wise)

HERMES (Harmonized Enterprise Risk Management Evaluation Standard) - this standard is built from:
- Standard Description Document (SDD)
- Mandatory Evaluation Plan (MEP) with tailoring guidelines and preconfigured sets to address the five models
- Interpretation Guidelines Sets (IGS) addressing the five models
- Detailed scoping and rating scheme

ERPI – Environmental Risk Performance Index - this approach is a light version of the full model that allow a unit / organization to evaluate its Environmental Risk analysis and management life cycle procedures against known and unknown threats by using a numerical scale to compare variables (the unit performed practices) with reference constants (the ERPI Index items), the objectives of ERPI is to give the unit general idea on gap in its USP (Unit Standard Procedures)

- HERMLC – Harmonized Environmental Risk Life Cycle - the model objectives is to address the system / product lifecycle and process as a whole with complexity of crossing services. And to enable effective and efficient analysis from the first phases the level of Environmental Risk.
Solution Structure

• Model Architecture
• Model Publication Volumes
• Model Processes
Model Architecture - 1

- STORM is a comprehensive model that covers all business and operational aspects of the organization.
- It is true that the model view serves as the start point for the single individual; however the best benefit from the implementation is gained at the:
  - Corporate and division level for the business and overall operations efficiency
  - Department and Group level in their own operations (it also depends on the task and objectives statements)
  - Projects and product lines level
  - Functional groups level (e.g. security)
IRMA-CF - Integrated Risk Management Approach Core Foundation, is the basic model that is the mandatory Body Of Knowledge (BOK) to all other models.
Model Architecture - 2

Preface
Part One – About the Model
1. Introduction
2. Model Components
3. Working with the Model
4. Relationships Among Areas
5. Implementation Guidelines
6. Interpretation Guidelines

Part Two – Model Body
1. Volume 1 – Process Foundations
2. Volume 2 – Foundation Processes
3. Volume #3 – Delivery Processes
4. Volume #4 – Support Processes
5. Volume #5 – Skills Building Processes
6. Volume #6 – Process Improvement and Optimization Capabilities

Part Three – The Appendices and Glossary
References
Acronyms
Glossary
Model Volumes

- Volume 1 – Process Foundations
- Volume 2 – Foundation Processes
- Volume #3 – Delivery Processes
- Volume #4 – Support Processes
- Volume #5 – Skills Building Processes
- Volume #6 – Process Improvement and Optimization Capabilities
Model Architecture - 3

The OBO-PI addresses the organization as a separated whole. For this reason we have divided it into different volumes:

- **Volume 1 – Process Foundations** - this collection of practices identify the quality ingredients and requirements that are needed to establish and maintain strong and solid process

- **Volume 2 – Foundation Processes** - this collection of process and practices address the requirements to develop and maintain (cradle to grave) work planning and control skills and capabilities

- **Volume #3 – Delivery Processes** - this collection of processes and practices address the requirements to develop and maintain (cradle to grave) appropriate working and development skills and capabilities including work environment (tools)
Model Architecture - 4

- **Volume #4 – Support Processes** - this collection of processes addresses the requirements to develop and maintain appropriate support capabilities (cradle to grave) with full alignment with the organizational objectives and goals.

- **Volume #5 – Skills Building Processes** - this collection of processes addresses the requirements to develop and maintain appropriate and efficient procedures to enable effective skills building that will answer the organizational need.

- **Volume #6 – Process Improvement and Optimization Capabilities** - this collection of processes and practices addresses the requirements to develop and maintain appropriate process understanding to enable focused optimization capabilities with full alignment to the mission objectives and goals.
Volume Chapter Structure

Method Domain

Reference to Process Foundations
- Purpose Statement
- Overview and Explanations Notes
- Related Methods
- Typical Work Products

Method Description and Flow
- Objectives
- Steps
- Expected Actions

Legend
- Required
- Expected
Additional Supporting Informative Components

- There is further information that is provided in the form of the following components:
  - Examples
  - Amplifications
  - References
  - Notes
## Model Processes

### Volume 1 – Process Foundations
1. Process Goals and Objectives
2. Process ingredients
3. Process Key Process Indicators (KPIs)

### Volume 2 – Foundation Processes
1. Business Objectives & Goals Management (BOGM)
2. Business Objectives & Goals Development (OGD)
3. Planning and Control
4. Business Measurement and Plan (BMP)
5. Business Scoping (BS)
6. Capacity and Availability Management (CAM)
7. Business Strategy Management (BSM)

### Volume #3 – Delivery Processes
1. Business Continuity (BCON)
2. Support Management (SM)
3. Support Technical Management (CSTM)
4. Solicitation and Support Agreement Development (SSAD)
5. Joint Mission Management (JMM)
6. Joint Missions Integration (JMI)
7. Tactical & Operational Solution Development (TOSD)
8. Validation (VAL)
9. Verification (VER)

### Volume #4 – Support Processes
1. Causal Analysis and Resolution (CAR)
2. Configuration Management (CM)
3. Risk Management (RSKM)
4. Incident Resolution and Prevention (IRP)
5. Service Delivery (SD)
6. Service System Development (SSD)
7. Service System Transition (SST)

### Volumes#5 – Skills Building Processes
1. Training (AUT)
2. Decision Analysis and Resolution (DAR)

### Volume #6– Process Improvement and Optimization Capabilities
1. Business and Operation Quality Assurance (BOQA)
2. Business Process Characterization (BPD)
3. Business Process Focus (BPF)
4. Business Unit Process Performance (BUPP)
5. Quantitative Business Management (QBM)
6. Business Innovation (BIn)
Detailed Examples and Elaborations

- Link to Model Map (Excel)
- Link to Model BOK (Word)
- Link to Model Scoping (Excel)
- Link to Model Checklist Chart (Visio)
IRMA-CF - Integrated Risk Management Approach Core Foundation, is the basic model that is the mandatory Body Of Knowledge (BOK) to all other models.
Volume #3 - Delivery Processes - this collection of processes and practices address the requirements to develop and maintain (cradle to grave) appropriate working and development skills and capabilities including work environment tools.
Identify the configuration items, components, and related work products that will be placed under configuration management.

Configuration identification is the selection, creation, and specification of the following:
- Products that are delivered to the customer
- Designated internal work products
- Acquired products
- Tools
- Other items that are used in creating and describing these work products
The Model Sturdiness Capabilities Echelon
The Model Sturdiness Capabilities Echelon-1

- The Sturdiness Capabilities Echelon is used to describe an evolutionary progress for an organization that wants to improve its processes across the organization to develop and maintain its products and services.

- The model supports two progress or improvement paths:
  - Incessant - enabling an organization to incrementally improve processes corresponding to an individual functional group / specific domain area (or set of processes) selected by the organization / functional group
  - Predefined – the organization implements related predefined sets of processes
The Model Sturdiness Capabilities Echelon - 2

- These two improvement paths are associated with two types of echelon that correspond to the two views, Incessant and Predefined.

- For the Incessant view, we use the term Professionalism Group Capabilities Echelon – (GCE).

- For the staged representation, we use the term Organizational Sturdiness Echelon – (OSE).
The Model Sturdiness
Capabilities Echelon - 3

• Regardless of the view you select, the concept of echelon is the same.

Echelon characterize improvement from an ill-defined state to a state that uses quantitative information to determine and manage improvements that are needed to meet an organization’s business objectives.

• To reach a particular echelon, an organization must satisfy all of the appropriate model entities or set of processes that are targeted for improvement, regardless of what the volume or selection of domains. (refer to the scoping map)
The Model Sturdiness
Capabilities Echelon - 4

- A capability echelon consists of a process foundations and its related ingredients that can improve the organization’s processes associated.

- Capability echelons provide a scale for measuring your processes against each process area in the model.

- Each echelon is a layer in the foundation for continuous process improvement.

- Capability echelons are cumulative (i.e., a higher echelon includes the ingredients of the lower levels).
Statistically Managing Your Processes - 1

- Determine whether processes are behaving consistently or have stable trends (i.e., are predictable)
- Identify processes where the performance is within natural bounds that are consistent across process implementation teams
- Establish criteria for identifying whether a process or process element should be statistically managed, and determine the pertinent measures and analytic techniques to be used in such management
- Identify processes that show unusual (e.g., sporadic or unpredictable) behavior
- Identify any aspects of the processes that can be improved in the organization's set of standard processes
- Identify the implementation of a process which performs best
Statistically Managing Your Processes - 2

- Root Cause Analysis & Resolution
  - Identify and analyze causes of defects and other problems
  - Take specific actions to remove the causes

- The ‘project’ can then take actions to prevent the occurrence of those types of defects and problems in the future

- Many ‘projects’ implement it to identify and eliminate special cause variations to stabilize the process
Suggested KPI’s to Measure Process Success

- Operability Predictability
- Response Time Predictability
- Cost of Rectifying Problems
- Survivability Predictability
- Productivity
- Total Cost of Risk
- Recovery (to L’0’) time
- Supply Chain Response Time
- Response Efficiency
- Operability Continuity
- Survivability Continuity
Operational Processes KPI’s

- Known Capability and Stable
- Defined Ingredients
- Known Critical Elements
- Meeting Objectives
- Controlled Interfaces
- Responsive / Modifiable
- Resilience / “Agile”
- Relevant ‘What If’s Scenarios
- Accepted Tolerance / Freedom Boundaries
- Predictable Outcomes

- Influence of Critical Elements on process output
- Process resources utilization
- ‘What If’s Scenarios
- Process elements capability
- Quantitative definition of process ingredients
System Compliances' KPI’s

- Scalability
- Availability
- Reliability
- Serviceability
- Maintainability
- Supportability
- Stability
- Reusability
- Soundness of Technology Future
- Technology flexibility
- Capacity growth models
- System (size) growth models
- Time to Restore
- Down time
- MTBF
- Support calls causes and density
- Technology extendibility
HERMES
Applying Evaluation and Assessments to the STORM
HERMES

- Standard Description Document (SDD)
- Mandatory Evaluation Plan (MEP) with tailoring guidelines and preconfigured sets to address the five models
- Interpretation Guidelines Sets (IGS) addressing the five models
- Detailed scoping and rating scheme

Link to Folder
Link to SDD
What We Look For In Appraisals - 1

Indicators of:

- Culture
- Dependencies
- Critical issues that effect the operational concept

Planning approaches for complex / matrix environments

Inter-unit coordination throughout the processes

External coordination throughout processes

Considerations of development of inter protocols or best practices

Inter-organizational communication as an integral ingredient in the operational environment
What We Look For In Appraisals - 2

- Relationships
- Authority
- Strategic vs. operational vs. tactical
- Coordination
- Direction
Implementation Journey Guidelines

- Awareness and Orientation Workshop
- Organizational Mapping, Scoping the Specific Needs
- Developing Measurable Objectives
- Developing and Presenting an Organizational Related Case Study
- Gap Analysis Planning
- Performing the Gap Analysis
- Developing and Presenting the Improvement Plan
- Implementation Phase and Ongoing Progress Checks
- Evaluation
- Ongoing Activities
How it’s done

Short discussion
Overall Project

- **Initiating**
  - Process Requirements Specification
  - Process Design, Build and Piloting
  - Process Deployment
- **Kick-Off**
  - Plan Project
  - Plan Pilots
  - Plan Deployment
- **Start-Up**
- **Plan Project**
- **Plan Pilots**
- **Plan Deployment**
- **Project Close**
- **Process Improvement**
  - Define Training Concept
  - Implement Training
  - Perform Training
Process Requirements Specification

Analysis
- Informal gap analysis / Post Mortem
- Basis for improvement planning
- Result: report of assessment / gap analysis with improvement suggestions
- Definition of usable processes “ready for life”
- Methods
  - Workshops for definition processes
  - Reviews (workshops / offline)
  - Coaching and piloting
  - Collecting feedback from pilot projects (e.g. interviews/workshops)
- Result: defined process (descriptions, templates, examples, …)
Organizational Processes and Lifecycles

Models References

Compliance Mapping

Best Practices and Processes

Measurements Library

Statistical Readiness
Process Rollout

- Processes are used in (new) current units
- Training and coaching of project members
- Collection and evaluation of measurements
- Collection of feedback for following improvement cycles
- Result: deployed process, initial measurements and improvement suggestions
Training

- Identify roles to be trained
- Schedule of the training (project / role specific)
- Contents: processes / tools / methods to be trained
- Creation of exercises
- Performance of trainings
Overall Proceeding
STORM
(STRATEGIC TECHNOLOGY AND OPERATIONAL RISK MANAGEMENT)

INNOVATIVE APPROACH FOR ORGANIZATIONAL INTEGRATED RISK MANAGEMENT APPROACH

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Commercial Port
STORM Pilot

Case Study

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Background to the Need

• Critical facility emergency events and incidents are managerial, not technical

• Mission and objective statement as much as other, must include quantitative objectives that are stated in a clear way

• Basic building block is the capability to accurately evaluate the unit's effectiveness along with the efficiency of its resource usage

• The main challenge is to integrated the overall risks in the ‘spider net’ and to understand their true impact
STORM Gap Analysis
Main Activities

1. Identifying critical components of information needs and knowledge gaps their origins
2. Identification, mapping and analysis of critical components (units, facilities, infrastructure, people)
3. Threats identification and analysis
4. Identification, mapping and analysis of sensitive areas and points, weak points and related damage / impact to objectives
5. Risk identification, mapping and analysis, respectively to the threats
6. Risk management and measurements
Conceptual Case Study

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Port - Background

Business Objectives

- Port of Civitavecchia is a busy ferry port located 80 km / 50 miles west north west of Rome and providing both
  - Passenger and
  - Cargo services to
  - Italian and
  - European destinations
- The ferry terminal offers an impressive selection of passenger amenities which include
  - ATMs
  - Information bureaux
  - Waiting rooms
  - Left luggage facilities and
  - Cafeterias

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Port - Background

Reference Threats (for this presentation only)

- Passengers
  - Personal safety
  - Public safety
  - Luggage loss and damages
  - Public security (civilian and crime)

- Cargo
  - Loss and damages
  - Misshipment
  - Thefts
  - Smuggling
  - Storage
  - Management (special needs) and maintenance

- Italian (Local)
  - Uncontrolled movements

- European (Export)
  - Regulations
  - Illegal immigration
Passengers

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Port - Background

Reference Threats (for this presentation only)

- ATMs
  - Frauds
  - Pickpocketing
  - Identity thefts

- Information bureaux,
  - Fraud chain
  - Illegal services / Activity
  - Satellite unapproved services / Activity

- Waiting rooms
  - Pickpocketing
  - Luggage thefts
  - Public order

- Left luggage facilities
  - Frauds
  - Luggage thefts
  - Smuggling and fraud chain

- Cafeterias
  - Food Quality
  - Food Safety
  - Illegal services / Activity
  - Pickpocketing
  - Thefts
  - Frauds
Port - Background

Applicable STORM (IRMA) model and Components

- IRMA-B Selected Components
- IRMA-CF Selected Components
- IRMA-AM Selected Components
- IRMA-OMR Selected Components

HERMES
Port - Background

- Analysis approach and method
  - Visual Screening
  - Hidden observation and simulation
  - Process simulation (tool based)

- Main Risks *(partial list for this presentation only)*
  - Leading
    - Physical Casualties
    - Material damages
    - Availability level
    - Operational continuity
  - Consequenced
    - Branding
    - Perception
    - Revenue
    - Position
Port - Background

Main Measurements (partial list for this presentation only)

• Physical Casualties
  • Severity
  • Density vs. causes

• Material damages
  • The human cost of the security system / calculated against the cost of damage

• Availability level
  • Unavailability time vs. cost
  • Unavailability time vs. perception

• Operational continuity
  • Mean time between failures
  • Time to recovery
  • Recovery levels (the just good enough)
  • The cost of inspection and assessment of continuity components against the expected damage

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Port - Background

Main Measurements (partial list for this presentation only)

- Branding
  - Benchmarks

- Perception
  - Customer satisfaction

- Revenue
  - Cost and quality assurance activities
  - Cost of poor quality

- Position
  - Passengers trending
Detailed Examples and Elaborations

- Link to Model Map (Excel)
- Link to Model BOK (Word)
- Link to Model Scoping (Excel)
- Link to Model Checklist Chart (Visio)
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Identify the configuration items, components, and related work products that will be placed under configuration management. Specification of the following: [Common Items, CIs, etc.]

Configuration identification is the selection, creation, and specification of the following:

- Designated internal work products
- Acquired products
- Other items that are used in creating and describing these work products.
Tools Box Example

- Risk Evaluation Checklist
- Facility Management File
- DRP TOC
- BCP TOC
- Decision Tree Template
- Dynamic Knowledge Tree and Map
### Risk Evaluation Checklist

#### Business Continuity Plan (BCP) Complete Audit Checklist

<table>
<thead>
<tr>
<th>No</th>
<th>Procedures</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determine examination scope and objectives for reviewing the Business Continuity Plan (BCP) program.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Determine the existence of an appropriate enterprise-wide Business Continuity Plan (BCP).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Determine the quality of Business Continuity Plan (BCP) oversight and support provided by the board of directors and senior management.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Determine whether an adequate Business Impact Analysis (BIA) and risk assessment have been completed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Determine whether appropriate risk management over the Business Continuity Plan (BCP) process is in place.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Determine whether the Business Continuity Plan (BCP) include appropriate testing to ensure the business process will be maintained, resumed, and/or recovered as intended.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Determine whether the IT environment has a properly documented Business Continuity plan that complements the enterprise-wide and other departmental Business Continuity plans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Determine whether the Business Continuity Plan (BCP) include appropriate hardware backup and recovery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Determine whether the Business Continuity process includes appropriate data and application software backup and recovery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Determine whether the Business Continuity Plan (BCP) include appropriate preparation to ensure the data center recovery processes will work as intended.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Determine whether the Business Continuity Plan (BCP) include appropriate security procedures.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Determine whether the Business Continuity Plan (BCP) address critical outsourced activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Discuss corrective action and communicate.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Data Recovery Templates and Checklist

**Conducting a recovery test**

<table>
<thead>
<tr>
<th>No</th>
<th>Activity</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the purpose of the test. What aspects of the plan are being evaluated?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Describe the objectives of the test. How will you measure successful achievement of the objectives?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Meet with management and explain the test and objectives. Gain their agreement and support.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Have management announce the test and the expected completion time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Collect test results at the end of the test period.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Evaluate results. Was recovery successful? Why or why not? Determine the implications of the test results. Does successful recovery in a simple case imply successful recovery for all critical jobs in the tolerable outage period?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>7</td>
<td>Make recommendations for changes. Call for responses by a given Nitty other areas of results. Include users and auditors.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>8</td>
<td>Change the disaster recovery plan manual as necessary.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Areas to be tested**

<table>
<thead>
<tr>
<th>No</th>
<th>Activity</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recovery of individual application systems by using files and documentation stored off-site.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>2</td>
<td>Reloading of system tapes and performing an IPL by using files and documentation stored off-site.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>Ability to process on a different computer.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>Ability of management to determine priority of systems with limited processing.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>5</td>
<td>Ability to recover and process successfully without key people.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>Ability of the plan to clarify areas of responsibility and the chain of command.</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
DRP TOC

1. חווית יתרון
2. מנהלת הפעילות
3. תוספי ויתור
4. תקנות והפרים
5. תקנות נוספים
6. תקנות נוספים חדשים
7. תקנות המתמשכות
8. תקנות המתמשכות
9. תקנות נוספים
10. תקנות נוספים נוספים

Our Disaster Recovery Plan Goes Something Like This…
HELP!
HELP!

DILBERT
By Scott Adams
Business Continuity Planning Components

Getting Started
1. Assign departmental business continuity responsibilities.
2. Department mission and business functions/processes.
3. Identification and evaluation of scenarios, risks, events and threats.

Developing the Plan
4. Document recovery plans to recover critical functions for each scenario.
5. Determine details to complete tasks.
6. List contact information.
7. List necessary resources and reference materials.

Maintaining the Plan
8. Train personnel on the plan.
9. Test (validate) the plan.
10. Maintain the plan.
## Decision Tree Template

<table>
<thead>
<tr>
<th>Decision Definition</th>
<th>Decision Node</th>
<th>Chance Node</th>
<th>Expected Value</th>
<th>Value of Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Decision Name)</td>
<td>(Cost of the Decision)</td>
<td>(Probability and Payoff)</td>
<td>(Probability X Payoff)</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Build or Upgrade?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Build New Plant (1)</strong></td>
<td>$200</td>
<td>65% Strong</td>
<td>$130</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$120</td>
<td></td>
<td>$41.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35% Weak</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$90</td>
<td></td>
<td>$32</td>
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<td></td>
<td>$49</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upgrade Existing Plant (2)</strong></td>
<td>$120</td>
<td>65% Strong</td>
<td>$78</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$50</td>
<td></td>
<td>$49.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35% Weak</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$60</td>
<td></td>
<td>$21</td>
</tr>
</tbody>
</table>
Infrastructures and Application Mapping
Compliance Requirements to Supporting Standards Mapping

Scoping

Tool

Slides
### Strategy, Management, and Regulatory

**Vision, Planning, Decision Making, Strategy, Execution, Discipline, Regulatory, and Investment**

**SWMM Levels**

1. **Exploring & Initiating**
   - Developing first Smart Grid vision
   - Support for experimentation
   - Informal discussion with stakeholders
   - Funding likely out of existing budget

2. **Functional Involvement**
   - Integrated vision and acknowledgement
   - Initial strategy and business plan approved
   - Initial alignment of investments to vision
   - Distinct Smart Grid funding and budget created in collaboration with regulators and stakeholders
   - Commitment to proof of concepts
   - Identity, initial Smart Grid leader

3. **Integrating Core Functions**
   - Completed Smart Grid strategy and business case incorporated into corporate strategy
   - Smart Grid governance model deployed
   - Smart Grid leader(s) (with authority) ensure OPM-LC0 application
   - Mandate, consensus with regulators to make and fund Smart Grid investments
   - Corporate strategy expanded

4. **Optimizing Enterprise Value**
   - Smart Grid is core competency that drives strategy and influences corporate direction
   - External stakeholders share in strategy
   - Willing to invest and divest, or engage in R&I and IP sharing to execute strategy

**Matrix**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Exploring &amp; Initiating</td>
<td>Developing first Smart Grid vision</td>
</tr>
<tr>
<td>2</td>
<td>Functional Involvement</td>
<td>Integrated vision and acknowledgement</td>
</tr>
<tr>
<td>3</td>
<td>Integrating Core Functions</td>
<td>Completed Smart Grid strategy and business case incorporated into corporate strategy</td>
</tr>
<tr>
<td>4</td>
<td>Optimizing Enterprise Value</td>
<td>Smart Grid is core competency that drives strategy and influences corporate direction</td>
</tr>
</tbody>
</table>

**Blue text** = Descriptive characteristics or desired traits

**Black text** = Requirements for this level
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Requirements</th>
<th>GSSP</th>
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**ISO 9001:2008**

- General Requirements
- Management Requirements
- Resource Requirements
- Realization Requirements
- Remedial Requirements
- Target

**OSS** PIDs: Affirmations Total

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*Note: The diagram on the right side represents the breakdown of requirements.*
Status
Next Steps
Pilot Results

- Verbal presentation of selected pilots
Questions