

# Knowledge Management at Goddard

1. KM Strategy
2. KM Architecture
3. Action Components
4. Research Questions

UMD  
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# Why KM is Important

- ✦ Changing Demographics
- ✦ Cutting Edge
- ✦ Knowledge Mitigates Risk
- ✦ Public Mission
- ✦ The President's Management Agenda directs us to pay attention to knowledge management.

“Knowledge management systems are just one part of an effective strategy that will help generate, capture and disseminate knowledge and information that is relevant to the organization's mission.”

The President's Management Agenda

# NASA KM Strategic Goals

- ☀ To sustain NASA's knowledge across missions and generations
  - ☀ KM will identify and capture the information that exists across the Agency
- ☀ To help people find, organize, and share the knowledge we already have
  - ☀ KM will efficiently manage NASA's knowledge resources
- ☀ To increase collaboration and to facilitate knowledge creation and sharing
  - ☀ KM will develop techniques and tools to enable teams and communities to collaborate across the barriers of time and space



# Strategic Alignment of KM Architecture

## Strategic Goals

Generate, communicate, & share knowledge internally and externally

Ensure a vital workforce and promote human capital.

## KM Goals

Capture share and generate knowledge to stimulate innovation and achieve results and mission success

Improve productivity, by embedding KM processes into daily work activities

Increase collaboration for expanding partnerships and generating new work

Increase a sense of community for continued people retention

## KM Architecture

Systematically record critical knowledge

Create a unified knowledge network to find knowledge.

Build & nurture a knowledge sharing culture

## KM Components

1. Building Center Document Management and Archiving Process
2. Connecting Center Knowledge Bases with Search and Index Capability
3. Establishing partners at Universities to build at the leading edge of tools and processes
4. Building Forums to Share Knowledge on-line, real time and across projects
5. Equipping project personnel with KM skills and tools



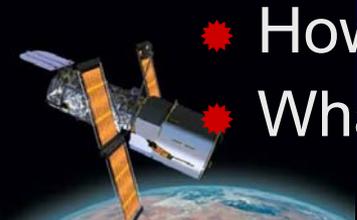
# Knowledge Sharing Gaps

- ★ Legacy systems are limited in scope and are generally not scalable
  - Over reliance on direct face to face contact
  - Tend to function within project/program circles and not across enterprises or centers
- ★ New generation of workforce is highly IT and computer literate but legacy knowledge sharing behaviors are not built around these platforms
- ★ Legacy systems are not self-sustaining so that as the projects wind down, the knowledge sharing activities wind down and knowledge networks are dropped.
- ★ Legacy systems are not reproducing as the workforce matures and the informal systems decay with departures



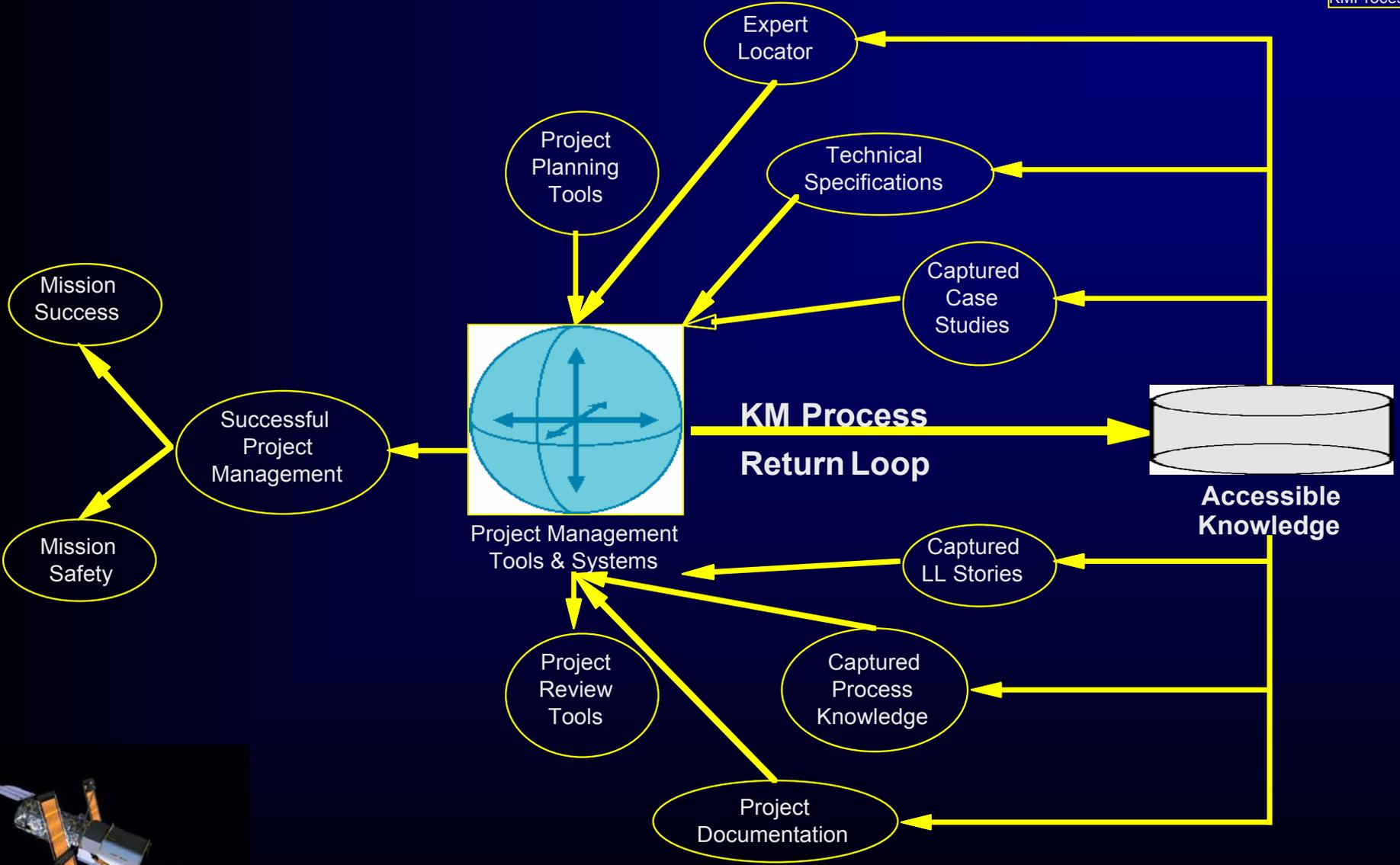
# KM Effectiveness is NOT Measured by Degree of Tool Deployment

- ✦ It's raining dictionaries and shovels
  - ✦ Throwing tools does not help but tools are a necessary part of the solution
  - ✦ People adopt tools when a need for them is perceived
- ✦ Change the hunting metaphor
  - ✦ We are not “capturing” knowledge after all it's usually connected to somebody
  - ✦ We are cultivating knowledge by feeding and caring for its hosts to make knowledge more useful
- ✦ Getting people to see the value of the collective
  - ✦ How did people come to use libraries?
  - ✦ What is the value proposition of a library to society?



KMProcess

# KM Builds a Knowledge Return Loop



# Contents of Library & Knowledge Bank

## ☀ Library

- ☀ Books
- ☀ Journals
- ☀ Papers
- ☀ Speeches
- ☀ Photographs
- ☀ Oversize
- ☀ Historic Documents
- ☀ Maps

## ☀ Knowledge Bank

- ☀ Text Files
- ☀ Digital Images
- ☀ Video
- ☀ CAD Drawings
- ☀ Web Archives
- ☀ Captured Searches
- ☀ Semantic Links
- ☀ Datasets



# Services of Library & Knowledge Bank

## ☀ Library

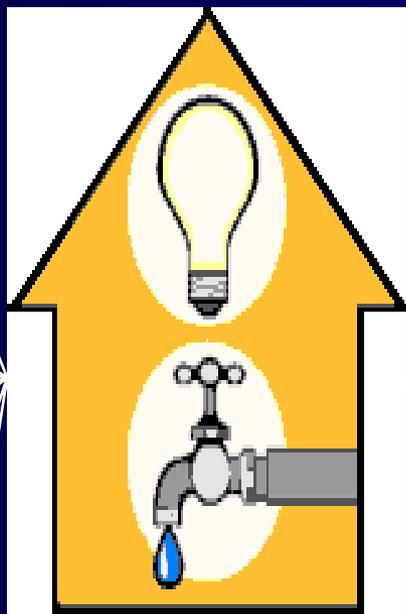
- ☀ Reading Room
- ☀ Loan Privileges
- ☀ Filing System
- ☀ Copying Services
- ☀ Reference Librarian
- ☀ Browsing Periodicals
- ☀ Attractive Knowledge

## ☀ Knowledge Bank

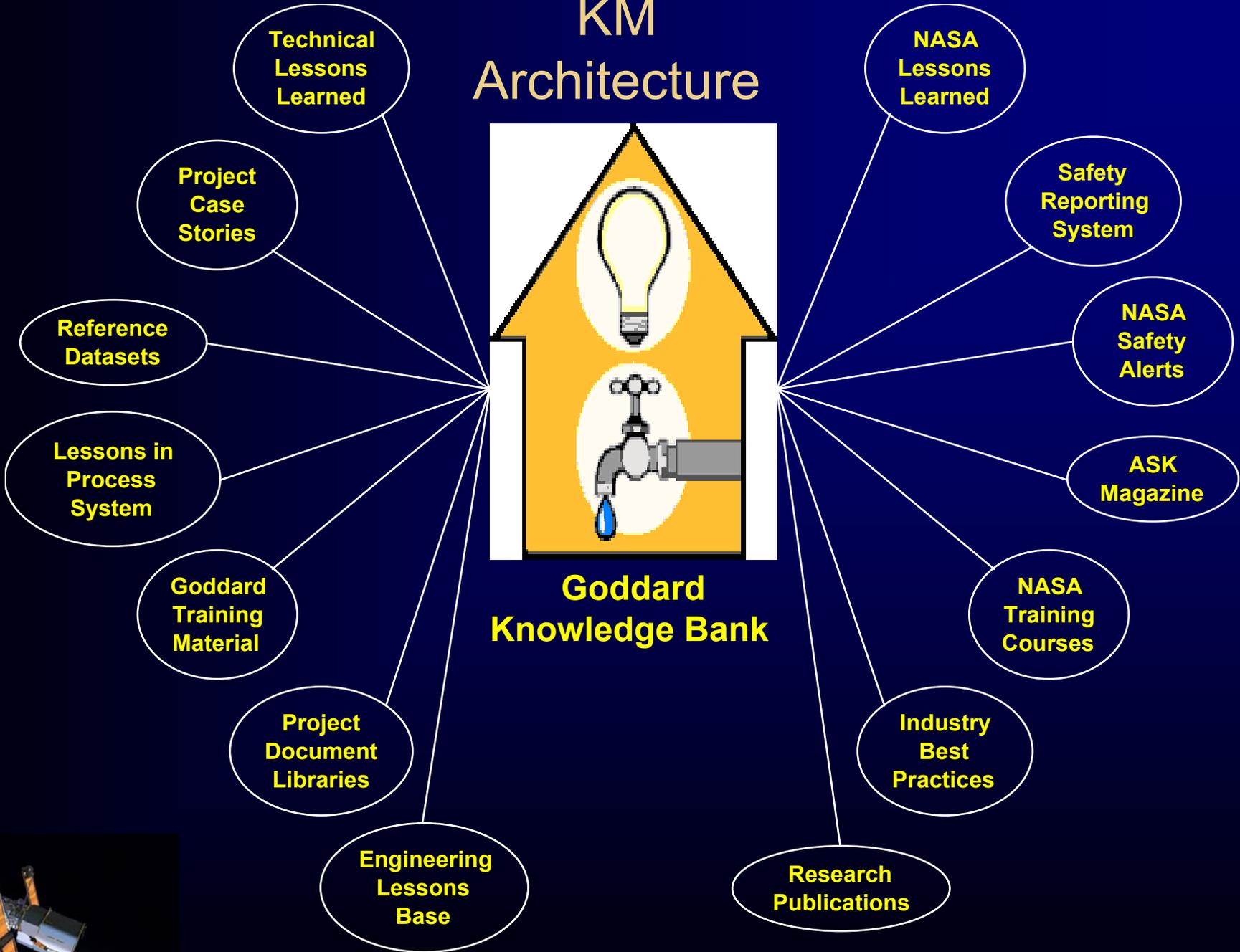
- ☀ Access Points
- ☀ Access Control
- ☀ Search Engines
- ☀ Linking Capability
- ☀ Intelligent Agents
- ☀ Browsing Site Maps
- ☀ Attractive Portals



# KM Architecture



## Goddard Knowledge Bank



# Goddard Has a Good Start

## ☀ ***Knowledge Management Architect (KMA)***

The role of the KMA is to develop the approach and set priorities across the center for implementing the changes needed to build an effective and efficient knowledge management system. The KMA is equal parts champion, advocate, educator and planner of KM at Goddard.

## ☀ ***Knowledge Management Working Group (KMWG)***

The purpose of the KMWG is to communicate, promote and coordinate continuous and sustained improvements in Knowledge Management at Goddard; and to ensure the appropriate visibility of KM-related achievements and challenges across the Center.



# Goals of the KM Office at GSFC

- ✦ Increase the Effectiveness and Efficiency of Knowledge Use at GSFC
- ✦ Craft and communicate a clear vision and plan for KM at GSFC: the need, the means & the goal
- ✦ Help equip with the necessary tools
  - ✦ Organization
    - ✦ Processes and policies to support KM
    - ✦ Rewards and performance evaluations
  - ✦ IT Infrastructure
    - ✦ Easy, secure access and search
    - ✦ Simplified documentation and storage
- ✦ Help transition the workforce
  - ✦ Model and walk the KM talk
  - ✦ Demonstrate the Value



# Knowledge, People & Value

## ☀ Assets

- ☀ What you gather
- ☀ What you learn

## ☀ Actors

- ☀ Owners & Hosts
- ☀ Doers & Builders

## ☀ Application

- ☀ Search & Presentation
- ☀ Appeal and Relevance

## ☀ Knowledge

- ☀ Recording & Storage
- ☀ Archives/Preservation

## ☀ People

- ☀ Cooperation to Share
- ☀ Motivation to Learn

## ☀ Value

- ☀ Access & Availability
- ☀ Utility and Application



# KM Actions at Goddard

- ✦ Knowledge Preservation Projects
  - ✦ Project Library Documents
  - ✦ Project Legacy: Telling the Story
- ✦ Electronic Access
  - ✦ Goddard Core Metadata
  - ✦ Authority and Control of Access
- ✦ Knowledge Sharing Forums
  - ✦ Capturing Events on Digital Video
  - ✦ Webcasting OnSite Seminars
- ✦ Tracking Knowledge Nuggets
  - ✦ Action Process for Knowledge Nuggets
  - ✦ Internal Availability of Lessons in Process



# KM Change Approach at Goddard

- ✦ Find Good Stuff and Celebrate It
- ✦ Work with Willing Projects and Leaders
- ✦ Demonstrate Value of the Collective
- ✦ Build on People's Desire for Legacy
- ✦ Make the System Intuitive
  - ✦ Works within existing project processes
  - ✦ Works as part of daily individual work flow
- ✦ Design Supporting Policies as Needed



# KM Research Opportunities

1. Knowledge Systems
2. Human Perceptions
3. KM Research Ideas



# Control, Systems and People



Management seeks to control resources toward organizational goals within the context of human collective effort to achieve those goals.



# Understanding Knowledge Systems

- ✦ Social Networks in Organizations
- ✦ Internal and External Knowledge Markets
- ✦ Knowledge Currency & Valuation
- ✦ Knowledge Flow Control
- ✦ Validation and Accuracy Indicators
- ✦ Search Motivators
  - ✦ Efficacy of Systems
  - ✦ Saliency of Knowledge



# Perceptions of Knowledge

- ☀ People as an input variable
- ☀ Perceptions filled with noise

Personal Knowledge Strategies are  
Determined by Organizational  
Members' Implicit Theory of  
Knowledge Utilization.



# Open-Sharing Environment

- ★ What creates an open sharing environment?
  - ★ What shows people what to share?
  - ★ What equips people how to share?
  - ★ What motivates people why to share?



# Organizational Depth Perception

**If people have a good grasp of what the organization is all about they will be more likely to openly share and communicate with each other.**

I can see how what I know matters to others.



# Communication Satisfaction

**If people are satisfied with the communication systems and processes in place they will be more likely to openly share and communicate with each other.**

I am hearing the whole story, and if I take the time to speak something happens.



# Employment Game Score

**If people perceive the organizational employment game to be winnable they will be more likely to openly share and communicate with each other.**

Rewards go to those who work hard and play straight.



# Knowledge Management Questions

- ★ How Can We Measure Knowledge Use?
- ★ How Can We Increase Knowledge Use?
- ★ What Are the Key Knowledge Resource Inputs?
- ★ How Do Organizational Boundaries Determine Internal Knowledge Markets?
- ★ How Do Knowledge Workers Perceive the New Social Contract?
- ★ What are the Inhibitors of Knowledge Sharing?

