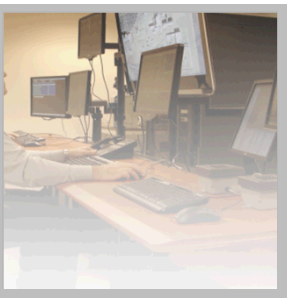
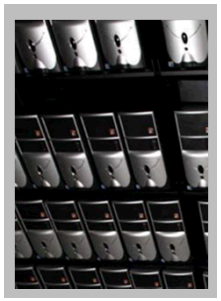
# Realize the Mission Value of IT Service Management

SAND2016-6920C





## Implementing a Service-Centric Business

## Showcasing ITSM End2End Service Environment, Safety, & Heath System Services

Julie Fillinger, ITSM Lead

Sandia National Laboratories

Sandia National Laboratories

*Exceptional service in the national interest*

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U.S. DEPARTMENT OF ENERGY

NNSA National Nuclear Security Administration

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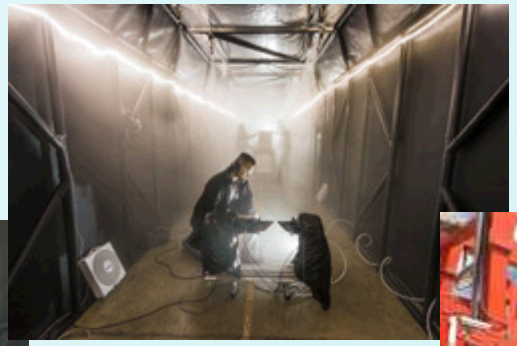
# Sandia National Laboratories

*Our Mission*

Sandia's vision is to be the laboratory that the nation turns to first for technology solutions to its most challenging **national security problems**.



# Sandia Sites

Sandia National Laboratories

*Albuquerque, New Mexico*

*Livermore, California*

*Kauai, Hawaii*

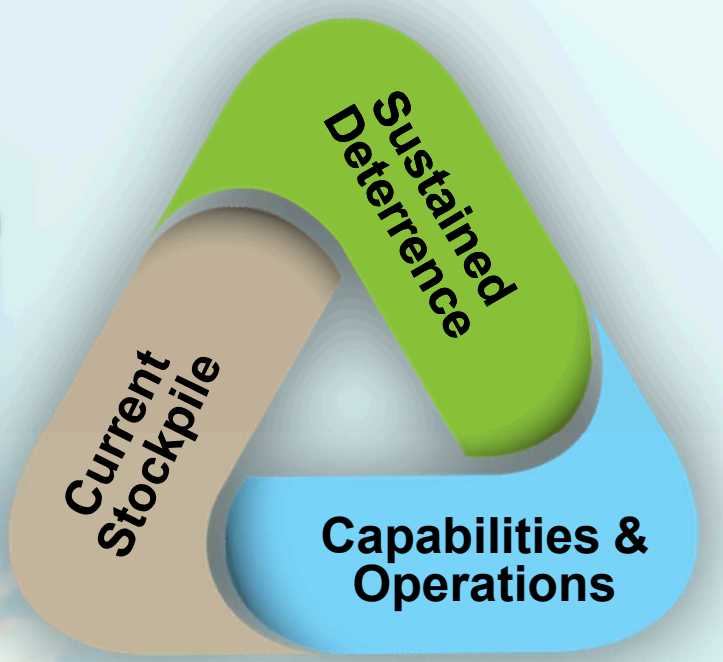

*Waste Isolation Pilot Plant, Carlsbad, New Mexico*

*Pantex Plant, Amarillo, Texas*

*Tonopah, Nevada*

# Sandia's Nuclear Weapons Mission

- Maintain the current U.S. nuclear weapons stockpile
  - Annual Assessment, Surveillance, Limited Life Component Exchanges, Significant Finding Investigations
- Sustain the stockpile into the future
  - Life Extension Programs, Alterations, technology maturation
- Steward the long-term vitality of our capabilities, infrastructure and operations
  - Persistent commitment to multi-disciplinary staff, state-of-the-art labs, equipment, facilities and safe/secure/quality/affordable operations




# Defense Systems & Assessments Programs

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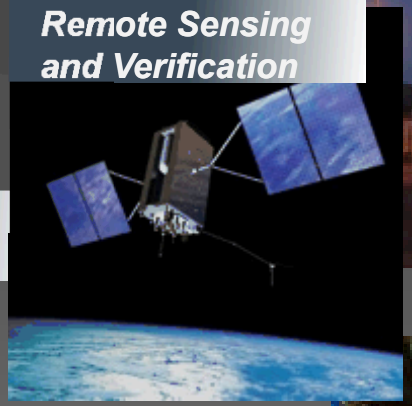
Information Operations

Surveillance & Reconnaissance

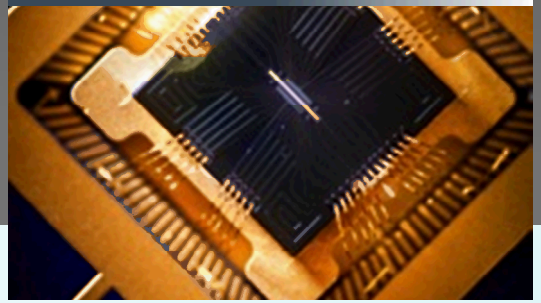
Integrated Military Systems

*Remote Sensing and Verification*



Space Mission

Science & Technology Products



Proliferation Assessment

# Energy & Climate

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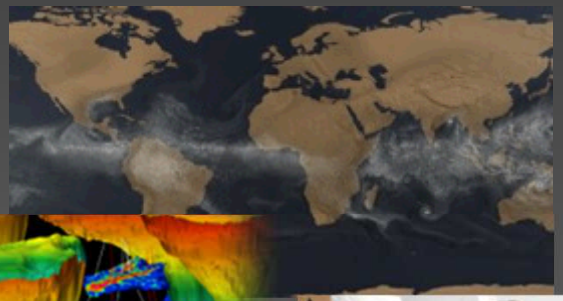
## Energy Research

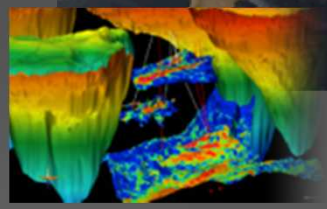
## Climate & Environment

Measurement & Modeling, Carbon Management, Water & Environment, and Biofuels



## Nuclear Energy & Fuel Cycle

Commercial Nuclear Power & Fuel, Nuclear Energy Safety & Security, DOE Managed Nuclear Waste Disposal

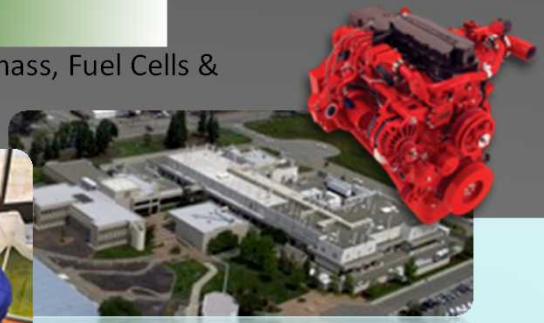


## Renewable Systems & Energy Infrastructure

Renewable Energy, Energy Efficiency, Grid and Storage Systems

## Transportation Energy & Systems

Vehicle Technologies, Biomass, Fuel Cells & Hydrogen Technology



# International, Homeland, & Nuclear Security

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## Global Security

## Remote Sensing and Verification

## Homeland Security Programs

## WMD Counterterrorism and Response

## Cyber and Infrastructure Security

## Homeland Defense and Force Protection

# Our Research Framework

*Strong research foundations*

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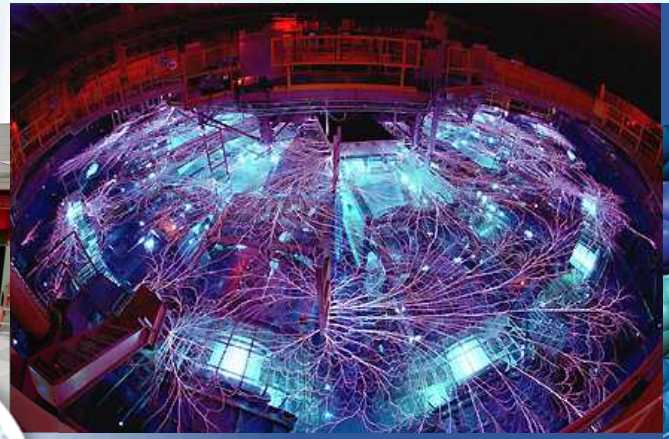
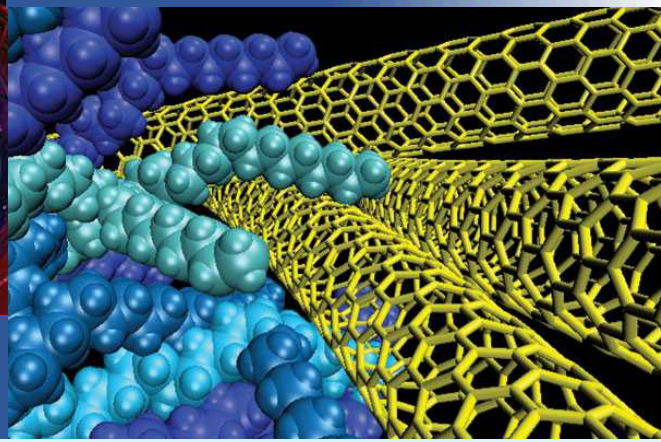
## Computing & Information Sciences

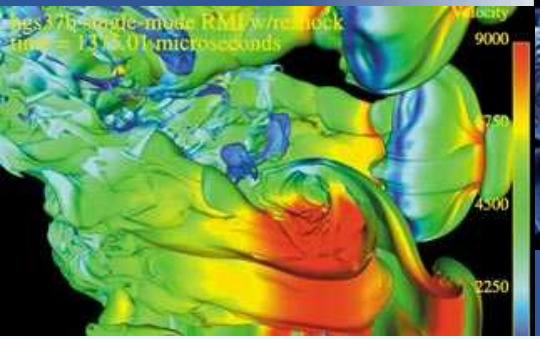


## Radiation Effects & High Energy Density Science

## Materials Sciences

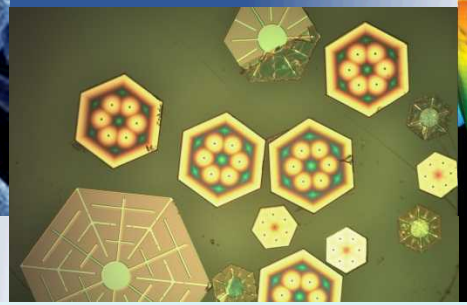


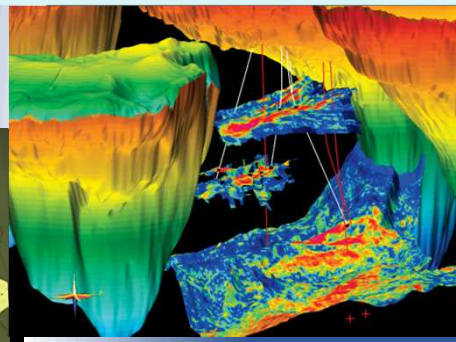
## Engineering Sciences



## Bioscience

## Nanodevices & Microsystems





## Geoscience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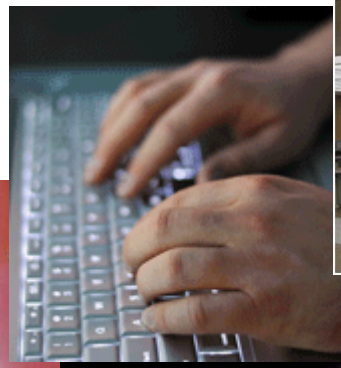
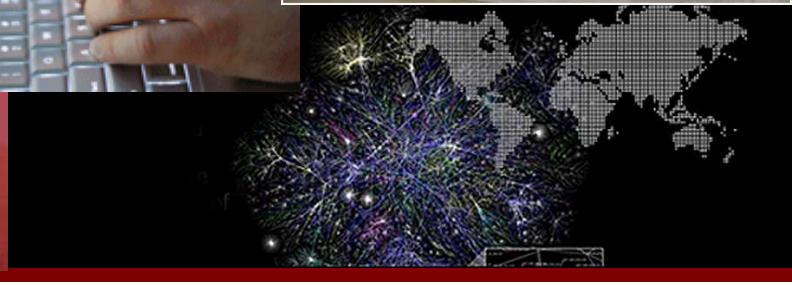
# IT Supporting the Mission





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## ITIL Progression To-Date

**Service teams are**:
-- aware/trained in the model
-- starting to work together
-- starting to use metrics to manage the services
-- we've had some wins

**(2016)**
SACM
Event

**(2012-2015)**
Developed/released PM, RF
Began development SACM, Event
Began development – BRM, SPM
Re-developed KM

**(2011)**
Developed/released: IM, KM, CM
Developed/released: first service catalog
Developed/released: CSI
Developed/released: new toolset

**Starting point:**
Technical Silos

# ES&H End2End Services
## Getting this project started

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ITSM Program Manager, Application Senior Manager and Infrastructure Senior Manager teamed to own E2E and pick the prototype service

The ITSM Team supports, but the Service Owner owns the project & the deliverables

Incorporated regular discussion about the progress of the project into ITSM Team meetings; the whole team used this one service as the model

Frequent updates provided to senior management

# ES&H End2End Services
## Major Goals of the Project

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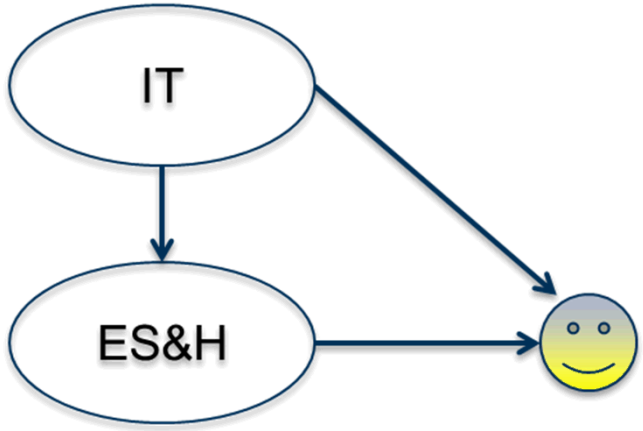
1. Leveraging ITSM best practices - demonstrate to ES&H stakeholders the value of IT
   - Data driven decisions to improve the service
2. Demonstrate how the model works (for internal IT)
   - Use all developed ITIL processes as a collection
   - Show from an end-to-end service perspective
3. Lay the foundation for understanding of full cost of services
4. Develop a template/mini-Service-Design-Package to help all services follow the full model

# ES&H – business highlights

- Overall - worker health and safety and care for the environment, high level of tracking and reporting required

- Environment
  - Environmental Programs (Air Quality, Ecology, etc.)
  - Radioactive Waste/Nuclear Material Disposition
  - Waste Management & Pollution Prevention
  - Environmental Management Systems

- Safety & Health
  - Industrial Hygiene
  - Radiation Protection
  - Safety Engineering
  - Medical




- Work Planning & Control

# Business Relationship Management

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- Opportunity! New business owner and new service owner (already ITIL trained)
- Established regular relationship with the business owner and other stakeholders
- Defined IT Services - in collaboration with the business
- Started with identifying the application inventory
  - Assigned Tier 1-4 to each application, based on criticality
  - Mapped Applications across Business Services

# ES&H IT Services

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## Environment, Safety, & Health (ES&H)

### Radiation Protection, Industrial Hygiene & Safety

- Safety Engineering
- Safety Basis
- Industrial Hygiene
- Instrument Calibration Laboratory Operations
- Radiation Protection
- RP Dosimetry Operations

### Operations

- Performance
- Operations
- Chemical Operations
- Assurance
- Occurrence Reporting
- Work Planning & Control
- Environmental Compliance

### Environmental Programs & Waste Management

- Stewardship & Analytical Services
- Analytical Services Laboratory Operations
- Environmental Programs
- Sampling Operations
- Waste Management
- Waste Facilities Operations
- Pollution Prevention

Describes a grouping of individuals, skills, and process and capabilities

# SNL Defined Services (at this time)
## ES&H Services End-to-End

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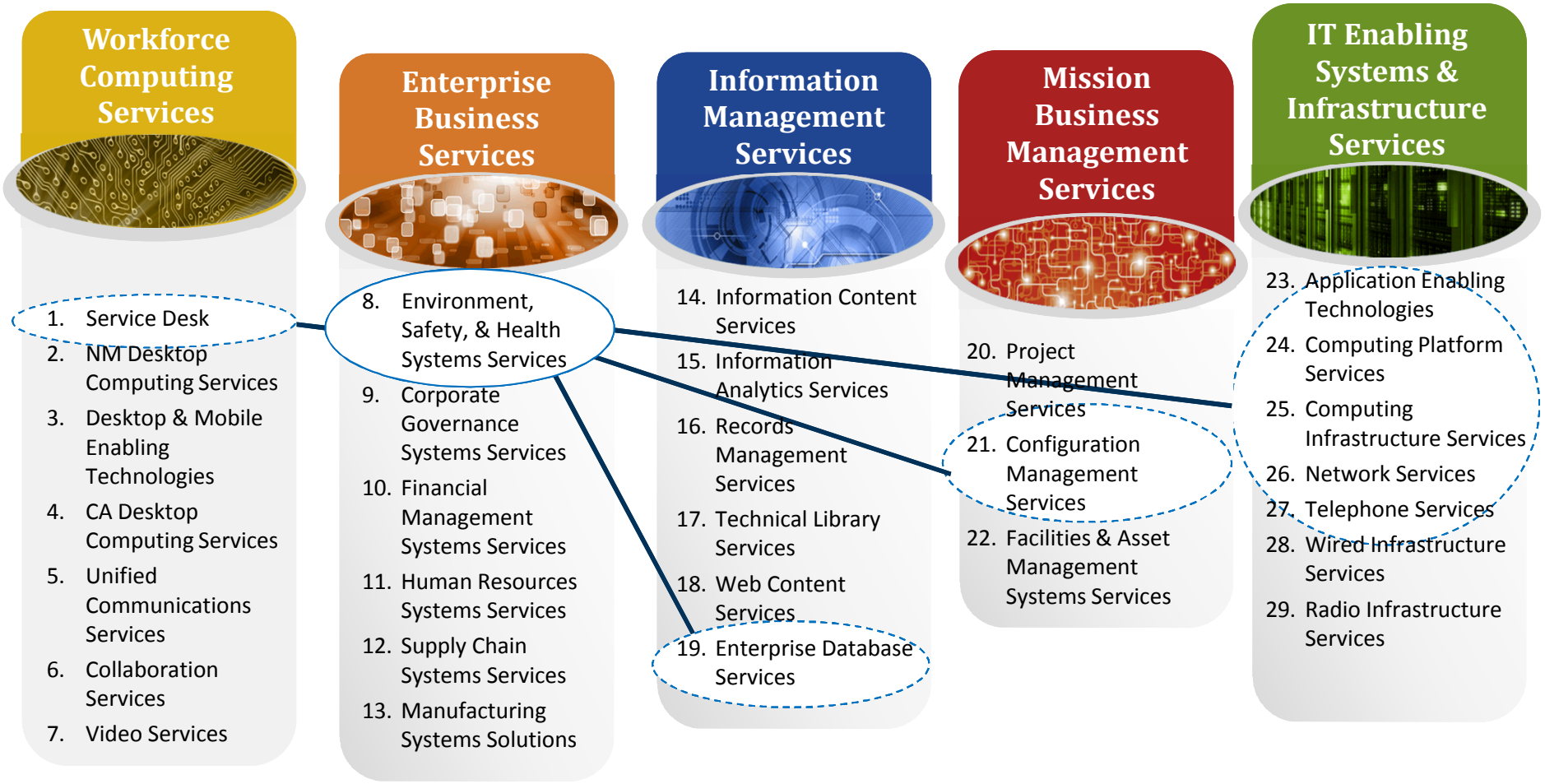

# ITIL 26 Processes and 4 Functions

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## Service Strategy – 5 processes

1. IT Strategy Management for IT Services
2. ☑ **Business Relationship Management**
3. Financial Management for IT Services
4. Demand Management
5. ☑ **Service Portfolio management**

## Service Design – 8 processes

1. Design Coordination
2. **Service Catalog Management**
3. ☑ **Service Level Management**
4. Availability Management
5. Capacity Management
6. IT Service Continuity Management
7. Information Security Management
8. Supplier Management

## Service Transition – 7 processes

1. Transition Planning and Support
2. ☑ **Change Management**
3. ☑ **Service Asset and Configuration Management**
4. Release and Deployment Management
5. Service Validation and Testing
6. Change Evaluation
7. ☑ **Knowledge Management**

## Service Operation – 5 processes

1. ☑ **Event Management**
2. ☑ **Incident Management**
3. **Request Fulfillment**
4. ☑ **Problem Management**
5. Access Management

## ☑ Continual service improvement

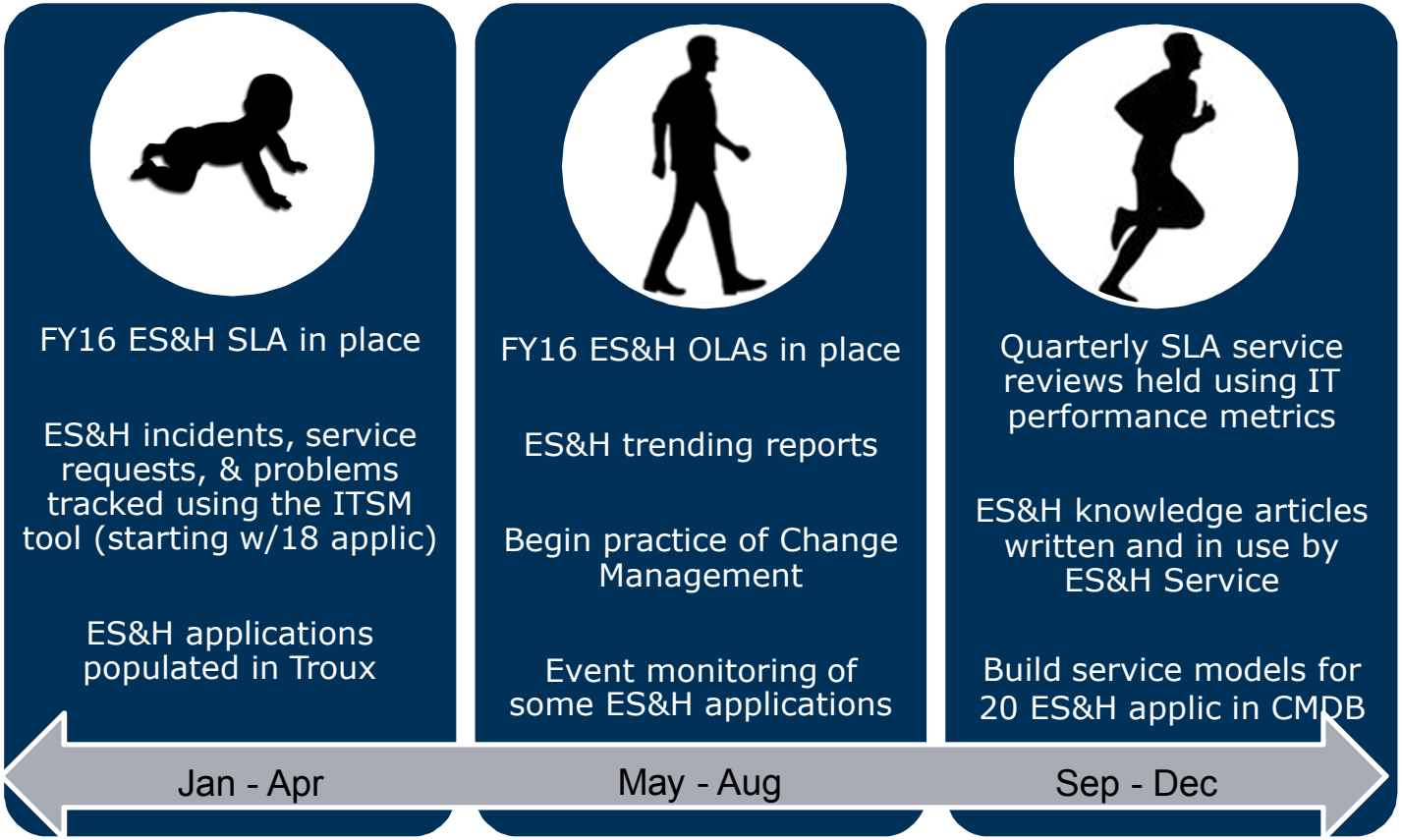
1. The 7-step improvement process

## ITIL Functions

1. ☑ **Service Desk**
2. Application Management
3. Operations Management
4. Technical Management

**Blue** – fully institutionalized across Sandia
**Green** – formal process developed at SNL, in practice by many teams
**Yellow** – formal process developed at SNL, practice less mature
**Red** – formal process in-development

# ES&H End2End Services – Phased Approach



# ES&H End2End Services

## How will we know if we're successful?

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### Establish Critical Success Indicators

1. **SLA and OLA:** The ES&H IT service will develop a service level agreement (SLA) and operations level agreements (OLAs). Perform quarterly service reviews with the ES&H key customers. *(SLM)*

2. **Practice the Processes:** The ES&H IT service practices the formal IM, PM, and CM processes and manages incidents, problems, changes and service requests in a single tool. Trending reports are reviewed regularly internally and quarterly with the customer. *(IM, PM, CM)*

3. **Root Cause Analysis:** The ES&H service will resolve at least one high priority problem and be able to provide evidence of improvement to the service as a result. (PM, CSI)

4. **Event Management:** The ES&H service is able to proactively monitor its systems so that the IT support personnel knows when a problem is occurring before the customer does (Event, SACM)

5. **Knowledge Articles:** The ES&H service has contributed new knowledge articles to the knowledge base, allowing the Service Desk to more efficiently resolve incidents (KM, IM)

6. **Data Trends:** The ES&H IT Service owner regularly reviews ITSM data trends and discusses process maturity progress with the service teams. (CSI)

7. **Service Portfolio:** The IT ES&H Service owner will demonstrate to the ES&H customers where to better spend IT dollars toward improvements. (SPM/BRM)


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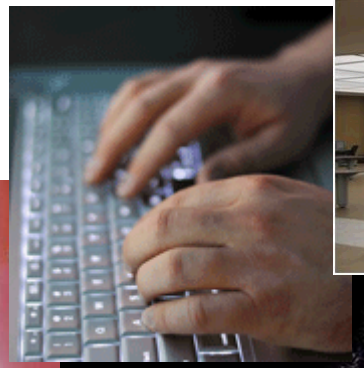
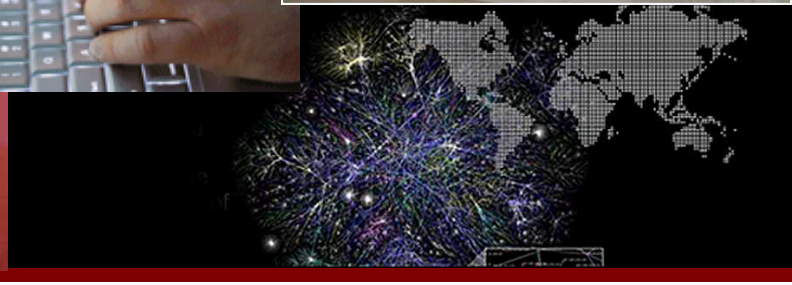
# Results (so far) from the project





# SLA/OLA

Started with 3 SLA Targets:

1) Service Availability during negotiated service hours (99%)
2) Service Reliability (no more than 3 outages per quarter)
3) Service Performance – not measurable but it's a discussion point for the review – how are the applications performing for the customer? Meeting/exceeding expectations?
   - Response times are defined
   - Meet the response times for incidents and service requests (80%)

1st Service Review Meeting scheduled

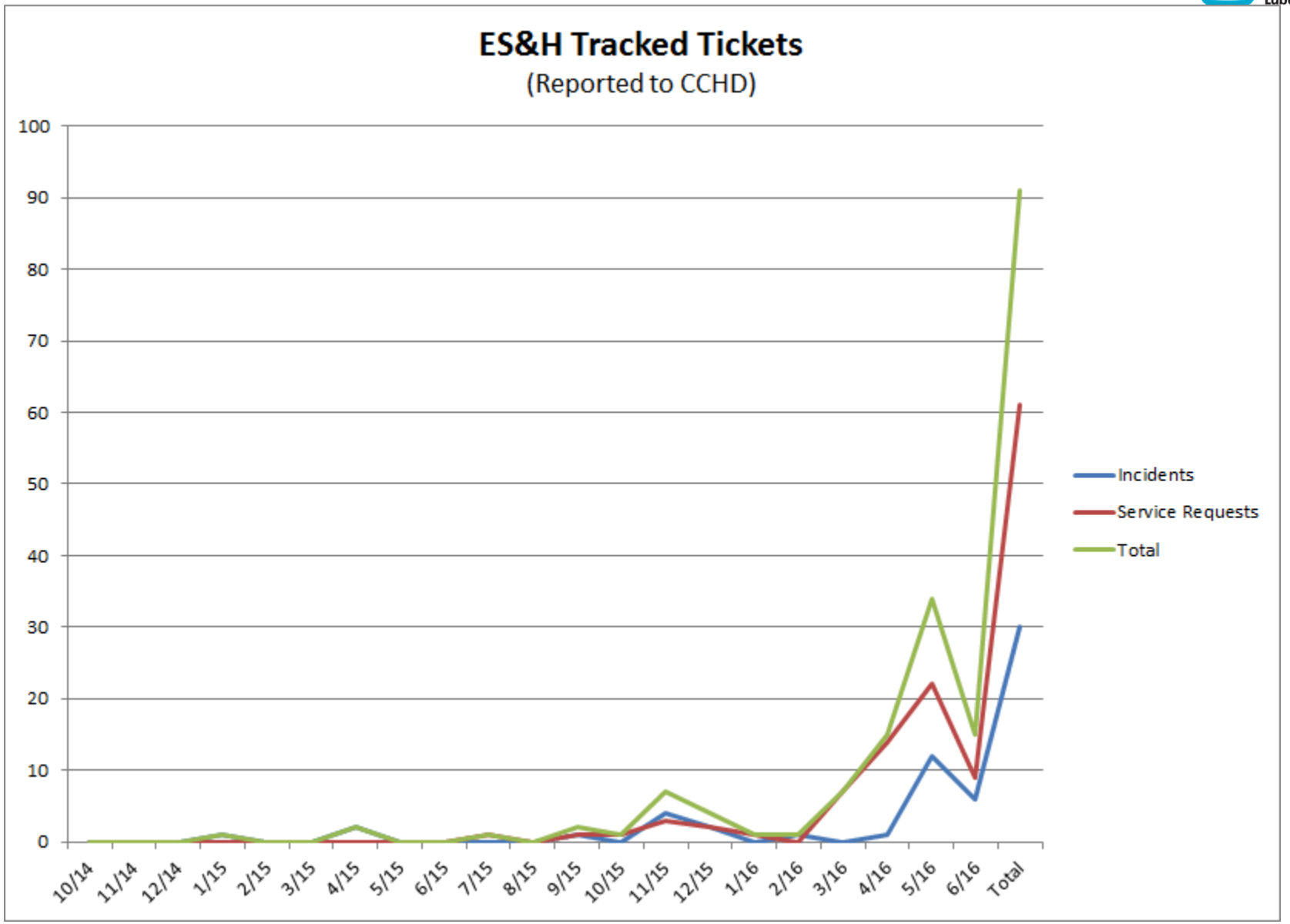
Establishing OLAs with key supporting service – in progress

# Use of the Service Desk

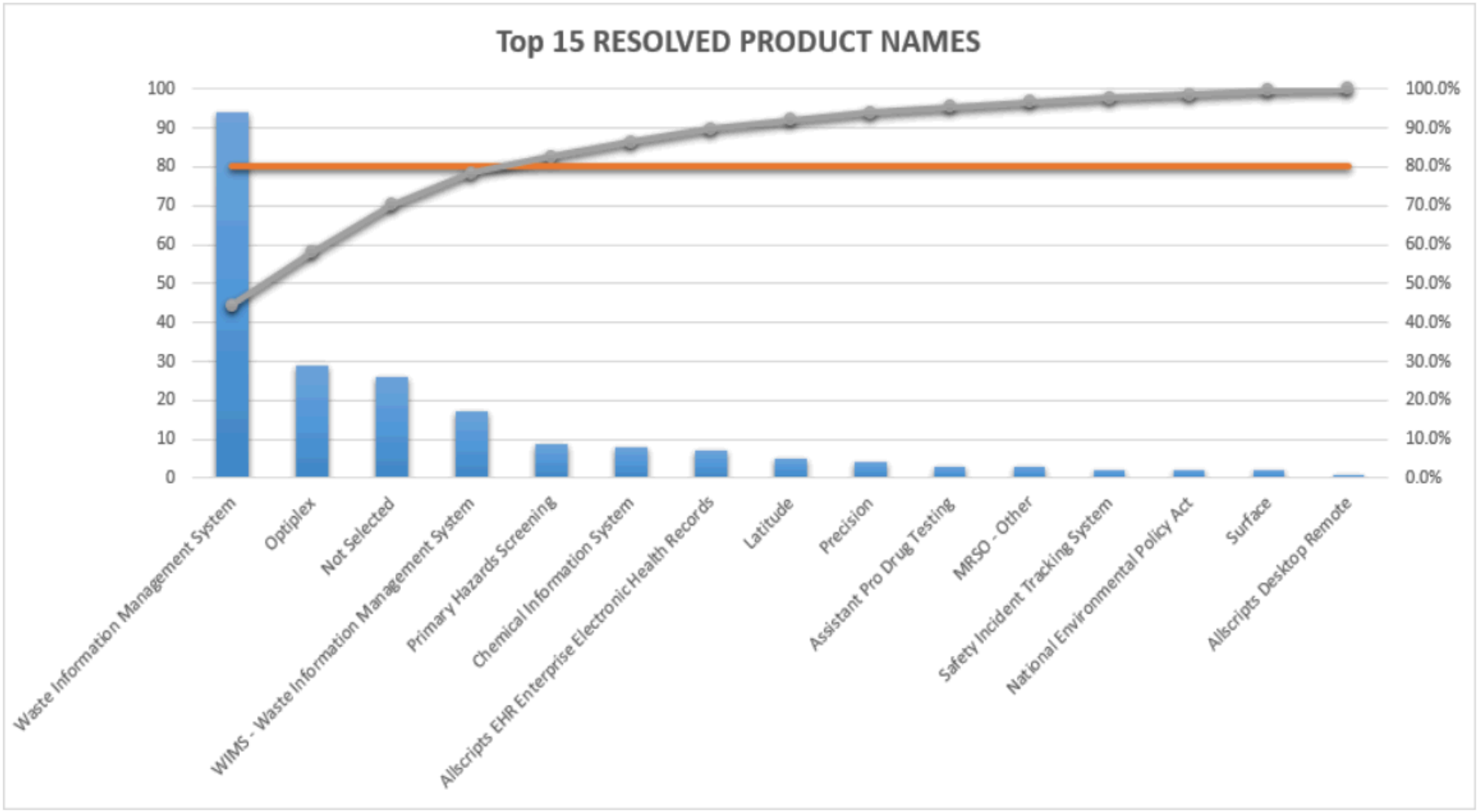
- At the start of the project the IT teams were fielding incidents and service requests through several means and using several tools for tracking
  - Enlisted the customers to start requesting support through the Service Desk
  - IM refresher training for the IT teams

- After a few weeks, the Incident Management data was immediately visible!

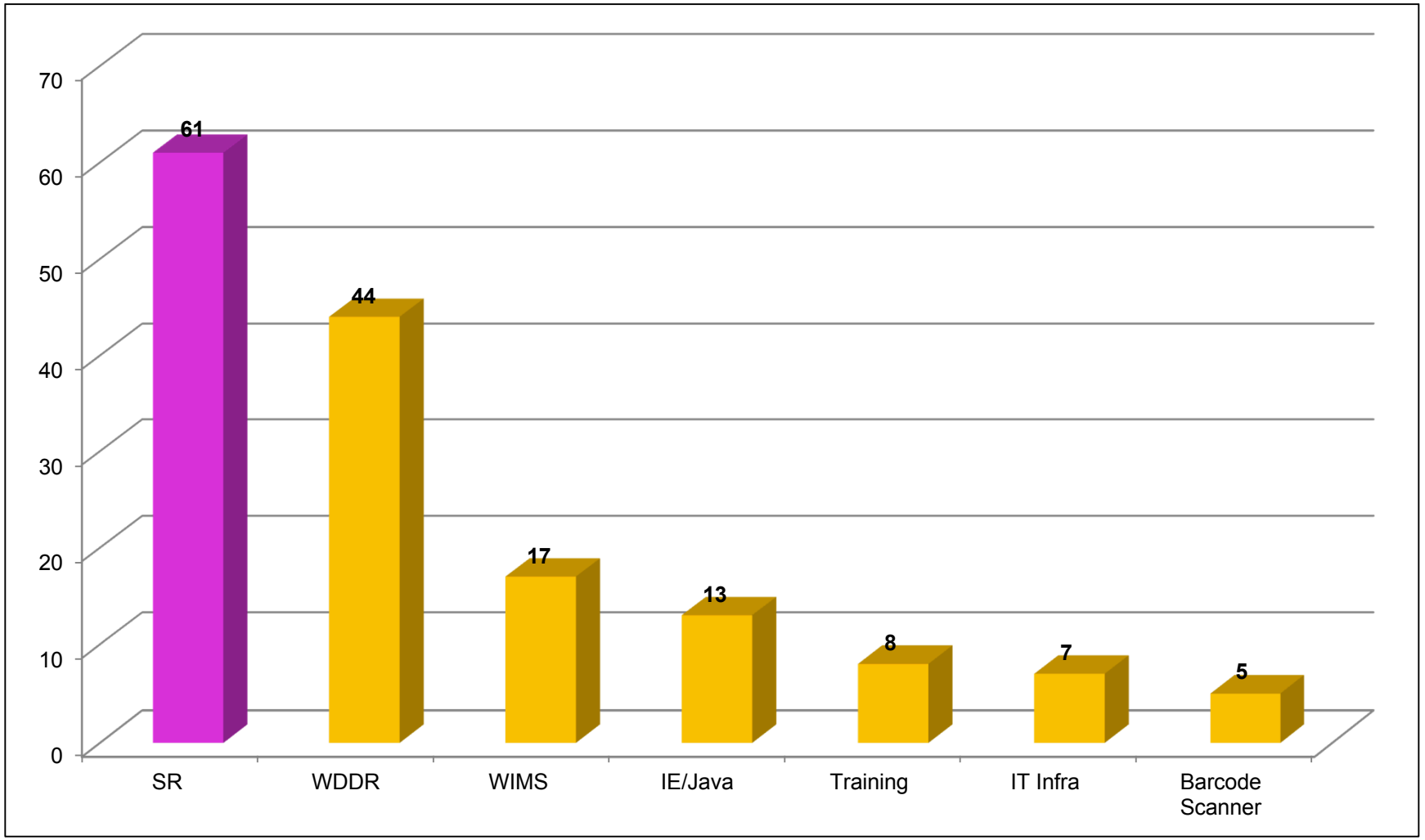
# ES&H Tracked Incidents & Service Requests



# ES&H Top Record Generators



# Drill down into WIMS



# Problem Management

As the teams began formally practicing Incident Management, the data is indicating issues with the Middleware layer across applications.

ES&H service owner is working with Middleware service owner to identify root cause / resolve. A formal problem investigation has been started.

# SACM/Event Management

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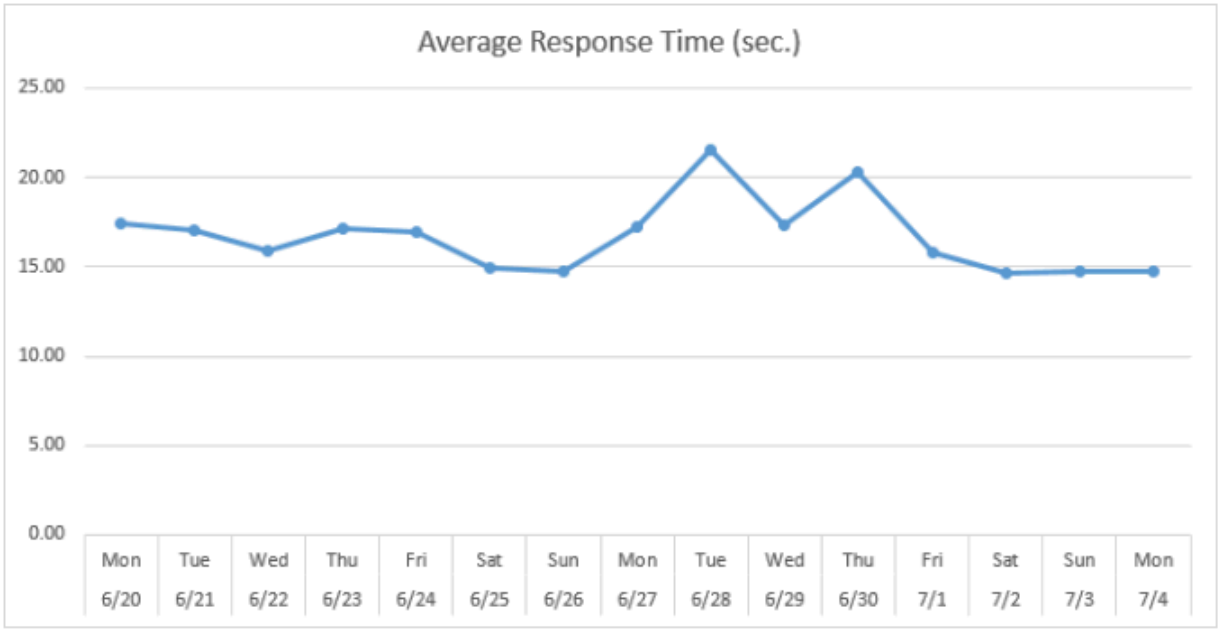
For 2 critical applications:

- Created application models in the CMDB
- Initiated event monitoring (synthetic transactions)




For 1 application

# Working toward Reports/Metrics

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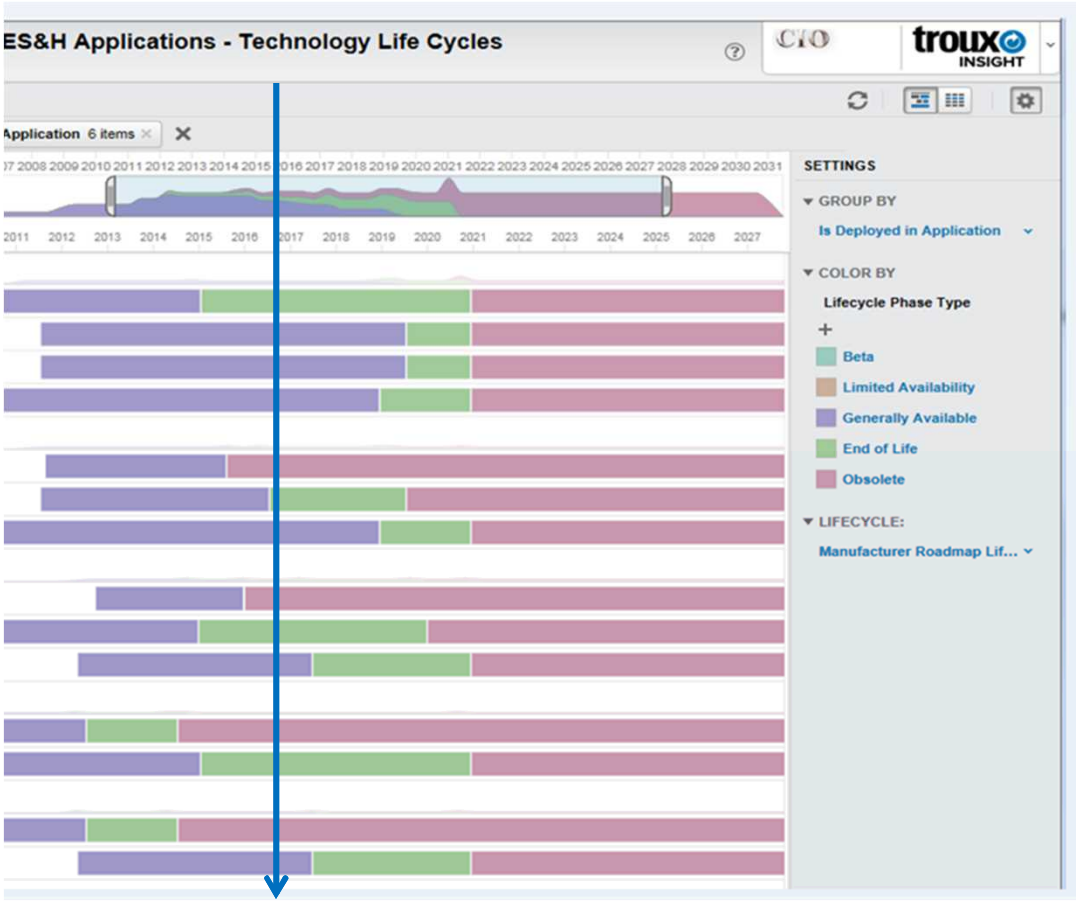
- Adoption metrics
  - Are we practicing the process?
  - How mature are we?
- Data Quality
  - Teams reviewing their own reports regularly
  - Better practice in documenting
- Getting away from counts
  - More robust metrics (i.e. MTTRS), looking at trends
- Making sure the data means something to the service
  - What problem are you trying to solve?
  - Look at functional requirements for the service

# Reviewing the metrics

- When the Service Owner is looking at the data, the Service Team is interested too.
- When teams look at their own data, they better understand why they are practicing the processes and they see opportunities for service improvement
  - The Service Team is asking to be involved in the project
  - Improved quality of how data gets entered into incident records (as a result of reviewing data)
  - Aging report has prompted teams to stay current on closing completed incidents/service requests

# Portfolio Management

- Assigned criticality to all applications
- Data in the Troux toolset has revealed that many applications are operating using older (obsolete) technologies.
- Discussions in progress between IT and the business about where M&O dollars should be spent
- Developed a 3 year investment strategy

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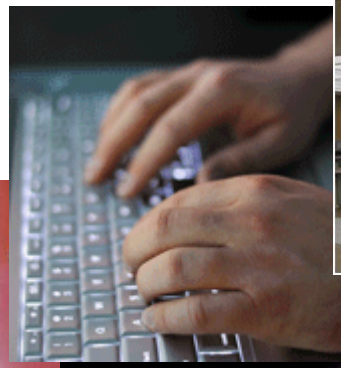
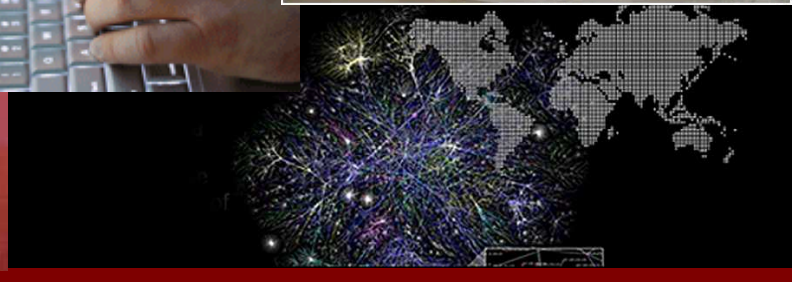
# Extended Results





# Meeting to discuss OLAs

DBAs, Middleware, Server team, Network team, Service Desk, CMDB/Monitoring, Data Center – all together in one room discussing how we can coordinate service for customer-facing ES&H!

**-----GREAT DISCUSSION!-----**

- Establishing common OLAs
- OLAs between enabling services
- Sharing existing OLAs
- Lean OLAs
- Go forward with 2 enabling services (DBAs & Middleware)
- DBAs have re-evaluated how they conduct internal business; they are re-working their OLAs

# More Extended Results

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## Service Desk

- Our application teams aren't confident with using the Service Desk as a partner (several reasons)
- The Service Desk is improving service as a result of feedback from this project

## Event Monitoring change in prioritization

- Original priority – conversion from old system to new system
- Perspective changed  with this project – start measuring from a customer perspective rather than the backend perspective
  - Step 1 – can I get to the application?
  - Step 2 - User interaction w/the application (script modeling)

## Extending the ideas to other services

HR, Financial, Supply Chain, Corporate Governance, ES&H

- The senior manager is excited to have all of his services following this model and is already working in this direction

# Lessons Learned (so far)

- We do not have standard support hours across services
- SLA and OLA templates may need to be leaned
- Some tool changes would help with usability
- Our ITSM processes need to continue with CSI efforts
- Need to develop a methodology for extending to other services
- Required ownership, willingness and resolve of applications and infrastructure management


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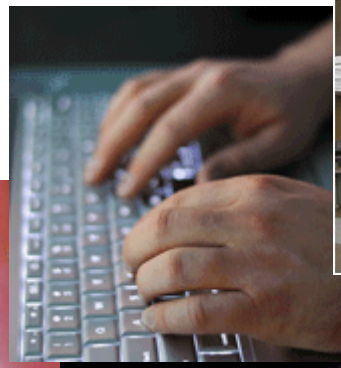
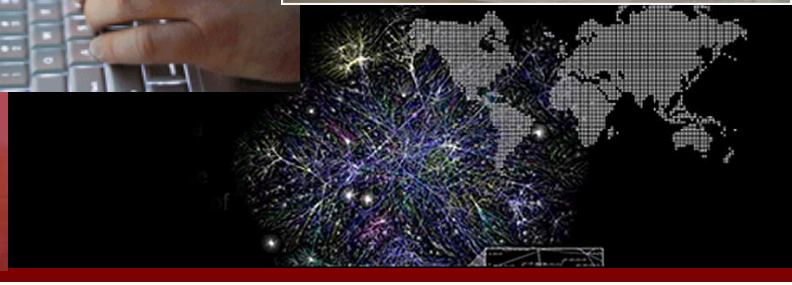
# Next Steps





# Processes & Services

- Begin using the OLAs
- Begin the formal practice of Change Management with ES&H
- Keep working toward fully practicing end-to-end service management
  - Assisting the enabling services to mature
  - Create a full service model in the CMDB
  - Being able to identify issues that affect the end customer regardless of where it occurs in the technical stack
  - Position ourselves to get more proactive
- Mini CSI project
  - Identify targeted improvement areas for the service
  - Measure, implement improvements and then measure again
- Quantify the gains for the mission teams
- Document the path and plan forward to rollout the E2E pilot to other core services.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# Questions?